VICTORIA GOLD CORP

EAGLE GOLD PROJECT

WATER LICENCE QZ14-041-01

QUARTZ MINING LICENSE QML-0011

2021 ANNUAL REPORT

APRIL 2022

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1 INTRODUCTION

Victoria Gold (Yukon) Corp. (VGC) currently operates the Eagle Gold Mine in central Yukon. The Eagle Gold Mine ('the Project') is located 85 km from Mayo Yukon using existing highway and access roads (Figure 1.1-1). The Project involves open pit mining and gold extraction using a three-stage crushing process, heap leaching, and a carbon adsorption, desorption, and recovery system over the mine life (Figure 1.1-2).

The Project is being operated in accordance with the terms of the Type A Water Use Licence (WUL) QZ14-041-01 and the Quartz Mining License (QML) QML-0011. The reporting period for this Annual Report is from January 1 to December 31, 2021 and serves to report on both WUL and QML conditions and associated management plans.

1.1 Concordance Table

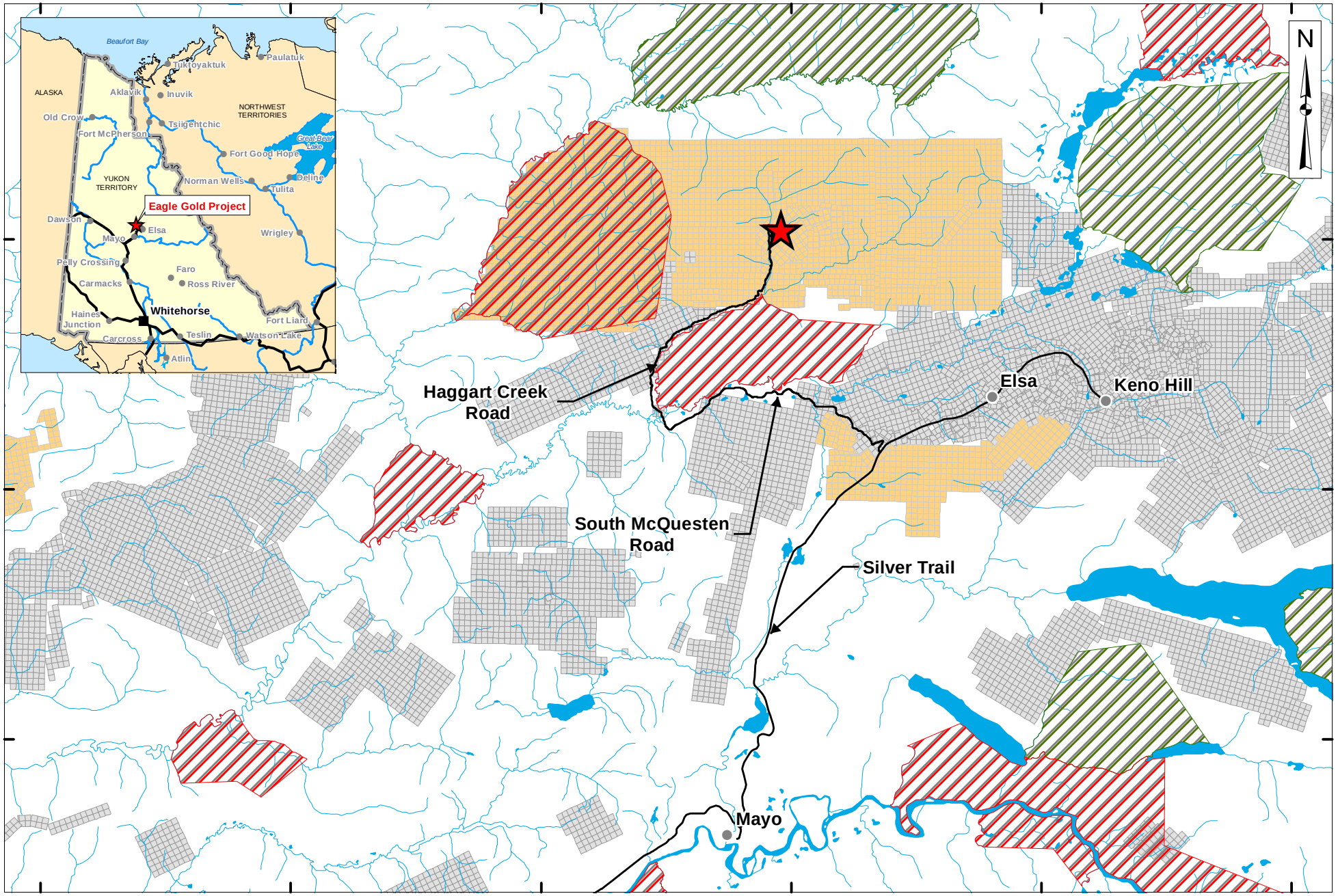
During 2021, VGC was requested by the Department of Energy, Mines and Resources - Mineral Resources Branch to provide a concordance table showing the QML-0011 Schedule D requirements and where they are located in the annual report to support their reviews. Table 1.1-1 below is intended to satisfy this request.

Table 1.1-1: QML-0011 Table of Concordance

Section	Requirements from QML-0011	Relevant Section
(a)	a summary of construction activities associated with the Undertaking;	2.1.1
(b)	a summary of mining activities;	2.2
(c)	a summary of proposed development and production for the coming year;	2.4; Table 2.4-1
(d)	a map showing the status of all structures, works, and installations associated with the Undertaking;	Figure 1.1-3
(e)	the total amount of ore and waste removed from the open pit for the year and for the life of the Undertaking;	Table 2.2-3
(f)	the total amount of gold produced and removed from the Undertaking;	2.2.1
(g)	the total amount of waste rock removed from the Undertaking and deposited into each deposit location;	2.2.1, Figures 2.2-1 and 2.2-2; Table 2.2-3
(h)	the total amount of waste rock stored in each waste rock storage facility;	2.2.1, Table 2.2-3
(i)	details respecting any action taken as a result of the recommendations made by the engineer in relation to the inspection referred to in 13.2 of QML-0011;	4.5, Table 4.5-1
(j)	a summary of any updates to estimates of ore reserves and the life of the mine, including reserve category, tonnage and grade;	2.2.2
(k)	the total amount and the average grade of ore stockpiled;	2.2.1, Table 2.2-1
(l)	the remaining reserve life of the mine;	2.2.2, Table 2.2-3
(m)	results and interpretations from all QA/QC programs for the site;	2.3, 3.1.2, 3.2.2, 3.4.2.1, 3.8.2, App. A and D
(n)	a summary of heap leach facility construction including:	
(n) i.	the total amount and the average head grade of ore placed on the heap leach pad for the year and the life of the Undertaking;	Table 2.2-2, Table 2.2-3
(n) ii.	the mass/volume and end of year configuration of the ore lifts placed in the heap leach facility with the identification of any final benches or slopes achieved during the year;	2.2.1, Table 2.2-1, Figure 2.2-6
(n) iii.	the records of ore properties for ore placed on the heap and records of any of agglomeration conducted; and	App B
(n) iv.	report on the metallurgical performance of the heap leach facility.	Figure 2.2-7
(a)	a summary of the programs undertaken for environmental monitoring and surveillance as outlined in the *Environment Monitoring, Surveillance and Adaptive Management Plan* and	3

Section	Requirements from QML-0011	Relevant Section
	the *Wildlife Protection Plan*, including an analysis of these data and any action taken or adaptive management strategies implemented to monitor or address any changes in environmental performance;	
(b)	a summary of operating procedures for cyanide-related tasks and their implementation, including the review of proposed process and operational changes and modifications deemed necessary for potential impacts on personnel health and safety and the incorporation of personnel protection measures;	5, App. U and V
(c)	a summary of all safety measures taken (signs, etc.) to identify the presences of cyanide to all personnel;	5.2.4, 5.2.5
(d)	a summary of all tests and calibration records for HCN monitoring equipment;	5.2.4, App. V
(e)	a summary of the results of the waste rock quality assurance/quality control monitoring for the past year;	3.5.2.2, 4.2.2
(f)	a summary of invasive plants that have been identified on site and measures taken to control or remove invasive plants;	3.9.2
(g)	a summary of ambient air quality monitoring and modelling (which includes emissions related to the gold recovery process) and mitigation measures taken;	3.8.2
(h)	a summary of spills and accidents that occurred at the site and measures taken respond to any spills or accidents;	3.12, App. R
(i)	a summary of the level of traffic, access control issues, wildlife incidents and other accidents, and any upgrade or maintenance work planned for the upcoming year;	3.13
(j)	a summary of sound-levels associated with blasting activities;	3.11.1
(k)	a summary of any site improvements undertaken to address sediment and erosion control;	3.14.2; Fig 3.14-1
(l)	a summary and interpretation of humidity cell or other geochemical test undertaken on materials on site, including:	
(l) a.	geochemical characterization of the expanded open pit, including kinetic testing to predict metal leaching potential;	3.5.1, 3.5.2.3, 3.5.3
(l) b.	assumption and conclusions of geochemical prediction and the effectiveness of mitigation measures;	3.5, 3.2.5.1
(l) c.	the segregation of waste rock based on metal leaching potential; and	3.5.1; 3.5.2.2
(l) d.	results of long-term column tests to study the effects to stability and permeability of the heap leach facility;	2.6, 4.3, Section 2.2.1.3 of Appendix E
(m)	a summary of cyanide release or exposure that occurred at the Undertaking, including:	
(m) i.	any hospitalization or fatality related to cyanide;	5.2.4; 5.2.8
(m) ii.	the nature of release and the response or remediation required; and	5.2.3; 5.2.6, App. R
(m) iii.	any exceedances to cyanide limits in permits or authorizations.	5.2.6
(a)	a summary of any heap leach, waste rock, or open pit stability incidents;	4.1.1, 4.2.2, 4.3.1 and App. T
(b)	a summary of data collected to date as part of the Physical Monitoring Program;	4
(c)	details of results, including data collected, for the Physical Monitoring Program;	4, App. Q
(d)	a summary report on the performance of engineered structures in service during the reporting year including:	
(d) a.	any operational deficiencies of failures to achieve operation requirements;	4.5, App. Q
(d) b.	record of any leakage into the LDRS of the HLF;	2.6.2, Fig. 2.6-1
(d) c.	a detailed record of any major maintenance work carried out;	2.1
(d) d.	plan to conduct major maintenance work for the following year; and	2.4, Tables 4.3-1 and 4.5-1
(d) e.	status report on any backup equipment and supplies for emergency management of the heap leach facility including records of exercising such equipment	4.3.2
(a)	any temporary closure or permanent closure that has occurred during the year;	n/a
(b)	a summary of activities related to care and maintenance of the Undertaking, including any temporary closure activities if applicable;	n/a
(c)	a summary of progressive and ongoing reclamation activities;	6.2

Section	Requirements from QML-0011	Relevant Section
(d)	a summary of proposed development and production and reclamation activities for the coming year; and	2.4
(e)	a summary of reclamation research and results.	6.1
(f)	A hazardous materials inventory and description of hazardous material storage.	6.2
(a)	a summary of action taken by the Licensee with respect to development and implementation of a joint committee that will confirm socio-economic indicators, reporting and responding to monitoring results.	7



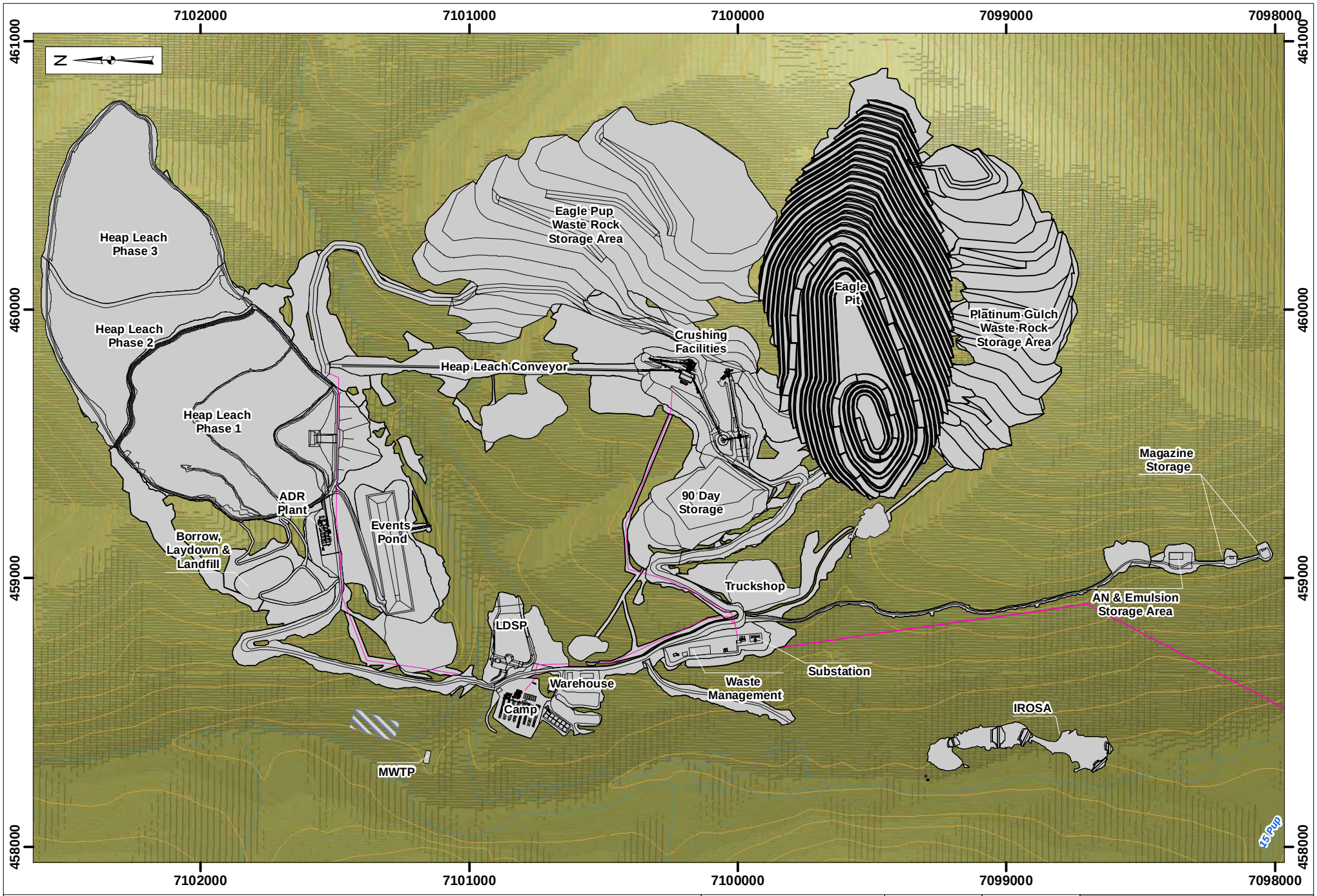
Legend:

- Eagle Gold Project
- Victoria Gold Claims
- Other Claims
- Town / Village
- Road
- Watercourse
- Category A Settlement Land
- Category B Settlement Land

VICTORIA GOLD CORP

0 3 6 12
Kilometres

Projection:	Drawn By:	EAGLE GOLD PROJECT YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	Project Location
2020/05/01	1.1-1	



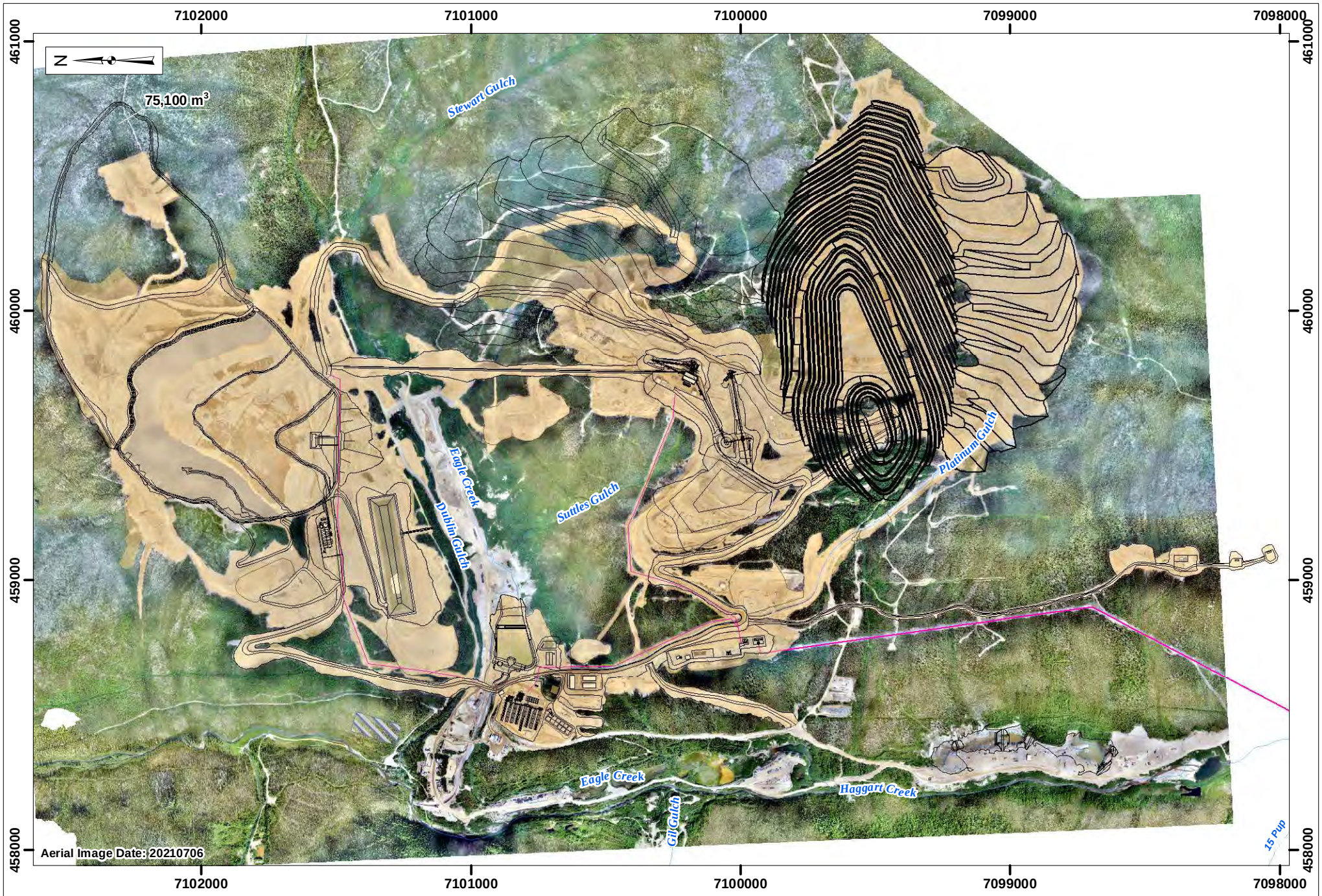
Legend:

- Facility Footprint & Disturbed
- Reserved
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent

VICTORIA GOLD CORP

0 125 250 500
Metres

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 UTM Zone 8N	HC	
Date:	Figure:	Site General Arrangement
2022/02/17	1.1-2	



Legend:

- Current Construction and Mining Impacted Areas
- Facility Footprint
- Reserved
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent

VICTORIA GOLD CORP

0 125 250 500
Metres

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 UTM Zone 8N	HC	
Date:	Figure:	Status of Undertaking
2022/03/30	1.1-3	

2 SITE ACTIVITIES

2.1 Overview of Construction and Maintenance

During 2021, the primary construction activities that occurred on pre-existing facilities included the ongoing clearing and development of the HLF (additional overliner drain fill and PLS pipe installations in Phase 1B, and surface preparations in Phase 2), the continued development of the rock drain for the Platinum Gulch Waste Rock Storage Area (PG WRSA), completion and tie in of Ditch B, maintenance on the LDSP forebay, and installation/improvements of the Run of Mine (RoM) culverts.

In addition to work on pre-existing facilities, construction also commenced on new facilities. Construction was initiated on the Eagle Pup (EP) WRSA rock drain, the maintenance truck shop and the Mine Water Treatment Plant (WTP) pad.

Construction reports for completed Engineered Structures as defined in QZ14-041-1 (which for 2021 includes Ditch B construction, the LDSP, and the Phase 1b HLF area) are in included in Appendix A.

Table 2.1-1 depicts specific construction activities conducted during each month of 2021.

2.1.1 Summary of Construction Activities

Table 2.1-1: 2021 Construction Schedule

Activity	2021											
	J	F	M	A	M	J	J	A	S	O	N	D
LDSP forebay maintenance												
Ditch B liner and rip rap installation												
Heap Leach Facility Phase 1 ODF and PLS Pipe Placement and Phase 2 clearing and contouring												
PG WRSA Rock Drain												
EP WRSA Rock Drain												
ROM Road culvert installations												
Maintenance Truck Shop												
Mine Water Treatment Plant												

2.1.1.1 Lower Dublin South Pond

As a condition of QZ14-041-1, VGC installed a liner system in Q4 2020 (rather than rely on the findings of a hydrogeological assessment) to proactively demonstrate the forebay base has low permeability. No changes to the alignment, berms, or functionality of the forebay was made and whilst the liner installation was completed in 2020 construction was not considered fully finalized as ballast (sand bags) placement on the liner was completed in 2021. During the summer months of 2021 sediment was removed from the ditch outlets and a sediment trap was constructed around the outlets to help mitigate sediment build up in the forebay.



Photo 2.1-1: LDSP Forebay Sandbag Placement - March 11, 2021



Photo 2.1-2: Sediment Trap Operating with the Forebay of the LDSP - July 19, 2021

2.1.1.2 Ditch B

During 2020, Ditch B (from Suttles Gulch to the future EP WRSA rock drain) was shaped in preparation for liner and rip rap installations. By the end of 2020, liner and rip rap was placed from the LDSP forebay to approximately 100m east. In Q1 of 2021, Ditch B construction continued with the installation of the liner and placement of rip rap to armour the ditch to connect to the toe of the EP WRSA rock drain. Ditch B liner placement and armoring continued in Q1 2021 and was complete by April 2021. The liner installed in the ditch was 2 mm Linear Low-Density Polyethylene (LLDPE) black textured geomembrane. Most of the rip rap used to complete the ditch upgrades was sourced from left over Ditch A rip rap and locally available rip rap sourced from the historic placer workings in the Dublin Gulch valley. The final tie in of Ditch B to the LDSP occurred in May 2021 in preparations for waste rock deposition in the EP WRSA.



Photo 2.1-3: Upper Reach of Ditch B just below the Culvert Connection to the EP WRSA - May 3, 2021



Photo 2.1-4: Lower Reach of Ditch B just below the LDSP Connection - May 4, 2021

2.1.1.3 Heap Leach Facility

During 2020, the installation of the liner system in the HLF Phase 1B area was completed and deemed acceptable by the EOR. IN 2021, installation of pregnant leach solution (PLS) collection piping and ODF placement continued in advance of stacking activities in Phase 1B. The Phase 1B Heap Pad consists of the lined area of the HLF between elevations 990 masl and 1050 masl and includes the perimeter berms along the eastern and western edges of the Phase 1B Heap Pad.

During 2021, grubbing and stripping for organics of a portion of the HLF Phase 2 area was initiated with additional fine grading still to be completed. Trees were removed from the construction zone prior to mid-May to adhere to clearing outside of the nesting bird window. Overburden was then removed during Q3 and Q4 of 2021 in preparations for liner placement in 2022. The material was deposited to the west side of the Heap until a failure of the reclamation material stockpile occurred in August 2021. The failure resulted in sediment transport down slope as is described in section 3.13. The incident was mitigated effectively with check dams, berms, sumps, hey bails and silt fences. Remediation and shaping of the stockpile slough occurred late in season to allow for material to freeze. Additional unloading of material and regrading were completed in Q1, 2022 to stabilize the stockpile. Following the occurrence, the remainder of overburden was deposited within the footprint of the Phase 3 of the HLF which is not characterized by steep slopes.

In addition to the clearing and grubbing that occurred throughout 2021, a portion of the Phase 2 main header underdrain and underdrain lateral connections were excavated and prepared for completion following Freshet in

2022. Liner and protective aggregate were installed within the underdrains to support the foundation improvement works.



Photo 2.1-5: Vegetation Clearing Complete within the Phase 2 HLF Footprint Required for 2022 Construction - May 6, 2021



Photo 2.1-6: Overburden Stockpile Adjacent to Phase 1B of the HLF - August 14, 2021



Photo 2.1-7: HLF Underdrain Installation to Support Foundation Improvements - September 16, 2021

2.1.1.4 PG WRSA Rock Drain

Construction of the PG WRSA Rock drain was ongoing throughout the reporting period. Specific sections of the rock drain were placed in advance of waste rock dumping as access was developed from open pit ramp outs in accordance with the mine plan. Approximately 275 m of PG WRSA Rock Drain was built in 2021 requiring the placement of about 60,000 m^3 of waste rock material deemed appropriate for the use based on the design criteria and material testing. Approximately 100 m of rock drain development remains outstanding (from 0+500 to 0+600 m) which would finalize the construction

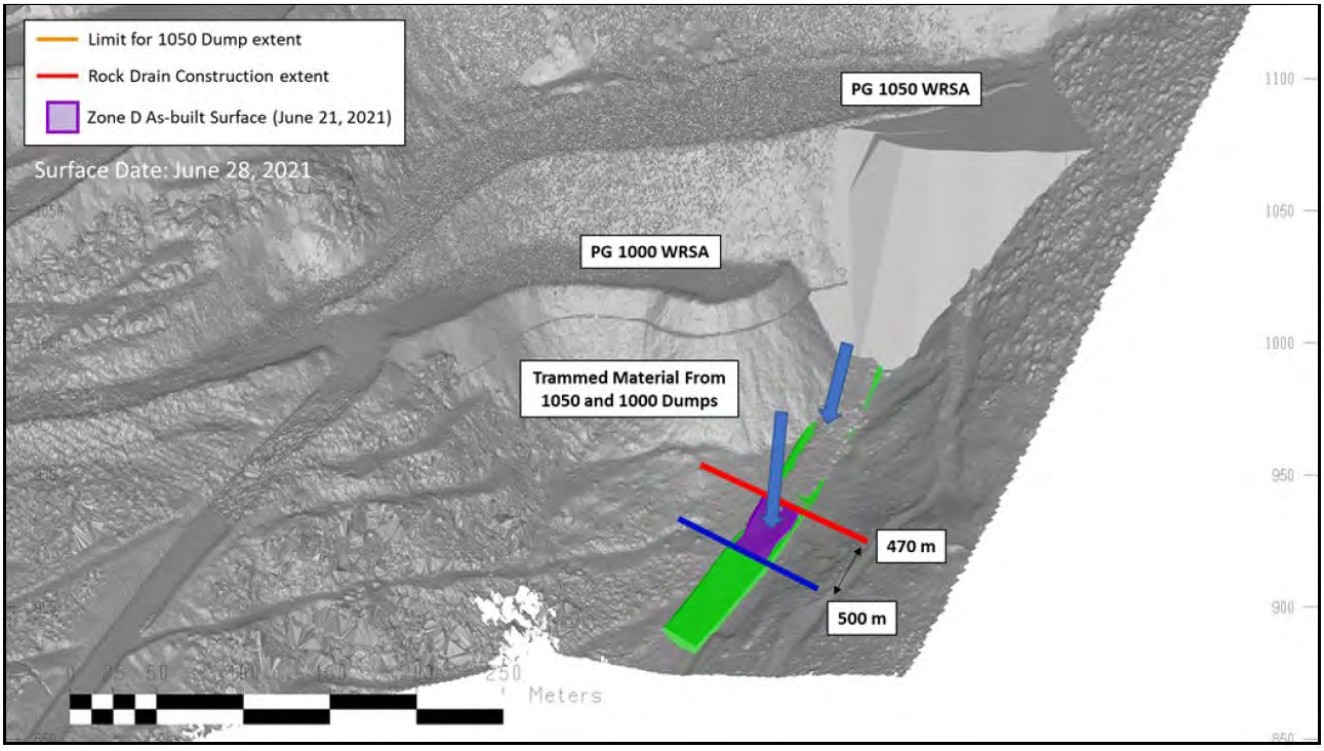


Photo 2.1-8: PG WRSA Rock Drain Development Status - June 21, 2021



Photo 2.1-9: PG WRSA Rock Drain Development - April 27, 2021



Photo 2.1-10: PG WRSA Rock Drain Development - July 2, 2021



Photo 2.1-11: PG WRSA Rock Drain at the Toe of the WRSA - July 3, 2021

2.1.1.5 EP WRSA Rock Drain

Construction of the Eagle Pup WRSA rock drain began in March of 2021. In accordance with the issued for construction design, a dominant (D10) particle size of 0.1 m was placed through selective use of waste rock end dumping. The drain is being constructed out of non-metal leaching, non-acid generating, clean, durable rock resistant to weathering; free from organic matter, frozen soil, snow, ice and overburden soil materials. The design of the EP WRSA follows the minor modification design criteria (Knight Piesold, 2020b)

In 2021 specific sections of the rock drain were placed in advance of waste rock dumping as access was developed from open pit ramp outs in accordance with the mine plan. Approximately 260 m of EP WRSA rock drain was built in 2021 requiring the placement of approximately 57,000 m^3 of construction material deemed appropriate for the use based on the design criteria and material testing. The progress of the rock drain at the end of 2021 is shown below. Progression on the EP WRSA rock drain is part of weekly mine planning and as sections are constructed approval for use and waste rock deposition is sought from the EOR. Waste rock deposition followed initial rock drain placement and began in May 2021.

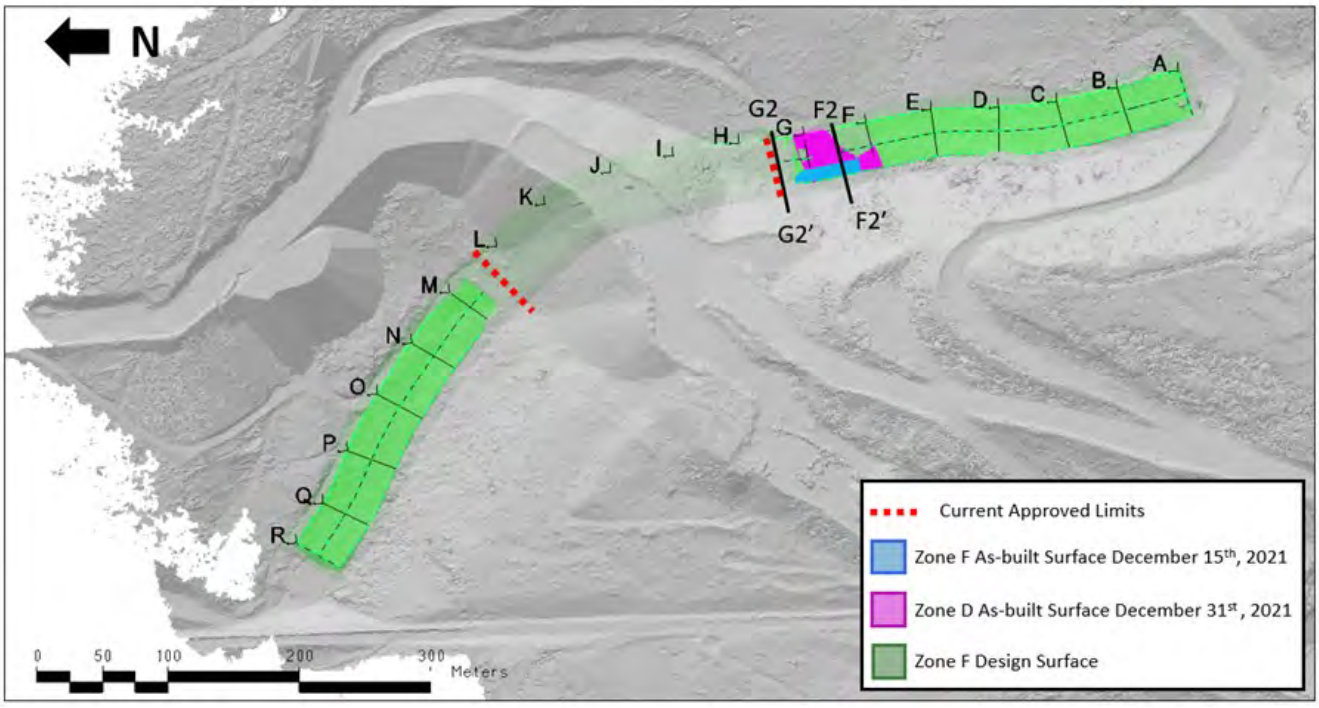


Photo 2.1-12: EP WRSA Rock Drain Development Status - January 7, 2022



Photo 2.1-13: EP WRSA Rock Drain Development Status - August, 2021



Photo 2.1-14: EP WRSA Development Status - October, 2021



Photo 2.1-15: EP WRSA Rock Drain Development Status - November, 2021

2.1.1.6 Run of Mine Road Culvert Installations

Construction and use of the Run of Mine (ROM) Road from the open pit to the HLF commenced in 2020 to support stacking and ore placement operations on the HLF. At year-end 2020, temporary snow fill/ice bridge crossings were being utilized on Dublin Gulch and Stewart Gulch until culvert installations were completed in 2021.

Two permanent culvert crossing were installed in 2021 at Dublin Gulch and Stewart Gulch to support sustained access during the life of the HLF (Figure 2.1-1). Main construction began in April and was complete prior to the onset of Freshet. Water was diverted around the construction location to the original channel down gradient. The culverts were inlaid approximately 0.3m into the ground to prevent the culverts from becoming perched, potentially hindering water transport. Once culvert installation was complete water passage was restored and continued to follow the natural downgradient stream bed. Further extension, armouring and sediment and erosion controls were installed in June and July following the initial construction and installation of the culverts at both crossings. Check dams, spring seeding and shaping mitigated potential sediment transport from the construction. The Dublin Gulch culvert may require extension for potential ROM road upgrades in 2022.

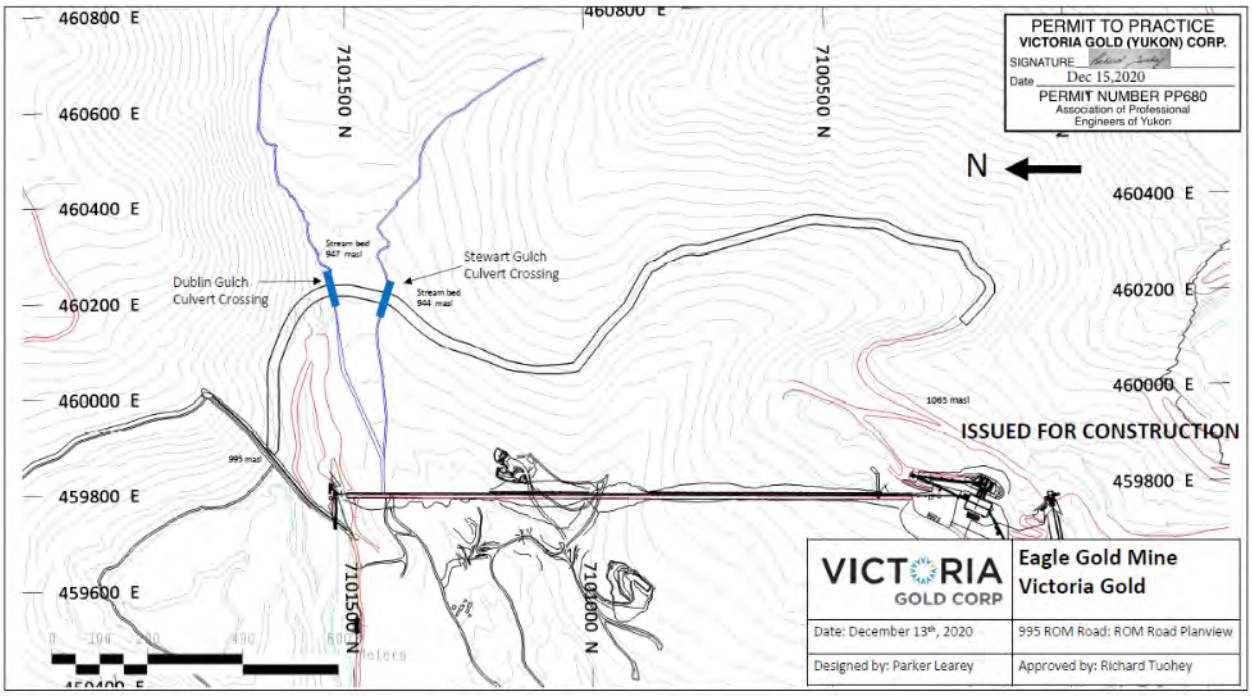


Figure 2.1-1: Layout and Location of the Dublin and Stewart Gulch Culvert Crossings



Photo 2.1-16: RoM Road Culvert Installations - April 4, 2021



Photo 2.1-17: Rom Road Culvert Extension Installations - July 8, 2021



Photo 2.1-18: Rom Road Culvert Extension Installations Complete - July 13, 2021

2.1.1.7 Maintenance Truck Shop

Construction on the maintenance truck shop started in May 2021 with bulk earthworks and concrete installations. The construction was managed by JDS and is ongoing. A pad for the building was cleared, east of the incinerator beside the entrance to the Mine. The 56m x 26m pre-engineered building contains an inbuilt crane system, and 5

bays including a wash bay and tracked vehicle bay. The external structure of the building was completed in 2021 along with the major infrastructure including the crane, and maintenance bays inside the facility. Power generation for the facility is still being finalized with current power supply sourcing from temporary generators. Permanent power hookup and completion of the facility is scheduled for 2022.



Photo 2.1-19: Maintenance Truck Shop Pad Clearing and Grading - May 6, 2021



Photo 2.1-20: Maintenance Truck Shop Building Erection - September 16, 2021

2.1.1.8 Mine Water Treatment Plant

Preparations to construct the Mine Water Treatment Plant (MWTP) began in December 2021. Long lead items including the polymer tanks, clarifiers, thickeners and filter units were procured to ensure construction timelines are met in 2022. Clearing and leveling of the WTP pad also began in December. Construction of the facility is ongoing and the facility is currently scheduled for commissioning in Q3/Q4 of 2022.



Photo 2.1-21: Mine Water Treatment Plant Foundation Works - March 22, 2022

2.2 Overview of Mining

2.2.1 Ore, Waste and Gold Production

For 2021, the total amount of ore and waste mined in the reporting period was 24.5 Mt, of which 9.5 Mt was ore and 15 Mt was classified as waste (representing a strip ratio of 1.57:1 waste to ore). Of the mined ore, approximately 9.2 Mt was stacked on the HLF with an average gold grade of 0.85 g/t. 164,222 ounces of gold was produced and 158,736 ounces were sold. Based on analysis of the mined ore and the HLF metallurgical model, there was an estimated 104,015 recoverable ounces within the mineral inventory (i.e., in solution/stacked ore on the heap, or in broken inventory). The production rates realized in 2021 were below the planned rates provided in the 2020 annual reports for QML-0011 and QZ14-041-1.

Material was removed from Phases 1, 2 and 3 of the pit area during the reporting period. Ore removed from the pit was delivered to the primary crusher and waste rock was sent to both the PG and EP WRSAs. Waste rock material deposited into the PG WRSA was classified by the following six different lithologies:

- Oxidized granodiorite: Pervasive oxidation, relatively continuous throughout the whole rock. Granodiorite may also be altered by sericite/clay but is within the oxide zone. Rock may be friable.
- Altered granodiorite: Dominantly sericite/clay altered granodiorite. Original texture may be obliterated. May see zones of sheared or faulted granodiorite with intense sericitization and few remnant granodiorite particles.
- Unaltered fresh granodiorite: Oxidation weak and restricted to fractures or weakly in vein selvages. Rock is competent and not wholly altered.
- Oxidized metasediments: Hornfels Hyland Group metasediments with whole rock oxidation.
- Fresh metasediments: Hornfels Hyland Group metasediments with no oxidation, may be altered (likely silicified).
- Overburden: Generally colluvium.

The mass and volume of waste rock by lithology delivered to the PG and EP WRSAs in 2021 is depicted in Figures 2.2-1 and 2.2-2, respectively. The configuration of the Eagle pit and the PG and EP WRSAs at the end of 2021 is shown in Figure 2.2-3 and Figure 2.2-4, respectively.

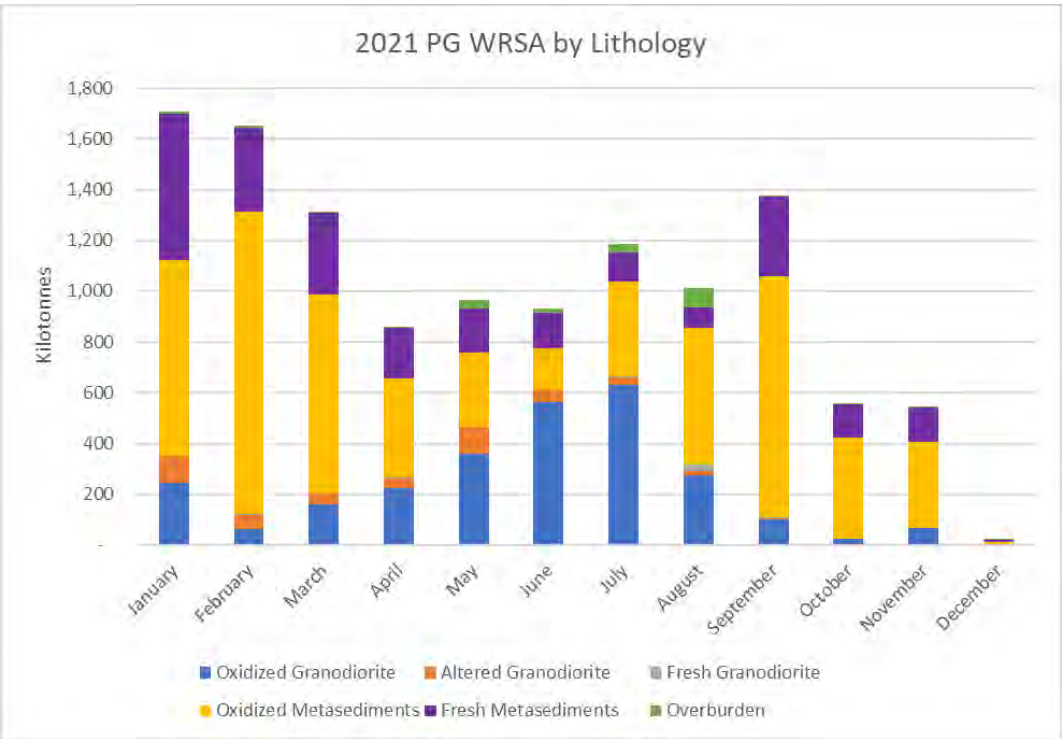


Figure 2.2-1: Waste Rock Deposited in the PG WRSA by Lithology in 2021

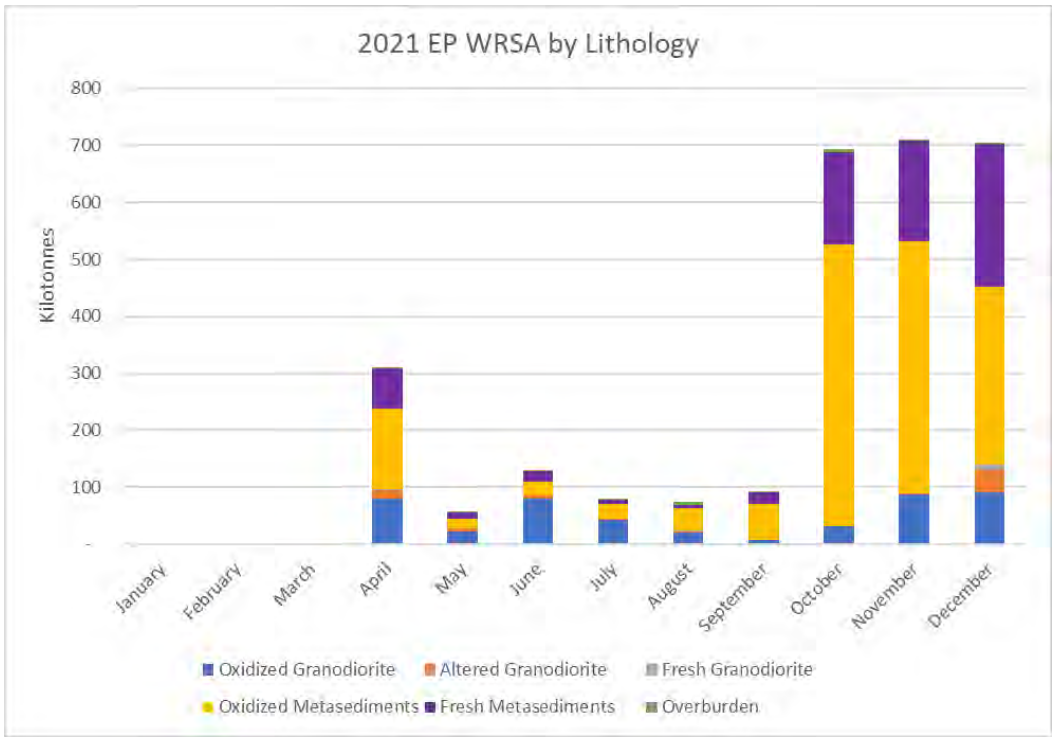


Figure 2.2-2: Waste Rock Deposited in the PG WRSA by Lithology in 2021

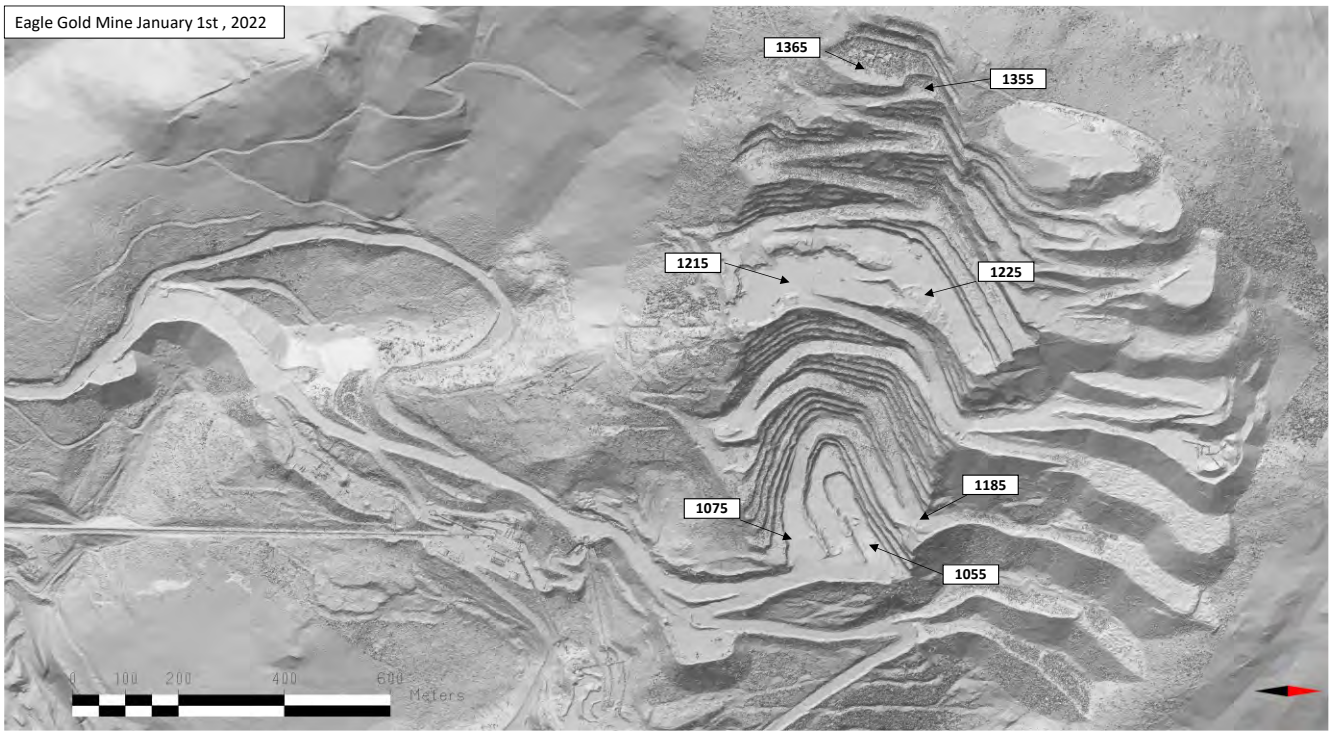


Figure 2.2-3: Eagle Pit Configuration at end of 2021

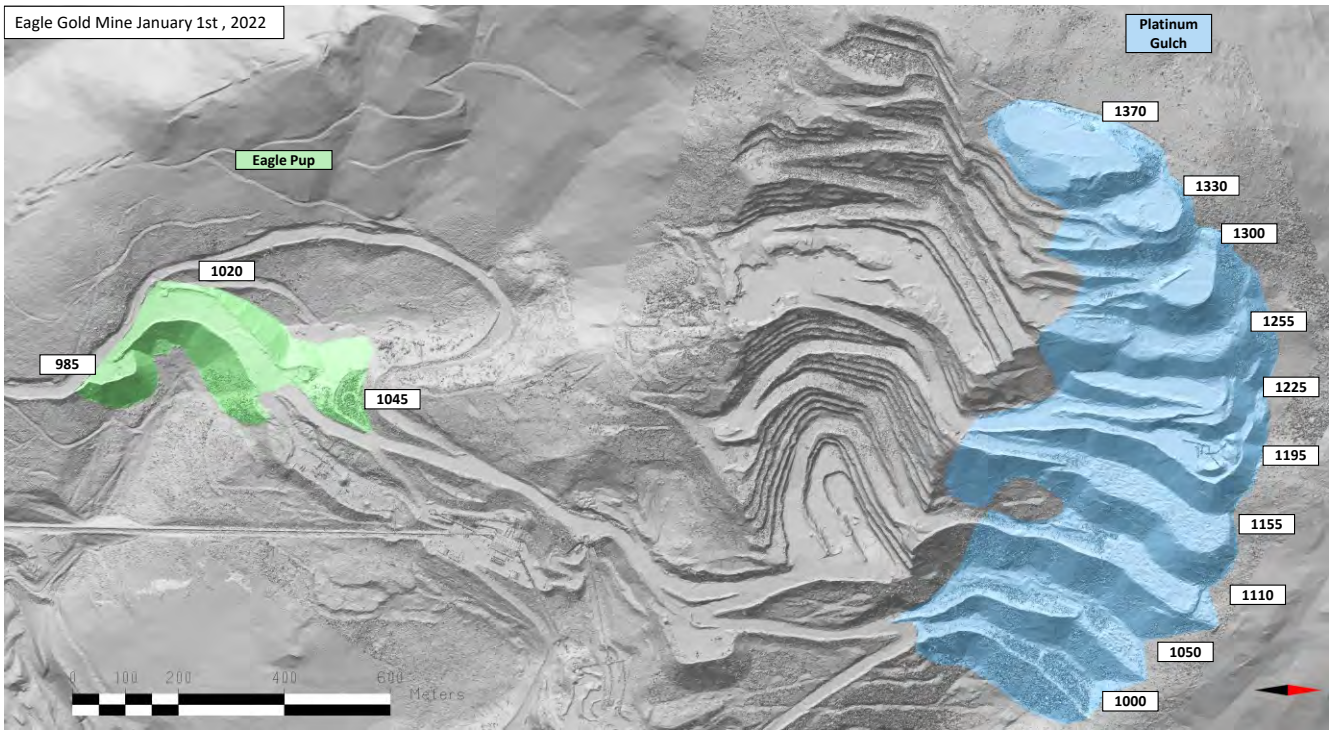


Figure 2.2-4: PG ad EP WRSAs Configuration at end of 2021

The mass and volume of ore by lithology delivered to the HLF in 2021 is depicted in Figure 2.2-5.

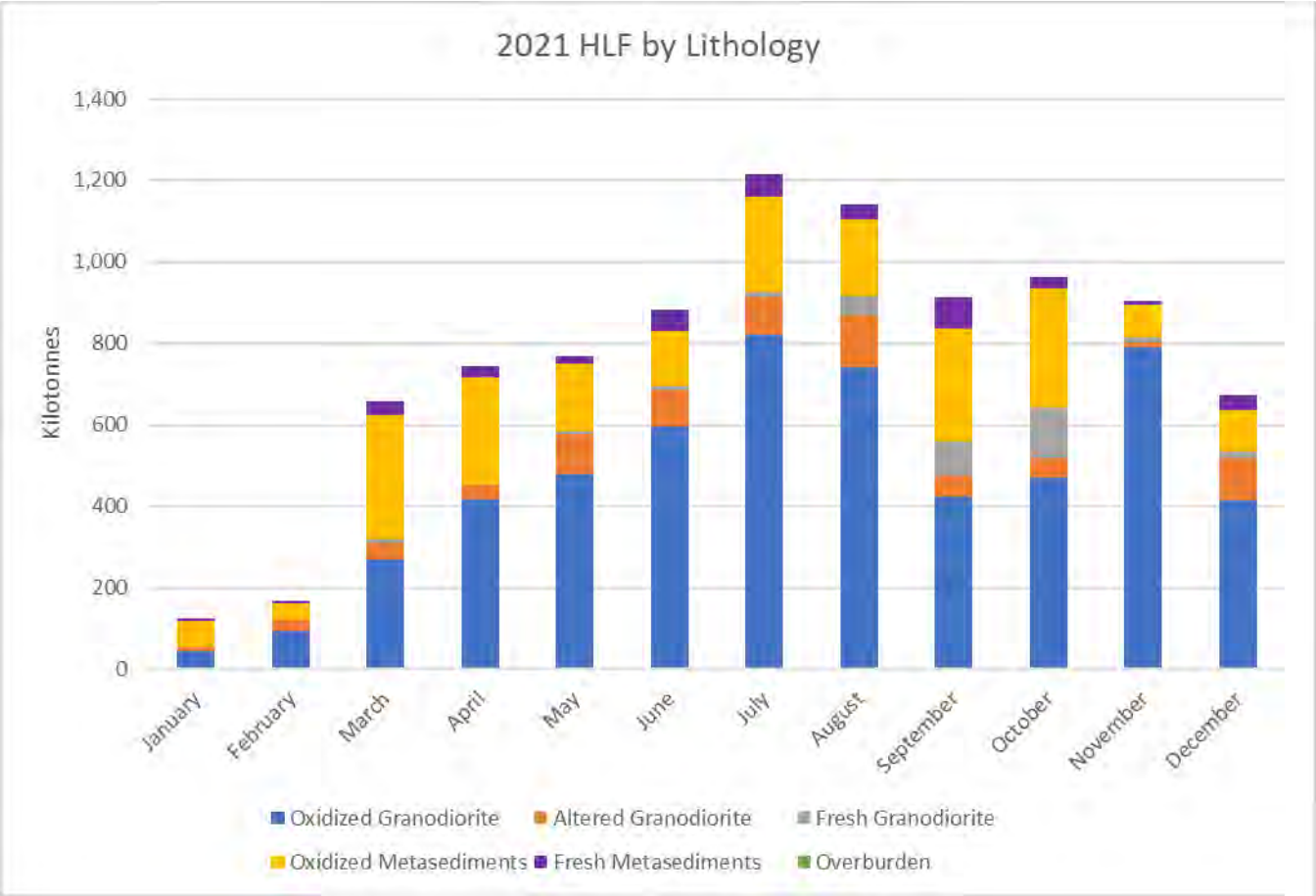


Figure 2.2-5: Ore Deposited in the HLF by Lithology in 2021

Ore stacking during the reporting period remained with the Phase 1 of the HLF. The area under leach fluctuated throughout the year to accommodate stacking activities (i.e., new areas under active leach, movement of distribution system, etc.). At the end of the reporting period, approximately 150,000 m^2 was under leach.

The mass and volume of ore stacked within the HLF is provided in Table 2.2-1. At the time of this report, Lifts 1 through 8 are considered to be final benches and are sloped within the overall design criteria. Figure 2.2-6 provides a graphic depiction of the configuration of the ore lifts at the end of the reporting period.

Table 2.2-1: Volume and Tonnage of Ore Within HLF

Lift	Volume (m^3)	Tonnage
1	724,565	1,382,947
2	619,255	1,181,946
3	742,965	1,418,066
4	887,751	1,694,414
5	1,059,119	2,021,497

Lift	Volume (m^3)	Tonnage
6	1,257,889	2,400,880
7	1,500,734	2,864,388
8	1,937,325	3,697,691
9	1,149,061	2,193,165
10	32,012	61,100

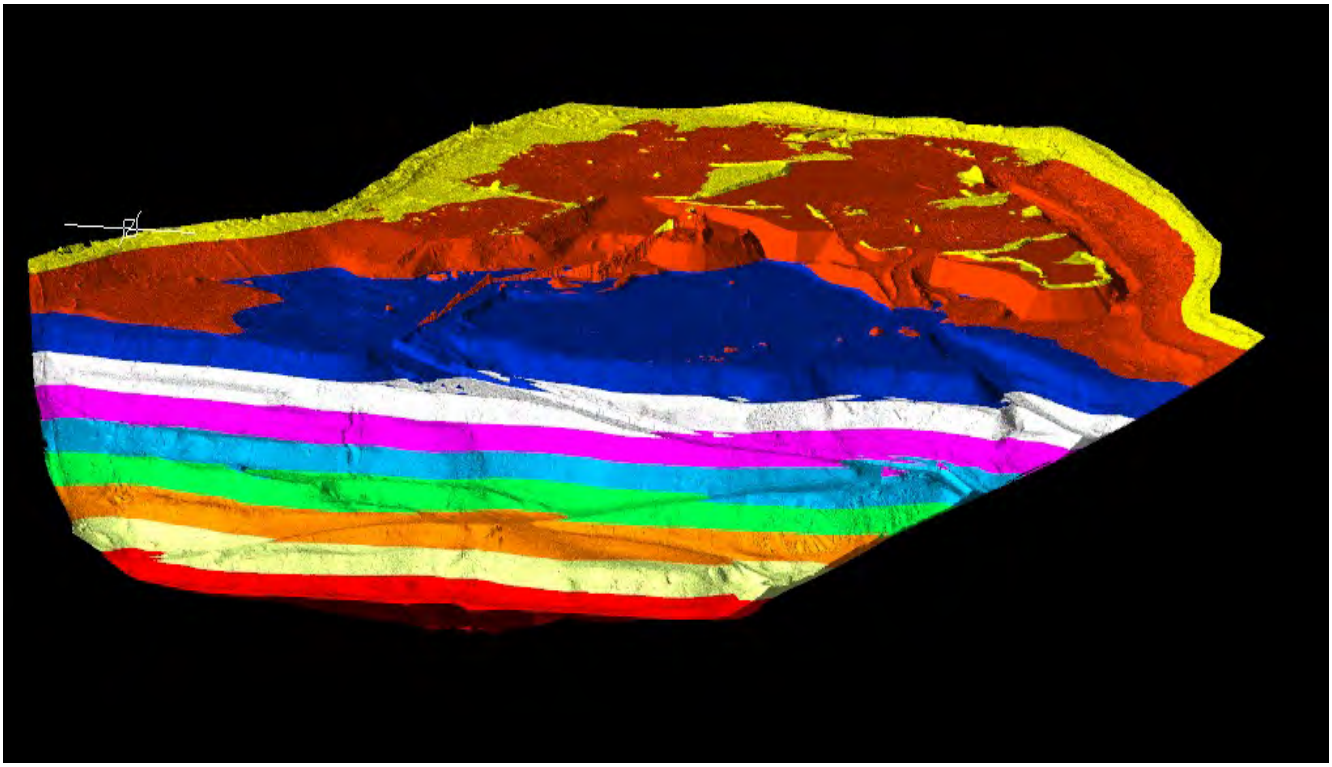


Figure 2.2-6: HLF Ore Stack Configutation at December 31, 2021 (not to scale)

Recovery from the ore stacked within the HLF trended up steadily throughout the year as the HLF and area available for leaching increased in size. The recovery model which utilizes ore characteristics (particle size, ore grade from block model, leach kinetics, etc.) showed good agreement with realized recoveries and as such the HLF leaching process is progressing as expected (Figure 2.2-7).

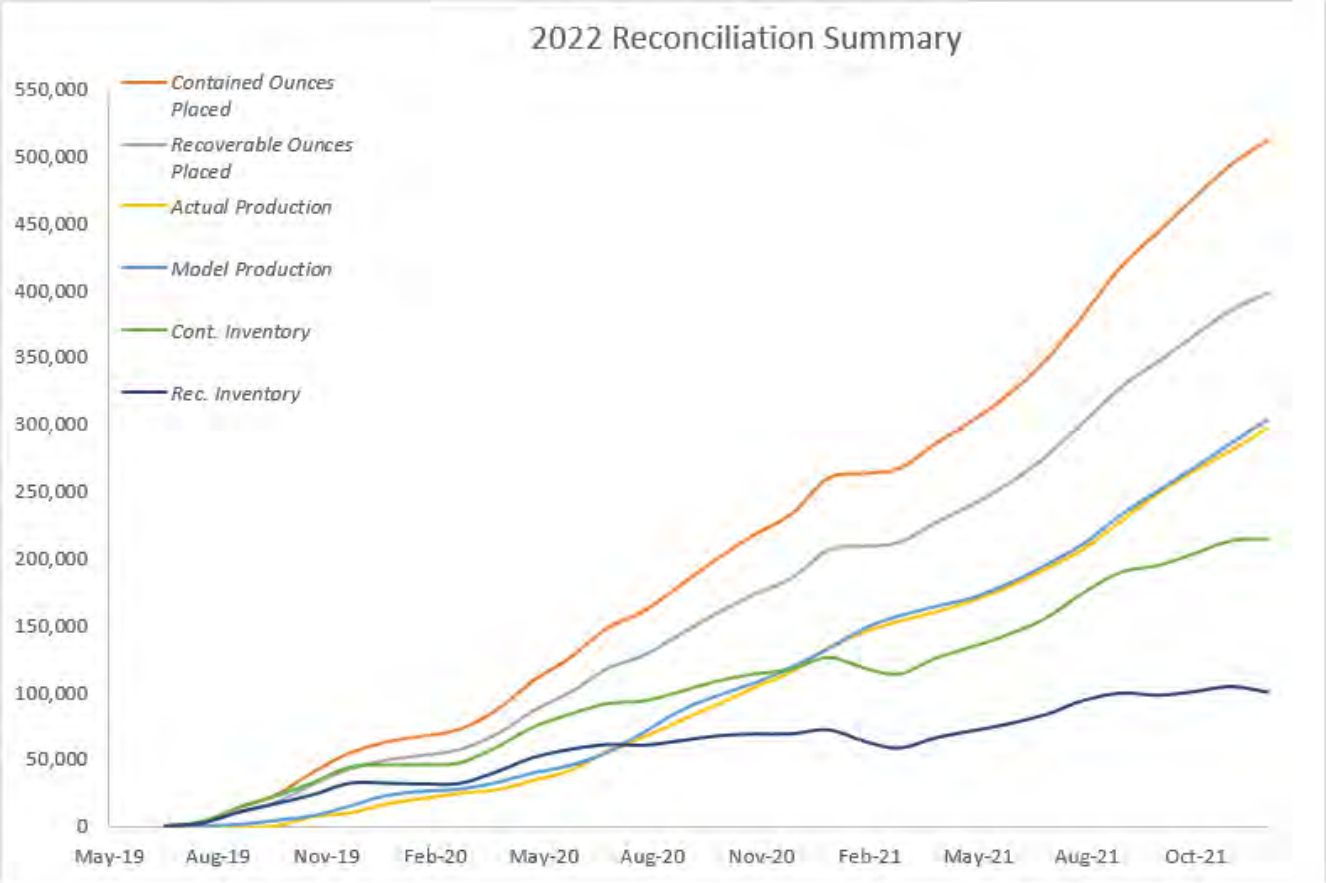


Figure 2.2-7: Gold Recovery Reconciliation 2021

Table 2.2-2: 2021 Production Schedule

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2021 Total
Ore													
Ore Mined Directly to Crushing Plant (t)[1]	423,348	107,847	634,628	485,826	509,129	688,608	706,588	296,432	480,810	576,397	488,122	387,097	**5,784,831**
Grade of Ore (incl direct to crushing plant & stockpile) (g/t)	0.60	0.81	0.92	0.71	0.88	0.90	0.93	0.98	0.85	0.86	0.91	0.84	**0.85**
ROM													
ROM To HLP/Overliner Drainage Fill (t)	-	-	-	-	5,618	775	359,964	457,285	289,584	295,830	293,001	263,873	**1,965,931**
Stockpile													
Ore tonnes mined to Stockpiles (t)[2,3]	440,871	219,418	360,991	199,059	269,182	258,544	246,275	166,091	256,060	221,162	219,091	130,781	**2,987,525**
Ore tonnes Drawn from Stockpiles (t)	69,297	185,614	171,308	283,295	301,344	259,873	185,313	415,203	202,757	275,555	234,572	84,395	**2,668,526**
Ore Tonnes Balance (t)	613,970	647,774	837,457	753,221	721,059	719,730	780,692	531,580	584,883	530,490	515,009	561,395	**N/A**
Total Ore Mined (t)	502,196	210,249	849,785	669,002	733,627	885,560	1,262,950	891,519	967,538	909,582	885,698	720,422	**9,488,129**
Total Ore Stacked (t)	123,479	169,275	657,758	745,279	768,207	883,313	1,216,698	1,140,462	913,530	963,976	901,432	735,365	**9,218,774**
Waste													
Waste Mined (includes ROM sent to Waste) (t)	1,703,311	1,666,708	1,308,006	1,182,567	1,050,413	1,089,929	1,272,672	1,100,616	1,456,359	1,262,087	1,263,910	673,680	**15,030,257**
Total Mined (t)	2,205,507	1,876,957	2,157,791	1,851,569	1,784,040	1,975,489	2,535,622	1,992,135	2,423,897	2,171,669	2,149,608	1,394,102	**24,518,387**
Daily Mining Rate (tpd)	71,145	67,034	69,606	61,719	57,550	65,850	81,794	64,262	80,797	70,054	71,654	44,971	**67,173.66**

NOTES:
1 - Ore directed to crushing plant either dispatched to sec/ter crushing then HLF or directed to stockpiles
2 - Ore mined to stockpiles includes direct haul from pit and a portion of primary crushed ore
3 - Stockpiles include primary crusher feed pile, 90day/secondary stockpile, temporary mobile crusher pile, and temporary in-pit

Over the life of the Eagle pit, based on the current mine plan and regulatory approvals, 86 Mt of ore will be processed and 116 Mt of waste (which includes a current estimate of ~16Mt of ROM material) will be placed in waste rock storage areas. The mine production to date is provided below in Table 2.2-3.

Table 2.2-3: Mine Production to Date

	2019	2020	2021	Life of Undertaking Total
Total Waste Mined (Mt)	2.4	12.5	15.0	**29.8**
PG WRSA	2.4	12.5	12.1	**27.0**
EP WRSA	0	0	2.8	**2.8**
Total Ore Mined (Mt)	2.5	7.5	9.5	**19.5**
Total to Heap (Mt)	2.5	7.3	9.2	**19.0**
Total Material Mined (Mt)	**4.9**	**20**	**24.5**	**49.4**

NOTES:
1 - Values may not total due to rounding.

2.2.2 Reserve and Mine Life Update

The information below is a summary of the publicly available disclosure made by VGC as part of the required filings as a TSX Listed company. This information is not based on current regulatory approvals granted for the Mine.

The Mineral Reserve for the Mine is based on the Mineral Resource estimate for Eagle and Olive (JDS 2019 - the Technical Report). The Mineral Reserves were developed by examining each deposit to determine the optimal and practical mining method. Cut-off grades were then determined based on appropriate mine design criteria and the adopted mining method. A shovel and truck open pit mining method was selected for the two deposits. The estimated Proven and Probable Mineral Reserves, effective December 4, 2019, total 155M t at 0.65 g/t Au, containing 3,261k oz gold prior to mining activities. Reserve depletion up to November 15, 2019 totaled 2.44M t at 0.82 g/t and 64.5k oz.

Since the date of the Technical Report, VGC has continued to produce gold from its Eagle Mine. The Company had production of 164,222 ounces of gold in 2021 along with production from December 4, 2019 to December 31, 2020 of 123,543 ounces. There are no new material scientific or technical information that would make the disclosure of mineral resources, mineral reserves or results of the Technical Report inaccurate or misleading. The following tables indicate the gold mineral reserves as at December 31, 2021, with a comparison as at the date of the Technical Report demonstrating the depletion due to production activities at the Eagle Gold Mine.

Table 2.2-4: 2019 - 2021 Mineral Reserve Reconciliation - Gold Reserves - Proven and Probable

Area	Classification	Mineral Reserves as per the December 4, 2019 Technical Report			Reserves remaining as of December 31, 2021		
		Tonnes	Grade	Contained Au	Tonnes	Grade	Contained Au
		(Mt)	(Au)	(koz)	(Mt)	(Au)	(koz)
	Proven	30	0.71	694	23	0.67	499

Area	Classification	Mineral Reserves as per the December 4, 2019 Technical Report			Reserves remaining as of December 31, 2021		
		Tonnes	Grade	Contained Au	Tonnes	Grade	Contained Au
		(Mt)	(Au)	(koz)	(Mt)	(Au)	(koz)
Eagle	Probable	118	0.63	2,366	103	0.61	2,003
	Total	**148**	**0.64**	**3,061**	**126**	**0.62**	**2,502**
Olive	Proven	2	1.02	58	2	1.02	58
	Probable	5	0.93	142	5	0.93	142
	Total	**7**	**0.67**	**200**	**7**	**0.67**	**200**
Total Gold Reserves	**Total**	**155**	**0.65**	**3,261**	**133**	**0.65**	**2,702**

Notes:

1. A gold price of US$1,275/oz is assumed.
2. Reserve based on original topo with no depletion from preproduction/ramp up period up to December 4, 2019.
3. A US$:C$ exchange rate of 0.75.
4. Cut-off grades, dilution and recovery factors are applied as per open pit mining method.
5. Reserve reflects ore depleted as of December 31, 2021
6. Since the start of mining, 22M tonnes at 0.80 g/t Au for 559 Koz of gold were mined from the Eagle Mineral Reserve. The difference between the tonnes mined and the updated Reserve statement are the result of additional ore not captured in the Reserve model.
7. Since the start of mining, geological contact refinement resulted in a certain amount of material, both within and an outside of the Eagle Mineral Reserve that was previously characterized as waste, to be converted to Ore during mining activities.
8. Total Gold ounces may not add up due to rounding.
9. Depletion includes all ounces extracted from the Eagle deposit, including those produced and in inventory, both in ore stockpiles and the heap leach pad.

Table 2.2-5: 2019 - 2021 Mineral Resource Reconciliation - Gold Resources - Measured, indicated and Inferred

Area	Classification	Mineral Resources Contained as per the December 4, 2019 Technical Report			Resources remaining as of December 31, 2021		
		Tonnes	Grade	Contained Au	Tonnes	Grade	Contained Au
		(Mt)	(Au)	(koz)	(Mt)	(Au)	(koz)
Eagle 0.15 g/t cut-off[2]	Measured	37	0.71	850	31	0.67	654
	Indicated	180	0.61	3,547	167	0.60	3,209
	Combined (M&I)	**217**	**0.63**	**4,397**	**197**	**0.61**	**3,863**
	Inferred [8]	22	0.52	361	21	0.52	361
Olive 0.40 g/t cut-off [2]	Measured	2	1.19	75	2	1.19	75
	Indicated	8	1.05	254	8	1.05	254
	Combined (M&I)	**10**	**1.08**	**329**	**10**	**1.08**	**329**
	Inferred [8]	7	0.89	210	7	0.89	210

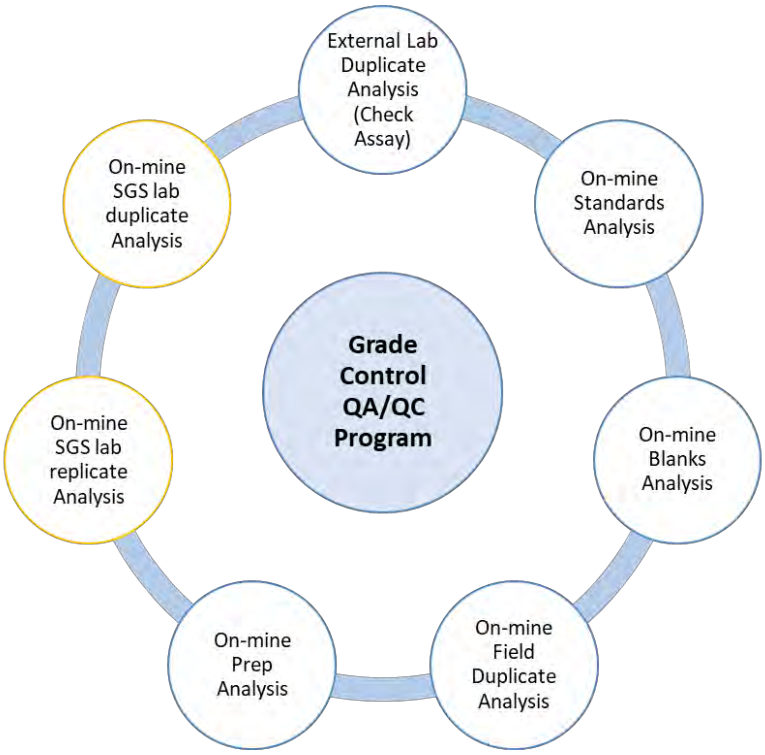
Notes:

1. CIM definitions were followed for Mineral Resources
2. Mineral Resources are estimated at a cut-off of 0.15 g/t Au for Eagle and 0.40 g/t Au for Olive
3. Gold price used for this estimate was US$1,700/oz
4. High-grade caps were applied as per the text of the report
5. Specific gravity was estimated for each block based on measurements taken from core specimens.

6. Resources are In-pit resources as defined by pit parameters described in the text of the Technical Report.
7. Mineral resources are not mineral reserves and do not have demonstrated economic viability. There is no certainty that all or any part of the mineral resources estimated will be converted into mineral reserves. The estimate of mineral resources may be materially affected by environmental, permitting, legal, title, taxation, socio-political, marketing, or other relevant issues. However, there are no currently known issues that negatively impact the stated mineral resources.
8. The inferred mineral resources have a lower level of confidence than that applying to measured and indicated mineral resources and must not be converted to mineral reserves. It is reasonably expected that the majority of inferred mineral resources could be upgraded to indicated mineral resources with continued exploration.
9. Since the start of mining, 22M tonnes at 0.80 g/t Au for 559 Koz of gold were mined from the Eagle Mineral Reserve. The difference between the tonnes and ounces mined and the updated Resource statement result from the use of different cut-off grades for the Resource and mining.
10. Resource reflects ore depleted as of December 31, 2021
11. Total Gold ounces may not add up due to rounding.
12. Depletion includes all ounces extracted from the Eagle deposit, including those produced and in inventory, both in ore stockpiles and the heap leach pad.

2.3 Quality Assurance and Quality Control Program for Mine Operations

Production blast patterns are comprised of approximately 100 blast holes for which there is one sample per blast hole collected from blast hole cuttings. The blast holes are spaced according to the Engineer design and range from 6 to 7 meter spacing on average. Samples are collected, described, matched and geo-referenced to a blast hole pattern map and subsequently entered into a database which is updated and reviewed on a daily basis to inform material placement decisions.



Note: Additional QA/QC workd done by onsite assay laboratory circled in yellow

Figure 2.2-8: Design of Grade Control QA/QC Program.

For the purposes of mine operations, the Eagle Gold Quality Assurance/ Quality Control (QA/QC) protocol includes Blanks (3 per 100 samples), Certified Reference Material (standards, 3 per 100 samples), Field

Duplicates (2 per 100 samples) and Preparation duplicates (2 per 100 samples) analyzed by the onsite assay laboratory. In total, QA/QC samples represent approximately 10% of the total blast hole sample program.

2.3.1 QA/QC Failure Investigation and Correction Program

QA/QC failures are associated with standards and blanks reporting values outside of the parameters expected for each sample, and in this case, values above or below three standard deviations are investigated on a case-by-case basis. In general, when a standard or blank fail, or the samples before and after (5-10 samples) the failed QC sample is then analyzed. If necessary, the laboratory is requested to re-analyze the whole sample batch and report assay results again. QC failures as well as actions taken for correction are logged into a datasheet for recording assay certificate number, sample number and a brief description of problem and actions.

2.3.2 External QA/QC Program

Currently, 10% of sample pulps are resubmitted from the onsite laboratory to an external laboratory (Bureau Veritas), where pulps are analyzed for gold with fire assay and ICP-MS analysis for 37 elements. These results are compared with onsite laboratory results to determine linear correlations, variance and the coefficient of determination.

2.4 Proposed Development & Production in 2022

2.4.1 Field Supervisor

In 2022, the field supervisor for the Mine is Victoria's Vice President Operations Mr. David Rouleau (phone: 867-456-7700 extension 6310).

2.4.2 Additional Construction Activities

The major construction activities planned for 2022 and the planned schedule is provided in Table 2.4-1. Additional details regarding the scope for each activity is provided below.

Table 2.4-1: 2022 Planned Construction Schedule

Activity	Start	Finish	2022											
			J	F	M	A	M	J	J	A	S	O	N	D
Continuation of HLF fixed conveyor system	Jan	Feb												
LDSP Forebay Clean out and relining	Feb	Mar												
Mine Water Treatment Plant	Feb	Sep												
HLF Phase 2	Mar	Sep												
Truck shop final works (exterior aprons and electrical)	May	Jun												
Crushing system optimizations (scalping screen facility)	May	Sep												
EP WRSA Rock Drain	Jan	Dec												

2.4.2.1 HLF Fixed Conveyor System

As stacking progresses upslope on the HLF, the fixed conveyor system also advances to support the integrated conveyors system from the crushing facilities up to the mobile conveyor and stacking system. In January and February 2022, the conveyor located on the eastern perimeter of the HLF (known as CV-027) was completed and now connects to CV-026.

2.4.2.2 LDSP Forebay Clean Out and Relining

The forebay of the LDSP was designed to settle out large particles in mine influenced water prior to the water entering the main lined portion of the pond. The Issued for Construction and initial as built configuration of the pond included an unlined forebay due to the low permeability soils in the forebay area and to allow for regular clean out of accumulated sediments without damaging the pond; However, as required by QZ14-041-1, a low permeability liner was installed in the forebay of the LDSP in 2020 to reduce any potential seepage losses from the forebay to groundwater. During 2021, the liner placement was impacted by inflows to the pond and sediment accumulation also required removal. In Q1 2022, the accumulated sediment was removed and the low-permeability liner was replaced with new liner.

2.4.2.3 Mine Water Treatment Plant

Construction of the MWTP will continue in 2022 with a target completion date of September. Procurement of major equipment has largely been complete with transportation of purchased equipment and material to site ongoing. To date, foundation preparations (including concrete foundations) have been undertaken and construction works will progress with additional concrete, building erection, mechanical, piping, electrical and instrumentation installations.

2.4.2.4 HLF Phase 2

In 2022, foundation preparations in the area of Phase 2 of the HLF will continue with the completion of the foundation drainage system and surface preparation and fine grading in advance of construction of the liner system. It is currently anticipated that liner installations will commence in late May/early June concurrent with additional foundation works. The current mine plan contemplates ore placement on Phase 2 of the HLF once the MWTP construction has been completed.

2.4.2.5 Truck Shop

Additional final construction work remains outstanding to support the ongoing use of the truck shop for maintenance activities. The additional works include final construction of the aprons and exterior pads to support long term use of the area.

2.4.2.6 Crushing System Optimizations

In order to de-bottleneck the existing crushing system so that nameplate values can be consistently achieved, an additional screening system will be constructed adjacent to the current crushing area. The facility will utilize scalping screens to remove fines from the crushing circuit to increase the availability of the existing equipment. Bulk earthworks are scheduled to commence in May with concrete installation, building erection, and partial mechanical and electrical installations undertaken during the year. Final construction is anticipated to take place in 2023.

2.4.2.7 EP WRSA Rock Drain Progressive Development

As discussed in Section 2.1, construction of the EP WRSA rock drain was initiated in 2021. Construction of the rock drain will continue throughout 2022 in advance of waste rock placement as access is developed to each successive construction zone. The drain will continue to be constructed out of non-metal leaching, non-acid generating, clean, durable rock resistant to weathering; free from organic matter, frozen soil, snow, ice and

overburden soil materials. The construction will continue to follow EP WRSA minor modification design criteria (Knight Piesold, 2020b).

2.4.3 Production Activities

The production activities planned by VGC for 2022 assume the continued development of the Eagle Pit with waste dispatched primarily to the EP WRSA with small volumes possible strategically place within the PG WRSA to complete waste deposition within that facility. Table 2.4-2 provides the currently assumed peak mining operations for the year. Figures 2.4-1 to Figure 2.4-24 provides monthly development maps for the pit, WRSAs and the HLF (which includes depiction of overliner drain fill placement to ballast HLF Phase 2 liner in advance of ore stacking in November).

Table 2.4-2: 2022 Production Schedule

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	2022[1] Total
Ore													
Ore Mined Directly to Crushing Plant (t)[2]	250,000	-	889,078	895,003	1,002,725	990,000	1,017,709	1,022,999	527,999	1,023,000	990,000	1,023,000	**9,631,513**
Grade of Ore (incl direct to crushing plant & stockpile) (g/t)	0.86	0.65	0.88	0.78	0.78	0.90	0.69	0.86	1.08	0.91	0.88	0.72	**0.83**
ROM													
ROM To HLP/Overliner Drainage Fill (t)	-	-	-	-	-	-	224,391	265,429	47,113	208,096	236,102	107,165	**1,088,296**
Grade of ROM To HLP/ODF (g/t)	-	-	-	-	-	-	0.22	0.22	0.22	0.23	0.23	0.22	**0.22**
Stockpile[3]													
Ore tonnes mined to Stockpiles (t)	204,968	386,403	246,825	219,400	82,275	-	-	-	8,192	-	-	-	**1,148,063**
Ore tonnes Drawn from Stockpiles (t)	-	-	246,825	219,400	82,275	-	5,290	-	-	-	-	-	**553,790**
Ore Tonnes Balance (t)	765,106	1,151,509	1,151,509	1,151,509	1,151,509	1,151,509	1,146,219	1,146,219	1,154,411	1,154,411	1,154,411	1,154,411	**N/A**
Total Ore Mined (t)[1]	454,968	386,403	1,135,903	1,114,403	1,085,000	990,000	1,017,709	1,022,999	536,191	1,023,000	990,000	1,023,000	**10,779,576**
Total Ore Stacked (t)	250,000	-	1,135,903	1,114,403	1,085,000	990,000	1,247,390	1,288,428	575,112	1,231,096	1,226,102	1,130,165	***11,273,599***
Waste													
Waste Mined (t)[4]	1,625,135	1,371,510	1,199,329	1,251,927	1,331,635	1,253,835	1,210,814	1,583,190	1,819,218	1,631,704	1,878,562	2,164,536	**18,321,395**
Total Mined (t)	2,080,103	1,757,913	2,335,232	2,366,330	2,416,635	2,243,835	2,452,914	2,871,618	2,402,522	2,862,800	3,104,664	3,294,701	30,189,267
Daily Mining Rate (tpd)	67,100	62,783	75,330	78,878	77,956	74,795	79,126	92,633	80,084	92,348	103,489	106,281	**82,710.32**

NOTES:
1 - Production targets are based on peak operability assumptions and may exceed permit terms. Values adjusted during operations.
2 - All ore directed to primary crushing assumed to be processed through full crushing circuit and to HLF
3 - Stockpiles include primary crusher feed pile, 90day/secondary stockpile, temporary mobile crusher pile, and temporary in-pit
4 - Waste mine dispatched primarily to WRSAs but portion used for ODF for Phase 2 of HLF prior to MWTP commissioning.

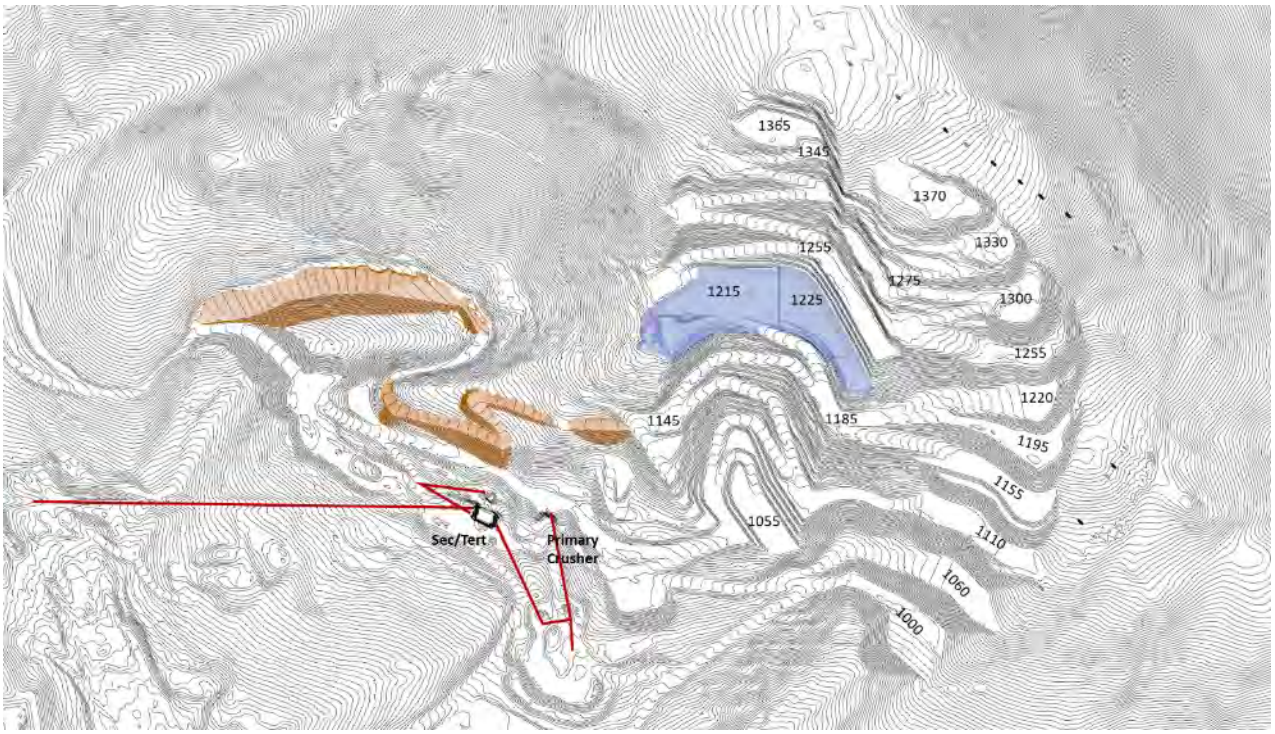


Figure 2.4-1: End January 2022 Planned Eagle Pit and WRSA Development

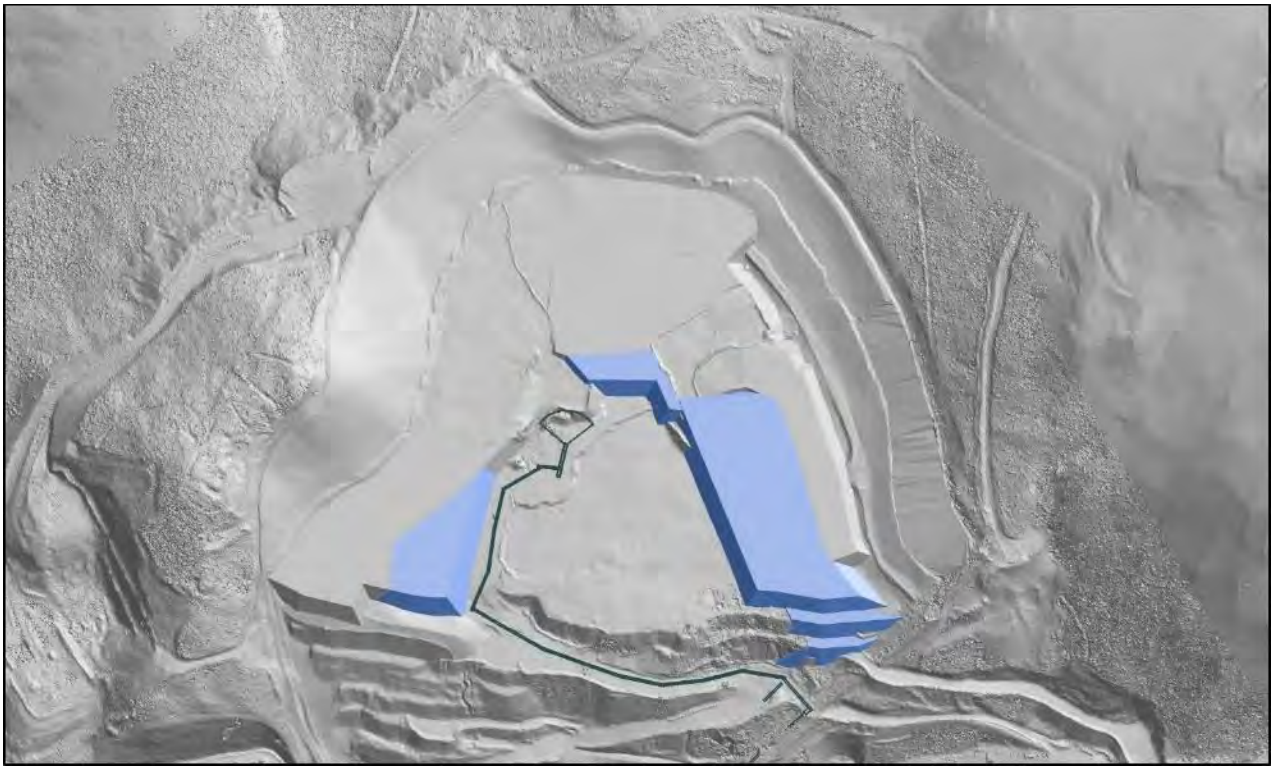


Figure 2.4-2: End January 2022 Planned HLF Development

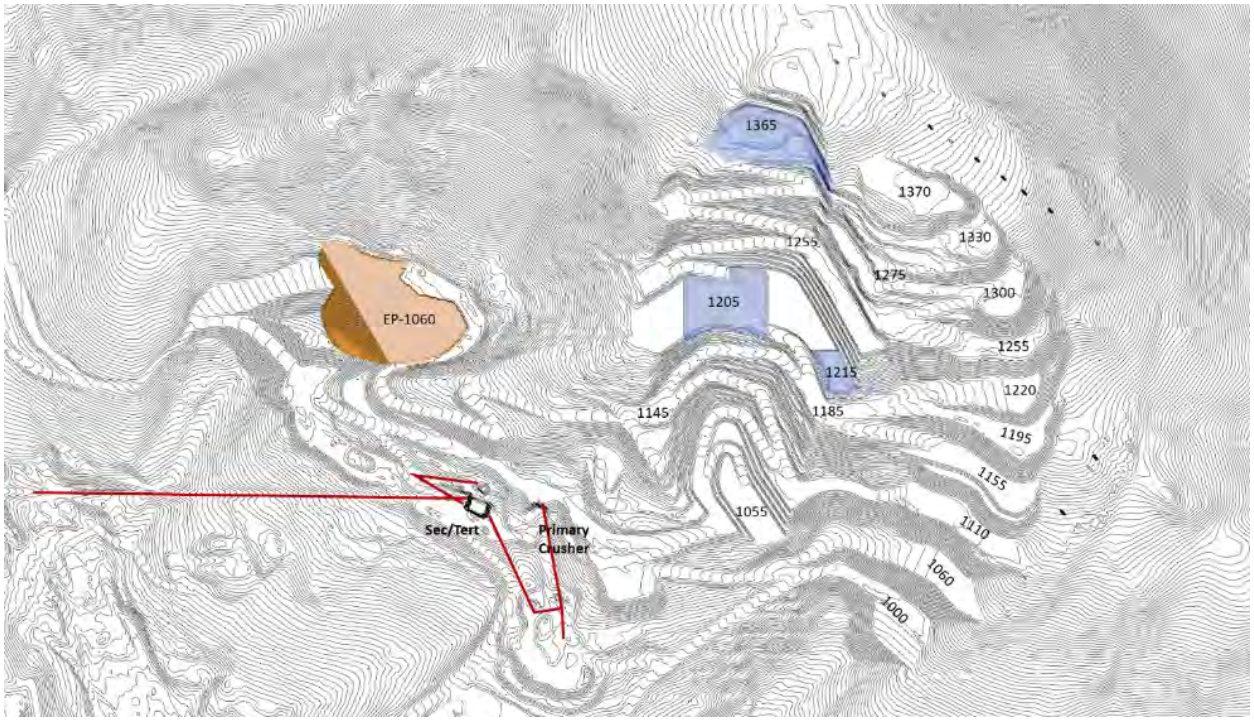


Figure 2.4-3: End February 2022 Planned Eagle Pit and WRSA Development

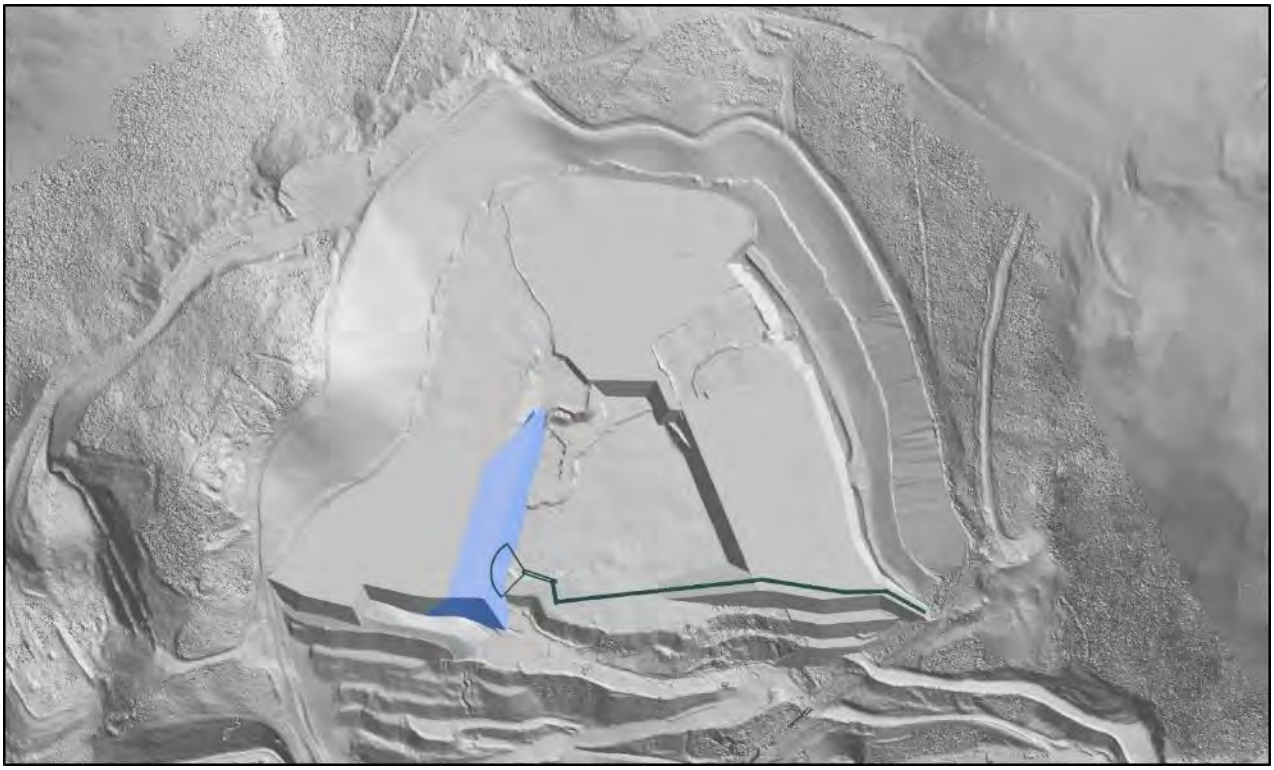


Figure 2.4-4: End February 2022 Planned HLF Development

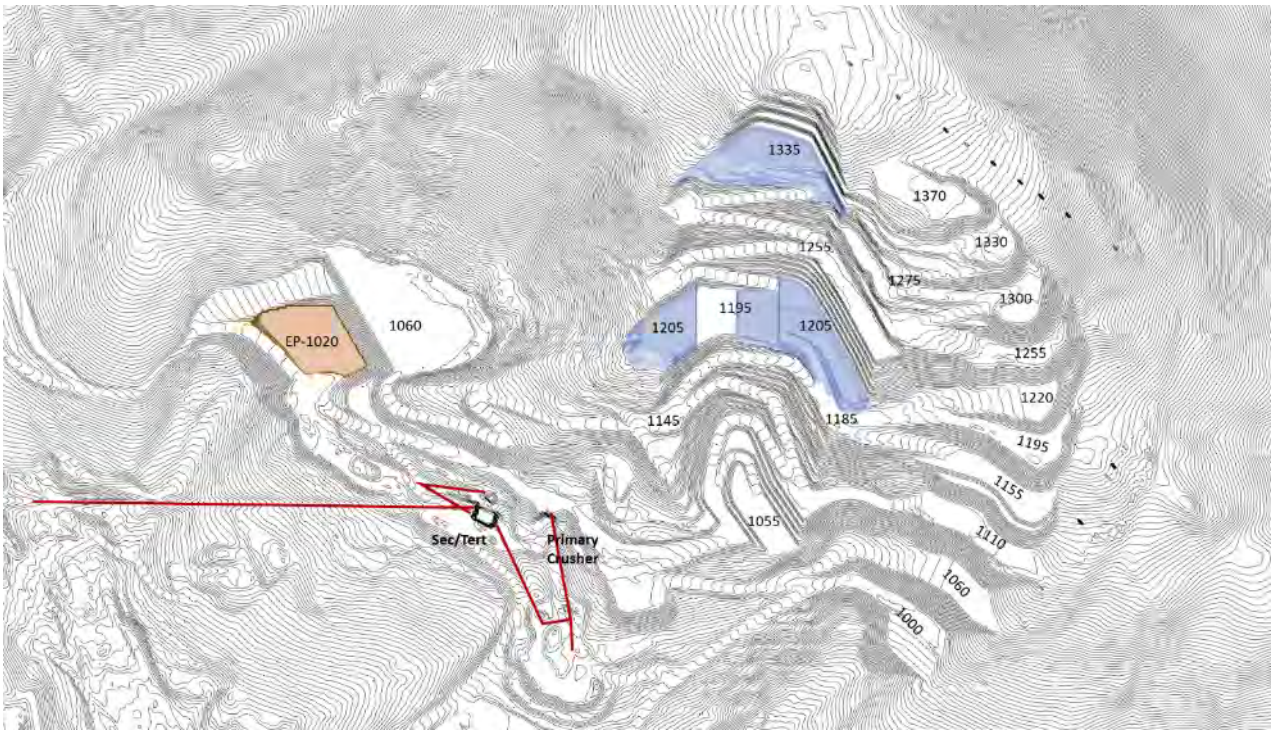


Figure 2.4-5: End March 2022 Planned Eagle Pit and WRSA Development

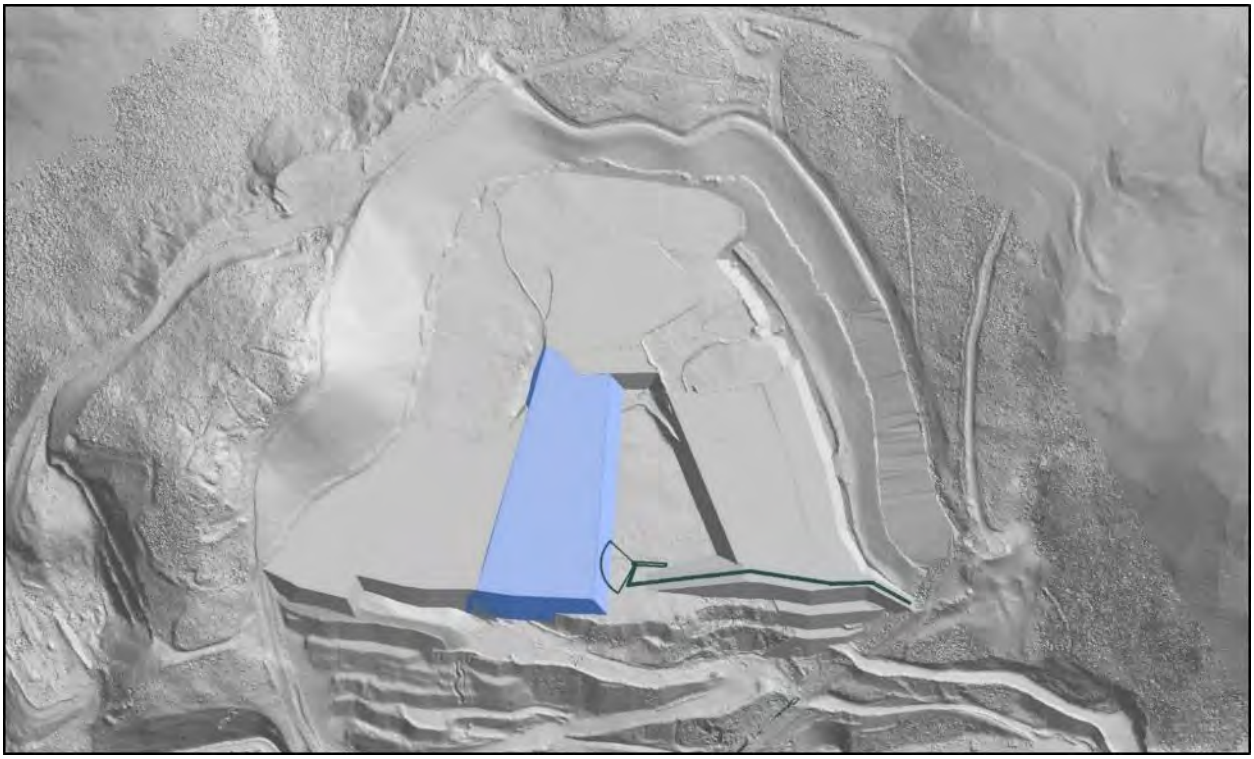


Figure 2.4-6: End March 2022 Planned HLF Development

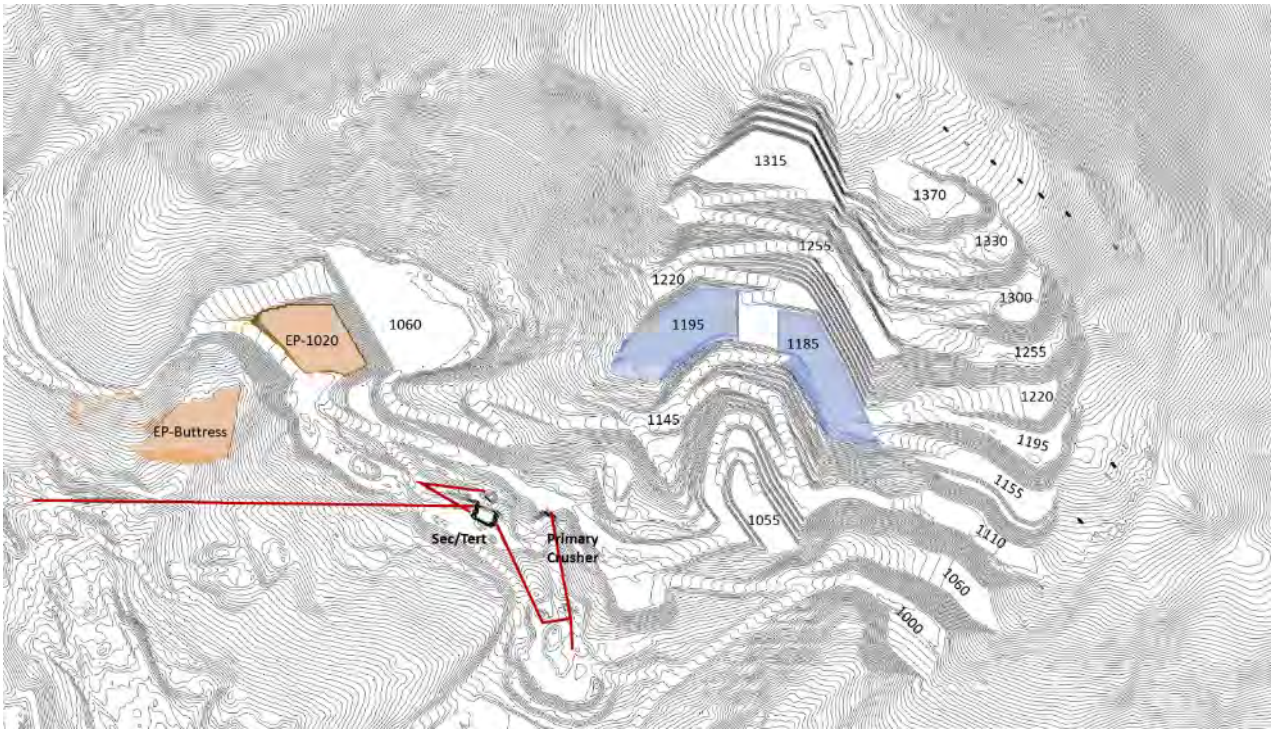


Figure 2.4-7: End April 2022 Planned Eagle Pit and WRSA Development

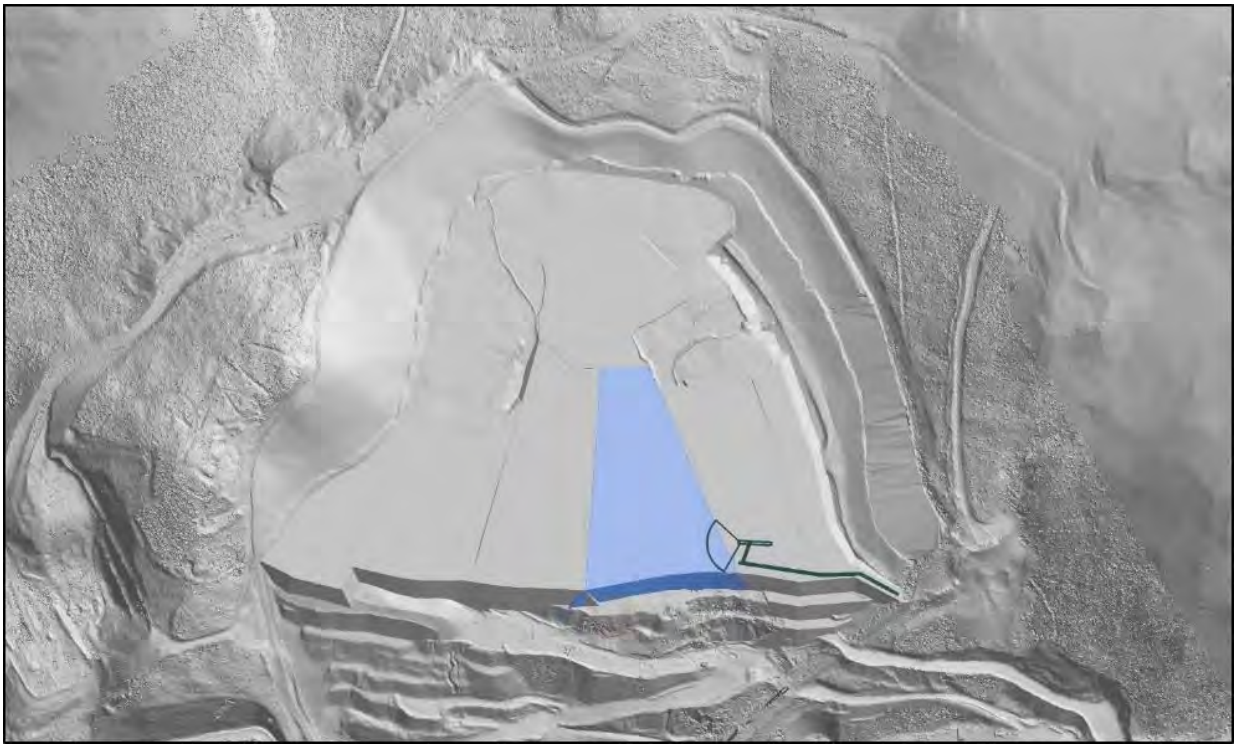


Figure 2.4-8: End April 2022 Planned HLF Development

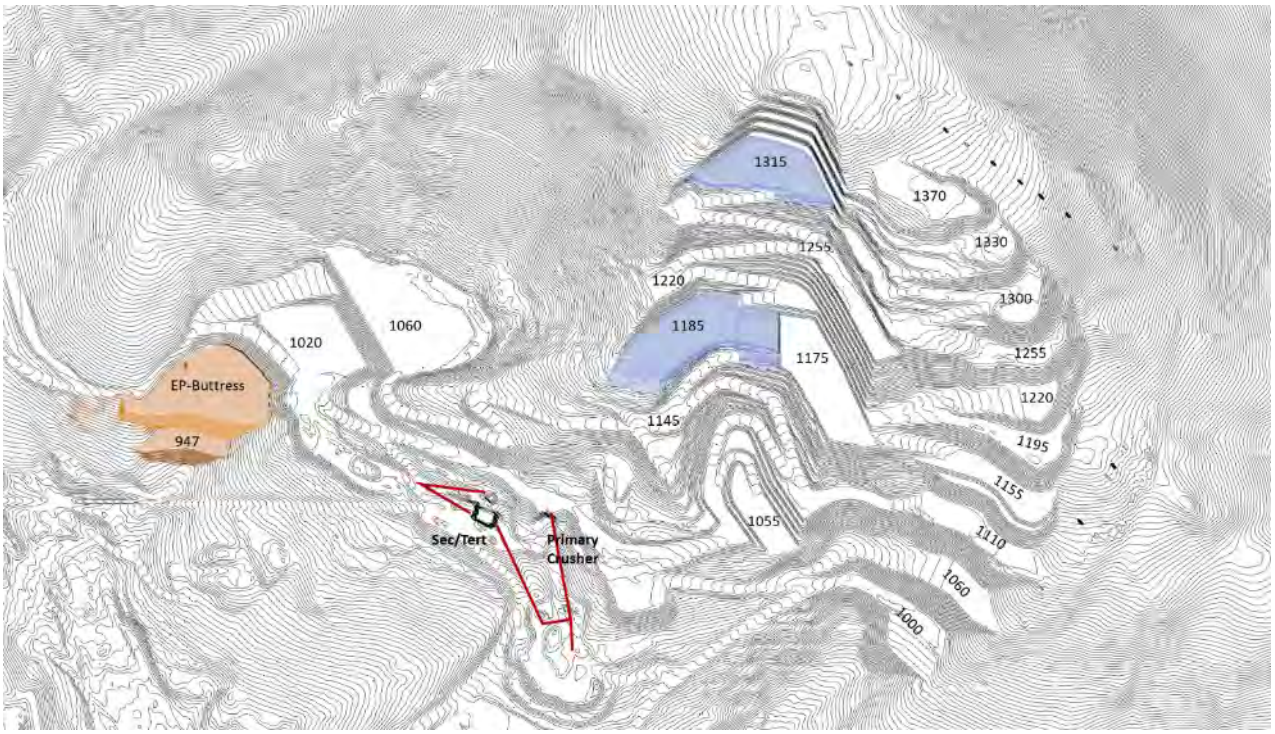


Figure 2.4-9: End May 2022 Planned Eagle Pit and WRSA Development

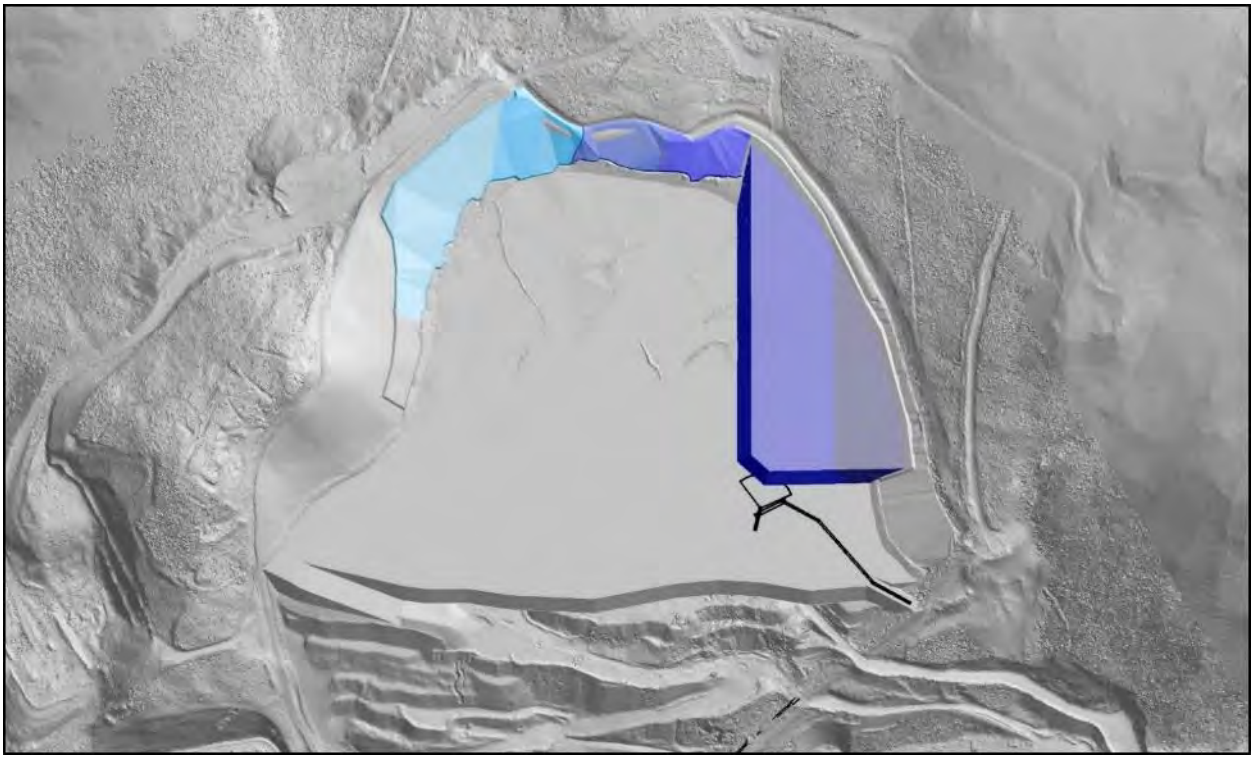


Figure 2.4-10: End May 2022 Planned HLF Development

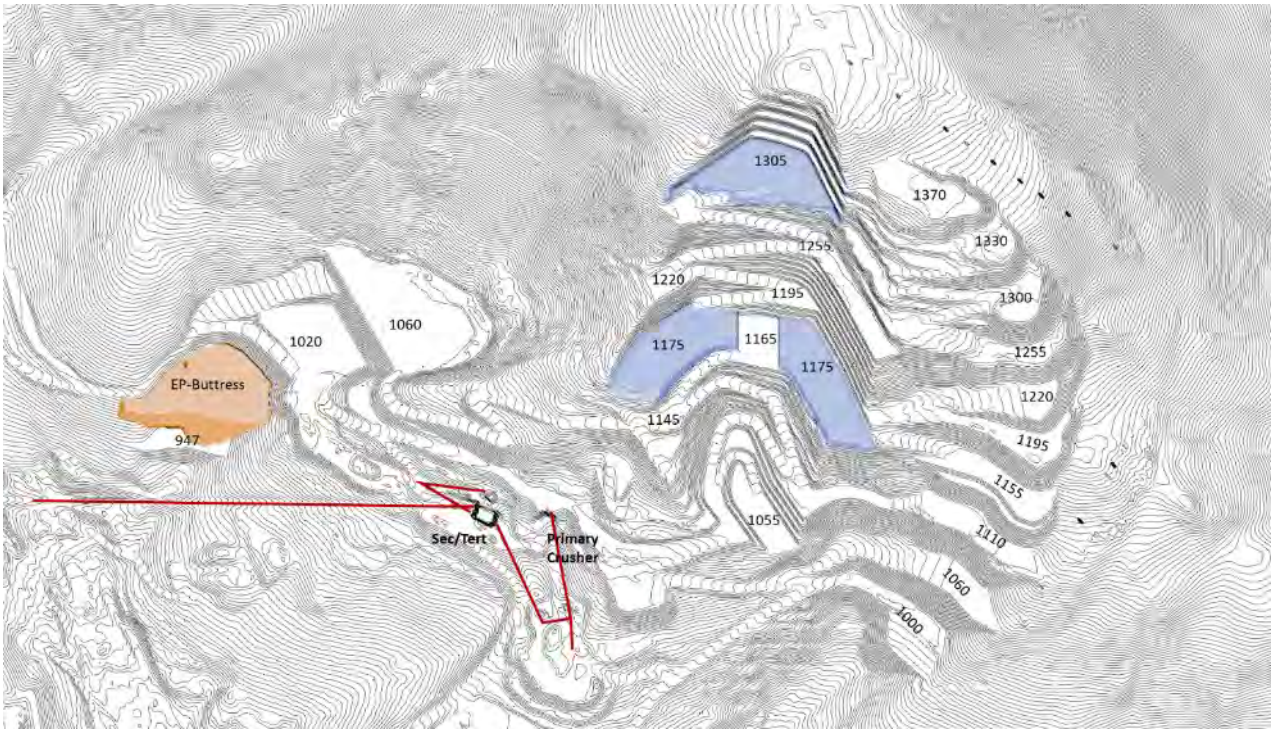


Figure 2.4-11: End June 2022 Planned Eagle Pit and WRSA Development

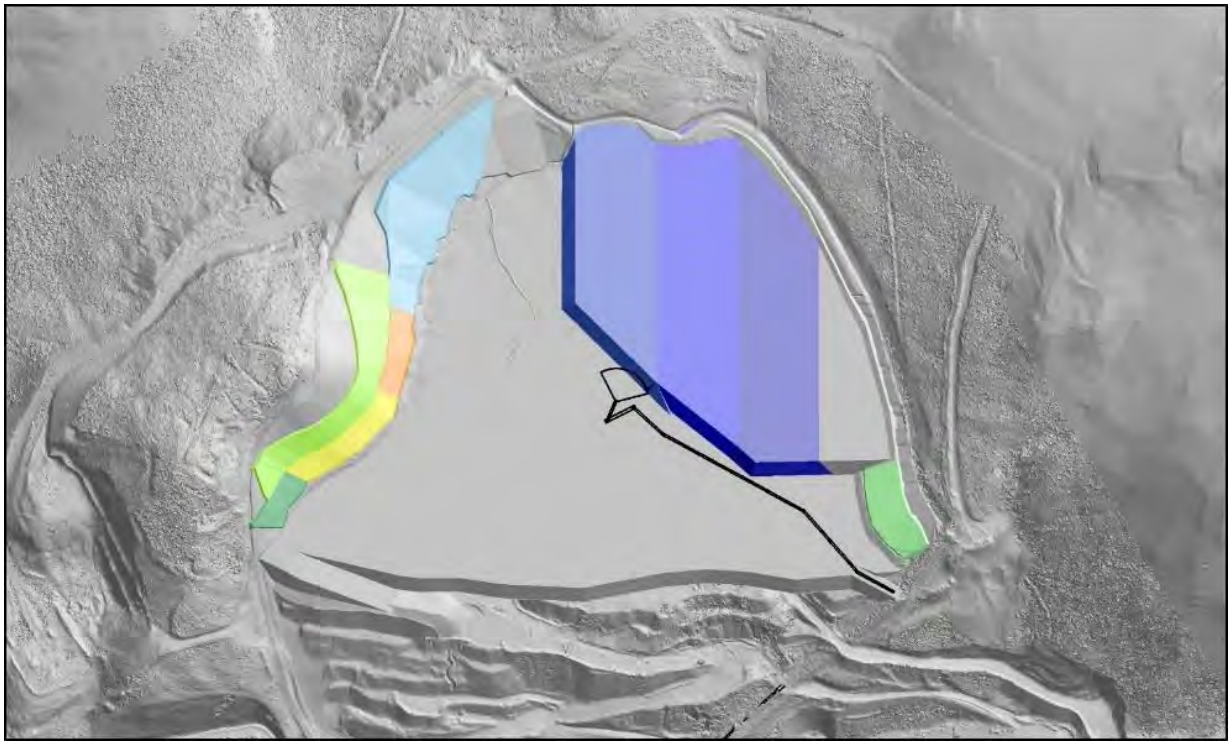


Figure 2.4-12: End June 2022 Planned HLF Development

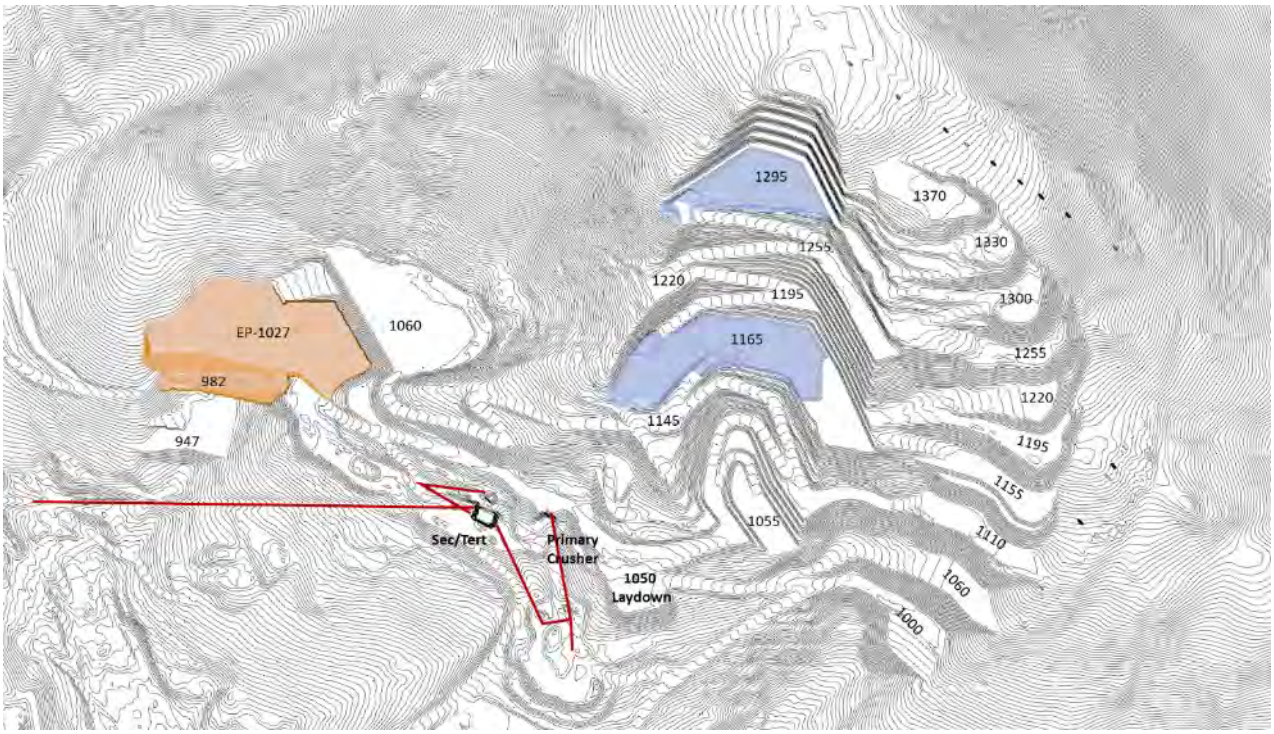


Figure 2.4-13: End July 2022 Planned Eagle Pit and WRSA Development

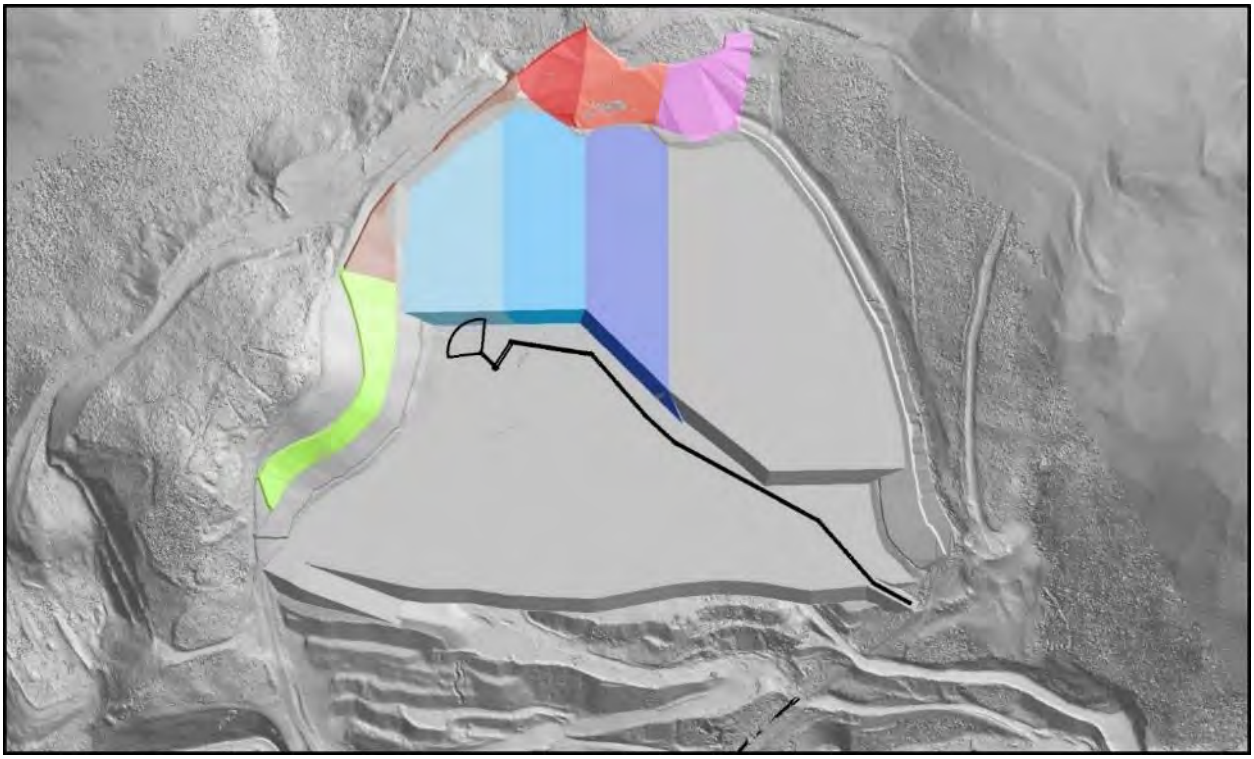


Figure 2.4-14: End July 2022 Planned HLF Development

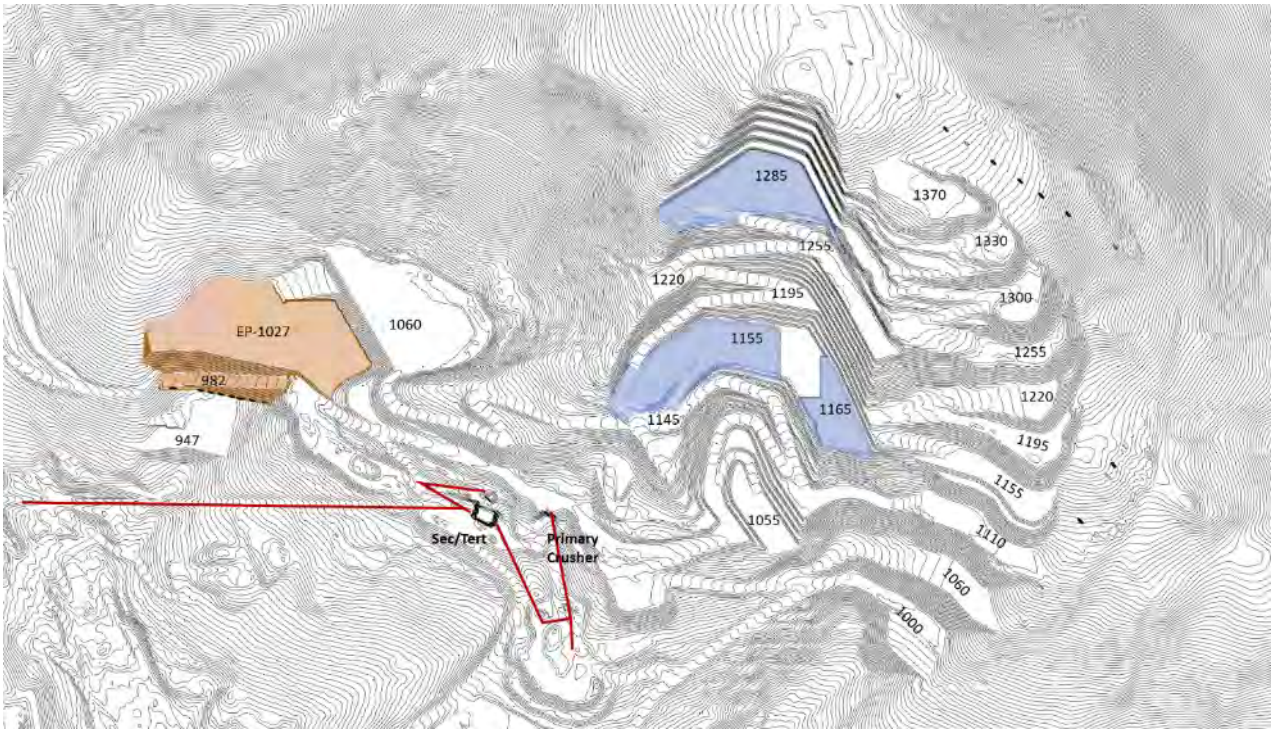


Figure 2.4-15: End August 2022 Planned Eagle Pit and WRSA Development

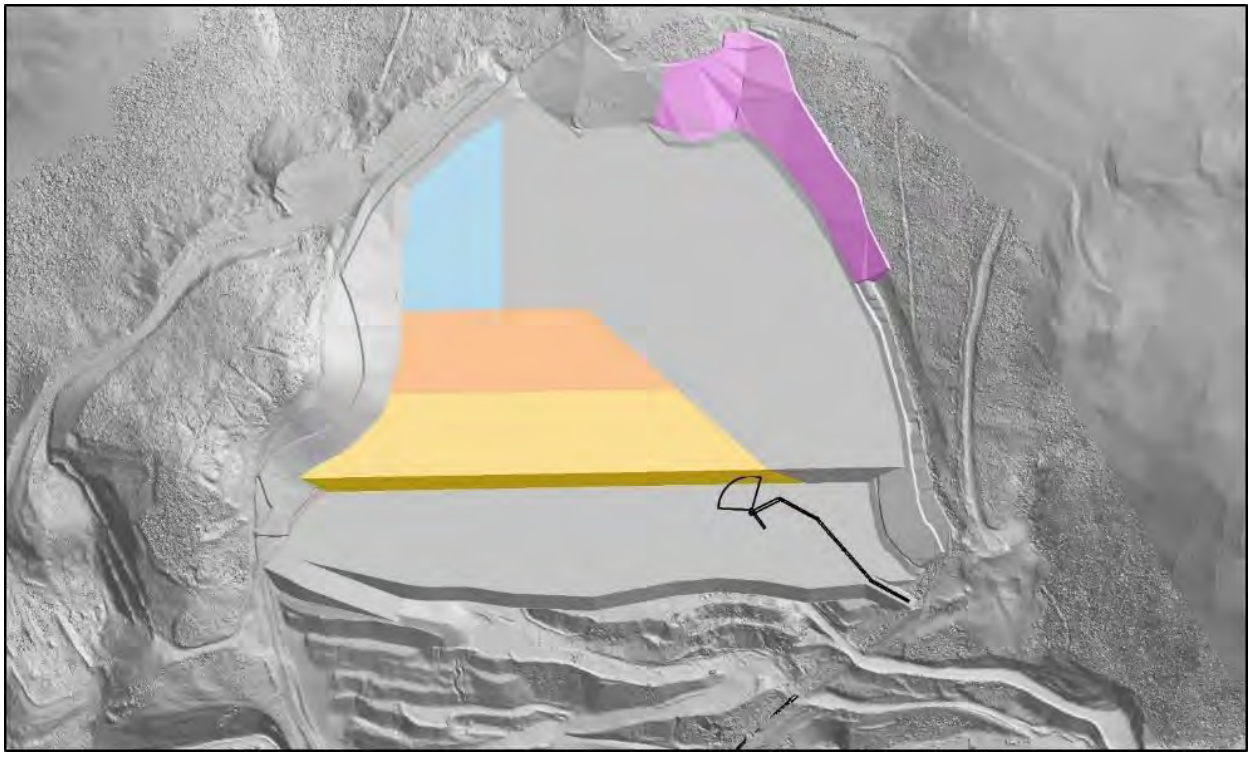


Figure 2.4-16: End August 2022 Planned HLF Development

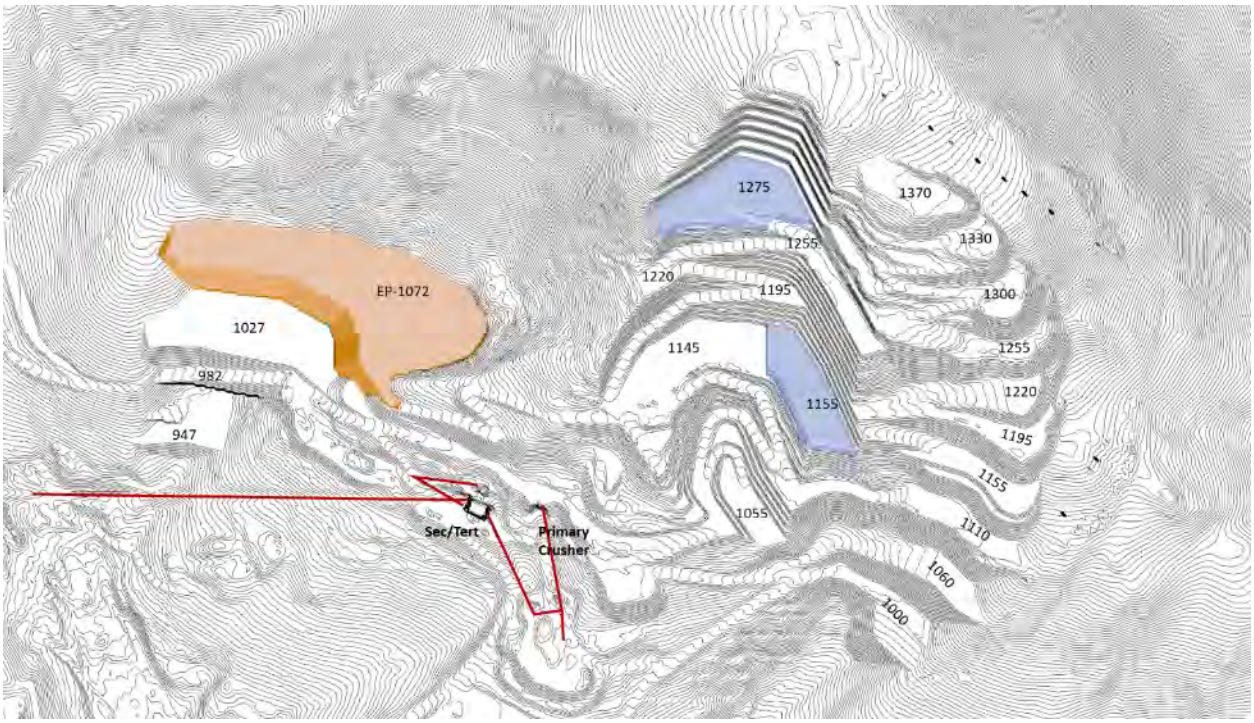


Figure 2.4-17: End September 2022 Planned Eagle Pit and WRSA Development

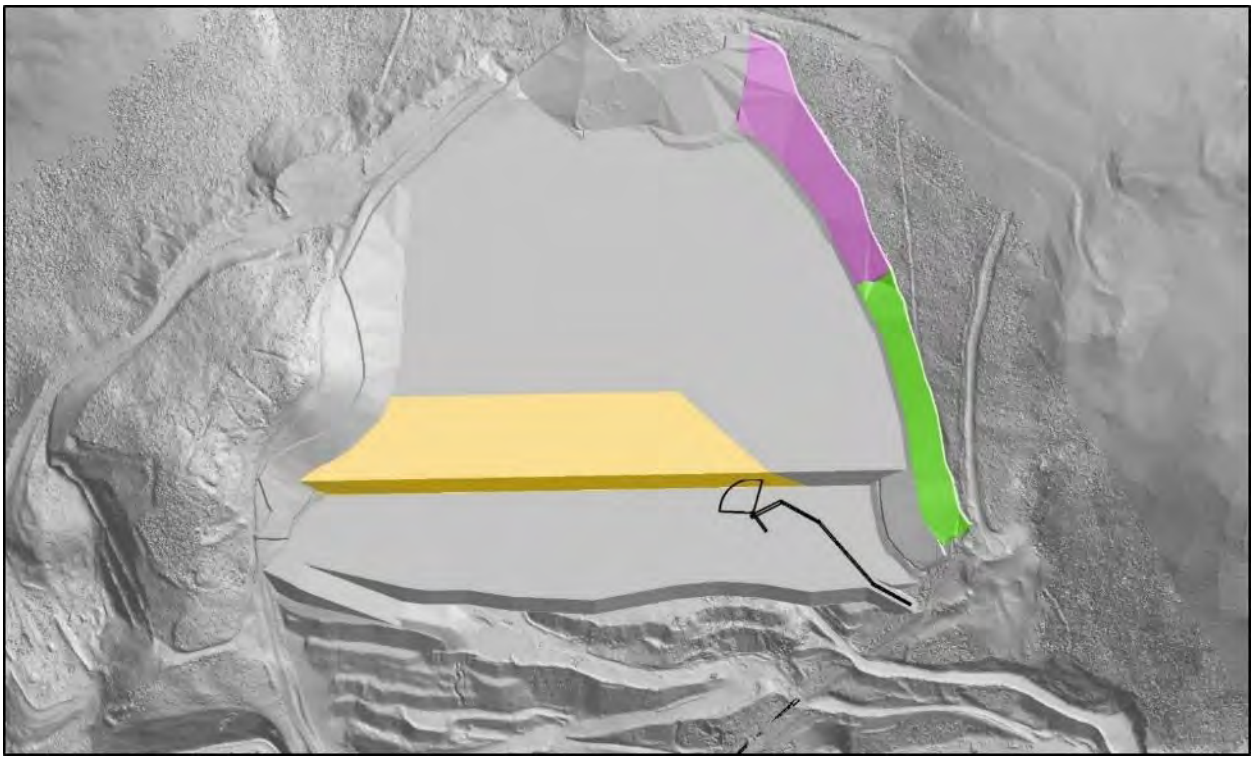


Figure 2.4-18: End September 2022 Planned HLF Development

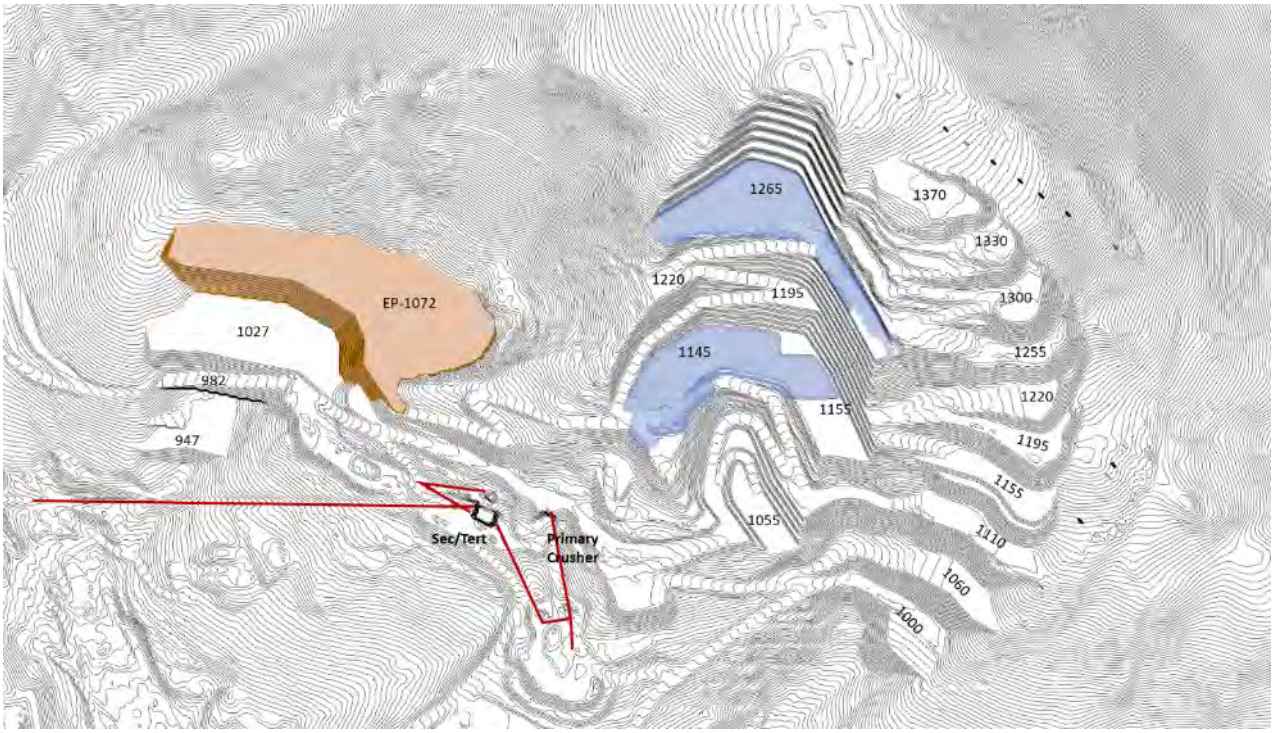


Figure 2.4-19: End October 2022 Planned Eagle Pit and WRSA Development

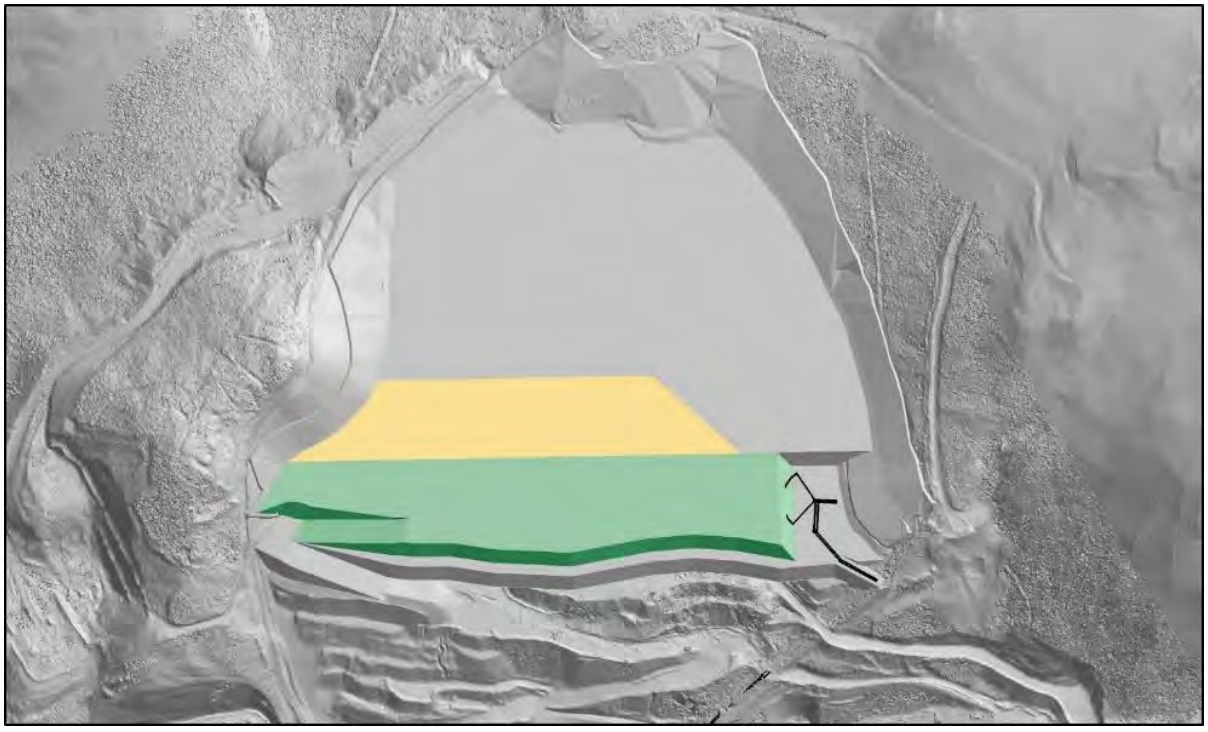


Figure 2.4-20: End October 2022 Planned HLF Development

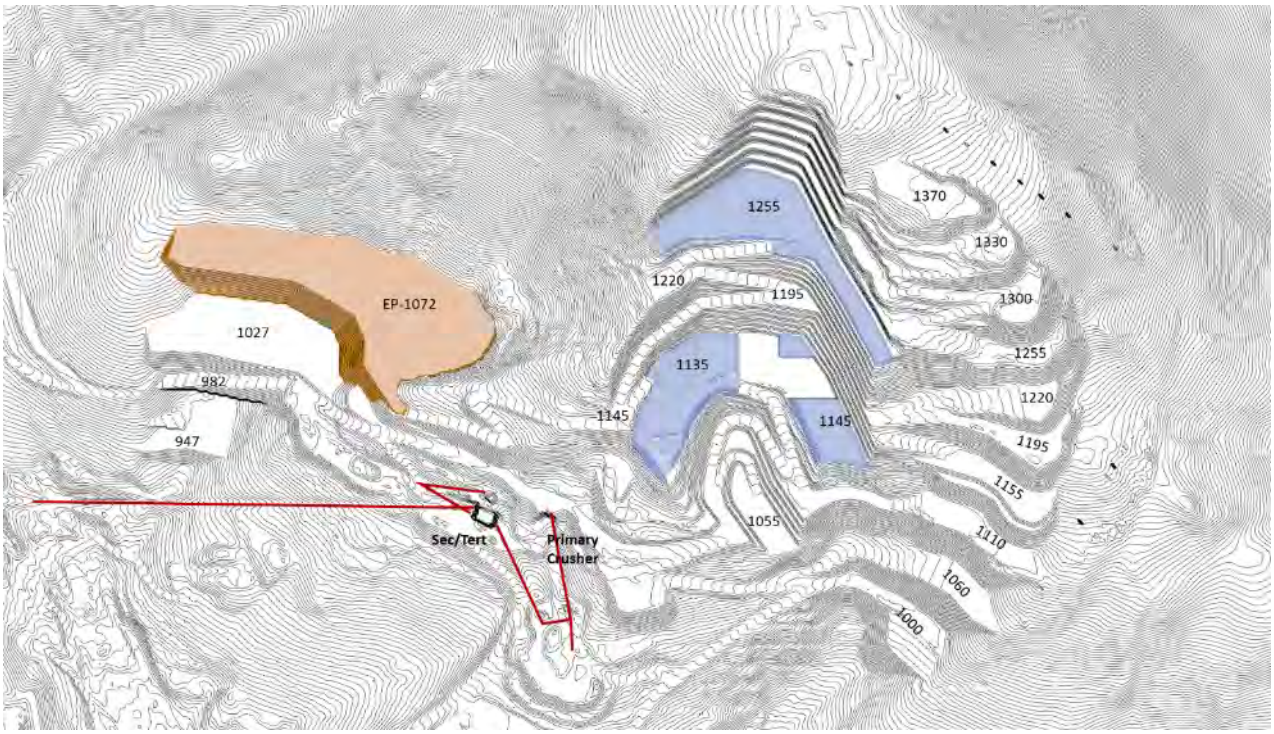


Figure 2.4-21: End November 2022 Planned Eagle Pit and WRSA Development

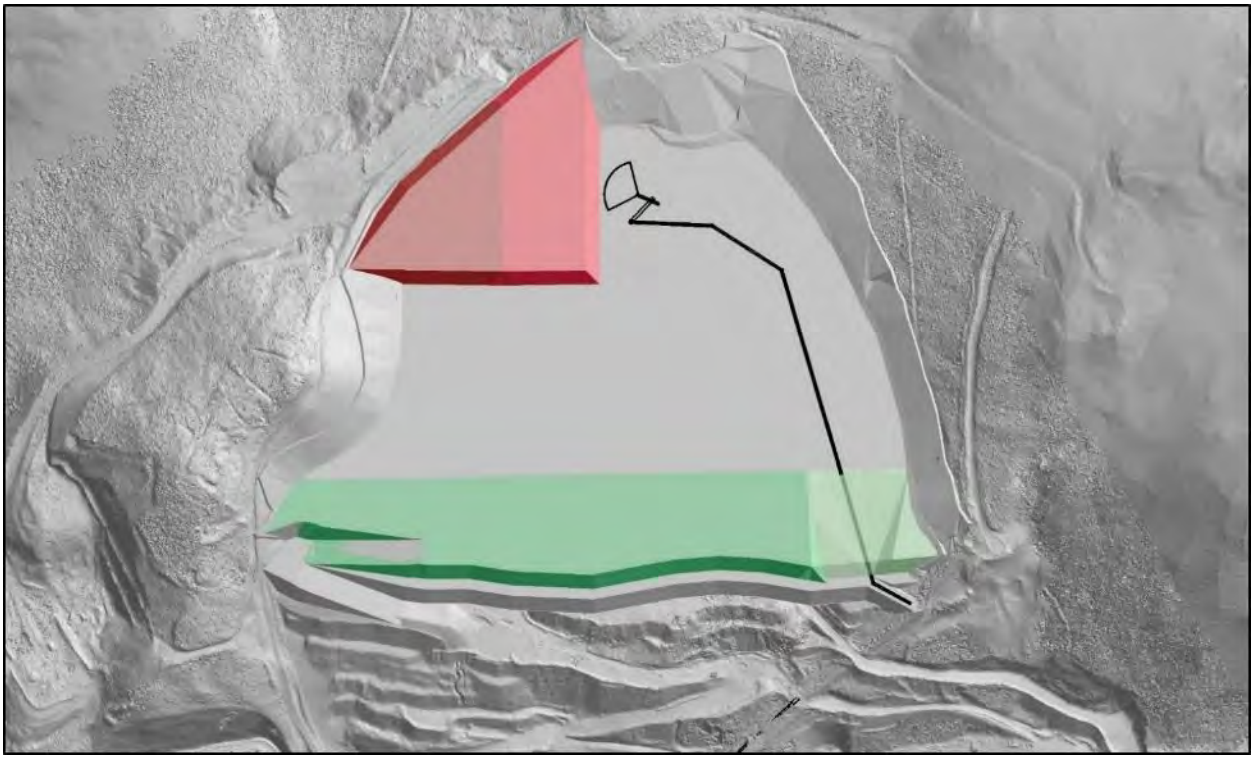


Figure 2.4-22: End November 2022 Planned HLF Development

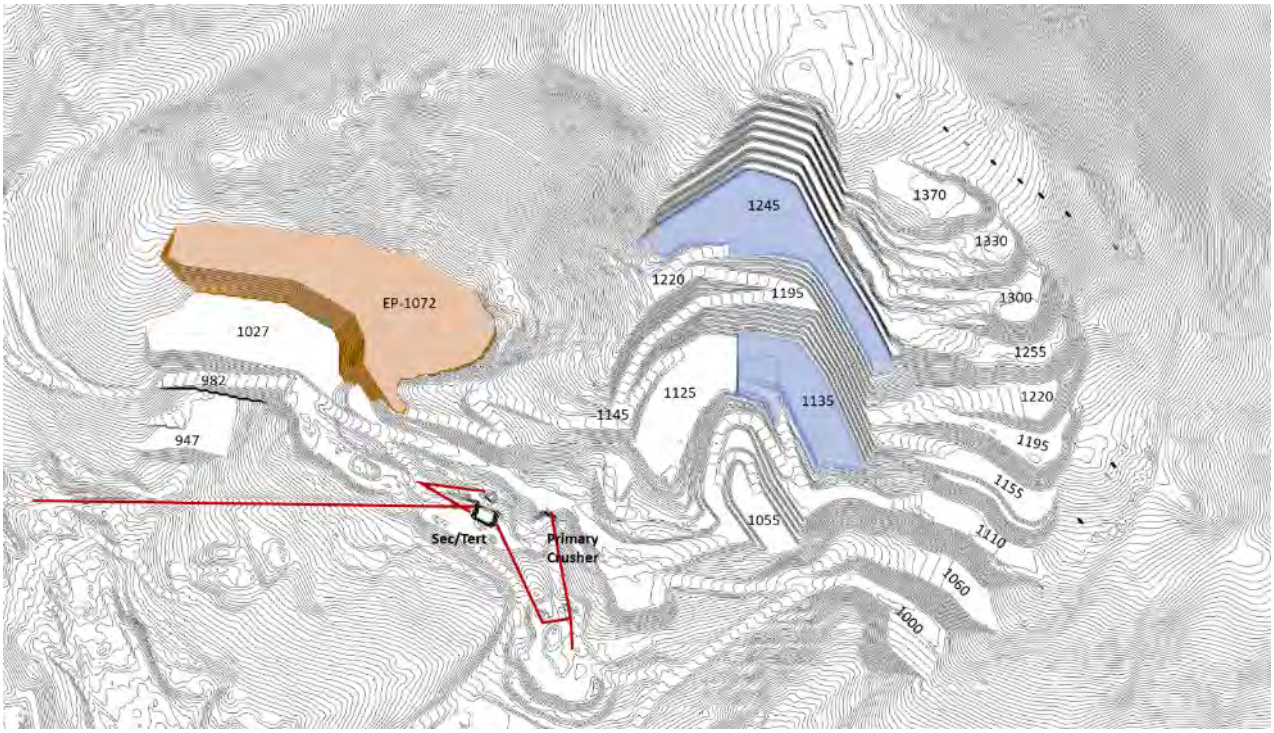


Figure 2.4-23: End December 2022 Planned Eagle Pit and WRSA Development

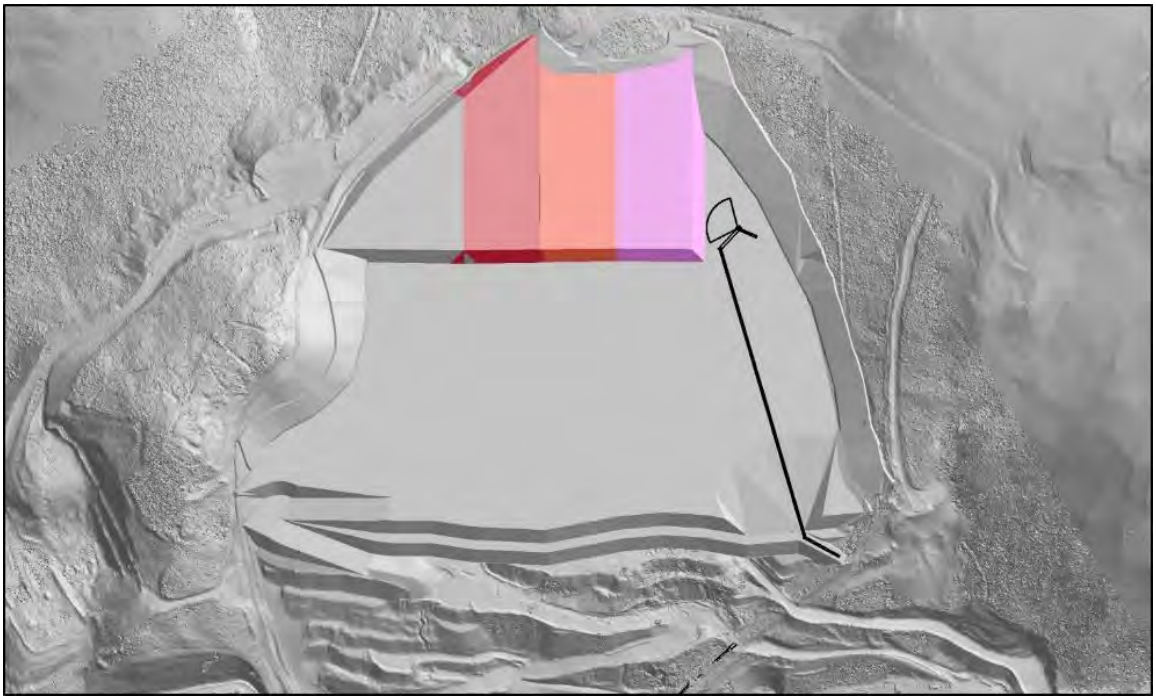


Figure 2.4-24: End December 2022 Planned HLF Development

2.5 Description of Water Use and Deposit of Waste

2.5.1 Description of Water Use

2.5.1.1 Water Use

Potable water to supply the camp was sourced from the groundwater well (MW10-DG07) located to the north of the main camp. Daily usage remained below the authorized daily limit of 157 m^3/day, averaging approximately 56 m^3/day throughout the year, while ranging between a minimum of 22 m^3/day to 100 m^3/day (Figure 2.5-1).

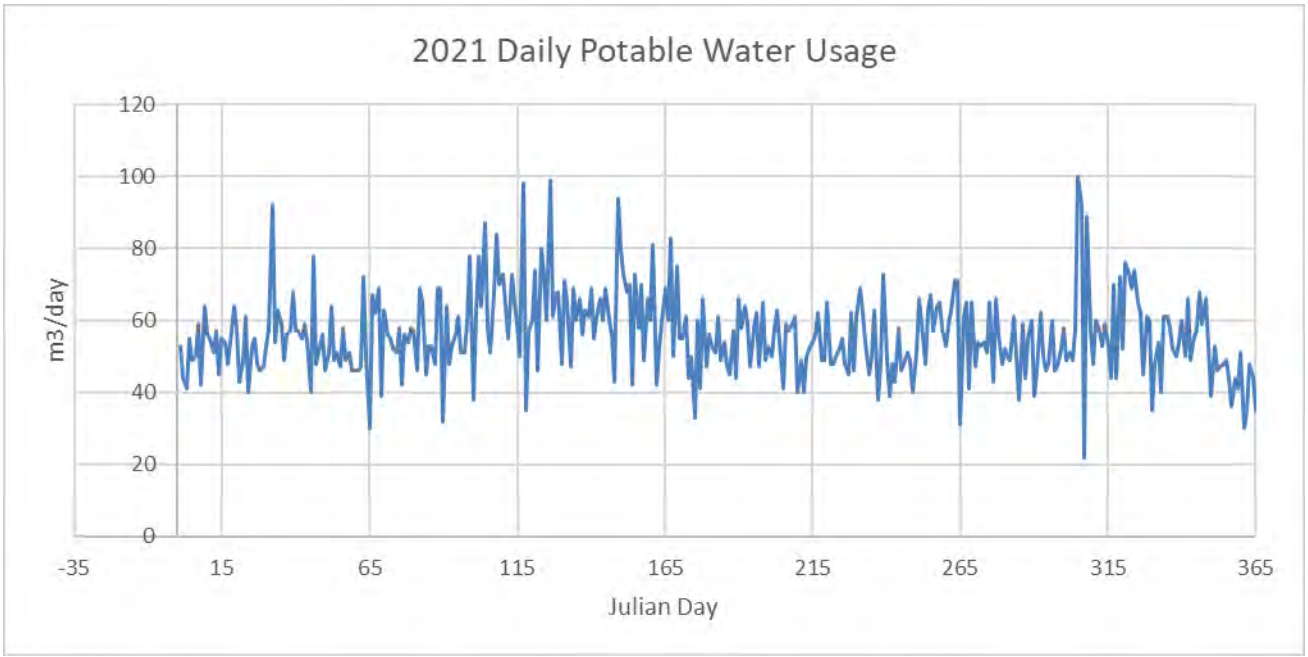


Figure 2.5-1: Daily Potable Water Usage in 2021

Water supply for drilling was sourced from the Camp Well (PW-JDS18-001) located just north and adjacent to Dorm A. Usage was intermittent throughout each month, ranging from 14.0 m^3/month in January to over 206 m^3/month in April, with an annual average of 1.3 m^3/day (Figure 2.5-2). The maximum usage in one day was 13.9 m^3/day on March 30, 2021.

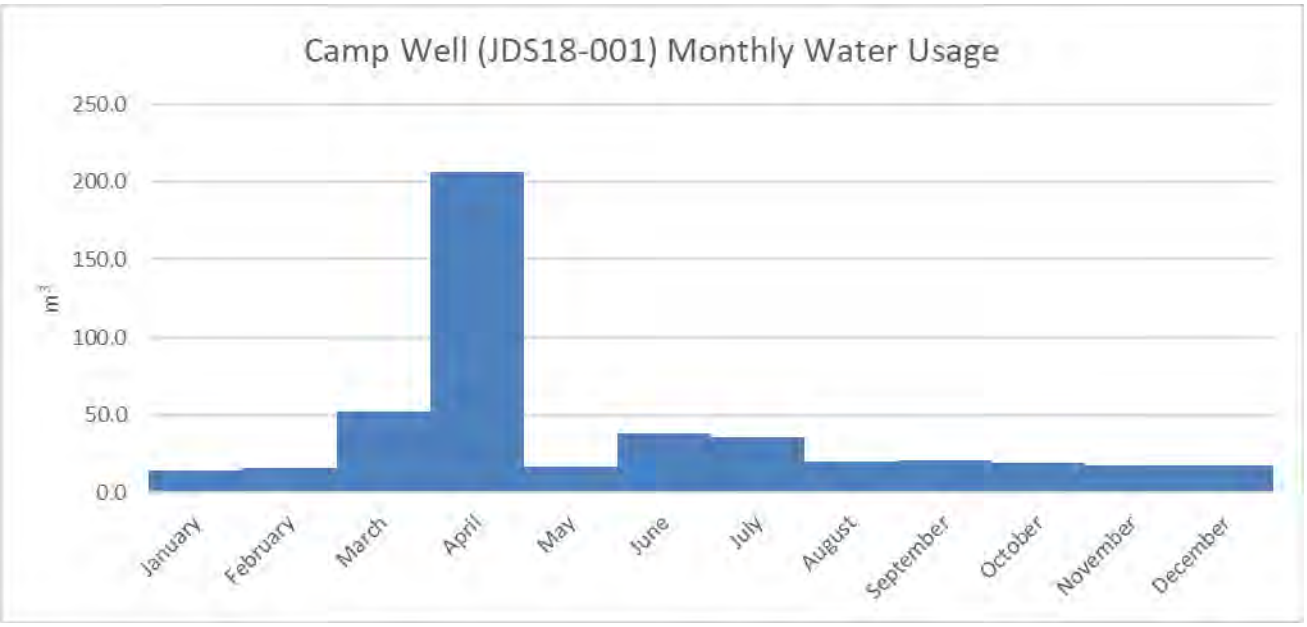


Figure 2.5-2: Monthly Camp Well Usage for Drilling in 2021

During 2021, approximately 48,300 m^3 of water were used for dust suppression. Usage peaked in July with a total consumption of 18,556 m^3, or an average daily rate of 599 m^3/day (Figure 2.5-3). The daily maximum at any given time was 863 m^3/day, which was less than the licensed daily allowable usage rate of 908 m^3/day. Total annual water usage for gold processing (water use for leaching and rinsing ore) was ~756 m^3/day, which was within the QZ14-041-1 limit of 3,387 m^3/day. This is discussed further in Section 2.6 as part of the HLF Solution Inventory Monitoring Program.

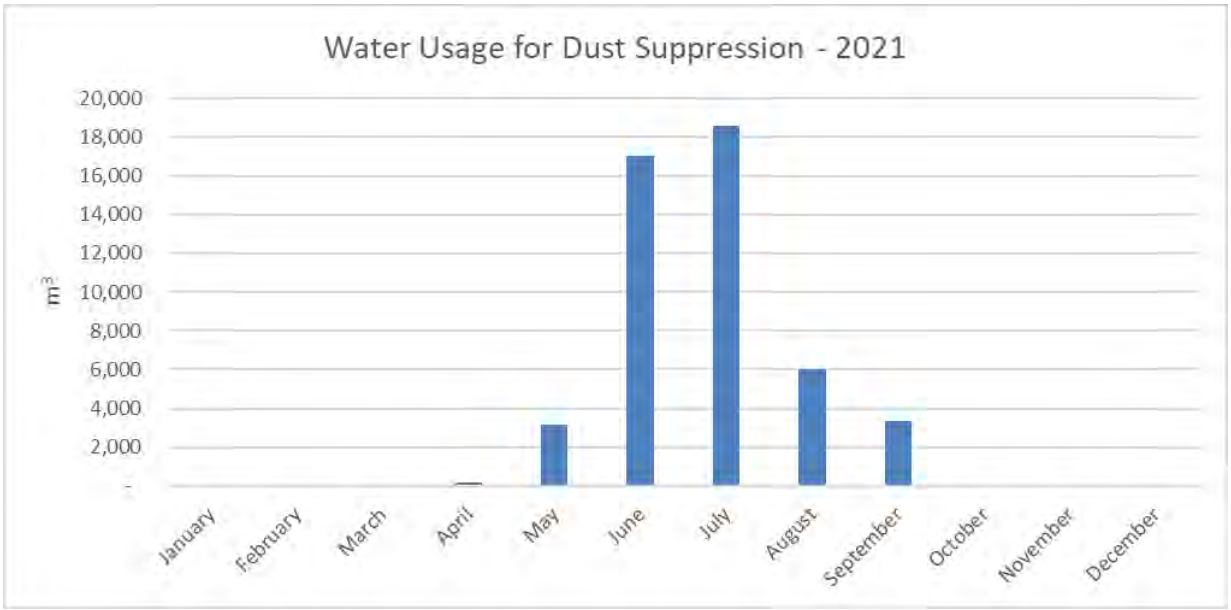


Figure 2.5-3: Water Usage for Dust Suppresion in 2021

2.5.1.2 Water Storage

Water licence condition #134a(ii) requires records of the measurement of water volume inventories in the HLF, storage ponds, and sediment control ponds, and in this case the Events Pond, In-Heap Pond and the LDSP. The amount of water stored within the Events Pond and LDSP are calculated based on regular surveys of fluid elevations in each pond. The In-Heap Pond is determined based on piezometer measurements of the fluid elevations levels within the HLF. More detail on the volumes of water associated with the HLF are described in Section 2.6.1 (HLF Solution Inventory Monitoring Program). Month-end volumes for these three ponds is provided in Table 2.5-1.

Table 2.5-1: Phase 1 Desired Available Storage Considerations

End of Month	Month End Volume of Water Stored in Events Pond (m^3)	Month End Volume of Water Stored in LDSP (m^3)	Month End Volume of Water Stored in the In-Heap Pond (m^3)
January	48,999	26,470	26,453
February	57,077	25,517	41,181
March	62,059	26,947	49,382
April	116,716	33,204	26,591
May	195,252	44,254	36,694
June	190,158	15,507	23,836
July	76,268	31,743	28,138
August	121,243	17,258	16,661
September	137,277	30,525	20,843
October	166,670	27,661	12,429
November	54,835	43,229	33,641
December	81,433	26,947	28,229

Figure 2.5-4 compares the daily total available combined storage in the Events Pond and the In-Heap Pond throughout 2021 with the QZ14-041-1 DAS and the monthly changing DAS calculated assuming the actual leaching rate. The QZ14-041 DAS is conservatively calculated assuming the potential maximum leaching rate of 2,070 m^3/hr for a 72-hour draindown, plus consideration for the 24-hour rainfall event and 0.5 m of freeboard. However, the actual leaching rate varied from about 1,015 m^3/hr during May 2021 to 1,781 m^3/hr in October, well below the potential maximum rate assumed in the licence calculation (Table 2.5-2), thus the operational DAS was substantially below the QZ14-041-1 DAS throughout the year.

Available storage fluctuated in response to heap water demands, the timing of snowmelt (freshet) and rainfall, and the transfer of water between ponds as part of the overall water management strategy to minimize the risk of an unauthorized discharge. Available storage was at a maximum (~300,000 m^3) in early January, but slowly decreased through freshet and by the end of May was at a minimum of about 100,000 m^3. For a short period of time (end of May through to first half of June), and a three-day period in November, the available storage was less than the operational DAS. This was rectified by maximizing production rates (over 39,000 t/day during July, compared to the 2021 annual average of ~25,000 t/day) to use as much water as possible and then by discharging ~81,000 m^3 in July and another ~88,000 m^3 in November to the receiving waters (further discussed Section 2.5.2). The discharge was made possible by maximizing pond settling capacity to lower total suspended solids and total arsenic concentrations to meet discharge criteria. The steady decline in available storage from late July 2021 to

early November 2021 reflected the very high total rainfall volume (~328 mm) that fell on the HLF over the three-month period from July through September, compared to the long-term average of 169 mm for the same period.

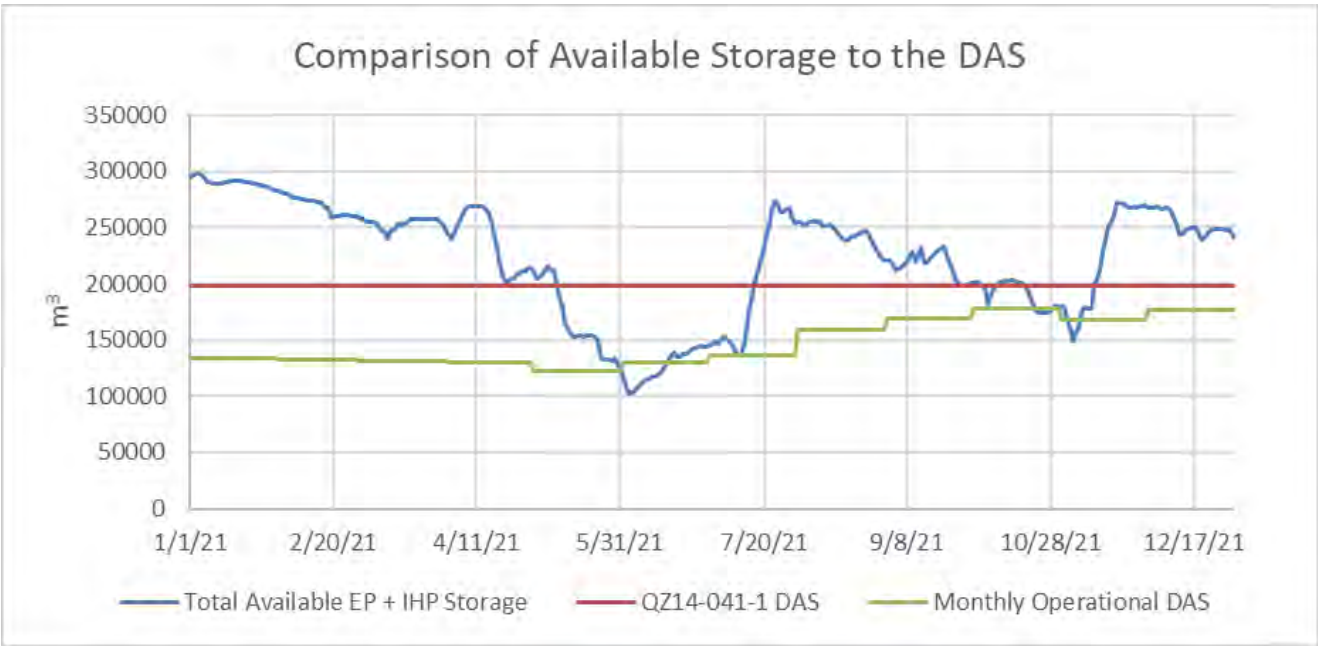


Figure 2.5-4: Comparison of Available Storage Volume to the Desired Available Storage Requriements

Table 2.5-2: Monthly Operational Desired Available Storage Calculations in 2021

Month	Average Leach Rate (m^3/hr)	72-Hr Draindown (m^3)	0.5 m Freeboard (m^3)	Phase 1 24-Hr 100-yr Event Volume (m^3)	Monthly Operational DAS (m^3)
January	1,179	84,888	19,600	29,700	134,188
February	1,164	83,808			133,108
March	1,135	81,720			131,020
April	1,118	80,496			129,796
May	1,016	73,116			122,416
June	1,121	80,676			129,976
July	1,218	87,696			136,996
August	1,528	109,980			159,280
September	1,659	119,448			168,748
October	1,781	128,232			177,532
November	1,655	119,160			168,460
December	1,768	127,296			176,596

Note:
Calculations assume a maximum Event Pond storage capacity of 300,577 m^3 and a maximum In-Heap Pond Volume of 57,763 m^3 for a combined storage of 358,340 m^3.

2.5.1.3 Water Transfers

Section 2.6 provides specific details on the volumes and rates of water and solution management for the HLF as required under the Solution Inventory Monitoring Program specified in QZ14-041 (Condition 117). Other water transfers considered under Condition 134a(i) are described here and summarized in Table 2.5-3. The relatively large volume of water transferred from the LDSP to the Events Pond from April to June reflect primarily snowmelt runoff during freshet, while the large transfers in August, September and October reflect the very high runoff from extremely high rainfall totals experienced in July, August and September (as noted above in Section 2.5.1.1). The monthly flow data collected from the HLF UMV reflects a slight lag and some attenuation in seasonal variability due to the groundwater signature. Flow was highest during July (over 6,800 m^3/month or 220 m^3/day) and lowest in March (3,674 m^3 or 119 m^3/day).

The total volume held in the LDSP fluctuated between 11,000 m^3 and 48,000 m^3 as depicted in Figure 2.5-5. Inflow reflected snowmelt runoff and periodic rainfall events, plus a steady baseflow from the contributions from Ditches A and B, while the outflow was primarily due to periodic transfers of the water to the Events Pond.

Table 2.5-3: Month End Water Volumes and Transfers in 2021

Month	Total Volume Pumped from HLF Underdrain to Events Pond (m3)	Total Volume Pumped from LDSP to Events Pond (m3)
January	6,087	0
February	3,882	0
March	3,674	0
April	3,766	52,338
May	3,819	102,456
June	5,379	39,819
July	6,834	7,664
August	6,044	74,830
September	5,354	44,286
October	5,449	58,947
November	4,928	4,052
December	4,736	30,019

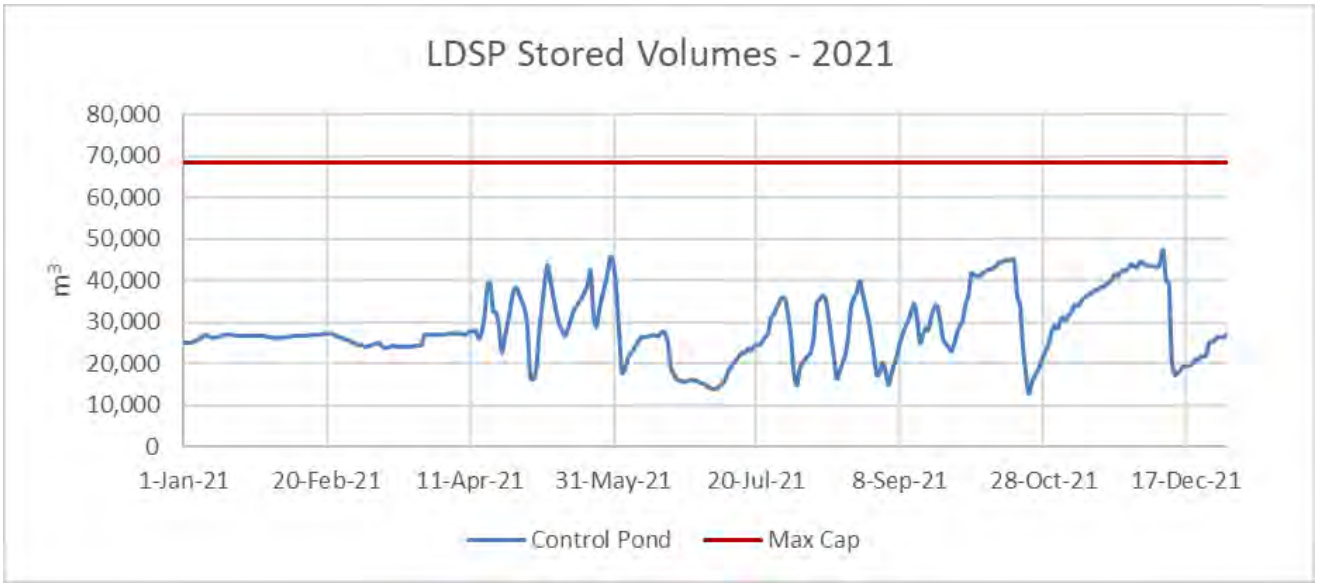


Figure 2.5-5: Daily LDSP Volume Held in Storage in 2021

HLF UMV daily flow pumped to the Events Pond was generally steady. The slow decline over the winter reflected slowly decreasing seepage into the underdrains, which was followed by a slow and steady increase beginning in early May and peaking in mid-July. The lag between peak freshet and peak seepage flow to the underdrains is attributed to delay in the time required for precipitation to recharge groundwater. The flow signature also exhibits some abrupt peaks or dips, typically occurring over a single day. These are attributed to a short-circuited recharge event where meteoric water is fed almost directly to the underdrains, or operational variability in that the totalizing meter may have been read incorrectly. In one instance in November, the UMV pump failed, and water backed up in the system such that zero flow was pumped. The malfunction was quickly recognized and repaired, and the flow rates returned to normal.

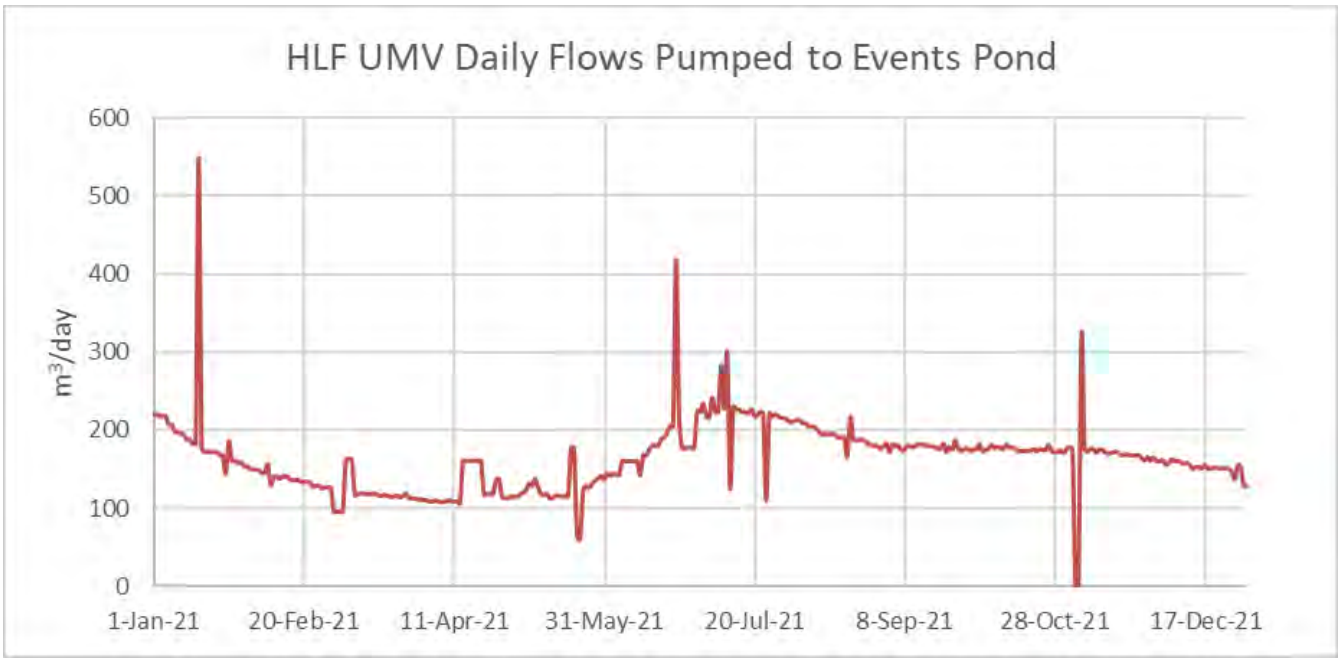


Figure 2.5-6: Daily Volume of Flow Transferred From the HLF UMV to the Events Pond in 2021

2.5.2 Deposit of Waste

Discharges of water compliant with the effluent quality standards of QZ14-041-1 were undertaken in July and November. After sufficient settling time in both the LDSP and then later the Events Pond, from July 13 to July 24, 2021, approximately 80,900 m^3 of water with an average daily discharge rate of ~6,750 m^3/day were discharged from the Events Pond through the LDSP weir and into Ditch C. Then again, from November 12 to November 21, 2021, another 87,500 m3 of water with an average daily discharge rate of ~8,750 m^3/day were discharged in the same manner. Section 3.2.3 provides a detailed description of the managed flows with respect to effluent quality character and water quality objectives for the receiving waters (Haggart Creek).

2.6 HLF Solution Monitoring Program

Stacking of ore on the Heap Leach Pad continued through 2021; a few exceptions occurred due to planned maintenance down times scheduled throughout the year.

The WUL condition #117 requires eleven specific data requirements be recorded as part of the HLF Solution Inventory Monitoring Program (SIMP). Conditions 117a) and 117j) require daily reporting while the remaining conditions require monthly reporting. The following summarizes the data for each sub-condition of WUL #117:

117a) The daily average available storage volume in the In-Heap Pond is provided in Appendix B. The data record begins on January 1, 2021 and was recorded daily.

2.6.1 HLF Solution Inventory Monitoring program

Stacking of ore on the Heap Leach Pad continued through 2021; a few exceptions occurred due to planned maintenance down times scheduled throughout the year.

The WUL condition #117 requires eleven specific data requirements be recorded as part of the HLF Solution Inventory Monitoring Program (SIMP). Conditions 117a) and 117j) require daily reporting while the remaining conditions require monthly reporting. The following summarizes the data for each sub-condition of WUL #117:

117a) The daily average available storage volume in the In-Heap Pond is provided in Appendix B. The data record begins on January 1, 2021 and was recorded daily.

117b) The month-end volumes of water stored in the HLF are provided in Table 2.6-1. These volumes include the snow water equivalent of any snow cover on the Heap Pad, the Event Pond, and the Events Pond catchment below the ADR Plant; it also includes the month end volumes of water stored in the Events Pond and the In-Heap Pond plus the month-end volume of draindown water (or mobile leaching volume) stored in ore. The overall increase in moisture gained over the year reflect the increasing tonnage of stacked ore.

117c) The total monthly volumes and the average pumping rates of barren solution pumped to the heap leach pad for leaching are provided in Table 2.6-1.

117d) The total monthly volumes and the average pumping rates of pregnant solution pumped from the In-heap Pond to the ADR are provided in Table 2.6-1.

117e) The total monthly volumes of water flowing or pumped from the In-Heap Pond to the Events Pond is provided in Table 2.6-1. There were no water transfers from the In-Heap Pond to the Events Pond during the 2021 reporting period.

117f) The total monthly volumes of water pumped from the Events Pond to the ADR and the In-Heap Pond are provided in Table 2.6-1.

117g) The total monthly volumes of precipitation falling on the HLF and the Events Pond catchments are provided in Table 2.6-1. These values reflect the catchments below diversions.

117h) The total monthly volumes of Water Transfers into the HLF are provided in Table 2.6-1. The values reflect groundwater input from the main production well, as well as transfers from the Events Pond and the LDSP.

117i) The total monthly volumes and average treatment rates of any solution treated in the MWTP and released to the environment are provided in Table 2.6-1. No HLF solution water was released to the environment and the MWTP has not yet been constructed.

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117j) The daily average moisture volumes of ore delivered to the HLF is provided in Appendix B. The total annual volume added to the HLP as ore moisture was 222,586 m^3, averaging 756 m^3/day.

117k) The monthly volumes of water added to the HLF as ore moisture content are provided in Table 2.6-1. These values are based on the daily moisture volumes in Appendix B.

Table 2.6-1: Heap Leach Solution Inventory Monitoring Program – Monthly Volumes and Flow Rates

End of Month	**117b)** Month-end Volume of Water Stored in the HLF (m^3)[a]	**117c)** Total Volume of Barren Solution Pumped to HLP (m^3)	**117c)** Average Barren Flow Rate (m^3/hr)	**117d)** Total Pregnant Volume Pumped to ADR (m^3)	**117d)** Average Pregnant Return Flow Rate (m^3/hr)	117f) Total Volume from Control Pond to ADR Plant or In-Heap Pond (m3)	117f) Total Volume from Events Pond to ADR Plant or In-Heap Pond (m3)	117f) Total Volume from Deep Well to ADR Plant or In-Heap Pond (m3)	117g) Total Precipitation Falling on HLF and Event Pond Catchment (m3)	117h) Total Volume of Water Transfers Pumped into HLF/ADR (m3)	117k) Total Volume of Water Added to HLP as Ore Moisture (m3)
January	565,688	855,837	1,150	898,855	1,208	0	0	19,730	17,501	19,730	2,664
February	615,168	759,920	1,131	804,660	1,197	0	0	2,379	15,395	2,379	4,214
March	412,211	818,337	1,100	870,243	1,170	0	0	7,016	10,321	7,016	13,498
April	423,656	781,231	1,085	828,671	1,151	0	1,128	4,410	7,036	5,538	15,091
May	581,763	734,051	987	776,912	1,044	0	27,744	353	46,322	28,097	18,881
June	669,976	783,018	1,088	830,172	1,153	13,565	36,563	0	22,328	50,128	17,284
July	560,031	882,177	1,186	930,137	1,250	5,102	26,296	7	70,185	31,405	27,336
August	454,605	1,108,474	1,490	1,164,432	1,565	0	32,554	0	86,533	32,554	29,270
September	461,639	1,166,053	1,620	1,222,627	1,698	1,160	33,434	0	56,351	34,594	24,818
October	713,598	1,295,019	1,741	1,354,952	1,821	150	35,126	116	33,209	35,392	26,325
November	706,569	1,173,127	1,629	1,210,009	1,681	1,193	19,954	339	16,725	21,486	25,509
December	710,004	1,286,291	1,729	1,344,738	1,807	0	0	7,492	21,695	7,492	17,696
Annual						**21,170**	**212,798**	**41,843**	**403,602**	**275,811**	**222,586**

NOTES:

a) Defined as total water stored in In-Heap Pond minus field capacity, plus the draindown volume stored above the In-Heap Pond at optimum moisture minus residual by volume, plus water stored in the Events Pond.

2.6.2 HLF Foundation Drainage System Monitoring

The WUL condition #134a requires that the annual report include a description of the water use and a description of any deposit of waste carried out during the year associated with leakage into the Leak Detection and Recovery System (LDRS) of the HLF. There was no deposit of waste associated with the LDRS. All leakage was recovered in the LDRS and pumped back into the process solution circuit. The following describes the operation of the LDRS during 2021.

The Leak Detection and Recovery System (LDRS) within the In-Heap Pond has a sump that is located at the bottom of the In-Heap Pond. The sump sits between the closure sump and the PLS sump, with a bottom elevation of 908.5 m sealed with an 80-mil (2.0mm) LLDPE primary liner. The top of the sump lies at 911.5 m and is sealed with a 60-mil (1.5 mm) LLDPE secondary liner. The leak detection layer of the liner system (i.e., geonet material located between the two geomembranes) under the In-Heap Pond drains into the LDRS sump. The LDRS pump casings consist of steel 600-mm pipes which ends in a perforated hammer head configuration at the bottom of the sump. A grid of corrugated, perforated 250-mm N-12 pipes collect and direct seepage towards the LDRS pump casings and LDRS pump. The pump is sized to sufficiently remove fluids to minimize head on the bottom liner. The LDRS sump is filled with crushed overliner drain fill material. The LDRS sump is also equipped with an instrument casing that houses a vibrating wire piezometer (VWP), which is used to monitor fluid levels in the LDRS sump.

The HLF LDRS has established alert levels for the design and operation of the In-Heap Pond and Events Pond. Alert levels vary with the pond level since the hydraulic head dictates the rate of leakage. Alert Level 1 (AL1) provides a benchmark for liner performance in a double-lined pond under typical operating conditions based on industry standard rates for expected leakage from “normal” defects in the liner. AL1, as measured by the amount of fluid pumped by the pond’s LDRS, is a low-level trigger that may indicate the presence of a small hole or defect in the top geomembrane and is intended to represent the leakage rate expected from geomembranes installed with strict construction quality assurance. Alert Level (AL2) provides a high-level trigger that indicates serious malfunction of the liner system. The expected leakage rates are based on design criteria and the as-built conditions. As detailed in the HLF Operation, Maintenance and Surveillance Manual, there are four response levels considered for the operations of the HLF to ensure that response actions can be taken at periods when leakage levels may be approaching the design Alert Levels.

Figure 2.6-1 shows the measured leakage rates compared to the allowable AL1 leakage rate during 2021. The data indicate that the HLF liner system is functioning as designed. These rates were reviewed by the Engineer of Record for the HLF and verified to represent proper functioning of the liner system.

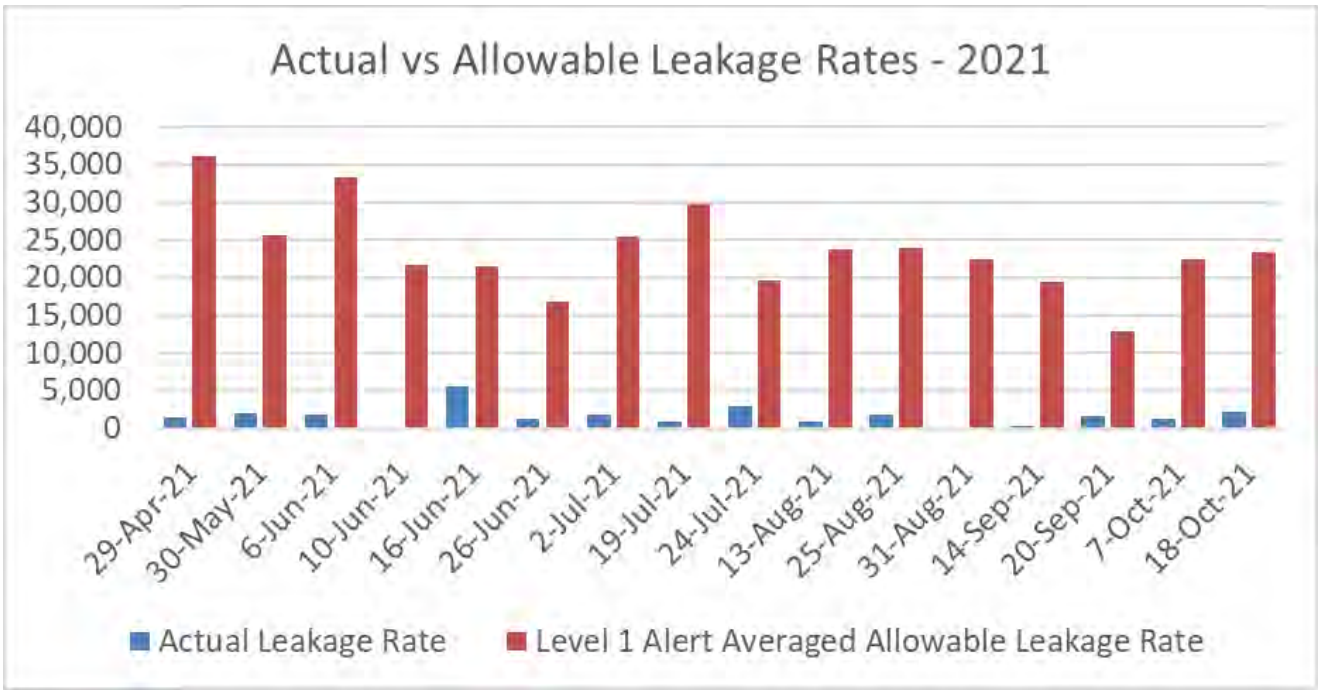


Figure 2.6-1: LDRS Actual Leakage Rates Versus AL1 Leakage Rates in 2021

3 ENVIRONMENTAL MONITORING

3.1 Surface Water Hydrology

The *2021 Streamflow Monitoring Report* included as Appendix C presents summary of streamflow data (i.e., baseline, construction and operational data) collected for the Project since August 2007, including hydrometric information summarized in previous reports (Jacques Whitford 2008; Stantec 2010; Stantec 2011; Stantec 2012; Knight Piésold 2013, Lorax 2017, Lorax 2018, Lorax 2019, Lorax 2020 and Lorax 2021) and data collected in 2021. Figure 3.1-1 shows the locations of Project hydrometric stations monitored and Table 3.1-1 presents station monitoring records and drainage information for each station.

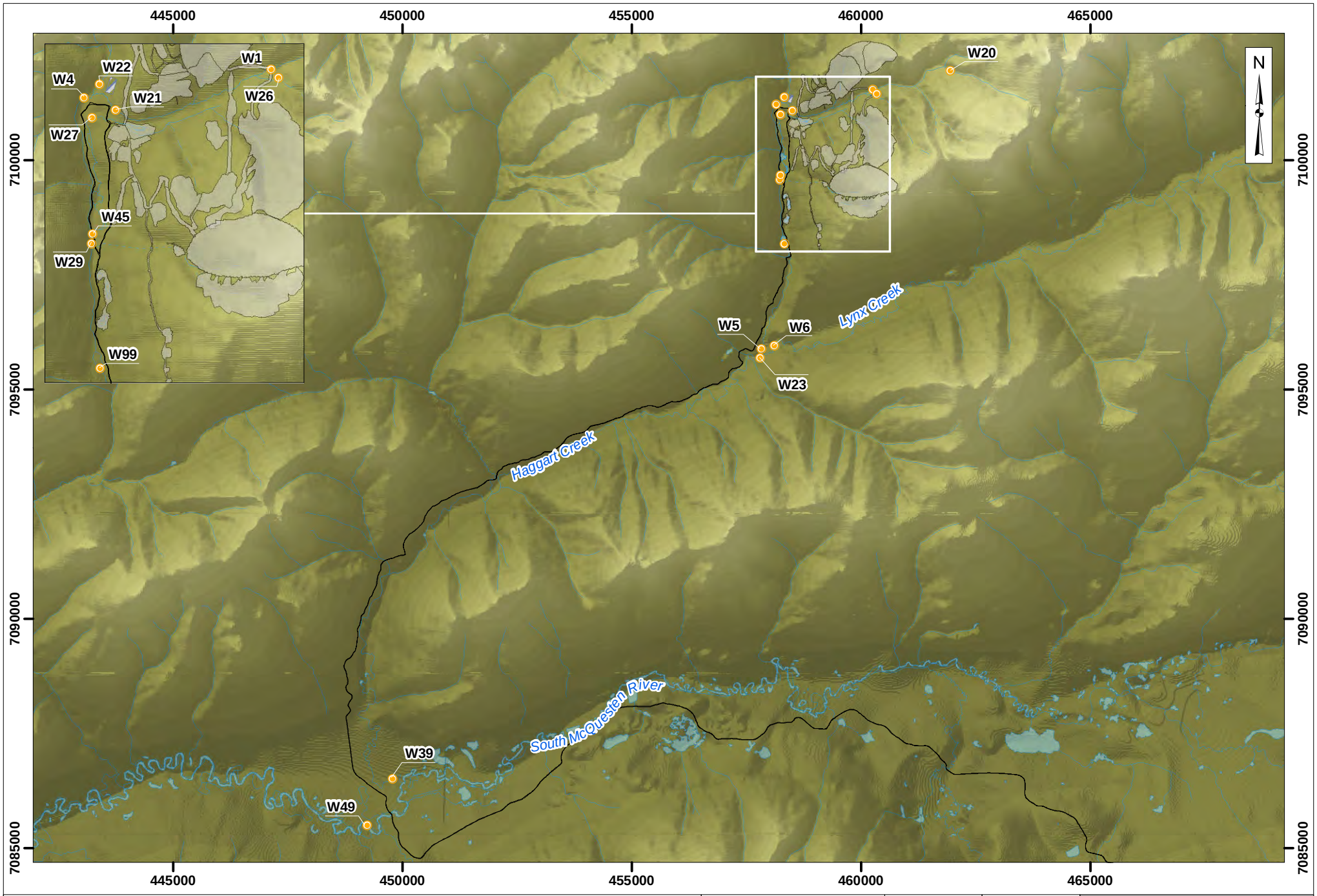
Table 3.1-1: Project Hydrology Stations

Station	Station Name	Record Period	Northing	Easting	Drainage Area (km^2)	Median Basin Elevation (m asl)	Notes
W1	Dublin Gulch above Stewart Gulch	2007 - 2021	7101545	460249	7.0	1,303	Continuous discharge time-series 2021 logging period: Jul 5 to Oct 4
W4	Haggart Creek below Dublin Gulch	2007 – 2021	7101223	458144	76.9	1,125	Continuous discharge time-series 2021 logging period: Apr 19 to Oct 3
W5	Haggart Creek above Lynx Creek	2007 – 2021	7095888	457815	97.5	1,091	Continuous discharge time-series 2021 logging period: May 8 to Oct 3
W6	Lynx Creek above Haggart Creek	2007 – 2021	7095964	458099	100.9	1,049	Continuous discharge time-series 2021 logging period: Jul 5 to Oct 3
W23	Haggart Creek below Lynx Creek	2007 – 2021	7095682	457790	97.6	1,066	Manual Measurements
W21	Dublin Gulch below Events Ponds	2018 – 2021	7101261	458359	10.1	1,216	Continuous discharge time-series 2021 logging period: May 8 to Oct 13
W22	Haggart Creek above Dublin Gulch	2007 – 2021	7101377	458319	66.8	1,113	Continuous discharge time-series 2021 logging period: May 7 to Oct 3
W26	Stewart Gulch	2007 – 2021	7101443	460331	1.3	1,183	Continuous discharge time-series, manual data only for 2007 - 2009, 2011. 2021 logging period: Jun 18 to Oct 4
W27	Eagle Creek near Camp	2007 – 2021	7100997	458235	2.7	1,037	Continuous discharge time-series, manual data only for 2007 and 2018
W29[1]	Haggart Creek below Eagle Creek	2010 - 2015, 2020 - 2021	7099583	458225	86.1	1,112	Manual measurements for 2010, continuous data thereafter 2021 logging period: May 7 to Oct 32
W45	Eagle Creek at Mouth	2018 – 2021	7099740	458243	3.9	1,112	Continuous water level time-series, manual measurements 2021 logging period: Apr 19 to Oct 2
W99	Haggart Creek above 15 Pup	2019-2021	7098180	458322	90.1	1,116	Continuous discharge time-series 2021 logging period: Jul 5 to Oct 3
W20	Bawn Boy Gulch	2016-2021	7101961	461945	2.4	1,364	Manual Measurements
W39	Haggart Creek above South McQuesten River	2017-2021	7086504	449780	*	*	Manual Measurements
W49	South McQuesten River below Haggart Creek	2017-2021	7085495	449221	*	*	Manual Measurements

NOTES:

1. No continuous water level data are available for this station for 2016-2021, however manual measurements continue (see Lorax, 2021)

* Values unavailable at the time of this report.



Legend:

Hydrology Station
Facility Footprint
Watercourse - Perennial
Watercourse - Ephemeral
Watercourse - Intermittent

VICTORIA GOLD CORP

0 750 1,500 3,000
Metres

Projection: NAD 83 UTM Zone 8N	Drawn By: HC	EAGLE GOLD MINE YUKON TERRITORY	
Date: 2022/03/31	Figure: 3.1-1	Project Hydrology Stations	

3.1.1 Surface Water Hydrology Monitoring

Streamflow data for the automated stations listed in Table 3.1-1 are provided in Appendix C in the following formats:

- Monthly tables showing average, maximum and minimum 15-minute discharge values (m^3/s);
- Monthly tables showing average discharge (m^3/s), average unit yields ($L/s/km^2$) and total runoff (mm);
- Time-series plots of continuous average daily discharge (m^3/s) and spot flow measurements (m^3/s), and;
- Time series plots of average daily unit yields ($L/s/km^2$), by year.

Issues were encountered with the stage records for 2021 at the following stations:

- W29 - The stilling well and datalogger at W29 were decommissioned due to channel instability in the area in 2019. W99 is utilized as a surrogate station. The station was re-commissioned in July 2020 as a backup for the W99 record and to maintain the site in accordance with licence terms. Manual measurements continue to be reported for this station.
- W45 - Eighteen paired staff gauge: discharge measurements are available for this site, however there is not sufficient range in flow and stage data to develop a rating curve; thus only the stage data are provided with spot discharge measurements, noting that a malfunction of the transducer in 2021 precludes inclusion of water level data for this year.
- W20 - Manual flow and stage measurements are conducted when access allows which can be challenging in freshet or winter conditions. Data is not sufficient to develop a rating curve.

Period of record unit yield plots for the eight hydrometric stations are shown in Figure 3.1-2. The figure demonstrates that 2021 was a relatively typical year, although with maximum flows and the overall hydrograph unit values on the low side compared to previous years.

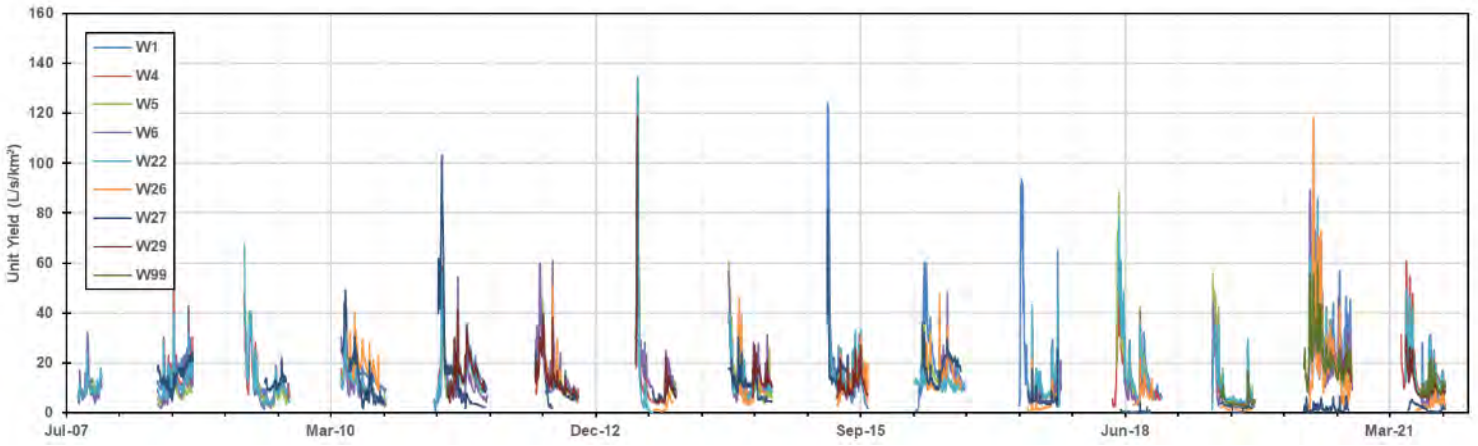


Figure 3.1-2: Average Daily Unit Yield Time-Series for Project Hydrometric Stations (2017-2021)

This trend is also apparent with a review of Table 3.1-2 to Table 3.1-11 , which provides complied streamflow summary statistics (average, minimum and maximum flows) for 2021 compared to the same statistics compiled over the full period of baseline record. All values are in m^3/s using 15-minute continuous discharge records. Shading of the table cells provides a quick assessment of whether flows were generally low or high for a particular station during each month of record. In general, the predominance of yellow shading indicates that flows in 2021 were below average for most months and most of the stations except W4 and W22. Also, minimum monthly flows were recorded at W1, W26, W27 and W29, suggestive of lower-than-average flow conditions at these stations. Importantly, except for W27, these lower-than-average flow trends were apparent at W1, W6 and W26, which are all upgradient of the project, and indicate that the low flow condition is not a Project related effect. The lower-than-average flows observed in W27, however, do represent a project effect, as much of this watershed is now collected by the LDSP, and subsequently used for process make-up water or discharged to Haggart Creek (via Ditch C), and therefore some of the W27 drainage bypasses the W27 hydrometric station.

Legend for Highlighting in Tables 3.1-2 to 3.1-11 and 3.1-14.

Average
lower than monthly average
exceeded monthly average
Maximums
maximum on record
Minimums
minimum on record

Table 3.1-2: W1 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	--	--	0.075	0.055	0.033	0.019	--	--
	Maximum	--	--	--	--	--	--	0.250	0.157	0.094	0.034	--	--
	Minimum	--	--	--	--	--	--	0.016	0.022	0.006	0.007	--	--
All Years	Average	--	--	--	0.024	0.260	0.113	0.091	0.091	0.089	0.096	0.069	--
	Maximum	--	--	--	0.104	1.923	0.707	0.346	0.503	0.557	0.719	0.091	--
	Minimum	--	--	--	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.053	--

Table 3.1-3: W4 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	1.235	2.494	1.342	0.689	1.178	1.042	0.941	--	--
	Maximum	--	--	--	2.576	6.680	5.005	1.832	3.573	1.480	1.135	--	--
	Minimum	--	--	--	0.615	0.666	0.525	0.439	0.409	0.785	0.770	--	--
All Years	Average	--	--	--	0.912	2.154	1.199	0.858	0.911	0.917	0.803	0.847	--
	Maximum	--	--	--	2.576	8.079	9.600	4.834	6.649	2.905	5.001	1.145	--
	Minimum	--	--	--	0.150	0.060	0.304	0.090	0.159	0.021	0.021	0.565	--

Table 3.1-4: W5 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	2.857	1.405	0.799	1.211	1.039	0.978	--	--
	Maximum	--	--	--	--	5.954	4.142	2.022	3.141	1.468	1.161	--	--
	Minimum	--	--	--	--	1.668	0.685	0.566	0.486	0.820	0.826	--	--
All Years	Average	--	--	--	--	3.053	1.524	1.060	1.056	1.050	1.063	--	--
	Maximum	--	--	--	--	17.273	7.265	6.883	6.815	4.196	4.904	--	--
	Minimum	--	--	--	--	0.819	0.264	0.153	0.132	0.124	0.081	--	--

Table 3.1-5: W6 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	--	--	0.450	1.159	0.981	0.910	--	--
	Maximum	--	--	--	--	--	--	1.102	4.140	1.848	1.151	--	--
	Minimum	--	--	--	--	--	--	0.198	0.240	0.659	0.785	--	--
All Years	Average	--	--	--	--	3.112	1.285	0.938	1.144	1.205	1.050	0.903	--
	Maximum	--	--	--	--	17.947	8.308	7.120	6.007	4.427	5.172	1.788	--
	Minimum	--	--	--	--	0.280	0.136	0.038	0.166	0.162	0.112	0.385	--

Table 3.1-6: W21 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	0.281	0.135	0.058	0.044	0.046	0.049	--	--
	Maximum	--	--	--	--	0.525	0.500	0.199	0.059	0.063	0.063	--	--
	Minimum	--	--	--	--	0.139	0.012	0.010	0.030	0.032	0.034	--	--
All Years	Average	--	--	--	--	0.281	0.128	0.063	0.088	0.072	0.059	--	--
	Maximum	--	--	--	--	0.525	0.500	0.270	0.349	0.187	0.251	--	--
	Minimum	--	--	--	--	0.139	0.003	0.009	0.030	0.000	0.000	--	--

Table 3.1-7: W22 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	2.051	1.019	0.544	1.035	0.843	0.775	--	--
	Maximum	--	--	--	--	4.661	3.685	1.159	3.670	1.176	0.921	--	--
	Minimum	--	--	--	--	0.509	0.407	0.350	0.345	0.608	0.635	--	--
All Years	Average	--	--	--	0.613	1.951	1.027	0.715	0.802	0.789	0.726	0.937	--
	Maximum	--	--	--	1.455	20.630	8.811	3.198	3.928	2.951	3.330	1.342	--
	Minimum	--	--	--	0.125	0.015	0.105	0.002	0.186	0.106	0.060	0.558	--

Table 3.1-8: W26 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	--	0.002	0.003	0.006	0.007	0.003	--	--

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Maximum	--	--	--	--	--	0.004	0.007	0.025	0.026	0.007	--	--
	Minimum	--	--	--	--	--	0.000	0.000	0.001	0.003	0.001	--	--
All Years	Average	--	--	--	--	0.035	0.020	0.014	0.014	0.011	0.009	--	--
	Maximum	--	--	--	--	0.182	0.176	0.143	0.065	0.063	0.058	--	--
	Minimum	--	--	--	--	0.001	0.000	0.000	0.000	0.000	0.001	--	--

Table 3.1-9: W27 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	0.009	0.010	0.005	0.001	0.003	0.004	--	--
	Maximum	--	--	--	--	0.020	0.016	0.095	0.013	0.009	0.005	--	--
	Minimum	--	--	--	--	0.001	0.004	0.000	0.000	0.000	0.003	--	--
All Years	Average	--	--	--	0.007	0.059	0.026	0.020	0.018	0.017	0.024	--	--
	Maximum	--	--	--	0.020	0.335	0.144	0.315	0.138	0.123	0.105	--	--
	Minimum	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	0.000	--	--

Table 3.1-10: W29 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	1.656	0.938	0.597	0.845	0.733	0.691	--	--
	Maximum	--	--	--	--	3.434	2.697	1.605	2.059	0.962	0.800	--	--
	Minimum	--	--	--	--	0.922	0.472	0.421	0.383	0.568	0.606	--	--
All Years	Average	--	--	--	--	2.058	1.123	1.059	1.100	1.135	0.951	--	--
	Maximum	--	--	--	--	13.604	3.766	4.497	4.955	2.818	2.069	--	--
	Minimum	--	--	--	--	0.653	0.229	0.421	0.007	0.328	0.023	--	--

Table 3.1-11: W99 Comparison of 2021 Summary Statistics to Baseline Record

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2021	Average	--	--	--	--	--	--	0.732	1.121	0.853	0.952	--	--
	Maximum	--	--	--	--	--	--	2.013	2.983	1.223	1.097	--	--
	Minimum	--	--	--	--	--	--	0.510	0.480	0.562	0.824	--	--
All Years	Average	--	--	--	1.499	2.657	1.312	0.925	0.990	0.936	1.054	--	--
	Maximum	--	--	--	2.753	6.503	7.986	2.726	2.983	2.765	2.357	--	--
	Minimum	--	--	--	0.728	0.641	0.314	0.230	0.208	0.201	0.070	--	--

NOTE:
W99 station was installed in 2019.

3.1.2 Site QA/QC Programs

3.1.2.1 Stage Measurements and Corrections

All automated stations were instrumented with metric staff gauges, mounted to vertical angle iron in the stream channel, and regularly surveyed to nearby benchmarks. Continuously recording pressure transducers were

installed in stilling wells and set to record water level every 15 minutes. These readings were corrected for fluctuations in barometric pressure in a post-processing step. During each site visit, unless in winter ice conditions, water level was noted on the staff gauge. These readings form the basis for the continuous water level records, which were adjusted to match the manual stage readings. Level surveys determined the staff gauge zero datum and water level, and were used to correct the station records for changes due to shifts in the channel bed (i.e., aggradation or scour), frost-jacking or station relocation following a high-magnitude flood event.

3.1.2.2 Rating Curve Error

The overall quality of the discharge record was assessed by reviewing the average and standard errors calculated from the differences between the measured discharges, and those estimated from the rating equation. A positive rating curve error is defined where the discharge calculated from the rating curve overestimates the value when compared to the measured discharge, and vice-versa for a negative error.

A summary of the error metrics for all stations and rating curve control percentages are presented in Table 3.1-12. Rating curve control values indicate the percent of time that a continuously recorded observation (15-minute intervals) falls between the highest and lowest manually recorded measurements for each monitoring station.

Overall, the rating curves provided reasonable estimates of discharge across a wide range of flows at most of the Project stations. The rating curve errors presented in Table 3.1-12 indicate that the average errors are relatively low, ranging from -9% (W29) to 5% (W21). The standard error, or the degree of variability about the average error values varies more between stations, from a high of 31% for station W21, to a low of 6% for station W99. Note that continuous discharge data are sporadic for W21 prior to 2021 due to limited water level data, and that the W29 data, due to bank and stream section instabilities, are considered only as a potential backup in regard to adaptive management evaluations in the event that data from W99 are not available.

Rating curves for the site hydrometric stations are presented in Appendix C. For the 2017 update, the rating equations were compared to those previously developed for each station to ensure that the coefficients and exponents were consistent through time. After examining the 2018 data, no further updates to the rating curves developed in 2017 were necessary, and the same curves were applied to the 2018 through 2020 continuous water level data. A similar conclusion was drawn based on inclusion of field data collected in 2021 within the rating relations per monitoring station. Note that because stations W26 and W27 are instrumented with Parshall flumes, rating curves were not developed for these stations. The rating curve plot and error table for the relatively new hydrometric station W99, are provided in Appendix C. and based on measurements collected in 2019 through 2021.

Table 3.1-12: Rating Curve Error Summary for Project Hydrometric Stations

Station	Measurements (n)	Average Error (%)	Standard Error (%)	Rating Curve Control
W1	55	-3%	22%	97%
W4	57	0%	14%	99%
W5	47	3%	17%	97%
W6	37	-1%	9%	95%
W21	17	5%	31%	64%
W22	47	1%	14%	100%

Station	Measurements (n)	Average Error (%)	Standard Error (%)	Rating Curve Control
W26	42	--	--	100%
W27	85	--	--	100%
W29	29	-9%	23%	96%
W99	13	-1%	6%	99%
Average	46	-1%	17%	95%

NOTES:
Stations W26 and W27 currently have Parshall flumes installed, and therefore rating curves were not developed for these sites as part of the 202 Streamflow Monitoring Report

3.1.3 Effluent Discharge

Water management infrastructure for the Project is designed to convey site contact water via Ditch C, which joins Haggart Creek above the W4 station. When discharging, flows in Ditch C are monitored continuously with a V-notch weir, staff gauge, pressure transducer and when resources allow a flow meter. Salt dilution measurements are made periodically downstream of the weir to confirm the instantaneous discharge values as calculated from the weir equation and staff gauge reading. Total monthly discharge volumes are then calculated from the continuous weir discharge record or are metered with a totalizer. The total volume of water discharged through the LDSP weir in 2021 was 168,468 m^3, over two discharge events in July 12-23 (80,933 m^3) and November 12-20 (87,535 m^3) as shown in Table 3.1-13.

Table 3.1-13: Monthly Discharge Totals from LDSP Weir - 2021

Month	Discharge (m^3)
July	80,933
November	87.535
Total	168,468

3.1.4 Adaptive Management

The EMSAMP outlines adaptive management protocols for the Project. A three-tiered threshold system has been developed for the adaptive management of surface water flow. The thresholds provided the EMSAMP are different for the ice-free and ice-affected seasons, and are based on the W4 and W29 median baseflows established over the baseline period of August 2007 to August 2017. It is noteworthy that the W29 hydrometric record has numerous gaps due to bank and stream section instabilities, and in some years (2016, 2017 and 2019) no reliable data were collected for the entire open water season. Further, the rating curve error at W29 is fairly high (i.e., 23%), In 2021, thus while considering adaptive management evaluations for 2021, the decision was made to replace W29 station (due with the W99 station, which is located 1.3 km downstream but encompasses only a 4.5% larger drainage area (Appendix C). Further, W99 station does not have the bank and bed instabilities and it has a much better rating curve error of only 6%. To account for this 4.5% area difference, the W29 baseline values were adjusted upward by a factor of 1.045 to represent baseline conditions at W99.

Median flow values presented in Table 3.1-14 for the months of May through September were derived from continuous time-series discharge data For October 2021, only three days of continuous data are available to calculate the median monthly flow. Also, the flow values reported for the months of November through April are based on one to two manual measurements (when possible), and therefore the deviation between baseline values

and reported values for the January through March 2021 and October through December 2021 periods may be higher due to limited baseline records and infrequent flow measurements taken in challenging conditions (i.e., under ice). Nevertheless, there is much less inter- and intra-annual variability in the winter low flows, as they are primarily driven by groundwater discharge to the stream channels.

In 2021, streamflows were lower than the median baseline condition in seven of twelve months at W99 yet were consistently elevated above baseline at W4 in all months except July. The lower flows at W99 relative to baseline only met the Threshold 1 criteria in July (greater than 30% reduction in streamflow for more than seven consecutive days). Based on these results, the evaluations described in the EMSMAP for Threshold 1 were taken. It was noted that July 2021 flows were reduced area wide, from 8% to 79% reductions, with an average of 38% for all ten hydrometric stations (Table 3.1-15). Thus, the threshold 1 criterion was most likely not met because of an unusually low flow season.

Also, given that streamflows were elevated above baseline at W4 for all months except July, it is unlikely that water management practices in the Dublin Creek catchment resulted in the noted lower streamflows at the W99 station. Indeed, from above, it is clear the lower-than-average flows were recorded at W1, W26 and W6, and all of these stations are representative of conditions upstream of project effects. Nevertheless, as was noted above, flows from Suttles Gulch and Eagle Pup that would normally report to lower Eagle Creek (W27) and Platinum Gulch (ultimately report to W45) are being diverted to the LDSP. This would account for only a small portion of the apparent reduction in streamflows noted at W99, as the flow from W27 historically accounted for only 1.8% of the total flow at W99 (compare baseline values for W27 and W99 in Table 3.1-15). The above evaluations were taken, and it was concluded that no additional AMP actions were necessary.

Table 3.1-14: Median Monthly Streamflows for the Baseline (2007-2017) Period and for 2021 for W4 and W99

Month	Baseline (2007-2017)		2021		Percent Reduction[1]	
	W4	W99[3]	W4	W99	W4	W99
Jan	0.187	0.262	0.282	0.368	51%	41%
Feb	0.193	0.235	0.262	0.163	36%	-31%
Mar	0.133	0.209	0.194	0.220	46%	5%
Apr	0.159	0.205	0.365	0.205	130%	0%
May	1.826	1.843	2.569	1.579	41%	-14%
Jun	0.922	1.009	0.999	0.760	8%	-25%
Jul	0.756	1.142	0.657	0.702	-13%	-39%
Aug	0.739	0.952	1.146	1.084	55%	14%
Sep	0.812	1.065	1.048	0.851	29%	-20%
Oct	0.729	0.879	0.986	0.990	35%	13%
Nov	0.333	0.335	N/A	0.288	N/A	-14%
Dec	0.248	0.287	0.278	0.233	12%	-19%

NOTES:

Gray-shaded areas in Table indicate ice covered season, when flow measurements are limited to monthly manual data

1 Percent reduction calculated as (2021 – Baseline)/Baseline. Positive values indicate that flows were higher than baseline in 2021, and vice versa.

2 N/A = Manual flow measurements were not made in November 2021.

3 W99 values were calculated assuming W29 baseline multiplied by 1.045

Table 3.1-15: Comparison of July 2021 to July Baseline Average Flows

Station	July 2021 Flows	Baseline Flows	Percent Reduction
W1	0.075	0.091	-18%
W4	0.689	0.858	-20%
W5	0.799	1.060	-25%
W6	0.450	0.938	-52%
W21	0.058	0.063	-8%
W22	0.544	0.715	-24%
W26	0.003	0.014	-79%
W27	0.005	0.020	-75%
W29	0.507	1.059	-44%
W99	0.732	1.106	-24%
Area-Wide Average Reduction			**-38%**

3.2 Surface Water Quality

3.2.1 Surface Water Quality Monitoring

The surface water quality monitoring program for the Project includes monitoring of water quality of watercourses within the Project area at strategic locations and at water management facilities that have the potential to discharge to the environment. The water quality monitoring plan has been designed to meet the following objectives:

- Collect water quality data in the receiving environment at stations upstream and downstream of potential Project influences.
- Collect water quality data to verify compliance with the Effluent Quality Standards (EQSs) and monitor receiving environment Water Quality Objectives (WQOs) specified in QZ14-041-1 for Haggart Creek at W4, W29, W99 and W23.
- Provide a continuous water quality database to support adaptive management strategies to meet water quality objectives in Haggart Creek in order to protect aquatic life.

Surface water quality monitoring programs are outlined in the EMSAMP. Surface water quality monitoring in 2021 consisted of monitoring those sites as identified for the operations phase monitoring in the EMSAMP which were active and includes all receiving environment locations specified in QZ14-041-1 (Schedule 1A) for the Project (Figure 3.1-1 and Table 3.2-1). Detailed discussion of results from the 2021 surface water quality monitoring program is provided as Appendix D.

Table 3.2-1: Active Surface Water Quality Monitoring Locations and Frequency - 2021

Station Category	Monitoring Station	Location Description	Coordinates (Zone 8)		Sampling Frequency		
					Field Measurements	Laboratory Analysis	
			North	East	pH, Temp. DO Conductivity	Analytical Suite	48-Hour and 96-Hour LT50
Surface Water	W1	Dublin Gulch above Stewart	7101545	460249	M	M	-
	W21	Dublin Gulch below Event Ponds	7101261	458359	M	M	-
	W4	Haggart Creek below Dublin	7101223	458144	D, M	D[1], M[1]	-
	W22	Haggart Creek above Project Influence	7101378	458319	M	M[2]	-
	W5	Haggart Creek above Lynx Creek	7095888	457814	M	M[2]	-
	W6	Lynx Creek above Haggart Creek	7095964	458099	M	M[2]	-
	W20	Bawn Boy Gulch	7101961	461945	M	M	-
	W23	Haggart Creek below Lynx Creek	7095682	457790	M	M[2]	-
	W27	Eagle Creek near Camp below LDSP	7100997	458235	M	M	-
	W26	Stewart Gulch	7101443	460331	M	M	-
	W29	Haggart Creek below Eagle Creek & Platinum Gulch	7099583	458225	D, M	D[1], M[2]	-
	W39[5]	Haggart Creek above South McQuesten River	7086504	449780	Q	Q[2]	-
	W45	Eagle Creek above Haggart Creek	7099684	458243	M	M	-
	W49	South McQuesten River below Haggart Creek	7085495	449221	Q	Q[2]	-
	W99	Haggart Creek above 15 Pup	7098180	458322	M	M[2]	-
Internal Water Transfer	PDI	Platinum Gulch Ditch into Lower Dublin South Pond	7099523	459184	M	M	-
	PGS	Platinum Gulch WRSA Seepage	7099436	459281	M	M	-
	EPS	Eagle Pup WRSA Seepage	7100909	459834	M	M	-
	LDSPI	Lower Dublin South Pond Inflow	7100824	458926	D, M	D[2], M	M
Compliance	LDSP	Lower Dublin South Pond Outflow	7100857	458672	D, W	D[2], W[2,3]	Md
	HLFUMV	Heap Leach Facility Underdrain Monitoring Vault	7101298	459445	C, D, W	D[4], M[2,3]	M
	LDSP-UND	LDSP Underdrain Outflow	7100937	458570	M	M[3]	-

NOTES:
1 – Laboratory analysis includes WAD, Total CN, Thiocyanate and Cyanate.
2 – Laboratory analysis includes WAD and Total CN.
3 – Calculation of un-ionized ammonia
4 - Laboratory analysis only includes WAD and Total CN - no other parameters required.
5 – An alternate monitoring location for W39 that provides more reliable year-round access has been established. Location listed in Table 3.2-1 is from QZ14-041-1 and remains a monitoring location while the monitoring data from the alternate location is assessed to ensure that it is an appropriate alternative.
C – Continuous monitoring for specific conductance; D – Daily when discharging; W – Weekly when discharging; M – Monthly; Md – Monthly when discharging; Q – Quarterly

3.2.2 Field Sampling Methods

Water samples were collected following methods outlined in the 2013 British Columbia Field Sampling Manual Ambient Freshwater and Effluent Sampling, Part E – Water and Wastewater Sampling. For compliance monitoring locations, the Guidance Document for the Sampling and Analysis of Metal Mining Effluents (Environment Canada, Minerals and Metals Division 2001) was followed to meet QZ14-041-1 conditions and the requirements of the Metals and Diamond Mining Effluent Regulations.

Elemental analysis was performed by ALS Environmental located in Vancouver or Burnaby BC and certified by the Canadian Association for Laboratory Accreditation (CALA) with sample filtration and/or preservation performed in the field. In situ measurements for pH, temperature, conductivity, and dissolved oxygen were also recorded at each site prior to sample collection.

3.2.3 Laboratory Methods

Samples were analyzed for parameters listed in Schedule 1B of QZ14-041-1 according to the station category and location (Table 3.2-1). For full suite analyses, samples were analyzed for physical parameters (pH, conductivity, hardness, TSS, TDS, turbidity), major anions, nutrients, dissolved organic carbon (DOC), total and weak acid dissociable (WAD) cyanide, and total and dissolved metals.

Conventional parameters, major ions and nutrients, and metals were analyzed using procedures described in APHA Standard Methods for the Examination of Water and Wastewater (2005). Cyanide analysis was carried out using procedures adapted from APHA Method 4500-CN “Cyanide”. Total or strong acid dissociable cyanide and weak acid dissociable cyanide are determined by sample distillation and analysis using the chloramine-t colorimetric method. The lowest available limit of detection for metals was achieved by using inductively coupled plasma/mass spectrometry (ICP/MS; EPA Method 6020). Mercury analysis in water was carried out by cold vapor atomic fluorescence spectrophotometry (EPA Method 245.7). This procedure involves a cold oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride.

3.2.4 Quality Assurance and Quality Control Program

VGC has a well-established quality assurance/quality control (QA/QC) program in place to ensure the surface water quality program for the Project is reliable, representative of the water quality conditions throughout the project. This program is intended to validate the monitoring data, and to identify any potential methodological and/or analytical errors in the data set that might require modifications to the program and or laboratory analyses. The following sections provide a summary of the QA/QC program with respect to field quality, analytical data processing and internal laboratory procedures for the 2021 collection year.

3.2.4.1 QA/QC Methodology - Field Sampling Program

Water quality samples were collected in accordance with methods described in the EMSAMP (2020). As indicated above, water samples were collected following the methods outlined in the 2013 British Columbia Field Sampling Manual, Ambient Freshwater and Effluent Sampling, Part E – Water and Wastewater Sampling. The associated QA/QC protocols are designed to provide reliable data by preventing sampling error and cross contamination of the collected samples. In a given water course, samples were collected from downstream to upstream to avoid substrate disturbance and potential sample contamination. Haggart Creek samples and Dublin Gulch monitoring locations, within the immediate vicinity of the Project, were sampled on the same date, when possible, for data

comparability and to support data analysis and adaptive management considerations. The integrity of the water quality sampling program is evaluated by the collection of quality control samples, including field blanks and replicates described in detail below.

Field Blanks

Water quality samples were collected in accordance with methods described in the EMSAMP (2020). As indicated above, water samples were collected following the methods outlined in the 2013 British Columbia Field Sampling Manual, Ambient Freshwater and Effluent Sampling, Part E – Water and Wastewater Sampling. The associated QA/QC protocols are designed to provide reliable data by preventing sampling error and cross contamination of the collected samples. In a given water course, samples were collected from downstream to upstream to avoid substrate disturbance and potential sample contamination. Haggart Creek samples and Dublin Gulch monitoring locations, within the immediate vicinity of the Project, were sampled on the same date, when possible, for data comparability and to support data analysis and adaptive management considerations. The integrity of the water quality sampling program is evaluated by the collection of quality control samples, including field blanks and replicates described in detail below.

Travel Blanks

Travel blanks (Sample ID 03) are prefilled samples provided by the analytical laboratory and are used during field surveys to identify potential contamination during storage and transport. These blanks are kept sealed and transported with water collected samples. Concentrations in these blanks are below detection limits, however if any measured parameter is detected above detection limit, potential contamination during sample handling and transport is assumed

Field Duplicates

Field duplicate samples (Sample ID 01) were collected to confirm sample integrity. The British Columbia Field Sampling Manual (Clark 2013) specifies that a relative percent difference (RPD) greater than 20 percent indicates a possible sample contamination. An RPD greater than 50 percent indicates a confirmed sample integrity problem; however, it is not unusual to find high variability for field duplicates, especially if the water is turbid with elevated total suspended solids (TSS). Field duplicate samples are collected at the same location and time as a site sample to assess the natural variability of the site. For the purpose of this analysis, originals and duplicates are considered paired replicates collected from the same location sequentially in time and were used to calculate the RPD.

3.2.4.2 QA/QC Methodology - Laboratory Analytical

All analytical analyses were performed by ALS laboratories (Burnaby, BC) a member of the Canadian Association for Laboratory Accreditation Inc. (CALA). The laboratory QA/QC program included analysis of certified reference materials, laboratory control samples, laboratory duplicates, method blanks and matrix spikes to determine accuracy and precision of instrumentation and methods. The majority of reported data met the laboratory data quality objectives (DQOs). However, in some instances, method recovery was not accurately calculated due to matrix interferences; thus, detection limits were adjusted to prevent any influence on analytical results. Overall, reported data were of good quality and met the laboratory QA/QC objectives. Laboratory data reports are included in the monthly monitoring reports and are not duplicated herein.

Dissolved Metal versus Total Metals Concentrations

A dissolved metal concentration that was higher than the corresponding total metal concentration was considered an indicator of potential sample contamination and/or analytical error. Samples for total and dissolved metals are collected in separate bottles and are handled differently. For example, samples for dissolved metal analysis are filtered through a 45 µm filter and the filtering process can introduce error or contamination into the sample.

Dissolved metal concentrations were flagged as a potential QA/QC issue if the concentration was >20% higher than the corresponding total metal value in the same sample. Variability of less than 20% is excluded because it generally falls within the analytical margin of uncertainty (or error). Dissolved and total metal pairs are included in this analysis if the dissolved value is greater than five-times its RDL (Clark 2013).

3.2.4.3 Results and Discussion

Detailed analysis of the results for the quality assurance and quality control program are provided in Appendix D.

Field Blanks

Field blanks were collected and analyzed to assess purity of chemical preservatives and potential contamination sources at the sampling location; a total of 19 field blank samples were prepared and submitted for QA/QC as part of the routine water quality monitoring. Some parameters exceeded the detection limit for a blank for samples collected in 2021. Parameters above detection limit included total and suspended solids, alkalinity, ammonia, nitrate, Total Kjeldahl Nitrogen (TKN), total nitrogen, total and dissolved organic carbon, chromium, manganese, sodium strontium, and titanium. This may be related to the DI water used for field blanks over the course of multiple sampling events, potentially resulting in environmental concentration of ions and other metals entering the DI water. However, concentrations of exceeding parameters rarely occurred at the levels observed in the collected water samples at the monitoring stations with detected values only slightly above detection limits

Travel Blanks

The majority of measured parameters were below detection limit (DL). These results indicate that good protocols of sample handling and transporting were applied in the field, given all values were reported as non-detects (< DL). Parameters such as total dissolved solids and chromium were detected above DL in travel blanks. These results maybe indicative of cross contamination occurring at sample collection. However, these results are not expected to compromise the quality of the collected samples.

Field Duplicates

A total of 48 surface water field duplicates were collected as part of the surface water quality sampling program in 2021. A total of 303 full suite water quality samples were collected in 2021 from surface water monitoring stations; accordingly, the field duplicate component of the QA/QC program was approximately 16% of the overall surface water quality monitoring effort. When field blank samples (e.g., 19 samples) are included, the number of QA/QC samples as part of the water quality monitoring program exceeds 22% of the sampling effort.

Water quality results were generally similar between field duplicates. Most duplicates had at least one parameter with an RPD between 20 and 50%, but typically less than half of duplicates had one or more parameters with an RPD greater than 50%. An RPD greater than 50 percent indicates a sample integrity problem; however, it is not unusual to find high variability for the field duplicates, especially under certain conditions such as for example, high turbidity (where 35% of the duplicates exceeded the 20% criterion) and high total suspended solids (where

19% of the duplicates exceeded the 20% criterion), particularly occurring during freshet or after precipitation events. This tendency will also affect other parameters that are associated with total solids.

Dissolved Metal versus Total Metal Concentrations

The number of analyte pairs with dissolved metal values greater than 120 and 150% of the corresponding total are uncommon (< 6 occurrences of the total collected samples per station, except for phosphorous). Parameters such as phosphorous and selenium showed > 150% exceedances for the majority of the stations and likely results from the very low concentrations present in the samples where values are very close to the analytical detection limit. Other parameters with percentages above 150% sporadically occurred for the remaining stations (e.g., aluminum in station W20, W23 and W29; cadmium in W1, W31, W6 and W99). It should be noted however, that the number of recorded incidents in metal concentrations above 120% or 150% occurred only in a low number of the analyzed samples, which reflects reasonable confidence in the reported results.

3.2.5 Water Quality Results

The following sections focus on surface water quality monitoring results for key mine site stations associated with the Lower Dublin South Pond, mine-site internal water transfers, compliance monitoring sites as well as receiving environment locations in Haggart Creek where QZ14-041-1 water quality objectives (WQO) are established at W4, W29, W99 and W23. Where relevant to the interpretation of monitoring results, background Haggart Creek data at W22 and Dublin Gulch at stations W1 and W21 are discussed to provide to context to observed results in Haggart Creek at those stations with WQO.

3.2.5.1 Mine Site Monitoring Compliance Results

Results of water quality monitoring in 2021 at mine site stations associated with the Lower Dublin South Pond, LDSP-UND, and compliance monitoring of the HLFUMV and discharge water quality at the LDSP weir are provided below.

Lower Dublin South Pond (LDSP)

In addition to the discharge compliance locations, routine surface water quality monitoring of the Lower Dublin South Pond (LDSP) occurred in 2021 to inform on-site water management as well as ensure project discharges to the receiving environment, when necessary, remain in compliance with effluent quality standards (EQS) specified in QZ14-041-1. Water management at the Project also includes intermittent pumping of Lower Dublin South Pond water to the Events Pond or directly to the heap pad for make-up water requirements, and to increase available storage within the Lower Dublin South Pond. Pumping of Lower Dublin South Pond water to the Events Pond also provides for additional settling of suspended solids within the Events Pond to improve water quality prior to discharge when necessary.

Monitoring points within the Lower Dublin South Pond are sampled and analyzed on a regular internal sampling schedule to inform operational water management and discharge decisions. Monitoring stations sampled in 2021 within the Lower Dublin South Pond include:

- LDSPI – Inflow to Lower Dublin South Pond (listed as a WUL internal water transfer site); and
- LDSPs – Along shore of Lower Dublin South Pond (a VGC internal site sampled to inform water management decisions).

Water quality entering, and within the Lower Dublin South Pond was measured monthly in 2021 for station LDSPI and periodically at LDSPs for full suite analyses. LDSPI represents a combined sample of all ditch inflows into the Lower Dublin South Pond forebay prior to settling within the pond. LDSPs is representative of Lower Dublin South Pond water after major settling has occurred; the sample is collected along the western shore of the pond adjacent to pumping or outlet structures.

Table 3.2-2 provides results of water quality sampling for LDSPI key parameters for 2021. As indicated above, the LDSPI location characterize water chemistry in the Lower Dublin South Pond; however, these are pre-discharge/characterization samples and not subject to direct comparison to the EQS in and is provided only for the purposes of providing context to the results. In 2021, all parameters analyzed for the LDSPI were present at concentrations well below QZ14-041-1 EQS with the exceptions of TSS, total As and total Fe.

TSS concentrations at LDSPI were elevated above 15 mg/L primarily during the freshet period of 2021 (April and May), July and slightly in October. The highest total As concentrations measured at LDSPI coincided with these elevated TSS values; total As exceeded the 0.053 mg/L discharge criterion for all sample dates except June. This was the primary factor for continuing to transfer LDSP water to the Events Pond for further settling. Dissolved As concentrations were typically lower and ranged more narrowly between 0.03 mg/L and 0.086 mg/L with most values observed between 0.045 mg/L and 0.055 mg/L (Figure 3 2; Appendix A of Appendix D). Elevated total Fe values (>6.4 mg/L) at LDSPI only occurred in May 2021 (22.7 mg/L) and coincided with elevated TSS; dissolved Fe concentrations during this same period were much lower (0.13 mg/L) and indicate most of the measured Fe was associated with the solid phase.

Table 3.2-2: Mean Monthly Water Quality LDSPI in 2021

Parameter	QZ14-041-1 EQS	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec
pH	***6.5 - 8***	8.22	8.3	8.22	8.37	7.83	8.44	8.395	8.29	8.43	8.09	8.13	8.25
TSS	***15***	<3	<3	<2	17	238	12	53	11	7	16	11	<3
SO_4	***1850***	163	178	194	166.5	40.7	101	117	97.1	77.2	67.8	88.1	91.2
Cl	***250***	3.97	3.53	3.92	9.285	2.085	2.8	29.9	34.2	6.99	8.97	3.1	2.77
NO_3-N	***19.5***	0.453	0.506	0.534	0.696	0.199	0.052	0.192	0.4	0.794	0.977	0.918	0.798
NO_2-N	***0.12***	0.0054	0.0024	0.005	0.02025	0.0039	0.0016	0.00395	0.0106	0.0077	0.0252	0.0101	0.0047
NH_3-N	***7.5***	0.0532	0.103	0.0713	0.081	0.03365	0.0058	0.0064	0.0231	0.005	0.0056	0.005	0.0223
CN_{WAD}	***0.03***	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	0.005556	-
Diss- Al	***0.4***	0.0062	0.0057	0.0049	0.0117	0.04445	0.0112	0.0148	0.0165	0.0317	0.0089	0.0036	0.0026
T-Sb	***0.13***	0.00645	0.00646	0.00678	0.008105	0.01395	0.00681	0.00764	0.00763	0.00482	0.00548	0.00415	0.00511
T-As	***0.053***	0.0565	0.0541	0.0583	0.066	0.5345	0.0507	0.1055	0.0799	0.0765	0.0821	0.0863	0.0959
T-Cd	***0.00125***	0.000058	0.000060	0.000069	0.000082	0.000757	0.000054	0.000153	0.000069	0.000053	0.000066	0.000059	0.000031
T-Co	***0.026***	0.00064	0.00049	0.00038	0.000945	0.01196	0.00079	0.00161	0.00075	0.00102	0.00124	0.00085	0.00048
T-Cu	***0.026***	0.0037	0.00391	0.0027	0.003645	0.04325	0.0035	0.008925	0.00269	0.00226	0.0039	0.00216	0.00118
T-Fe	***6.4***	0.089	0.072	0.113	0.9745	22.69	0.709	2.12	0.659	0.589	1.6	0.546	0.156
T-Pb	***0.05***	0.000188	0.000153	0.000562	0.003940	0.086450	0.002290	0.007275	0.002900	0.002320	0.003920	0.002240	0.000607
T-Mn	***7.7***	0.221	0.182	0.194	0.175	0.453	0.137	0.122	0.065	0.181	0.114	0.122	0.0725
T-Hg	***0.00008***	0.000005	0.000005	0.000005	0.000005	0.000096	0.000005	0.000011	0.000006	0.000005	0.000006	0.000005	0.000005
T-Mo	***0.45***	0.0028	0.00293	0.00295	0.00429	0.00193	0.00324	0.00308	0.00419	0.00237	0.00216	0.0015	0.00144
T-Ni	***0.5***	0.00221	0.00187	0.00264	0.003305	0.0271	0.00237	0.004475	0.00181	0.00169	0.00287	0.00245	0.00124
T-Se	***0.025***	0.000792	0.000848	0.000888	0.00086	0.000595	0.000679	0.000741	0.000802	0.000826	0.000878	0.000742	0.000804
T-Ag	***0.01***	0.00001	0.00001	0.00001	0.000038	0.000526	0.000016	0.000194	0.000016	0.000015	0.000033	0.00002	0.00001
T-U	***0.09***	0.00962	0.0106	0.0116	0.01135	0.00569	0.00695	0.00926	0.00884	0.00858	0.00732	0.0083	0.00884
T-Zn	***0.23***	0.0033	0.0034	0.0047	0.00955	0.11915	0.0035	0.0135	0.0051	0.004	0.0074	0.006	0.003

LDSP-UND

The LDSP-UND passes natural groundwater flow underneath the Lower Dublin South Pond to lower Eagle Creek; the site was monitored monthly and twice monthly in February 2021.

Water quality monitoring of the LDSP-UND showed that all parameters were present at concentrations well below the respective EQS. TSS concentrations remained consistently below 5 mg/L and total As concentrations narrowly ranged between roughly 0.019 mg/L to 0.023 mg/L for all months with the exception of December where total As concentration was measured at 0.046 mg/l. These observed results are consistent with background shallow groundwater quality in this area.

HLF-UMV

The HLFUMV is a discharge compliance monitoring point that captures natural groundwater flow passing underneath the HLF. Currently, and throughout 2021, all flow from the HLFUMV was captured and recirculated back to the Events Pond and no discharge to the receiving environment occurred. Water quality monitoring occurred monthly in 2021. Water quality of the HLFUMV throughout 2021 exhibited concentrations for all parameters well below their corresponding EQS.

Total As concentrations were consistent throughout the year and narrowly ranged between approximately 0.034 mg/L to 0.042 mg/L and again is consistent with As concentrations naturally occurring in background shallow groundwater. The low concentrations of all remaining parameters confirm no measurable leakage is associated with the HLF.

Controlled Discharge Water Quality - LDSP Weir

All discharges from the Project to the receiving environment are required to meet EQS stipulated in QZ14-041-1. In 2021, two controlled discharge events to Haggart Creek occurred as indicated in Table 3.2-3. The first controlled discharge into Haggart Creek from the LDSP weir and Ditch C occurred over a roughly 12-day period between July 12 and July 23, 2021. The second controlled event occurred over 9 days between November 12 and November 20, 2021. Daily field parameters (pH, specific conductance, temperature and dissolved oxygen) were collected in conjunction with full suite water quality samples to ensure compliance with QZ14-041-1 EQS. A summary the results and full analysis for all parameters are provided in Appendix A and B of Appendix D.

Table 3.2-3: Discharge Events in 2021 and Discharge Duration and Location

Month	Duration of Event
July	12 days (July 12 to July 23)
November	9 days (November 12 to November 20)

July Discharge Water Quality

A planned discharge was initiated on July 12 and continued to July 23, 2021 from the Events Pond through the LDSP weir outlet. Daily cyanide samples were collected during the discharge, and weekly samples for full suite analysis were collected at the discharge outlet as required by the QZ14-041-1. All parameters were well below the EQS limits throughout the discharge (Table 3.2-4) and well below MDMER Schedule 4 Authorized Limits. TSS concentrations remained low throughout the discharge period ranging from approximately 3.0 to 6.0 mg/L. Total

As concentrations were well below the EQS of 0.053 mg/L with concentrations measured consistently between 0.027 mg/L and 0.028 mg/L. All nitrogen species were present at low concentrations and total Se values were present at concentrations below 0.0005 mg/L.

November Discharge Water Quality

A second planned discharge to the receiving environment was undertaken between November 12 and November 20, 2021 via the LDSP weir and Ditch C to Haggart Creek. Surface water quality samples were collected on November 12 and November 15 and results confirmed that all parameters that were detected were present at concentrations below their respect EQS (Table 3.2-4) and well below MDMER limits. Total As concentrations were higher during the November event as compared to the July discharge, with concentrations below the EQS at approximately 0.0526 and 0.0514 mg/L. Results for all parameters are provided in Appendix A and graphically in Appendix B of Appendix D.

Table 3.2-4: Summary of Water Quality Results for Water Discharged to Ditch C and Haggart Creek Compared to EQS for QZ14-04101

Parameter	QZ14-041-1 EQS	Lowest Detection Limit (mg/L)	Jul-12	Jul-19	Jul-22	Nov-12	Nov-15
pH	***6.5 - 8***	0	8.16	8.25	8.21	8.33	8.24
TSS	***15***	3	5.5	3.5	5.1	13	3.8
SO_4	***1850***	0.3	64.7	63.9	62.3	76	74
Cl	***250***	0.5	4.16	4.2	3.92	8.64	8.49
NO_3-N	***19.5***	0.005	0.29	0.265	0.248	0.666	0.648
NO_2-N	***0.12***	0.001	0.0081	0.0071	0.007	0.0089	0.0088
NH_3-N	***7.5***	0.005	0.0155	0.02	0.0191	0.0162	0.0194
CN_{WAD}	***0.03***	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Diss- Al	***0.4***	0.001	0.0146	0.0129	0.0147	0.0068	0.006
T-Sb	***0.13***	0.0001	0.00524	0.00514	0.00522	0.00438	0.00459
T-As	***0.053***	0.0001	0.027	0.0283	0.0276	0.0526	0.0514
T-Cd	***0.00125***	0.000005	0.000030	0.000038	0.000033	0.000036	0.000032
T-Co	***0.026***	0.0001	0.00026	0.00029	0.0003	0.00092	0.00085
T-Cu	***0.026***	0.0005	0.00196	0.00218	0.00238	0.00168	0.00142
T-Fe	***6.4***	0.01	0.167	0.134	0.15	0.378	0.161
T-Pb	***0.05***	0.00005	0.000331	0.000576	0.000669	0.001580	0.000687
T-Mn	***7.7***	0.0001	0.0145	0.00541	0.00597	0.0353	0.0307
T-Hg	***0.00008***	0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
T-Mo	***0.45***	0.00005	0.00239	0.0022	0.00219	0.00193	0.00201
T-Ni	***0.5***	0.0005	0.00142	0.0018	0.0018	0.00159	0.0014
T-Se	***0.025***	0.00005	0.000411	0.000478	0.000406	0.00066	0.000727
T-Ag	***0.01***	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
T-U	***0.09***	0.00001	0.0038	0.0035	0.0036	0.0067	0.00735
T-Zn	***0.23***	0.003	<0.003	<0.003	<0.003	<0.003	<0.003

3.2.5.2 Receiving Environment Surface Water Quality Monitoring Program

The 2021 surface water quality monitoring program included continuing the surveillance sampling of watercourses monitored as part of the EMSAMP with particular focus on those stations within Haggart Creek that have WQOs and associated adaptive management plan (AMP) water quality tiers at stations W4, W29, W99 and.

Table 3.2-5 provides a summary of the total number of sampling events where concentrations for any given parameter were greater than Tier 3 water quality objectives for stations W4, W29, W99 and W23.

All other parameters were measured at concentrations below their respective WQO at all locations and at all sampling periods in Haggart Creek (Appendix B of Appendix D). A more detailed discussion of the 2021 monitoring results for W4, W29, W99 and W23, including AMP trend analysis, is provided below. Specifically, monthly water quality data collected for the Project is compared to each station's baseline water quality condition. For stations W4 and W23, the baseline water quality is represented by monitoring results for the period 2007 to 2017. For station W29, the baseline period spans 2009 to 2017 and for station W99, there does not exist a true baseline as water quality sampling was initiated at this station in April 2019 during early operations. In the case of W99, monthly data for 2021 is compared only to 2019. Concentrations of parameters of interest in Haggart Creek exhibit strong flow-based variability and therefore monthly data were compared between years as the most appropriate approach rather than assessing water quality changes observed over consecutive months.

Determination as to whether parameters measured in 2021 are exhibiting an increasing trend has been based on consideration of the natural variability in the baseline. Specifically, monthly mean 2021 observations for AMP key parameters are compared to baseline monthly mean +1 and +2 standard deviations (e.g., 68th and 95th percentile). Monthly mean 2021 values within +1 standard deviation of baseline values are considered to be unchanged; values measured within +2 standard deviations are considered to be within the natural observed variability. Monthly mean 2021 values measured above +2 standard deviations of the baseline and above the Tier 3 WQO are considered to be an increase over the baseline condition. In some instances, and parameters, monthly mean 2021 values were measured above the Tier 3 WQO but below +2 standard deviations of baseline conditions. In these cases, no specific action is required and observed values are attributable to naturally high background conditions.

Table 3.2-5: Number of Sampling Occasions where Measured Values were Greater than Tier 3 WQOs at EMSAMP Monitoring Locations in Haggart Creek (2021)

Parameter List	Tier 3 WQOs W4, W29, W99, W23	W4	W29	W99	W23
TSS	15	**6**	**3**	**3**	**1**
SO_4	309	0	0	0	0
Cl	150	0	0	0	0
Nitrate-N	3	0	0	0	0
Nitrite-N	0.02	0	0	0	0
NH_3-N	1.13	0	0	0	0
CN_{WAD}	0.005	0	0	0	0
Diss-Al	0.1	**1**	**1**	**1**	**1**
Sb	0.02	0	0	0	0
As	0.0085	**24**	**2**	**3**	**3**

Parameter List	Tier 3 WQOs W4, W29, W99, W23	W4	W29	W99	W23
Cd	0.000197	0	0	0	0
Cu	0.005	**1**	0	**1**	0
Co	0.004	0	0	0	0
Fe	1.0	**4**	**2**	**3**	**1**
Pb	0.0077	**1**	0	**1**	0
Hg	0.00002	0	0	0	0
Mn	1.17	0	0	0	0
Mo	0.073	0	0	0	0
Ni	0.116	0	0	0	0
Se	0.002	0	0	0	0
Ag	0.0015	0	0	0	0
U	0.015	0	0	0	0
Zn	0.038	0	0	0	0

W4

Station W4 is located downstream of the confluence of both Dublin Gulch and where the discharge via Ditch C enters Haggart Creek. As discussed previously, discharge via Ditch C to Haggart Creek occurred during the period July 12 to July 23 and November 12 to November 20. Water quality results during both discharge periods are provided in.

For the July discharge period TSS, total As and total Fe were elevated above their respective Tier 3 adaptive management threshold. For TSS and total Fe, concentrations above Tier 3 were observed only early in the discharge period, whereas total As was consistently above Tier 3 throughout the discharge period (Table 3.2-6). All other parameters were measured at concentrations well below any adaptive management threshold.

Water quality samples at W4 were collected on 14 occasions in July. Outside of the discharge period, total As concentrations ranged between 0.004 mg/L and 0.005 mg/L and below the Tier 1 As threshold of 0.0064 mg/L.

It is known that Dublin Gulch has a strong influence on As water quality in Haggart Creek below its confluence and at W4 in particular. However, loadings from Dublin Gulch in July 2021 do not, on their own, explain the elevated total As concentrations at W4 during the period of July 12 to July 23. Appendix D provides further analysis of the response at W4 during the discharge events.

Table 3.2-6: Summary Comparison of Key Water Quality Parameters at W4 for Baseline Period (2007 – 2017) to 2021 Monthly Mean Values Relative to AMP Threshold Values (mg/L)

Parameter	*T1*	*T2*	*T3*	W4 - Haggart Creek																						
				April			May			June			July			August			September			October			November		
				Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	**Baseline 1 stdev**	**Baseline 2 stdev**	**2021 mean**
TSS			***15***	6	7	3	70	102	53	31	48	4	4	5	9	9	13	44	4	4	6	4	4	5	4	5	13
SO_4	***231.8***	***262.7***	***309***	100	107	94	28	38	46	50	56	52	68	77	65	64	72	51	70	92	54	70	76	55	77	82	74
Cl	***112.5***	***127.5***	***150***	0.5	0.5	0.5	2.3	3.3	0.5	0.5	0.5	0.5	0.5	0.5	2.4	0.5	0.5	0.5	0.6	0.7	0.5	0.6	0.8	0.5	0.5	0.5	2.6
NO_3-N	***2.3***	***2.6***	***3***	0.144	0.156	0.159	0.046	0.065	0.066	0.794	1.253	0.079	0.058	0.067	0.170	0.061	0.071	0.058	0.102	0.126	0.070	0.169	0.204	0.092	0.160	0.175	0.274
NO_2-N	***0.015***	***0.017***	***0.02***	0.001	0.001	0.0010	0.0047	0.0067	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0041	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0099	0.0164	0.0010	0.0010	0.0010	0.0026
NH_3-N	***0.848***	***0.961***	***1.13***	0.005	0.005	0.005	0.009	0.012	0.006	0.008	0.010	0.005	0.005	0.005	0.011	0.015	0.022	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.005	0.005	0.008
CN_{WAD}	***0.005***	***0.005***	***0.005***	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	***0.075***	***0.085***	***0.1***	0.007	0.010	0.002	0.221	0.286	0.082	0.050	0.070	0.018	0.013	0.017	0.015	0.023	0.033	0.025	0.015	0.019	0.012	0.008	0.010	0.015	0.004	0.005	0.005
T-Sb	***0.015***	***0.017***	***0.02***	0.0006	0.0008	0.0003	0.0007	0.0009	0.0018	0.0009	0.0011	0.0004	0.0005	0.0005	0.0032	0.0005	0.0005	0.0006	0.0005	0.0005	0.0004	0.0005	0.0006	0.0004	0.0004	0.0005	0.0017
T-As	***0.0064***	***0.0072***	***0.0085***	0.0093	0.0141	0.0025	0.0255	0.0377	0.0343	0.0151	0.0228	0.0051	0.0059	0.0079	0.0198	0.0057	0.0070	0.0095	0.0072	0.0092	0.0059	0.0067	0.0084	0.0068	0.0050	0.0064	0.0208
T-Cd	***0.00015***	***0.00017***	***0.0002***	0.00003	0.00004	0.00002	0.00010	0.00014	0.00008	0.0000	0.0000	0.00001	0.00002	0.00002	0.00002	0.00003	0.00004	0.00002	0.00003	0.00005	0.00001	0.00001	0.00002	0.00001	0.00002	0.00002	0.00002
T-Co	***0.003***	***0.0034***	***0.004***	0.00047	0.00065	0.00027	0.00192	0.00275	0.00148	0.00064	0.00097	0.00016	0.00012	0.00013	0.00029	0.00022	0.00030	0.00050	0.00016	0.00018	0.00016	0.00015	0.00017	0.00019	0.00016	0.00018	0.00048
T-Cu	***0.00375***	***0.00425***	***0.005***	0.00074	0.00096	0.00050	0.00511	0.00678	0.00427	0.00258	0.00378	0.00073	0.00065	0.00074	0.00160	0.00104	0.00140	0.00164	0.00073	0.00084	0.00054	0.00098	0.00131	0.00074	0.00097	0.00129	0.00104
T-Fe	***0.75***	***0.85***	***1***	0.47	0.69	0.17	3.09	4.50	2.66	1.42	2.25	0.19	0.11	0.14	0.27	0.31	0.48	0.87	0.11	0.14	0.17	0.10	0.12	0.18	0.09	0.11	0.40
T-Pb	***0.00578***	***0.00655***	***0.0077***	0.00065	0.00099	0.00005	0.00275	0.00407	0.0050	0.00178	0.00286	0.00012	0.00006	0.00006	0.00068	0.00017	0.00025	0.00093	0.00010	0.00013	0.00013	0.00007	0.00008	0.00013	0.00006	0.00007	0.00093
T-Mn	***0.878***	***0.995***	***1.17***	0.104	0.140	0.080	0.208	0.302	0.122	0.046	0.063	0.030	0.030	0.037	0.022	0.033	0.039	0.054	0.034	0.038	0.033	0.033	0.037	0.044	0.041	0.048	0.040
T-Hg	***0.000015***	***0.000017***	***0.00002***	0.000011	0.000013	0.000005	0.000032	0.000047	0.000029	0.000037	0.000055	0.000005	0.000011	0.000013	0.000005	0.000011	0.000013	0.000005	0.000011	0.000013	0.000005	0.000010	0.000013	0.000005	0.000010	0.000013	0.000005
T-Mo	***0.0548***	***0.0621***	***0.073***	0.00018	0.00023	0.00016	0.00042	0.00062	0.00024	0.00080	0.00109	0.00029	0.00032	0.00041	0.00141	0.00031	0.00038	0.00034	0.00066	0.00092	0.00033	0.00061	0.00086	0.00037	0.00069	0.00101	0.00076
T-Ni	***0.087***	***0.099***	***0.116***	0.0024	0.0030	0.0021	0.0057	0.0075	0.0047	0.0025	0.0035	0.0011	0.0010	0.0012	0.0016	0.0012	0.0015	0.0019	0.0010	0.0011	0.0010	0.0010	0.0011	0.0013	0.0013	0.0015	0.0015
T-Se	***0.0015***	***0.0017***	***0.002***	0.00026	0.00031	0.00025	0.00021	0.00025	0.00017	0.00022	0.00025	0.00017	0.00020	0.00024	0.00033	0.00021	0.00025	0.00014	0.00021	0.00025	0.00013	0.00019	0.00022	0.00013	0.00023	0.00025	0.00036
T-Ag	***0.00113***	***0.00128***	***0.0015***	0.000010	0.000010	0.000010	0.000033	0.000046	0.000037	0.000021	0.000028	0.000010	0.000010	0.000010	0.000012	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000011	0.000012	0.000010	0.000010	0.000010	0.000011
T-U	***0.0113***	***0.0128***	***0.015***	0.0016	0.0017	0.0015	0.0005	0.0006	0.0008	0.0007	0.0008	0.0007	0.0010	0.0011	0.0025	0.0009	0.0011	0.0007	0.0010	0.0011	0.0008	0.0012	0.0014	0.0009	0.0013	0.0014	0.0028
T-Zn	***0.0285***	***0.0323***	***0.038***	0.0058	0.0072	0.0044	0.0148	0.0201	0.0138	0.0069	0.0098	0.0030	0.0034	0.0041	0.0033	0.0033	0.0041	0.0043	0.0034	0.0044	0.0030	0.0032	0.0033	0.0030	0.0042	0.0049	0.0038

NOTES:
Baseline period for W4 does not include samples with TSS >50mg/L

Colour Coding Legend for Trend Assessment	
Monthly 2021mean is ≤ any Tier and ≤ Baseline 2 stdev	no action
Monthly 2021mean is ≥ any Tier but ≤ Baseline 2 stdev	high background
Monthly 2021mean is ≥ Tier 2 < Tier 3 ≥ Baseline 2 stdev	monitor
Monthly 2021mean is ≥ Tier 3 > Baseline 2 stdev	Upward trend

W29

Water quality parameters at W29 in 2021 were present at concentrations very similar to the observed baseline values (e.g. ≤ +2 std. dev.) during the baseline period of 2009 to 2017 (Table 3.2-7). Exceptions to these observations occurred in May 2021, where elevated TSS, and total As were present in concentrations greater than AMP T3 and baseline values for the same period. The elevated TSS above +2 standard deviations is, in part, a result of modifications to the 2009 to 2017 baseline dataset. Specifically, during the WUL process in 2015 for the Eagle Gold Project, regulators requested that water quality data associated with samples measuring greater than 50 mg/L TSS be ignored in developing site specific water quality objectives. As such, values exceeding 50 mg/L were eliminated and the data were biased to the lower TSS concentrations as well as total As and total Fe as these parameters are closely correlated to TSS.

W99

Station W99 was added in 2019 and therefore does not have a “baseline” record of measurements to which trend analysis is applicable. In 2021, May and October observed mean monthly total As concentrations were greater than the AMP T3 threshold of 0.0085 mg/L (Table 3.2 8). Elevated concentrations of total Hg above the WQO were also observed in May 2021 (Table 3.2 8).

The elevated As concentrations measured appear to be associated with elevated TSS at W99 on those sampling occasions. However, without historical baseline data it is not possible to confirm whether these concentrations would have fallen within observed baseline values (e.g. ≤ +2 std. dev.). The reason for the observed elevated TSS and total As on October 3 is not clear as upstream monitoring locations in Haggart Creek (e.g., W4 and W29) did not record elevated values for TSS or total As on that sampling date.

Table 3.2-7: Summary Comparison of Key Water Quality Parameters at W29 for Baseline Period (2009 – 2017) to 2021 monthly Mean Values Relative to AMP Threshold Values (mg/L)

Parameter	*T1*	*T2*	*T3*	W29 - Haggart Creek																				
				April			May			June			July			August			September			October			November		
				Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean
TSS			*15*	10	14	3	41	55	68	3	3	3	3	3	4	10	15	55	4	5	5	5	7	5	3	3	3
SO_4	***231.8***	***262.7***	***309***	100	107	100	36	40	44	55	63	57	70	79	72	73	84	55	65	67	58	71	78	60	85	91	82
Cl	***112.5***	***127.5***	***150***	0.9	1.1	0.5	2.8	3.7	0.7	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.7	0.5	0.6	0.7	0.9	1.2	1.6	0.6
NO_3-N	***2.3***	***2.6***	***3***	0.139	0.148	0.152	0.046	0.055	0.065	0.083	0.094	0.080	0.059	0.069	0.064	0.065	0.081	0.058	0.098	0.116	0.074	0.124	0.136	0.096	0.154	0.162	0.104
NO_2-N	***0.015***	***0.017***	***0.02***	0.0010	0.0010	0.0010	0.0056	0.0074	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
NH_3-N	***0.848***	***0.961***	***1.13***	0.0050	0.0050	0.005	0.0069	0.0079	0.005	0.0096	0.0119	0.013	0.0050	0.0050	0.006	0.0124	0.0173	0.006	0.0140	0.0200	0.006	0.0124	0.0177	0.005	0.0050	0.0050	0.005
CN_{WAD}	***0.005***	***0.005***	***0.005***	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	***0.075***	***0.085***	***0.1***	0.003	0.004	0.002	0.130	0.165	0.086	0.022	0.027	0.018	0.013	0.016	0.008	0.021	0.031	0.025	0.010	0.011	0.013	0.007	0.009	0.014	0.003	0.004	0.003
T-Sb	***0.015***	***0.017***	***0.02***	0.0007	0.0008	0.0005	0.0009	0.0010	0.0013	0.0006	0.0006	0.0004	0.0008	0.0008	0.0005	0.0011	0.0014	0.0006	0.0007	0.0007	0.0004	0.0007	0.0008	0.0005	0.0006	0.0007	0.0005
T-As	***0.0064***	***0.0072***	***0.0085***	0.007	0.0093	0.0032	0.014	0.0176	0.0255	0.005	0.0061	0.0045	0.007	0.0091	0.0050	0.008	0.0108	0.0068	0.0074	0.0090	0.0057	0.0075	0.0095	0.0074	0.0047	0.0055	0.0036
T-Cd	***0.00015***	***0.00017***	***0.0002***	0.00002	0.00002	0.00002	0.00008	0.00011	0.00007	0.00002	0.00002	0.00001	0.00002	0.00002	0.00001	0.00002	0.00002	0.00002	0.00002	0.00002	0.00001	0.00003	0.00004	0.00002	0.00002	0.00002	0.00001
T-Co	***0.003***	***0.0034***	***0.004***	0.00033	0.00045	0.00020	0.00110	0.00141	0.00100	0.00011	0.00012	0.00015	0.00012	0.00012	0.00012	0.00022	0.00031	0.00040	0.00012	0.00013	0.00018	0.00029	0.00041	0.00021	0.00011	0.00011	0.00011
T-Cu	***0.00375***	***0.00425***	***0.005***	0.00126	0.00169	0.00050	0.00430	0.00497	0.00349	0.00094	0.00113	0.00075	0.00077	0.00090	0.00057	0.00111	0.00154	0.00156	0.00085	0.00100	0.00057	0.00092	0.00116	0.00082	0.00050	0.00050	0.00053
T-Fe	***0.75***	***0.85***	***1***	0.62	0.92	0.12	2.00	2.60	1.66	0.14	0.19	0.16	0.12	0.15	0.11	0.36	0.57	0.72	0.10	0.13	0.16	0.51	0.79	0.18	0.04	0.05	0.04
T-Pb	***0.00578***	***0.00655***	***0.0077***	0.0009	0.0013	0.00006	0.0022	0.0029	0.00305	0.0002	0.0002	0.00012	0.0001	0.0002	0.00011	0.0005	0.0008	0.00066	0.0003	0.0004	0.00022	0.0005	0.0007	0.00018	0.0001	0.0001	0.00005
T-Mn	***0.878***	***0.995***	***1.17***	0.068	0.081	0.097	0.108	0.135	0.103	0.018	0.021	0.034	0.039	0.049	0.043	0.037	0.044	0.054	0.040	0.044	0.044	0.051	0.064	0.061	0.057	0.070	0.055
T-Hg	***0.000015***	***0.000017***	***0.00002***	0.000010	0.000010	0.000005	0.000010	0.000010	0.000057	0.000010	0.000010	0.000005	0.000011	0.000013	0.000005	0.000011	0.000013	0.000006	0.000010	0.000013	0.000005	0.000011	0.000013	0.000005	0.000010	0.000013	0.000005
T-Mo	***0.0548***	***0.0621***	***0.073***	0.00020	0.00023	0.00017	0.00018	0.00020	0.00027	0.00025	0.00026	0.00024	0.00037	0.00046	0.00027	0.00035	0.00042	0.00029	0.00042	0.00050	0.00030	0.00036	0.00043	0.00030	0.00026	0.00029	0.00023
T-Ni	***0.087***	***0.099***	***0.116***	0.0028	0.0034	0.0020	0.0044	0.0050	0.0038	0.0010	0.0011	0.0011	0.0011	0.0012	0.0012	0.0013	0.0016	0.0018	0.0011	0.0012	0.0011	0.0012	0.0015	0.0014	0.0012	0.0014	0.0011
T-Se	***0.0015***	***0.0017***	***0.002***	0.00023	0.00025	0.00025	0.00022	0.00027	0.00020	0.00024	0.00024	0.00017	0.00021	0.00025	0.00018	0.00024	0.00029	0.00016	0.00023	0.00026	0.00014	0.00023	0.00027	0.00016	0.00023	0.00025	0.00019
T-Ag	***0.00113***	***0.00128***	***0.0015***	0.000010	0.000010	0.000010	0.000027	0.000035	0.000024	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000011	0.000010	0.000010	0.000010	0.000010
T-U	***0.0113***	***0.0128***	***0.015***	0.0021	0.0023	0.0020	0.0007	0.0008	0.0009	0.0009	0.0009	0.0008	0.0012	0.0014	0.0011	0.0014	0.0017	0.0009	0.0013	0.0014	0.0009	0.0014	0.0016	0.0012	0.0017	0.0018	0.0015
T-Zn	***0.0285***	***0.0323***	***0.038***	0.007	0.008	0.0035	0.012	0.015	0.0098	0.003	0.004	0.0030	0.005	0.006	0.0030	0.003	0.004	0.0038	0.003	0.004	0.0030	0.004	0.005	0.0030	0.003	0.003	0.0030

Colour Coding Legend for Trend Assessment	
Monthly 2021mean is ≤ any Tier and ≤ Baseline 2 stdev	no action
Monthly 2021mean is ≥ any Tier but ≤ Baseline 2 stdev	high background
Monthly 2021mean is ≥ Tier 2 < Tier 3 ≥ Baseline 2 stdev	monitor
Monthly 2021mean is ≥ Tier 3 > Baseline 2 stdev	Upward trend

Table 3.2-8: Summary Comparison of Key Water Quality Parameters at W99 for 2019 to 2021 monthly Mean Values Relative to AMP Threshold Values (mg/L)

Parameter	*T1*	*T2*	*T3*	W99 - Haggart Creek																				
				April			May			June			July			August			September			October			November		
				Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean
TSS			***15***	19	25	3	45	62	39	17	26	3	3	4	3	5	6	31	3	3	2	3	3	15	3	3	5
SO_4	***231.8***	***262.7***	***309***	98	102	107	58	82	45	72	90	52	82	83	76	86	86	56	92	92	61	82	82	64	90	90	72
Cl	***112.5***	***127.5***	***150***	3.4	4.3	0.5	0.7	0.8	0.7	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.9
NO_3-N	***2.3***	***2.6***	***3***	0.104	0.113	0.152	0.204	0.312	0.060	0.068	0.075	0.082	0.063	0.066	0.066	0.058	0.058	0.065	0.060	0.060	0.079	0.118	0.118	0.102	0.141	0.141	0.124
NO_2-N	***0.015***	***0.017***	***0.02***	0.0011	0.0012	0.0010	0.0017	0.0021	0.0010	0.0016	0.0019	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
NH_3-N	***0.848***	***0.961***	***1.13***	0.0158	0.0209	0.006	0.0067	0.0067	0.006	0.0056	0.0056	0.005	0.0122	0.0158	0.006	0.0050	0.0050	0.005	0.0201	0.0201	0.005	0.0050	0.0050	0.005	0.008	0.008	0.006
CN_{WAD}	***0.005***	***0.005***	***0.005***	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	-	-	0.005	-	-	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	***0.075***	***0.085***	***0.1***	0.013	0.015	0.002	0.191	0.269	0.085	0.066	0.095	0.023	0.008	0.010	0.009	0.004	0.004	0.031	0.004	0.004	0.013	0.006	0.006	0.014	0.002	0.002	0.004
T-Sb	***0.015***	***0.017***	***0.02***	0.0015	0.0018	0.0005	0.0010	0.0011	0.0016	0.0006	0.0007	0.0004	0.0007	0.0007	0.0005	0.0006	0.0006	0.0006	0.0006	0.0006	0.0004	0.0005	0.0005	0.0011	0.0006	0.0006	0.0005
T-As	***0.0064***	***0.0072***	***0.0085***	0.0197	0.0231	0.0034	0.0178	0.0228	0.0333	0.0042	0.0045	0.0046	0.0038	0.0040	0.0052	0.0037	0.0037	0.0074	0.0030	0.0030	0.0053	0.0029	0.0029	0.0192	0.0030	0.0030	0.0040
T-Cd	***0.00015***	***0.00017***	***0.0002***	0.00004	0.00005	0.00002	0.00006	0.00008	0.00008	0.00003	0.00004	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001	0.00003	0.00001	0.00001	0.00001	0.00001	0.00001	0.00003	0.00002	0.00002	0.00001
T-Co	***0.003***	***0.0034***	***0.004***	0.00065	0.00072	0.00018	0.00108	0.00140	0.00108	0.00038	0.00050	0.00017	0.00011	0.00012	0.00013	0.00013	0.00013	0.00056	0.00011	0.00011	0.00016	0.00010	0.00010	0.00060	0.00012	0.00012	0.00013
T-Cu	***0.00375***	***0.00425***	***0.005***	0.00222	0.00260	0.00050	0.00373	0.00479	0.00390	0.00231	0.00310	0.00098	0.00063	0.00065	0.00060	0.00057	0.00057	0.00215	0.00058	0.00058	0.00059	0.00063	0.00063	0.00205	0.00081	0.00081	0.00062
T-Fe	***0.75***	***0.85***	***1***	0.99	1.19	0.09	1.89	2.49	1.61	0.70	1.00	0.23	0.09	0.11	0.11	0.11	0.11	1.09	0.04	0.04	0.12	0.05	0.05	1.07	0.04	0.04	0.07
T-Pb	***0.00578***	***0.00655***	***0.0077***	0.0019	0.0024	0.00005	0.0023	0.0030	0.00451	0.0008	0.0011	0.00018	0.0001	0.0001	0.00013	0.0002	0.0002	0.00084	0.0001	0.0001	0.00009	0.0001	0.0001	0.00189	0.00006	0.00006	0.00010
T-Mn	***0.878***	***0.995***	***1.17***	0.132	0.148	0.090	0.108	0.132	0.105	0.053	0.058	0.038	0.049	0.049	0.052	0.063	0.063	0.065	0.067	0.067	0.046	0.056	0.056	0.080	0.067	0.067	0.047
T-Hg	***0.000015***	***0.000017***	***0.00002***	0.000005	0.000005	0.000005	0.000050	0.000068	0.000030	0.000007	0.000007	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000006	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
T-Mo	***0.0548***	***0.0621***	***0.073***	0.00034	0.00040	0.00018	0.00025	0.00030	0.00027	0.00019	0.00019	0.00024	0.00019	0.00019	0.00028	0.00019	0.00019	0.00029	0.00029	0.00029	0.00031	0.00021	0.00021	0.00030	0.00025	0.00025	0.00021
T-Ni	***0.087***	***0.099***	***0.116***	0.0027	0.0029	0.0017	0.0039	0.0048	0.0038	0.0025	0.0032	0.0013	0.0010	0.0010	0.0011	0.0010	0.0010	0.0022	0.0010	0.0010	0.0011	0.0010	0.0010	0.0023	0.0009	0.0009	0.0008
T-Se	***0.0015***	***0.0017***	***0.002***	0.00024	0.00026	0.00025	0.00018	0.00022	0.00016	0.00014	0.00015	0.00018	0.00015	0.00016	0.00013	0.00012	0.00012	0.00014	0.00012	0.00012	0.00013	0.00020	0.00020	0.00015	0.00014	0.00014	0.00013
T-Ag	***0.00113***	***0.00128***	***0.0015***	0.000019	0.000023	0.000010	0.000033	0.000044	0.000027	0.000013	0.000015	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000017	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010
T-U	***0.0113***	***0.0128***	***0.015***	0.0027	0.0031	0.0022	0.0011	0.0015	0.0010	0.0011	0.0014	0.0007	0.0013	0.0014	0.0011	0.0014	0.0014	0.0009	0.0017	0.0017	0.0010	0.0014	0.0014	0.0012	0.0018	0.0018	0.0013
T-Zn	***0.0285***	***0.0323***	***0.038***	0.006	0.007	0.0032	0.010	0.013	0.0105	0.004	0.004	0.0030	0.003	0.003	0.0030	0.003	0.003	0.0044	0.003	0.003	0.0030	0.003	0.003	0.0048	0.0030	0.0030	0.0030

NOTES:

No baseline available for W99 - sampling commenced in April 2019

Colour Coding Legend for Trend Assessment	
Monthly 2021mean is ≤ any Tier and ≤ Baseline 2 stdev	no action
Monthly 2021mean is ≥ any Tier but ≤ Baseline 2 stdev	high background
Monthly 2021mean is ≥ Tier 2 < Tier 3 ≥ Baseline 2 stdev	monitor
Monthly 2021mean is ≥ Tier 3 > Baseline 2 stdev	Upward trend

W23

Water quality at W23 reflects loadings from all upstream tributaries, including Dublin Gulch and all mine related inputs as well as additional loadings from Lynx Creek. Water quality observed in 2021 at W23 relative to the baseline period of 2007 to 2017 indicated that most parameters measured in 2021 were at concentrations very similar to those observed during baseline monitoring. Indeed, most parameters were present at a concentration within +1 standard deviation of the baseline monthly mean concentration with the exception of As in July and October (Table 3.2-9).

The measured concentration of total As on July 10, 2021 at W23 (0.0093 mg/L) is anomalous as no discharge was occurring into Haggart Creek at that time. Sampling on July 10 at W23 did not coincide with sampling at W99, W29 or W4 at upstream locations in Haggart Creek so the extent of the elevated levels in Haggart Creek or the potential source cannot be ascertained. However, water quality data collected on July 10 at station W5, located immediately upstream of W23 and upstream of the confluence with Lynx Creek also indicated a relatively high total As concentration of 0.0087 mg/L.

The elevated total As value at W23 for October coincides with the observed value at upstream station W99 (0.019 mg/L) and W5 (0.019 mg/L); as above, without any clear connection to Project or other activities, the contributing factors for the elevated concentrations are unknown.

Table 3.2-9: Summary Comparison of Key Water Quality Parameters at W23 for Baseline Period (2007 – 2017) to 2021 monthly Mean Values Relative to AMP Threshold Values

Parameter	T1	T2	T3	W23 - Haggart Creek																						
				April			May			June			July			August			September			October			November		
				Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean
TSS			***15***	15	22	3	91	135	29	45	67	3	4	4	13	3	3	4	9	13	2	3	3	10	3	3	3
SO_4	***231.8***	***262.7***	***309***	89	89	106	24	30	19	53	60	63	74	82	66	72	79	59	68	75	63	74	82	65	91	99	87
Cl	***112.5***	***127.5***	***150***	0.5	0.5	0.5	1.5	2.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.5	0.6	0.7	0.5	0.6	0.7	0.5
NO_3-N	***2.3***	***2.6***	***3***	0.179	0.191	0.221	0.035	0.042	0.034	0.071	0.084	0.077	0.055	0.065	0.064	0.068	0.082	0.060	0.099	0.118	0.081	0.160	0.179	0.113	0.205	0.222	0.144
NO_2-N	***0.015***	***0.017***	***0.02***	0.0010	0.0010	0.0010	0.0030	0.0044	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
NH_3-N	***0.848***	***0.961***	***1.13***	0.0071	0.0083	0.005	0.0100	0.0124	0.007	0.0299	0.0427	0.005	0.0050	0.0050	0.005	0.0158	0.0225	0.006	0.0118	0.0168	0.005	0.0133	0.0187	0.005	0.006	0.006	0.005
CN_{WAD}	***0.005***	***0.005***	***0.005***	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	***0.075***	***0.085***	***0.1***	0.006	0.008	0.002	0.167	0.215	0.132	0.038	0.052	0.011	0.019	0.027	0.019	0.010	0.013	0.022	0.017	0.022	0.012	0.008	0.010	0.016	0.004	0.005	0.004
T-Sb	***0.015***	***0.017***	***0.02***	0.0015	0.0021	0.0005	0.0010	0.0012	0.0007	0.0014	0.0019	0.0005	0.0006	0.0007	0.0007	0.0006	0.0006	0.0005	0.0007	0.0008	0.0005	0.0005	0.0006	0.0008	0.0005	0.0005	0.0005
T-As	***0.0064***	***0.0072***	***0.0085***	0.0291	0.0436	0.0044	0.0178	0.0238	0.0116	0.0271	0.0398	0.0048	0.0055	0.0061	0.0093	0.0059	0.0063	0.0060	0.0072	0.0084	0.0056	0.0056	0.0061	0.0135	0.0046	0.0047	0.0043
T-Cd	***0.00015***	***0.00017***	***0.0002***	0.00006	0.00008	0.00001	0.00011	0.00015	0.00007	0.00016	0.00024	0.00001	0.00003	0.00004	0.00002	0.00003	0.00004	0.00002	0.00003	0.00004	0.00001	0.00003	0.00004	0.00002	0.00002	0.00002	0.00001
T-Co	***0.003***	***0.0034***	***0.004***	0.00086	0.00130	0.00010	0.00149	0.00213	0.00071	0.00267	0.00414	0.00010	0.00010	0.00010	0.00025	0.00010	0.00010	0.00017	0.00020	0.00026	0.00010	0.00019	0.00026	0.00037	0.00024	0.00032	0.00010
T-Cu	***0.00375***	***0.00425***	***0.005***	0.00325	0.00492	0.00050	0.00554	0.00719	0.00336	0.00612	0.00882	0.00074	0.00087	0.00097	0.00128	0.00085	0.00096	0.00120	0.00172	0.00225	0.00076	0.00097	0.00114	0.00160	0.00087	0.00106	0.00052
T-Fe	***0.75***	***0.85***	***1***	1.77	2.78	0.04	2.63	3.79	1.20	0.75	1.04	0.08	0.07	0.10	0.45	0.09	0.12	0.23	0.14	0.19	0.10	0.09	0.13	0.66	0.04	0.05	0.03
T-Pb	***0.00578***	***0.00655***	***0.0077***	0.0032	0.0051	0.00005	0.0037	0.0055	0.00141	0.0078	0.0123	0.00006	0.0001	0.0001	0.00065	0.0001	0.0001	0.00021	0.0005	0.0007	0.00006	0.0003	0.0004	0.00102	0.00036	0.00055	0.00005
T-Mn	***0.878***	***0.995***	***1.17***	0.092	0.123	0.035	0.154	0.217	0.083	0.305	0.472	0.019	0.021	0.023	0.037	0.025	0.029	0.032	0.035	0.043	0.032	0.032	0.037	0.052	0.033	0.037	0.032
T-Hg	***0.000015***	***0.000017***	***0.00002***	0.000009	0.000009	0.000005	0.000042	0.000061	0.000016	0.000044	0.000061	0.000005	0.000042	0.000062	0.000005	0.000040	0.000059	0.000005	0.000038	0.000056	0.000005	0.000047	0.000068	0.000005	0.000016	0.000022	0.000005
T-Mo	***0.0548***	***0.0621***	***0.073***	0.00050	0.00057	0.00054	0.00035	0.00041	0.00032	0.00089	0.00116	0.00051	0.00056	0.00058	0.00051	0.00060	0.00064	0.00049	0.00076	0.00093	0.00054	0.00077	0.00091	0.00051	0.00087	0.00106	0.00058
T-Ni	***0.087***	***0.099***	***0.116***	0.0026	0.0039	0.0007	0.0047	0.0062	0.0028	0.0052	0.0076	0.0008	0.0007	0.0008	0.0010	0.0008	0.0009	0.0012	0.0011	0.0013	0.0010	0.0009	0.0011	0.0016	0.0009	0.0011	0.0007
T-Se	***0.0015***	***0.0017***	***0.002***	0.00109	0.00138	0.00043	0.00094	0.00133	0.00022	0.00111	0.00147	0.00027	0.00100	0.00138	0.00028	0.00104	0.00141	0.00024	0.00104	0.00143	0.00026	0.00090	0.00124	0.00027	0.00081	0.00108	0.00028
T-Ag	***0.00113***	***0.00128***	***0.0015***	0.000029	0.000039	0.000010	0.000049	0.000072	0.000022	0.000033	0.000046	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000015	0.000018	0.000010	0.000015	0.000018	0.000010	0.000017	0.000021	0.000010
T-U	***0.0113***	***0.0128***	***0.015***	0.0017	0.0017	0.0020	0.0004	0.0005	0.0003	0.0011	0.0013	0.0009	0.0011	0.0011	0.0010	0.0010	0.0011	0.0008	0.0011	0.0012	0.0009	0.0013	0.0015	0.0011	0.0016	0.0017	0.0014
T-Zn	***0.0285***	***0.0323***	***0.038***	0.011	0.016	0.0030	0.014	0.019	0.0081	0.023	0.035	0.0030	0.003	0.004	0.0037	0.003	0.004	0.0030	0.005	0.006	0.0030	0.004	0.005	0.0034	0.0044	0.0052	0.0030

Colour Coding Legend for Trend Assessment	
Monthly 2021mean is ≤ any Tier and ≤ Baseline 2 stdev	no action
Monthly 2021mean is ≥ any Tier but ≤ Baseline 2 stdev	high background
Monthly 2021mean is ≥ Tier 2 < Tier 3 ≥ Baseline 2 stdev	monitor
Monthly 2021mean is ≥ Tier 3 > Baseline 2 stdev	Upward trend

3.3 Water Balance and Water Quality Modeling

The Eagle Gold Project water balance and water quality model (WBWQM) is a mass-conserving mixing model that predicts water quality for 38 parameters at key monitoring and compliance points in the receiving waters affected by mine activity. The model was designed on the GoldSim® platform and the water balance and water quality model uses a daily time-step for 50 years, spanning operations, closure and several years into post-closure.

The WBWQM has been updated and integrates the following:

- An updated water management plan as described in: *Eagle Gold Project Water Management Plan*. Version 2020-01. January 2020;
- Revisions to the heap leach facility water balance modeling as prepared by Forte Dynamics (2022);
- Baseline climate and hydrology data collected since 2007 and inclusive of data collected in 2021;
- Baseline surface water quality monitoring data collected from 2007 to 2017 prior to initiation of construction in August 2017;
- Surface water quality monitoring data collected in 2018 through 2021 reflective of construction and early Operations phases;
- Site hydrological monitoring data for ditches and collection ponds up through 2021, and
- Updated geochemical source term data collected up through 2021 from re-designed and revised field bins of waste rock, unsaturated laboratory-based kinetic leach columns, heap leach barren solution chemistry data collected in 2020 and 2021, and updated site monitoring data from waste rock seepage through 2021.

The operations water management plan and site-wide water balance model are represented by the generalized model schematic for 2021 (Figure 3.3-1). During operations, water quality in mine discharge is driven by contact water reporting to the Lower Dublin South Pond. Contact water from Platinum Gulch WRSA, the temporary (or 90-Day) ore stockpile, and any drainage from the open pit all report to the LDSP through Ditch A. Suttles Gulch and the EP WRSA drain to the LDSP via Ditch B. During 2021, excess water into the LDSP was primarily managed through:

- Transfer of LDSP water to the Events Pond to allow additional settling of solids;
- Transfer of water from the Events Pond or directly from the LDSP to the HLF for process make-up water requirements;
- Discharge to Haggart Creek via Ditch C when water quality met discharge requirements of QZ14-041-1 for effluent quality (EQS).

The MWTP was not constructed during 2021.

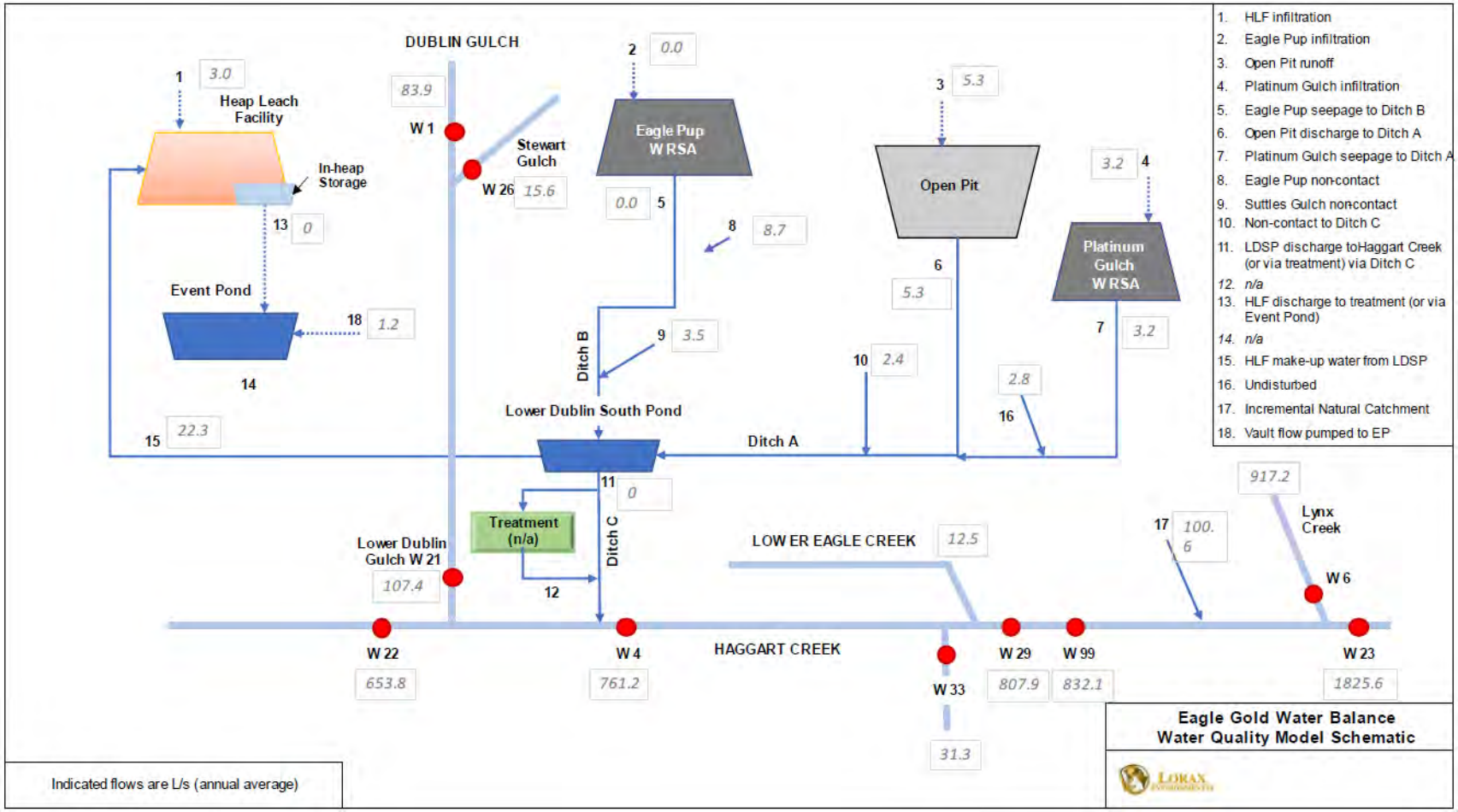


Figure 3.3-1 Generalized Water Balance Model Schematic - Overview

3.3.1 Site-Wide Surface Water, HLF Water Balance and Groundwater Model Integration

The Eagle Gold WBWQM is a GoldSim-based integrated site-wide water balance and water quality model that was developed by Lorax Environmental Services Ltd. (Lorax) to combine source concentrations of potential contaminants of concern with contact and non-contact flows allowing contaminant loading to be tracked throughout the mine site and into the receiving waters of Haggart Creek.

The WBWQM is integrated with both a heap leach facility water balance model (HLF WBM) and a groundwater model. It incorporates groundwater baseflow and recharge rates estimated by the latest numerical groundwater model (BGC 2020). Figure 3.3-2 illustrates the integration of the site-wide water balance model, with the HLF WBM, groundwater model and water quality model.

The Forte Dynamics GoldSim HLF WBM (i.e., Forte HLF WBM) was revised to include new ore water content estimates and to employ an up-to-date ore placement schedule consistent with the current mine plan in the WBWQM. The Forte HLF WBM uses the same climate inputs to match the inputs to the WBWQM. Forte HLF WBM outputs, including makeup water demand, integrated drain-down volume and post-closure seepage rates were directly input into the WBWQM. Drain down was refined to reflect the assumed practice for recycling water back to the heap pad during treatment to manage discharge loading; additionally, post-closure seepage from the Forte HLF WBM was scaled assuming a cover is placed on the HLF after the final rinse.

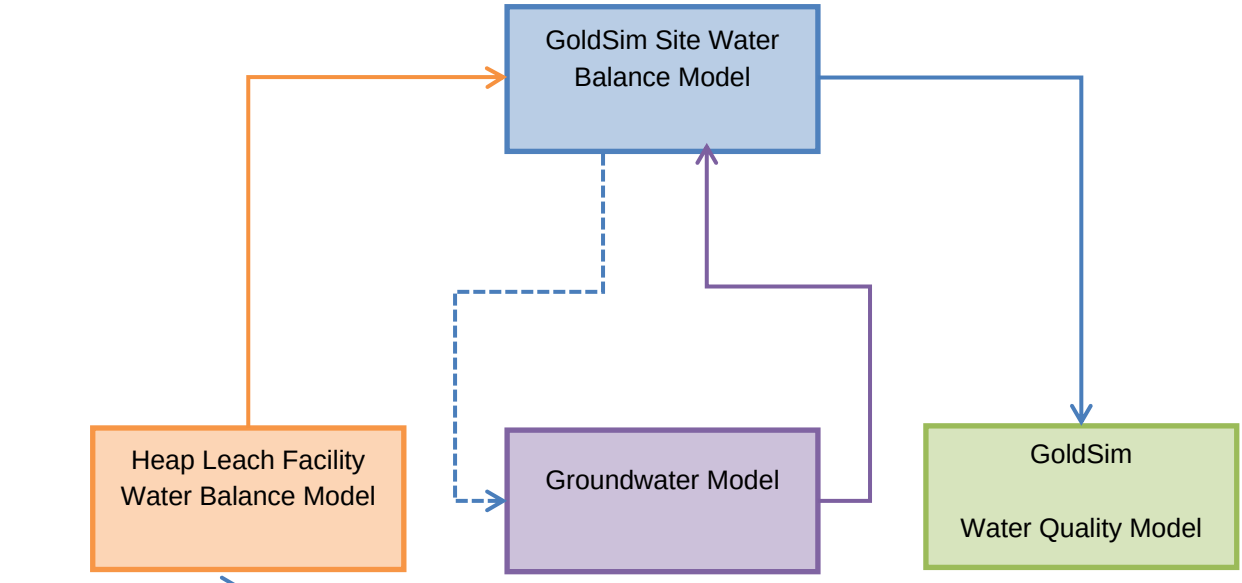


Figure 3.3-2 Water Balance Model Integration

3.3.1.1 Results

The results of the updated models are provided in the Eagle Gold Project 2021 Water Balance and Water Quality Model Update Report (Appendix E) and Forte Heap Leach Facility Water Balance Model Report (Appendix F). The models utilize the active mine plan and considers the receiving environment WQOs developed for the QZ14-

041-1, the effluent quality standards mandated by QZ14-041-1, and updated data collected under the Environmental Monitoring, Surveillance and Adaptive Management Plan.

3.4 Groundwater

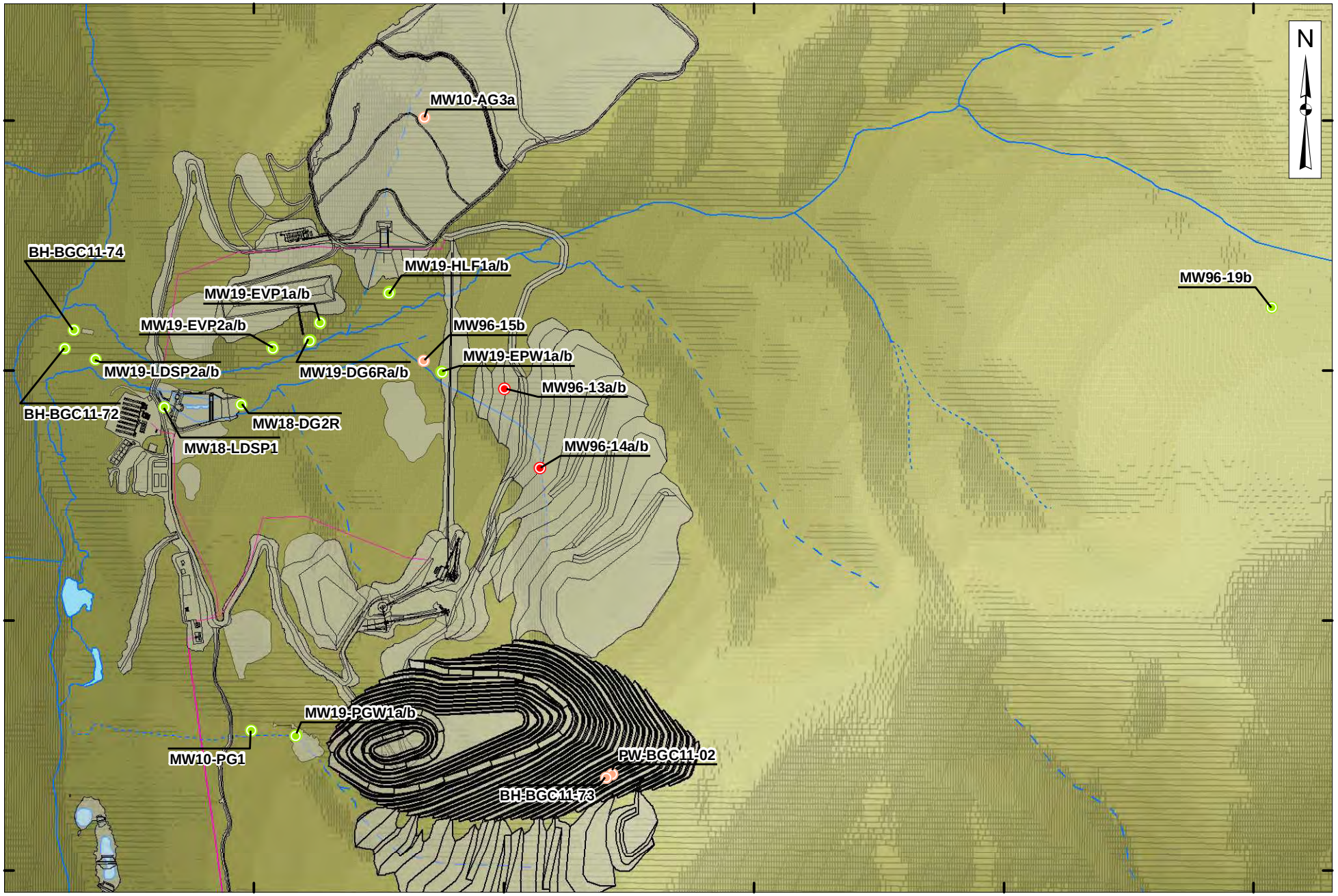
The majority of the Mine footprint is situated within the Dublin Gulch basin, which is part of the Haggart Creek basin. The hydrogeologic zones used to characterize groundwater in the area include Eagle Pup and the Ann, Suttles, Olive, Bawn Boy, Platinum and Dublin Gulches. The groundwater monitoring program in 2021 continued the general data collection program initiated during baseline monitoring and construction that focused on specific spatial zones and where facilities were constructed and operated to help monitor potential effects on the groundwater flow system. The wells monitored during 2021 are depicted in Figure 3.4-1 and include the following zones:

- Heap Leach Facility (Ann Gulch catchment) and the Events Pond,
- Eagle Pup WRSA (Eagle Pup catchment),
- Platinum Gulch WRSA (Platinum Gulch catchment),
- Open Pit (Upper Suttles and Platinum Gulch catchments)
- Olive and Bawn Boy Gulches (Upper Dublin Gulch catchment), and
- Lower Dublin South Pond (Lower Dublin Gulch valley).

The installation of additional wells near major facilities was planned for 2020 (i.e., the HLF, Eagle Pit, and the Platinum Gulch WRSA); however, with continued site restrictions in effect throughout 2021 due to COVID-19 precautions, the drill program has been postponed until 2022. The planned locations will provide data near the HLF and down gradient from the Eagle Pit and PG WRSA. Monitoring well installations in 2022 are also planned down gradient of the EP WRSA. Groundwater wells that were decommissioned during the 2021 reporting period due to ongoing project development activities are listed in Table 3.4-1. Wells are decommissioned using ASTM 529999 decommissioning guidelines.

Table 3.4-1: Groundwater Well Decommissioning 2021

Well ID	Date Decommissioned	Reason for Decommissioning
Eagle Pup Valley		
MW96-13ab	April 30, 2021	Construction of Eagle Pup WRSA
MW96-14ab	April 30, 2021	Construction of the Eagle Pup WRSA



Legend:

- Active Monitoring Wells
- Wells Decommissioned prior to 2021
- Wells Decommissioned in 2021
- Perennial Watercourse
- Ephemeral Watercourse
- Intermittent Watercourse
- Major Facility
- Site Power

VICTORIA GOLD CORP

0 125 250 500
Meters

Projection:	Drawn By:	EAGLE GOLD PROJECT YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	2021 Groundwater Monitoring Locations
2022/04/01	3.4-1	

3.4.1 Groundwater Quantity Monitoring

The objectives of the groundwater quantity monitoring program are to provide continuous and spot level groundwater level measurements to monitor potential Project effects on the occurrence and quantity of groundwater. Groundwater level data have been collected since 2009 from the wells/piezometers installed throughout the project footprint. Continuous recording data loggers have been used at various locations on site to provide a better understanding of seasonal variability in areas of current and planned infrastructure.

Continuous data logger information collected in 2021 was compiled by BGC in hydrograph plots showing groundwater elevations from monitoring wells; data compilation and analytical methods for processing the groundwater level data are described in the BGC report provided as Appendix G.

As outlined in the EMSAMP, quarterly monitoring (sampling and water level measurements) was conducted during 2021 at the locations listed in Table 3.4-2 and shown in Figure 3.4-1.

Table 3.4-2: Groundwater Well Monitoring 2021

Well ID	Datalogger Installed?	Manual Level Measurement				Water Quality Sample				2021 Observations/Comments
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
MW19-EVP1a	No	Yes	Yes	Dry	Yes	No	No	No	No	Insufficient water for sample all Qs
MW19-EVP1b	No	Yes	Yes	Dry	Yes	No	No	No	No	Insufficient water for sample all Qs
MW19-EVP2a	No	Yes	Yes	Dry	Yes	No	No	No	No	Insufficient water for sample all Qs
MW19-EVP2b	No	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Frozen in Q1
MW19-HLF1a	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Insufficient water for sample Q1
MW19-HLF1b	Yes	Yes	Yes	No	Yes	No	No	No	No	Dry
MW10-AG3a	*Decommissioned*									
MW10-AG3b	*Decommissioned*									
MW19-DG6R a	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	Equipment failure in Q4 - No sample
MW19-DG6R b	No	Yes	-No	Yes	Yes	Yes	No	Yes	Yes	Tubing frozen in well unable to sample in Q2
BH-BGC11-72	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-
BH-BGC11-74	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-
MW19-LDSP2a	Yes	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Insufficient water for sampling Q1 & Q2
MW19-LDSP2b	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-
MW19-LDSP1	No	Yes	Yes	Yes	Yes	No	No	No	No	Dry
MW18-DG2R	Yes									-
MW96-13a	Yes	Yes	Yes	No	No	Yes	Yes	No	No	Decommissioned
MW96-13b	Yes	Yes	Yes	No	No	No	No	No	No	Decommissioned
MW96-14b	No	Yes	Yes	Decomm		No	No	No	No	Decommissioned
MW96-15	No	Yes	Yes	Decomm		Yes	Yes	Yes	No	Decommissioned
MW19-EPW1a	Yes	-No	Yes	Yes	Yes	No	Yes	Yes	Yes	Tubing frozen no sample Q1
MW19-EPW1b	Yes	-No	-No	Yes	Yes	No	No	Yes	Yes	Bentonite observed while purging suspected well damage
MW10-PG1	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-
MW19-PGW1a	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes	-
MW19-PGW1b	No	Well damaged				No	No	No	No	Well damaged unable to sample
PW-BGC11-02	*Decommissioned*									

Well ID	Datalogger Installed?	Manual Level Measurement				Water Quality Sample				2021 Observations/Comments
		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
BH-BGC11-73a,b,c	*Decommissioned*									
MW96-9B	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	-

As described in previous reports (Stantec 2012b. BGC 2013, and BGC 2014), and for the 2018-2021 Annual Reports the well network hydrographs have demonstrated a large range in seasonal variability (since 2009), with some wells (e.g., in the Ann Gulch area) experiencing small changes over the period of record (i.e., 1 to 2 m), while others in the Eagle pit areas historically showed much larger ranges (over 10 meters).

The available data indicate that the groundwater table generally mimics the surface topography, with recharge along topographic highs, and discharge along creeks and gullies. Seasonal groundwater level fluctuations are generally 5 m or less and typically peak in the spring (e.g., MW96-9B). The groundwater levels recorded in 2021 generally reflect similar trends to previous years. Greater amounts of precipitation were received in 2021 than is typical for the Project area, and groundwater elevations have recovered from the lower groundwater elevations observed in 2019. In some locations (e.g., MW96-9B), peak groundwater elevations were slightly higher than the historical range, likely in response to the high precipitation values observed in 2021; however, as noted in Sections 3.1 and 3.8. the precipitation recorded at the climate stations appears to have been very localized with basin wide responses for the year based on streamflow measurements representing a typical, if not slightly below average, year for streamflows.

The available data do not indicate noticeable impacts from mining on groundwater levels.

3.4.2 Groundwater Quality Monitoring

The groundwater quality monitoring program is undertaken in conjunction with the quantity program with water quality samples taken on a quarterly basis (Table 3.4-2).

The discussion on groundwater quality in this report has been broken into four spatial areas to align with the major facility footprints, they are; HLF & Events Pond, LDSP, Platinum Gulch WRSA and the Eagle Pup WRSA. Parameters discussed herein were previously identified as parameters of concern based on prior environmental characterization work (BGC, 2013) and were also considered in the 2020 annual report, and include: pH, aluminum, arsenic, cadmium, copper, lead, iron and selenium. Detailed results are available in Appendix H.

Groundwater quality data collected from 1995-2016 was characterized in 2017 as required by the WUL (CoreGeo, 2017). In an effort to better characterize, and respond to, if necessary, potential changes to groundwater quality during the life of the mine, VGC will continue to build upon this report and work towards creating management triggers for groundwater quality.

Groundwater quality data for wells within the Ann Gulch drainage (which is the location for the HLF and Event Pond) is provided in Figure 3.4-2 and Figure 3.4-3 for the period of 2010 through 2021. The wells monitored in Ann Gulch include MW10-AG6, MW10AG3A, MW10-DG6, MW19-DG6RB, MW19-DG6RA, and MW19-HLF1B. Due to construction activities, MW10-DG6 was decommissioned and replaced with MW19-DG6R A/B. MW10-AG3A and MW10-AG6 were decommissioned due to the construction of the HLF.

Parameter observations include the following:

- pH has remained neutral to slightly basic for the duration of the monitoring program.

- Aluminum generally fluctuates between 1 order of magnitude with the exception of MW19-HLF1B in April 2021.
- Arsenic levels were relatively stable from 2009-2019 with the exception of one outlier at MW10-DG6 which had a result 4 orders of magnitude lower than historical samples. New wells were established in 2019 and there is minor variability observed at MW19-HLF1B.
- Cadmium shows MW19-DG6RB as stable since sampling began in 2019 and MW18-DG6RA has a decreasing trend over time.
- Copper at all historic stations have a variability of approximately one order of magnitude over time. In 2021 MW19-DG6RB shows a slight increase and MW19-HLF1B has decreased.
- Lead values in wells that were drilled in 2019 (MW19-HLF1B and MW19-DG6RA&B show higher concentrations then decommissioned baseline wells, methodology for results has produced different Method Detection Limit (MDL). New stations are generally close to or at MDL.
- Iron displays a large variability between stations but each station shows consistent ranges over 2009 to 2021.
- Selenium displayed results for MW19-DG6RB at detection limits in 2021. MW19-HLF1B shows a slight increase over the 3 years of monitoring.

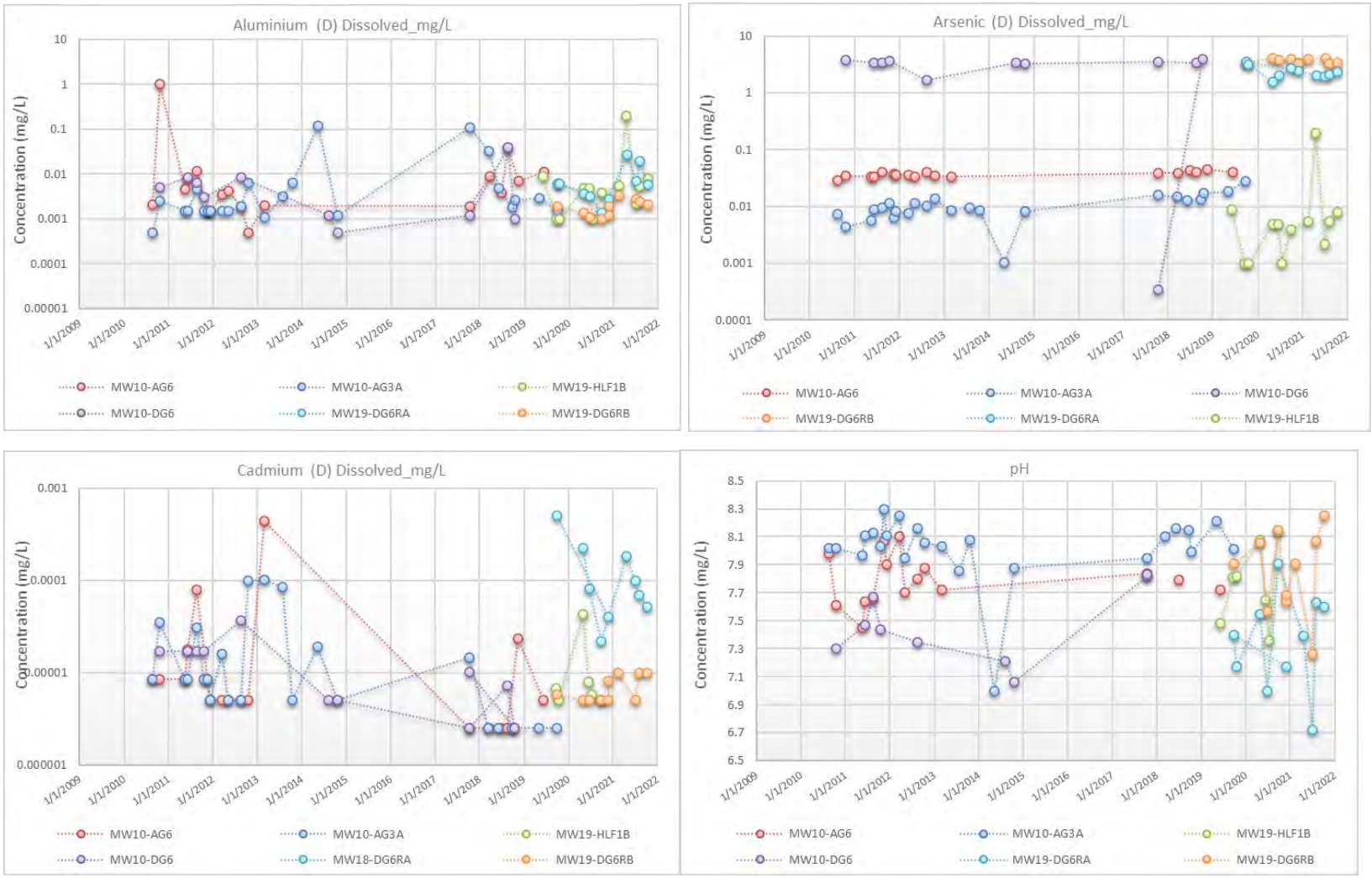


Figure 3.4.2: Ann Gulch Drainage Groundwater Quality Data

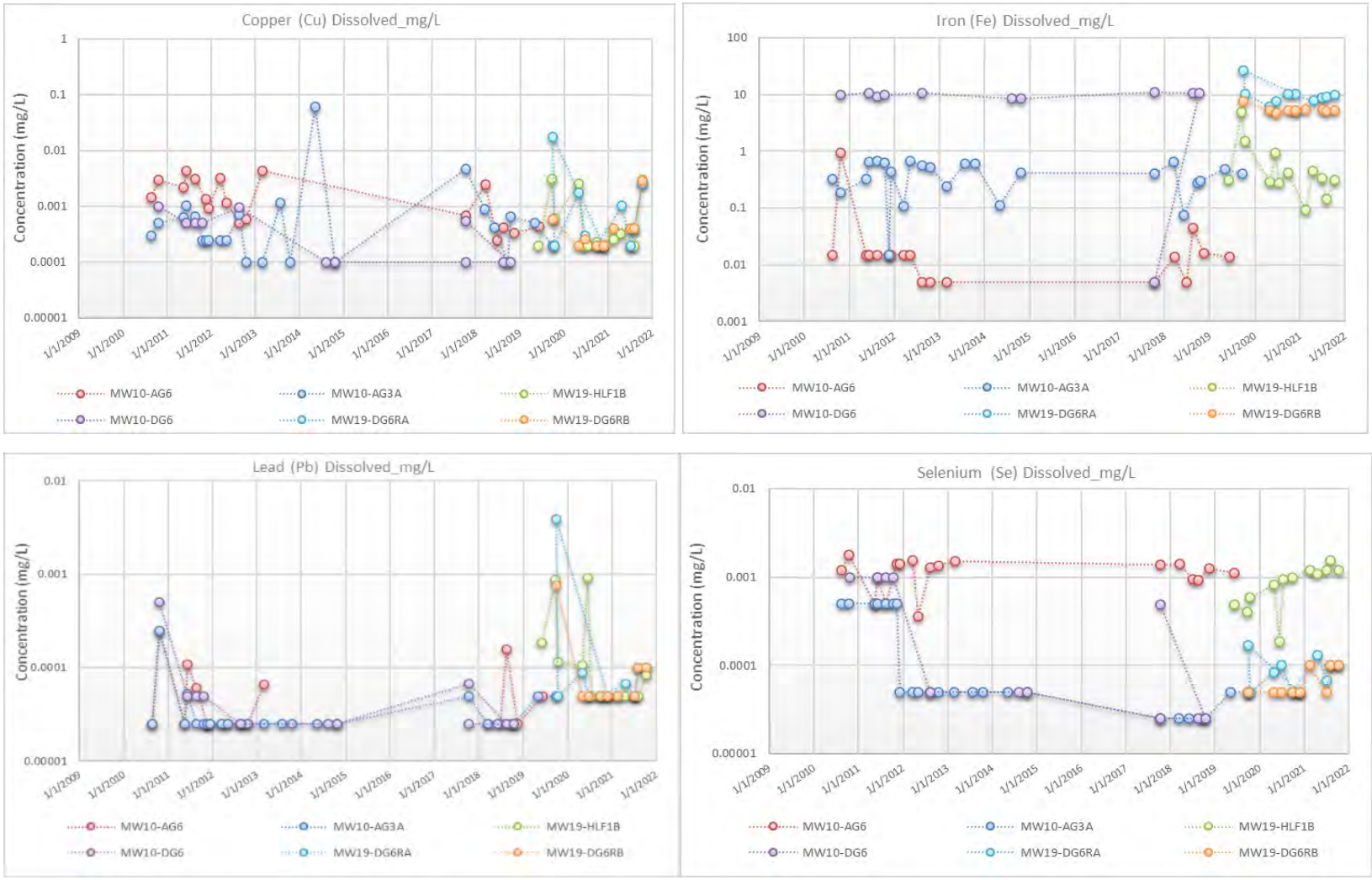


Figure 3.4.3: Ann Gulch Drainage Groundwater Quality Data

Groundwater data for the well network in the area of the LDSP is provided in Figure 3.4.4 and Figure 3.4.5. The wells considered include BH-BGC11-72, MW10-OBS1, MW19-LDSP2A, MW19-LDSP2B and MW18 DG2R. The data set for this area consists of groundwater quality data from 2017 through 2021. MW10-OBS1 was replaced with MW19-LDSP2A in 2019 and is no longer monitored on a quarterly schedule.

Parameter observations include the following:

- pH is consistently neutral to slightly basic across all station.
- Aluminum within the majority of groundwater samples are within 0.001 to 0.01 (one order of magnitude). In 2019, BH-BGC11-72 had aluminum concentrations 3 orders of magnitude higher than the majority of samples, but throughout 2021 concentrations have lowered and are closer to 0.001 mg/L.
- Arsenic ranges from 0.00032 mg/L to 4.48 mg/L across all stations, with the majority of values ranges from 0.001 to 0.1 mg/L or two orders of magnitude. MW18-DG2R had consistent arsenic concentrations above all other sample sites.
- Cadmium concentrations range from 0.00001 mg/L to 0.001 mg/L across all stations. MW10-OBS1 showed the largest variance, particularly the 2020 sample. Cadmium concentrations for the other four stations in the LDSP area display similar ranges to each other. Over the data collection period, there is a downward trend in cadmium concentrations across all stations.
- Copper concentrations show a downward trend in all stations with a concentration range of below 0.0002mg/L (MDL) to 0.00272 mg/L.
- Iron concentrations at BH-BGC11-72 displayed low variability during 2019-2021. MW19-LDSP2A has a decreasing trend when considering the full data set.
- Lead concentrations display a large variability from 2018-2019. Sample results from 2020-2021 seem to have stabilized at close to detection limits.
- Selenium concentrations are stable with each sample location with the exception of MW19-LDSP2A which has a variability of 1 order of magnitude.

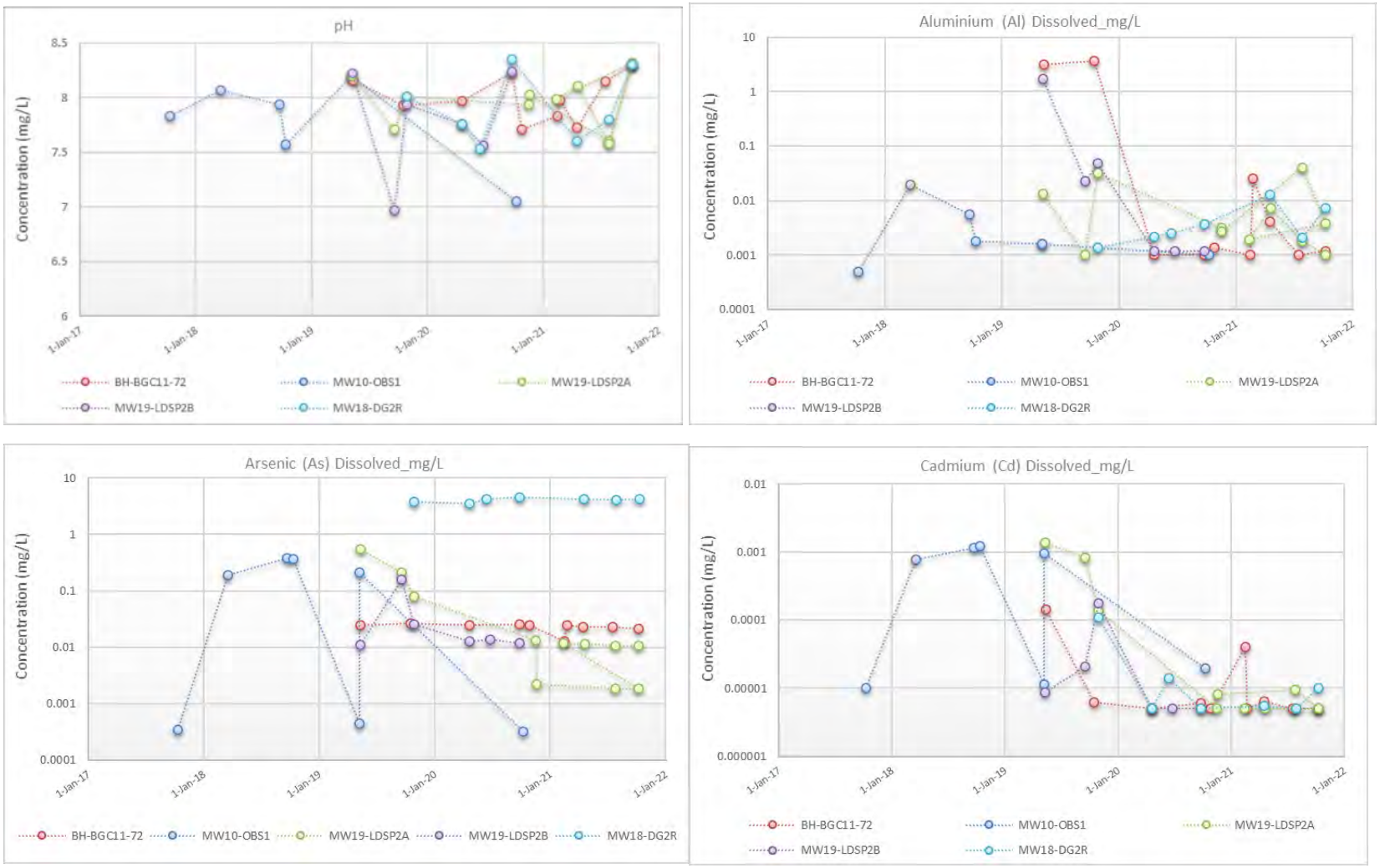


Figure 3.4.4: LDSP Area Groundwater Quality Data

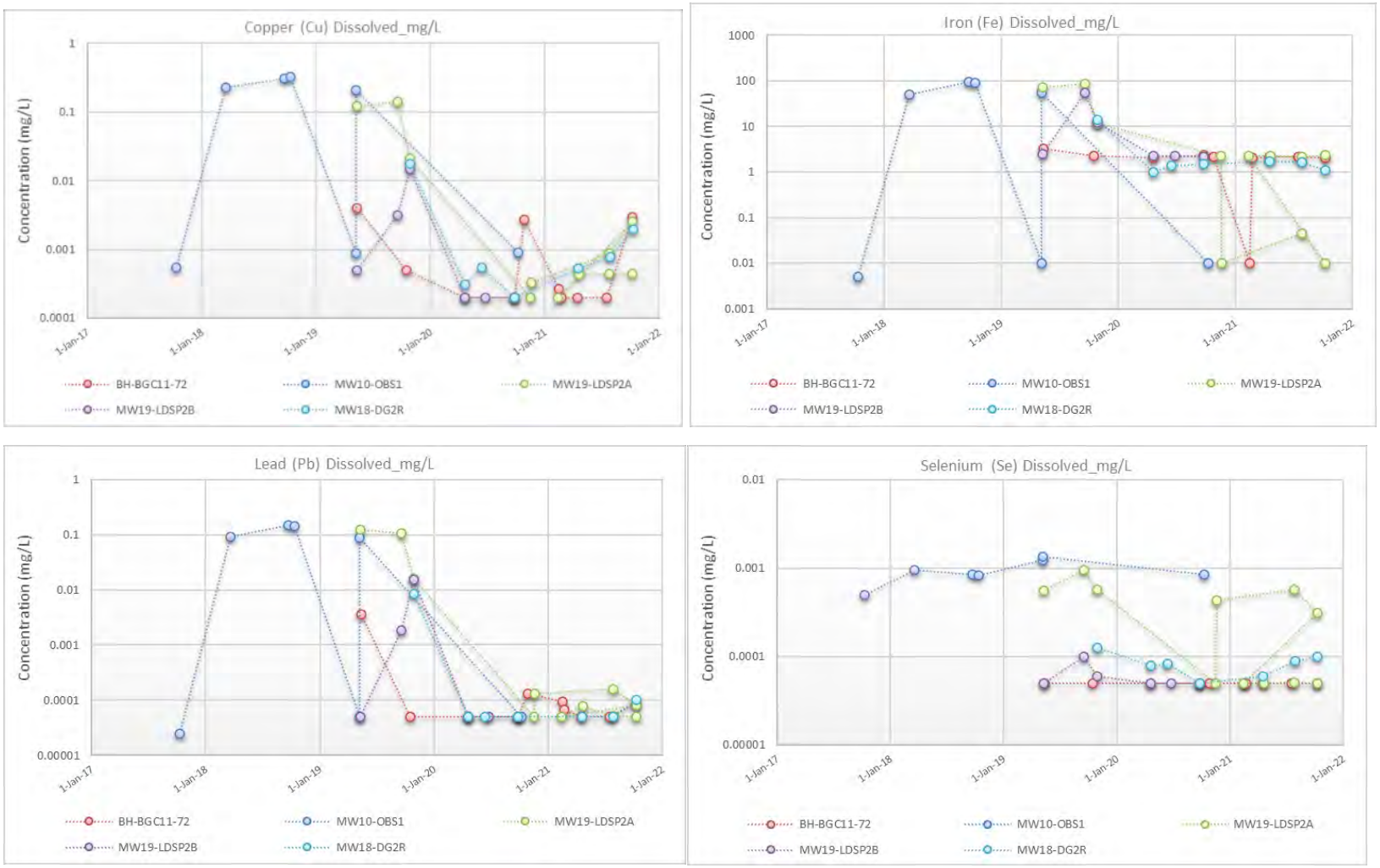


Figure 3.4.5: LDSP Area Groundwater Quality Data

There are currently two functional wells in the area of the PG WRSA that are part of the groundwater monitoring program. MW19-PG1b was damaged in 2019 and no sampling has occurred since that time and the well is scheduled to be replaced in 2022. MW10-PG1 and MW19-PG1a were monitored during the reporting period (Figure 3.4.6 and Figure 3.4.7).

Parameter observations include the following:

- pH as remained neutral to slightly basic over the two years of data collected. Both stations have similar trendlines over the collection period.
- Aluminum concentrations at MW10-PG1 and MW19-PG1A have a range of one order of magnitude from 2019 to present.
- Arsenic concentrations at MW19-PG1A have displayed a downward trend since data was collected from June 2019 and appears to have stabilized in 2021. MW10-PG1 arsenic concentration are consistently higher than MW19-PG1A with concentrations ranging from 7.54 mg/L to 9.48 mg/L over the 2021 sampling period.
- Cadmium concentrations at both stations show an overall downward trend over the 2 years of sample collection and a stabilization over 2021.
- Copper concentrations at both stations showed very similar results over the 2021 sampling period.
- Iron concentrations have displayed a downward trend over the 3 years of data collection, with MW10-PG1 being close to 1 order of magnitude higher than MW19-PG1A over 2021.
- Lead concentrations for both MW10-PG1 and MW19-PG1A stations displayed a downward trend in 2020 with both stations being close to laboratory detection in 2021.
- Selenium concentrations at MW19-PG1A display a relatively flat trend and sample results are within one order of magnitude of each other.

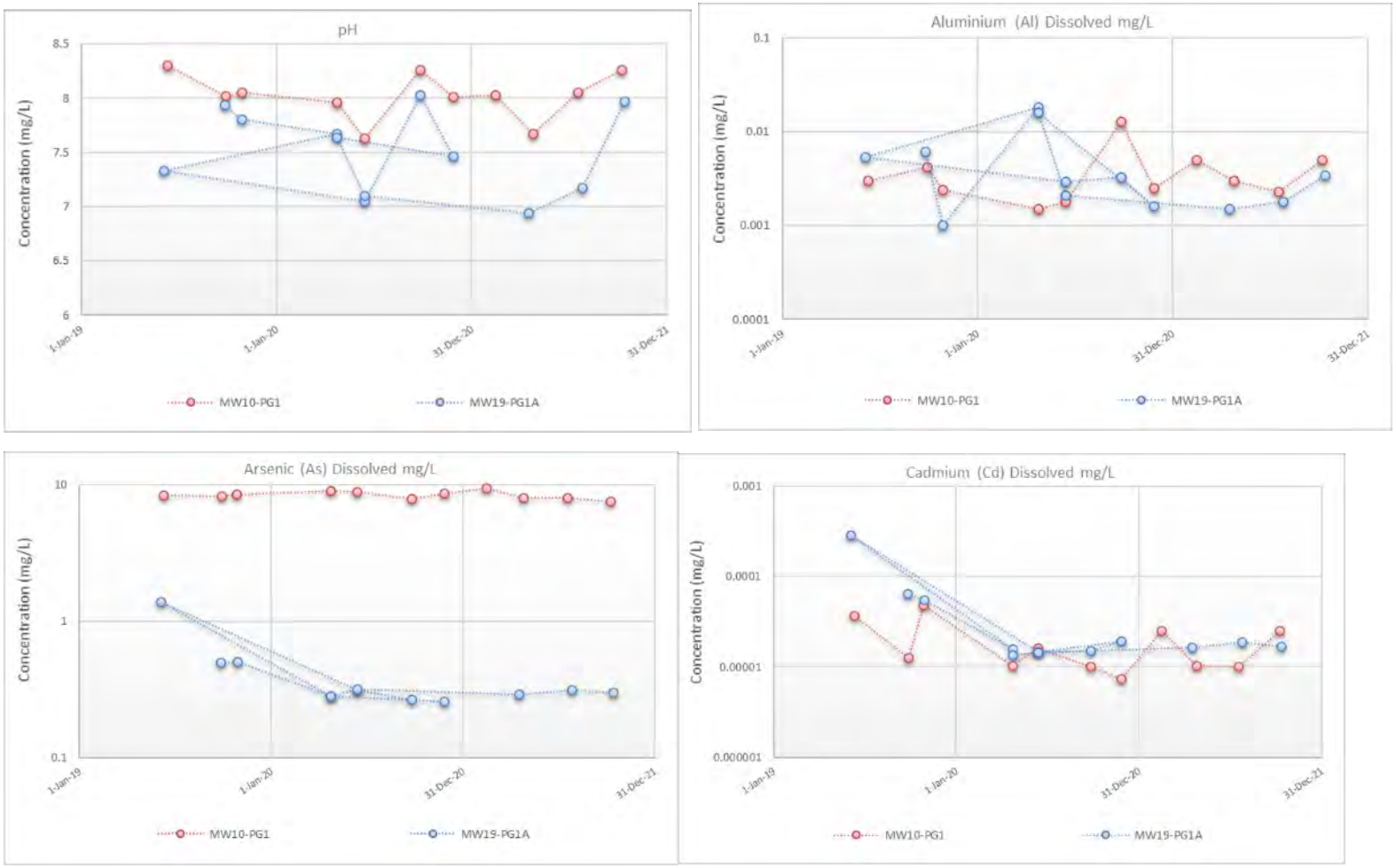


Figure 3.4.6: PG WRSA Area Groundwater Quality Data

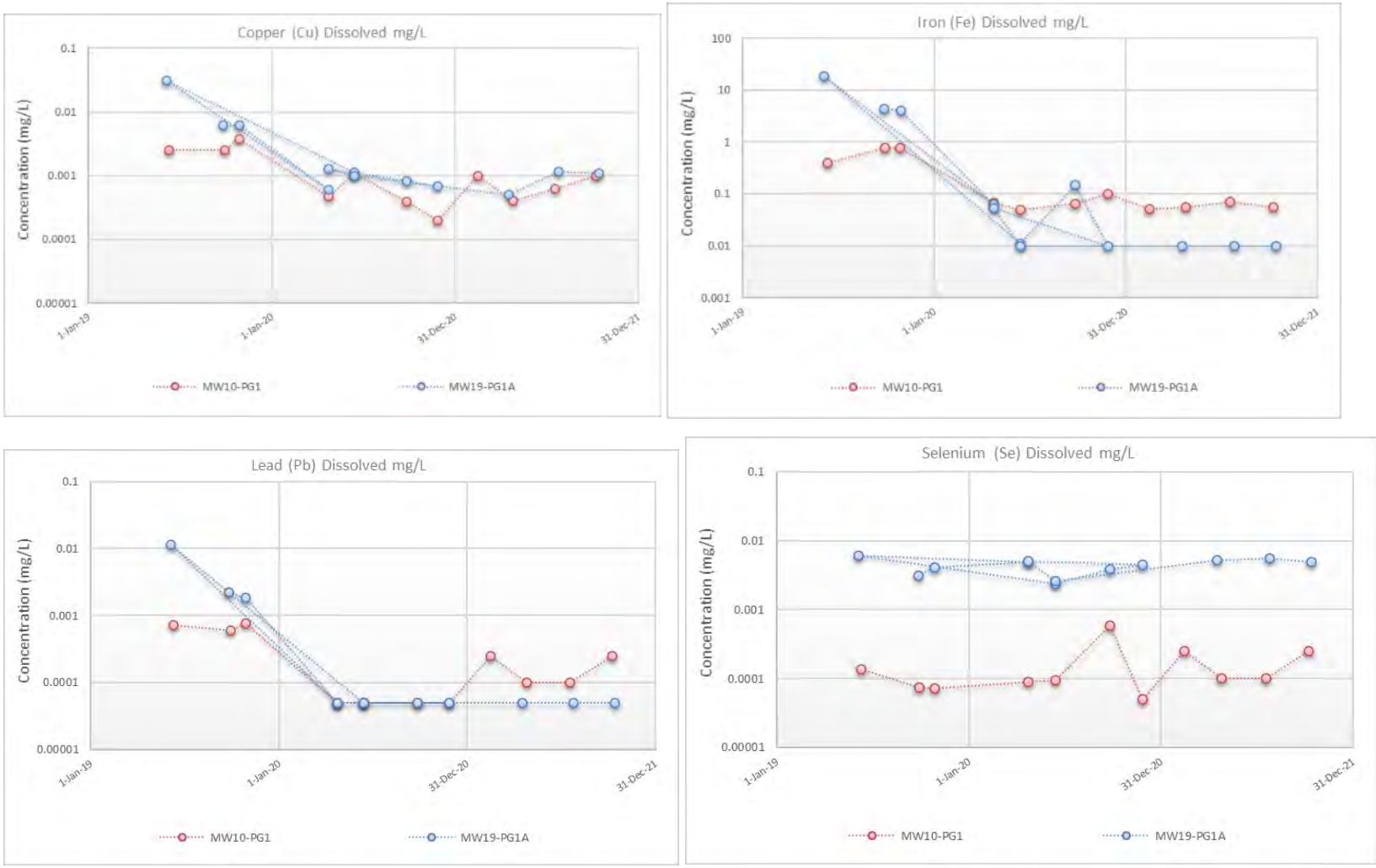


Figure 3.4.7: PG WRSA Area Groundwater Quality Data

Well information has been gathered in the Eagle Pup drainage area at two locations since 2009 (MW96-13A, MW96-15) and an additional station was installed in 2019 (MW19-EPW1A). MW96-9B is located in the Bawn Boy drainage and is considered a background site that is discussed herein with the Eagle Pup sites and has been monitored since 2019.

- pH in the Eagle Pup drainage is neutral to slightly basic, with field measurement being within one order of magnitude of each other. The only exception is MW96-9B which is a background well above the project and is part of the Bawn Boy drainage.
- Aluminum concentrations have remained relatively constant with MW96-13A showing a slight decrease in dissolved concentrations. While MW19-EPW1A shows a slight increase since the well was established in 2019.
- Arsenic concentrations at MW96-15 have displayed a stable range of 0.1 - 0.3 mg/L throughout the dataset.
- Cadmium concentrations for the majority of the samples are within one order of magnitude. MW96-13A has the highest variability over the dataset. Most samples taken in 2021 are close to or at MDL.
- Copper concentrations measured at MW96-9B shows a downward trend over time, MW96-13A is close to detection limit throughout 2021.
- Iron concentrations at MW96-13A have low variability over the four-year monitoring period and MW96-15 has a variability of one order of magnitude from 2009-present.
- Lead concentrations display a historic concentration range close to detection limits for MW96-15 and MW96-13A. MW19-EPW1A and MW96-9B show a decreasing trend from 0.00785 and 0.00373 mg/L in 2019 and closer to detection limit in 2021.
- Selenium concentrations at station MW96-13A have been measured at or near to the detection limit of the time from 2009 to 2021. MW96-15 displayed selenium concentrations close to the detection limit from 2009 to 2014, and have generally remained within an order of magnitude. Concentrations remained near method detection limits for the MW96-9B station and MW19-EPW1A displays concentrations within an order of magnitude to the neighbor stations with a small range.

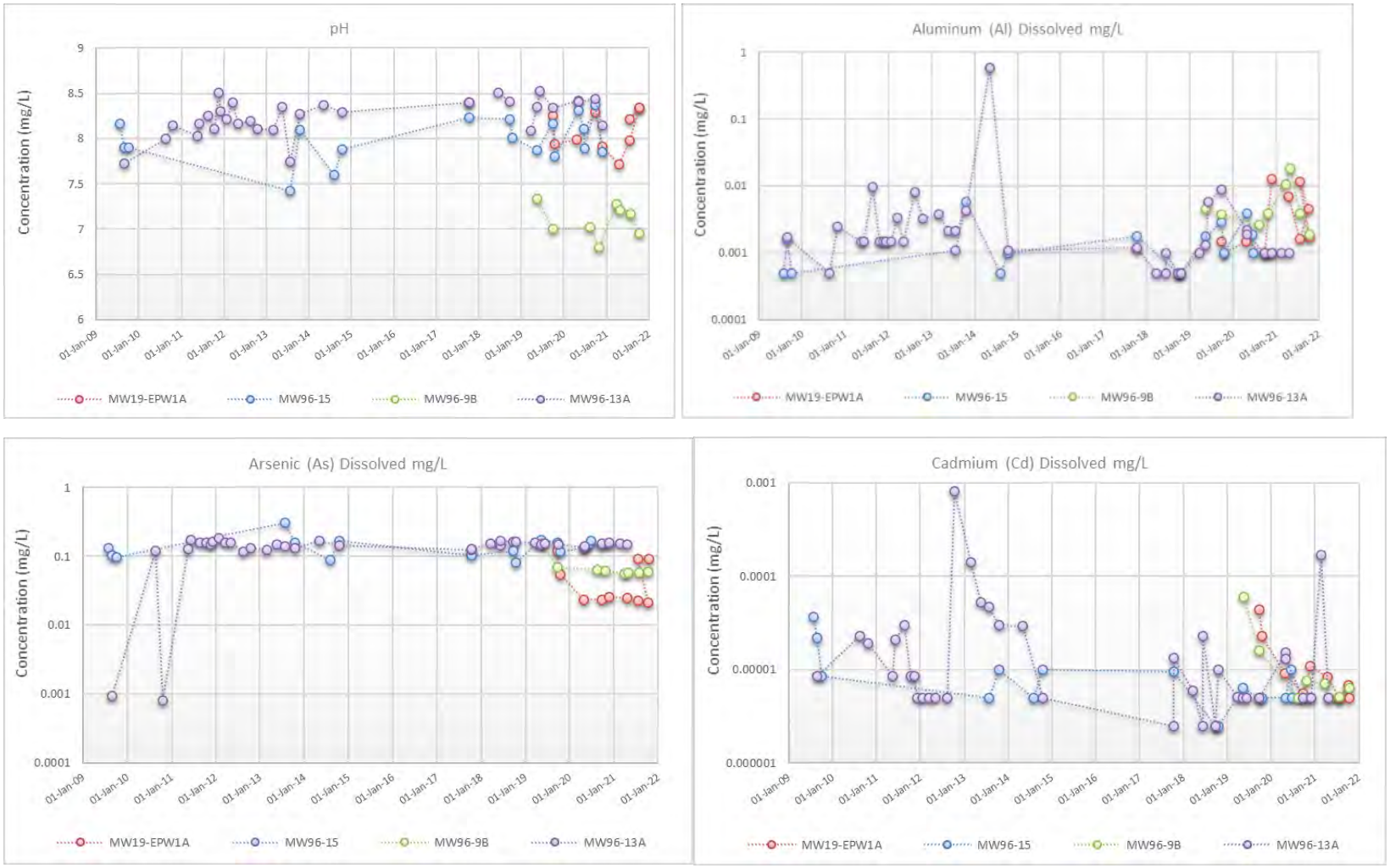


Figure 3.4.8: EP WRSA Area Groundwater Quality Data

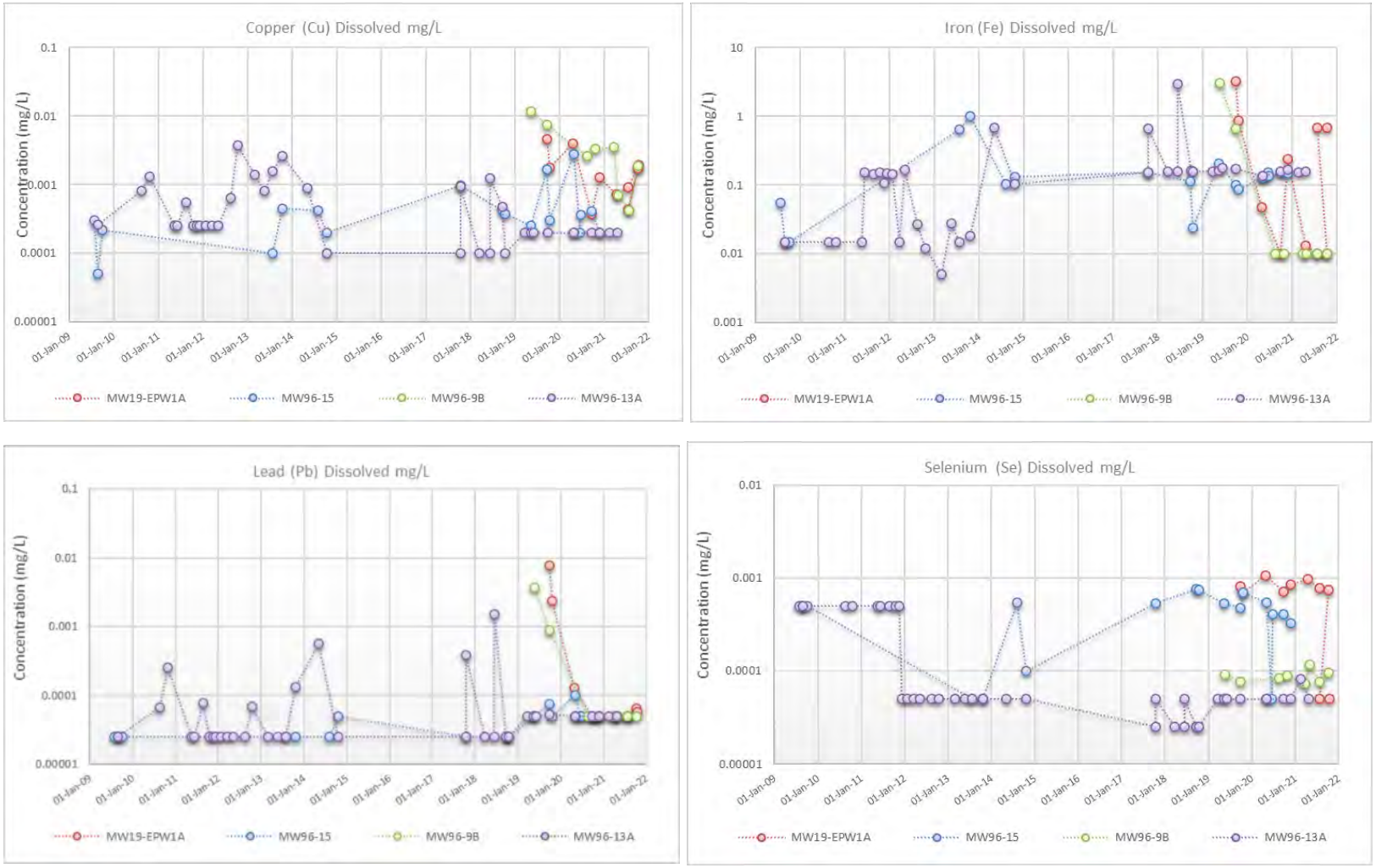


Figure 3.4.9: EP WRSA Area Groundwater Quality Data

3.4.2.1 Groundwater Quality QA/QC

As per the VGC QA/QC program, field samples were collected in addition to the groundwater quality samples and included duplicates (01), field blanks (02), and travel blanks (03)). The British Columbia Field Sampling Manual (Clark 2013) specifies that a relative percent difference (RPD) greater than 20 percent indicates a possible sample contamination. An RPD greater than 50 percent indicates a definite sample integrity problem; however, it is not unusual to find high variability for field duplicates, especially if the water is turbid, such as those typical of groundwater samples. Duplicate samples above 20% RPD are flagged in red.

On July 26, 2021 at MW19-LDSP2b Travel blanks had Al, Cl, pH and SO_4 RDL above 20%. The remaining samples did have some RPD above 20% but samples were flagged due to analysis used on each sample having different detection limits.

3.4.3 Adaptive Management

3.4.3.1 Groundwater Quantity

2021 represents the second full year of production at the Mine site. Based on the observations of groundwater levels to date, the construction and operation of the mine is likely to have had some effect on groundwater levels within the mine footprint. However, the short period of record for the operation of the mine and highly variable precipitation levels over the last two season does not provide an ability for strong quantification of effects.

3.4.3.2 Groundwater Quality

When considering dissolved concentrations for all eight parameters at each station, it seems that some of the wells exhibited higher overall concentrations and higher overall ranges in concentrations than other wells. For example, MW10-PG1 and MW19-DG6RA/B (replacement for MW10-DG6) exhibits relatively high dissolved concentrations of arsenic and iron. MW96-13a and MW10-PG1 exhibit relatively higher pH than the other wells. Nevertheless, there does not appear to be any obvious or consistent spatial connection or temporal association to explain these characteristics, and, there are no discernible changes associated with the 2021 production phase of the operation. All observed increasing or decreasing trends were apparent before construction and operations began. It is expected that there will be seasonal changes to groundwater quality. VGC acknowledges that adaptive management thresholds still need further development.

3.5 Geochemical Monitoring

The geochemical monitoring program continued to provide on-going characterization of rock encountered during the operation of the Project. Whenever possible the geochemical monitoring program is tied to operational activities and the monitoring program has been designed to:

- Assess the level of weathering-driven reaction products and their potential to migrate;
- Verify geochemical predictions made during the mine planning phase;
- Assess the potential for metal leaching and acidic drainage from excavated rock to determine if it is suitable for construction material and;
- Evaluate the effectiveness of measures to prevent and control metal leaching and acidic drainage (if applicable).

3.5.1 Geochemical Barrel Testing

The assessment of water chemistry for leachate through field barrels developed from site waste rock continued throughout 2021. Natural precipitation percolates through the barrels and is captured in collection jugs that are connected to the bottom of the barrels. Field staff collect samples several times throughout non-freezing conditions and samples are processed through an accredited laboratory.

In 2021, two composite samples were sampled throughout the non-freezing season. LX-2020-FB-1 is representative of the composition within the Platinum Gulch WRSA which is mainly composed of metasediments, LX-2020-FB-2 was constructed with granodiorite blended with various other lithologies in proportions representative of the Eagle Pup WRSA. The results for the sampling completed in 2021 were consistent with 2020 and showed that when the barrels were re-constructed the mixed lithology showed more consistent and moderate concentrations when compared to the water quality seen when the barrels were just based on each distinct rock type. The

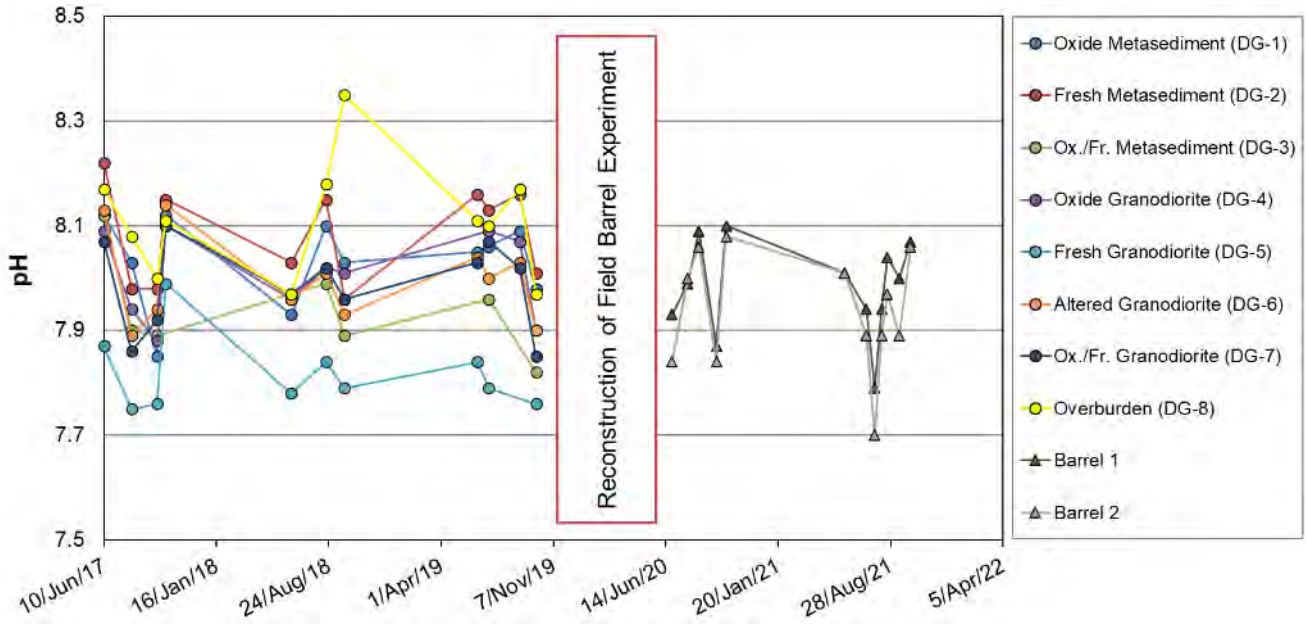


Figure 3.5.1: pH Concentrations in Field Barrel Leachates Before and After Reconstruction

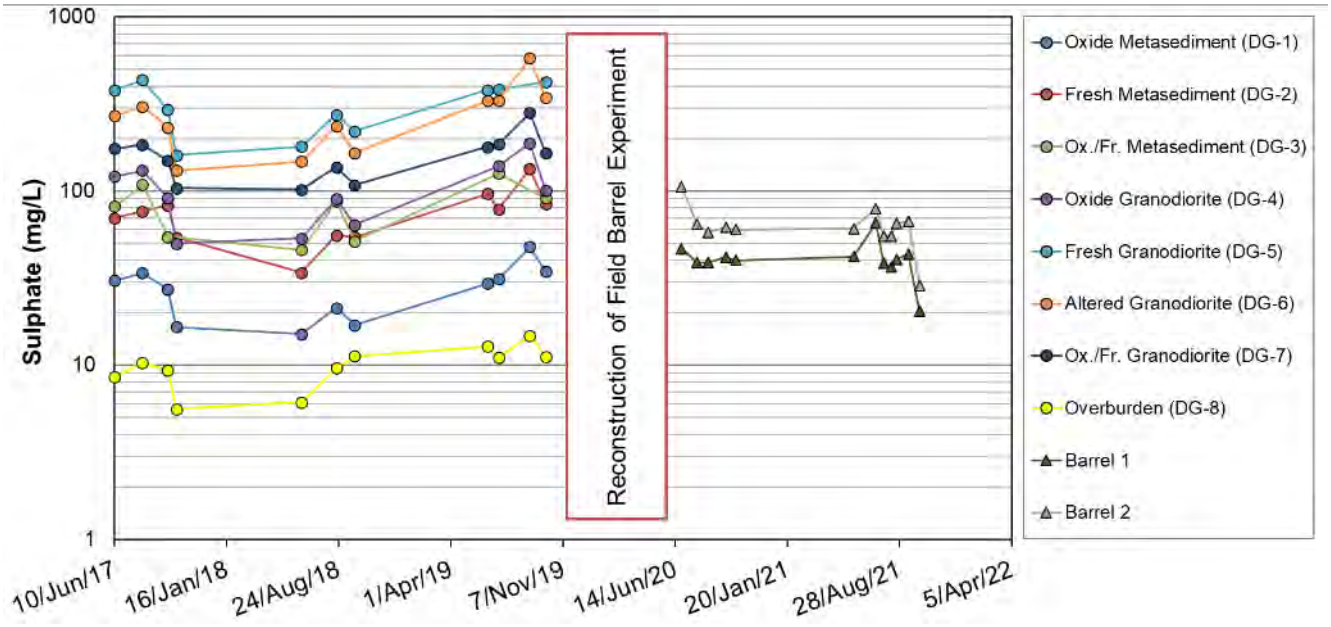


Figure 3.5.2: Sulphate Concentrations in Field Barrel Leachates Before and After Reconstruction

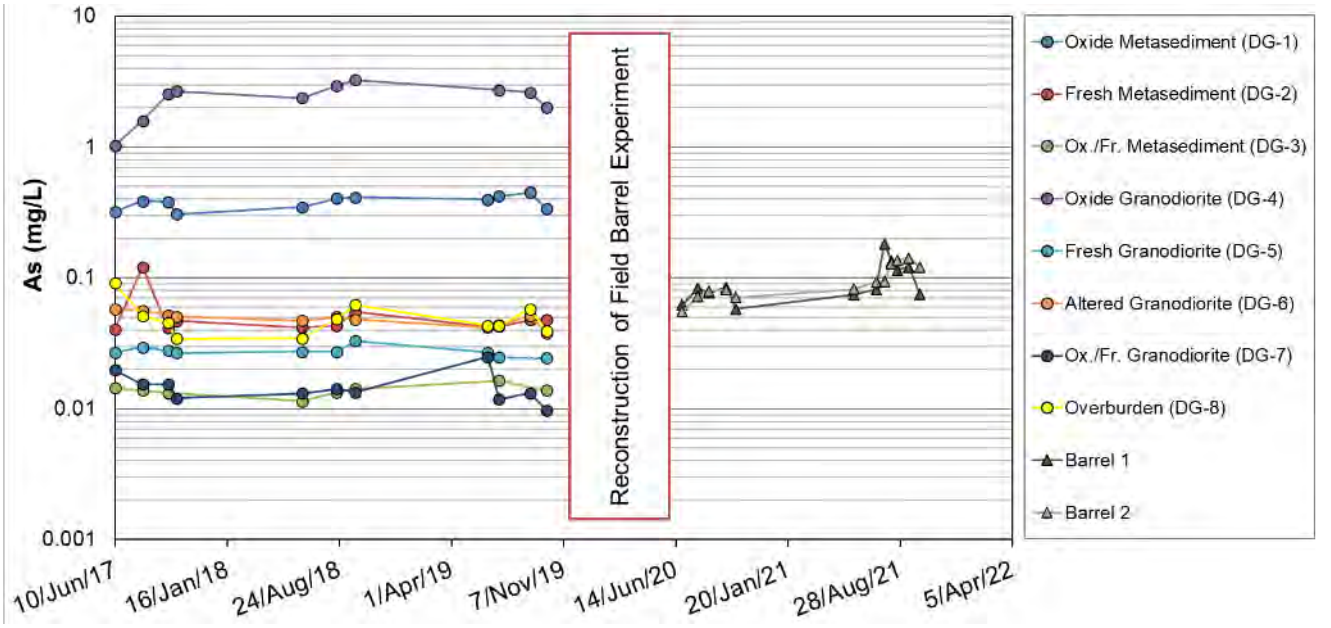


Figure 3.5.3: Arsenic Concentrations in Field Barrel Leachates Before and After Reconstruction

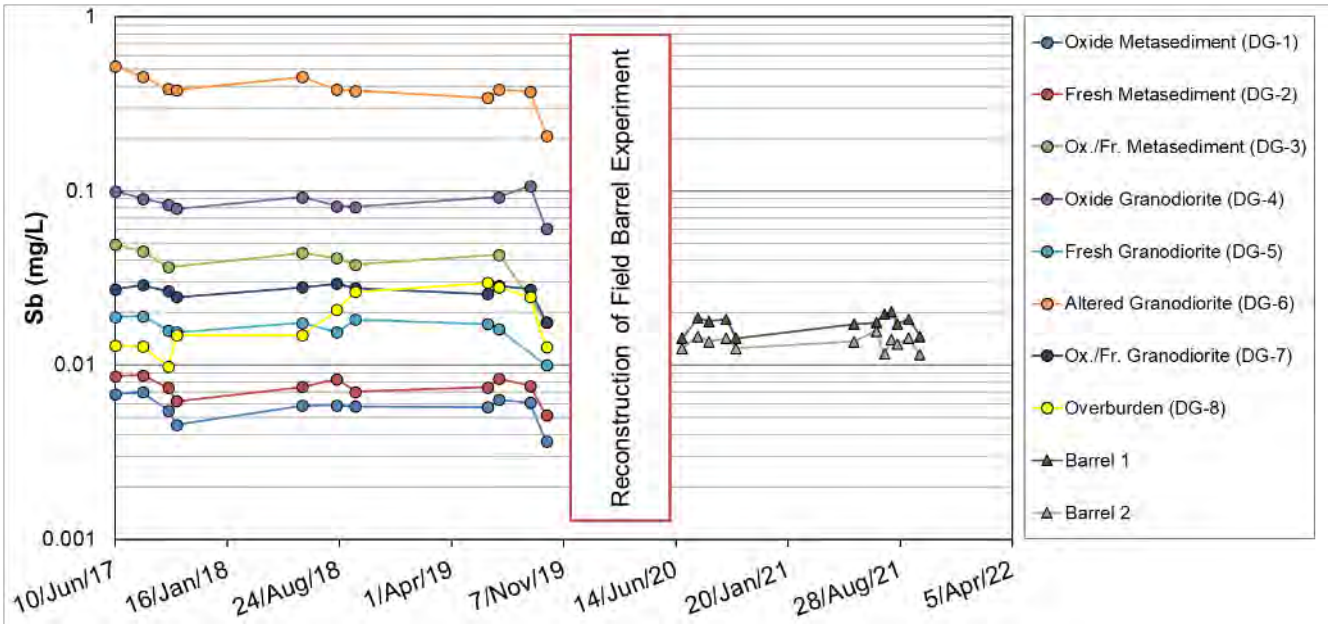


Figure 3.5.4: Antimony Concentrations in Field Barrel Leachates Before and After Reconstruction

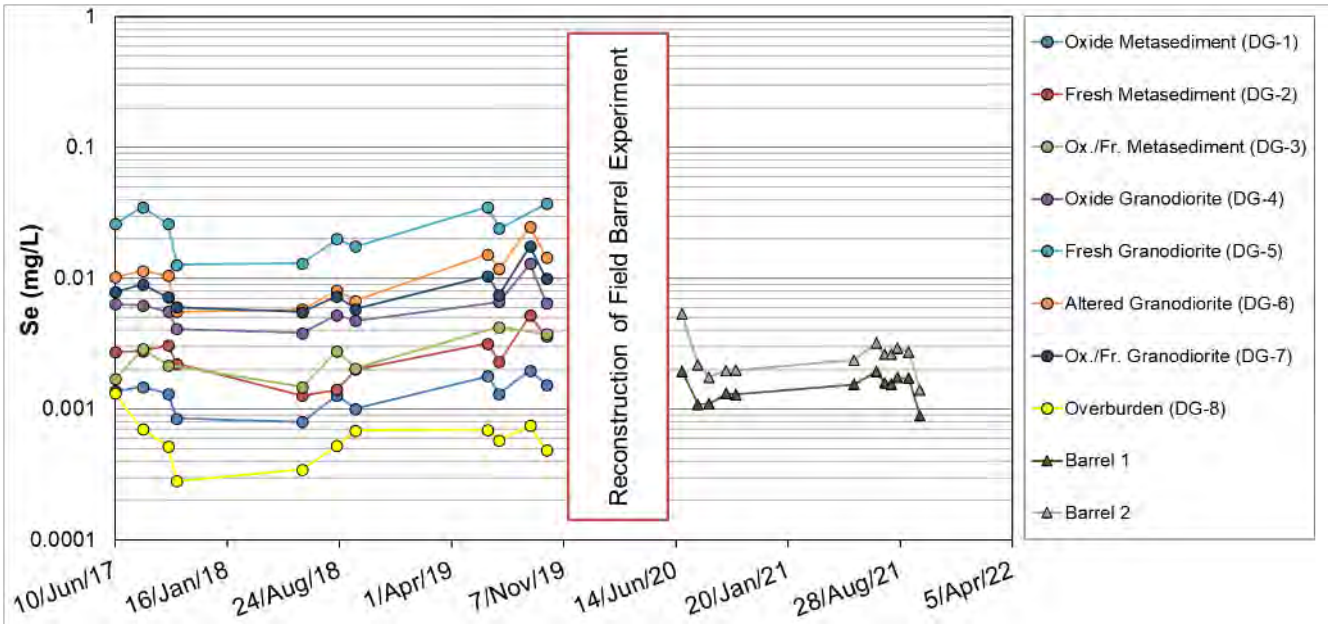


Figure 3.5.5: Selenium Concentrations in Field Barrel Leachates Before and After Reconstruction

3.5.2 Material Testing

3.5.2.1 Construction Material Sampling

During this reporting period, there was one construction project, the EP WRSA rock drain, that required borrow or fill material and thus required geochemical analysis to determine if the construction grade rock criteria of the licenses was met.

All samples analyzed to determine suitable as construction grade material are outlined in Table 3.5-2. Results from samples met the criteria required for construction or fill purposes, with a pH of at least 5.0, a total sulphide sulphur content of no greater than 0.3%, and an NP:AP ratio of at least 3:1. Samples ranged in pH from 7.9 to 8.21, with a median of 8.01, and with Sulphur content ranging from <0.01% to 0.06% and a median of 0.033 (Table 3.5-2). In all cases, the NP:AP ratio was greater than 3.

Table 3.5-1: 2021 Construction Rock Characterization Summary

Sample ID	ALS ID	Date Sampled	Paste pH	Sulfur (%)	NP:AP Ratio
Construction Testing					
D00099454	WR2101020	7/31/2021	7.97	0.02	9:0.3 (28.8)
D00099470	WR2101416	8/8/2021	7.9	0.06	23:1.6 (28.8)
D00099472	WR2101416	8/22/2021	8.21	<0.01	19:<0.3 (121.6)
D00099478	WR2101635	10/30/2021	7.97	0.04	11:<0.3 (70.4)

3.5.2.2 Waste Rock Characterization

Additional waste rock characterization is conducted as further confirmation of the geochemical composition of waste materials placed in the WRSAs. The program includes quarterly grab samples representing blasted waste and annual waste sampling analysis of grab samples per 1 million tonnes waste rock representing placed material in the WRSAs. Samples were taken from various benches and sample locations were mapped for future analyses. As outlined in the EMSAMP the Sobek Method for Modified Acid Base Accounting was used to analyze each grab sample from an accredited laboratory.

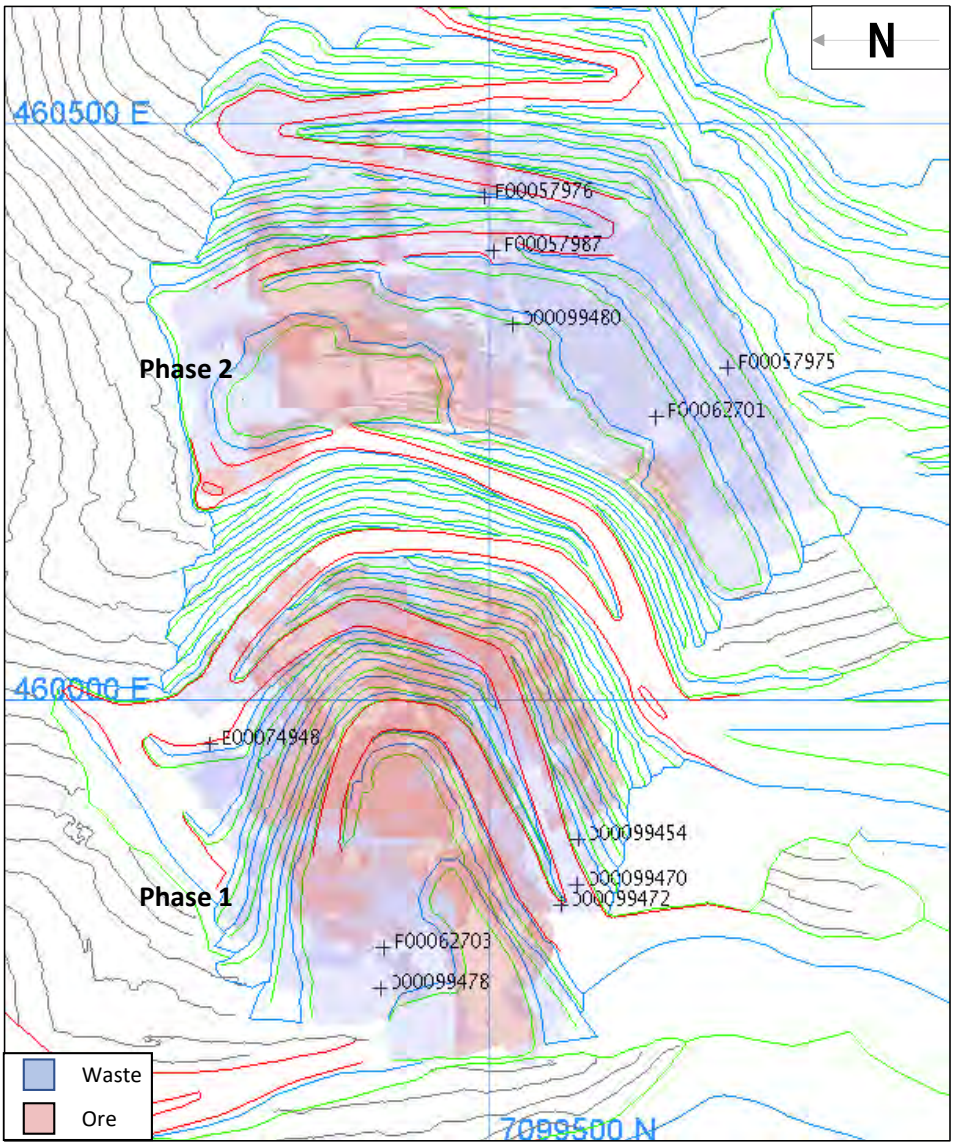


Figure 3.5-6: 2021 Waste Characterization Samples

As a preliminary check of the material characteristics, geochemical results were compared to the construction grade use criteria (Table 3.5-2). All samples were slightly above neutral (pH=7.0) and were lower than 0.3% sulfur. All but 3 samples had NP:AP ratios that were above the 3:1 ratio. Samples (F00057975, F00057976, F00057987, D000994840) that had a lower ratio originated from locations proximal to a narrow set of high-grade Au-bearing E-W veins that are slightly offset to the overall strike of the orebody. Overall, these results confirm pre-mining assumptions that the majority of the waste rock and ore from this site has a low sulfur content (typically less than 0.5%), and is predominantly non-acid generating. At the time of this report, results for F00062701 and F00062703 have not been received.

Table 3.5-2: 2021 Waste Rock Characterization Summary

Sample ID	ALS ID	Date Sampled	Paste pH	Sulfur (%)	NP:AP Ratio
Quarterly Sample					
E00074948	VA21A0465	12/28/2020	7.66	0.03	6:1.3 (4.8)
F00057975	VA21A4787	3/6/2021	7.39	0.08	4:1.9 (2.13)
D00099453	WR2101020	7/31/2021	7.77	0.08	10:2.2 (4.57)
D00099474	WR2101416	9/12/2021	7.76	<0.01	14:0.3 (44.8)
Annual Samples per Million Tonnes Waste					
E00074948	VA21A0465	12/28/2020	7.66	0.03	6:1.3 (4.8)
F00057975	VA21A4787	3/6/2021	7.39	0.08	4:1.9 (2.13)
F00057976	VA21A4787	3/6/2021	8.03	0.12	7:2.5 (2.49)
F00057987	WR2100422	4/26/2021	7.98	0.29	9:8.8 (1.03)
D00099454	WR2101020	7/31/2021	7.97	0.02	9:0.3 (28.8)
D00099470	WR2101416	8/8/2021	7.9	0.06	23:1.6 (28.8)
D00099472	WR2101416	8/22/2021	8.21	<0.01	19:<0.3 (121.6)
D00099480	WR2101635	10/30/2021	7.89	0.25	14:7.2 (1.95)
D00099478	WR2101635	10/30/2021	7.97	0.04	11:<0.3 (70.4)
F00062703	WR2101810	12/12/2021	NR	NR	NR
F00062701	WR2101810	12/13/2021	NR	NR	NR

NOTE:
NR - At the time of this report results had not been received from the laboratory.

3.5.2.3 Blast Hole Chip Sampling

Geochemical analysis from 10% of pulp splits of every blast pattern have been tested for a multielement ICP-MS at an external lab. From August 12, 2019 to July 18, 2021, 3,448 samples from 29 different benches had been sent for analysis. Samples were submitted during H2 2021, but due to a cyber-attack at the external lab, results are still pending and were not available for this report. In addition to these samples, the new blast hole composite sampling program was introduced in May 2021. At the end of 2021, 54 blast hole composite samples comprised of a mix of ore and waste had been analyzed from 13 different benches. The composite samples test for As, S and C.

Results for both the blast hole chip sampling and the blast hole chip composite sampling are presented in Table 3.5-3.

Table 3.5-3: Summary of 2019 to 2021 Blasthole Geochemistry Assay Results

Bench	Total Tonnes Mined per Bench	Blasthole Composite Samples				Grade Control Check Assay Samples			
		Number of Samples	Arsenic (ppm)	Sulfur (%)	Total Inorganic Carbon (%)	Number of Samples	Arsenic (ppm)	Sulfur (%)	Total Inorganic Carbon (%)
1395	206,396	0	ND	ND	ND	14	35	0.10	0.02
1385	301,465	0	ND	ND	ND	53	76	0.11	0.03
1375	426,413	0	ND	ND	ND	56	57	0.12	0.06
1365	534,146	0	ND	ND	ND	54	72	0.13	0.07
1355	354,879	0	ND	ND	ND	3	21	0.29	ND
1345	423,815	0	ND	ND	ND	43	70	0.17	0.05

Bench	Total Tonnes Mined per Bench	Blasthole Composite Samples				Grade Control Check Assay Samples			
		Number of Samples	Arsenic (ppm)	Sulfur (%)	Total Inorganic Carbon (%)	Number of Samples	Arsenic (ppm)	Sulfur (%)	Total Inorganic Carbon (%)
1335	738,357	0	ND	ND	ND	28	66	0.16	0.15
1325	637,241	0	ND	ND	ND	39	62	0.19	0.14
1315	1,315,290	0	ND	ND	ND	114	140	0.07	0.08
1305	1,471,931	0	ND	ND	ND	118	56	0.09	0.08
1295	1,855,843	0	ND	ND	ND	181	83	0.08	0.10
1285	2,193,449	0	ND	ND	ND	135	23	12.07	0.07
1275	2,389,903	0	ND	ND	ND	160	17	11.02	0.11
1265	2,439,292	0	ND	ND	ND	174	2	35.85	ND
1255	2,701,693	1	49	0.10	0.08	100	7	28.50	0.10
1245	2,639,932	1	90	0.19	0.16	140	41	15.02	0.19
1235	2,658,705	2	431	0.08	0.17	134	102	14.51	0.19
1225	2,901,783	3	1143	0.15	0.39	139	230	5.42	0.30
1215	2,170,453	3	157	0.07	0.45	154	275	0.14	0.25
1205	1,540,837	0	ND	ND	ND	147	300	0.11	0.29
1195	1,706,180	0	ND	ND	ND	105	340	0.12	0.23
1185	1,826,269	0	ND	ND	ND	145	406	0.18	0.27
1175	1,664,185	0	ND	ND	ND	242	544	0.29	0.24
1165	1,697,862	0	ND	ND	ND	224	552	4.65	0.22
1155	1,659,708	0	ND	ND	ND	174	340	9.63	0.26
1145	1,760,521	0	ND	ND	ND	151	3	34.67	ND
1135	1,470,853	4	192	0.50	0.19	186	3	54.97	ND
1125	1,558,475	6	1395	0.12	0.28	181	3	25.79	ND
1115	1,462,858	9	583	0.09	0.31	54	3	17.65	ND
1105	1,408,361	10	876	0.13	0.24	0	ND	ND	ND
1095	1,319,282	13	881	0.08	0.21	0	ND	ND	ND
1085	1,092,246	1	1350	0.01	ND	0	ND	ND	ND
1075	970,500	0	ND	ND	ND	0	ND	ND	ND
1065	719,717	0	ND	ND	ND	0	ND	ND	ND
1055	220,769	0	ND	ND	ND	0	ND	ND	ND

3.5.3 Geochemical Interpretation

The Average Crustal Abundance of metals outlined in Price (1997) can be used to gauge if the metal concentration contained within a sample is elevated. (SRK, 2013). According to SRK (2013), a sample result is elevated when it is 10 times higher than the ACA listed in Price. Table 3.5-4 outlines the Elements considered of interest in SRK (2013) for Eagle Mine and the values reported by Price.

Table 3.5-4: Elements of Interest - Adapted from Price (1997) Average Crustal Abundance

Element	As	Cd	Hg	S	Sb	Se	Mn	Mo	U
Average Crustal Abundance (ACA)	1.8	0.15	0.085	350	0.2	0.05	950	1.2	2.7
Detection to 50% of ACA	0.9	0.075	0.043	175	0.1	0.025	475	0.6	1.35
50% of ACA to ACA	1.8	0.15	0.085	350	0.2	0.05	950	1.2	2.7
ACA to 5 times ACA	9	0.75	0.425	1750	1	0.25	4750	6	13.5
5 times ACA to 10 times ACA	18	1.5	0.85	3500	2	0.5	9500	12	27
>10 times ACA	>18	>1.5	>0.85	>3500	>2	>0.5	>9500	>3200	>27

In comparison to the Price ACA values, the ICP-MS data from the blast hole chip sampling suggests that there are areas where results are elevated in As, Cd, Hg, S, Sb, Se, Mo and U. Manganese (Mn) is not elevated and

all readings are within range for average crustal abundances. Maps of the Elements of interest are presented in Figure 3.5-7 to Figure 3.5-11. The elevated results for the other elements are associated with high grade gold-bearing veins within the granodiorite. Outside of the main ore body, readings are elevated in the metasediments where there is evidence of intrusion of high-grade gold-bearing veins. Generally, the results suggest that the deleterious elements are most closely associated with the ore body and that average metal concentrations within the waste materials are in the expected range for average crustal rock.

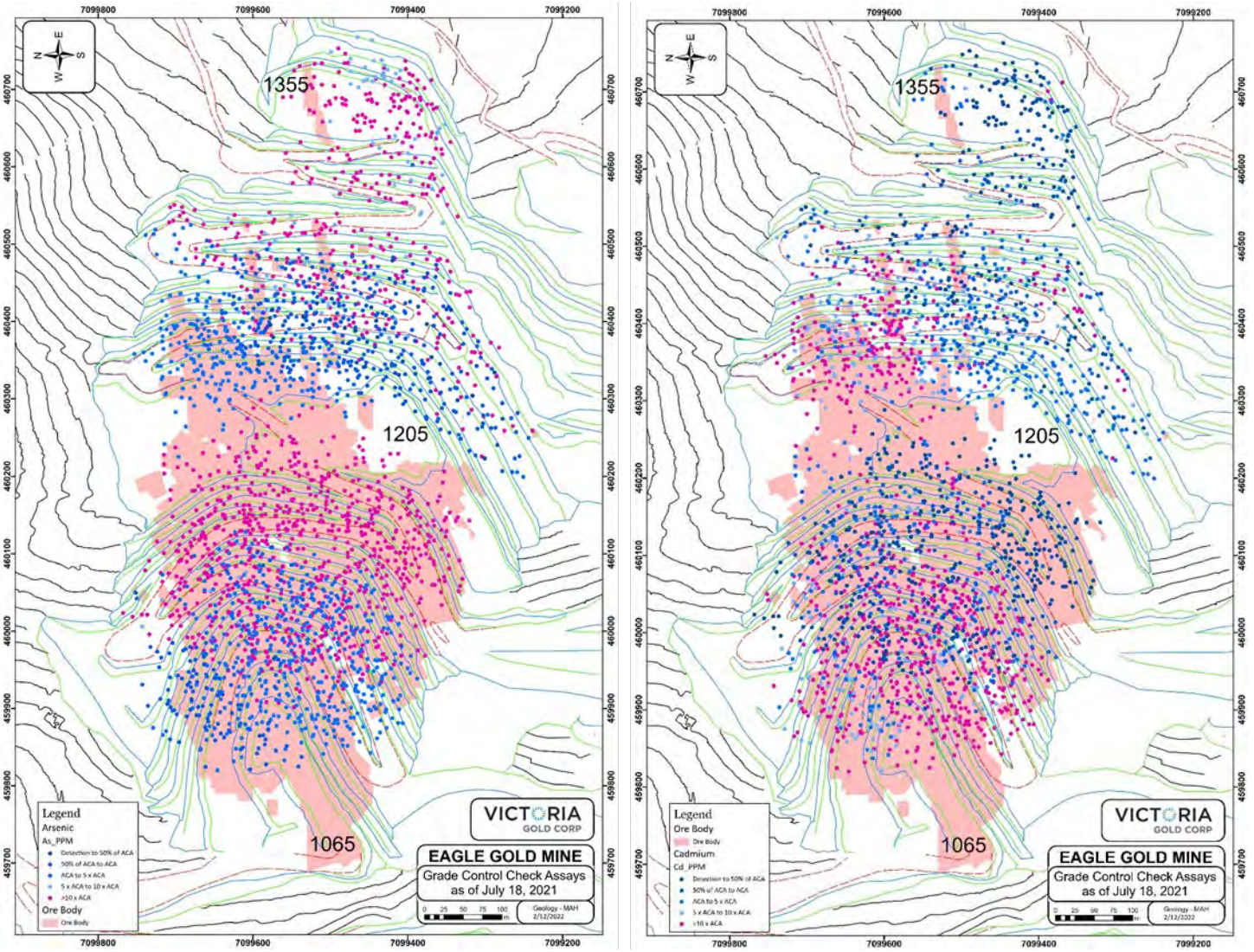


Figure 3.5-7: Multi-Element ICP-MS Results Compared to ACA (As and Cd)

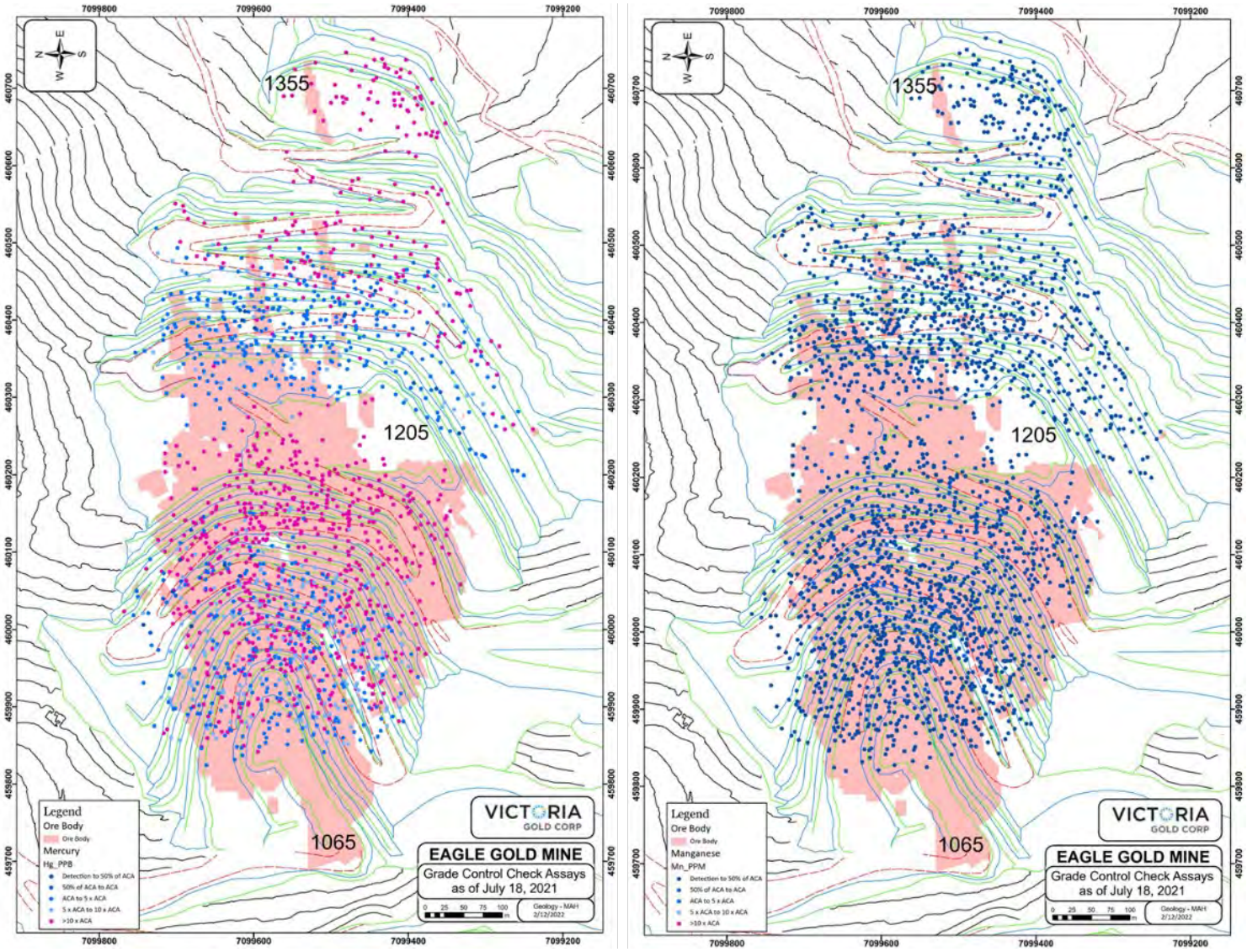


Figure 3.5-8: Multi-Element ICP-MS Results Compared to ACA (Hg and Mn)

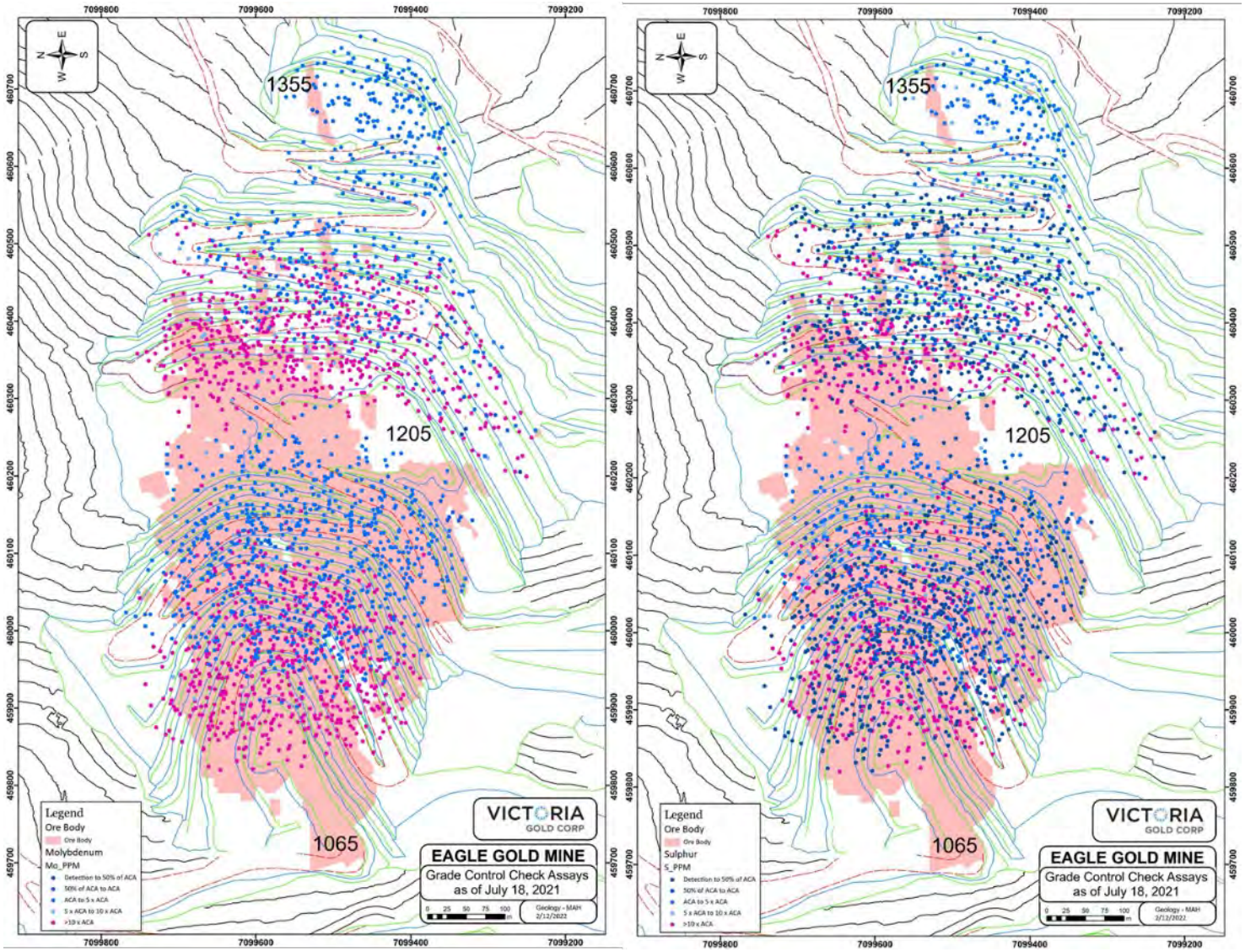


Figure 3.5-9: Multi-Element ICP-MS Results Compared to ACA (Mo and S)

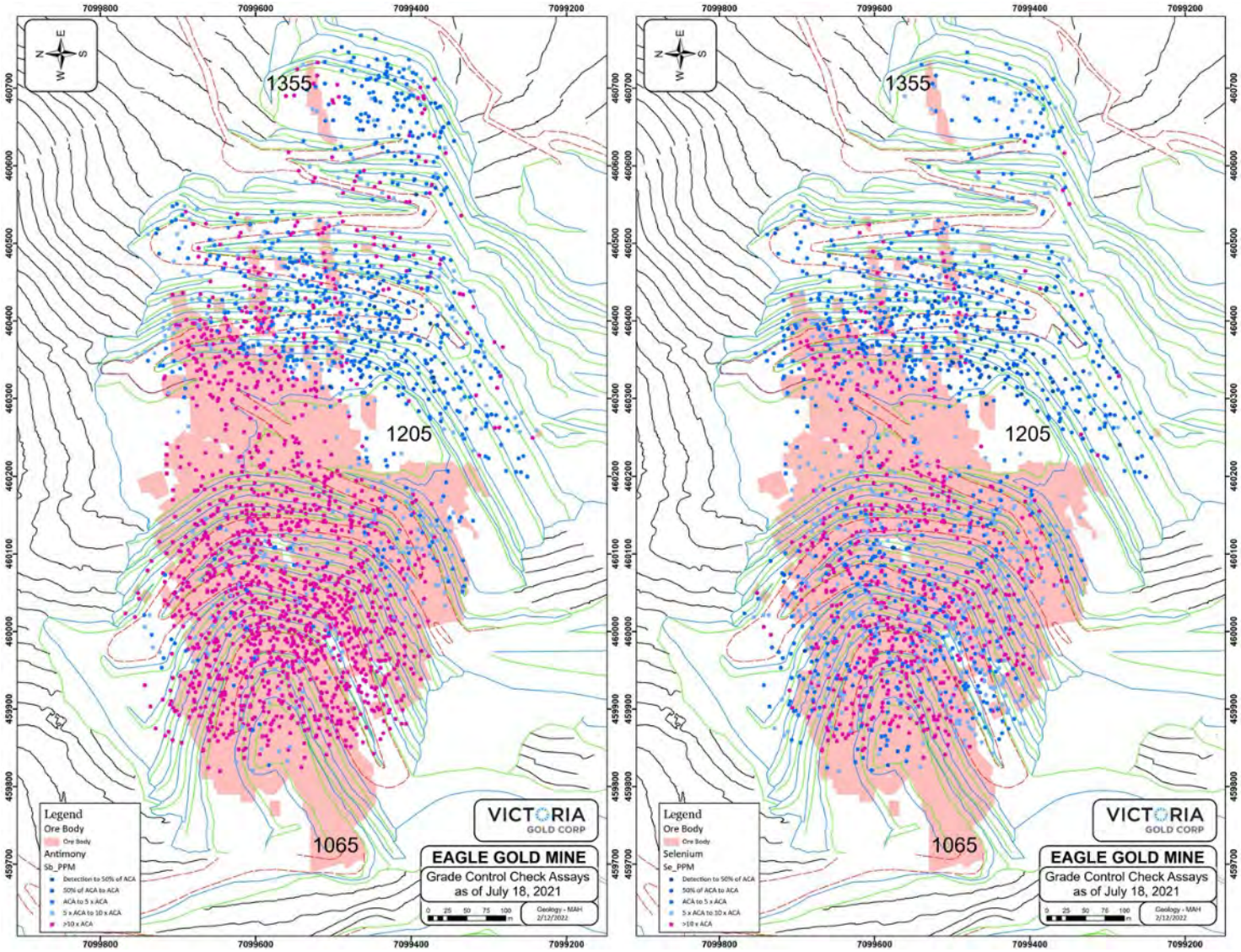


Figure 3.5-10: Multi-Element ICP-MS Results Compared to ACA (Sb and Se)

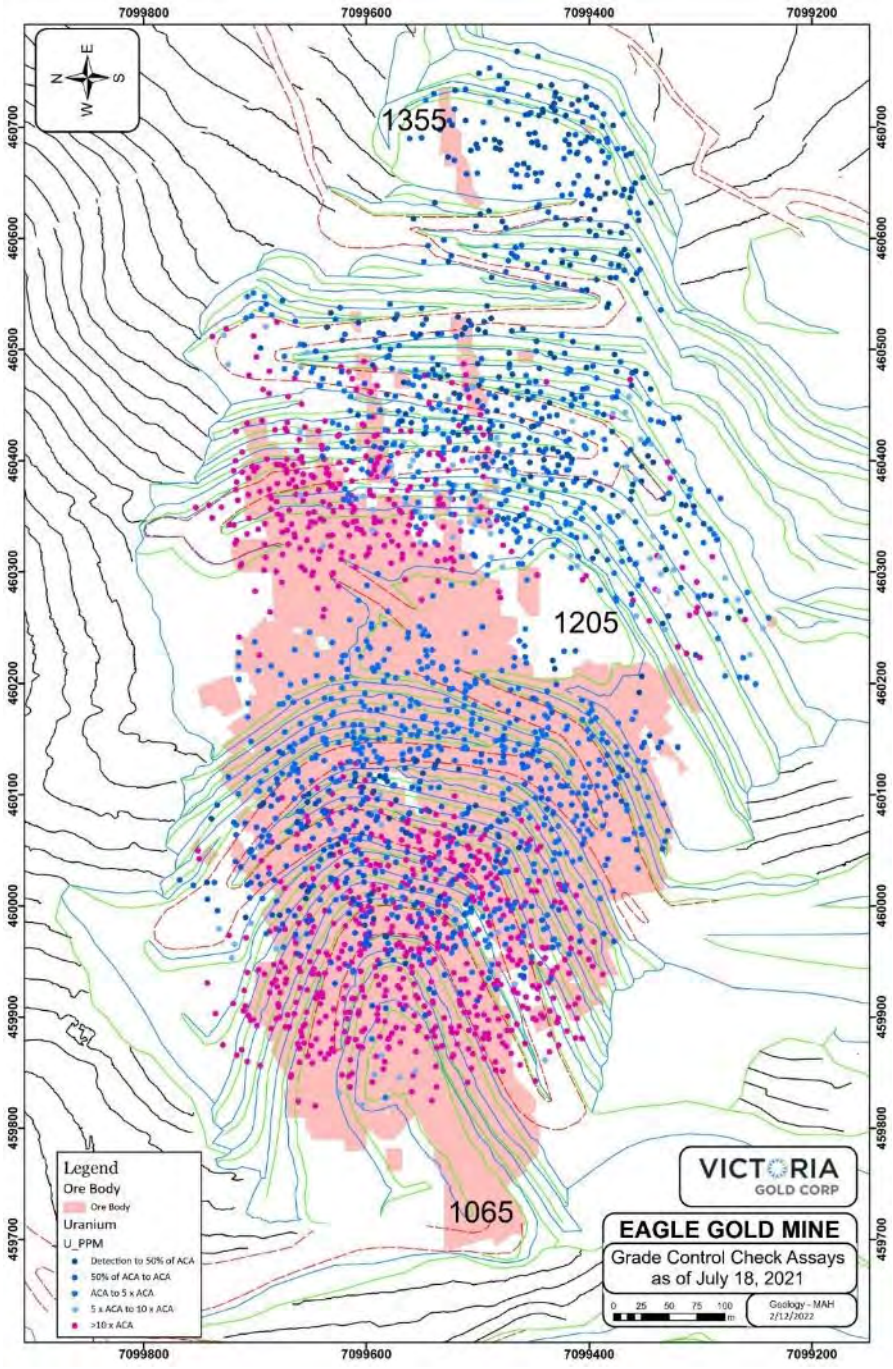


Figure 3.5-11: Multi-Element ICP-MS Results Compared to ACA (U)

3.6 Aquatic Environment

Stream sediment, benthic macroinvertebrate, and water quality programs have historically been performed as per WUL requirements on a biennial basis (i.e., once every 2 years) to evaluate potential mine related effects on primary receiving environments. On April 20, 2019, the mine became subject to *Metal and Diamond Mining*

*Effluent Regulations (*MDMER) and as a result required an Environmental Effects Monitoring (EEM) program to be developed and approved under the MDMER. An EEM Study Design (provided as Appendix J1 to the annual report for 2020) was submitted to Environment and Climate Change Canada (ECCC) on April 20, 2020 which was subsequently approved by ECCC on December 11, 2020. As stated in the EMSAMP, the aquatic environment monitoring program for the Project will now conform to the EEM study design and the scope of the program under the EMSAMP is now considered to be the same as the EEM Study. As required by QZ14-041-1, the results obtained under the EEM study is presented within the Appendix I of this report.

The approved program follows a 3-year cycle as is standard with EEM studies. The first year of monitoring outlined within the Phase 1 study design was performed in spring and fall 2021. Minnow Environmental Inc. (Minnow) completed benthic invertebrate community sampling from September 1st to 2nd, 2021, lethal fish sampling for slimy sculpin (*Cottus cognatus*) from May 20th to 24th, 2021, and non-lethal sampling of arctic grayling (*Thymallus arcticus*) from September 3rd to 5th, 2021. A figure of the study area and monitoring locations are presented below.

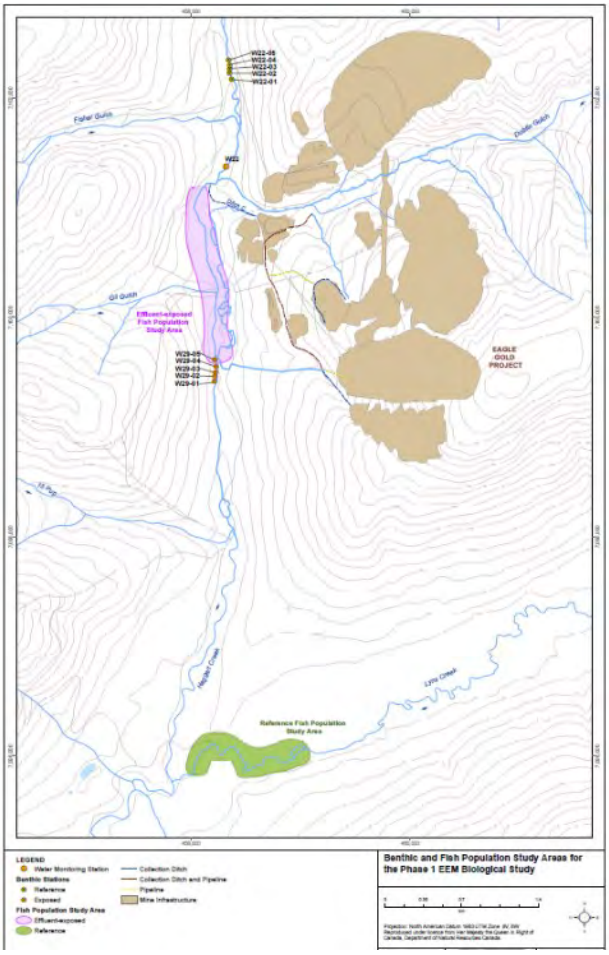


Figure 3.6-1: Study Area and Monitoring Locations of the Phase 1 EEM Study

Stream sediment monitoring at the Project site was not conducted in 2021 as this sampling was not a requirement under the ECCC approved EEM study design. The Haggart Creek study area contains very limited depositional habitat suitable for deposit of fine sediments, being primarily composed of small cobble and gravel. The general absence of any substantial accumulation of fine sediments in Haggart Creek was deemed to preclude meaningful

assessment of potential mine-related influences on sediment chemistry within, along and/or between watercourses. In addition, the applicability of stream sediment chemistry monitoring to support the interpretation of benthic invertebrate community data was determined to be minimal given that fine sediment composes much less than ~5% of available substrate within the study area

Benthic invertebrate community sampling was conducted in September 2021 to meet the EEM requirement to assess potential impacts of mine effluent on food resources for fish. The design of the benthic study included sampling at Haggart Creek downstream of the Ditch C confluence (Station W29-01 to W29-05) as the effluent-exposed area, and Haggart Creek upstream the Dublin Gulch confluence (Station W22-01 to W22-05) as the reference area (Figure 3.6-1). A total of 5 samples were collected from each of the station areas and results were evaluated for EEM primary metrics density, richness, Simpson's Evenness Index, and the Bray-Curtis Index of Dissimilarity as well as additional comparisons involving relative abundance of dominant/indicator groups, functional feeding groups, and habit preference groups to augment interpretation of effects. Interpretation of the 2021 benthic invertebrate community data documented significantly lower benthic invertebrate density downstream of potential effluent discharge in Haggart Creek compared to upstream, however no significant difference in species richness was indicated between these study areas. The relative abundance of metal-sensitive Ephemeroptera (mayflies) did not differ significantly between the effluent-exposed and reference area indicating that differences in community structure were unrelated to differing metals exposure potentially related to the mine effluent discharge. Benthic invertebrate density at both areas in Haggart Creek was lower in 2021 than in previous studies conducted in 2007 and 2018, but richness and relative abundance of metal-sensitive Ephemeroptera at each area were similar between 2021 and 2007 suggesting that benthic invertebrate community structure has not changed substantially between post- and pre-mine operations. Minnow concluded that no adverse mine-related influences on benthic invertebrates were indicated within Haggart Creek and a full summary of the results are included in (Appendix I).

Fish population (health) sampling was conducted in May 2021 and again in September 2021 to meet the EEM requirement to assess potential impacts of mine effluent on fish health. The design of the fish health study included sampling at Haggart Creek downstream of the Ditch C confluence (spanning the area between Station W4 and W29) as the effluent-exposed area, and lower Lynx Creek (Station L1) serving as the reference area (Figure 3.6-1). The survey employed a control-impact lethal design targeting slimy sculpin (*Cottus cognatus*) and a control-impact non-lethal design targeting arctic grayling (*Thymallus arcticus*). Health endpoints related to survival (age and age structure), energy use (growth and reproduction), and energy storage (condition and relative liver size) were evaluated to determine differences between the effluent-exposed areas of Haggart Creek and the Lynx Creek reference area.

Fish species captured during the May and September field studies in 2021 generally conformed to the same species and relative numbers reported previously at each of Haggart and Lynx creeks considering electrofishing methods and time of year. Adult male and female slimy sculpin within Haggart Creek, the primary species within the study design to determine potential mine effects, showed no significant differences in age or age structure, growth, relative number and size of eggs produced (females), and relative liver size compared to those at Lynx Creek. There was a significant difference in gonad weight between the two streams however this was attributed to differing water temperatures and resultant later on-set reproductive development. There was no ecologically significant differences in condition of arctic grayling between Haggart Creek and Lynx Creek and arctic grayling were caught in greater abundance within Haggart creek as compared to Lynx creek supporting that Haggart creek continued to be healthy ecosystem for resident fish species. Minnow concluded that no adverse mine-related

influences on fish health were indicated within Haggart Creek and a full summary of the results are included in (Appendix I).

3.7 Metal and Diamond Mining Effluent Regulations Monitoring Program

The MDMER requires monitoring and reporting of discharged effluent volume and quality to ECCC. Details of registered Final Discharge Points (FDPs) and required monitoring results are submitted on a quarterly and annual basis to ECCC through the online electronic Mine Effluent Reporting System (MERS) and the Environmental Effects Monitoring Reporter (EEMR).

The MDMER requires effluent monitoring and sampling at FDPs if discharge occurs. Deleterious substance samples are collected at least 24 hours apart and not more than 7 days apart if discharge is occurring. Effluent Characterization, and Reference and Exposure Water Quality sample are collected on a quarterly basis if discharge is occurring. Acute lethality tests are performed on a monthly basis, while sublethal testing occurs on an annual basis if discharge occurs.

Discharge from the LDSP FDP sourcing from the Events Pond occurred twice during the calendar year. Discharge occurred for 12 days in July 2021 and for 9 days in November 2021. Schedule 4 deleterious substance criteria during both discharges was within compliance without exception. Details regarding this discharge event are provided in Section 3.1.3 and Section 3.2.3.

Water from the HLFUMV FDP was captured and recirculated back to the Events Pond. No water was discharged from the Events Pond FDP Emergency spillway.

The Annual Effluent Monitoring Program results are presented in Appendix J.

3.8 Meteorology and Air Quality Monitoring

3.8.1 Climate Monitoring

Climate monitoring continued at the Project throughout 2021 from two onsite climate stations; the Potato Hills station, a Campbell Scientific CR1000X datalogger (CSD 1000) (1,420 masl), and the Camp station, a Campbell Scientific CR800 datalogger (CSD 800) (782 masl) (Table 3.8-1 and Figure 3.8-1). Both stations measure temperature, all weather total precipitation, wind speed and direction, relative humidity, barometric pressure and solar radiation at 15-minute intervals. An all-weather precipitation gauge replaced the rainfall tipping bucket at the Camp station CSD 800 in 2020. Also, at that time, the CSD 1000 (with all-weather precipitation gauge) replaced the Hobo ONSET operating system in 2020, which measured rainfall only (along with all the other parameters), not total precipitation. Thus, the historical pre-2020 rainfall data collected by the CSD 800 and the Hobo ONSET cannot be readily compared without some caution to the 2020 and 2021 precipitation data without recognizing the difference in the instrumentation and how it might affect the datasets.

The data record for the Camp climate station spans the entire 2021 reporting period with no data gaps. The Potato Hills station experienced one data gap from January 22 to February 27 in 2021 due to a software malfunction. As part of the preventative maintenance program for the climate stations, a service technician from Campbell Scientific completed the annual inspection of the stations in September. Appendix K provides details of the maintenance and calibration work completed by the service technician.

Snow course surveys, as considered in the EMSAMP, were completed in 2021. The snow survey data is summaries in the 2021 Climate Data Report (Appendix L). In addition to the surveys undertaken at the Potato

Hills and the Camp stations, four more survey locations were assessed in the spring. These were located on the HLF Phase 1, and three more on HLF 3b (Table 3.8-1)

Table 3.8-1: Project Climate Station and Snow Survey Locations - 2021

Site	Elevation (m asl)	Coordinates		Record Period
		North	East	
Climate Stations				
Potato Hills Station	1,420	7,100,833	463,544	2007 - Present
Camp Station	782	7,101,036	458,164	2009 – Present
Snow Surveys				
Camp	782	7,101,036	458,164	2009 – Present
Potato Hills	1,420	7,100,568	463,290	2007 - Present
PG WRSA 1370 Bench	1,370	7,099,188	460,581	2021 - Present
HLF 3b (Bench and Slope)	1,066	7,102,063	459,295	2021 - Present
HLF 4b (Bench and Slope)	1,049	7,102,212	459,602	2021 - Present
HLF 5b (Bench and Slope)	1,048	7,102,207	459,580	2021 - Present

Appendix L provides an updated climate data report based on all data compiled for the Project.

As indicated in Table 3.8-2 and as noted in the 2021 climate summary report (Lorax 2022), May, August and September 2021 monthly rainfall values at the Camp Station were highest on record, and May through September (excluding June) rainfall values were approximately a factor of two to three times higher than the historical mean values. A similar but less pronounced pattern was observed at Potato Hills. In this case only May rainfall values were slightly elevated above the historical maximum, while May through September (excluding June) rainfall values were 1.1 to 2.1 times higher than the historical means.

Also, notably, the April-September rainfall recorded at Camp was 546 mm, which was 2.5 times higher than the long-term monthly mean, and 1.3 times higher than any previous year. While a wet year was also recorded at Potato Hills (348 mm and 1.6 times the long-term mean), it was still substantially less than the historical maximum (458 mm). In general, this pattern does not follow the long-term regional orographic pattern exhibited at site and region-wide in which rainfall increases with elevation. This divergence is driven primarily by short-term localized high intensity rainfall events that were recorded at the Camp station (but not necessarily at the Potato Hills station or with the same total volume) from July through September.

Indeed, based on site observations (i.e., from continuous recording cameras and personnel accounts), the maximum recorded rainfalls in the Camp area were occurring over very localized areas with blue skies on the immediate horizon. For example, when 66.9 mm were recorded at the Camp station on July 25, only 3.3 mm were recorded at the Potato Hills station. Similarly, two days before that, 26.1 mm were recorded at Camp, while only 7.8 mm were recorded at Potato Hills. Also, worth noting that on July 21, 0.0 mm were recorded at Camp while 12.1 mm were recorded at Potato Hills. This microburst pattern was evident throughout July, August and September, and suggests that the rainfall events were localized and uneven throughout the Dublin Gulch and Upper Haggart Creek drainage basins.

It should also be noted that these apparently anomalous patterns, compared to the historical data, may also reflect a higher precision and accuracy of the all-weather precipitation gauges used now by the CSDs (as opposed to the rainfall only data collected by the CSD 800 and the Hobo) to collect and measure very high intensity (i.e.,

microburst) rainfall events. The CSD precipitation sensors at both stations will continue to be checked by Campbell Scientific technicians on an annual basis, and data collection and QA/QC procedures adhered to by site environmental staff. Also importantly, because these microbursts are only localized and not catchment wide, the data must be used cautiously when using with historical data and comparing to recurrence intervals used for catchment wide engineering designs.

For example, while the Camp and Potato Hills stations logged record and above average monthly rainfalls during May through September, the hydrometric stations located throughout the area did not show a uniform basin-wide rainfall-runoff response. In particular, while the Camp and Potato Hills total monthly rainfall values exceeded the baseline average or were the maximum recorded for all months except June (Table 3.8-2), streamflows were above average at W4 for all months except July, but only during August for W99 (Table 3.1-14). In fact, W4 June streamflow was 8% above average, while rainfall at Camp and Potato Hills were 21% and 35%, respectively, below average. Similarly, the July W4 and W99 streamflows were 13% and 39%, respectively, below average, while the rainfall at Camp and Potato Hills were 2.4 and 1.1 times, respectively, the average. Clearly, the rainfall data are representative of localized microburst events that do not appear to have a substantial rainfall-runoff response in stations with large catchment areas (i.e., W4 and W99).

Table 3.8-2: Comparison of Camp and Potato Hills Monthly and 24-Hour Maximum Rainfall (mm)

Month	Camp Station					Potato Hills Station				
	Monthly			24-Hr Max		Monthly			24-Hr Max	
	2021	Mean 2009-2021	Max 2009-2021	2021	2009-2019	2021	Mean 2007-2021	Max 2007-2021	2021	2007-2019
April	12.6	7.3	13.0	5.4	NA	10.9	4.7	10.9	4.7	NA
May	82.5	29.4	82.5	16.2	10.4	60.3	28.3	60.3	9.0	14.8
June	39.0	49.5	156.2	7.3	15.2	29.8	45.6	101.2	11.5	20.4
July	150.1	62.5	165.7	66.9	22.0	68.2	60.3	201.2	12.1	27.0
August	154.4	53.8	154.4	45.8	19.8	112.3	59.9	130.0	30.5	38.2
September	107.3	39.9	107.3	20.4	15.8	66.4	39.9	100.8	11.6	35.8
Apr-Sep Total	545.9	220.0	457.6	66.9	22.0	347.9	265.5	457.6	79.5	38.2

Monthly		24-Hr Maximums	
	Lower than monthly mean and maximum		Lower than long-term monthly record
	Exceeded monthly mean but not maximum		Maximum on record
	Maximum on record		

Note:
Rainfall only data was collected from 2007-2019; all-weather precipitation gauges were installed at both stations in 2020
Data from Lorax 2022 (2021 Climate Report), Lorax 2020 (2019 Hydrometeorology Report) (NA = not available from Lorax reports) and Site 2021 Daily Precipitation Records

3.8.2 Air Quality Monitoring

Ambient air quality is monitored at six locations for the Project (Figure 3.8-1), employing multiple monitoring methods, as detailed in Table 3.8-3:

a) Beta-Attenuation Particulate Monitors (EBAM) - collection of continuous active total suspended particulate matter (TSP), particulate matter less than 10 µm (PM_{10}), and particulate matter less than 2.5 µm ($PM_{2.5}$).

b) Dustfall samplers - passive collection of dust for analysis of total particulates and metals.

c) Passive air sampling systems (PASS) - collect samples for analysis of nitrogen dioxide (NO_2), sulphur dioxide (SO_2), and ammonia (NH_3).

d) Partisol monitoring for 6-day TSP and quarterly metals concentrations is collected at AQ2B.

Across all air quality monitoring stations, QA/QC sample naming conventions consist of duplicates (ID:01), field blanks (ID:02), travel blanks (ID:03), and equipment blanks (ID:04).

Table 3.8-3: Project Air Quality and Dustfall Monitoring Locations

Monitoring Station	Dustfall Canister	Coordinates (Zone 8N)		Location	Parameter	Sampling Method	Sample Frequency
		UTM N	UTM E				
AQ1	D1	7,100,818	463,559	Exploration trail near Potato Hills weather station	Total Particulates, NO_2, SO_2, NH_3	Dustfall/ Passive	30 days
					Metals	Dustfall	91 days
AQ2B	D2B	7,100,976	458,254	Near the Camp Climate station and water quality station W27	TSP	Partisol	6 days
					Total Particulates, NO_2, SO_2, NH_3	Dustfall/ Passive	30 days
					Metals	Partisol/ Dustfall	91 days
AQ3	D3	7,099,088	460,583	Above Eagle Pit and PG WRSA	Total Particulates, NO_2, SO_2, NH_3	Dustfall/ Passive	30 days
					Metals	Dustfall	91 days
AQ4B	D4B	7,097,734	458,290	Rex Road near KM 42 and west side of HCR	Total Particulates, NO_2, SO_2, NH_3	Dustfall/ Passive	30 days
					Metals	Dustfall	91 days
AQ5B	D5B	7,095,942	457,864	Confluence of Lynx Creek and Haggart Creek (near W5)	Total Particulates, NO_2, SO_2, NH_3	Dustfall/ Passive	30 days
					Metals	Dustfall	91 days
EBAM	N/A	7,101,021	458,237	Near Camp station and south of Ditch C	TSP, PM_{10}, $PM_{2.5}$	EBAM	Hourly

NOTES:
1 - Dustfall samples have in some cases utilized the monitoring station identifier in Chain of Custody forms.
2 - Certain stations were relocated/renamed (denoted as a "B" station) as the monitoring program evolved. Station AQ4/D4 was decommissioned July 1, 2020. Station AQ5/D5 was renamed to AQ4B/D4B July 1, 2020. Station AQ5B/D5B was commissioned July 1, 2020.

Results derived from this monitoring are compared to the Yukon Ambient Air Quality Standards (YAAQS) and the conditions of Air Emissions Permit #60-060 issued for the Project. Further details on air quality monitoring datasets and laboratory results for 2021 are provided in Air Emissions Permit #60-060 quarterly reports and WUL QZ14-041-1 monthly reports.

In support of the ambient air quality monitoring program, a visual monitoring program is also employed to identify areas where fugitive dust emissions from roadways, crushing facilities, construction areas, and transfer and

conveying infrastructure for ore were prevalent. Fugitive dust events observed during the reporting period were generally minor and were addressed through the application of water in heavy traffic areas.

3.8.2.1 Particulate Matter

Three EBAMs are installed west of the camp. The EBAM system includes real time data transmission that can be monitored remotely with daily summaries automatically generated by the associated software platform. In addition, site personnel complete routine checks and monthly maintenance. Routine measurements are taken on 15-minute intervals for TSPs, $PM_{2.5}$ and PM_{10}.

Recorded air quality results for particulate matter are summarized and compared to the YAAQS in Table 3.8-4. In 2021, there were two exceedances of $PM_{2.5}$ in July and August and were attributed to summer forest fire smoke impacting the Project area.

Table 3.8-4: Particulate Matter Monitoring Results - 2021

Parameter	Annual Ambient Air Quality Objectives ($\mu g/m^3$)	Annual Results	24hr Ambient Air Quality Objectives ($\mu g/m^3$)	24hr Results			No. of Exceedances
		Mean		Min	Max	Mean	
TSP	60	8.8	120	-2.0	77.9	8.7	0
PM_{10}	*	5.2	50	-0.4	47.9	5.2	0
$PM_{2.5}$	8.8	1.9	27	-0.7	43.9	1.9	2

NOTE:

*No Annual Ambient Air Quality Objectives outlined in the Yukon Standard.
All noted exceedances above are for 24hr standards only

3.8.2.2 Dustfall

Dustfall stations are located around the Project site adjacent to the five permanent vegetation plots described in Section 3.9.1. These dustfall stations utilize a passive collection method, whereby dust is allowed to settle in a container with a known surface area over a timed period. This simple method allows for the deployment of a greater number of cannisters over a broad area than may be feasible for active particulate monitors and may be used to identify relative hotspots around the site. Dustfall container samples are collected and submitted for total particulate laboratory analysis on a monthly basis. Metals analysis is also completed on a quarterly basis, as discussed further below.

As the dustfall station monitoring (and PASS systems discussed below) have evolved, the location of the stations have been optimized to better to meet the intent of the monitoring program. In July 2020, the D4 station adjacent to the access road at km 42 was decommissioned and relocated to the D5 station on the Rex exploration road and renamed D4B. The D5 station was decommissioned and relocated to a new location situated adjacent to the W5 water quality sampling site at the Lynx/ Haggart creek confluence. The new station is called D5B. Relocation of sites was required to align with locations documented in the Project Air Emissions Permit #60-060 and Air Quality Monitoring Plan.

The 2021 dustfall data is provided in Table 3.8-5, which show monthly measured total values compared against the monthly standard (7.0 g/m^2). Monthly means were processed into an annual g/m^2 values for comparison against the Project annual standard (4.6 g/m^2). In 2021, only one exceedance of 30-day standard was recorded at station D4B in November. All stations met annual standard.

Table 3.8-5: 30-Day Total and Annual Dustfall Monitoring Results – 2021

Month	Air Quality Permit Standard (g/m^2)	30-day Fixed Dustfall (g/m^2)[1]				
		D1	D2B	D3	D4B	D5B
January	7.0	<0.30	0.48	0.45	0.87	0.84
February		<0.39	0.54	1.53	0.42	0.39
March		<0.33	0.87	4.11	2.04	1.95
April		<0.33	0.87	1.92	1.47	0.96
May		<0.30	1.38	1.23	1.41	1.05
June		<0.33	2.1	1.17	1.32	1.23
July		2.73	0.84	2.88	0.9	0.66
August		<0.33	0.81	0.66	<0.33	<0.33
September		<0.3	0.66	0.42	0.36	<0.33
October		0.35	0.36	0.34	0.34	0.34
November		0.34	0.71	0.53	**8.80**	4.59
December		0.34	0.45	0.73	1.29	1.40
Annual	4.6	0.53	0.84	1.33	1.63	1.17

NOTE:

1. Calculated 30-day and annual values assume the Method Detection Limit (MDL) value for results that were below MDL.
2. Values in bold indicate standard exceedance.

3.8.2.3 SO_2, NO_2 and NH_3

A network of five Passive Air Sampling System (PASS) stations were launched on January 1, 2020. The PASS units monitor for trace levels of SO2, NO2 and NH3 in ambient air based on a 30-day average. The results for 2020 and 2021 are provided below in Table 3.8-6. PASS results are reported in parts per billion (ppb) by the laboratory. The monthly values have been converted below to ug/m^3.

There is no specific air quality objective for NH_3 specified in the Project's air quality permit (Permit No: 60-060) or in the YAAQS. The 1-hour and 24-hour SO_2 standards in Project air quality permit are 183 µg/m^3 and 13 µg/m^3, respectively. The 1-hour and 24-hour NO_2 standards in Project air quality permit are 113 µg/m^3 and 32 µg/m^3, respectively. As the samplers are collected over 30 days, it is not possible to directly infer a maximum 1-hour or 24-hour level from the measurement results. However, results were either below instrument detection limits or well below the highest similar YAAQS.

Table 3.8-6: SO_2, NO_2 and NH_3 Monitoring Results – 2021

Month	Constituent	Concentration (µg/m^3, 30-day)				
		AQ1	AQ2	AQ3	AQ4B	AQ5B
January	NH_3 by Passive Sampler	<0.069	<0.069	<0.069	<0.069	<0.069
	Calculated NO_2	0.75	7.90	1.69	6.21	3.95
	Calculated SO_2	<0.262	<0.262	0.52	0.26	<0.262
February	NH_3 by Passive Sampler	<0.069	<0.069	<0.069	<0.069	<0.069
	Calculated NO_2	0.75	7.90	2.82	6.21	2.45
	Calculated SO_2	0.26	<0.262	<0.262	<0.262	<0.262

Month	Constituent	Concentration (µg/m³, 30-day)				
		AQ1	AQ2	AQ3	AQ4B	AQ5B
March	NH_3 by Passive Sampler	<0.069	<0.069	<0.069	<0.069	<0.069
	Calculated NO_2	<0.188	2.63	0.94	2.26	0.56
	Calculated SO_2	<0.262	0.26	<0.262	<0.262	<0.262
April	NH_3 by Passive Sampler	0.76	0.56	0.63	0.35	0.28
	Calculated NO_2	<0.188	<0.188	0.19	<0.188	<0.188
	Calculated SO_2	<0.262	<0.262	<0.262	<0.262	<0.262
May	NH_3 by Passive Sampler	<0.069	<0.069	<0.069	<0.069	<0.069
	Calculated NO_2	<0.188	1.50	1.13	1.13	<0.188
	Calculated SO_2	0.52	0.26	0.52	0.79	0.52
June	NH_3 by Passive Sampler	<0.069	<0.069	<0.069	<0.069	<0.069
	Calculated NO_2	<0.188	0.94	0.94	0.75	<0.188
	Calculated SO_2	0.52	0.26	1.31	0.52	0.79
July	NH_3 by Passive Sampler	0.42	0.21	<0.07	<0.07	0.21
	Calculated NO_2	0.38	0.56	1.32	0.38	<0.19
	Calculated SO_2	0.26	0.79	0.26	<0.26	<0.26
August	NH_3 by Passive Sampler	<0.07	<0.07	<0.07	<0.07	0.14
	Calculated NO_2	0.38	0.75	1.88	1.13	0.38
	Calculated SO_2	<0.26	<0.26	<0.26	<0.26	<0.26
September	NH_3 by Passive Sampler	0.56	0.56	<0.07	0.70	0.70
	Calculated NO_2	<0.19	0.94	0.56	1.32	0.19
	Calculated SO_2	<0.26	<0.26	<0.26	<0.26	<0.26
October	NH_3 by Passive Sampler	<0.07	<0.07	<0.07	<0.07	0.07
	Calculated NO_2	1.69	2.26	0.38	2.26	0.75
	Calculated SO_2	<0.26	0.26	<0.26	0.79	0.79
November	NH_3 by Passive Sampler	<0.07	0.28	0.21	0.35	0.28
	Calculated NO_2	<0.19	5.08	1.50	3.95	2.45
	Calculated SO_2	0.26	0.52	0.26	0.26	<0.26
December	NH_3 by Passive Sampler	<0.07	<0.07	1.18	0.21	0.34
	Calculated NO_2	0.38	9.78	1.69	10.53	8.46
	Calculated SO_2	<0.26	<0.26	<0.26	<0.26	<0.26

NOTE:

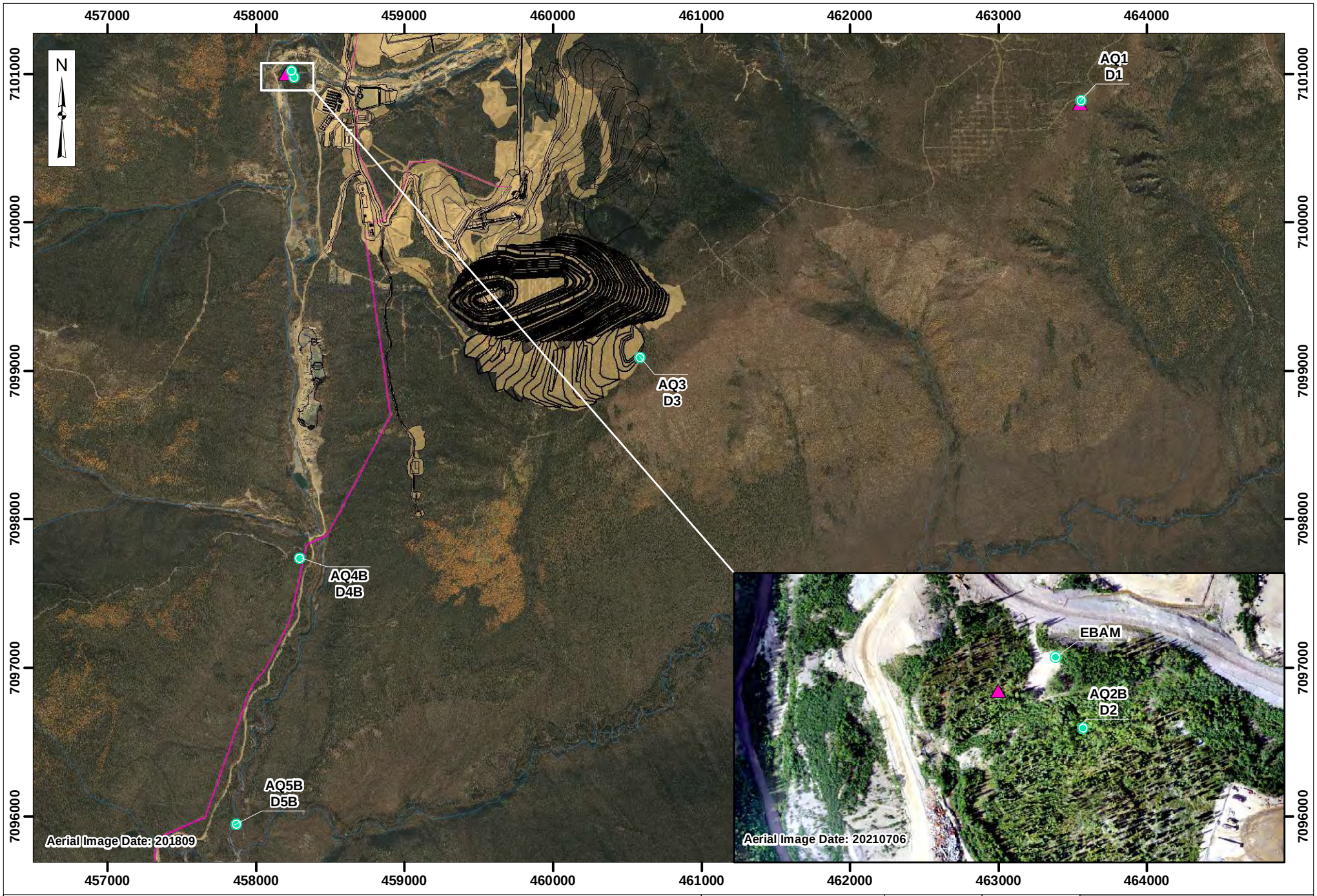
Laboratory data is reported in units of ppb. The following formula was used for conversion (µg/m³) = (ppb)*(12.187)*(M) / (273.15 + 25°C), where M is the molecular weight of the gaseous pollutant. M of NH_3 = 17 g/mol. M of NO_2 = 46 g/mol. M of SO_2 = 64 g/mol.

3.8.2.4 Metals

An active Partisol™ 2000i Air Sampler was installed adjacent to the EBAM air quality monitoring location and the metals analysis component of this monitoring method was initiated for the 2021 program with quarterly metals analysis. Metal analysis results for 2021 are presented in Table 3.8-7. All results were below the 24-hour standards, with only chromium measuring above method detection limits.

Table 3.8-7: Metals Monitoring Results – 2021

Metal	24-hour Standard (µg/m³)	Concentration (µg/m³)			
		Q1	Q2	Q3	Q4
Total Arsenic (As)	0.3	<0.0020	<0.0019	<0.0022	<0.0022
Total Cadmium (Cd)	0.025	<0.0004	<0.0004	<0.0004	<0.0004
Total Chromium (Cr)	0.5	0.0033	0.0031	0.0029	0.0066
Total Copper (Cu)	50	<0.0012	<0.0011	<0.0013	<0.0013
Total Lead (Pb)	2	<0.0012	<0.0011	<0.0013	<0.0013
Acid Extractable Mercury (Hg)	0.2	<0.00001	<0.0001	<0.0001	<0.0001
Total Nickel (Ni)	0.5	<0.0020	<0.0019	<0.0022	<0.0022
Total Zinc (Zn)	120	<0.0201	<0.0192	<0.0219	<0.0219



Legend:

- Active AQ Station
- Climate Station
- Major Facility
- Site Power
- Current Construction and Mining Impacted Areas
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent

VICTORIA GOLD CORP

0 250 500 1,000
Metres

Projection:	Drawn By:
NAD 83 UTM Zone 8N	HC
Date:	Figure:
2022/03/31	3.8-1

EAGLE GOLD MINE
YUKON TERRITORY

Climate and Air Quality Monitoring Locations - 2021

3.9 Terrestrial

3.9.1 Vegetation Monitoring Program

As outlined in the EMSAMP, four vegetation plots were established in 2018 to monitor changes in vegetation during the life of the Project. The vegetation monitoring plots consist of two sites in the Subalpine Zone with elevations greater than 1225 masl and two sites at lower elevation in the Forested Zone. These vegetation plots are monitored once a year during the growing season to provide data to determine if there are potential changes associated with metals in and on plant tissue due to Project activities.

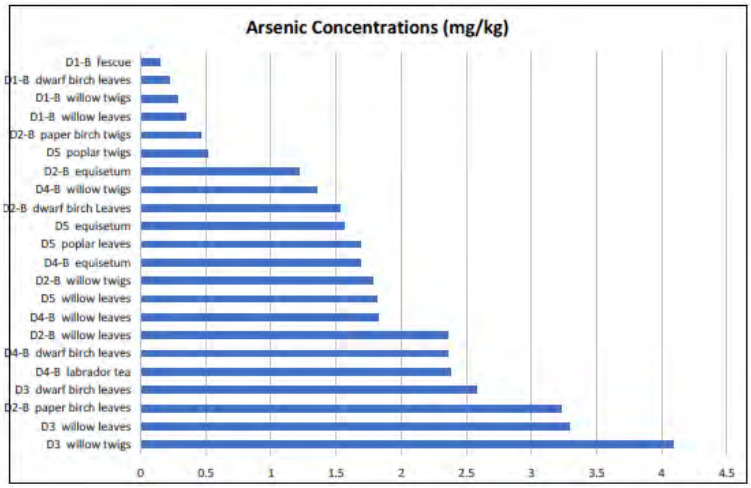
In 2020, due to snow clearing activities, Site D1 was relocated approximately 40 m south of the original site, and re-established as D1B. A new site (D5) was established in 2020 by the by the dustfall station launched near the confluence of Haggart Creek and Lynx Creek. The location and description of the vegetation monitoring sites are presented in Table 3.9-1. The coordinates of each site represent the center point of that site. Four corner points were then established in cardinal directions 10 meters from the center.

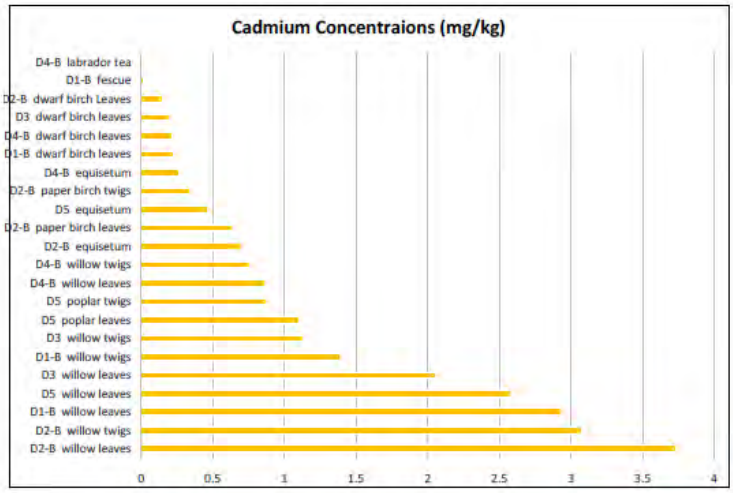
Monitoring and sampling of sites was conducted Late July 2021.

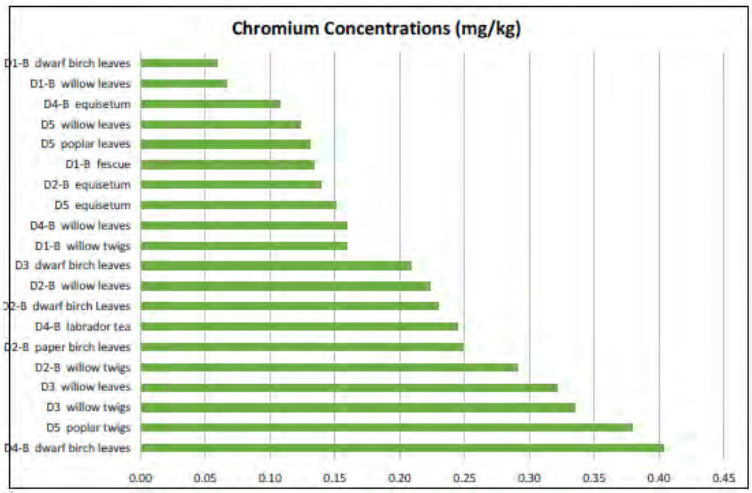
Table 3.9-1: Location and Description of Vegetation Monitoring Sites

Sites #	NAD 83 Zone 8N		Aspect	Elevation (m asl)	Site Description
	Easting	Northing			
D1B	463,530	7,100,794	Level	1,437	Potato Hills near climate station, 40 m south of original site D1.
D2B	458,256	7,100,972	West	791	Upslope of the air quality station and the camp climate station, south side of Eagle Creek within influence. Established in 2019 approximately 70 m from original site D2.
D3	460,598	7,099,079	South west	1,356	Top of Eagle Pup/Platinum Gulch drainages near the over-the-top road.
D4B	458,279	7,097,731	East	751	On the west side of the access road south of the Haggart Creek culverts and the power line. Established in 2019 approximately 300 m south of the original site D4.
D5	457,857	7,095,962	Level	720	Near surface water quality site W5, Haggart Creek upstream of Lynx Creek.

The focal species for this assessment was willow (Salix spp.), sedge (Carex spp.), bluejoint (Calamagrositis canadensis) and northern rough rescue (Festuca altaica). As all of these species were not available at all stations substitutions were made where applicable. Samples were analyzed for a suite of 34 metals, with a focus on metals related to potential emissions related to the gold recovery process (arsenic, cadmium, chromium, lead, and mercury). The metal concentrations were averaged per vegetation type for the number of samples collected at each site. The results of the analysis for the selected metals are presented in Figure 3.9-1.







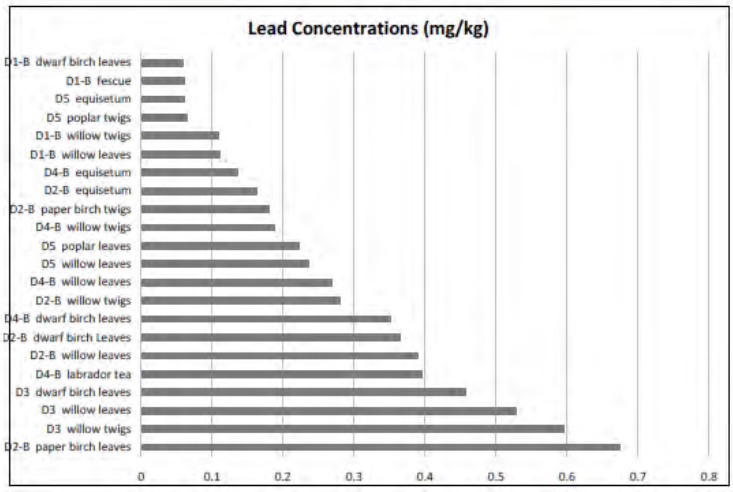


Figure 3.9-1: Results of 2021 Vegetation Monitoring Metals Analysis

NOTES:

Source Laberge 2021 (Appendix M).

Although foliar tissue samples have been collected since 2018 (with the exception of D5), not all sites have been in consistent locations. D1B (D1) had increase arsenic concentrations in the dwarf birch and will when compared to previous data. D-2B had some minor fluctuations throughout all tissue types in 2021. D3 had a decrease from the previous year. Heavy rain recorded between July 15th-24th may have washed dust from vegetation in addition to the 1370 dump design was completed in 2020 and dust from off-loading trucks would have been reduced in this area. Data were generally similar at D-4B with some fluctuations over the three years. D-5 only has 2 sets of data and there was an increase in Arsenic and Chromium in all tissue types in 2021.

There was no visible sign of stress in any of the vegetation in the plots. Full results of the 2021 Vegetation Monitoring program can be found in Appendix M.

3.9.2 Invasive Plants Management Program

The Invasive Plant Management Program is used to develop strategies that help prevent the introduction and spread of invasive species and noxious weeds on the Project site. VGC has taken measures that help reduce the likelihood of plant infestations from occurring. If any significant infestations are identified they will be actively managed, including removals within mine operations areas. This section provides a summary of monitoring and measures taken on site to control invasive plants.

The Yukon Invasive Species Council (YISC) defines invasive species as:

"…an organism (plant, animal, fungus, or bacterium) that is introduced and has effects on our economy, our environment, or our health. Not all introduced species are invasive. The term "invasive" is reserved for the most aggressive species that reproduce rapidly and cause major changes to the areas where they become established."

The YISC has documented approximately 160 introduced plant species in the Yukon, with 17 species currently on there watch list. These are species that are highly invasive and found throughout the Yukon (Table 3.9-2) (YISC 2020). This categorization is used as a guide by VGC in prioritizing its management efforts to control invasive plants. Management activities will focus on the highest ranked plant species for invasiveness; however, activities also include other species if they become established on the Project footprint.

Table 3.9-2: Highly Invasive Plant Species Documented in Yukon

SCIENTIFIC NAME	COMMON NAME	ORIGIN
Agropyron cristatum	Crested Wheatgrass	Exotic
Bromus inermis	Smooth Brome	Exotic
Caragana arborescens	Siberian Peashrub	Exotic
Centaurea stoebe	Spotted Knapweed	Exotic
Cirsium arvense	Creeping Thistle	Exotic
Crepis tectorum	Narrow-leaved Hawksbeard	Exotic
Elymus repens	Quack Grass	Exotic
Euphorbia virgata	Russian Leafy Spurge	Exotic
Hieracium piloselloides	Tall Hawkweed	Exotic
Leucanthemum vulgare	Oxeye Daisy	Exotic
Medicago falcata	Yellow Lucerne	Exotic
Medicago sativa	Alfalfa	Exotic
Melilotus albus	White Sweet-Clover	Exotic
Melilotus officinalis	Yellow Sweet-Clover	Exotic
Sonchus arvensis	Perennial Sow-thistle	Exotic
Tanacetum vulgare	Common Tansy	Exotic
Vicia cracca	Tufted Vetch	Exotic

3.9.2.1 Prevention

The main objective in managing invasive plant infestations on the Project footprint is to conduct mining activities in a manner that prevents the introduction or spread of invasive plants. Prevention is the most effective means of controlling invasive species, and helps to avoid significant long-term economic, environmental, and social costs (YISC, 2020). Invasive species are opportunistic in nature, taking advantage of a lack of competition from other

species. Thus, in natural conditions with biodiversity and a dense population of native species, invasive species are less likely to establish.

VGC's ongoing prevention strategies include the following:

- Minimizing soil disturbance during construction and operations to limit availability of exposed soils to invasive plant seeding.
- Establishing a vegetation cover as soon as possible after ground disturbance, by seeding areas that will be inactive with interim reclamation indigenous seed mixtures.
- Minimizing invasive plant seed introduction to disturbed sites by:
    - Keeping equipment clean on site and ensuring contractors are bringing clean equipment into the Project site.
    - Keeping equipment laydowns and storage areas free of invasive plants.
    - Retaining vegetated areas along the site access and haul roads during maintenance where possible.

During the period considered in this report, vegetation removal and soil disturbance was minimized to the extent practicable by adhering closely to construction plans, and leaving vegetation strips where possible. When clearing was required, the humus layer and vegetation root mat was retained to the greatest extent practicable and stored in predetermined soil stockpile areas.

A combination of revegetation and bioengineering of exposed slopes was conducted in the fall of 2021 to control runoff, stabilize slopes, and prevent establishment of invasive species. Revegetation focused on seeding native plant species that were selected based upon the baseline vegetation survey inventory, suitability for site characteristics and commercial availability (Appendix N and Appendix O). Bioengineering techniques also sourced local willow (Salix spp.) and commercial alder seedlings species from the Project site (Appendix P). These efforts are detailed in Section 6.

Contractors on site were expected to keep their equipment clean and in good working order, particularly prior to mobilizing to site. The majority of the contractor-maintained equipment was sourced from within the Yukon, thus reducing the risk of invasive transmission across provincial and territorial boundaries

3.9.2.2 Control

During the report period of 2021, no control or removal methods was required to manage invasive plants on the Project site.

3.9.2.3 Assessment and Monitoring

During the July 2021 vegetation monitoring program, hawksbeard and dandelion were identified in the native seed trial plots. Plots will continue to be monitored on an annual bases and mitigation will be used when necessary (Appendix M). Disturbed lands in the Project footprint will continue to be monitored to detect the establishment of invasive plant and noxious weed species on both revegetated and unvegetated areas.

In the event that invasive plant populations do become established on the mine site or associated disturbances, VGC will utilize one or a combination of the listed methods to control these infestations. VGC will undertake control efforts on species that are listed for Yukon as noxious weeds or invasive plant species that pose a threat to humans, animals or ecosystems.

3.9.3 Soils

The soils monitoring program is designed to provide data to assess whether there are changes to metal and nutrient levels in soils adjacent to the mine as a result of dust deposition occurring during Project activities. Soil sampling locations were picked in conjunction with the vegetation monitoring program and samples are collected on a biannual basis. The last samples were collected in 2020 and the next samples will be collected in 2022.

3.9.4 Wildlife

Wildlife mitigation measures are implemented through mandatory Project site orientation, traffic control policies, and training and implementation of the Project's management plans including bear awareness and the wildlife observation reporting program.

Personnel record wildlife sightings and encounters on wildlife observation cards available at a variety of locations throughout the site. The use of wildlife observation cards is a tool used to track and evaluate the frequency of animal encounters; these cards help monitor species at risk, nuisance wildlife and to notify site personnel of potentially dangerous animals around work areas. Observations of wildlife and indicators of wildlife such as tracks, scat or auditory observations are also recorded (even in the absence of visual confirmation). Wildlife observations recorded through 2021 are compiled on a quarterly basis and submitted to the Department of Energy, Mines and Resources in accordance with QML-0011.

3.9.4.1 Nesting Songbird Surveys

Nesting songbird bird surveys were completed for clearing activities that took place within the breeding bird window (May 1-late summer). All land disturbance occurred outside of the breeding window and no song bird surveys were completed in 2021.

3.9.4.2 Pre-clearing Wildlife and Wildlife Habitat Surveys

Outside of the nesting songbird breeding window for the Project area, pre-clearing survey are completed for wildlife habitat features for potential salvage if possible (mineral licks, dens, nest trees, snags, rocky outcrops, small ponds/seepages). One wildlife habitat pre-clearing surveys took place during 2021 prior to clearing land for the truck shop and no habitats of note were reported.

3.9.4.3 Wildlife Incidents

Throughout 2021 there were observations of several animals in close proximity to the camp and areas of mining activity, but no deterrents were required.

On February 14, 2021, a report was received by VGC Environmental Staff that an injured raven was observed on the access road to the mine. When Environmental Staff arrived at the scene, the raven was found deceased and no cause of death could be determined. The mortality was report to the Mayo Conservation Officer (CO); the CO acknowledged the mortality and directed that the raven be incinerated and no further action was deemed necessary.

In October and November, an American Marten was observed on several occasions around the camp and at various other facilities in relatively close proximity to the camp. VGC Environmental Staff considered that there was a potential risk of injury to the animal due to the frequency of observations and proximity to ongoing mine activity. A CO from Yukon Environment in Whitehorse was contracted and a trap was provided to the site with the

intention of relocating the animal. The trap was checked on a regular basis by VGC Environmental Staff but the animal was not trapped and, as there were no observations after mid-November, the trap was returned.

Based on the two wildlife incidents noted during the year, no additional targeted corrective actions were deemed necessary; however, the Environmental Department continues to provide ongoing education for site personnel through site-wide bulletins, collaborations with department heads, and presentations in toolbox meetings.

3.9.4.4 Annual Moose Survey

Three late-winter moose surveys were completed during pre-construction and are considered as a baseline (2011-2013). Surveys were subsequently conducted in 2018 and 2019, representing the construction phase. A survey was completed in 2020 and represented the operations phase.

Overall moose distribution throughout all surveys has been variable between years, and an association exists between moose distribution and the moderate elevation burns. While moose densities during 2019 construction within 1 km of the Project footprint were moderate, so were densities observed in 2018 during a cessation of construction activities; moose densities were high within 1 km of the project in 2020 during mine operations. This suggests a natural variability in distributions, as well as expected variability in survey results given the methodology. It is likely that moose distribution is more associated with annual snow depths, winter habitat distribution than Project activities.

The methodology utilized for previous Project related surveys was based on that proposed by Yukon Government Department of Environment staff. A revised methodology was trialed by Yukon Government in 2021. The appropriateness of the new methodology for general use remains under review to determine if it can be utilized for other project areas. Once a determination is made (expected to be completed by Yukon Government in 2022), it is anticipated that the Project related methodology will be revised and used in 2023.

3.10 Permafrost

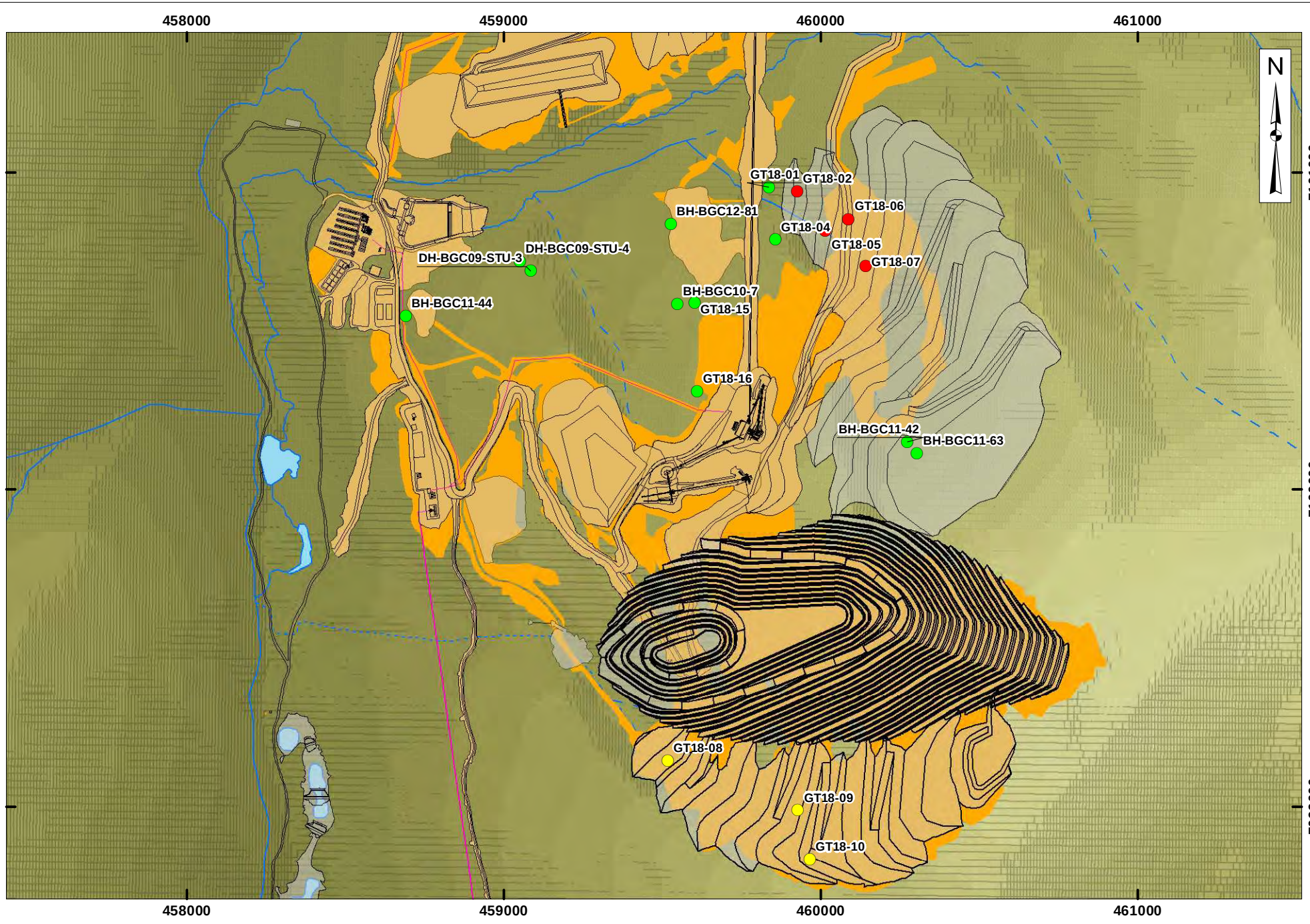
Permafrost monitoring at the project site in 2021 consisted of quarterly subsurface temperature monitoring via thermistors at the locations shown in Figure 3.10-1 and Table 3.10-1.

Monitoring occurred at 15 thermistor locations in Q1. In Q2, four thermistor locations, GT18-02 and GT18-05, GT18-06 and GT18-07 were decommissioned due to development in those areas. Monitoring at the remaining 11 thermistor locations occurred in Q2, Q3 and Q4.

Table 3.10-1: Thermistor Monitoring Locations – 2021

Thermistor	Status	Facility	Coordinates (Zone 8)	
			North	East
GT18-08	Decommissioned 2020	PG WRSA	7,099,141	459,517
GT18-09	Decommissioned 2020	PG WRSA	7,098,851	459,968
GT18-10	Decommissioned 2020	PG WRSA	7,098,964	460,080
GT18-01	Active	EP WRSA	7,100,952	459,831
GT18-02	Decommissioned 2021 Q2	EP WRSA	7,100,945	459,925
GT18-04	Active	EP WRSA	7,100,787	459,854
GT18-05	Decommissioned 2021 Q2	EP WRSA	7,100,814	460,006
GT18-06	Decommissioned 2021 Q2	EP WRSA	7,100,852	460,088

Thermistor	Status	Facility	Coordinates (Zone 8)	
			North	East
GT18-07	Decommissioned 2021 Q2	EP WRSA	7,100,709	460,088
BH-BGC11-42	Active	EP WRSA	7,100,150	460,272
BH-BGC11-63	Active	EP WRSA	7,100,114	460,303
BH-BGC10-7	Active	EP WRSA	7,100,585	459,547
BH-BGC11-44	Active	Camp Facilities	7,100,547	458,690
DH-BGC09-STU-3	Active	Above camp and LDSP	7,100,691	459,083
DH-BGC09-STU-4	Active	Above camp and LDSP	7,100,720	459,050
GT18-15	Active	Below crushing facilities	7,100,583	459,597
GT18-16	Active	Below crushing facilities	7,100,308	459,607
BH-BGC12-81	Active	Reclamation Material stockpile	7,100,838	459,527



Legend:

- Thermistor
- Thermistor - Decommissioned 2021
- Thermistor - Decommissioned 2020
- Perennial Watercourse
- Ephemeral Watercourse
- Intermittent Watercourse
- Major Facility
- Site Power

VICTORIA GOLD CORP

0 100 200 400
Meters

Projection:	Drawn By:	EAGLE GOLD PROJECT YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	Thermistor Monitoring Locations - 2021
2022/04/01	3.10-1	

3.10.1 Data Analysis

3.10.1.1 Eagle Pup WRSA Multi Bead Thermistors

Six multi bead thermistors were monitored in the area of the future Eagle Pup WRSA, as shown in Table 3.10-2. Multi bead thermistors documented subsurface temperatures up to 20 m below the surface. The majority of thermistors recorded temperatures above zero degrees with the exception of sporadic subzero readings during first and fourth quarter winter conditions; which were attributed to general seasonal temperature changes. The two thermistors that recorded consistent subzero temperatures were BH-BGC11-42 and BH-BGC11-63, which are installed in the interior of the Eagle Pup WRSA. The presence of only two thermistors with consistent subzero temperatures throughout multiple bead depths supports the presence of a local discontinuous permafrost zone. The construction of a buttress for the Eagle Pup WRSA was initiated in Q2 and GT18-02, GT18-05, GT18-06 and GT18-07 were decommissioned at this time

Table 3.10-2: Eagle Pup WRSA Multi Bead Thermistor Temperatures - 2021

Thermistor	Date	Bead Temperature ºC															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
GT18-01	1st Quarter	-3.2	-0.9	-0.1	0.3	0.7	0.8	1.1	1.3	1.6	1.6	1.6	1.6	1.7	1.6	1.4	1.4
	2nd Quarter	-0.06	-0.167	-0.28	-0.03	0.05	0.13	0.24	0.39	1.00	1.30	1.42	1.48	1.49	1.52	1.43	1.40
	3rd Quarter	14.55	9.50	7.53	5.34	3.43	2.25	1.66	1.30	1.33	1.28	1.33	1.38	1.37	1.44	1.36	1.39
	4th Quarter	-0.70	0.98	1.39	1.81	2.23	2.39	2.51	2.32	2.20	1.69	1.70	0.70	1.58	0.82	1.39	1.36
GT18-05	1st Quarter	-0.8	0.0	0.1	0.3	0.4	0.5	0.6	0.7	0.8	0.8	0.9	1.0	1.0	1.1	1.1	1.1
	2nd Quarter	0.01	0.00	0.05	0.15	0.24	0.31	0.40	0.48	0.64	0.77	0.84	0.90	0.96	1.01	1.08	1.16
	3rd Quarter	Decommissioned															
	4th Quarter	Decommissioned															
GT18-07	1st Quarter	-0.68	0.03	0.27	0.39	0.66	0.79	0.93	1.01	1.04	0.91	0.91	0.93	1.02	1.04	1.13	1.27
	2nd Quarter	-0.61	-0.23	0.01	0.17	0.34	-0.70	0.63	0.73	0.83	0.86	0.88	0.93	0.98	1.08	1.16	1.26
	3rd Quarter	Decommissioned															
	4th Quarter	Decommissioned															
BH-BGC11-42	1st Quarter	NM															
	2nd Quarter	-0.83	-0.83	-0.83	-0.83	-0.83	-0.83	-0.83	-0.83								
	3rd Quarter	-0.78	-0.78	-0.78	-0.78	-0.78	-0.78	-0.78	-0.78								
	4th Quarter	-3.47	-3.47	-3.47	-3.47	-3.47	-3.47	-3.47	-3.47								
BH-BGC11-63	1st Quarter	NM															
	2nd Quarter	-0.08	-1.17	-0.21	-3.35	-0.85	-0.58	0.05	0.17								
	3rd Quarter	0.03	0.95	1.69	-2.93	-1.07	-0.83	0.13	0.41								
	4th Quarter	-2.48	-0.41	0.04	-3.54	-1.34	-1.21	-0.18	-0.03								
BH-BGC-10-7	1st Quarter	-2.026	-0.161	0.543	1.003	1.187	0.172										
	2nd Quarter	-0.337	-0.704	0.041	0.338	0.658	0.074										
	3rd Quarter	3.058	5.800	6.866	5.662	1.970	0.139										
	4th Quarter	0.531	1.629	2.728	3.220	2.172	0.271										

NOTES: NM - Not measured due to unsafe access to site

3.10.1.2 Platinum Gulch WRSA Multi Bead Thermistors

As discussed in the 2020 annual report, the thermistors in the PG drainage were both decommissioned and as such there are no active thermistors in that area.

3.10.1.3 Overland Conveyor Multi Bead Thermistor

GT18-15 is installed to the west of the future Eagle Pup WRSA and the overland conveyor. The thermistor documented subzero temperatures throughout all seasons with the exception of depths above 11.5 meters (bead 11). The results indicate a relatively thick but warm permafrost zone below a cover of deposited organics and material.

Table 3.10-3: Overland Conveyor Multi Bead Thermistor Temperatures - 2021

Thermistor	Date	Bead Temperature ºC															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
GT18-15	1st Quarter	-0.79	-0.06	0.07	0.15	0.27	0.43	0.51	0.41	0.29	0.01	-0.01	-0.07	-0.10	-0.09	-0.09	-0.11
	2nd Quarter	-0.05	-0.56	-0.36	-0.02	0.03	0.10	0.14	0.17	0.12	0.03	-0.05	-0.07	-0.10	-0.10	-0.10	-0.10
	3rd Quarter	3.35	4.51	5.12	5.42	5.03	4.31	3.42	2.38	0.97	0.14	-0.05	-0.07	-0.10	-0.12	-0.10	-0.09
	4th Quarter	0.48	0.97	1.34	1.85	2.12	2.21	2.09	1.76	0.92	0.18	-0.05	-0.08	-0.10	-0.10	-0.12	-0.10

3.10.1.4 Upgradient of LDSP Facility Multi Bead Thermistor

DH-BGC09-STU-3 and DH-BGC-STU-4 are multi bead thermistors installed upgradient of the LDSP. Both datasets documented zero or subzero temperatures below the active layer of surficial organics (bead 2-3), indicating the presence of warm permafrost at depth. Temperatures were consistent across all seasons suggesting stable permafrost.

Table 3.10-4: LDSP Multi Bead Thermistor Temperatures - 2021

Thermistor	Date	Bead Temperature ºC					
		1	2	3	4	5	6
DH-BGC09-STU-3	1st Quarter	-0.3	-0.2	-3.5	0.2	-1.8	-0.1
	2nd Quarter	-0.10	-0.31	-3.57	0.05	-1.91	-0.13
	3rd Quarter	4.87	4.05	-1.84	2.14	-2.16	-0.13
	4th Quarter	1.00	1.09	-3.12	1.29	-2.23	-0.13
DH-BGC09-STU-4	1st Quarter	-3.6	0.0	0.0	-3.4	0.0	-0.1
	2nd Quarter	-0.28	-0.30	-0.02	-3.37	-0.01	-0.12
	3rd Quarter	1.66	3.71	3.55	-3.58	-0.01	-0.12
	4th Quarter	-1.76	0.67	0.95	-3.56	-0.02	-0.12

3.10.1.5 Camp Facility Multi Bead Thermistor

BH-BGC11-44 is a multi-bead thermistor installed near camp support facilities and just above Ditch A. The documented temperatures in Bead 8 suggest the presence of permafrost at depth, while the near-surface beads registered temperatures consistent with seasonal temperatures changes and a thick organic active zone.

Table 3.10-5: Camp Facility Multi Bead Thermistor Temperatures - 2021

Thermistor	Date	Bead Temperature ºC							
		1	2	3	4	5	6	7	8
BH-BGC11-44	1st Quarter	-1.9	-0.9	0.0	0.0	0.2	0.2	0.0	-0.3
	2nd Quarter	-0.57	-0.30	-0.10	-0.09	0.06	0.06	0.01	-0.30
	3rd Quarter	1.45	1.63	3.23	3.96	3.71	1.72	0.06	-0.32
	4th Quarter	-3.29	-0.93	0.45	0.79	1.27	1.05	0.06	-0.33

3.10.1.6 Reclamation Material Stockpile Multi Bead Thermistor

BH-BGC12-81 is a multi-bead thermistor that is installed west of the main ore conveyor to the HLF, situated near reclamation material stockpiles. There were issues with retrieving data and the equipment used was replaced. The dataset showed subzero temperatures beginning at bead depth 6m supporting the presence of permafrost at depth protected by a thick surficial organic active zone. The subzero temperatures at depth were consistent across seasonal changes indicating stable permafrost.

Table 3.10-6: Reclamation Material Stockpile Multi Bead Thermistor Temperatures - 2021

Thermistor	Date	Bead Temperature ºC						
		1	2	3	4	5	6	7
BH-BGC12-81	1st Quarter		-0.7	0.0	0.0	9.9	-0.1	-0.3
	2nd Quarter		-0.34	0.02	NM	NM	-0.14	NM
	3rd Quarter		9.54	5.51	3.53	NM	-0.12	NM
	4th Quarter		-0.67	0.04	0.01	-0.11	-0.12	NM

NOTES: NM - Not measured due to equipment issues

3.10.1.7 Ground Temperatures of Single Bead Thermistors

Ground temperature data collected at the single bead thermistors installed across the Eagle Gold site are provided below in Table 3.10-7. Four single bead thermistors were monitored in 2021. GT18-02, GT18-04 and GT18-06, situated within the Eagle Pup WRSA, exhibited above zero temperatures which indicated a lack permafrost within the installation area. GT18-16, installed below crushing facilities, documented above zero temperatures across all seasons which indicated no influence of permafrost in the critical infrastructure location. GT18-02 and GT18-06 were decommissioned in April 2021 in preparation for the expansion of the Eagle Pup WRSA.

Table 3.10-7: Single Bead Thermistor Temperatures - 2021

Thermistor	Bead Depth	Q1	Q2	Q3	Q4
GT18-02	7.9	1.8	NM	Decom	Decom
GT18-04	8.5	1.9	1.47	1.13	2.01
GT18-06	9.0	0.3	0.30	Decom	Decom
GT18-16	8.2	NM	1.52	0.11	1.56

3.10.1.8 HLF Embankment Piezometers and Temperatures

Three standpipes with Vibrating Wire Piezometers are installed through the HLF dam crest. Piezometer P1 was installed into the dam foundation bedrock and Piezometers P2 and P3 were installed in the dam fill just above the

western and eastern underdrains, respectively. The piezometer readings for P1, P2, and P3 are provided in the Forte Annual HLF Inspection Report in Appendix Q. Temperature values observed in 2021 were similar to that of 2020 showing gradual seasonal fluctuation. No concerns resultant of temperature monitoring was noted within the Forte Annual HLF inspection Report.

3.11 Noise

The objective of the noise monitoring program was to ensure that public users of the Haggart Creek/South McQuesten Road adjacent to the Project site were not at risk of exposure to high sound levels associated with blasting.

3.11.1 Sounds Levels Related to Blasting

In accordance with terms and conditions (#121) of the Decision Document, VGC monitored sound levels related to blasting activities in 2018 and 2019 confirming that operational noise thresholds remained below the cautionary limit of 120 db. Based on this information, sound monitoring was discontinued until warranted by a significant change in mining activity or a noise complaint related to Project activities is received.

The Yukon currently has no specific regulatory guidance related to environmental noise effects on the general public.

3.12 Spills and Accidents

3.12.1 Spill Contingency Overview

The VGC Spill Response Plan continues to inform procedural approaches to accidental releases on the mine site. In accordance with Clause 128 of QZ14-041-1, the Spill Response Plan is reviewed annually to confirm its accuracy and updates are incorporated as warranted. Based on the most recent review, Version 2021-01 was determined to be appropriate and no changes were undertaken. It should be noted that Version 2021-01, submitted with the 2020 Annual Report as Appendix P1, has not been approved under QML-0011. This matter will be addressed with the Department pf Energy, Mines and Resources-Minerals Resources Branch in 2022.

Ongoing audits continue to ensure availability of adequate spill response equipment and verify preventative measures and industry best practice initiatives are being implemented to reduce the likelihood of incidental releases. Non-conformances, should they be identified, are logged in a tracking spreadsheet to ensure follow up by responsible departments.

A lined Land Treatment Facility (LTF) is utilized for progressive treatment and remediation of hydrocarbon contaminated soils in accordance with approvals granted pursuant to the *Environment Act*. Contaminated soils are tested for hydrocarbons prior to treatment and post treatment in accordance with the Yukon Contaminated Sites Regulation (CSR) standards.

3.12.2 Reportable Summary

During the period of this report, ten (10) reportable spills occurred at the Project site (Table 3.12-1). Spills described in Table 3.12-1 were reported to the Yukon Spill Report Line as required by the *Spills Regulations* of the *Yukon Environment Act*, as well as uploaded to the Yukon Water Board's electronic Waterline platform. Spill remediation occurred as per CSR standards and guidelines stipulated by Yukon Government Department of Environment and, in the case of the release of grey and black water, the Department of, Health and Social

Services personnel. Non-reportable spills were tracked internally and remediated as above. Spill Response Forms and photos for each of the reportable spills is provided in Appendix R.

Table 3.12-1: 2021 Reportable Spills

Date (mm/dd/yyyy)	Volume	Substance	Spill Details and Remediation
01/13/2021	150 L	Septic water	A float on the main lift station failed resulting in solution release to ground. The float was repaired and released material taken to septic field. The release area was treated with a dilute bleach solution.
03/15/2021	70 L	HLF Solution	Frozen lines led to pooling of solution on the HLF and channelized flows within the ore stack. Flows bypassed the french drain and seeped through mounded ore and snow at the base of the conveyor transfer tower and outside of containment. Repairs made, area re-graded and potentially contaminated material outside of the lined footprint excavated and placed on the HLF.
06/19/2021	10 L	Coolant	Equipment failure (blown coolant line) resulted in product release – Hose repaired & area remediated.
06/22/2021	30 m^3	HLF Solution	Partial clog in CIC train safety screens resulted in an overflow of solution above containment capacity in the ADR sump. Solution migrated out of the bay door and down the road adjacent to the HLF spillway and also toward the HLF pad – Area remediated with potentially contaminated material placed on the HLF pad and the process which led to the screens blinding was corrected.
07/30/2021	17 m^3	HLF Solution	Flange failure resulted in solution spray out of containment. Grading in areas directed majority of released fluid back into containment but potentially contaminated materials excavated and placed on the HLF. Guards installed on distribution line connection points to prevent reoccurrence.
10/26/2021	10 L	Waste Oil	Leak from used oil filter disposal tray in lube truck during transfers of waste oils. Site was contained and contaminated material recovered and placed in LTF.
11/03/2021	40 L	Coolant	Pin hole in hose resulting in coolant tank gradually draining out. Spill tray and pads deployed. Snow/ice material shoveled into one bag and moved to hazardous waste area. Small amount of contaminated soil shoveled into another bag and moved to hazardous waste area.
11/20/2021	100 L	Septic	Leak at the lift station. Replaced pump float and moved released material to the septic field with impacted area treated with dilute bleach solution.
12/12/2021	2,000 L	Ammonium Nitrate Solution	Failed flange seal on delivery vehicle. Spill pads and booms placed to stop further spread. Area flagged and isolated, and contaminated snow and soil taken to blast and detonated with the pattern.
12/31/2021	250 L	Hydraulic Oil	Main hydraulic line failed from tanks to pumps on drill. Spills pads and booms were used to contain the release. Residual material was disposed of in the production blast

3.13 Traffic and Access, Upcoming Maintenance

3.13.1 Level of Traffic

From Mayo, access to the Project site is along approximately 85 km of existing paved and gravel roads. Roads from Mayo to the site include the Silver Trail (Highway 11) and the South McQuesten and Haggart Creek Roads.

All but the Haggart Creek Road are government-maintained roads. VGC Health, Safety and Security personnel maintain a log of all vehicle traffic that arrives at the main entrance to the Project. During the period between January and December 2021 there were approximately 3719 light vehicles round trips and 2035 heavy vehicle round trips.

3.13.2 Access Control Issues

Access to the Project is controlled by a continuously staffed gatehouse located near the terminus of the Haggart Creek Road. The gatehouse was installed during the construction phase of the Project to ensure the safety of other potential road users (from heavy equipment use, blasting operations, noise, hazardous materials storage and use, etc.) as VGC committed to during the assessment of the Project under the Yukon Environmental and Socio-economic Assessment Act. To address concerns raised by the EMR Inspector, VGC applied for, and received, a Work Within Right-of-Way permit from the Department of Highways and Public Works to allow the continued use of the gatehouse.

Beyond the concern raised by the EMR Inspector, which has now been addressed, no access control issues were documented during the period of this report.

3.13.3 Incidents

To respond to incidents on site and along the access roads, the Project maintains a current Emergency Response Plan supported by a complement of emergency response personnel trained and certified in advanced first aid, firefighting and mine rescue along with equipment required for all response types. In addition, reporting and investigation of incidents is standard practice at the site.

In 2021, the Project experienced two incidents along the access road. One of the incidents involved damage to access road infrastructure and minor injuries to the work crew who were driving the light vehicle:

- February 14, 2021 - As discussed in Section 3.9.4, one wildlife incident was recorded on the access road. VGC personnel reported an injured raven to the Environmental Department. Upon visiting the scene, Environmental Staff found a deceased raven.
- November 10, 2021 – While travelling to the Project site, a VGC light vehicle skidded off the road at Km 23.4 of the South McQuesten Road and went down the embankment. The light vehicle struck dunnage that provided support for the South McQuesten Bridge. The Department of Highways and Public Works were notified of the incident and VGC made the necessary repairs to the bridge. The repairs to the bridge were completed by November 11, 2021.

3.13.4 Planned Access Road Work

To ensure the continued safety of visitors, employees and contractors to the site through 2022, VVGC continues to perform routine snow clearing along the South McQuesten and Haggart Creek Roads from the Silver Trail (Yukon Highway 11) to the Eagle Gold camp and routine maintenance along the Haggart Creek Road (e.g., maintaining culverts and ditches, repairing pot holes, etc.). Ongoing maintenance and roadway improvements will be in accordance with VGC's current Work within a Right of Way Permit, Permit # U0206, issued by the Department of Highways and Public Works.

3.14 Water Management & Sediment and Erosion Control

3.14.1 Major Water Management Infrastructure

As with previous years, VGC's water management strategy continues to focus on keeping clean water clean and managing mine influenced waters (i.e., either water considered sediment-laden due to contact with roads and foundation pads or water considered to be contact water due to interaction with the pit, waste rock or the HLF) appropriately. Mine influenced water continues to be collected and conveyed by infrastructure comprised of ponds, sediment basins, and interceptor ditches and clean water conveyed by diversions. The operation, maintenance and surveillance of the water management infrastructure is detailed in the Water Management Plan Version 2020-01.

3.14.1.1 Lower Dublin South Pond

The LDSP is managed as a retention pond that collects water from the southern portion of the Project which currently includes runoff and mine water routed from the PG and EP WRSAs, the crusher area, the 90-day stockpile, and the open pit. The primary water management ditches, Ditch A and Ditch B, route the collected water to the LDSP where it is stored and either used for process makeup water needs or discharged if effluent quality standards align with the EQS from QZ14-041-1 and the MDMER effluent standards for deleterious substances. As discussed within this report, final liner installation within the LDSP was completed in early 2021 with final ballasting and installation of intake structures and, based on operability observations, the liner will be replaced in early 2022 to ensure that it continues to function as intended. There were no releases of contact water from the LDSP above the EQS or the MDMER standards in 2021.

3.14.1.2 Ditches and Pipes

Water conveyance infrastructure continues to be constructed in accordance with the of QZ14-041-1, the Water Management Plan and the Issued for Construction designs. Section 2.1 provides details on the additional construction activities completed on Ditch B, the LDSP and the culvert installations to support the operation of the RoM Road. Engineered structures are designed to allow access for maintenance activities as necessary and by March 31 of each year, ditches and culverts are cleared of ice, snow and debris that might affect their operational capacity and are maintained free of such obstructions until at least October 31 of each year.

Ditches A, B and C were fully operational during the reporting period with final sections of armoring and liner being completed on Ditch B in the second quarter.

3.14.2 Erosion and Sediment Control Infrastructure

Monitoring of the effectiveness of erosion and sediment control was ongoing throughout the reporting period to support the overall water management objectives for the Project and to ensure compliance with regulatory approvals. Revegetation and reseeding work were undertaken in areas adjacent to the LDSP, Overburden Stockpiles, the RoM Road stream crossings, sections of Ditch A and B, and at various locations along Dublin Gulch (see Section 6.2).

Construction and operations activities continued to be supported by the implementation of sediment and erosion control measures, in accordance with the Water Management Plan, which included:

- Installation of berms at the top of fill slopes to protect newly formed slopes from erosion.

- Application of bioengineering techniques for slope stabilization and channel protection as necessary in the sediment basins, ditches, and on any unstable and/or disturbed slopes and surfaces.
- Application of additional BMPs for slope stabilization and channel protection as necessary in the sediment basins, ditches, and on any unstable and/or disturbed slopes and surfaces.
- Installation of silt fences around the downslope perimeter of material cutbanks and disturbances at stream crossings.
- Monitoring, maintenance, repair, or replacement the mitigating measures listed above to ensure BMP effectiveness and efficiency.

Figure 3.14-1 shows the currently installed erosion and sediment control infrastructure.

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Legend:

- Road Ditch
- Collection Ditch
- Collection Ditch & Pipe
- Diversion Ditch
- Road Berm
- Silt Fence
- Project Footprint
- Energy Dissipator
- Exfiltration Basin
- Inlet Basin
- Sediment Basin
- Streams

VICTORIA GOLD CORP

0 262.5 525
Meters

Projection:	Drawn By:
NAD 83 UTM Zone 8N	JJ
Date:	Figure:
2020/05/10	3.14-1

EAGLE GOLD PROJECT
YUKON TERRITORY

Installed Erosion and Sediment Control Measures

3.15 Independent Environmental Audit

Clause 12.0 of QML-0011 requires the undertaking of an environmental audit every two years by an independent contractor acceptable to the Director of the Mineral Resources Branch of EMR.

The audit was completed in 2020 by Stantec Inc. and thus was not required in 2021. Stantec's audit indicated that implementation of VGC's environmental management system was adequate and that continual improvement had been demonstrated throughout the audit period (Stantec, 2020). Reports reviewed did not indicate any immediate concerns for water quality and quantity, aquatic habitat, air quality, soils, vegetation, wildlife and wildlife habitat, stability of physical structures and waste management.

VGC continues to utilize the findings from the 2020 environmental audit to improve reporting and monitoring activities. VGC will complete the next environmental audit in 2022 as required by QML-0011.

4 PHYSICAL MONITORING

4.1 Eagle Pit

Mining in the Eagle Pit has been ongoing since initial development in 2019. During 2021 pit development, visual and prism monitoring of the pit walls was actively conducted during regular pit inspections. Phase 1 and 2 of the pit consists of single benched walls with 10 m bench heights and 6 m wide berms, and Phase 3 walls (and one wall of Phase 2) consists of double benched walls with 20 m bench heights and 10 m wide berms. The lithologies exposed in Phase 1 display equal portions of metasediment and granodiorite rock. Phase 2 is predominantly metasediment rock however it is beginning to transition into granodiorite rock. Phase 3 is completely metasediment rock. Most of the rock within Phase 1 and 2 is oxidized, weathered, and blocky, and most of the rock in Phase 3 is good quality.

Geotechnical instrument monitoring is comprised of prism monitoring on final walls and temporary walls where additional monitoring is deemed necessary, the use of extensometers on known areas of cracking or subsidence, and piezometer readings. Prism readings are completed every day and extensometers are read on a set frequency depending on the hazard they are monitoring. Piezometer readings are set on a datalogger to read twice a day, and the data is collected every week. A full inspection of the pit walls and dumps are completed on a weekly basis using both visual observations and UAV drone photography (Photo 4.1-1) to support geotechnical stability monitoring.



Photo 4.1-1: Example of UAC Photography Used to Support Geotechnical Inspections

Bi-weekly surveys of the open pit and dump are completed using UAV drone photogrammetry to produce georeferenced surfaces. These surfaces are utilized to track dump progression and aid in pit wall analysis.

In addition to completing bi-weekly drone surveys, scans of the pit walls are completed using a handheld XR3 scanner to complete as-built surfaces of the walls post mining and scaling. An example of the scanner being used and the output of the scanned surface rendered in PointStudio software can be seen in Figure 4.1-1.

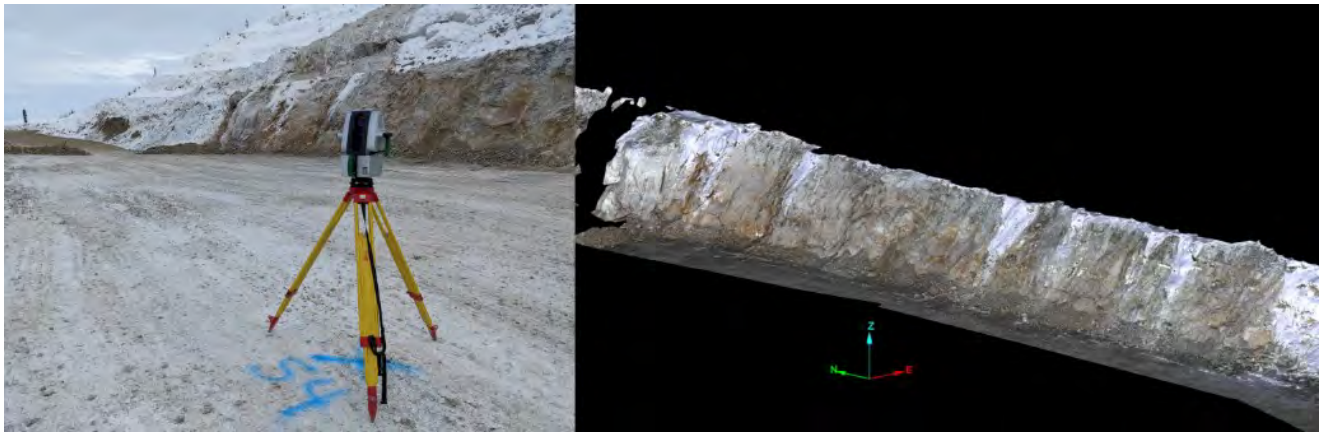


Figure 4.1-1: Scanner in the Field and Surface Rendered in PointStuido

4.1.1 Stability Incidents

A few stability incidents occurred within 2021 in the Eagle Pit and have either been mitigated or are currently being managed.

In February 2021, a few bench scale wedge failures occurred on the Phase 2 South wall. This led to the discovery of a scarp opening at the top of the 70 m wall stack (Photo 4.1-2). Production was halted along the South Wall and prisms were installed where safe to do so to monitor the mass. Once reading levels stabilized, a re-entry plan under guidance of the open pit EOR was put in place to continue mining below the instability. Prisms were continuously installed as mining progressed. The instability is being attributed to a number of large-scale NW trending faults, faulting along foliation in the metasediments, and a zone of highly clay-altered metasediment in the wall (Photo 4.1-3). To determine a long-term plan more information was needed on the structures influencing the wall so two rounds of geotechnical drilling commenced below and around the instability to gain better knowledge on what rock quality was to be expected continuing forward and how continuous behind the wall the adverse features were. It was decided that the most appropriate response to control instability was to mine it out with a Phase 2 wall pushback, designed using the information collected in the geotechnical drilling program. Part of the pushback was completed in 2021 and the final pushback will be completed in 2022 (Photo 4.1-4). Prism data can be seen in Figure 4.1-2.

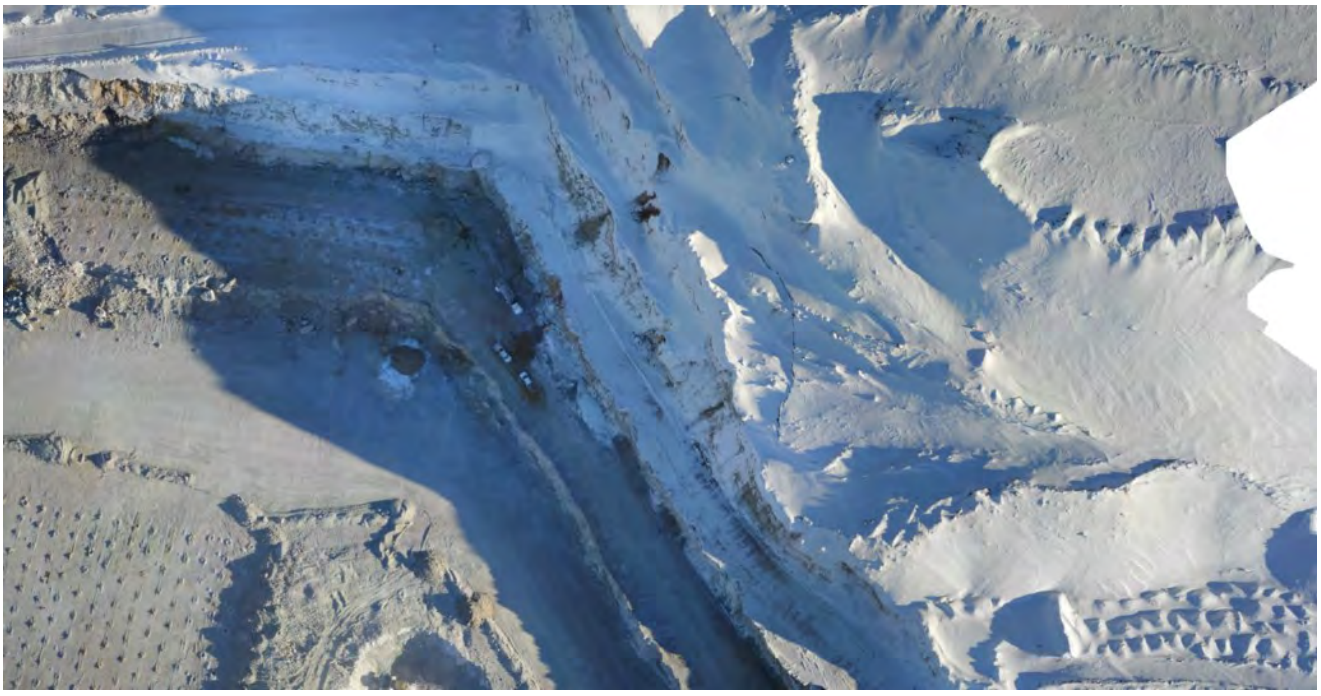


Photo 4.1-2: Initial Scarp above the Phase 2 South Wall



Photo 4.1-3: Faulting and Clay-Altered Metasediment Unit on the Phase 2 South Wall



Photo 4.1-4: 2021 Portion of Pushback of the Phase 2 South Wall

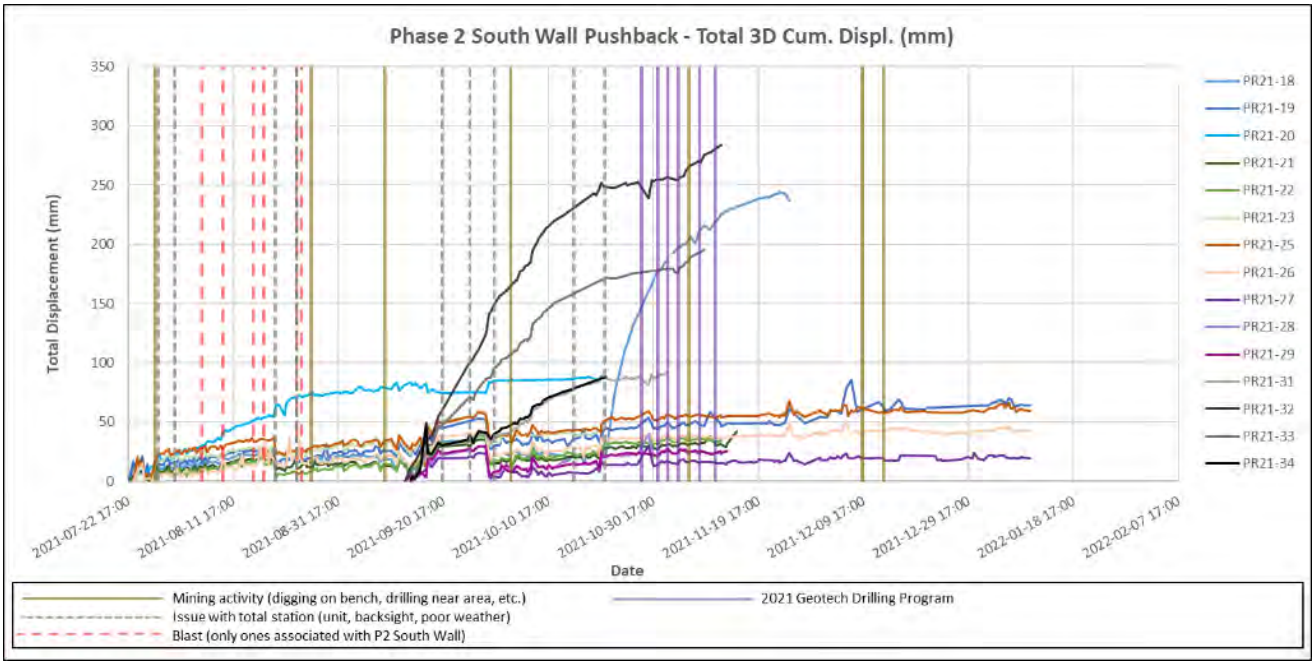


Figure 4.1-2: Prism Readings Assoicated with the Phase 2 South Wall

Between March to April 2021, a series of multi bench failures occurred on the Phase 2 East Wall. The failures were addressed and sloped back before proceeding mining, and the catch benches below were stepped out to

increase the effective catch bench below these areas (Photo 4.1-5). The failures can be attributed to the same large-scale NW trending faults that affected the Phase 2 South Wall.

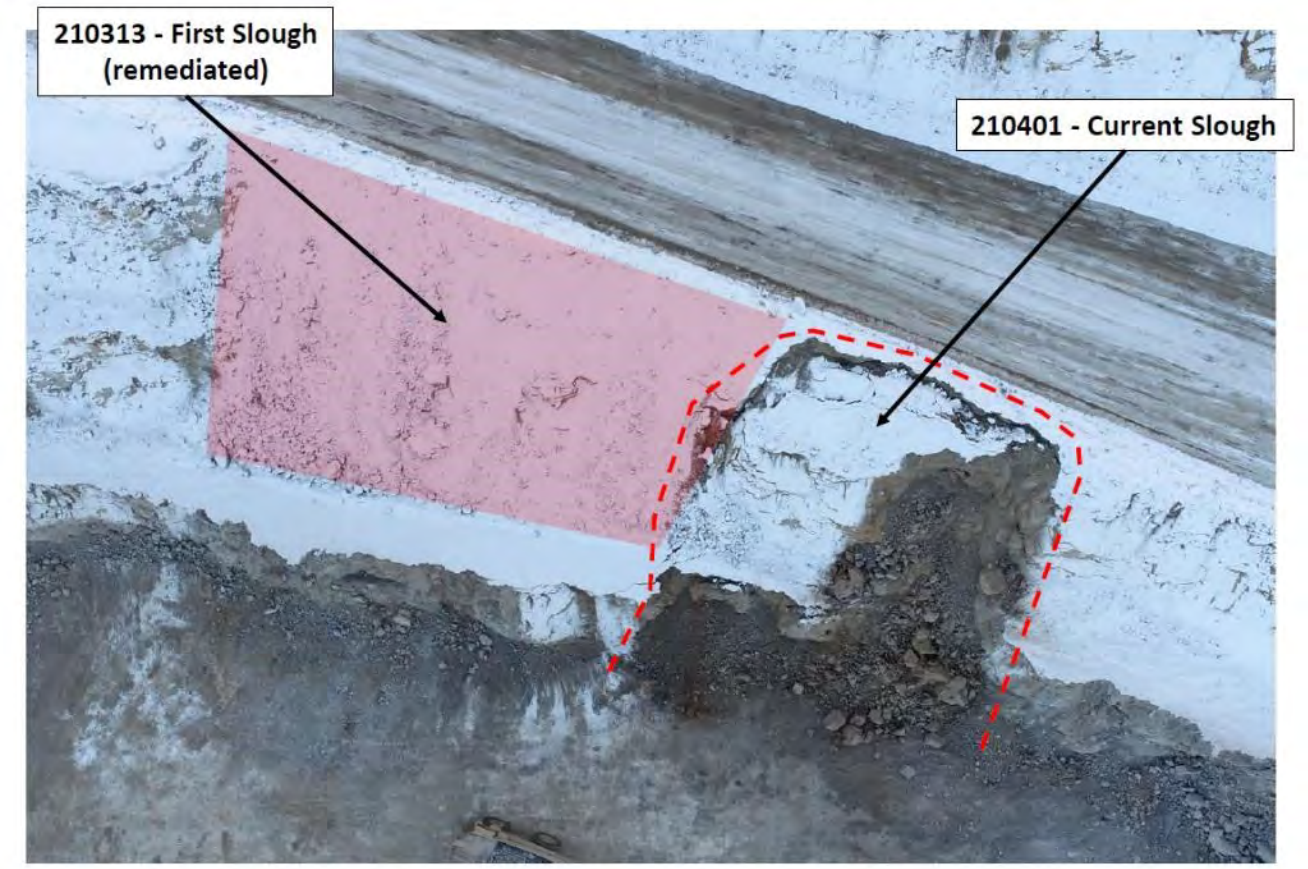


Photo 4.1-5: Series of Multi-Bench Sloughs on the Phase 2 East Wall

In July 2021 a road cut scarp opened above the Switchback 2 ramp system. A safety berm was constructed below the hazard area and the haul road was reduced to single lane (Photo 4.1-6). Two extensometers were set up above and beside the scarp to measure movement from above and along the side scarp respectively. Readings indicated that it had reached a state of stability before access to the instruments became difficult over winter. Plans to remediate the area next year are in place.



Photo 4.1-6: Road Cut Scarp Above Haul System Switchback

In August 2021 a wedge formed on the Phase 2 South Wall Pushback that was proactively identified before failure due to movement on a local prism. The wedge was remediated before impact to mining could occur. The wedge developed between two of the three major joint sets identified at Eagle Gold: J1 (foliation set) and J2 (ENE trending fault/vein structures). The wedge and correlated prism movement can be seen in Figure 4.1-3.

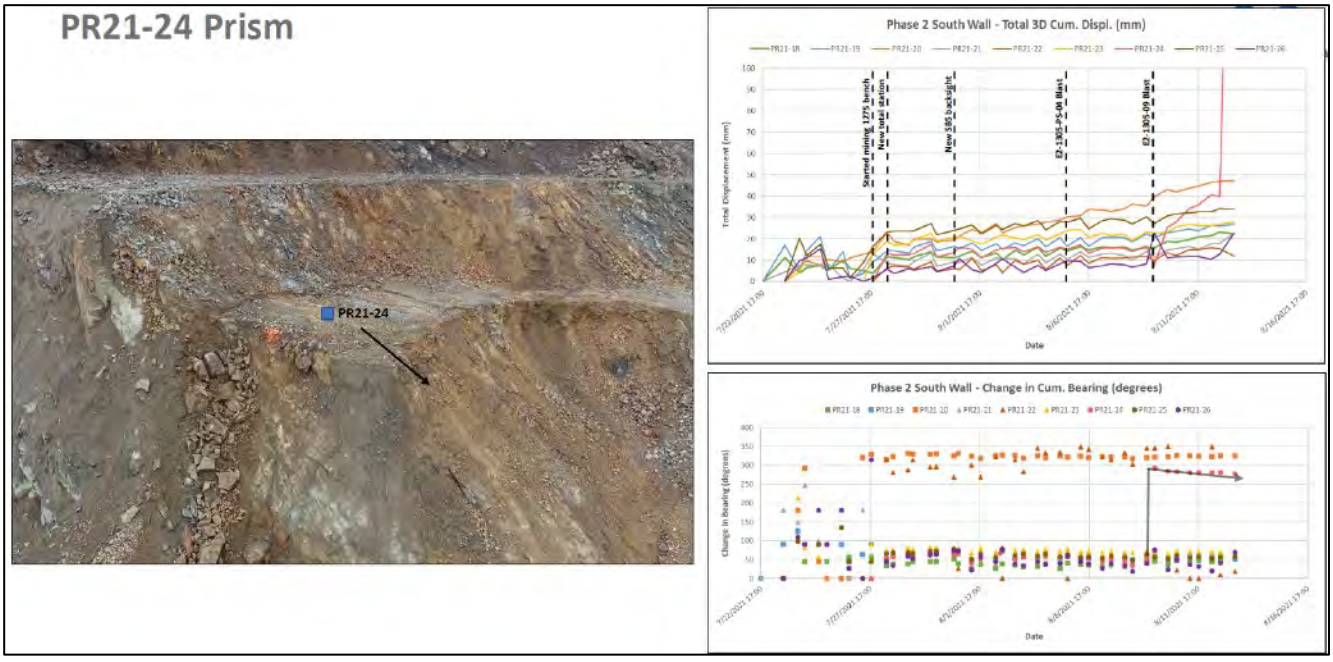


Figure 4.1-3: Identified Wedge and Corresponding Prism Movement Indicators

4.1.2 Eagle Pit Monitoring

4.1.2.1 Prisms

The following graphs show data associated with all installed prisms in the Eagle Pit for 2021. All prisms installed in 2021 were placed to monitor either the initial Phase 2 South Wall Instability or the pushback sequence.

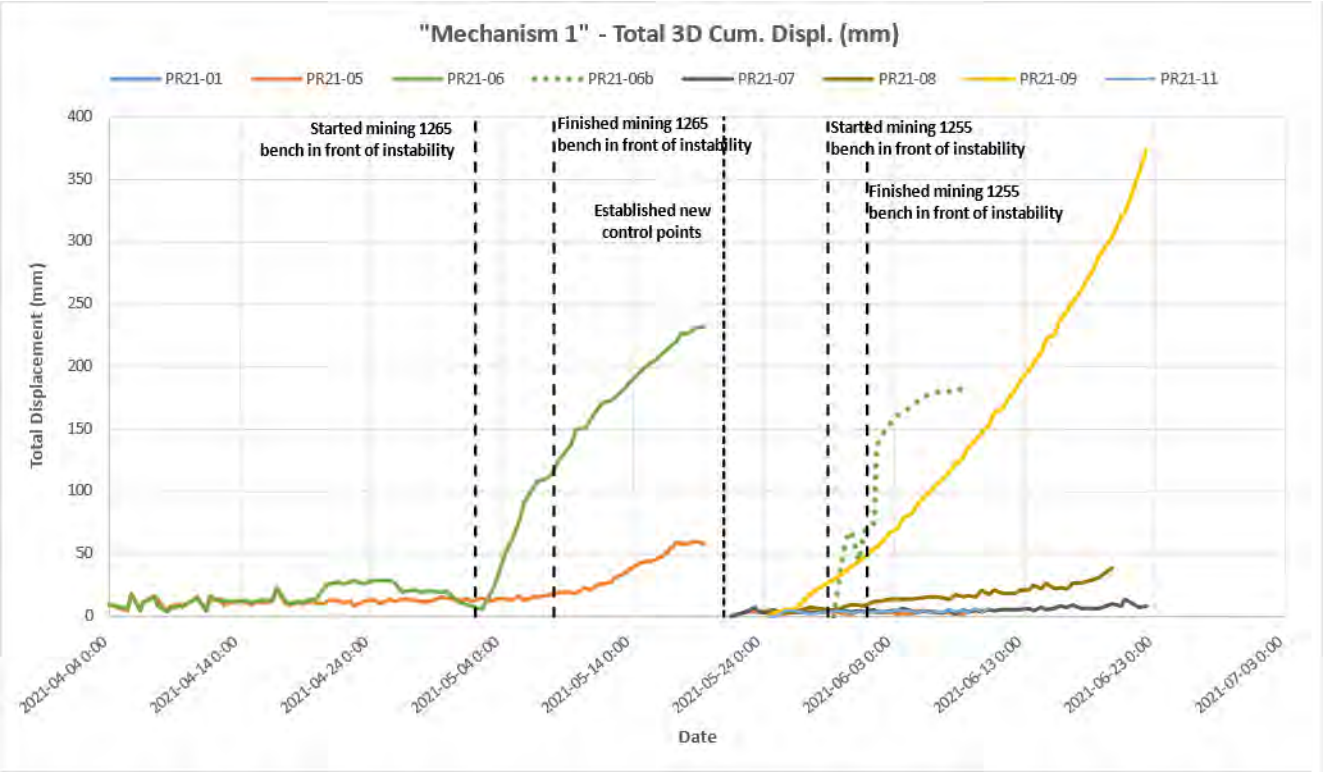


Figure 4.1-4: Cumulative Displacement Graph for Prisms Installed on the Phase 2 South Wall Instability - Mechanism 1 Indicates Prisms Located on the Top Half of the Instability

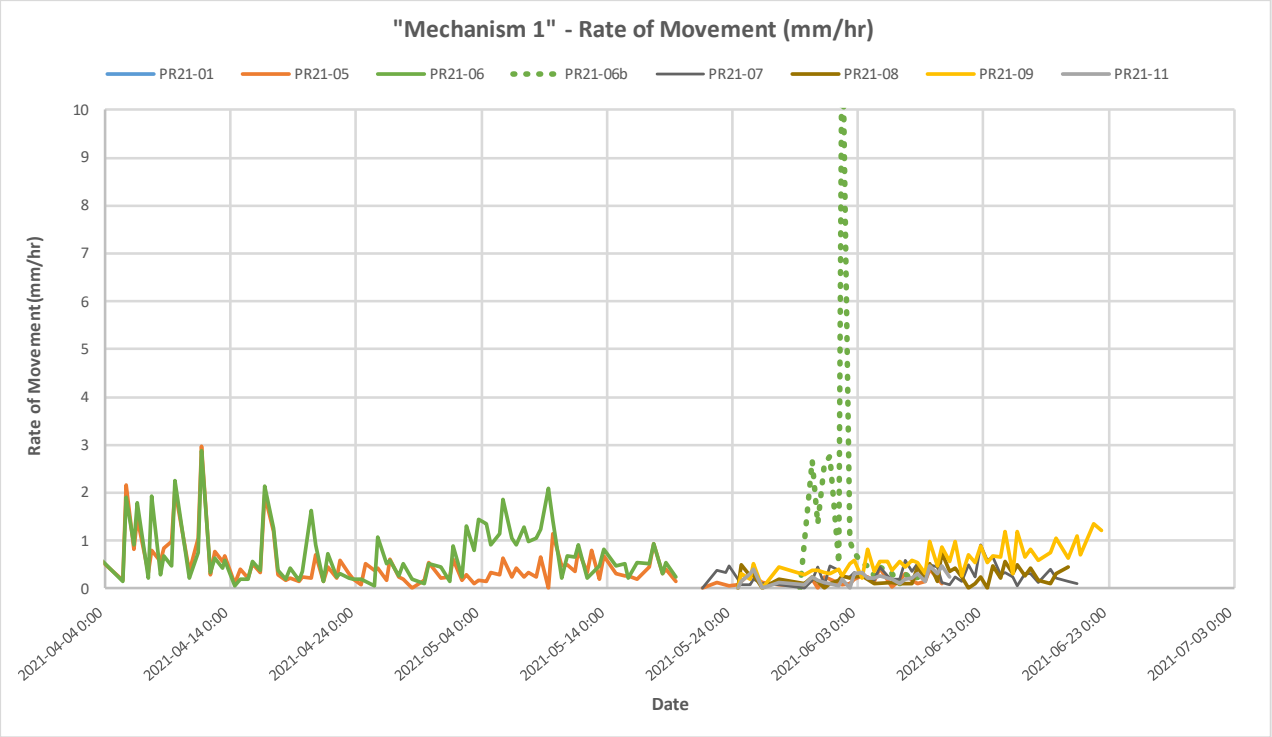


Figure 4.1-5: Rate of Displacement Graph for Prisms Installed on the Phase 2 South Wall Instability - Mechanism 1 Indicates Prisms Located on the Top Half of the Instability

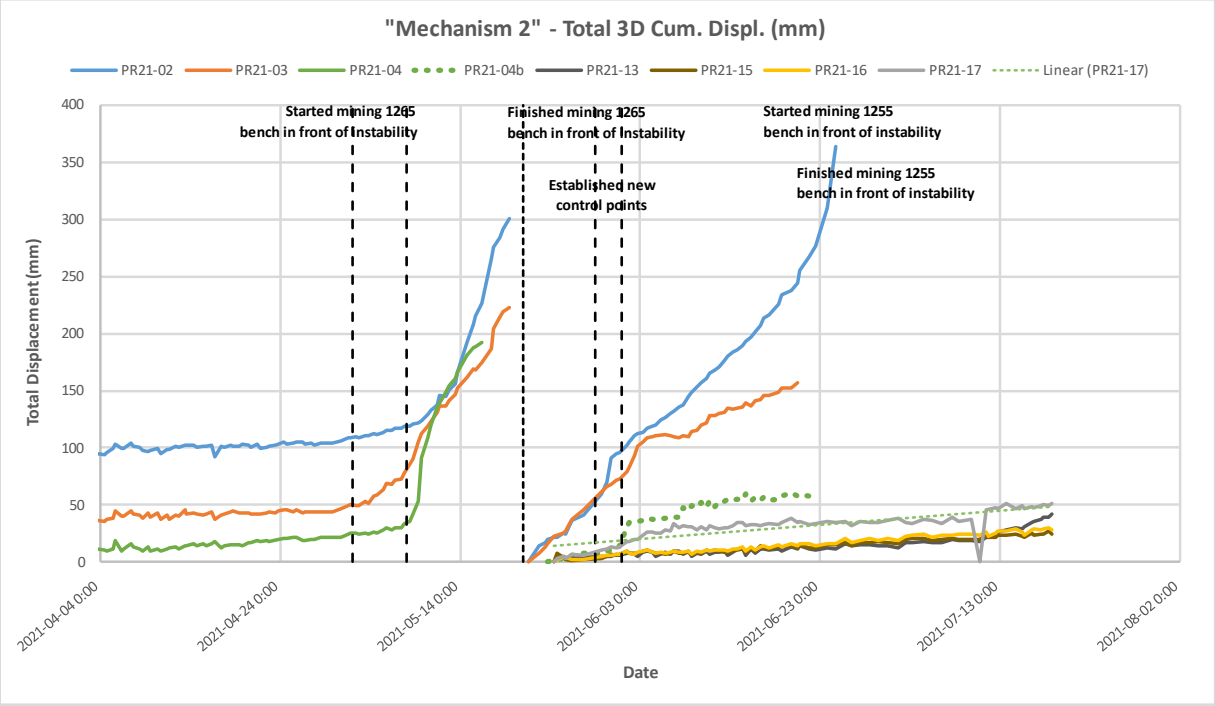


Figure 4.1-6: Cumulative Displacement Graph for Prisms Installed on the Phase 2 South Wall Instability - Mechanism 2 Indicates Prisms Located on the Bottom Half of the Instability

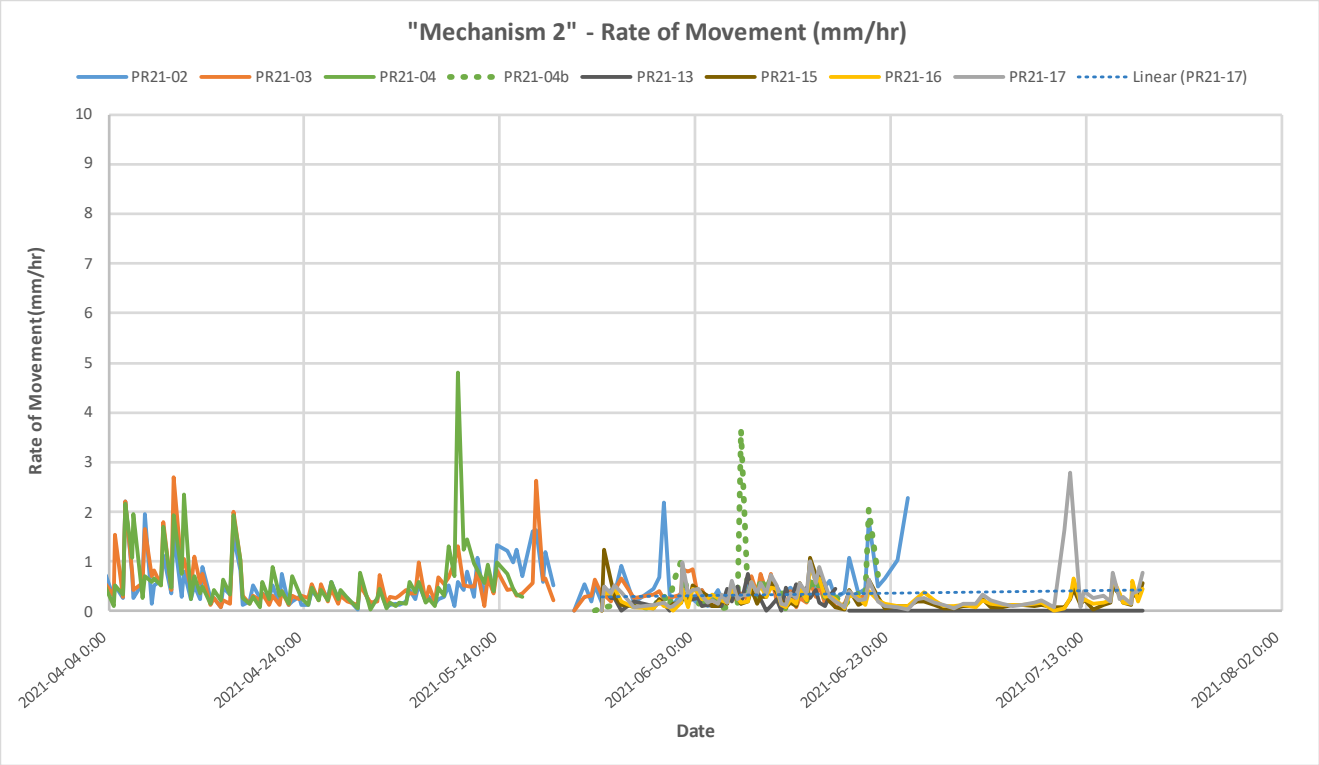


Figure 4.1-7: Rate of Displacement Graph for Prisms Installed on the Phase 2 South Wall Instability - Mechanism 2 Indicates Prisms Located on the Bottom Half of the Instability

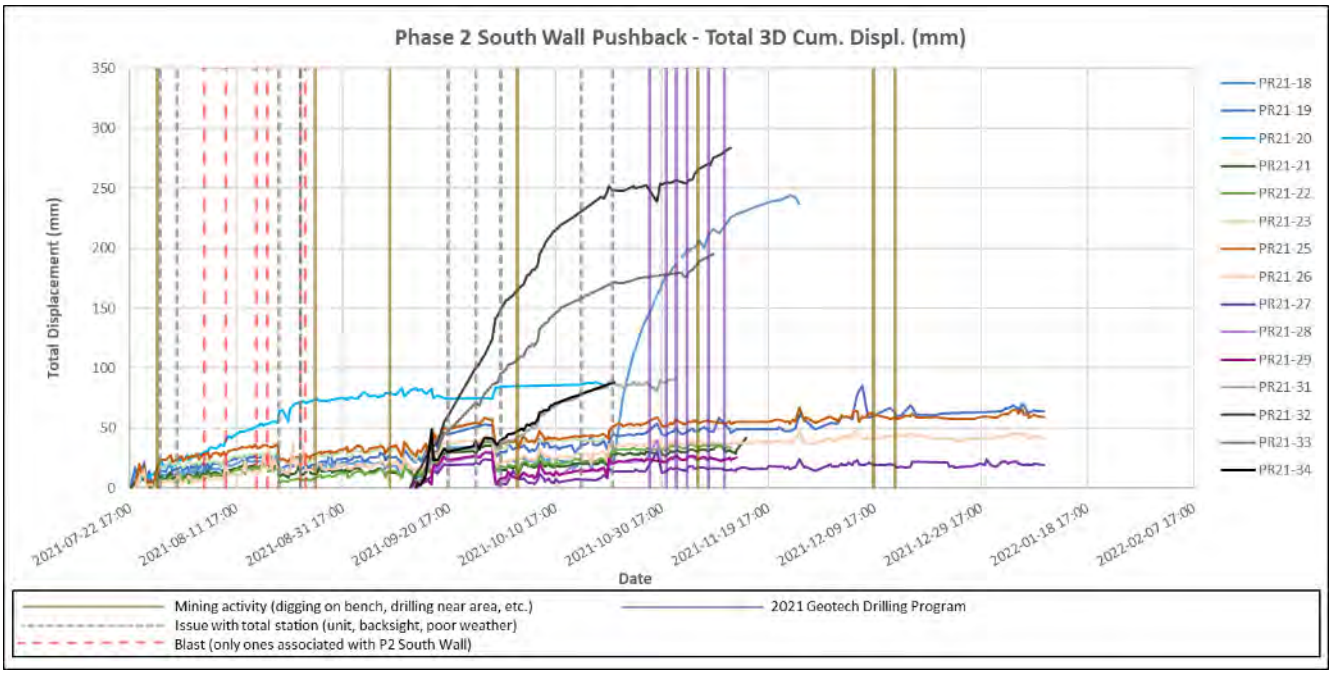


Figure 4.1-8: Cumulative Displacement Graph for Prisms Installed on the Phase 2 South Wall Pushback

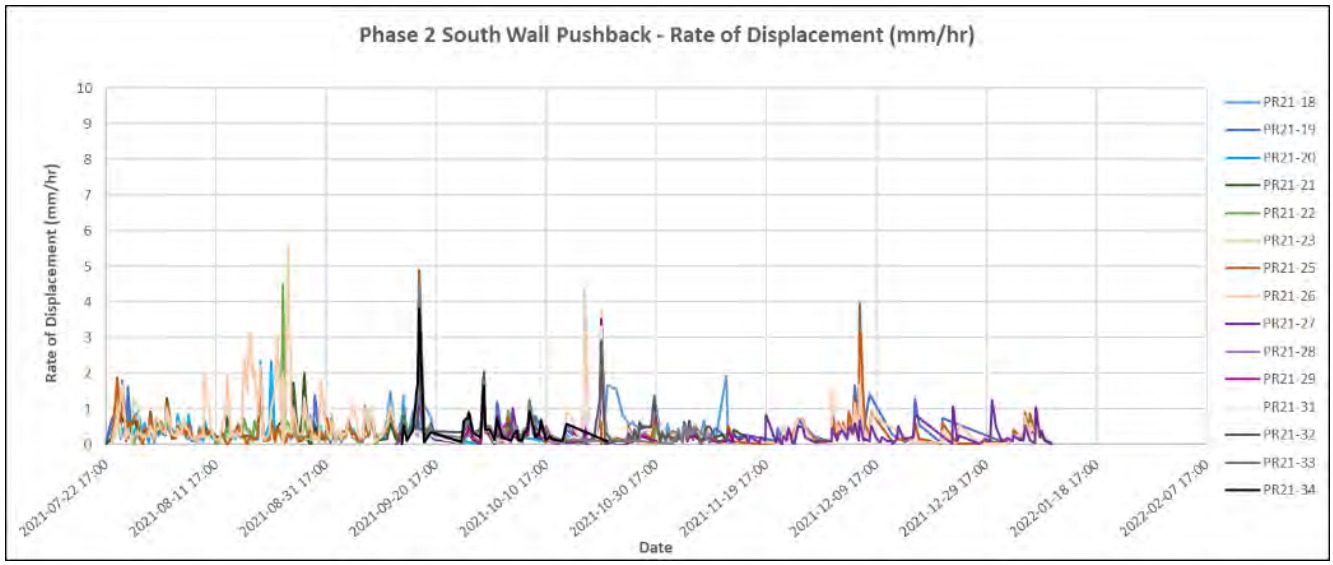


Figure 4.1-9: Rate of Displacement Graph for Prisms Installed on the Phase 2 South Wall Pushback

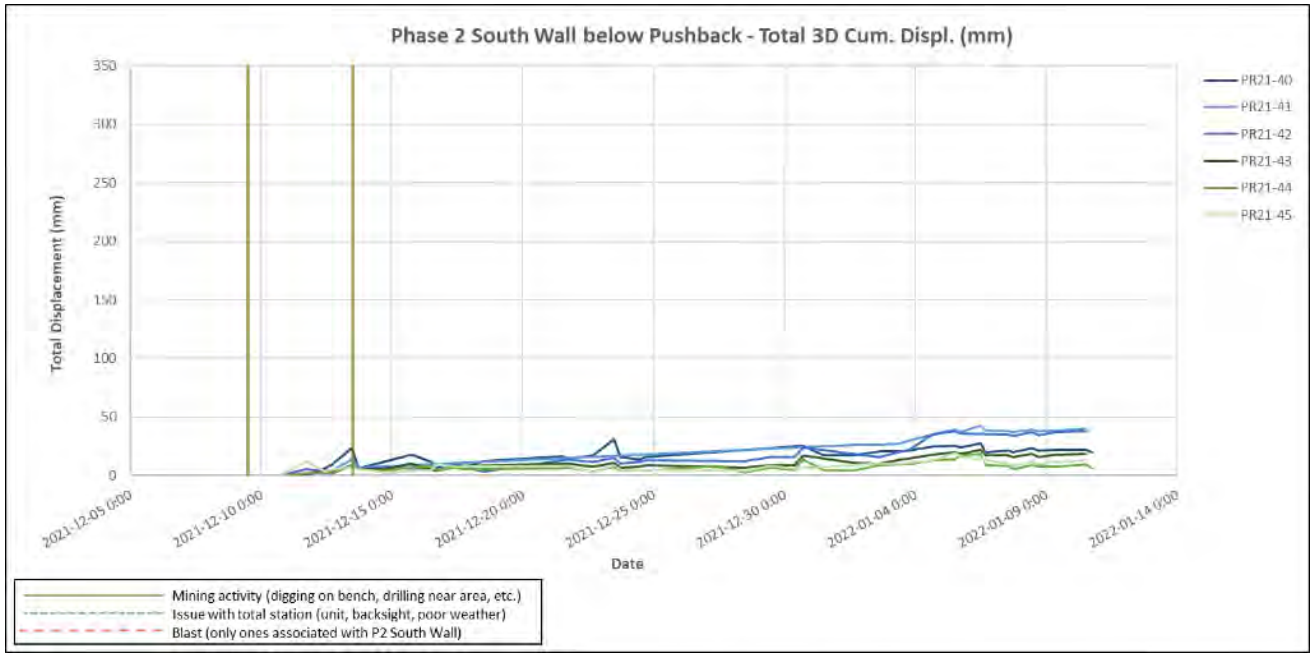


Figure 4.1-10: Cumulative Displacement Graph for Prisms Installed Below the Phase 2 South Wall Pushback

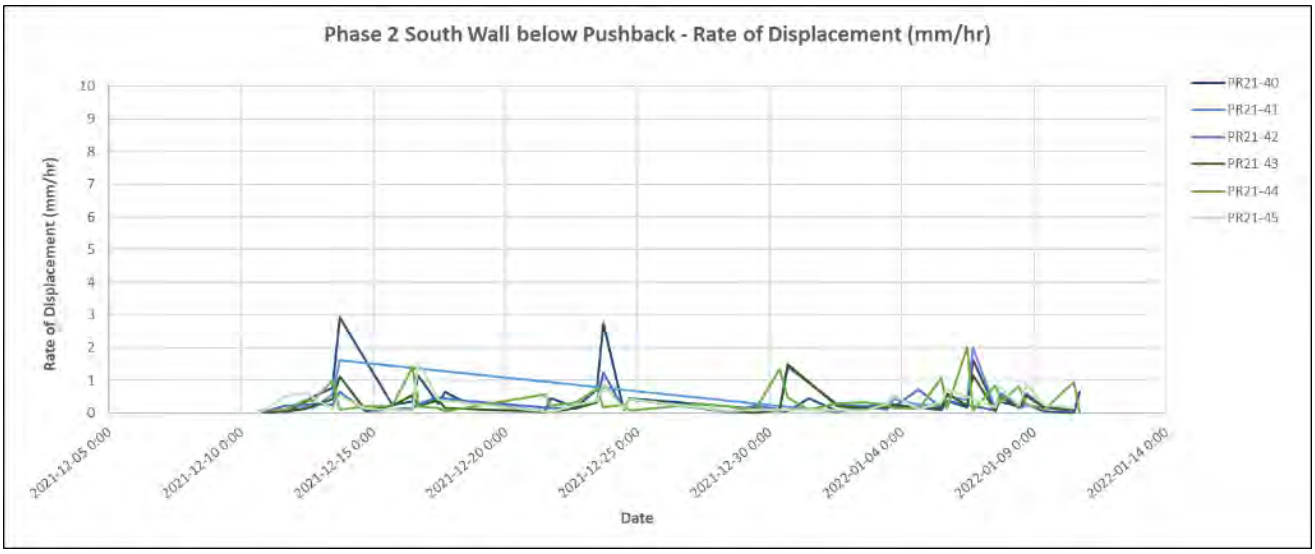


Figure 4.1-11: Rate of Displacement Graph for Prisms Installed Below the Phase 2 South Wall Pushback

4.1.2.2 Extensometers

The following graphs show data associated with all installed extensometers in the Eagle Pit for 2021 and any extensometers still collecting data from the year prior.

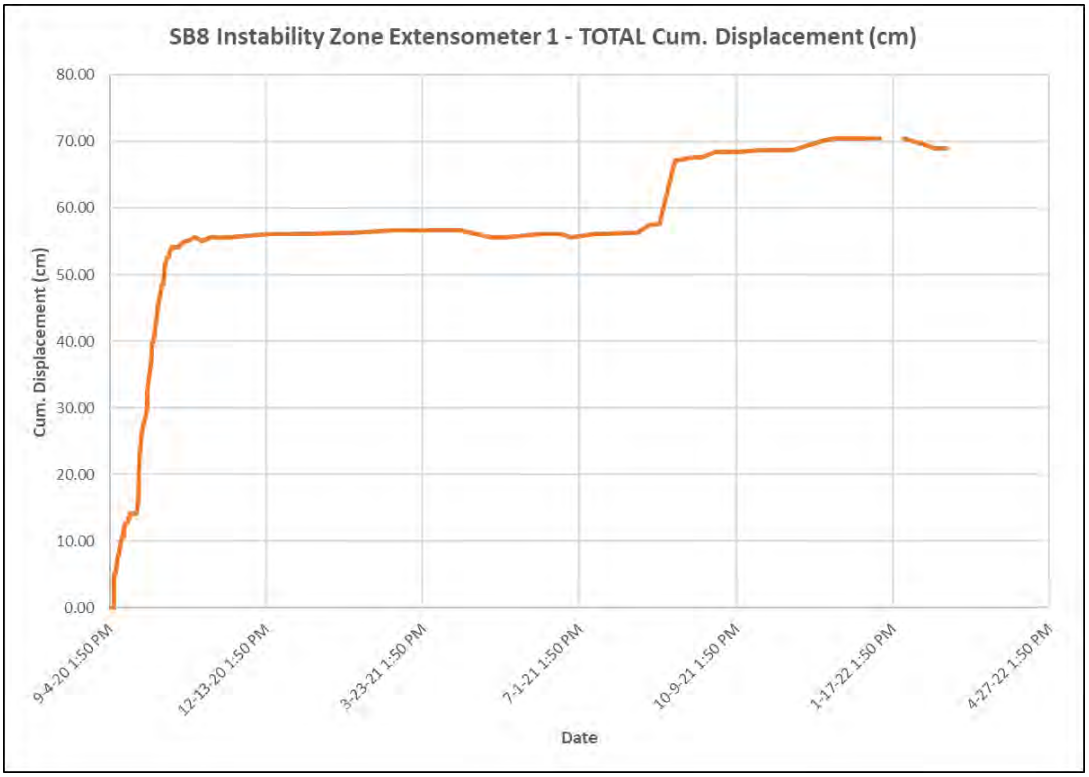


Figure 4.1-12: Total Cumulative Displacement from Extensometer 1 on SB8 Instability

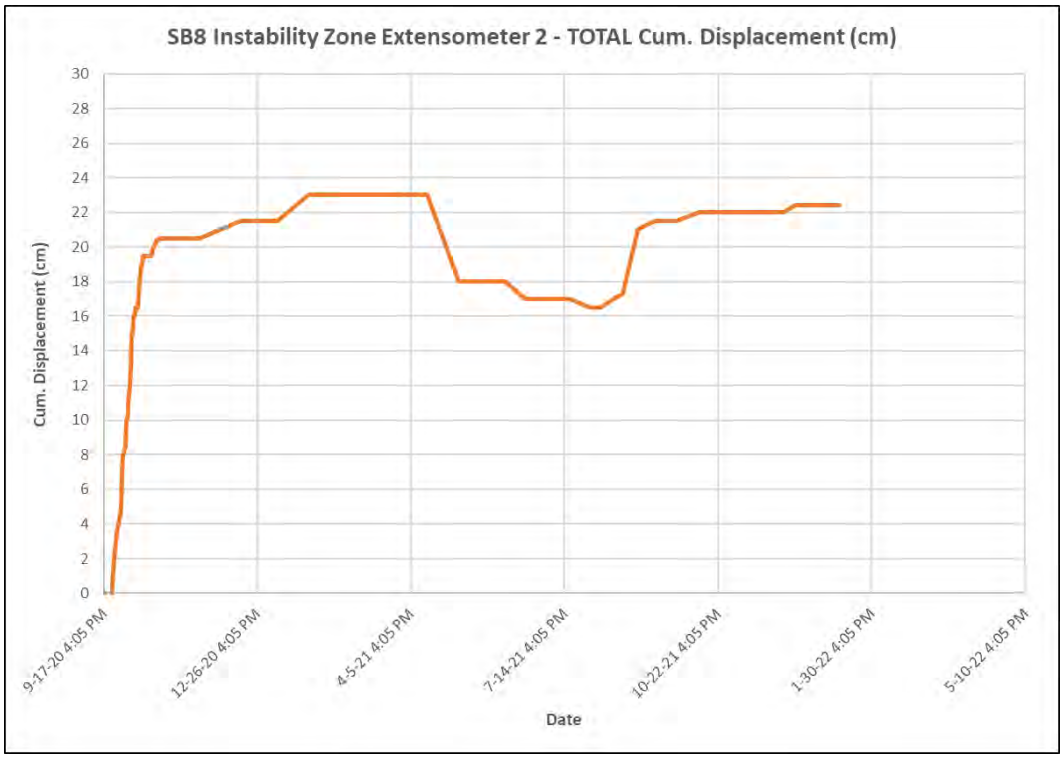


Figure 4.1-13: Total Cumulative Displacement from Extensometer 2 on SB8 Instability

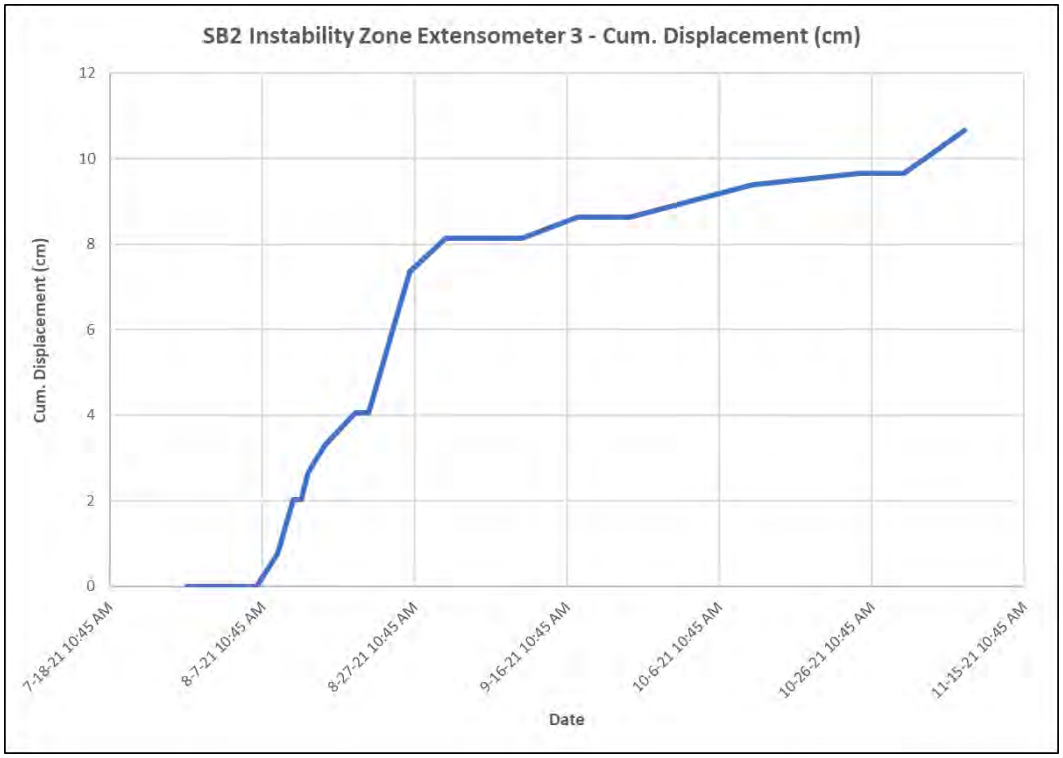


Figure 4.1-14: Total Cumulative Displacement from Extensometer 3 on SB8 Instability



Figure 4.1-15: Total Cumulative Displacement from Extensometer 4 on SB8 Instability

4.1.2.3 Piezometers

The following graphs show data associated with all installed piezometers in the Eagle Pit for 2021 and any piezometers still collecting data from the year prior.

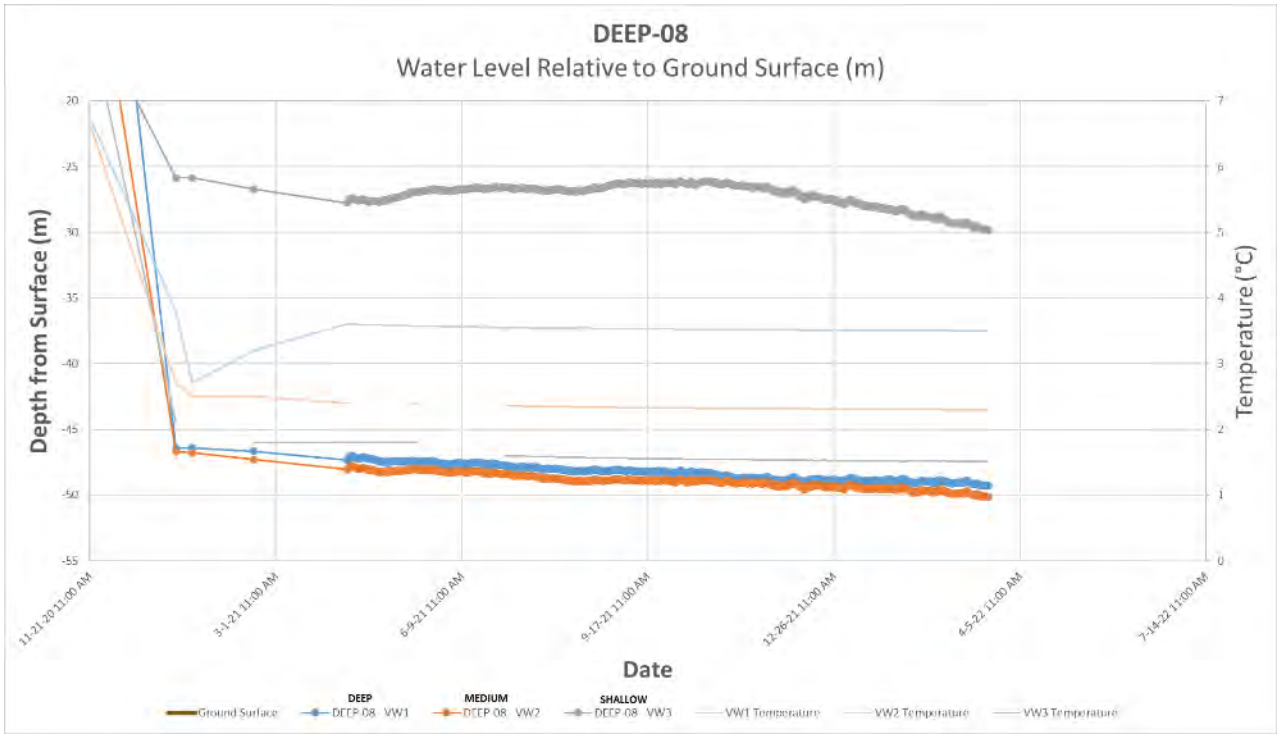


Figure 4.1-16: Hydraulic Head Measurements over Time for Piezometer DEEP-08 Located on 1050 Laydown

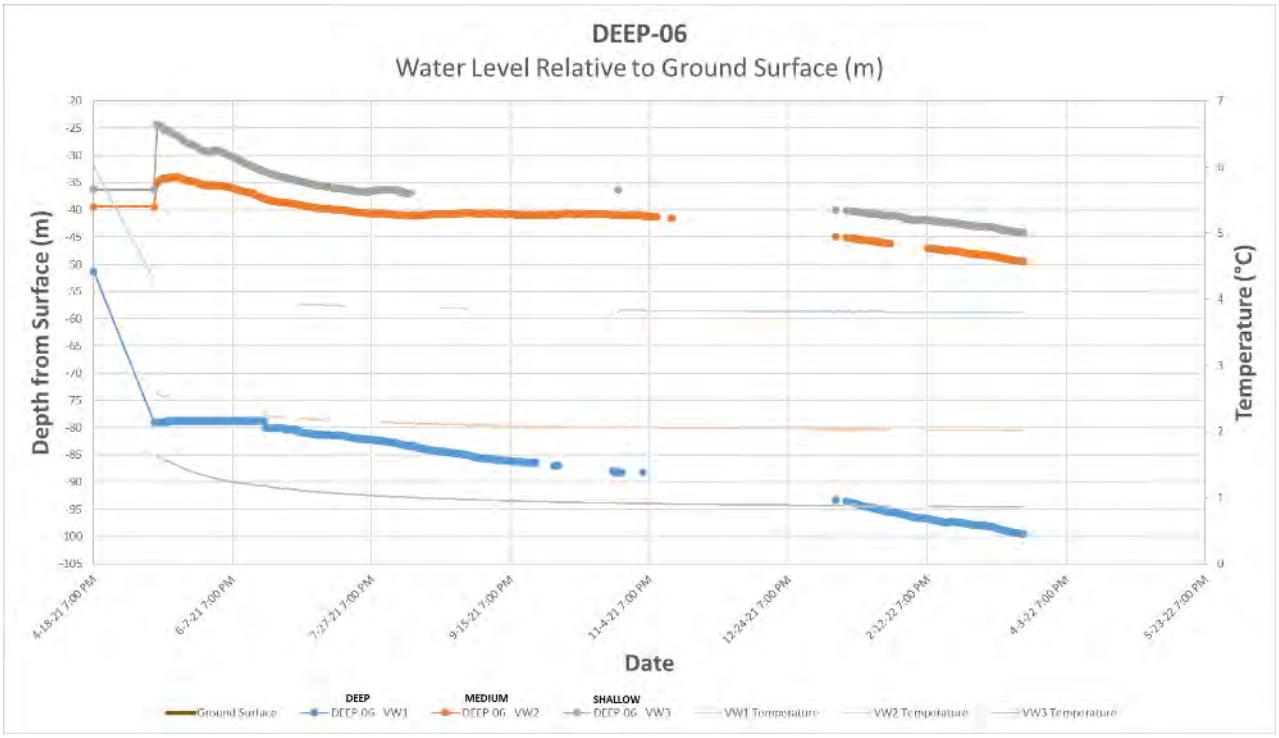


Figure 4.1-17: Hydraulic Head Measurements over Time for Piezometer DEEP-06 Located at Elevation 1285 in Eagle Pit

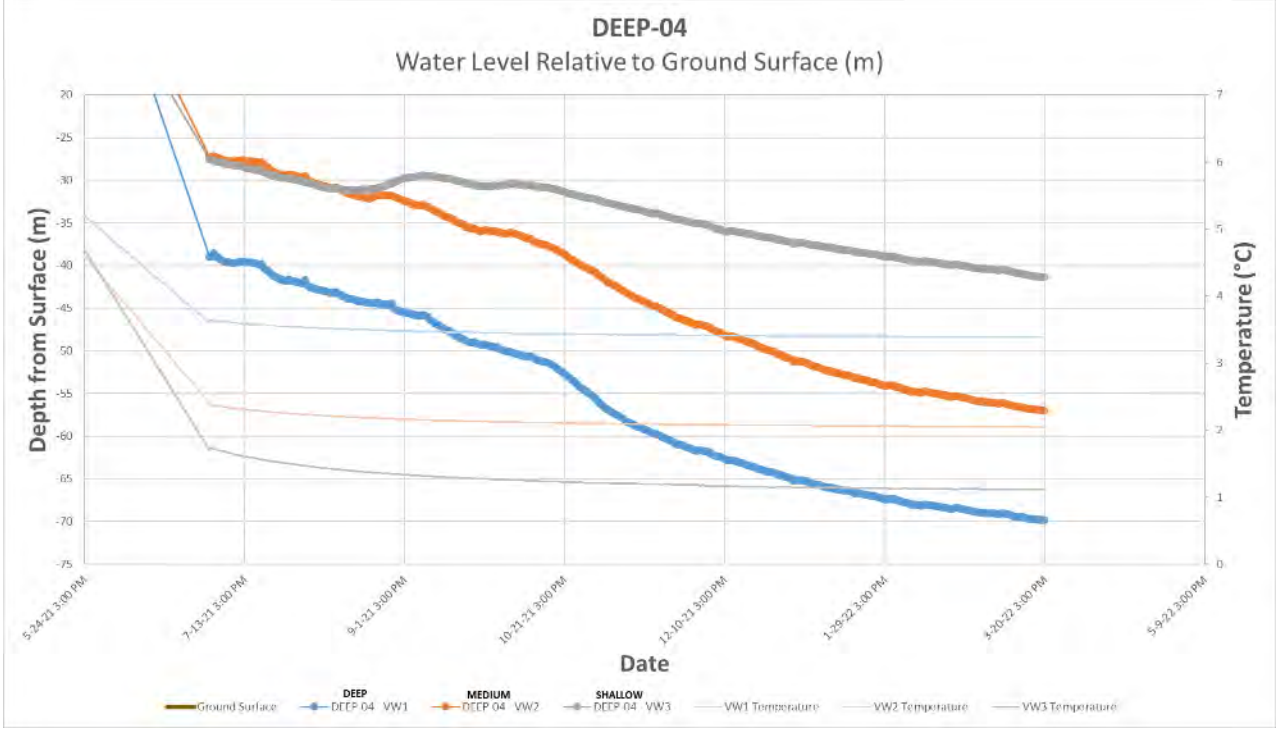


Figure 4.1-18: Hydraulic Head Measurements over Time for Piezometer DEEP-04 Located at Elevation 1170 outside of Eagle Pit

4.2 Waste Rock Storage Areas

4.2.1 2021 WRSA Development

Waste rock generated from 2021 production was dispatched to both the PG WRSA and the EP WRSA. The PG WRSA, located South of the Pit in the Platinum Gulch drainage, contains the majority of waste from the first two years of production. The dump was constructed using bottom-up construction with 40-60 m lift heights, to an overall height of 420 m.

In an effort to provide shorter haul options for waste mined from the lower benches of the South Wall Pushback, approval was provided by the Engineer of Record to increase design capacity of each lift to a maximum of 10 m above design surface. As of year-end, a total capacity of 1,025 kt remains in the lower two lifts, with 378 kt and 647 kt capacity available for the 1060 and 960 lifts, respectively. Waste material dispatched to the PG WRSA in 2021 is depicted in plan below as Figure 4.2-1, and as a section as Figure 4.2-2. The remaining capacity of the 960 and 1060 lifts is illustrated as Figure 4.2-3.

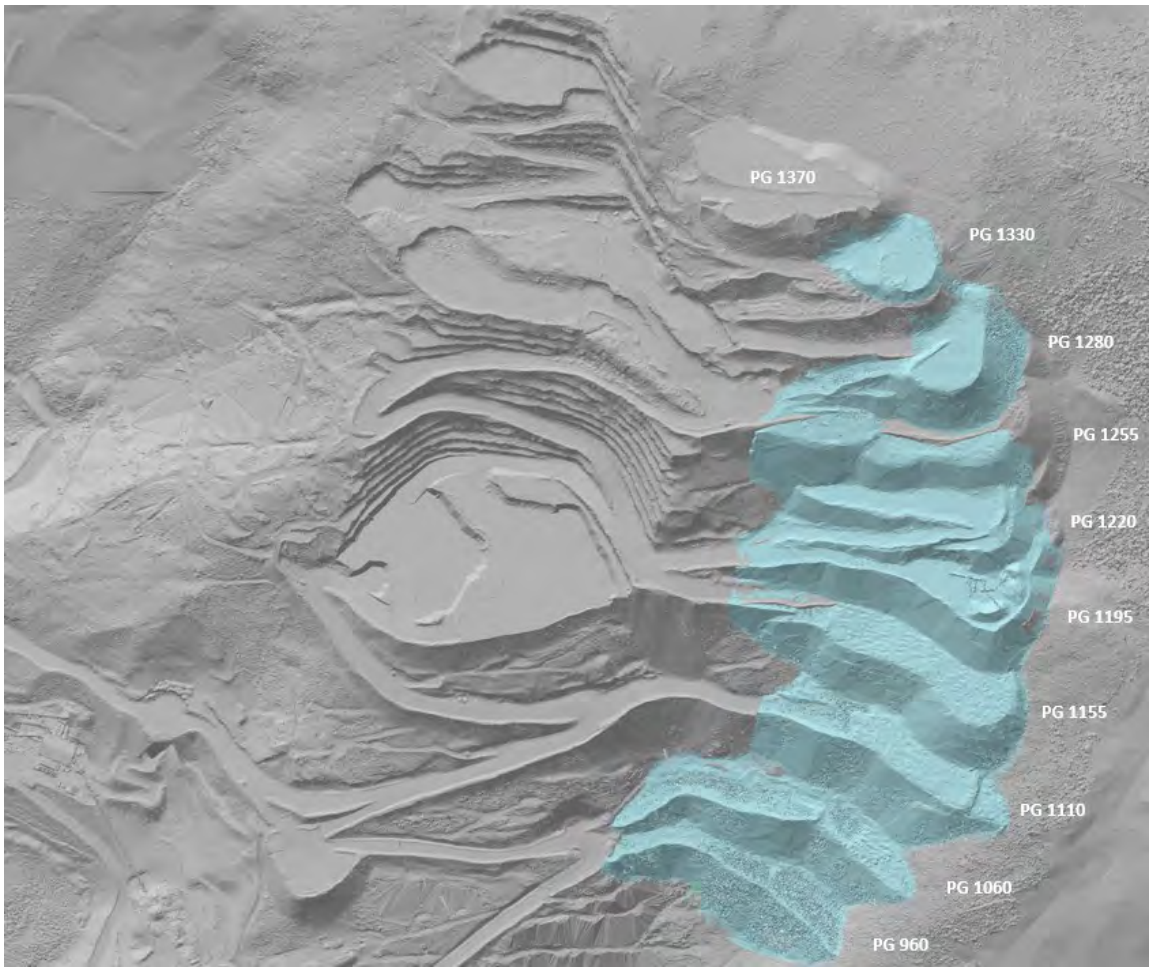


Figure 4.2-1: Waste Material Placed in the PG WRSA in 2021

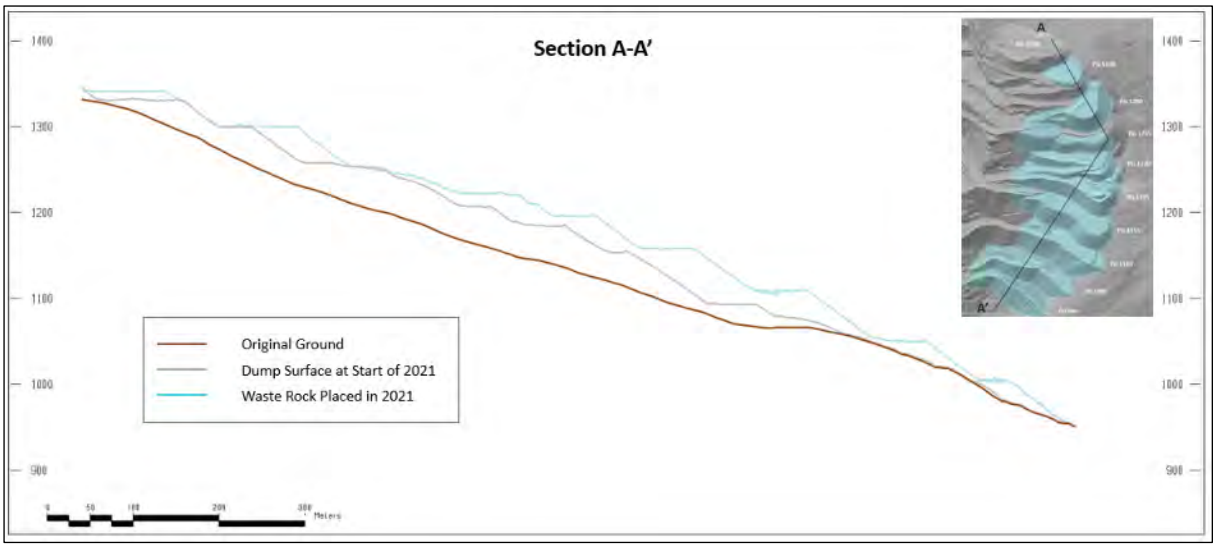


Figure 4.2-2: Cross Section of Material Placed in the PG WRSA in 2021

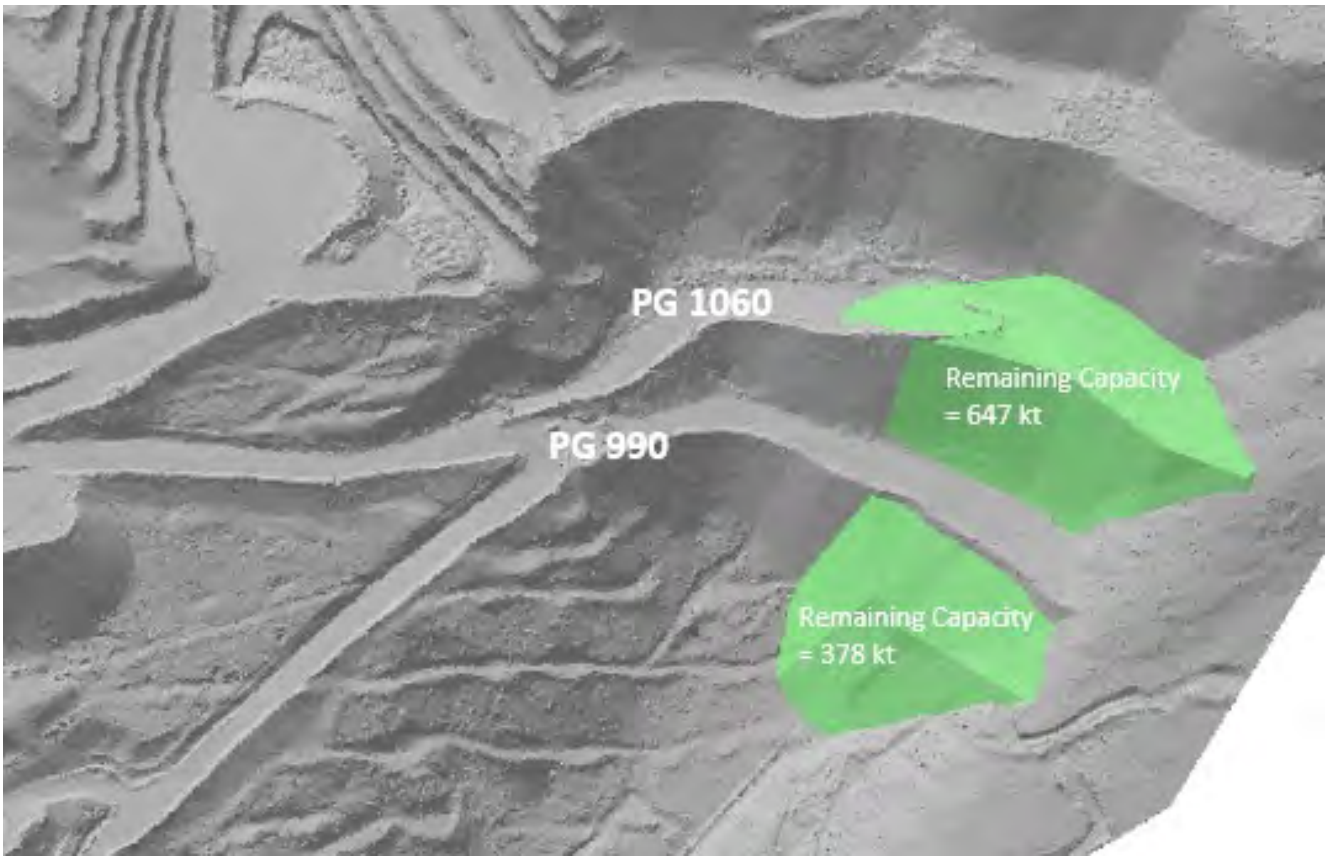


Figure 4.2-3: Remaining Capacity in the PG WRSA

The EP WRSA, located North and Northeast of the Pit in the Eagle Pup Drainage, will contain the majority of waste for the remaining LOM. The EP WRSA was initiated part way up the drainage, above 985 m elevation, and will be advanced up drainage using bottom-up construction. As of the time of issue, details with regard to final layout and sequencing of the EP WRSAs are being refined by VGC in conjunction with the EoR. Primary sequence and lift design considerations include ensuring lower lifts buttressed or toed into ice-poor or ice-barren material, construction of advancing dump face remains square to topography and the identified ice rich lobate, located at 1020 m elevation, to ensure each lift is adequately buttressed prior to advancing lifts above.

Dispatching of waste to the EP WRSA was initiated in 2021 on the 1020 lift, and continued to be advanced through the end of 2021, as dictated by rock drain construction. Additional deterministic stability analyses were carried out using the Issued for Construction WRSA design leading to a recommendation that the 985 lift be constructed downstream of the 1020 lift, to better buttress the upstream lifts. Construction of the 985 buttress was initiated on December 18, 2021, and is planned to be completed in April 2022.

Waste material dispatched to EP WRSA in 2021 is depicted in plan and section below.

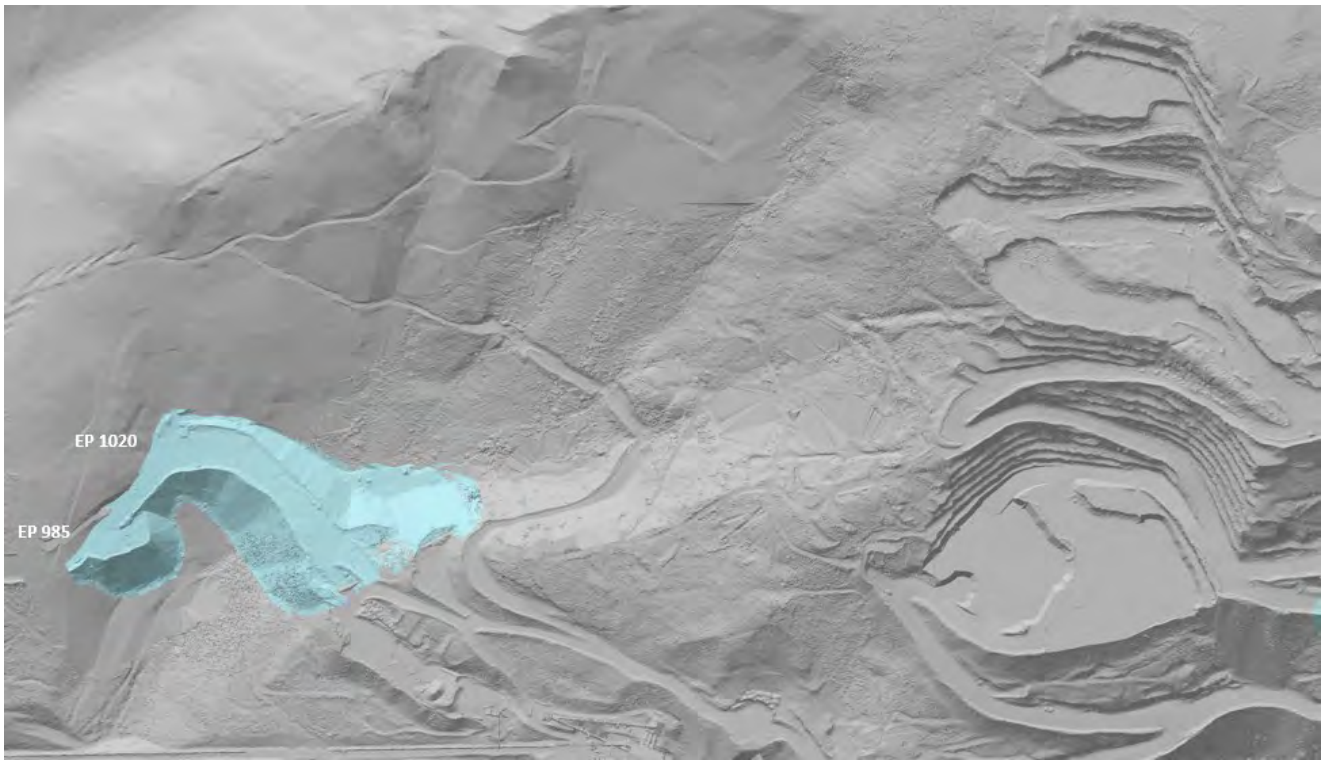


Figure 4.2-4: Waste Material Placed in the EP WRSA in 2021

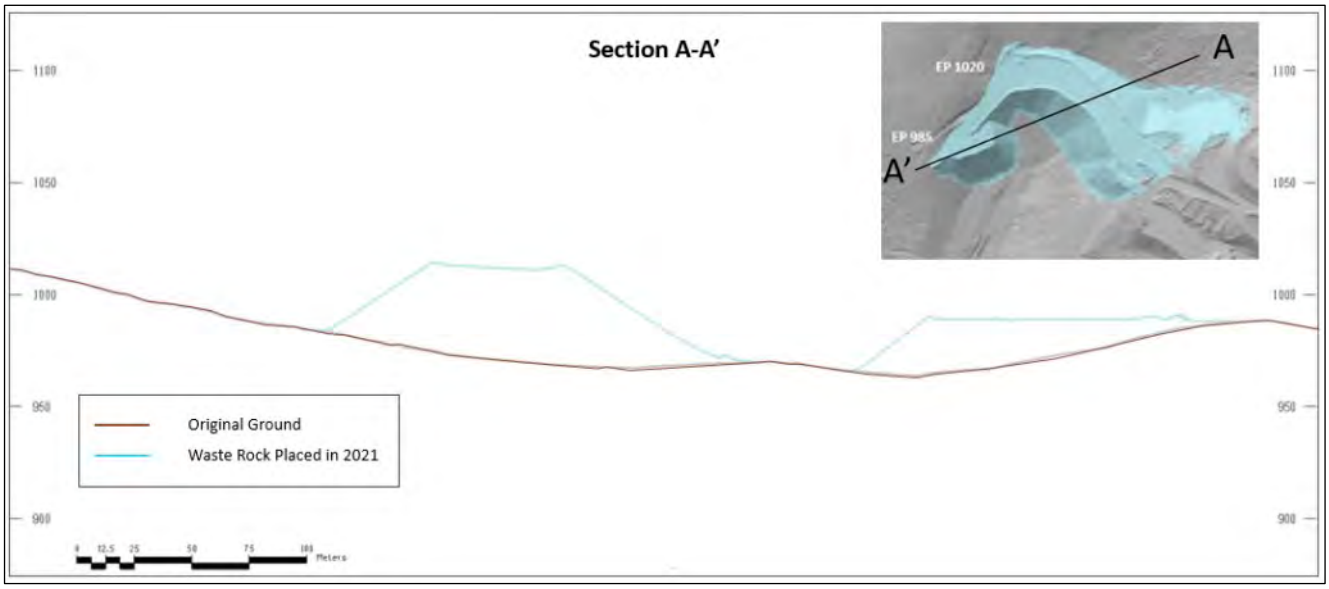


Figure 4.2-5: Cross Section of Material Placed in the EP WRSA in 2021

4.2.2 WRSA Monitoring

All active and inactive dumps are inspected and monitored regularly to provide operational safety and ensure long-term stability of the EP and PG WRSAs. All sequencing and WRSA designs are reviewed by the EoR and deviations from recommendations and/or anticipated site conditions are communicated back to the EoR, as required, for comment.

All active and inactive EP and PG dumps are inspected once a week, at a minimum by Site Geotechnical personnel. Inspections are completed by foot and/or through review of drone photos looking for indications of deformation, such as cracking and bulging, seepage and over-steepening of the crest. Where significant cracking is observed on an inactive dump surface, cracks are surveyed and a wireline extensometer set up to provide a means of measuring displacement over time. The data is used to determine possible of failure mechanism and assess the dump stability over the short and longer term and is reported to Operations to allow for use in strategic planning.

A typical extensometer set up is shown below as Photo 4.2-1.

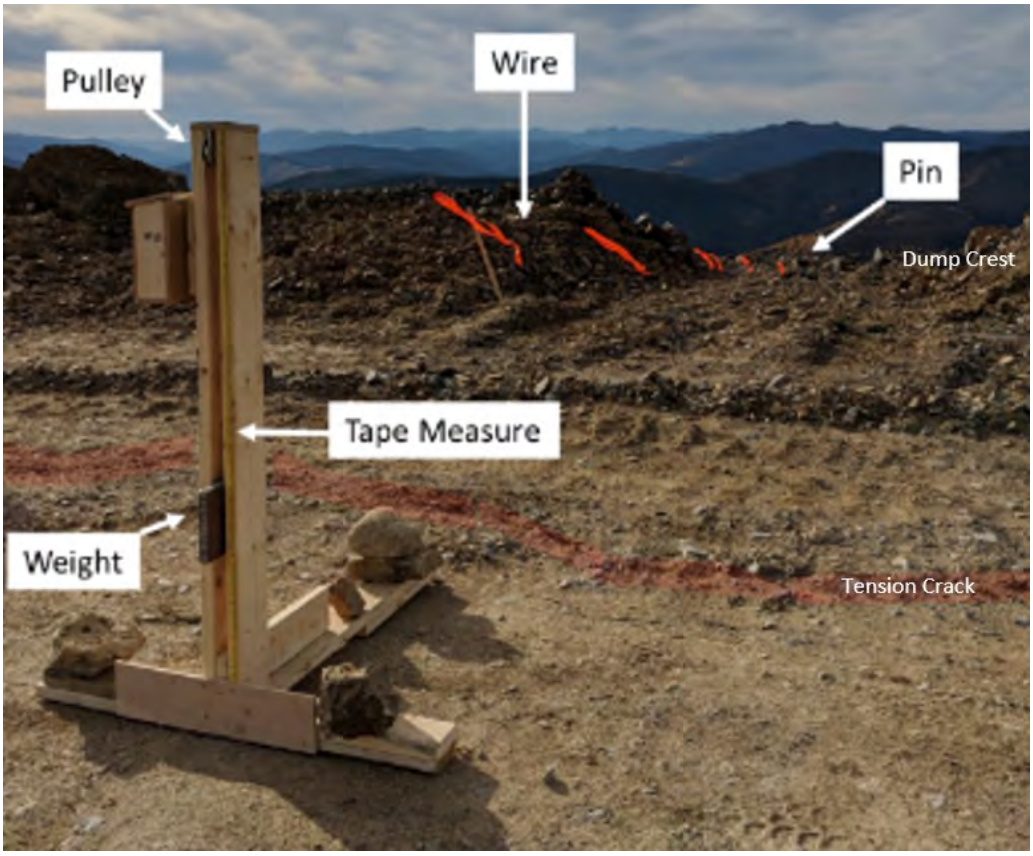


Photo 4.2-1: Extensometer Deployed on an Active WRSA Lift

Displacement thresholds guiding monitoring activities for the WRSAs at the Mine are provided below as Table 4.2-1. Instruments with a set-up similar to that of Photo 4.2-1, above, were deployed where tension cracks indicated displacement at or near crest of dump. To date, the PG dumps, where the majority of waste was placed in 2021, have been stable, and displacement surficial.

Table 4.2-1: Movement Rate Threshold for Extensometer Monitoring

Alert	Green	Yellow	Orange	Red
Platform Condition	No new tension cracks; no recent movement on old tension cracks.	Existing cracks opening and new tension cracks developing close to the crest.	Cracking extends well behind the crest; obvious differential settlement and/or development of steps or grabens on the platform.	**Rapidly** coalescing, cracks that extend well behind the crest; deep, open tension cracks and/or grabens; platform not trafficable.
Crest, face and toe condition	Normal toe, face and crest geometry; no toe spreading or heaving, face bulging, crest over-steepening or excessive raveling.	Minor changes in dump geometry (minor toe spreading/heaving, face bulging, crest over-steepening); minor face and crest raveling.	Pronounced toe spreading/heaving, and/or face bulging; substantial over-steeping of the crest; small sliver failures; active face and crest raveling/break back.	Extensive toe spreading/heaving and/or face bulging; active face and crest slumping/raveling; frequent sliver failures; active instability.
Deformation rate	Rate of movement <1cm/hr, extensometer monitoring frequency every 4 hours.	Rate of movement >1cm/hr and <1.5cm/hr, rate increasing; extensometer reading every 2 hours.	Rate of movement >1.5cm/hr and <3cm/hr, rate increasing; extensometer reading every 2 hours.	Rate of movement >3cm/hr. Cease readings on extensometer due to potential safety issues.

Over the course of the year, measurements were collected on the following areas of the WRSA at the locations indicated on Figure 4.2-6, below.

- PG 1370 – Extensometer 1 (Mid-Dump)
- PG 1185 - Extensometer 1 (N Dump) and Extensometer 2 (South Dump)
- PG 1100 - Extensometer 1 (N Dump) and Extensometer 2 (South Dump)

Data for each is included below as Figures 4.2-7 through 4.2-10, below. The data for PG 1100, Extensometer is not shown as it is a recent install and the dataset is small.

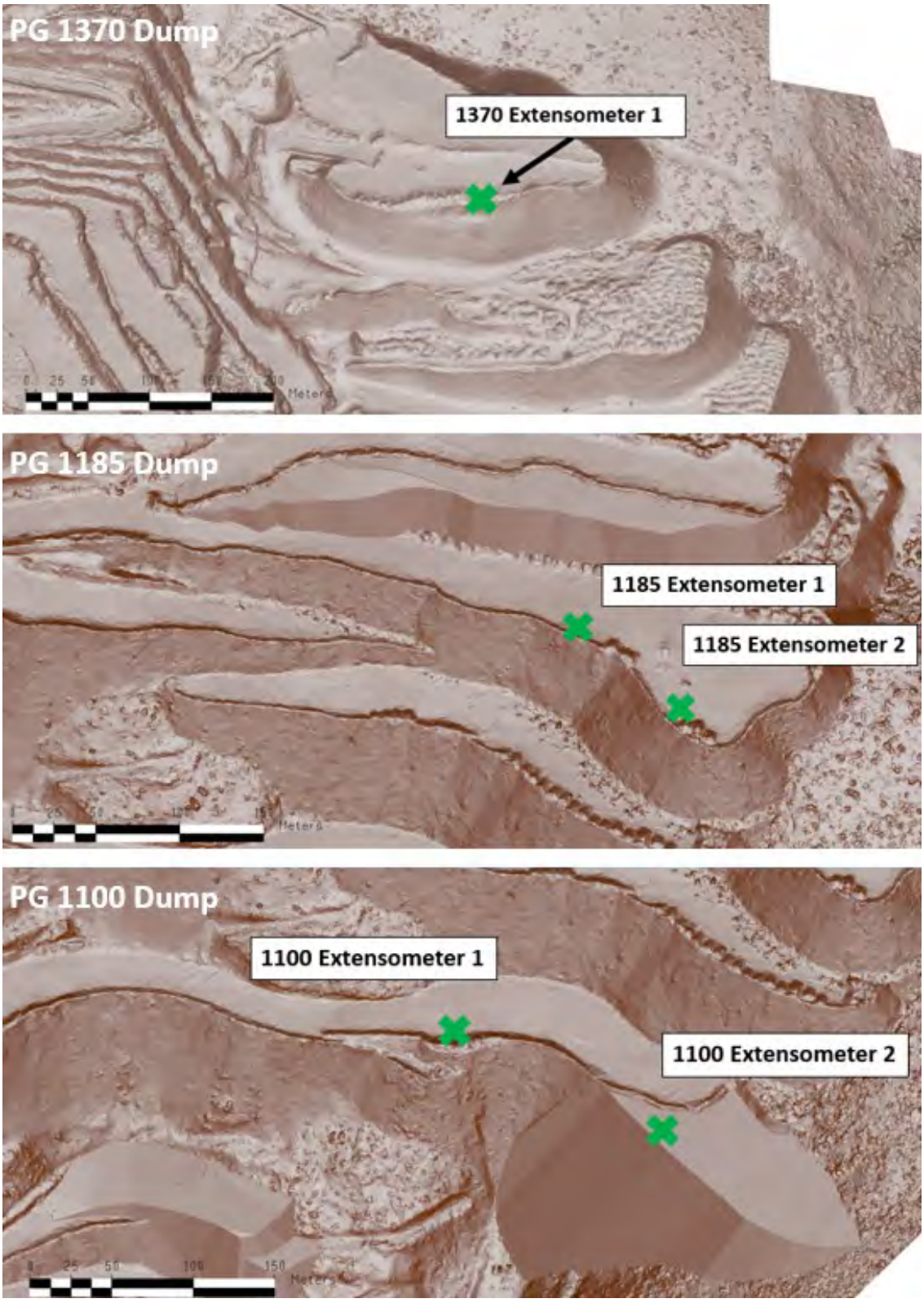


Figure 4.2-6: Setup Locations for the PG WRSA Extensometers

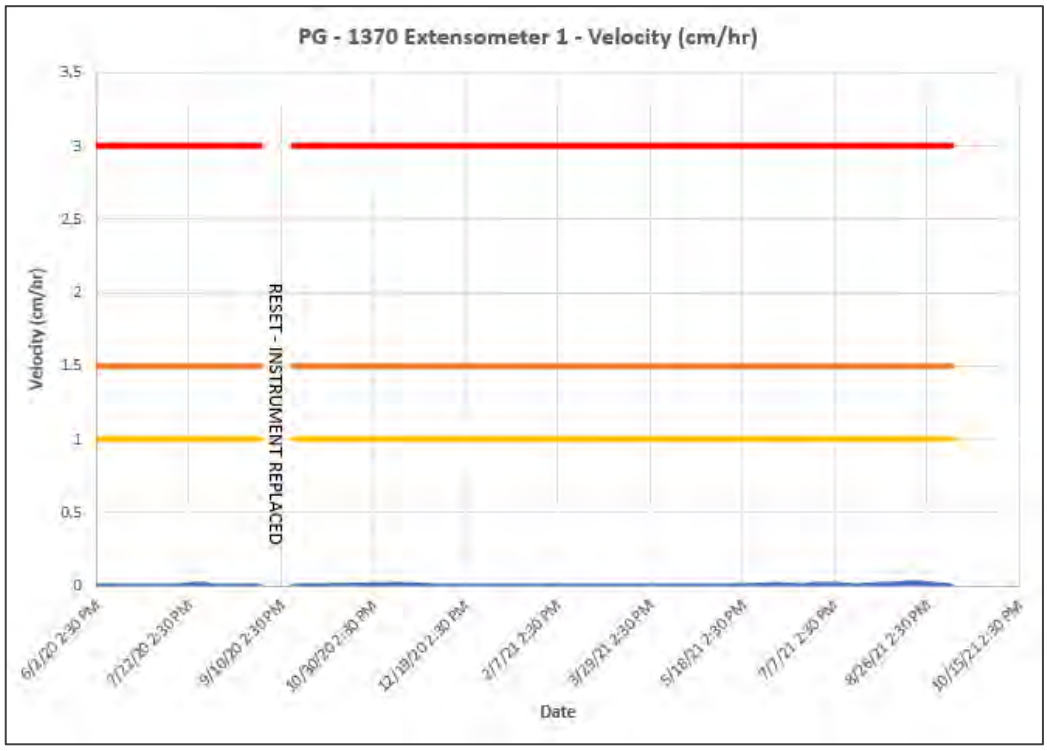


Figure 4.2-7: Displacement - PG 1370 WRSA Extensometer 1

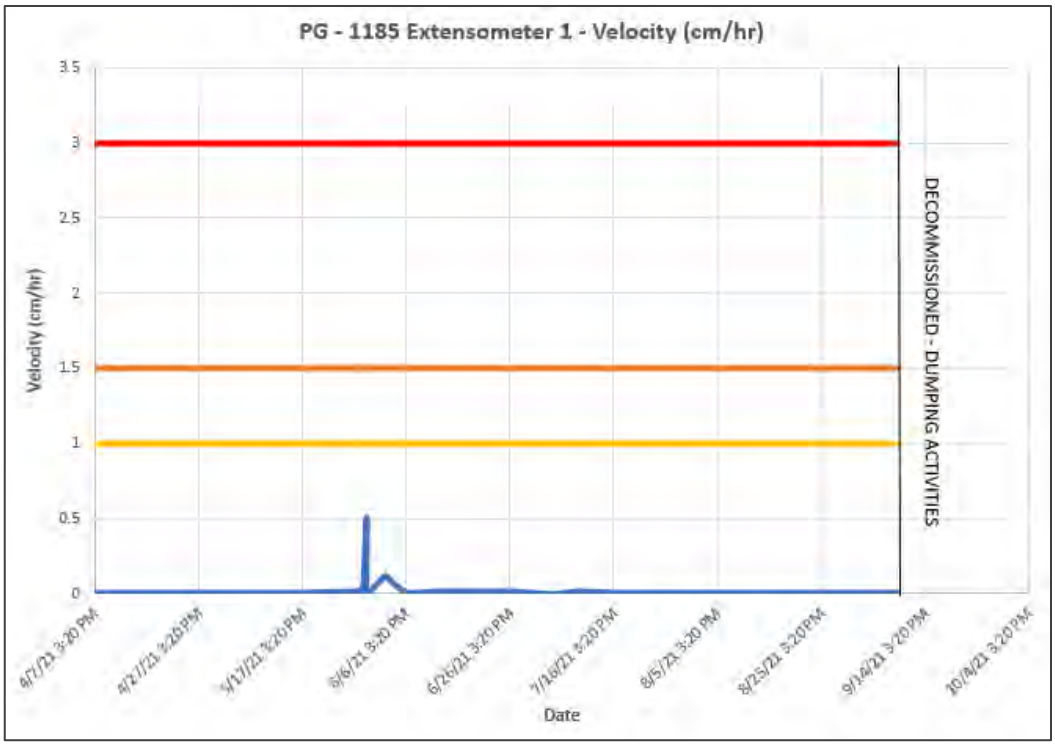


Figure 4.2-8: Displacement - PG 1185 WRSA Extensometer 1 (North Dump)

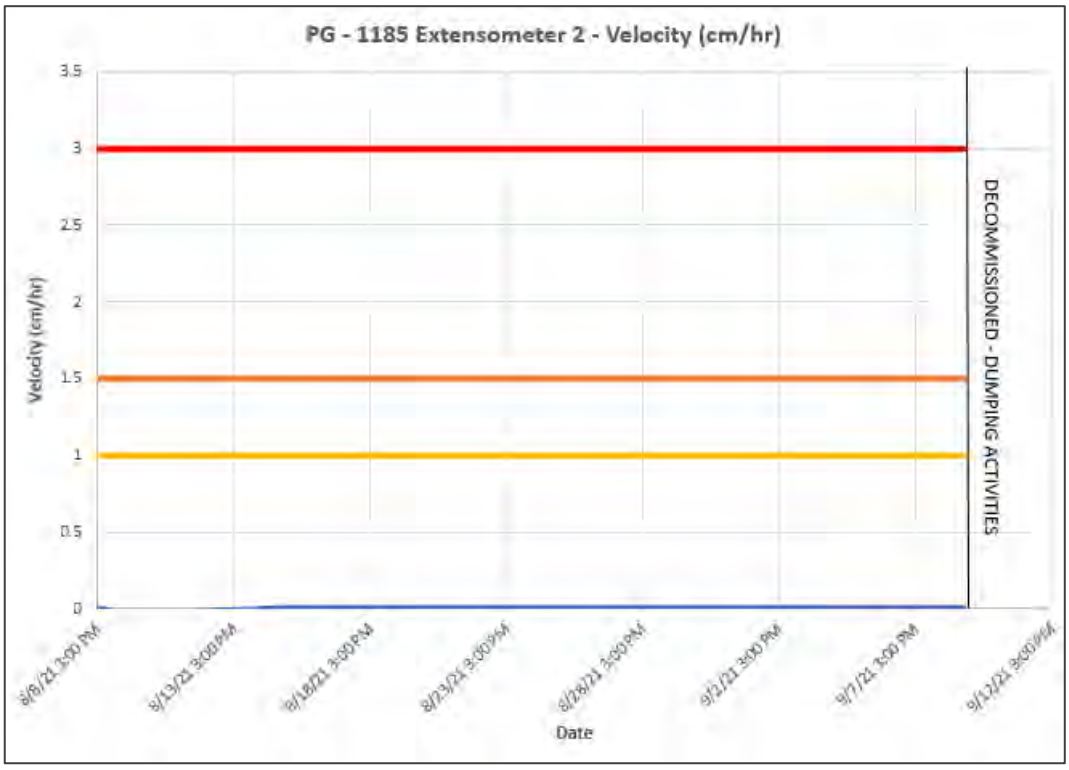


Figure 4.2-9: Displacement - PG 1185 WRSA Extensometer 2 (South Dump)

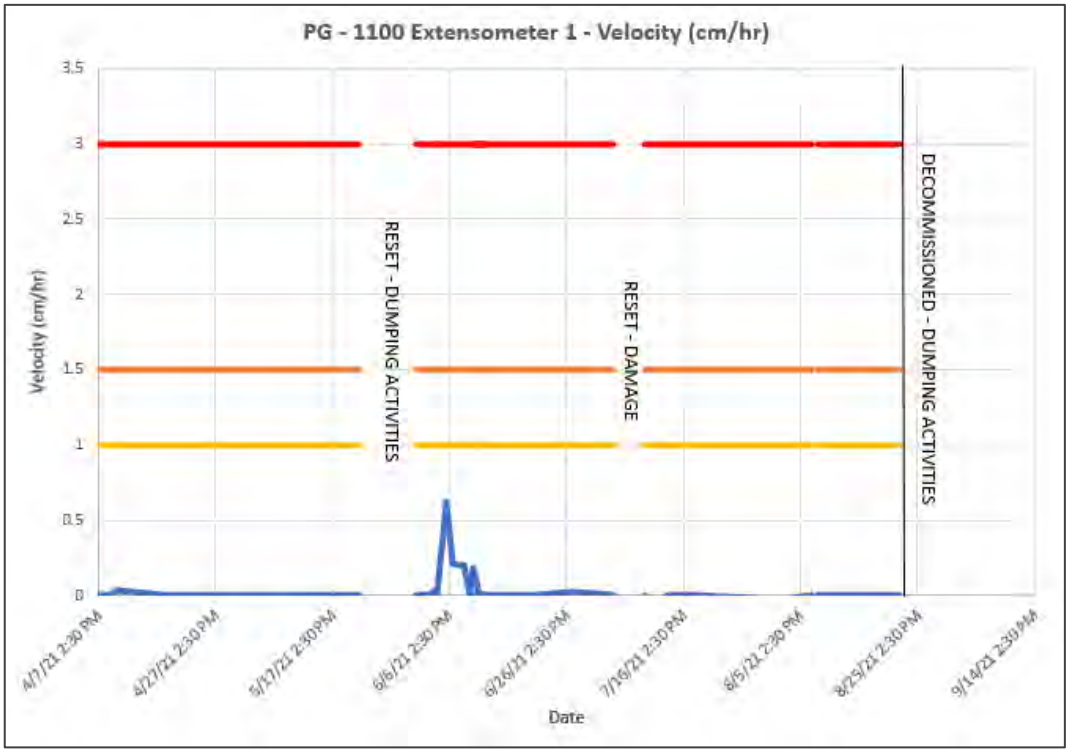


Figure 4.2-10: Displacement - PG 1100 WRSA Extensometer 1 (North Dump)

4.3 Heap Leach Facility and Process Facilities

Phase 1B of the HLF overliner drain fill (ODF) and collection pipe installation, as well as installation of the horizontal pad cell piezometers in Phase 1B were completed in 2021. The HLF Phase 1A and 1B Record of Construction completed by Forte Dynamics Inc. documenting the ODF, piping and instrumentation installation is provided as Appendix Q to this report. Surface preparation of Phase 2 began in Summer of 2021 and construction is anticipated to be ongoing in 2022 with stacking into Phase 2 commence in Q4 2022.

An annual inspection was completed in August 2021 by Mr. Clint Green P.E. of Forte Dynamics. Figure 4.3-1 presents a composited drone shot that is representative of the site during the Engineer of Record's site inspection (see Section 4.3.1).



Figure 4.3-1: Drone Photo Map of HLF and Process Facilities August 2021

Three standpipes with vibrating wire piezometers are installed through the HLF embankment. Piezometer P1 was installed into the dam foundation bedrock and Piezometers P2 and P3 were installed in the dam fill just above the western and eastern underdrains, respectively. The P1 level data appears to have remained relatively static when compared to previous readings taken during the 2020 annual inspection. The P2 and P3 sensors still appear

to be dry and small fluctuations are likely attributed to the changes in barometric pressure. The water levels are presented in Figure 4.3-2, Figure 4.3-3 and Figure 4.3-4.

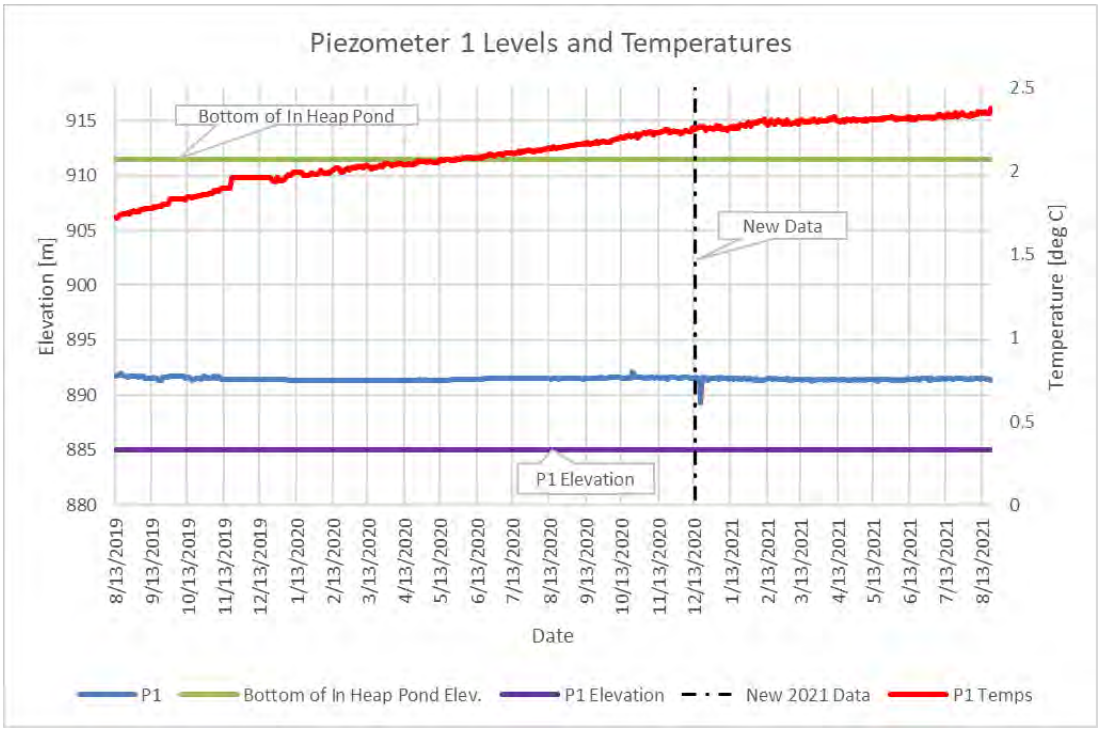


Figure 4.3-2: Piezometer P1 Readings

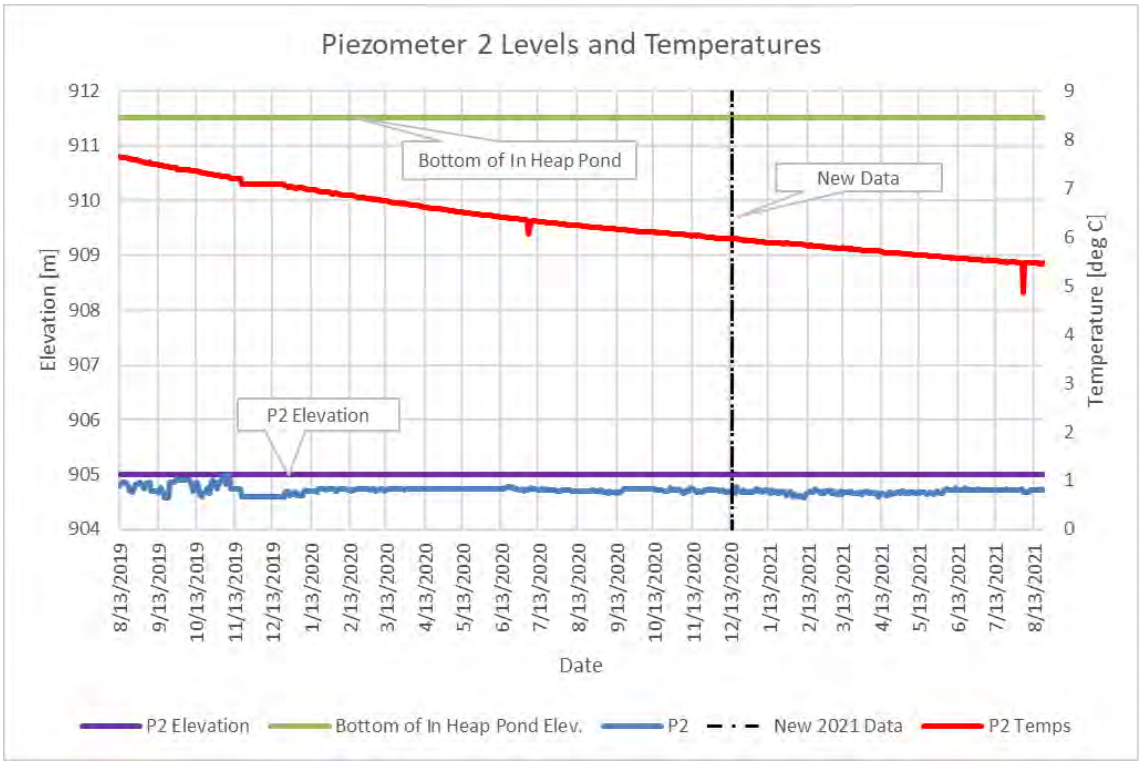


Figure 4.3-3: Piezometer P2 Readings

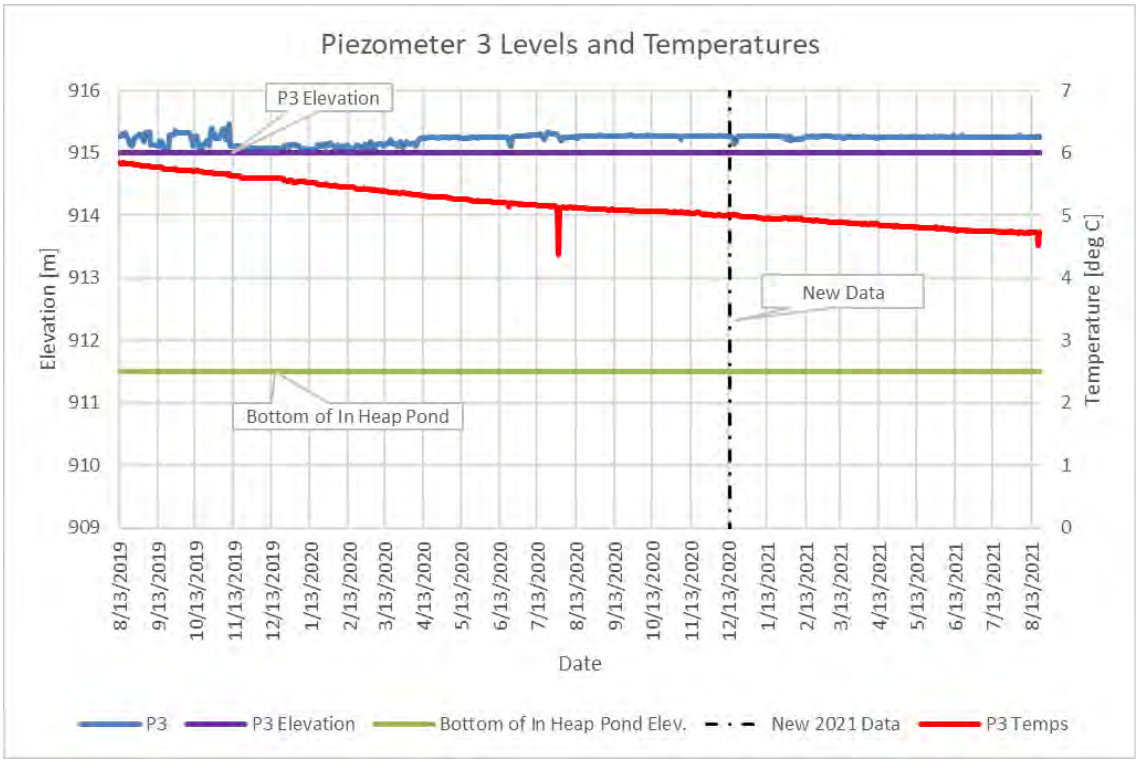


Figure 4.3-4: Piezometer P3 Readings

An inclinometer casing was also installed through the HLF dam crest and installation details are presented in BGC (2018). Results from an RST MEMS Digital inclinometer System are presented in Appendix Q. The amount of cumulative displacement observed is considered minor. The displacement pattern observed is typical of embankment settlement.

Three vibrating wire piezometers were installed in conduit pipes on July 19, 2021 through the Phase 1 leach pad overliner layer upgradient of the In-Heap Pond. These three piezometers were installed horizontally atop the pad geomembrane and extend 25 m, 50 m, and 100 m from the heap toe limit. The purpose of these piezometers is to monitor phreatic head above liner. The phreatic head levels of all three piezometers had correlating levels and fluctuations throughout the monitoring period, showing a maximum phreatic head level of 0.29 m and a minimum of -0.14 m (Figure 4.3-5). Thermistor data shows that temperatures never dipped below 4 degrees Celsius during the monitoring period. It should be noted that piezometer data was not recorded from October 14, 2021, to December 18, 2021, and thermistor data was not recorded after December 18th, 2021. Aside from the apparent data gap, it appears that the piezometers are functioning properly and the measured phreatic head level is within the design criteria.

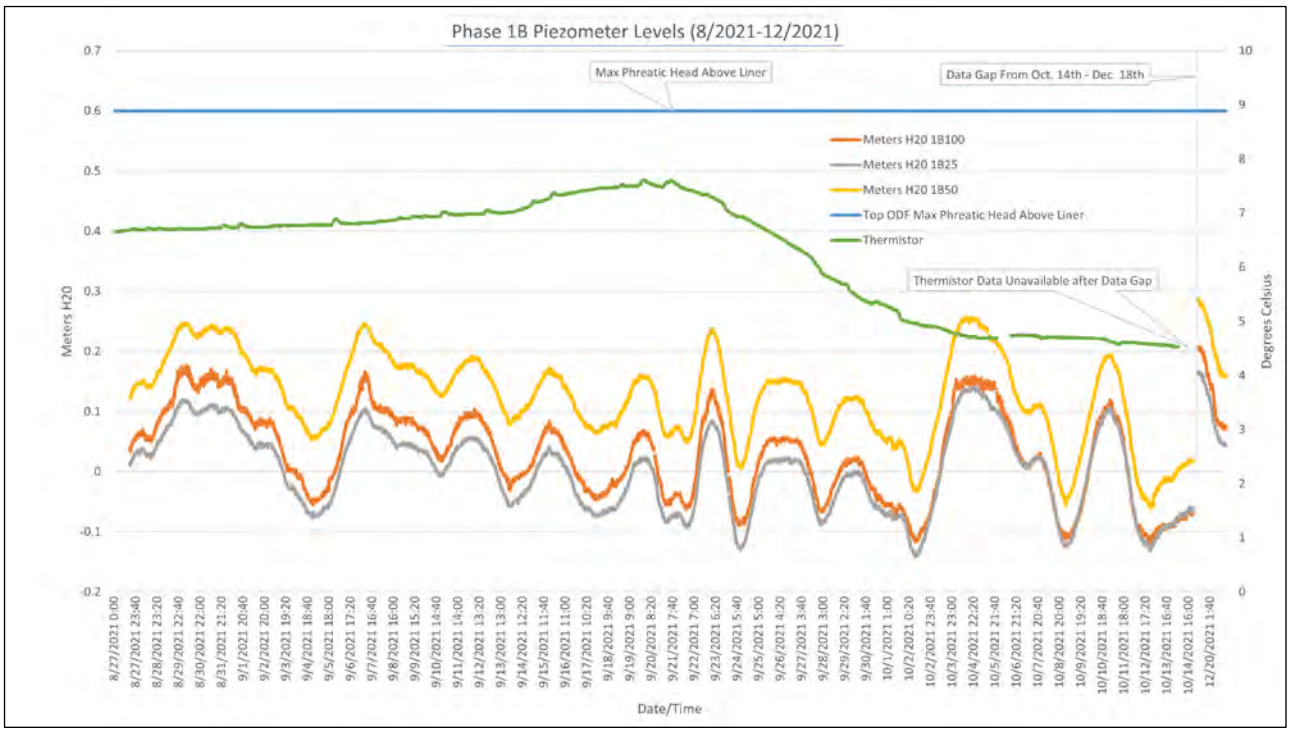


Figure 4.3-5: Phase 1B Horizontal ODF Piezometer Levels

4.3.1 Stability Inspection

4.3.1.1 Engineer of Record Physical Stability Inspection

Heap Leach Facility

The 2021 inspection was completed by Mr. Clint Green, P.E. of Forte Dynamics in August 2021. The 2021 EOR Annual Inspection Report was prepared under the direct supervision of Mr. Barry Carlson, P.Eng as the HLF Engineer of Record with the assistance of Mr. Green, Mr. Roy Morlan P.G. and Mr. Will Reinhardt, P.E. of Forte Dynamics. The full inspection report is provided as Appendix Q and the general site layout of the HLF facility is shown in Figure 4.3-1.

The inspection took place on site and was in general conformance with the VGC HLF Operations, Maintenance, and Surveillance (OMS) Manual. The scope of this annual dam inspection work was limited to:

- Visual inspection of the HLF and dam by the EoR, including taking appropriate photographs of the observed conditions;
- Review of routine inspection records prepared by operating personnel in the past year;
- Review whether or not recommendations from previous year's inspection had been addressed, and any incidents or actions arising from those previous recommendations;
- Review of instrumentation and monitoring data;
- Review of the previous year's operations including reports of any incidents (and remedial measures) that may have occurred;

- Evaluation of the structural performance of the embankment and related components and identify any potential safety deficiencies or recommended items that need to be addressed in the coming year;
- Review of construction records, quality assurance and quality control (QA/QC) data and as-built information on facility construction; and
- Evaluation of the OMS Manual to assess the need for updating.

Based on the findings of the annual inspection, the EOR provided a summary of recommended maintenance and monitoring action items for the HLF. Each action item was assigned a priority ranking level from 1 to 3 with 1 indicating the highest priority and 3 indicating the lowest. A ranking of 3 was generally assigned to items that would be considered routine inspection or monitoring. A summary of recommended maintenance and monitoring action items and VGC's response and schedule to complete are presented in Table 4.3-1.

Table 4.3-1: Recommended Maintenance and Monitoring Action Items from 2021 EOR Inspection and Site Response

Name of Structures	Maintenance/Monitoring Actions Required					VGC Response
	Routine Monitoring/ Maintenance	Increased Monitoring/ Maintenance	Remediation and Engineering Review Necessary	Priority Level[1]	Recommendations	
Heap Leach Facility (HLF)	Yes	-	Yes	3	Continue the routine inspection and monitoring of the dam, abutments, emergency spillway, discharge outlet areas, LDRS sump, PLS sump, pad liner, PLS and barren pipes, monitoring wells (P-1, P-2, P-3), and pond level as per the current OMS manual.	Will continue routine inspection and monitoring of HLF as per OMS.
				2	Document using routine inspection forms all unusual/adverse conditions observed, as well as maintenance work undertaken.	Will continue to document using standard inspection forms (and prepare updated/news forms as necessary) for HLF observations /maintenance works.
				3	Continue collecting inclinometer readings in casing INC-1 quarterly per OMS.	Schedule being maintained and data collection occurring quarterly.
				1	Evacuate the LDRS sump based on water level readings (no greater than 0.5m above bottom end of LDRS pipe should be allowed).	LDRS sump will be evacuated based on water level readings.
				1	Construct a small swale along the crest of the underdrain containment area to direct surface water flows to the west edge of the monitoring vault area.	Scheduled to be completed post freshet 2022.
				2	Relocate signage to the HLF east underdrain outlet. – Note primary outlet for underdrain seepage as water is pumped back to process, however the underdrain outlet still requires marking.	Signage will be relocated post freshet 2022.
				1	Southwest corner of HLF, an access crossing for light and small equipment just upstream of spillway, and downstream of barren and preg. pipes, creates an impasse for flows along west side to reach spillway. The current culvert under the crossing is insufficient to accommodate large meteoric events. At a minimum a drainage pathway/larger culvert required under crossing.	VGC will work with the EoR to address issues with potential drainage pathways.
				1	Western perimeter berm from embankment to ¼ way up Phase 1A, spotted liner damage occurred in exposed liner on slope of perimeter berm. The damage was marked by mine personnel prior to site trip to be repaired. Discuss with liner installer on appropriate repair. Continue discussion with site on procedures for liner repairs including self-perform.	Will continue discussion with liner installer on appropriate repair and continue discussion with site on procedures for liner repairs including self-perform.
				1	Setback from perimeter berm to toe of ore encroached on, and	VGC will work with the EoR to

Name of Structures	Maintenance/Monitoring Actions Required					VGC Response
	Routine Monitoring/ Maintenance	Increased Monitoring/ Maintenance	Remediation and Engineering Review Necessary	Priority Level[1]	Recommendations	
					crossings with potentially inadequate culverts or drainage paths. Culverts at crossings should discharge further away from liner extents. The critical area is at CV-23, that will require both site and Forte to develop permanent drainage pathway along perimeter.	address issues with potential drainage pathways.
				1	ADR ditch northwest of Carbon super sacks and conex containers has been filled in with earth material. Clean ADR ditch to allow for proper water diversion.	ADR ditch will be cleaned out in Q1/Q2 2022.
				1	Shallow pooling on crest of embankment. Placement of fill and proper grading to allow for rainwater to runoff the access road along crest of embankment. Document once remediation is complete.	Scheduled to be completed post freshet 2022.
				1	Buttress toe recommended for ODF washout. Do not extend ODF up slope higher than 1 lift height in advance of ore being stacked on steep slopes. Have spotters visually observing haul trucks as they dump ODF to prevent damage to the liner.	VGC will continue to optimize ODF placement practices to prevent washouts and/or potential liner damage from ODF placement.
				2	Install data collection and source from ADR waterline.	Scheduled to be completed in Q2 2022.
				1	Submit grain size analysis for any Phase 2 borrow sites proposed.	Grain size analysis for Phase 2 borrow sites will be provided to Forte as available.
				1	Recommend taking out piezometer P3, cleaning it, and hanging it about 0.25m from the bottom. Verify the tip depth when lowering it back down and update the depth for the subsequent readings. Also recommend hanging VWP tip for P2 about 25 cm off the bottom as well.	Piezometer maintenance scheduled to be completed in Q2 2022.
				1	Install survey monuments along embankment crest and take initial readings	Survey monuments will be installed post freshet 2022
Events Pond (EP)	Yes	-	-	3	Continue the routine inspection and monitoring of the embankment, abutments, pond liner, LDRS sump, and pond level as per the current OMS manual.	Will continue routine inspection and monitoring of Events Pond as per OMS.
				2	LDRS level instrumentation setup for continuous data download	Status confirmation outstanding at the time of this report.
				2	Document using routine inspection forms all unusual/adverse conditions observed, as well as maintenance work undertaken.	Will continue to document using standard inspection forms for observations /maintenance works.
				1	Evacuate the LDRS sump based on water level readings (no	LDRS sump will be evacuated

Name of Structures	Maintenance/Monitoring Actions Required					VGC Response
	Routine Monitoring/ Maintenance	Increased Monitoring/ Maintenance	Remediation and Engineering Review Necessary	Priority Level[1]	Recommendations	
					greater than 0.5m above bottom end of LDRS pipe should be allowed).	based on water level readings.
HLF Spillway	Yes	-	Yes	3	Continue the routine inspection and monitoring of the spillway armoring, adjacent access road, seepage collection pipe outlet as per the current OMS manual.	Will continue routine inspection and monitoring of HLF Spillway as per OMS.
				2	Document using routine inspection forms all unusual/adverse conditions observed, as well as maintenance work undertaken.	Will continue to document using standard inspection forms for observations /maintenance works.
				2	Spillway has damage in concrete liner at crest of channel. Soil and rocks in channel, most unlikely to impede large flows and capacity and max design, but downstream liner and event pond capacity at risk. Document once remediation is complete.	Documentation will be provided to the EoR when remediation efforts are complete.
				1	Remediation of the significant surface erosion along the downstream face of the HLF spillway access road. Implement water management along HLF spillway to discourage additional erosion.	Status confirmation outstanding at the time of this report.
				1	Placement of riprap along the groin between HLF spillway access road and HLF embankment to mitigate further rill or gullies from forming.	Status confirmation outstanding at the time of this report.
Emergency Spillway	Yes	-	-	3	Continue the routine inspection and monitoring of the spillway armoring, adjacent access road, seepage collection pipe outlet as per the current OMS manual.	Will continue routine inspection and monitoring of Emergency Spillway, adjacent road, seepage collection pipe outlet as per OMS.
				1	The spillway at the crest has crushed gravel in it for temporary access around crest. Material required to be removed.	The crushed gravel has been removed from the spillway.
				2	Document using routine inspection forms all unusual/adverse conditions observed, as well as maintenance work undertaken.	Will continue to document using standard inspection forms for observations /maintenance works.

Notes:

1 Priority Levels are assigned from 1 to 3. 1 indicating highest priority and 3 indicating lowest priority. A ranking of 3 was generally assigned to items that would be considered routine inspection or monitoring.

4.3.2 Status Report on Backup Equipment and Supplies for Emergency Management

A range of backup equipment and supplies are maintained at site to ensure that solution within the HLF can be managed effectively in the event of an emergency. At the time of this report, equipment necessary for the emergency management of the HLF was available and operational.

The key backup equipment for management of solution for the HLF are all related to the pumping system (i.e., the pump components and equipment to power the pump components).

4.3.2.1 PLS Pumps

The HLF includes five inclined steel casings that terminate in the In-Heap Pond Pregnant Leach Solution (PLS) Sump. The casings house the PLS pumps for transferring gold bearing solution to the ADR Plant (Photo 4.3-1). There are currently five SAER Elettropompe 6S-302 pumps installed within the casings which includes an installed spare as only 4 pumps are operated at once (to provide installed n+1 redundancy).



Photo 4.3-1: PLS Casings and Pump Configuration – April 26, 2020

Manufacturer recommenced maintenance activities and schedules are programmed into the Project resource planning software to alert maintenance personnel when routine maintenance is required. Additionally, any

observations of performance issues by process and maintenance personnel are logged in the resources planning system to allow for the tracking of work order requests from entry through to completion. Planned preventative and routine maintenance was completed by the maintenance personnel and the installed pumps are all operating as intended. Maintenance records for the PLS pumps is provided as Appendix S.

4.3.2.2 Barren Solution Pumps

PLS is pumped from the In-Heap Pond to the ADR Plant for gold recovery and amendment of cyanide and then recycled to the HLF as barren solution by the barren solution pumps. Under an emergency scenario, solution pumped from the In-Heap Pond would only need to be recirculated back to the HLF thus the barren solution pumps represent a critical component for emergency management. The ADR Plant includes five barren solution pumps that are operated in an n+1 configuration.

As with all fixed and mobile equipment, maintenance of the barren solution pumps is tracked through the Enterprise Resource Planning (ERP) software platform. The ERP allows for the management of maintenance work orders and work flows, planning, scheduling through completion, close-out and record keeping. Records of any routine or follow-up maintenance activities for the barren solution pumps are kept by the ERP software on the Project site. Maintenance records for the barren solution pumps is provided as Appendix S.



Photo 4.3-2: Barren Solution Pump Maintenance – December 7, 2020

4.3.2.3 Power Supply

Primary power for operations on the site is provided by the Yukon Energy Corporation electrical grid. There are also three diesel generators on the site, each rated for 1650 KW output (Photo 4.3-4). Each generator has weekly work orders inputted in the ERP software that details the daily checks to be conducted to complete the weekly work order. The daily checks, conducted by qualified maintenance staff, include logging engine hours, checking oil, coolant and other fluid levels, and general observations (including inspection for leaks). In addition to the daily checks required to complete the weekly work orders, routine service is conducted in accordance with manufacturer's instructions and the maintenance department standards. The ERP software shows the completion of weekly checks and 500 hours preventative maintenance (sample provided as Appendix S), service and inspection for each generator.



Photo 4.3-3: Project Substation and Back-Up Generators - 2019

4.4 Material Storage and Stockpile Management Areas

During construction and operational activities to date, various material types have been encountered that have not met construction specifications but would likely prove suitable for cover materials for facility closure. These materials have been either relocated to dedicated topsoil and overburden storage areas or have been stored locally to support future reclamation activities. The location and volumes of these materials are depicted in Figure 4.4-1.



Legend:

- Material Stockpile
- Stockpile used for soil cover
- Current Construction and Mining Impacted Areas
- Facility Footprint
- Reserved
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent

VICTORIA GOLD CORP

0 125 250 500
Metres

Projection:	Drawn By:
NAD 83 UTM Zone 8N	HC
Date:	Figure:
2022/03/30	4.4-1

EAGLE GOLD MINE
YUKON TERRITORY

Volume and Location of Material Stockpiles

One stability incident related to material stockpiles was recorded during 2021 which occurred at the HLF Phase 1B Overburden Stockpile along the northwest back slope of the HLF. The HLF Phase 1B Overburden Stockpile has been used for the overburden clearing and grading from the Phase 1B area. The material movement events occurred in July and August 2021. A failure of the HLF overburden stockpile was first identified with Inspectors for the Department of Energy, Mines and Resources (EMR) on July 22. The material involved at that time appeared to be composed of overburden comingled with woody debris and, after the initial movement, appeared largely stable. The second and larger overburden stockpile failure (depicted in Figure 4.4-2) occurred sometime around August 15. Water quality samples were taken in Haggart Creek following both events and results were compliant with MDMER water quality deleterious substance criteria.

Operations permanently ceased stacking overburden material in the affected area on August 15 and the area is continuing to be monitored for stability. Short-term immediate remedies were executed with the proposed activities communicated to EMR Inspector and conducted under the guidance of onsite experts. The short-term activities included:

- Immediate and permanent halt to material placement in the affected area;
- Installation of silt fences, hay bales, willow staking, wattle fencing and containment sumps upgradient of Haggart Creek within the material flow path;
- Visual and instrumentation monitoring (extensometers) of the material stockpile;
- Regrading of the material stockpile in areas where this activity was safe to be undertaken; and,
- Excavation of portions of the material flow path and backfill with clean durable rock to minimize future erosional potential and to insulate permafrost zones.

A long-term solution has been developed with the proposed activities communicated to EMR Inspector and these will be conducted under the guidance of onsite experts. The long-term activities include:

- Additional regrading of the material stockpile in areas where this activity is safe to be undertaken and where conditions indicate it is necessary for long term stability;
- Installation of extensometers prior to spring freshet if additional surface cracking is observed;
- Monitoring by drone flights to compare surfaces for differential settlement analyses; and,
- Completion of a spring Heli-seeding program to stabilize the runout zone.

At the time of this report, the additional regrading considered in the long-term mitigation strategy had been completed.

The HLF 1B Overburden stockpile was also inspected as part of the annual Engineer's Physical Stability Inspection (Section 4.5).

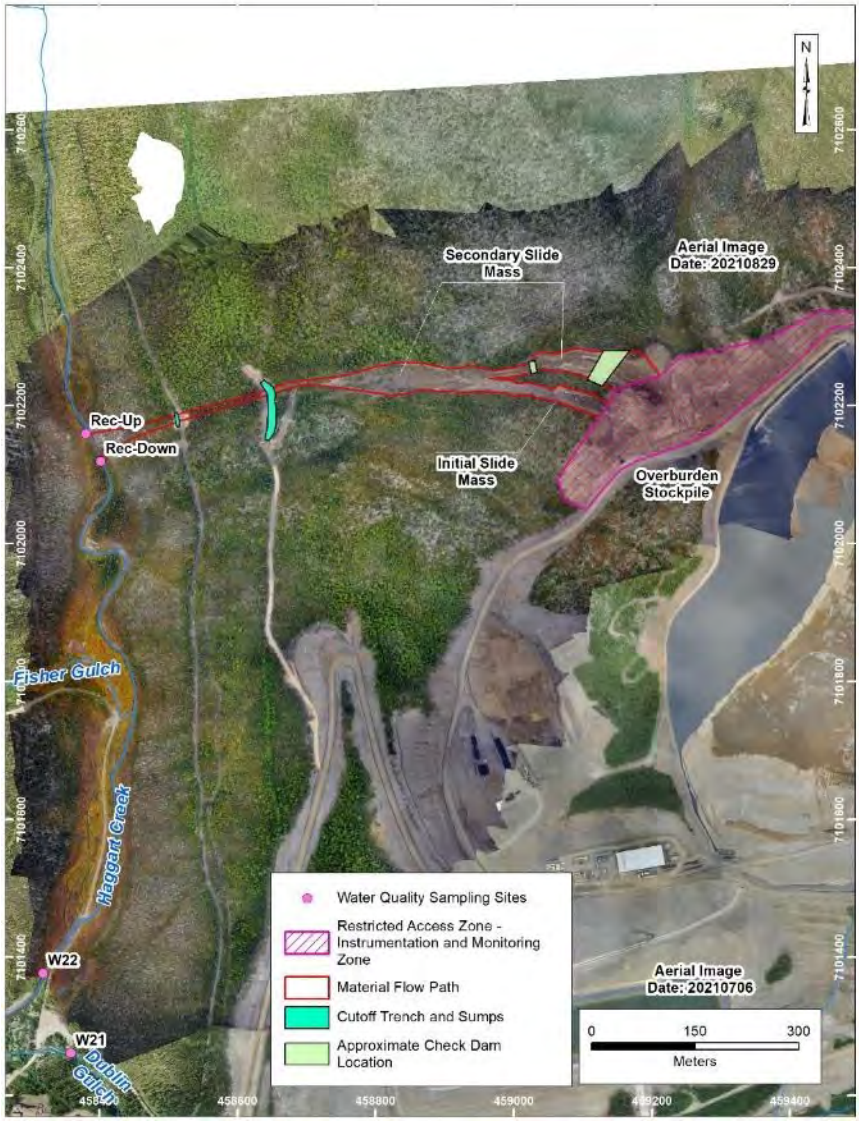


Figure 4.4-2: Phase 1B Overburden Stockpile Stability Incident

No other stability incidents in stockpiles have been noted. Monitoring equipment to determine the stability of other stockpiles have not been employed to date due to their relatively small sizes. VGC will continue to work with the independent third-party geotechnical reviewers (discussed in section 4.5) to ensure that, if evidence of movement is observed, the stability of the stockpiles are addressed appropriately.

4.5 Engineer's Physical Stability Annual Inspection

As required by Section 13.2 of QML-0011, a physical stability assessment of all engineered structures, works and installations at the Project was undertaken by an independent engineer on September 8th and 9th, 2021. The findings of the assessment are provided in Appendix T.

The assessment undertaken in 2021 included the following facilities and structures:

- Lower Dublin South (Control) Pond and outfall,

- Secondary Stockpile (also known as 90 Day Stockpile),
- Heap Leach Facility,
- Heap Leach Overburden Stockpile,
- Open Pit,
- Platinum Gulch Dump,
- Eagle Pup Dump,
- Cut and fill slopes of the Primary, Secondary, and Tertiary Crushers including MSE walls,
- Cut and fill slopes of the Adsorption, Desorption and Recovery Plant,
- Event Pond,
- Ditches A, B, and C,
- Truck Shop,
- Orica Laydown,
- Various un-named stockpiles.

The Engineer's report included recommendations for the fourteen of the specific areas inspected, and in the opinion of the independent engineer required further consideration. Table 4.5-1 provides the recommendations per area, VGC's response and the schedule to complete the response.

Table 4.5-1: Recommendations from Independent Engineer and Site Response

AllNorth Report - Observations	AllNorth Recommendations	VGC Response	Schedule to Complete
General Report Comment	**20.1 - General** **1.** VGC should assign a qualified, on site, individual to be responsible for monitoring and documentation of any mass earth structures that have significant risks in the case of a failure. The individual should develop a standard operating procedure for the monitoring and risk management of these structures. This individual should be responsible for coordination with a qualified professional to review monitoring data for concerns and trends, if they are not qualified themselves.	Monitoring of structures is completed by the Technical Services Department under the direction of the Technical Services Superintendent working closely with the EOR for the areas while following standard operating procedures. The Technical Services Superintendent is the EOR for a number of the Engineered Structures on the Mine site. The results of monitoring and the documentation developed are provided with VGC's annual reports as required by the Quartz Mining Licence (QML-0011) and Water Use License (QZ14-041-1). Additionally, VGC has updated the Waste Rock and Overburden Facility Management Plan, that includes QA/QC plan and related OMS Manual to support this work.	Ongoing Completed Feb 2022
	20.1 – General **2.** VGC should continue to assign individuals to document and be responsible for the monitoring and construction of any structures to determine if the structures are constructed in accordance with design. Any variations between design documents and final construction should be included in final record drawings.	Monitoring of structures including construction review to meet design specifications is done by the Technical Services department under the direction of the Technical Services Superintendent working closely with the EOR for the areas. Construction reports and as-built drawings document variations or minor modification from IFC designs. Additionally, VGC has updated the Waste Rock and Overburden Facility Management Plan, that includes QA/QC plan and related OMS Manual to support this work.	Ongoing Completed Feb 2022
	20.1 - General **3.** Any finalized construction of mass earth structures should include a final construction report that includes any operational and maintenance requirements (if any) to ensure stability of the structure.	As per both QML-0011 and QZ14-041-1, the EOR provides final construction reports for Engineered Structures, which includes requirements for maintenance as needed, once the structures are complete.	Ongoing
	20.1 - General **4.** VGC should consider a monitoring program to assist in early warning and detection of any movements in mass earth structures. Such a program might use permanent survey points, slope inclinometers, piezometers, or other tools to measure internal/external movements and pore water pressures. Such a monitoring program should be developed with the assistance of and be implemented with the oversight of a qualified professional.	Monitoring programs have been developed, are in use, and undergoing further refinement by the Technical Services department with the oversight of a qualified professional. In addition to routine visual inspection, monitoring for physical stability include the following: • Pit wall and dump bi weekly survey using unmanned aerial vehicle or drone; • Pit wall monitoring using survey prisms. • Piezometer water level readings in the pit area.	Ongoing

AllNorth Report - Observations	AllNorth Recommendations	VGC Response	Schedule to Complete
		• Extensometer installation on active lifts of the waste rock storage areas with regular movement calculations conducted; • Vibrating wire piezometer water level readings in the HLF dam foundation bedrock and dam fill just above the western and eastern underdrains to determine pore water pressures; and, • Slope inclinometer readings in the HLF dam crest.	
	20.1 - General **5.** For any stockpiles, cut slopes, and/or fill slopes with over-steepened slopes that do not require immediate rectification (due to proximity to structures, roadways, active work areas, etc) VGC should still cordon off the area above and/or below the over-steepened slope depending on what would be accessible to site staff.	As noted in the 2021 audit report, over-steepened sections identified in previous years at the secondary stockpile perimeter ditch were addressed in 2021. Additional areas were cordoned off in response to the previous audit and these areas will be checked in the snow free period and upgraded/repaired if deemed necessary. Management of other over-steepened slopes will continue in 2022.	On-going
3 **Lower Dublin South (Control) Pond**	**20.2 - LDSP (Control Pond)** **1.** Monitor cut slopes above Ditch A for further erosion and sloughing.	The culvert located within the cut slope above the LDSP drains runoff from an upgradient cleared area into Ditch A and subsequently the LDSP. This configuration has remained generally stable for the last three years; however, it will be re-assessed post freshet to determine if additional armoring is necessary.	Q2 2022
4 **Secondary Stockpile**	**20.3 – Secondary Stockpile** **1.** Monitor over-steepened slopes, cordon off if accessible by site staff.	An internal assessment by the Technical Services Department was conducted in this area and it was determined that it did not present a safety risk to staff. Monitoring of the area will continue to ensure that a risk does not develop.	Ongoing
	20.3 – Secondary Stockpile **2.** Tie the perimeter ditch into the collection sump.	The section identified had been connected in response to the prior audit; however, it is acknowledged that clean out and maintenance is required. This work is currently contemplated to take place in Q2, 2022. As noted in the Report, work was completed in 2021 to armor a portion of the perimeter interception ditch and tie into the collection sump.	Q2 2022
5 **Heap Leach Facility**	**20.4 – HLF** **1.** Continue to monitor the toe slope below the HLF for rill erosion	This area has been reviewed by the Technical Services and Process Departments of VGC and the EOR and, as proposed by the EOR, coarse fill (6” minus rock) will be backfilled into this area. As shown in Figure 23 of the report, the embankment face has been reseeded and is showing good vegetation growth in all other areas.	Q2 2022

AllNorth Report - Observations	AllNorth Recommendations	VGC Response	Schedule to Complete
	2. Check Phase 1B Interception Ditch and monitor sediment collection. Clear sediment collection at drain sump.	Construction of the Phase 2 area of the HLF (i.e., upgradient of the Phase 1B Interception Ditch) will commence in late Q1/early Q2 2022. This work will include conversion of the Phase 1B Interception Ditch into an anchor trench for liner deployment once the Phase 2 Interceptor Ditch is operational. These construction activities will entirely mitigate this concern; however, if the ditch and sump will be operational through the freshet period due to construction timing it will be inspected and cleaned out to ensure that it can function effectively.	Q1 to Q3 2022
6 **Heap Leach Overburden Stockpile**	**20.5 – Heap Leach Overburden Stockpile** **1.** Continue to monitor pile for further collapse. Work in conjunction with regulators and geoscience/engineering professionals to design a short-term immediate remedy and long-term solution to the issue.	Short-term immediate remedies were executed with the proposed activities communicated to EMR Inspections and conducted under the guidance of onsite experts. The short-term activities included: • Immediate and permanent halt to material placement in the affected area; • Installation of silt fences, hay bales, willow staking, wattle fencing and containment sumps upgradient of Haggart Creek within the material flow path; • Visual and instrumentation monitoring (extensometers) of the material stockpile; • Regrading of the material stockpile in areas where this activity was safe to be undertaken; and, • Excavation of portions of the material flow path and backfill with clean durable rock to minimize future erosional potential and to insulate permafrost zones. A long-term solution has been developed with the proposed activities communicated to EMR Inspections and these will be conducted under the guidance of onsite experts. The long-term activities include: • Additional regrading of the material stockpile in areas where this activity is safe to be undertaken and where conditions indicate it is necessary for long term stability; • Installation of extensometers prior to spring freshet if additional surface cracking is observed; • Monitoring by drone flights to compare surfaces for differential settlement analyses; and, • Completion of a spring Heli-seeding program to stabilize the runout zone.	Q2 2022 Complete Q1 2022

AllNorth Report - Observations	AllNorth Recommendations	VGC Response	Schedule to Complete
7 **Open Pit**	**20.6 – Open Pit** **1.** Monitor pooled water at base of pit, remove water via trash pump as needed.	To date, the water accumulations have been minor and are managed on an as needed basis. If volumes are observed to increase in the near term, a trash pump will be installed to transfer water to Ditch A. Management of pit wall seepage and precipitation accumulation is being discussed by the Technical Services Superintendent (i.e., the EoR for the pit) and a consulting engineer who supported the pit design to ensure that long term management strategies are appropriate. The available details of the long-term strategy will be provided with the annual report required by QML-0011 and QZ14-041-1.	Q1 2022
8 **Platinum Gulch Dump**	**20.7 - Platinum Gulch Dump** **1.** No specific recommendations at this time.	N/A	N/A
9 **Eagle Pup Dump**	**20.8 - Eagle Pup Dump** **1.** No specific recommendations at this time.	N/A	N/A
10 **Primary Crusher**	**20.9 - Secondary/Tertiary Crusher and MSE Wall** **1.** A monitoring program should be established using regular survey of the MSE walls, to detect any potential movement. 3D scanning equipment would provide an adequate monitoring program, with scan frequency to be determined between site and an experienced professional.	Prisms have been purchased to support monitoring of the MSE wall. Due to staffing challenges during COVID, the installation was not able to be completed as contemplated but will take place in Q1 2022.	Q1 2022
11 **Secondary/ Tertiary Crusher**	**20.10 - Secondary/Tertiary Crusher and MSE Wall** **1.** A monitoring program should be established using regular survey of the MSE walls, to detect any potential movement. 3D scanning equipment would provide an adequate monitoring program, with scan frequency to be determined between site and an experienced professional.	Prisms have been purchased to support monitoring of the MSE wall. Due to staffing challenges during COVID, the installation was not able to be completed as contemplated but will take place in Q1 2022.	Q1 2022
12 **Adsorption, Desorption, and Recovery Plant (ADR)**	**20.11 - ADR** **1.** No specific recommendations at this time.	N/A	N/A
13 **Event Pond**	**20.12 - Event Pond** **1.** Monitor minor erosion of cut slopes and maintain as required.	The minor erosion on the cut slopes above the Events Pond will continue to be monitoring and will be maintained if deemed necessary by the EoR for the HLF.	As necessary

AllNorth Report - Observations	AllNorth Recommendations	VGC Response	Schedule to Complete
	2. Monitor pooling water above the North side of the Event Pond and regrade area to prevent pool formation or install a water handling system (sump pumps, etc.).	The area will continue to be monitored on an ongoing basis to determine if the installation of a water handling system or additional grading to improve drainage is warranted.	As necessary
	3. Monitor material deposits on HLF spillway and Event Pond to ensure the spillway and pond designs are not compromised through either blockage of flow or reduced pond capacity.	The spillways for the HLF and Events Pond were inspected by the EOR and it was determined that the minor material deposits would not impact their functionality as the accumulated material would be washed out in a major event and not reduce capacity.	N/A
	4. Repair excavator damage to HLF spillway liner.	The concrete cloth to complete this repair has been purchased and is on site. The repair work will commence when conditions allow (i.e., consistently warmer than ~-20^{O}C) and in advance of freshet.	Q1/Q2 2022
	5. Clear crushed material out of Event Pond spillway mouth. If equipment access is needed for the South-East corner of the pond consider constructing additional road accesses as appropriate.	The material will be removed Q1 2022. If ongoing access across the spillway is deemed necessary beyond that time, a crossing system will be installed that does not impact the carrying capacity of the spillway (e.g., rig mats).	Q1 2022
14 Ditch A	**20.13 - Ditch A** **1.** Clear soil & rock bridge from upper section of Ditch A. Consider constructing additional road accesses as appropriate to avoid having to fill Ditch A for vehicle crossings.	The installation of this temporary crossing was to support a short duration winter geotechnical drilling program for the open pit. The material will be removed in Q1 2022. If ongoing access is necessary, a crossing system will be installed that does not impact the carrying capacity of the ditch (e.g., rig mats).	Q1 2022
15 Ditch B	**20.14 - Ditch B** **1.** No specific recommendations at this time.	N/A	N/A
16 Ditch C	**20.15 - Ditch C** **1.** Monitor for potential of pooling water above Ditch C at camp road crossing.	The temporary water pooling in response to rainfall events will be monitored to ensure that it does not result in erosion and scouring. The area identified was included in the 2019 revegetation program to reduce erosion and scouring potential and the performance of this work will continue to be monitored during 2022 and maintained/improved as necessary.	Ongoing
17 Truck Shop	**20.16 - Truck Shop** **1.** Monitor cut slopes for rilling and erosion.	The area is an active construction zone that is continually monitored; measures will be taken to address any over-steepened slopes when construction activities cease. If riling and erosion is noted to become worse and a concern for stability, then a hydroseeding program or potentially regarding affected areas will be conducted.	Q2 2022
	2. Relocate rebar so that it does not block the perimeter drainage ditch.	The rebar was placed temporarily in this location prior to it being used in the construction activities associated with the	Q1/Q2 2022

AllNorth Report - Observations	AllNorth Recommendations	VGC Response	Schedule to Complete
		Truck Shop. Prior to freshet 2022, this area will be inspected to ensure that the drainage ditch is free of obstructions.	
18 **Orica Laydown**	**20.17 - Orica Laydown** 1. Monitor perimeter sump for flow interruptions/blockages and consider re-trenching if pooled water observed.	This area will be inspected prior to freshet to ensure that there are no blockages and that the sump is performing as expected. If maintenance work is warranted, it will be undertaken as necessary.	Q1/Q2 2022
19 **Un-Named Stockpile Area**	**20.18 - Un-Named Stockpile Area** 1. Flag over-steepened slopes in area to protect site staff. Consider dismantling over-steepened slopes depending on proximity to roadways, areas frequented by site staff.	The material stockpiles identified were intended to be part of the H1 2021 revegetation work; however, ongoing travel restrictions and staff availability impacted our ability to complete this work. This area is currently being monitored and will be considered for revegetation work which may involve regrading if a risk to staff and the environment is identified.	Q1/Q2 2022

5 CYANIDE MANAGEMENT

Operations at the Eagle Gold Project follows practices and procedures described in the VGC Cyanide Management Plan (CMP) version 2021-01 and the associated Standard Operating Procedures (SOPs) which govern the procurement, delivery, storage handling, and use of sodium cyanide for mineral extraction purposes. The practices comply with the *International Cyanide Management Code* (ICMC), a globally accepted set of practices applied at international gold mining projects involving cyanide-based mineral extraction (ICMI 2016 and 2018).

In accordance with the requirements of QML-0011 and QZ14-041-1, VGC engaged an independent third-party to complete an audit of the CMP and its execution consistent with the International Cyanide Management Code. Code auditors must meet criteria for experience, expertise and lack of conflict of interest set by the International Cyanide Management Institute (ICMI).

As discussed in section 5.4 and Appendix U, minor items were identified by the third-party auditor which will be addressed through updates to the CMP and SOPs and alterations/improvements to certain site practices. These updates are planned as part of the 2022 CMP audit cycle.

5.1 Transportation and Storage Controls

5.1.1 Transport

VGC continues to sole source cyanide for use on the Project site through a long-term cyanide supply contract with Cyanco Canada Inc. (Cyanco), an experienced ICMC-certified North American supplier. Cyanide supplied to the Project is manufactured at Cyanco's ICMC certified plant at Alvin, Texas. VGC established contractual conditions under which Cyanco assumes responsibility for management of the entire supply chain pursuant to ICMC requirements. The transportation route to the Project is fully certified under the ICMC. During the reporting period there were no spills of cyanide documented during transportation.

5.1.2 Receipt, Handling, and Storage

Cyanide is delivered to the Project site in solid briquette form, in one tonne nylon "supersacks", overpacked in polyethylene-lined plywood pallet crates (known as Intermediate Bulk Containers or IBCs) within standard 20-foot steel intermodal containers.

VGC is responsible for unloading intermodal containers of cyanide upon receipt, and takes formal ownership of the product at that point. The product is received at a designated unloading and storage area adjacent to the ADR plant building. The intermodal containers are configured so that the lockable doors are facing one another such that access to the door is restricted without movement of the entire container. When product is required for barren solution amendment, a single steel intermodal container is moved to the concrete unloading area immediately outside of the ADR Plant. The delivery area is marked with warning signs and spotters are utilized to prevent unauthorised passage of personnel and equipment while the cyanide intermodal containers are being offloaded.

The internal cyanide storage area is located inside the plant area. The plant area includes a HDPE liner underneath the building foundation that was graded such that any seepage would report to the lined barren and pregnant solution pipe trench and ultimately the lined HLF. The internal storage area provides warning signage

at all entry doors, an audible and visual hydrogen cyanide (HCN) alarm and monitoring systems, combination safety shower and eyewash station, and dry powder fire extinguishers for use in an emergency.

5.2 Operational Controls

5.2.1 Facilities Monitoring and Inspections

The HLF infrastructure is monitored regularly according to the CMP and the HLF Operation, Maintenance and Surveillance Manual (HLF OMS). Physical stability and integrity inspections of the Heap Leach Pad and associated infrastructure are completed and recorded through supervisor and operator checklists, records are then filed on site by VGC Process department staff. Specific focus areas for inspections of cyanide related facilities are listed in Table 5.2-1.

Table 5.2-1: Cyanide Related Infrastructure Routine Inspection Areas

Facilities	Inspection Focus Area
Cyanide unloading and storage area	• maintenance of general housekeeping practices, presence of water or debris • proper segregated storage of incompatible materials • integrity and proper positioning and stacking of stored intermodal containers and IBCs • presence of properly rated fire extinguishers • legibility of hazard warning signage • availability of Material Safety Data Sheets (MSDSs) for cyanide briquettes • warning signs and visual barriers in the unloading area operations, and restriction of access by unauthorized personnel during unloading • use of appropriate operator PPE during unloading operations
Cyanide bag cutter arrangement, mixing and storage tanks, and secondary containments	• structural integrity, signs of corrosion, buildup of cyanide salts, or leakage (tanks, valves, pumps, and other piping system components) • structural integrity, cracks, spalling, or deterioration of concrete impoundments • functionality of fixed HCN alarms • functionality of tank level indicators • condition of overhead crane hoist and bag lifter • functionality of eyewashes/emergency showers and water supply line pressure • cleanliness, and condition of first aid storage cabinets • condition of emergency response equipment and PPE • use of appropriate operator PPE during mixing operations • legibility of hazard warning and direction flow signage • integrity of lockout/tag-out mechanisms on major solution or containment drain valves • maintenance of physical separation from chemically incompatible materials • maintenance of general housekeeping practices, presence of spilled solution or debris
Incineration of cyanide packaging materials	• legibility of hazard warning signage • completeness of combustion of packaging residues • control of windblown debris • evidence of animal intrusion

Facilities	Inspection Focus Area
ADR plant and secondary containments	• structural integrity, signs of corrosion, buildup of cyanide salts, or leakage involving process solution storage tanks, valves, pumps, and other piping system components • structural integrity, cracks, spalling, or deterioration of concrete impoundments • management of fluids in impoundments • functionality of fixed HCN alarms • functionality of tank level indicators • functionality of eyewashes/emergency showers and water supply line pressure • condition of emergency response equipment and PPE • legibility of hazard warning and direction flow signage • integrity of lockout/tag-out mechanisms on major solution or containment drain valves • maintenance of physical separation from chemically incompatible materials • maintenance of good general housekeeping practices, including routine cleanup of spilled or leaked solution or debris
Pregnant and barren solution pipelines and pumping stations/ containments	• structural integrity, signs of corrosion, buildup of cyanide salts, or leakage (pipelines, valves, pumps, and other components) • structural integrity, cracks, spalling, or deterioration of concrete impoundments • functionality of eyewashes/emergency showers • condition of emergency response equipment and PPE • legibility of hazard warning and direction flow signage • integrity of lockout/tag-out mechanisms on major solution or containment drain valves
HLF earthworks, risers, distribution lines, emitters, internal pond(s), and leak detection system	• signs of erosion, slumps, or cracks in earthworks or the ore pile • signs of pipeline/flange leakage, and associated ponding • signs of ponding on HLF surface; if present, adequacy of avian exclusion devices • signs of animal trails or intrusion • management of fluids in impoundments • functionality of leak detection system and maintenance of associated detection logs • legibility of hazard warning and direction flow signage
External Events Pond and leak detection systems	• adequacy of desired available storage in accordance with the HLF Contingency Water Management Plan • tears or holes in liner material or signs of erosion or slumps in underlying earthworks • signs of pipeline/flange leakage, and associated ponding • adequacy of avian exclusion devices • signs of animal trails or intrusion • functionality of leak detection system and maintenance of associated detection logs • legibility of hazard warning and direction flow signage
Surface water interceptor ditches	• tears or holes in liner material (if lined) or signs of erosion, slumps, or cracks in earthworks • signs of animal trails or intrusion • signs of blockage or other surface runoff impediments

5.2.2 Wildlife Monitoring

The documentation and monitoring of wildlife related to cyanide management is conducted according to HLF area and Events Pond monitoring programs detailed in VGC's Wildlife Protection Plan and SOP SGC-CMP-SOP-011 "Wildlife Mortality Reporting/Investigation". The objective of the monitoring is to confirm that wildlife access to process solution is restricted. This was ensured through the Wildlife Records Program that requires that all VGC employees report wildlife observations throughout the Project site and regular inspections completed by VGC Process and Environmental staff of the HLF area and Events Pond. Wildlife observations and incidents are documented and reported quarterly through the Environmental department as per QML-0011.

As an additional mitigation measure, VGC maintains electronic propane sound cannons in the area of Events Pond throughout the summer and fall to deter wildlife, particularly migratory birds and water fowl from the pond.

As outlined in the CMP, a wildlife exclusion fence is to be installed around the perimeter of the Events Pond to prevent access by larger terrestrial wildlife. This fencing is planned for installation during 2022. The Events Pond has not received any direct overflow from the In-Heap Pond (via the spillway) and there has been no detection of cyanide in any laboratory sample for groundwater flow circulated to the Events Pond from the HLF underdrain monitoring vault.

There were no wildlife incidents associated with the Events Pond during the 2021 reporting period.

5.2.3 Surface and Groundwater Monitoring

The mine operations do not have direct discharges to surface water from cyanide facilities, and the HLF and ADR are engineered and constructed with measures to protect groundwater from seepage of process solution. In addition to facility monitoring, surface water and groundwater monitoring in the vicinity of the HLF, Events Pond and ADR plant is routinely undertaken to determine if process solution has escaped from these facilities.

The sites monitored, and the frequency of water quality monitoring, to determine if process solution has reached the receiving environment are provided in the EMSAMP.

There were three documented releases of process solution during the period of this report. Two of the releases were from the lined footprint of the HLF and one was from the ADR Plant.

The three incidents were investigated, reported and mitigated as documented in the spill reports provided as Appendix R.

In all three cases, surface and water quality sampling was undertaken to establish the extent of potential impacts to the receiving environment. There were no detections of cyanide in any surface water or groundwater during these sampling events. Soil sampling upon completion of excavation and clean up showed that potentially impacted areas either had no detection of cyanide or, if detections were found, the concentrations were below the applicable industrial soil standards specified in Schedule 1 of the *Contaminated sites Regulations.*

Other than the above-described incident, process solution was not detected at any of the monitoring locations in the receiving environment.

5.2.4 Worker Safety

VGC has developed multiple operating procedures for managing its facilities to limit worker exposure to HCN gas and sodium cyanide. Operational monitoring of cyanide facility worker health and safety is based on managing pH throughout the facilities to mitigate the risk of HCN gas production, use of ambient/personal monitoring devices

when working directly with cyanide-related tasks, and ensuring timely investigation and evaluation of exposure incidents.

Fixed HCN monitors are installed in all areas of the ADR plant deemed to have a higher risk of HCN exposure. These areas include the carbon column upper trash screen, carbon column, acid wash, caustic system, strip system, carbon regen, barren solution sump, gold room and cyanide mixing tank area. Monitors are tested and calibrated on a monthly basis by the on-site electrical and instrumentation team, according to scheduled work orders. Maintenance personnel complete a Gas Detector Calibration Report during each scheduled inspection and note the zero gas value desired (i.e., 0.00 ppm), the zero gas reading as found, and the calibrated zero gas value as left upon completion and the span gas value (i.e., 10.00 ppm), the span gas value as found, and the calibrated span gas value as left upon completion. The data from the Gas Detector Calibration Report is then transferred into quarterly calibration logs (Appendix V).

Workers are required to carry portable HCN monitors when performing tasks directly related to cyanide use (e.g., maintenance procedures requiring decontamination of cyanide equipment, mixing, or unloading). VGC continually conducts calibrations and bump tests of the portable monitors with a docking station with plumbed in calibration gases, tracked by an online software platform hosted by the manufacturer. The online dashboard system gathers data from each unit while it is docked and provide the site with details of any alarms and malfunctions that the unit may have encountered. Appendix V provides bump test and calibration certificates for each portable HCN monitor.

All alarms are set to alarm visually with a strobe at 4.7 parts per million (ppm), and to alarm both visually and audibly at 10 ppm. These thresholds are well below the internationally recognized LD50 for gaseous hydrogen cyanide (HCN) of 100-300 ppm (ICMC, 2018), as is consistent with ICMC guidance for fixed and portable HCN monitors.

All site employees, visitors and contractors must receive site hazard training, which includes basic information regarding cyanide safety training (as detailed in Section 5.3). Site employees are required to complete the basic cyanide safety training on an annual basis. Additional detailed cyanide training is provided to employees with a high potential for exposure to cyanide through work-related activities, such as all Process department personnel, ERT members, and Environmental sampling staff.

During the period of this report there were no first aid, medical aid, or lost time incidents related to an exposure to HCN gas or sodium cyanide salts.

5.2.5 General Signage Requirements

As recommended in the ICMC, warning signs are placed to alert workers that cyanide is present, that smoking, open flames, eating and drinking are not allowed and that the necessary cyanide-specific personal protective equipment must be worn. Tanks and piping containing cyanide are identified by color code, signs, labels, tags, decals or other means to alert workers of their contents. The direction of cyanide flow in pipes are also labeled, marked or otherwise designated according to the American National Standards Institute (ANSI) guidelines *"Scheme for the Identification of Piping Systems"* (ANSI/ASME 2007). Special signage is also placed to identify emergency exits and the location of emergency equipment stations including emergency shower/eyewash stations, dry powder/non-acidic sodium bicarbonate fire extinguishers, cyanide antidote kits, and first aid stations. Safety Data Sheets (SDS), which include first aid procedures and additional information on cyanide safety and exposure, are found in hard copy in the ADR Plant, and available electronically to all employees via the company network. Similar information is posted directly on the cyanide mixing and storage tanks, including exposure symptoms, first aid and emergency response.

5.2.6 Emergency Response

VGC has developed a CMP, HLF OMS, EMSAMP, HLF Contingency Water Management Plan, and Emergency Response Plan (ERP), all of which address responses to the potential release of cyanide. The ERP considers multiple potential failure scenarios involving cyanide and the site-specific environment, operation, and response.

During the reporting period no cyanide exposure occurred at the Project site or with Project-related cyanide activities, nor did cyanide exceed limits in water quality monitoring outlined in WUL QZ14-041-1. As noted in Section 5.2.3, there were documented short-term releases of Process Solution outside of lined HLF containment. The incidents were investigated, reported and mitigated as documented in Appendix R.

5.2.7 Emergency Equipment

VGC maintains emergency equipment and supplies at strategic locations to allow rapid response to emergencies involving cyanide exposure. Potable water is supplied to the safety showers and eyewash stations; as well as oxygen, a resuscitator, and a radio are readily available at the ADR Plant, near the mixing and storage area. In addition to the shower/eyewash stations and dry chemical fire extinguishers, cyanide first aid kits are maintained that include medical oxygen equipment with resuscitator, activated carbon, and antidote. The Project currently utilizes the Cyanokit® containing hydroxocobalamin as the antidote for cyanide exposure with six (6) kits present at site at all times. Cyanokits® are located at the site medical clinic and in the site ambulance (within a heated bay) as these can only be administered by the site Primary Care Paramedic (PCP). The cyanide emergency response equipment is checked regularly by the site paramedics, while ERT members check other emergency response equipment, including the site ambulance.

All employees that work with cyanide, and are able to respond to a cyanide exposures emergency, are trained in cyanide exposure recognition, first response and basic first aid procedures; a portion of employees are trained in application of medical oxygen, and antidote, as available and as suitably qualified.

5.2.8 Medical Emergency Response

A first aid room is established at the Project site, with the equipment and staff to handle first response of all readily foreseeable types of medical emergencies. The first aid room is staffed 24 hours a day, 7 days a week and able to provide advanced emergency first aid, including first aid to respond to cyanide poisoned patients. On site medical staff include one PCP with IV endorsements and one Registered Nurse (RN) to allow administration of the Cyanokit®. There were no medical emergencies involving cyanide in 2021.

5.2.9 Emergency Response Team

The Project retains an Emergency Response Team (ERT). The VGC Emergency Response Plan provides primary contact details for the incident management team members, including the General Manager who has authority to ensure that sufficient and adequate resources are allocated to carry out the ERP. The ERP describes the roles and responsibilities for those involved in responding to an emergency. ERT members are site personnel that receive training and certification as emergency responders. All ERT responders undergo the same training, which includes fire, highwall, and hazardous materials emergency response and include members trained to Occupational First Aid (OFA) Level 3 medical first aid.

The Project maintains and updates an Emergency Response Plan that details the following:

- Primary and alternate emergency response coordinators who have authority to commit the resources necessary to implement the Plan;
- Current members of the ERT;
- Minimum training requirements for emergency responders;
- Mustering procedures and 24-hour contact information for emergency coordinators and ERT members;
- Duties and responsibilities of the emergency coordinators and ERT members;
- Procedures for periodic inspection of emergency response equipment to ensure its functionality and availability; and,
- Specific roles of external responders, medical facilities, or community organisations in the emergency response process.

5.2.10 Mock Emergency Drills

Mock cyanide exposure drills are to be undertaken by the ERT as part of regular training sessions. The drills are designed to test each of the potential cyanide emergencies scenarios appropriate for the site as considered in the *Heap Leach Facility Emergency Response Plan.* Should the evaluation of a mock drill identify deficiencies in the methods and effectiveness of the response, the adequacy of emergency response training will be reviewed, and additional or revised training may be recommended to hone the knowledge and skills of the responders.

A mock exercise was undertaken by the ERT members on August 29, 2020 that simulated a cyanide leak within the ADR Plant. There was no drill undertaken in 2021.

5.2.11 Cyanide Emergency Destruction

A supply of hydrogen peroxide is maintained on site as part of the emergency response for neutralizing and decontaminating areas impacted by potential cyanide spills. SGC-CMP-SOP-020 "*Cyanide Emergency Response Procedures*" describes the method for preparing neutralization chemicals for safe use and application to ensure that treatment chemicals and by-products of the neutralization process do not unduly impact surface waters. Additionally, cyanide destruction can be accomplished with the use of lime, soda ash, sodium hypochlorite, or high pH water for neutralization response to spills on site where the neutralization agents will not come into contact with aquatic systems.

There has been no release of cyanide on the Project site requiring emergency cyanide destruction.

5.3 Training

Training programs are implemented to ensure that employees work in compliance with regulations, approved policies, and procedures.

All site employees are required to receive Cyanide Hazard Recognition Training (Level 1) in accordance with the guidance provided in the ICMC. Detailed cyanide training (Level 2 and 3) is further provided to employees with a higher potential for exposure to cyanide through work-related activities, such as all Process department personnel and ERT members. Cyanide specific training is currently tracked through the VGC Training department and all training records are retained on site. Annual refresher training is required and is tracked through the training

department. Cyanide workplace safety meetings are ongoing through daily toolboxes to discuss risks and potential issues related to cyanide-related tasks. Additional on-site training includes the following:

- WHMIS;
- Lime Hazard Recognition Training;
- Cyanide Exposure Symptoms; and,
- First Aid.

To ensure relevant and up to date training programs, and in keeping with the VGC Occupational Health and Safety Policy and with maintaining a safe working environment, workers are encouraged to provide input on occupational health and safety issues. VGC considers this input in developing, evaluating and reviewing operating procedures and during the mock drills, formal safety meetings and informal pre-work safety toolbox sessions. Monthly JOHSC meetings and mandatory all staff monthly safety meetings allow for the review of incidents and provision of employee feedback on health and safety issues.

5.4 Annual Cyanide Management Plan Audit

An independent third-party audit of the VGC Cyanide Management Plan and on-site implementation was undertaken for the period of July 2020 to December 2021. Chase Ruff (of Forte Dynamics Inc.) a certified technical expert auditor for gold mining under the Code performed the audit of operational procedures following the guidelines of the International Cyanide Code. Mr. Ruff has not previously been involved in the project. The Audit Report is provided as Appendix U.

5.4.1 Audit Review

The audit focused on the nine Principles of the Cyanide Code related to operations and safety aspects considered by the ICMC:

- Production;
- Transportation;
- Handling and Storage;
- Operations;
- Decommissioning;
- Worker Safety;
- Emergency Response;
- Training; and
- Dialogue.

The audit concluded that, based on the Standards of Practice for the 9 core Principles of the ICMC, there were 0 Standards of Practice that were not compliant, 21 Standards of Practice in substantial compliance, 5 Standards of Practice not audited, 11 Standards of Practice not applicable, and 85 Standards of Practice in full compliance.

5.4.2 Audit Recommendations

The report identified opportunities for mostly minor improvements in some of the Code Principles, see Table 5.4-1 for recommendations. In response to the audit recommendations, the CMP will be updated prior to the completion of the next annual audit cycle in 2022.

Table 5.4-1: CMP Audit Recommendations and VGC Responses 2021

Principle	Section Description	Audit Recommendation	VGC Response
3	**Standard of Practice 3.1** Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.	Containment volume calculations were not readily available for review, and it is recommended that the site obtain the original containment calculations used in the design of the facility or contract a registered engineer to provided the calculations based on the design and actual construction of the plant.	VGC will work with design engineers to obtain original containment calculations or with our EPCM support to obtain calculations based on the as-built configuration of the plant.
	Standard of Practice 3.2 Operate unloading, storage and mixing facilities using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.	This procedure [VGC-CMP-PRO-201 – Sodium Cyanide Solution Preparation] does not require any inspection or cleanup following cyanide mixing, this should be added to the procedure to ensure that solid sodium cyanide or liquid cyanide solution spills are not left behind where another person may unknowingly be exposed to the chemical.	SOP will be updated to add inspection and cleanup following cyanide mixing.
		The solid cyanide product inside the IBCs already comes with red colorant dye, as delivered by Cyanco, however this is not indicated anywhere in the contract with Cyanco or in any of site documentation. Presence of the dye was confirmed by photos of residual cyanide solution after mixing. Information regarding the presence of the dye should be added to the CMP, appropriate procedures, and training materials.	CMP, relevant SOPs, and training materials will be updated to add information on the presence of the dye in delivered cyanide product.
4	**Standard of Practice 4.1** Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.	Though the CMP indicates these inspections should take place, records of all inspections could not be provided to the auditor. The site should ensure that all inspections are taking place at their required frequency and that the records of those inspections and any corrective actions are kept in a readily accessible place. In addition, the CMP and OMS highlight the need to inspect the HLF for ponding. The reactions operators are to take when ponding is discovered however are only loosely defined. The site was able to communicate the steps that are taken by operators but it is recommended	Inspection frequencies and inspection records filing will be reviewed to ensure that both are occurring as required. A SOP to document procedures to address situations where ponding is observed will be developed.

Principle	Section Description	Audit Recommendation	VGC Response
		that these steps be captured in the OMS or in a separate SOP.	
		The [management of change] MOC process does not have a method to evaluate a change and close a change out. While the MOC process that the site has in place meets the intent of the Code it should be considered best practice to put a process into place to evaluate a change after it has occurred.	Management of change process will be updated in CMP and relevant SOP to add a process to evaluate a change after it occurred and close a change out.
		The auditor requested inspection records of various areas but the site was unable to provide records of consistent inspections outside of operator pre-shift and turn-over inspection forms. The site should ensure that the inspection program is being followed and that inspection records are stored in a place that is readily accessible.	Inspection frequencies and inspection records filing will be reviewed to ensure that both are occurring as required.
		It would be considered best practice for the site to implement a system to check the thickness of critical tanks and pipes where possible.	Tanks and pipes maintenance and inspections procedures will be reviewed and a check of the thickness of critical tanks and pipes will be added where possible.
	Standard of Practice 4.3 Implement a comprehensive water management program to protect against unintentional releases.	The auditor reviewed the inspection records provided however there were insufficient records provided to conclude that the inspections are taking place on a regular basis. The site should ensure that inspections are being conducted per the site guidelines and documented appropriately.	Inspection frequencies and inspection records filing will be reviewed to ensure that both are occurring as required.
	Standard of Practice 4.4 Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.	An SOP should be developed to specifically address situations where ponding is observed.	A SOP to document procedures to address situations where ponding is observed will be developed.
		When asked, the site could provide no timeline of fence installation. The site should include fence installation as a best practice prior to the next audit.	The installation of fence has been included in the 2022 capital project budgets and will be completed when possible.
	Standard of Practice 4.7 Provide spill prevention or containment measures for process tanks and pipelines.	After examining pictures, as-built drawings, and previous audit reports it appears the combined containment within the ADR plan exceeds the minimum requirement of 110% of the largest tank. The site was unable to provide calculations by a registered engineer to show this, though it is apparent the calculations have been done during the design. It is recommended the site either locate the original calculations done by the design engineer or contract an engineer to verify the design and	VGC will work with design engineers to obtain original containment calculations or with our EPCM support to obtain calculations based on the as-built configuration of the plant.

Principle	Section Description	Audit Recommendation	VGC Response
		volume calculations of the containments.	
	Standard of Practice 4.8 Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.	The site is requested to obtain the completed mechanical as-built/record of construction package from JDS to demonstrate adherence to the CMP.	VGC will work with our EPCM support to obtain the relevant information prior to the next audit cycle.
6	**Standard of Practice 6.1** Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.	The Management of Change procedures detail the process for initiating a change however there is no formal process to close out a change request or evaluate its effectiveness. It is recommended that the site include a formal close out and evaluation step as part of its change management process.	Management of change process will be updated in the CMP and relevant SOP to add a process to evaluate a change after it occurred and close a change process out.
	Standard of Practice 6.3 Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.	The check for all first aid equipment located in the medical clinic did not contain a date of inspection or the person responsible for the inspected, it is recommended that a check sheet be implemented to include this information for better tracking of the equipment and compliance with the Code.	First aid equipment inspection forms will be updated to include relevant information including date of inspection and person responsible for the inspection.
		The site has made good faith efforts to obtain these [formal] agreements with offsite medical facilities but has not been able to put agreements into place as of the audit date. It is recommended the site continue to work with provincial entities and medical facilities to ensure that these agreements are in place prior to the next audit.	Initiative to have formal agreements in place with offsite medical facilities will be furthered in 2022.
7	**Standard of Practice 7.2** Involve site personnel and stakeholders in planning process.	Coordination with local offsite medical providers has occurred, including air ambulance support. However, as noted, documentation confirming that formal agreements are in place were requested but not supplied. Site should confirm that offsite partners are aware of and are properly trained for their role in assisting with a cyanide related emergency.	Initiative to have formal agreements in place with offsite medical facilities will be furthered in 2022.
		It is recommended that the site seek to include external entities in their mock drills such as the air ambulance service and outside medical facilities to ensure there is smooth communication and turnover in the event of an emergency.	Involvement of external entities in site drills has been limited due to ongoing COVID pandemic restrictions. External entities will be invited to participate in future mock drills whenever practical.
		Due to the ongoing global pandemic communications with outside stakeholders has been very limited	In person meetings and interactions with stakeholders will be resumed as

Principle	Section Description	Audit Recommendation	VGC Response
		during the audit period however there are adequate procedures in place and documentation to support compliance with the Code. It is recommended that as the pandemic subsides regular interactions continue as before. Information regarding accidental releases that could impact water supplies, human health, or wildlife habitat were communicated to the appropriate stakeholders including the First Nations and the Village of Mayo.	pandemic subsides and it is safe and practical to do so.
	Standard of Practice 7.3 Designate appropriate personnel and commit necessary equipment and resources for emergency response.	As noted above inspections forms for equipment in the medical clinic should be modified to include the date of the inspection and the person responsible for the inspection. Emergency response planning requirements have not been confirmed with external resources who may be required in an emergency. Outside entities should be engaged regularly and included in mock drills, as appropriate. Site is also currently seeking to engage with a neighboring mine to implement a mutual aid agreement to provide support should there be an emergency at either location.	As noted above, first aid equipment inspection forms will be updated to include relevant information including date of inspection and person responsible for the inspection. Initiative to have formal agreements in place with offsite medical facilities and mutual aid agreement with a neighbour mine will be furthered in 2022. External entities will be invited to participate in future mock drills whenever practical.
	Standard of Practice 7.5 Incorporate remediation measures and monitoring elements into response plans and account for the additional hazards of using cyanide treatment chemicals.	The Cyanide Emergency Response Procedures do not reference sampling of contaminated materials but does not specifically reference the Environmental Monitoring Procedures. The procedures should be updated to reference each other for ease of use.	The Cyanide Emergency Response Procedures and the Environmental Monitoring Procedures will be updated to reference each other.
8	**Standard of Practice 8.1** Train workers to understand the hazards associated with cyanide use.	The tracker did not provide the date that training was complete. The date of initial training and all subsequent refresher training should be recorded in the tracker.	Training tracker will be updated as suggested to track the additional information going forward.

6 RECLAMATION & CLOSURE

On January 14, 2020, in response to the YG review and approval of RCP Version 2018-03, VGC provided updated Bond #962-019824 in the amount of $27,406,539.00 to EMR.

On August 12, 2020, the YWB issued Order No.:1 pursuant to section 15 of the *Waters Act* and section 11 of the *Waters Regulations* ordering VGC to furnish and maintain security with the Minister in the amount of $30,780,939, inclusive of any security required under the *Quartz Mining Act*. Effective September 2nd, 2020, Bond #962-019824 was amended by VGC to increase the amount to $30,780,939 as required by the YWB Order.

VGC submitted an updated Reclamation and Closure Plan (RCP 2020-01) on October 23, 2020 for review and approval as required by QML-0011 and QZ14-041-1. The review and approval of RCP 2020-01 is ongoing at the time of this submission.

VGC considers the currently held security amount to be more than adequate to reclaim the Project in accordance with the RCP as the assumed current actual liability for closure is less than the security held. VGC is fully prepared to provide additional security as may be required upon the completion of the review and approval of RCP 2020-01.

6.1 Reclamation Research

The RCP considers the undertaking of various reclamation research programs to support the progressive and final reclamation and closure of the Mine. There are six main research programs (each with sub-tasks):

- Revegetation – To support the selection of suitable candidate species based on site specific considerations (e.g., growing season/climate, soil fertility, etc.).
- Engineered covers – Phased program to support final HLF and WRSA soil cover design.
- Vegetation rooting depth – To inform cover designs and revegetation programs as to the most suitable candidate species based on rooting depth and distribution of key functional types of mature plants, and the characterization of growth materials associated with plant roots at the most active rooting depths.
- Passive water treatment – To support the design and operation of the PTS for water treatment purposes during closure.
- HLF biological detoxification – To further refine the possible biological treatment of heap fluids at closure for cyanide destruction and some metals removal (as an alternative to active treatment processes).
- Groundwater arsenic attenuation – To further evaluate the direction that seepage from the WRSAs may migrate and potential effects.

To date, specific programs have commenced to advance the revegetation, engineered covers and passive water treatment research programs. Components of ongoing operations will also provide information to support final closure measures (e.g., heap leaching performance supporting understanding of potential lateral variability and flow paths providing relevant information for biological detoxification); however, this information is not collected specifically for the purposes of reclamation research and thus is not part of this report.

6.1.1 Waste Rock Cover Trials

The base case cover system considered for closure of the HLF and WRSAs is conceptually expected to behave as a store and release system where 20 to 50% of effective precipitation will infiltrate the cover system to underlying waste or spent ore. To support the refinement of closure planning, a pilot scale cover system trial began in September 2020. A mixed overburden and topsoil stockpile was placed on the plateau of the 1370 bench of the Platinum Gulch WRSA to construct and monitor a pilot scale cover system using the relocated overburden at a 0.5 m thickness. The trial area included a portion of the eastern plateau and southeast slope of the 1370 WRSA. Details regarding the construction and instrumentation of the trial, and the ways in which data collected at the trial will be used to advance subsequent areas of research was provided with the 2020 Annual Report.

The cover trial incorporates automated soil monitoring stations that consist of volumetric water content and matric suction sensors to quantify key surface water and energy balance fluxes. Data is collected by a datalogger powered by battery and solar panel set up, with the sensors installed in pairs through the cover system profile to capture data to calculate water and energy fluxes at the interfaces of different material types including between the cover system layers and between the cover system and waste. Monitoring performance of the cover system trial also includes the use of net radiometers, snow surveys, and a rainfall gauge.

Analyses of the monitoring and other climate data (including consideration of data gathered at the Camp and Potato Hills climate stations) is an important element in assessing the efficacy of the base case cover system. Cover system performance monitoring will focus on partial elements of atmospheric water and energy balance inputs, along with soil water balance parameters. Measurements taken within the cover system provide insight into the partitioning of water at the cover system-atmosphere interface and the cover system-waste material interface.

The monitoring system design for the cover system trial includes one monitoring station on the covered area of the WRSA plateau and one monitoring station on the adjacent covered southeast slope. Having sensors on both the plateau and slope ensures that the individual landform elements are captured as distinct units, thus aiding in data interpretation.

Water balance modelling results for the slope and plateau locations to date aligned with the conceptual expectations of the base case cover system as discussed in Appendix W. It is expected that additional data collection will be utilized to support future design iterations to the cover systems as contemplated in RCP 2020-01.

6.1.2 Overburden Material Characterization Program for Cover Research

To further support the reclamation research associated with cover system designs and general reclamation activities, a field investigation program was undertaken in September 2021 to characterize available overburden stockpile materials. The program involved the excavation of test pits within major stockpiles to assess material texture (through particle size distribution analyses), Atterberg limits and soil fertility.

The program was conducted by Okane Consultants based on locations identified by VGC staff. The materials assessed were considered to be able to achieve similar net percolations rates as those from the 1370 cover trial and could thus likely be used for cover of all major facilities for the purposes of water infiltration management. The soil fertility results for the samples indicated that some amended may be necessary to support a sustainable vegetation community. The requirement for potential amendment will be further assessed as a component of the revegetation research programs. The report describing the material characterization is provided as Appendix X.

6.1.3 Passive Wetland Treatment System Research

In 2021, Ensero Solutions was engaged to review the VGC water quality database, the site water balance and water quality model predictions for the planned Platinum Gulch passive treatment system (PTS), and previously collected geotechnical investigation data and substrate information. The scope of work was intended to support advancing the design of the Platinum Gulch PTS based on site-specific data and included a field program to confirm soil properties and foundation conditions in the PG PTS location and the identification and collection of samples of candidate substrates and wetlands plants for further analysis.

The field program was completed in July, 2021 and included the completion of six test pits to support siting the future PG PTS, investigation of four potential substrate borrow locations (with three ultimately selected for sampling during the field program) and harvesting of three plant species for future offsite bench scale trials.

The research program preliminary findings concluded that there should be sufficient area within the proposed PG PTS location to construct a suitable constructed wetland treatment system (CWTS), that a number of the investigated substate borrow sources warrant further assessment, and that there are locally available wetland plants that have been successfully used at other sites for CWTS. The findings of this research are provided as Appendix Y and include discussion of the proposed next steps for advancing this research program.

6.1.4 Pilot Bioreactor Program

A pilot bioreactor program was established in 2019 and has continued through 2021. The program is being stewarded with guidance from the Yukon Industrial Research Chair - Northern Mine Remediation at the Yukon University Research Centre, and expands upon earlier lab scale trials which evaluated the removal rates for arsenic, selenium, antimony and other metals from mine influenced water (MIW). The pilot evaluates the impact of ambient freeze-thaw stresses on sulfate reducing bacteria and their efficiency in the removal of heavy metals (particularly arsenic, selenium and antimony).

The program utilizes mine influenced waters originating from Platinum Gulch catchment and the PG WRSA.

which are pumped into a 1,000L tank filled (Photo 6.1-1) once per week though the summer and twice per week during winter for use in the system. The MIW is then transferred to 200L drums both inside and outside of the bioreactor program shack (Photo 6.1-2). The MIW solution is fed with a specified dosage of molasses, which helps promote the growth and survival of the bacteria and allow the bioreactor to work. The bioreactors are monitored weekly and sampled on a periodic basis (weekly to monthly depending on field conditions). VGC continues to work with the YIRC to support the implementation and further development of the program. Results of the program will be compiled at the end of the ongoing evaluation term.



Photo 6.1-1: Holding Tank for Contact Water for Bioreactor Program



Photo 6.1-2: Bioreactor Inlet and Outlet Drums

6.2 Revegetation Program

The VGC revegetation program centers on a progressive reclamation ideology that is focused on interim sediment and erosion controls which provide opportunity to inform final reclamation. To achieve suitable mine closure outcomes, planning for reclamation is initiated in conjunction with mine planning whenever possible and will continue throughout mine operation.

Reclamation treatments at the Eagle site are applied to two scenarios; Temporary closure, where mining related activities cease with the intent of resuming activities in the near future; and Permanent closure. Detailed objectives for reclamation and closure will be site-specific, defined by factors that include environmental conditions, site conditions and community expectations.

As the operation matures and reclamation permanent reclamation opportunities become available, the operation will continue with its engagement with stakeholders to refine and improve end land use objectives to meet their expectation.

6.2.1 Revegetation Activities

Revegetation efforts in 2021 included broadcast seeding, willow staking, and bioengineering techniques completed throughout additional areas at the Mine site, as detailed in Table 6.2-1. The program was completed in September by VGC supported by Laberge Environmental Services.

Table 6.2-1: Revegetation and Bioengineering Treated Areas 2020

Location	Method / Installation	Notes
LDSP	Broadcast Seeding	A custom reclamation seed mix comprised of *Poa alpinus, Festuca saximontana, Deschampsia caespitosa & Elymus trachycaulus was applied over 1.0 ha at a rate of 20.1 kg/ha*
90 Day Stockpile	Tree Planting	729 Alder seedlings planted.
Stewart Gulch	Tree Planting	90 Alder seedlings planted.
Overburden Stockpile south of LDSP	Broadcast Seeding	A custom reclamation seed mix comprised of *Poa alpinus, Festuca saximontana, Deschampsia caespitosa & Elymus trachycaulus was applied over 1.2 ha at a rate of 20.1 kg/ha.*
Overburden Stockpile across from Quonsets	Broadcast Seeding	A custom reclamation seed mix comprised of *Poa alpinus, Festuca saximontana, Deschampsia caespitosa & Elymus trachycaulus was applied over 1.0 ha at a rate of 12.1 kg/ha*
Dublin culvert	Broadcast Seeding Tree Planting	A custom reclamation seed mix comprised of *Poa alpinus, Festuca saximontana, Deschampsia caespitosa & Elymus trachycaulus was applied over 0.2 ha at a rate of 20.1 kg/ha.*
Overburden stockpile by Dublin Gulch	Broadcast Seeding	A custom reclamation seed mix comprised of *Poa alpinus, Festuca saximontana, Deschampsia caespitosa & Elymus trachycaulus was applied over 0.5 ha at a rate of 20.1 kg/ha.*
Ditch A	Broadcast Seeding	A custom reclamation seed mix comprised of *Poa alpinus, Festuca saximontana, Deschampsia caespitosa & Elymus trachycaulus was applied over 0.5 ha at a rate of 20.1 kg/ha.* *151 Alder seedlings planted.*
Ditch B	Broadcast Seeding	A custom reclamation seed mix comprised of *Poa alpinus, Festuca saximontana, Deschampsia caespitosa & Elymus trachycaulus was applied over 0.6 ha at a rate of 20.1 kg/ha.*
Road along Dublin Creek	Broadcast Seeding	A custom reclamation seed mix comprised of *Poa alpinus, Festuca saximontana, Deschampsia caespitosa & Elymus trachycaulus was applied over 1.2 ha at a rate of 20.1 kg/ha.*

Location	Method / Installation	Notes
Haggart Creek	Fascine Installation & broadcast seeding	A fascine was installed along Haggart Creek (64°02'37.2" N, 135°51'05.8" W). A 30 m trench was hand dug in the partially frozen ground approximately one meter back from the creek bank. Bundles of 2.5 cm diameter willow stakes, with branches attached to assist in trapping sediment, were placed into the trench. Five-centimeter diameter anchor posts were pounded into the trench beside the fascine every two meters and one inch diameter posts were installed every 0.5 m. In addition, miscellaneous smaller diameter stakes were added randomly to increase stability. The majority of the willow stakes were little tree willow (*Salix arbusculoides*) with some Alaska willow (*S. alaxensis*) and balsam poplar (*Populus balsamifera*). To increase stability over time, the area was also seeded at a rate of 20 kg/ha with the small seed mix using the following composition: • Alpine bluegrass, 9% PLS • Tufted hairgrass, 87% PLS • Rocky Mountain fescue, 4% PLS



Installed Fascine, Sept 2021



Bundle Preparations, September 2021

Photo 6.2-1: Willow Fascine Preparation 2021

6.3 Hazardous Materials Inventory

Day to day operation of the Project requires the use of various hazardous materials. These materials are stored in dedicated locations around the Project in accordance with the associated material safety data sheets and industry standard practice. An inventory of the hazardous materials stored is maintained by the Procurement team and responsible operational departments and is provided in Table 6.3-1. The storage areas for these materials are routinely inspected to ensure that there is no evidence of leaks or improper storage methods.

Table 6.3-1: Hazardous Material Inventory

Common Name (Synonyms)	Chemical Name	Manufacturer / Supplier	Phase	TDG Class	Reporting Threshold	Max Level	Stored location
Cyanide	Sodium Cyanide	Cyanco	Solid	6.1		320 T	ADR
Diesel Fuel		North 60 Petro	Liquid	3	200 L	TBD	Camp, laydown

Common Name (Synonyms)	Chemical Name	Manufacturer / Supplier	Phase	TDG Class	Reporting Threshold	Max Level	Stored location
		Ltd					
DEF Fluid IBC Tote	Diesel Exhaust Fluid	Finning Canada	Liquid	N/R		4,420 L	Warehouse
Antifreeze Extended Life Coolant IBC Tote	Glycol	Petro Canada	Liquid	N/R	5 L	3,120 L	Laydown
PolarZone Windshield Washer Fluid IBC Tote	Methanol diluted, methyl hydrate, and wood alcohol	Nemco	Liquid	3 (6.1)	200 L	4,000 L	Laydown
Hydrex XV A/Season Hydraulic Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	2,080 L	Laydown
Produro TO-4+ Synthetic A/Season TDTO Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	4,160 L	Laydown
Spirax S6 CXME 5W30 Hydraulic Oil IBC Tote		Shell Canada	Liquid	N/R	5 L	1,000 L	Laydown
Synduro SHB 32 Compressor Oil 205L Drum		Petro Canada	Liquid	N/R	5 L	1,640 L	Laydown
Duron UHP 5W40 Engine Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	2,080 L	Laydown
Duron SHP 15W40 Engine Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	0	Laydown
Enduratex EP220 Syn Gear Oil 205L Drum		Petro Canada	Liquid	N/R	5 L	820 L	Laydown
Traxon 75W90 Syn Gear Oil 205L Drum		Petro Canada	Liquid	N/R	5 L	820 L	Laydown
Enduratex EP68 Gear Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	2,080 L	Laydown
Hydrex MV32 Hydraulic Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	4,160 L	Laydown
Produro TO-4+ Syn Lotemp TDTO Oil 1600L Tote		Petro Canada	Liquid	N/R	5 L	19,200 L	Laydown
Duron UHP 5W40 Engine Oil 1600L Tote		Petro Canada	Liquid	N/R	5 L	8,000 L	Laydown
Enduratex EP220 Syn Gear Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	2,080 L	Laydown
Produro FD-1 60 TDTO Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	2,080 L	Laydown
Enduratex EP150 Syn Gear Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	4,160 L	Laydown
Hydrex Extreme Hydraulic Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	2,080 L	Laydown
Produro TO-4+ Syn Lotemp TDTO Oil IBC Tote		Petro Canada	Liquid	N/R	5 L	24,960 L	Laydown
Hydrex Extreme Hydraulic Oil 205L Drum		Petro Canada	Liquid	N/R	5 L	1,025 L	Laydown
Precision EP0 XL5 Moly Grease 1600L Tote		Petro Canada	Semi-Solid	N/R	100 L or 100 kg	4,800 L	Laydown
Precision EP0 XL5 Moly Grease 175KG Drum		Petro Canada	Semi-Solid	N/R	100 L or 100 kg	1,225 kg	Laydown
Precision EP1 XL5 Moly Grease 175KG Drum		Petro Canada	Semi-Solid	N/R	100 L or 100 kg	0	Laydown
Precision EP2 XL Grease		Petro Canada	Semi-	N/R	100 L or	108 kg	Laydown

Common Name (Synonyms)	Chemical Name	Manufacturer / Supplier	Phase	TDG Class	Reporting Threshold	Max Level	Stored location
54KG Drum			Solid		100 kg		
Precision EP2 XL3 Moly Grease 54KG Drum		Petro Canada	Semi-Solid	N/R	100 L or 100 kg	108 kg	Laydown
Nordback Backing Compound	Eboxy backing	Metso Minerals	Liquid	N/R		1,400 kg	Warehouse
Ammonium Nitrate	Ammonium nitrate	ORICA	Solid	5.1	50 kg	TBD	Orica pad
Carbon Activated AC Gold Plus 1000KG Bags	Activated Carbon	Brenntag	Solid	N/R		26,000 kg	ADR
Inhibitor Anti Scalant ML1535	ChemTreat ML153	ChemTreat	Liquid	N/R		16,912 kg	ADR
Inhibitor Anti Scalant ML5105	ChemTreat ML5105	ChemTreat	Liquid	N/R		10,730 kg	ADR
QuickLime	High calcium quicklime	Graymont Western Canada Inc	Solid	N/R		TBD	Lime silo
Caustic Soda 25KG Bags	Sodium hydroxide	Brenntag	Solid	8	5 kg	40,000 kg	ADR
Soda Ash 22.7KG Bags	Soda ash dense	Quadra Chemicals	Solid	N/R		1,400 kg	ADR
Glycol Stanfrost 1060KG Tote	Propylene Glycol	Brenntag	Liquid	N/R	5 L	2,120 kg	Laydown
IPAC 1256F 1040KG Tote	IPAC 1256F	Quadra Chemicals	Liquid	N/R		0	ADR
IPAC 1256F Bulk	IPAC 1256F	Quadra Chemicals	Liquid	N/R		TBD	ADR
IPAC 1250F 1290KG Tote	IPAC 1250F	Quadra Chemicals	Liquid	N/R		0	ADR
IPAC 1250F Bulk	IPAC 1250F	Quadra Chemicals	Liquid	N/R		TBD	ADR
Water Softener Salt	Sodium chloride salt	Clear Blue Water Systems	Solid	N/R		1,000 kg	TBD
Pool Salt	Sodium chloride salt	Sifto Canada	Solid	N/R		300 kg	TBD
Nitric Acid 50% Tote	Nitric acid 50%	Brenntag	Liquid	8	5 L	27,000 kg	ADR
Calcium Chloride	Calcium chloride	Kortech	Solid	N/R		20,000 kg	TBD
Propane	Liquified petroleum gas	Superior Propane	Compressed Gas	2.1	Any if container larger than 100 L	TBD	
Gasoline	Gasoline	North 60 Petrol	Liquid	3	200 L	TBD	

7 SOCIO-ECONOMIC MONITORING

The focus of socio-economic work in 2021 continued to be primarily on ensuring that contracts for the operation of the Project were right scaled to allow for the involvement of Yukon and First Nations businesses to the greatest extent practicable. At the time of this report, a joint committee to confirm socio-economic indicators and report on and respond to monitoring results had not been formed.

VGC is committed to procuring goods and services from registered FNNND and Yukon based companies whenever possible.

To date, contracts with a total value of approximately $240,000,000 have been with Yukon companies. VGC is now the largest private sector employer in Yukon with a workforce of over 350 people, 50% of whom are Yukoners.

In 2021, under the Victoria Gold NND CBA Scholarship Program, 14 students were awarded funds to continue their education. Since the establishment of this program, 134 scholarships have been awarded to FNNND students.

The company also continued its community involvement where possible under COVID-19 protocols and was a proud supporter of the following local organizations and events in 2021:

- Every Student, Every Day - Water Bottles for all Yukon Students
- First Nation of Na-Cho Nyak Dun –Book: Dan Hunay – Our People's Story
- The Victoria Gold Klondike Gold Ruff Charity Run Multi-year sponsorship – Proceeds to Yukon Humane Society
- Yukon FireFit – Multi-year sponsorship
- Yukon First Nations Hockey Association –Multi-year sponsorship
- Yukon Women in Mining - Yukon Mining & Geology Week
- Yukon Learn Society PGI 2021 Gold Tournament for Literacy
- Victoria Gold Golf Tournament - Proceeds to Every Student, Every Day
- First Nation of Na-Cho Nyak Dun - Memorial Blanket Project
- Yukon Chamber of Commerce - Annual General Meeting
- 2021 Newmont Invitation Gold Tournament - Proceeds to Special Olympics
- Yukon First Nations Chamber of Commerce - Reawakening Gala
- Santa Clause Parade - Proceeds to Yukon Imagination Library
- Boulevard of Hope - Proceeds to Yukoners Living with Diabetes

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APPENDIX A1

As-Built Drawings and Construction - LDSP Forebay Lining

VICTORIA GOLD CORP

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Lower Dublin South Pond Forebay Lining Construction Report February 2021

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1 Background

1.1 Water Management Infrastructure

1.1.1 Overview

The Lower Dublin South Pond (LDSP or Control Pond) was built to proactively manage contact water and sediment-laden water from disturbed areas in the southern section of the Eagle Gold Mine throughout the life of the Mine. Details regarding the development and operation of water management facilities are found in the Water Management Plan Version 2020-01 (SGC, 2020).

The relevant water management infrastructure and pond components related to the Control Pond system are shown in Figure 1 and described below:

Ditch A: Located downslope from the open pit, the Platinum Gulch Waste Rock Storage Area (WRSA), the 90 day stockpile and roads related to this infrastructure. Ditch A runs north from the drainage basin of the Platinum Gulch WRSA across the site and into the Control Pond.

Ditch B: When the entire stretch of Ditch B is completed it will follow the natural Eagle Creek watercourse, and receive runoff from the Eagle Pup WRSA and Suttles Gulch, which contains the crusher installations and part of the Eagle Pit. Ditch B will flow west across site from the northern end of the Eagle Pup WRSA to the Control Pond. Currently only the reach from Suttles Gulch to the Control Pond is completed.

Ditch C: Located downslope of the Control Pond, and conveys the outflow from the pond west to Haggart Creek.

Control Pond: Located at the outflow ends of Ditch A and Ditch B, the Control Pond is managed as a detention pond that receives water from the main ditches to ensure appropriate capture and management of contact water and surface runoff.

The 2017 Issued for Construction and As Built design of the Control Pond included an unlined forebay and lined main pond separated by the forebay berm (which includes a spillway to allow for water to migrate between the two pond sections). The Control Pond was designed, and built, to store the 10-year, 24-hr storm event while at the same time providing a detention time of at least 24 hours for sediment particles sized 0.005 mm (and larger) to settle out. The unlined forebay was intended to allow for the removal of accumulated sediments in the forebay without the potential for damaging a liner; further a liner was not deemed to be required due to the ground elevation of the excavated forebay being at or very close to a low permeability bedrock surface, which is comprised of primarily gray, slightly weathered, phyllite with clay.



Figure 1 - Control Pond system

1.1.2 Water Use Licence Requirement

As a condition of Victoria Gold's amended 2018 Water Use License (QZ14-041-1), a hydrogeological assessment was required to determine if the forebay should be lined with low permeability liner. As discussed above, the main body of the Control Pond itself was lined during original construction, however the forebay was not lined. The requirement from QZ4-041-1 is as follows:

"32. The Licensee must conduct a hydrogeological assessment to determine whether the forebay of the LDSP… should be lined with a low permeability liner. A report on the findings of the assessment must be submitted to the Board as part of the 2019 Annual Report. The report must include:

- *a) detailed figures showing the location of boreholes, testpits, geophysical surveys within and near the LDSP and the PGP;*
- *b) all borehole and testpit logs;*

c) *construction records from the construction of the LDSP;*
d) *all available water flow and water quality data collected from the LDSP drains and from relevant groundwater monitoring wells upgradient, within the limits of and downgradient of the two ponds;*
e) *an estimate of potential seepage from the LDSP forebay and PGP without the presence of a low permeability liner;*
f) *an estimate of the potential reduction in seepage from installing low permeability liners in the LDSP forebay and in the PGP;*
g) *recommendations on whether installing a low permeability liner in the LDSP forebay or the PGP is required;*
h) *evidence that the assessment report was reviewed and approved by an Independent Third-party Reviewer who is a professional hydrogeologist."*

QZ14-041-1 mandated that if the hydrogeological assessment recommended that the forebay required a low permeability liner, then one must be installed by September 30, 2020.

1.1.3 Forebay Lining Project

Victoria Gold (Yukon) Corp. (VGC) made the decision to simply install a liner system (rather than rely on the findings of a hydrogeological assessment) to proactively demonstrate the forebay base has low permeability. This minor modification was completed during Q4 2020 by removing the sediment accumulated in the forebay and installing the liner. The delay in constructing the liner was due to attaining adequate dewatering of the forebay area and provide sufficient time for sediment to stiffen (freeze) sufficiently to allow excavation.

1.2 Initial Forebay Design

The Engineer of Record (EOR) for the original Control Pond design was Mauricio Herrerra of Tetra Tech EBA. The design of the forebay contemplated excavation to bedrock and inclusion of an embankment separating the forebay from the lined Control Pond area (Figure 2). A typical section of the embankment can be seen in Figure 3.

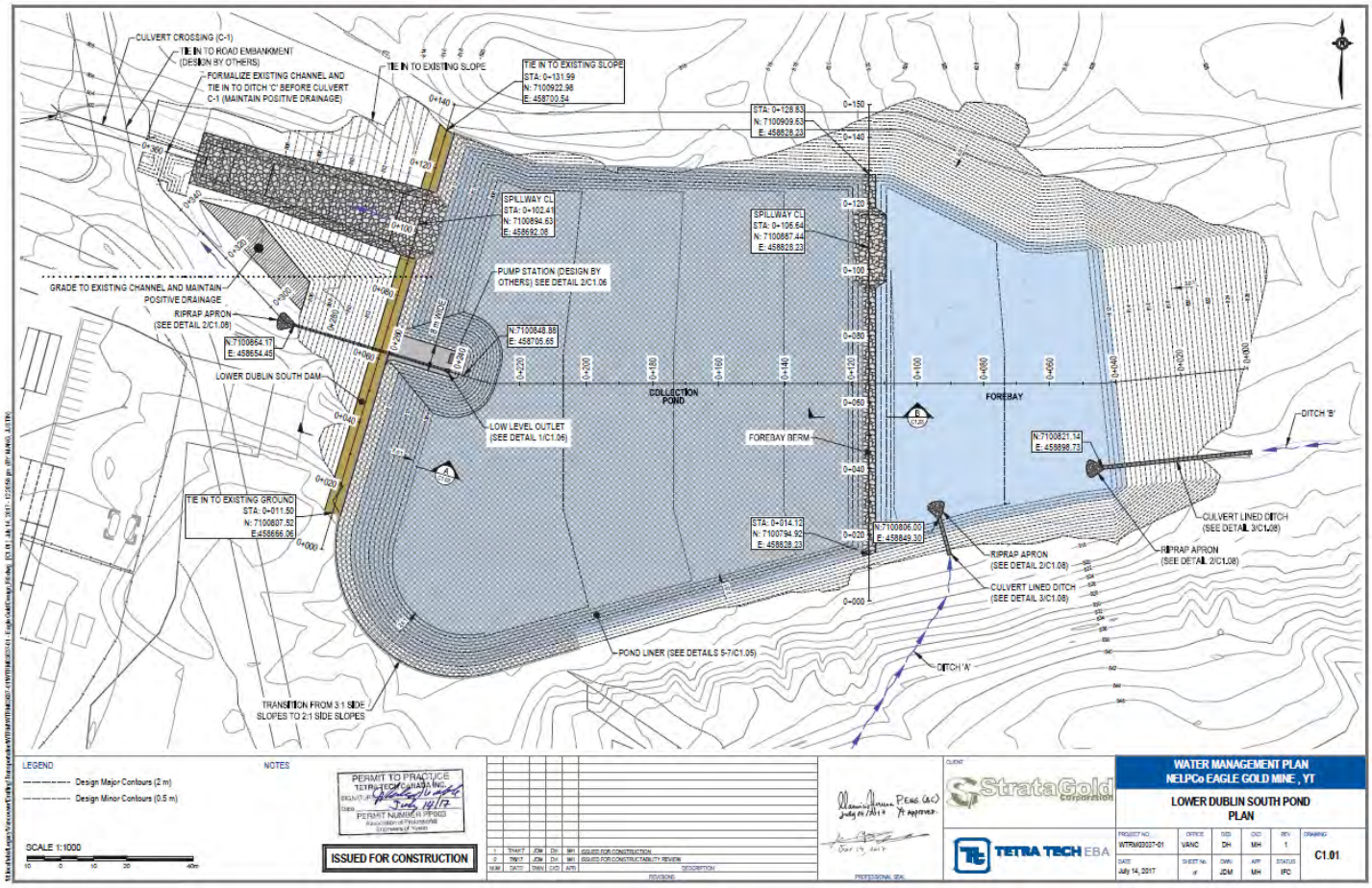


Figure 2 - Design of the Control Pond and Forebay

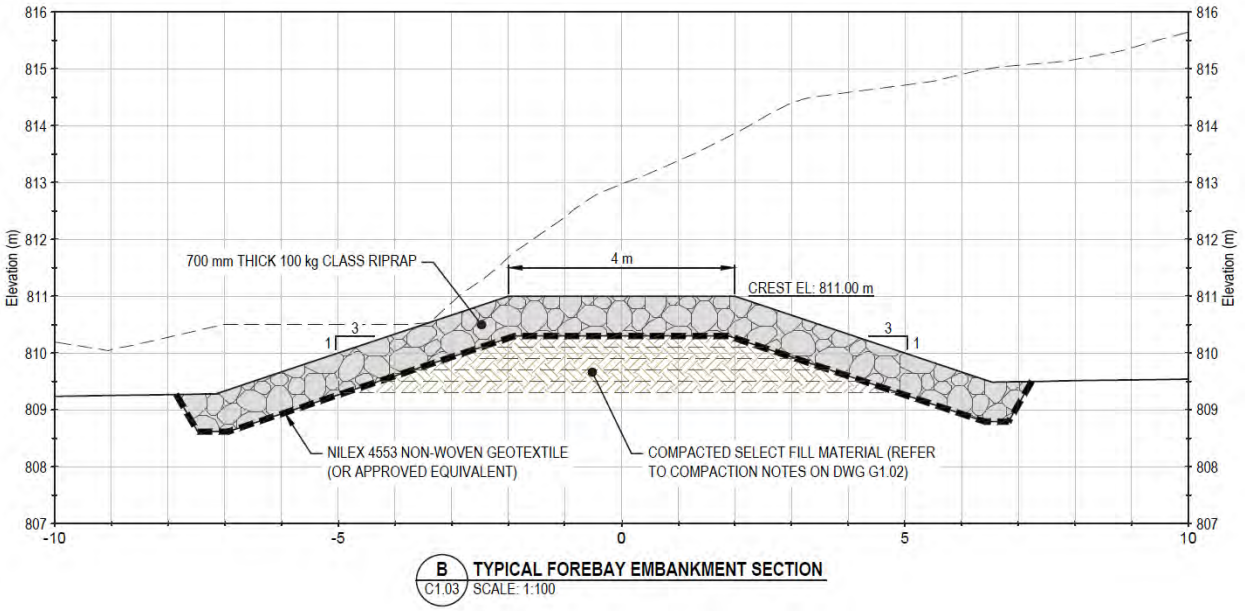


Figure 3 – Typical design cross section of the embankment separating the Control Pond and Forebay

1.3 Initial Forebay Construction

The Control Pond including the forebay was constructed under the supervision of JDS Energy & Mining Inc. (JDS) Field Engineers. Any minor modifications from the original design, and all Quality Assurance and Quality Control activities related to the geotechnical aspects of the project, were approved by the EOR. The forebay was constructed in November 2017. As contemplated in the Issued for Construction design, the forebay was not lined. Details regarding the as-built construction of the transition between the main pond and forebay are depicted in Figure 4. A photograph of the original construction can be seen in Photograph 1 below. A Construction Report was completed by StrataGold Corporation (SGC) for all works related to the forebay construction which includes As-built drawings provided by Maurico Herrera of Tetra Tech EBA (SGC, 2017).

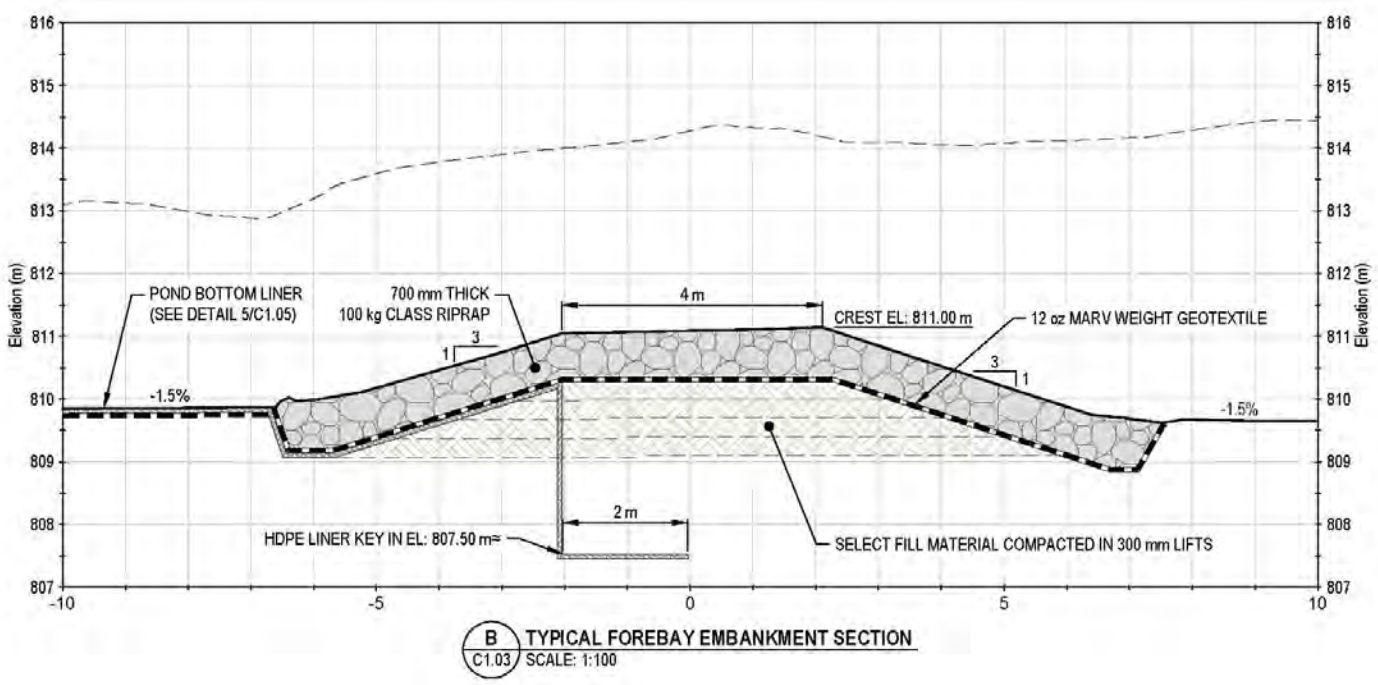


Figure 4 - Typical as-built cross section of the embankment separating the Control Pond and Forebay



Photograph 1 - Original construction of forebay (November 22, 2017)

2 Forebay Construction Summary

2.1 Responsibilities

The forebay lining project was supervised by Clint Abel, JDS's representative on site, and additional inputs were provided by the Technical Services team at Victoria Gold. Ewing Transport Ltd. was engaged to complete all earthworks and liner placement for the forebay. Underhill Geomatics Ltd. completed an as-built survey of the placed liner in the forebay. Final engineering sign-off on the forebay construction was completed by Richard Tuohey, P.Eng., VGC's Technical Services Superintendent.

2.2 Liner Material

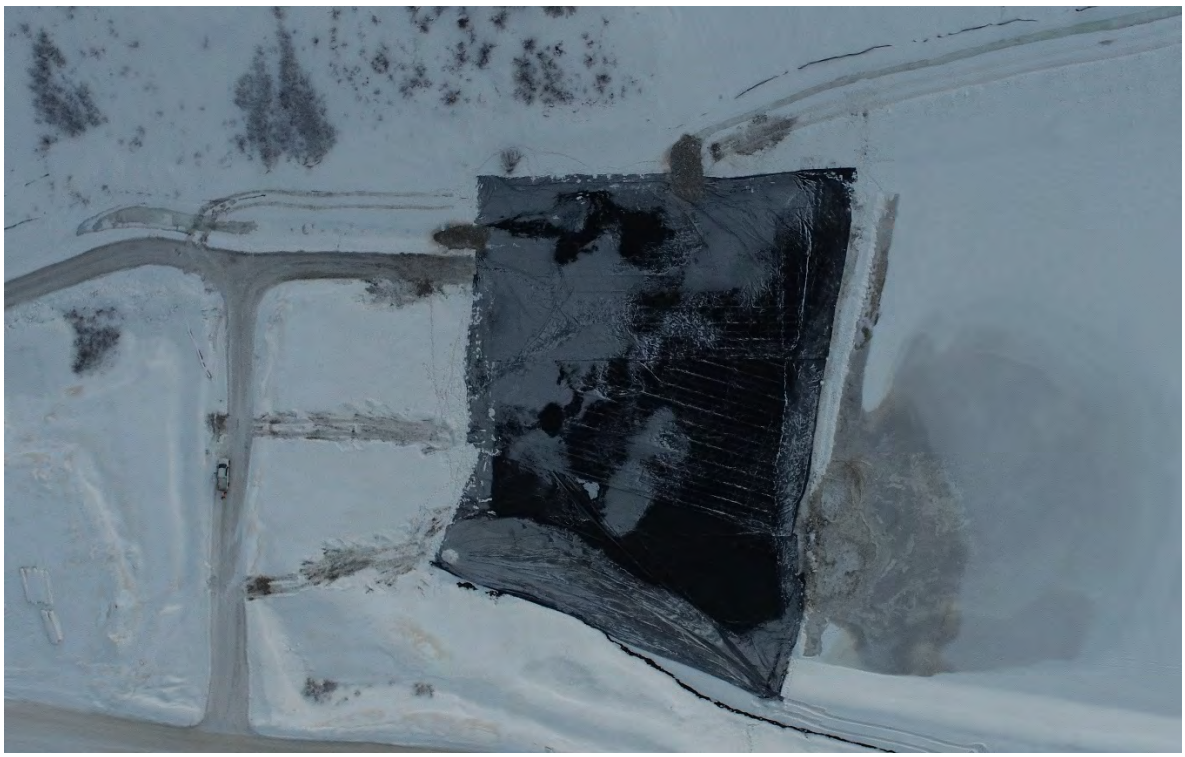
The low permeability liner installed in the forebay was provided by Layfield Canada Inc. (Layfield). The liner used was OR RPE 25, which is a reinforced polyethylene 24 mil woven liner. Manufacturing documentation for the liner can be seen in Appendix A.

2.3 Construction Summary

The timing of the installation of the low permeability liner mandated in QZ14-041-1 was not discussed with VGC (nor supported by reasons for decision) prior to becoming part of the Water Use Licence, thus VGC engaged with the Inspector to discuss a more appropriate construction time based on actual site conditions (i.e., frozen ground and low flows). The construction in the forebay was completed between October 30 and December 21, 2020.

The alignment and configuration of the forebay was not altered during the lining works. The extents of the forebay remain the same and the embankment between the forebay and the main body of the Control Pond was not altered.

The accumulated silt was first removed to bring the forebay back to its original containment volume, and then liner was deployed. Approximately 8,050 m^3 of accumulated sediment was removed from the forebay and deposited in a bermed contained area located within placer sediments in the Dublin Gulch valley. Some complications were encountered in November due to excess water flowing into the forebay while construction was ongoing; however, once temperatures dropped the construction was completed. Three pre-fabricated liner panels were made to cover the extent of the forebay. The liner was deployed as per the manufacturer's orientation and recommendation. Along the North side of the forebay the liner was draped onto the forebay (east) side of the embankment, and along the East, South, and West sides of the Forebay the liner was draped up the sides of the Forebay perimeter (Photograph 2). Panels were overlapped by a minimum of 1 meter, and in most places greater than that due to angling the panels, and sandbags were placed on top of the liner to weigh it down.



Photograph 2 - Deployed liner in Forebay

Appendix B provides the daily reports completed by Ewing Transport Ltd. and documents all materials removed from the Forebay and liner placement.

A selection of construction photos is provided in Appendix C.

The as-built liner placement can be seen in Appendix D.

3 Letter of Assurance

I hereby confirm that:

- I am a Professional Engineer registered with the Association of Professional Engineers of Yukon, and licensed to practice in the Yukon Territory;
- I have utilized the standards of care, skill and diligence that, in accordance with the standards of my professional, are required of Professional Engineers in the Yukon Territory;
- I am the Engineer of Record (EoR) for the Eagle Gold Mine Forebay;
- I consider the construction improvements described within this report as "Minor Modifications", as defined in the Water Use Licence QZ14-041-1, to the submitted final designs of the Forebay and that these improvements do not affect the functionality of the Forebay to meets its design criteria or environmental performance requirements and do not affect the ability of any other Engineered Structure to meet their design and performance criteria;
- All Quality Assurance and Quality Controls during construction were conducted to my satisfaction.

Richard Tuohey, P.Eng.
Technical Services Superintendent
rtuohey@vgcx.com
867-456-7700 extension 6315

PERMIT TO PRACTICE
VICTORIA GOLD (YUKON) CORP.
SIGNATUR
Date July 2, 2021
PERMIT NUMBER PP680
Association of Professional Engineers of Yukon

4 References

SGC (2017), Eagle Gold Project Lower Dublin South Pond Construction Report, July 2017, prepared by StrataGold Corporation.

SGC (2020), Eagle Gold Project Water Management Plan Version 2020-01, January 2020, prepared by StrataGold Corporation.

APPENDIX A

LINER MANUFACTURING DOCUMENTATION

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job # E0006148
Stock Code 606270080
Start Date 9/15/2017
Result Pass

Customer Name LAYFIELD GEO USA - C05356
Description HDPE 270"x420' 80MIL SE TEX-1
Inspection Number 27476

Serial	Result	Roll Length (ft)	Roll Weight - Net (3946 lbs +/- 50 lbs)	Sheet Width (270 in +/- 2 in)	Roll Area (877.9 m2 +/- 0 m2)	Thickness - Average ASTM D5199 (76 mil min.)	Thickness - Minimum ASTM D5199 (72 mils min.)
606270080-E0006148-001	Pass	420	3891	270.00	877.9	77.6	74.6
606270080-E0006148-002	Pass	420	4151	268.50	873.0	79.5	76.3
606270080-E0006148-003	Pass	249	2581	268.50	517.6	82.5	80.1
606270080-E0006148-004	Pass	420	4261	268.80	874.0	82.8	80.0
606270080-E0006148-005	Pass	420	4256	269.00	874.7	83.0	80.4
606270080-E0006148-006	Pass	420	4206	269.00	874.7	82.4	80.4
606270080-E0006148-007	Pass	420	4156	269.00	874.7	82.0	80.7
606270080-E0006148-008	Pass	420	4151	270.50	879.6	81.9	80.2
606270080-E0006148-009	Pass	420	4151	270.50	879.6	81.4	75.4
606270080-E0006148-010	Pass	420	4156	270.50	879.6	82.8	80.4
606270080-E0006148-011	Pass	420	4141	270.30	878.9	81.8	80.1
606270080-E0006148-012	Pass	420	4146	269.50	876.3	82.0	80.2
606270080-E0006148-013	Pass	420	4156	269.50	876.3	81.7	77.4
606270080-E0006148-014	Pass	420	4156	269.30	875.7	80.4	74.7
606270080-E0006148-015	Pass	420	4156	269.30	875.7	81.9	80.4
606270080-E0006148-016	Pass	420	4156	269.30	875.7	81.9	80.4
606270080-E0006148-017	Pass	420	4166	270.00	877.9	79.8	75.5
606270080-E0006148-018	Pass	420	4161	270.00	877.9	79.7	73.9
606270080-E0006148-019	Pass	420	4171	270.00	877.9	80.6	78.2
606270080-E0006148-020	Pass	420	4166	270.00	877.9	80.9	78.2
606270080-E0006148-021	Pass	420	4156	270.30	878.9	81.6	80.0

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job # E0006148
Stock Code 606270080
Start Date 9/15/2017
Result Pass

Customer Name LAYFIELD GEO USA - C05356
Description HDPE 270"x420' 80MIL SE TEX-1
Inspection Number 27476

Serial	Asperity - Average (18 mil to 30 mil)	Strength at Yield - MD Average ASTM D6693 IV (168 lbs/in min.)	Elongation at Yield - MD Average ASTM D6693 IV (12 % min.)	Strength at Break - MD Average ASTM D6693 IV (120 lbs/in min.)	Elongation at Break - MD Average ASTM D6693 IV (100 % min.)	Strength at Yield - TD Average ASTM D6693 IV (168 lbs/in min.)	Elongation at Yield - TD Average ASTM D6693 IV (12 % min.)
606270080-E0006148-001	23.4	214	17	227	372	218	18
606270080-E0006148-002	23.4	214	17	227	372	218	18
606270080-E0006148-003	22.9	214	17	227	372	218	18
606270080-E0006148-004	25.1	214	17	227	372	218	18
606270080-E0006148-005	22.3	214	17	227	372	218	18
606270080-E0006148-006	25.6	219	18	223	369	180	18
606270080-E0006148-007	27.4	219	18	223	369	180	18
606270080-E0006148-008	25.1	219	18	223	369	180	18
606270080-E0006148-009	24.7	219	18	223	369	180	18
606270080-E0006148-010	25.6	219	18	223	369	180	18
606270080-E0006148-011	25.7	239	18	249	452	246	17
606270080-E0006148-012	23.0	239	18	249	452	246	17
606270080-E0006148-013	24.9	239	18	249	452	246	17
606270080-E0006148-014	22.8	239	18	249	452	246	17
606270080-E0006148-015	20.9	239	18	249	452	246	17
606270080-E0006148-016	22.7	228	18	236	341	229	17
606270080-E0006148-017	24.3	228	18	236	341	229	17
606270080-E0006148-018	22.4	228	18	236	341	229	17
606270080-E0006148-019	23.0	228	18	236	341	229	17
606270080-E0006148-020	22.3	228	18	236	341	229	17
606270080-E0006148-021	24.9	243	18	257	488	248	17

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job # E0006148
Stock Code 606270080
Start Date 9/15/2017
Result Pass

Customer Name LAYFIELD GEO USA - C05356
Description HDPE 270"x420' 80MIL SE TEX-1
Inspection Number 27476

Serial	Strength at Break - TD Average ASTM D6693 IV (120 lbs/in min.)	Elongation at Break - TD Average ASTM D6693 IV (100 % min.)	Tear Strength - MD Average ASTM D1004 (56 lbs min.)	Tear Strength - TD Average ASTM D1004 (56 lbs min.)	Puncture Strength - Average ASTM D4833 (120 lbs min.)	Carbon Black Content ASTM D4218 (2 % to 3 %)	Density ASTM D1505 (0.94 g/cc to 0.95 g/cc)
606270080-E0006148-001	232	475	64	64	155	2.60	0.942
606270080-E0006148-002	232	475	64	64	155	2.60	0.942
606270080-E0006148-003	232	475	64	64	155	2.60	0.942
606270080-E0006148-004	232	475	64	64	155	2.60	0.942
606270080-E0006148-005	232	475	64	64	155	2.60	0.942
606270080-E0006148-006	237	513	64	64	155	2.60	0.942
606270080-E0006148-007	237	513	64	64	155	2.60	0.942
606270080-E0006148-008	237	513	64	64	155	2.60	0.942
606270080-E0006148-009	237	513	64	64	155	2.60	0.942
606270080-E0006148-010	237	513	64	64	155	2.60	0.942
606270080-E0006148-011	275	556	77	76	161	2.59	0.942
606270080-E0006148-012	275	556	77	76	161	2.59	0.942
606270080-E0006148-013	275	556	77	76	161	2.59	0.942
606270080-E0006148-014	275	556	77	76	161	2.59	0.942
606270080-E0006148-015	275	556	77	76	161	2.59	0.942
606270080-E0006148-016	237	456	77	76	161	2.70	0.942
606270080-E0006148-017	237	456	77	76	161	2.70	0.942
606270080-E0006148-018	237	456	77	76	161	2.70	0.942
606270080-E0006148-019	237	456	77	76	161	2.70	0.942
606270080-E0006148-020	237	456	77	76	161	2.70	0.942
606270080-E0006148-021	267	508	78	76	154	2.60	0.942

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job # E0006148
Stock Code 606270080
Start Date 9/15/2017
Result Pass

Customer Name LAYFIELD GEO USA - C05356
Description HDPE 270"x420' 80MIL SE TEX-1
Inspection Number 27476

Serial	Carbon Black Dispersion ASTM D5596	OIT - High Pressure ASTM D5885
606270080-E0006148-001	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-002	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-003	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-004	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-005	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-006	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-007	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-008	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-009	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-010	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-011	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-012	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-013	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-014	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-015	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-016	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-017	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-018	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-019	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-020	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-021	>= 9 in Category 1 or 2	Pass > 400 mins

Product: 60-HD-00-BLK-BLK-AVG-STD-23.5
Project : Layfield Canada, AB
Cust PO: E31722

Quality Manager: Rajesh Patel
Date: May 8, 2020
SKAPS SO: 31C2000155

We hereby certify the following test results for the above referenced product/project :

Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT	Resin Lot #
			ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
					MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
3111001267	12,925	3,964	61	58	149	160	19	17	271	305	760	911	47	50	145	0.948	2.6	10	280	PKF610080
3111001276	12,925	3,978	61	59	149	151	18	17	290	311	817	928	49	51	147	0.946	2.5	10	280	PKF610080
3111001283	12,925	3,950	61	58	145	156	19	16	293	297	828	904	49	51	151	0.947	2.5	10	280	PKF610080
3112004773	12,925	3,948	62	60	156	166	19	17	247	259	785	796	49	52	155	0.948	2.4	10	256	19K1022
3112004774	12,925	3,944	61	60	159	167	19	17	248	271	713	831	50	53	150	0.947	2.3	10	256	19K1022
3112004775	12,925	3,946	61	59	159	167	19	17	248	271	713	831	50	53	150	0.947	2.3	10	256	19K1022
3112004776	12,925	3,930	61	59	159	167	19	17	248	271	713	831	50	53	150	0.947	2.3	10	256	19K1022
3112004777	12,925	3,940	61	59	159	167	19	17	248	271	713	831	50	53	150	0.947	2.3	10	256	19K1022
3112004778	12,925	3,942	61	59	164	167	18	17	270	289	786	880	50	53	150	0.947	2.5	10	256	19K1022
3112004779	12,925	3,936	61	58	164	167	18	17	270	289	786	880	50	53	150	0.947	2.5	10	256	19K1022
3112004780	12,925	3,964	62	60	164	167	18	17	270	289	786	880	50	53	150	0.947	2.5	10	256	19K1022
3112004781	12,925	3,978	62	61	164	167	18	17	270	289	786	880	50	53	150	0.947	2.5	10	256	19K1022

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

Phone: 706-336-7000
Fax: 706-336-7007
E-Mail:contact@skaps.com

LAYFIELD

SHOP QC

Special Fabrication Instructions / Description of Operations	In-Process Inspection #1	#2	#3	Completed
8/10/19			8/10/20	
8/10/19			8/10/20	

Job Desc.	Custom Liner-ORRPE25				
Customer:	4STR115				
Sales Person:	Yasemin	Date:	19-Oct-20		
Material Type:	OR RPE 25 Black 144"				
Prod Code:	03LW	S/O#:	365387		
Fab Code:	301409820HD				
Length	**269**	Width	**134.2**		

Docket / Lot #	#	Roll #	Liner# / Panels	Quantity	Repairs
B00622027 YANL	241441	TC20220627	L#2/1,2	2	Splice on Liner #2 Panel #7
D00419016 YANL	241441	TC30190417	L#2/3→8	6	
B00622034 YANL	241441	TC20220635	L#2/9-11.5	3.5	
B00622027 YANL	241441	TC20220627	L#2/1	1	
D00419016 YANL	241441	TC30190417	L#2/2→6.7	6	
B00622034 YANL	241441	TC20220635	L#2/#8,9,10,11,12	1.5	#1 700 550 1
B00622026 YANL	241441	TC20220627	L#3/1,2,3,4,5,6,7	7	#4
B00622026 YANL	241441	TC20220627	8,9,10,11,12	4.5	
					Mach: PFS Speed: 790 Temp: 500 Splice: X

ASTM D6392		Shear (Seam #)					Peel (Seam #)										Tech/Date (Seam #)				
Liner #		1	3	6	9	11	1 L	R	3 L	R	6 L	R	9 L	R	11 L	R	1	3	6	9	11
FE022635	1	140	136	138	137	138											LS	LS	LS	LS	LS
FE022635	2	130	129	123	135	129											KF	KF	KF	KF	KF
FE022635	3	126	129	129	131	127															
FE022635																					
FE022635																					
FE022635																					
FE022635																					
FE022635																					
FE022635																					
FE022635																					

Inspections	#1	#2	#3	Final
	Oct 19/2020 L#1 P#1-6 Kyle Oct 19/20 L#2	Oct-19-2020 Oct 20-2020 L#3	Oct 20/2020 L#1 P#7-11.5 Kyle L#2	10/20/20

QA / QC - Passed

intertape polymer group®
50 Abbey Avenue, Truro, Nova Scotia, B2N 6W4

Certificate of Analysis 71375

Section 1

Customer:	**LAYFIELD**		
Plant Order No.:	**OS98593**		
Customer Order No.:	**K027650**		
Product Description:	**NOVALINER 24**	**Color BLK / BLK**	**Mil 2.4 / 2.4**

Section 2

Roll No.: **TN01214830** Roll Width: **144**

Properties Tested:		**Result**
Pick Count [ASTM D2646]	(per inch)	**16 / 16**
Weight [ASTM D751]	(oz/SY)	**9.07**
Mullen [ASTM D3786]	(psi)	**610**
Tensile Strength MD [ASTM D7003]	(Lbf/in)	**210**
Tensile Strength CD [ASTM D7003]	(Lbf/in)	**197.1**
Grab Strength MD [ASTM D7004]	(Lbf)	**334.42**
Grab Strength CD [ASTM D7004]	(Lbf)	**265**
Tongue Tear MD [ASTM D5884]	(Lbf)	**109**
Tongue Tear CD [ASTM D5884]	(Lbf)	**120.41**
Trapezoidal Tear MD [ASTM D4533]	(Lbf)	**89**
Trapezoidal Tear CD [ASTM D4533]	(Lbf)	**97.12**
Flame Test [NFPA 701]	Pass / Fail	**PASSED**
Puncture Resistance [ASTM D4833]	(Lbf)	**154**

Section 3

Comments: **This test result is representative of the run. This COA covers the following roll numbers:B90830006,025,026,027,028,035,036**

QA Representative: R.PARSONS **Date: 9/12/19**

APPENDIX B

DAILY REPORTS AND MATERIAL TRACKING

Time			Equipment		Haul Information				
Year	Period (Wk End)	Date	Load Unit	Load m3	Material	From (General Area)	To (General Area)	# Loads	Volume (ECM)
2020	31-Oct-20	30-Oct-20	730	14	waste	Forebay	Eagle waste dump	37	518
2020	31-Oct-20	31-Oct-20	730	14	waste	Forebay	Eagle Waste Dump	36	504
2020	7-Nov-20	1-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	86	1204
2020	7-Nov-20	2-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	68	952
2020	7-Nov-20	3-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	6	84
2020	7-Nov-20	5-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	49	686
2020	7-Nov-20	6-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	74	1036
2020	7-Nov-20	7-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	59	826
2020	14-Nov-20	8-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	77	1078
2020	21-Nov-20	17-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	60	840
2020	21-Nov-20	18-Nov-20	730	14	waste	Forebay	Eagle Waste Dump	23	322

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch B and 4 Bay clean out
	Eagle Gold
	Saturday, October 31st 2020, 1:08 AM (GMT +00:00)

Daily Report

Job:	*Ditch B and 4 Bay clean out*
Location:	*Eagle Pup*
Project Name:	*Ditch B*
Description of Work:	*Excavation and sloping* *Excavation and hauling of silt*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-17c light snow*
Weather(PM):	*-13c snow*
Date:	*October 30, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Complete a proper pre trip all employees are responsible for completing daily

Incident(s)

Total Incidents	*No comments*

QUALITY TOPICS

Topics:

Frost and water

EXTRAS

Type:

Added scope

Hrs:

12

Description:

4 Bay clean out



336 loading rock truck at 4 Bay

EXTRAS

Type:

Added scope

Hrs:

12

Description:

No comments



Diversion of water prior to excavation

EXTRAS

Type:

Hrs:

No comments

Description:

No comments



ACTIVITIES COMPLETED

Activities:

No comments



336 bulking material from Ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

No comments

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

10

CONTRACTORS LABOUR AND HOURS UTILIZED

Russell Noksana, *Supervisor*
October 31st 2020, 1:08 AM (GMT +00:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	4 Bay clean out
	Eagle Gold
	Sunday, November 1st 2020, 4:10 PM (MST -07:00)

Daily Report

Job:	*4bay Clean Out*
Location:	*Eagle pup*
Project Name:	*Ditch B*
Description of Work:	*Excavation and removal of silt material from 4 bay*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*?*
Weather(AM):	*-32c clear*
Weather(PM):	*-27c clear*
Date:	*November 1, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Monthly safety meeting-Slips and Falls

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

Cold weather

EXTRAS

ACTIVITIES COMPLETED

Activities:

Continue to excavate and haul waste materials



ACTIVITIES COMPLETED

Activities:

No comments



EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Cold weather

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

› **Ewing**

Equipment:

› **Excavator** › **336EL UNIT 026 (Long Stick)**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

› **Ewing**

Equipment:

› **Rock Truck** › **730 UNIT 016**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

› **Ewing**

Equipment:

› **Rock Truck** › **730 UNIT 018**

Hrs Used:

11

CONTRACTORS LABOUR AND HOURS UTILIZED

Russell Noksana, *Supervisor*
November 1st 2020, 4:10 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Various jobs
	Eagle Gold
	Thursday, November 5th 2020, 5:19 PM (MST -07:00)

Daily Report

Job:	*Ditch B, Control Pond and East Perimeter Road*
Location:	*Eagle Pup, HLF*
Project Name:	*Ditch B*
Description of Work:	*Excavation, ripping, padding, sloping a d loading and hauling materials*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*New*
Weather(AM):	*-29c clear*
Weather(PM):	*-26c clear*
Date:	*November 5, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Cold weather- dress
For conditions, proper warm up conditions

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

Frozen materials, water

EXTRAS

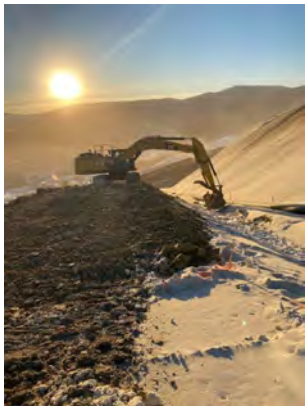
ACTIVITIES COMPLETED

Activities:

No comments



Looking west from ditch B



Slope cleanup at east perimeter pads

ACTIVITIES COMPLETED

Activities:

No comments



Control Pond



Install liner and pipe

ACTIVITIES COMPLETED

Activities:

No comments



East perimeter conveyor pads



Placing pipe into position

ACTIVITIES COMPLETED

Activities:

No comments



D10 at 90 day



Cold day at control pond

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

JDS

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 025

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 024

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D7R-XR UNIT 032 (OLD)

Hrs Used:

6

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Packer > CS54B UNIT 010

Hrs Used:

3

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 016

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

9

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

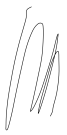
# of Labourers

1

Total Hrs Worked:

9

Russell Noksana, *Supervisor*
November 5th 2020, 5:19 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily jobs
	Eagle Gold
	Friday, November 6th 2020, 4:42 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Eagle Pup, east perimeter road, HLF and secondary*
Project Name:	*Vic Gold Support*
Description of Work:	*Excavation, sloping, ripping, installation of liner and pipe, backfill, road maintenance amd loading and hauling materials*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*Various*
Weather(AM):	*-26c light snow*
Weather(PM):	*-21c clear*
Date:	*November 6, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Road conditions are slippery use caution
Limited chatting on Ladd 2 move to Ewing

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

Allot of water entering 4 bay!

EXTRAS

ACTIVITIES COMPLETED

Activities:

Control pond clean out



ACTIVITIES COMPLETED

Activities:

No comments



Backfill w/ ore

ACTIVITIES COMPLETED

Activities:

No comments



Control pond

ACTIVITIES COMPLETED

Activities:

No comments



Diverting water at control pond



Final grading on new conveyor pad at East Perimeter Road

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Allot of water oat 4 bay and soft muddy conditions

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

Under Hill

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > **730 UNIT 016**

Hrs Used:

8

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > **730 UNIT 017**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > **730 UNIT 018**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > **325DL UNIT 022 (Quick Attach)**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > **336EL UNIT 024**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

> **Excavator** > **336EL UNIT 026 (Long Stick)**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Dozer** > **D7R-XR UNIT 032 (OLD)**

Hrs Used:

3

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Dozer** > **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

# of Labourers

1

Total Hrs Worked:

12

Russell Noksana, *Supervisor*
November 6th 2020, 4:42 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Thursday, November 12th 2020, 3:43 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*HLF Support and 4 bay*
Description of Work:	*Ripping, bulking waste, pad construction, snow removal and materials relocation*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-25c light snow*
Weather(PM):	*-19c sun*
Date:	*November 7, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Proper radio channel
Call In on all roads on site

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Loading waste from 4 bay



D10-ripping at nuway/secondary

ACTIVITIES COMPLETED

Activities:

No comments



Crews installing water pump

ACTIVITIES COMPLETED

Activities:

No comments



Dewatering 4 bay

ACTIVITIES COMPLETED

Activities:

No comments



East perimeter road/conveyor pads

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

Under Hill

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D10R UNIT 030

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 025

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 024

Hrs Used:

3

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D7R-XR UNIT 032 (OLD)

Hrs Used:

3

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 016

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

5

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

5

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Light Vehicle **3500 Dodge Ram ET005 (Silver-Automatic)**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

1

Total Hrs Worked:

12

Russell Noksana, *Supervisor*
November 12th 2020, 3:43 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Sunday, November 8th 2020, 4:52 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*HLF, Eagle pup, Secondary and east lay down*
Project Name:	*Vic Gold*
Description of Work:	*Materials relocation, excavation, stockpiling, HLF support*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-17 light snow*
Weather(PM):	*-10 light snow*
Date:	*November 8, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

FLRAs- must update when tasks change daily

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



4 bay bay- loading rock truck

ACTIVITIES COMPLETED

Activities:

No comments



East lay down- materials relocation and clean up for HLF

ACTIVITIES COMPLETED

Activities:

No comments



Prep area for loading at secondary

ACTIVITIES COMPLETED

Activities:

No comments



Dewatering 4 bay

ACTIVITIES COMPLETED

Activities:

No comments



Continue removing waste at 4 bay

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Cold weather- frozen tracks etc...

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 024**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

11

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

2

Total Hrs Worked:

24

Russell Noksana, *Supervisor*
November 8th 2020, 4:52 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Monday, November 9th 2020, 5:12 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Eagle Pup, secondary, HLF, 90 day wash out, amd access road*
Project Name:	*Vic Gold*
Description of Work:	*Excavation, ripping,loading and hauling materials, road maintenance, sanding, materials relocation*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-6c snowing*
Weather(PM):	*-8c cloudy*
Date:	*November 9, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Heavy snow fall- drive defensively, safe following distance

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Ripping at Ditch B



4 bay flooding

ACTIVITIES COMPLETED

Activities:

No comments



D7- waste dump clean from 4 bay



Rock hauling at secondary/Nuway dump expansion

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

# of Visits	*1*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D10R UNIT 030

Hrs Used: *11.5*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D7R-XR UNIT 032 (OLD)

Hrs Used: *7*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 025

Hrs Used: *11*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used: *11*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 024

Hrs Used: *10.5*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

9

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

2

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

10

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

1

Total Hrs Worked:

12

Russell Noksana, *Supervisor*
November 9th 2020, 5:12 PM (MST -07:00)

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Monday, November 16th 2020, 4:19 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Eagle pup, 4 Bay, HLF and Ditch A,B*
Project Name:	*Victoria Gold*
Description of Work:	*Ore haul, HLF support, 4 bay clean out, excavation and sloping of ditch B, ice removal at ditch A*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-18c*
Weather(PM):	*-20c*
Date:	*November 16, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Be aware of complacent drivers on-site

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



336's at Ditch B

ACTIVITIES COMPLETED

Activities:

No comments



Completion of East lay down for new conveyor's at HLF

ACTIVITIES COMPLETED

Activities:

No comments



4 bay attempt

ACTIVITIES COMPLETED

Activities:

No comments



ACTIVITIES COMPLETED

Activities:

No comments



Cleaning up remaining silt from 4 bay

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

JDS

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 024**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

8

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D7R-XR UNIT 033 (WINCH)**

Hrs Used:

3

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

9

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

> **Skid Steer** > **289D UNIT 015**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

# of Labourers

1

Total Hrs Worked:

12

Russell Noksana, *Supervisor*
November 16th 2020, 4:19 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Wednesday, November 18th 2020, 5:33 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*ROM Road, HLF Support, Ditch B and Ore Haul*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-24c*
Weather(PM):	*-29c*
Date:	*November 18, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Cold weather- dress appropriately

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



ROM Road



ROM Road bulking materials

ACTIVITIES COMPLETED

Activities:

No comments



Cleanup at 4Bay

ACTIVITIES COMPLETED

Activities:

No comments



Prepare pads for skid steers for access for conveyor clean out

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

JDS

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

7

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D10R UNIT 030

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 024

Hrs Used:

6

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 016

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 017

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 018

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

1

Total Hrs Worked:	*12*

Russell Noksana, *Supervisor*
November 18th 2020, 5:33 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Wednesday, November 25th 2020, 11:25 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day stockpile, HLF support, Ditch A ice removal,*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-12*
Weather(PM):	*-15*
Date:	*November 24, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Entering new work areas, proper radio channel, brake test, men on the ground

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



HLF support (AUL)

ACTIVITIES COMPLETED

Activities:

No comments



Forebay clean up

ACTIVITIES COMPLETED

Activities:

No comments



Ditch A ice removal

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 325DL UNIT 022 (Quick Attach)

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 329EL UNIT 027

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer > 289D UNIT 015

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer > 289D UNIT 051

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Grader > 740R UNIT 014

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*

November 25th 2020, 11:25 AM (MST -07:00)

64.0311594, -135.8485196



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Thursday, November 26th 2020, 1:10 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day stockpile, HLF support, Ditch A ice removal, nuway support, forebay*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-19*
Weather(PM):	*-18*
Date:	*November 25, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Entering new work areas, proper radio channel, brake test, men on the ground

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Nuway support

ACTIVITIES COMPLETED

Activities:

No comments



Conveyor cleanup

ACTIVITIES COMPLETED

Activities:

No comments



Hauling material out of forebay

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 022 (Quick Attach)**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Grader **740R UNIT 014**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*

64.0311589, -135.8485004

November 26th 2020, 1:10 PM (MST -07:00)

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Friday, December 11th 2020, 11:00 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day washout, HLF support sanding main roads, ditch B, conveyor clean up, forebay, sanding site roads*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*—8*
Weather(PM):	*-15*
Date:	*December 10, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Icy roads, single lane haul roads, wildlife, working in the dark, housekeeping, seat belts, use a spotter

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Digging ice in the forebay

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D7R-XR UNIT 033 (WINCH)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*
December 11th 2020, 11:00 AM (MST -07:00)

64.0311427, -135.8485162



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Monday, December 21st 2020, 12:52 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*HLF support, secondary support, AN pad,*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*—25*
Weather(PM):	*-22*
Date:	*December 19, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Men on the ground, working at explosives pad, cold weather, don't tail any vehicles, confusing tasks, congested worked area

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Orica pad complete

ACTIVITIES COMPLETED

Activities:

No comments



Digging ice in forebay

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

- **Ewing**

Equipment:

- **Rock Truck** › **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer › D10R UNIT 030	
Hrs Used:	*12*

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:	
# of Labourers	*3*
Total Hrs Worked:	*36*

Marshall Ewing, *Supervisor* *64.0311462, -135.8484854*

December 21st 2020, 12:52 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Tuesday, December 22nd 2020, 4:00 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*HLF support, secondary support, Forebay*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*—30*
Weather(PM):	*-29*
Date:	*December 20, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

cold weather, don't tail any vehicles, confusing tasks, congested worked area

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Hauling ice out of forebay and dewatering

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

> **Skid Steer** > **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Skid Steer** > **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Dozer** > **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

# of Labourers

3

Total Hrs Worked:

36

Marshall Ewing, *Supervisor*
December 22nd 2020, 4:00 PM (MST -07:00)

64.0311407, -135.8484693



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Wednesday, December 23rd 2020, 8:06 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*HLF support, secondary support, Forebay*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*—20*
Weather(PM):	*-17*
Date:	*December 22, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Icy conditions, cold weather, men on the ground working near equipment, house keeping

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Liner in the forebay

ACTIVITIES COMPLETED

Activities:

No comments



ACTIVITIES COMPLETED

Activities:

No comments



Placing rip rap

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

2

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

8

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

	12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:	
# of Labourers	*3*
Total Hrs Worked:	*36*

Marshall Ewing, *Supervisor* *64.0311272, -135.8484882*

December 23rd 2020, 8:06 AM (MST -07:00)



APPENDIX C

CONSTRUCTION PHOTOS



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201031 – REMOVING MATERIAL FROM FOREBAY

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-1

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201101 – REMOVING MATERIAL FROM FOREBAY

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-2

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201105 – REMOVING MATERIAL FROM FOREBAY

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-3

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201108 – DEWATERING FOREBAY

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-4

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201109 – DEWATERING FOREBAY

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-5

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201115 – LINER PANELS FOR FOREBAY

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-6

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201115 – CONSTRUCTION ON HOLD UNTIL WATER FREEZES

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-7

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201118 – CONTINUED CONSTRUCTION

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-8

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201210 – CLEANING OUT ICE

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-9

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201222 – FOREBAY LINER DEPLOYED

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-10

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com

APPENDIX D

AS-BUILT FIGURES



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

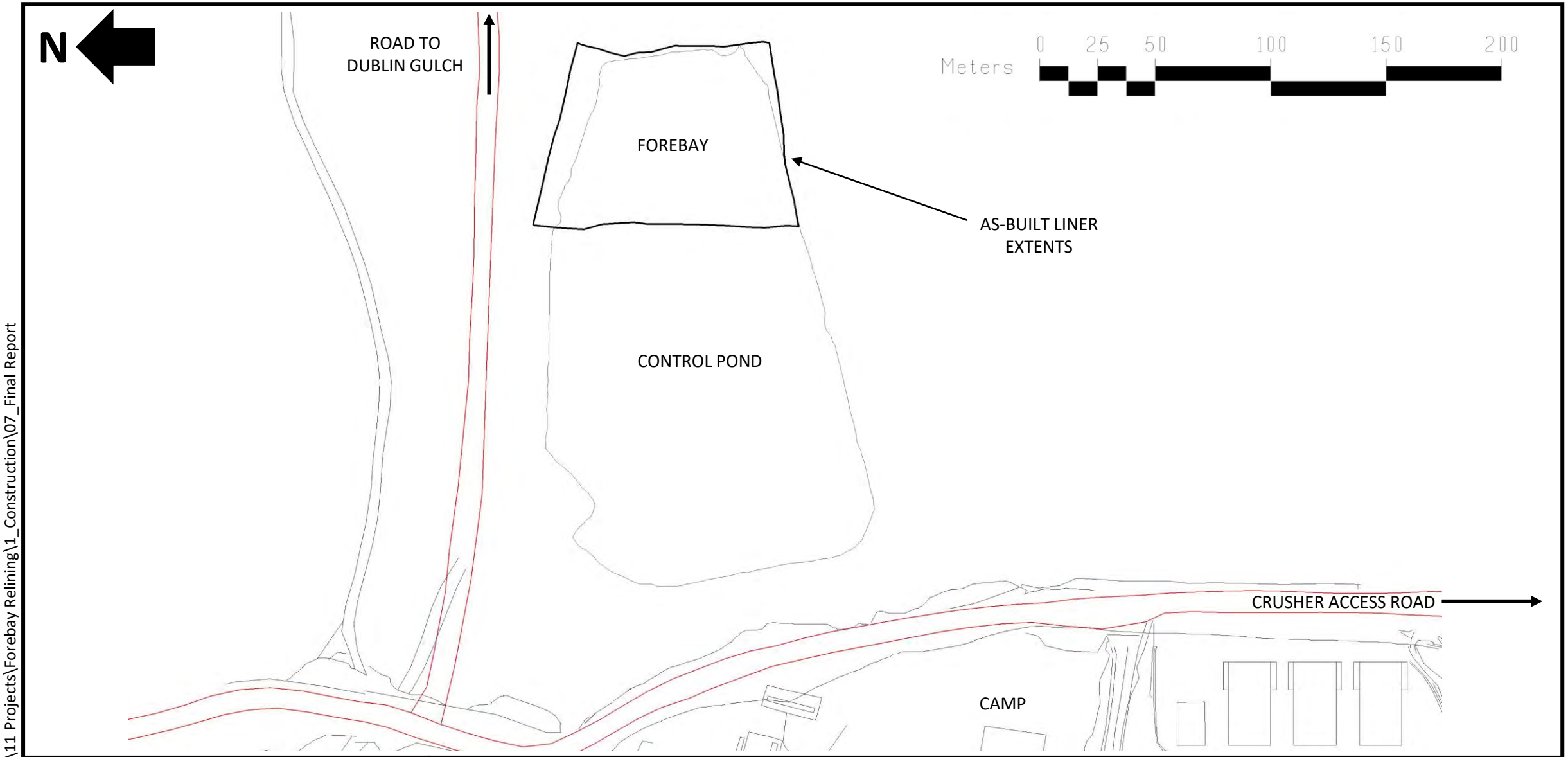
20201224 – AERIAL PHOTOGRAPH OF LINER DEPLOYED

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX C – Construction Photos	LJ	RT	2/20/2021	D-11

VGCX xceptional xcellence xtraordinary xperts xpression xploration xtra xperienced xecutives xplode xplorer xhilarating xtraordinary xcavation VICTORIA GOLD CORP

Path: O:\03-ENG\11 Projects\Ditch A Relining\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



VGCX xceptional xploration xcellence xpression xtraordinary xperts xtra xperienced xecutives xplode xplorer xhilarating xamine xtraordinary xcavation
VICTORIA GOLD CORP

NOTES

TITLE

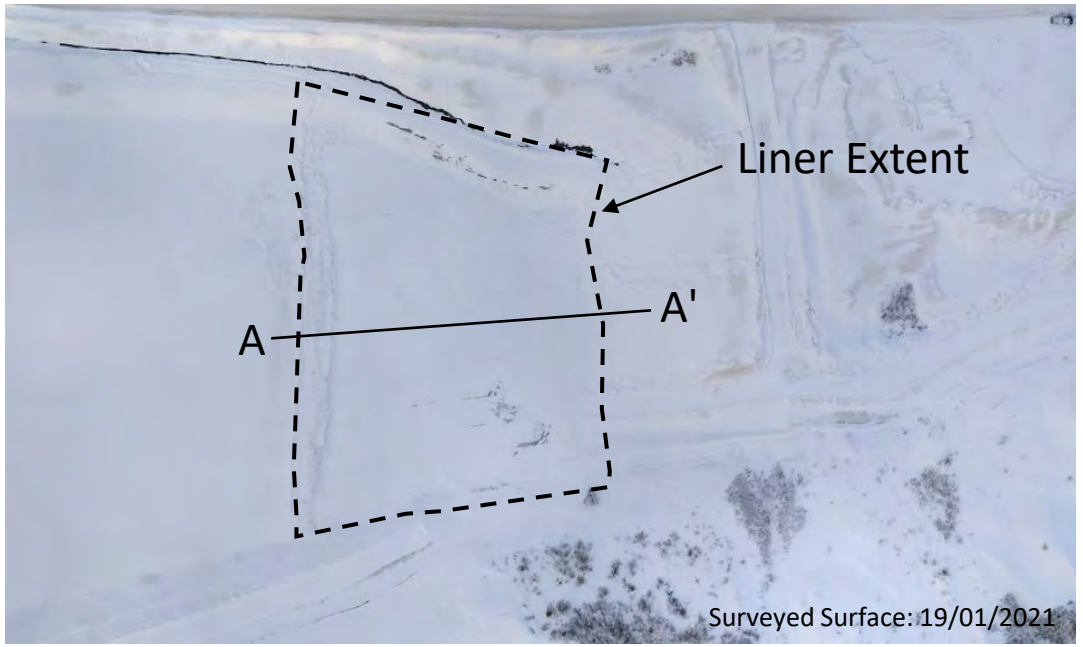
AS-BUILT PLAN VIEW OF FOREBAY LINER

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX D – As-built Figures	LJ	RT	2/20/2021	D-1

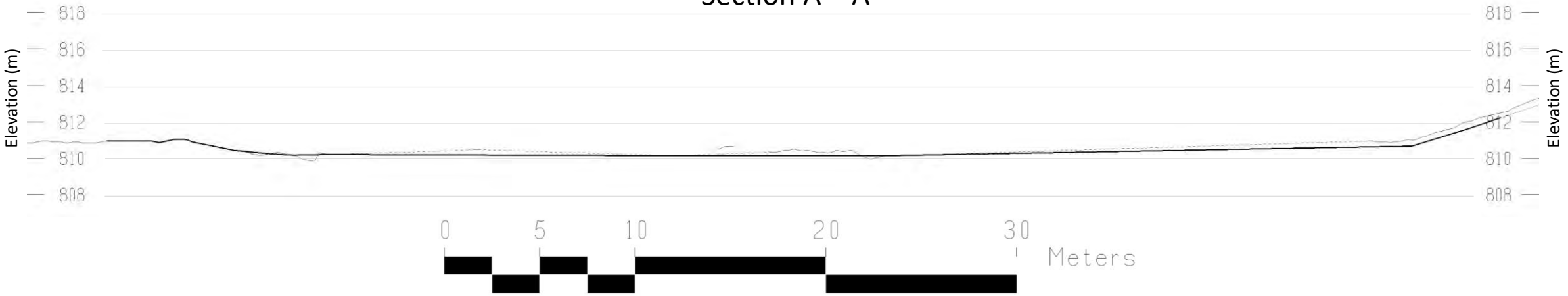
Path: O:\03-ENG\11 Projects\Forebay Relining\1_Construction\07_Final Report

TSX: VGCX OTC: VITFF VGCX.com





Section A – A’



NOTES

1) LINER EXTENT SURVEYED BY HAND (14-01-2021) AND FOREBAY SURFACE SURVEYED BY DRONE (19-01-2021)
2) LINER BASE, SHOWN BY SOLID BLACK LINE ON CROSS SECTION, ESTIMATED UNDERNEATH SNOW COVER

TITLE

FOREBAY LINER CROSS SECTION

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Forebay Lining Construction Report	APPENDIX D – As-built Figures	LJ	RT	2/20/2021	D-2

Path: O:\03-ENG\11 Projects\Forebay Relining\1_Construction\07_Final Report

TSX: VGCX OTC: VITFF VGCX.com

APPENDIX A2

As-Built Drawings and Construction - Ditch B

VICTORIA GOLD CORP

TSX | VGCX



Ditch B Construction Report
July 2021

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2.3 Construction Summary 6
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Issued Date	Revised Date	Revision #	Document #	Owner

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1 Background

1.1 Water Management Infrastructure

1.1.1 Overview

A number of water management facilities including ponds and sediment basins, diversions and interceptor ditches, as well as pumping and piping systems have been developed to proactively manage sediment-laden, contact and non-contact water throughout the life of the Eagle Gold Mine. Details regarding the development and operation of the water management facilities are found in the Water Management Plan Version 2020-01 (SGC, 2020).

Surface water routing for the Mine involves the use of 3 primary ditches as shown in Figure 1 and described below:

Ditch A Located downslope from the open pit, the Platinum Gulch WRSA, the 90-day stockpile and the open pit access road. Ditch A runs north from the drainage basin of the Platinum Gulch WRSA (PG WRSA) across the site and into the Lower Dublin South Pond (LDSP or Control Pond). Original Construction of Ditch A was completed in 2019, and relining of Ditch A was completed in 2020.

Ditch B Generally follows the natural Eagle Creek watercourse and receives runoff from the Eagle Pup WRSA and Suttles Gulch, which contains the crusher installations and part of the Eagle Pit. Ditch B flows west across site from the northern end of the Eagle Pup WRSA to the LDSP. Original construction of the ditch in 2019 was completed only from Suttles Gulch to the LDSP. Full construction of Ditch B was completed in 2021.

Ditch C Located downslope of the LDSP, it conveys the outflow from the pond to Haggart Creek. Ditch C flows generally west to a discharge location downstream of Dublin Gulch and upstream of a surface water monitoring station known as W4. Construction of Ditch C was completed in 2019.

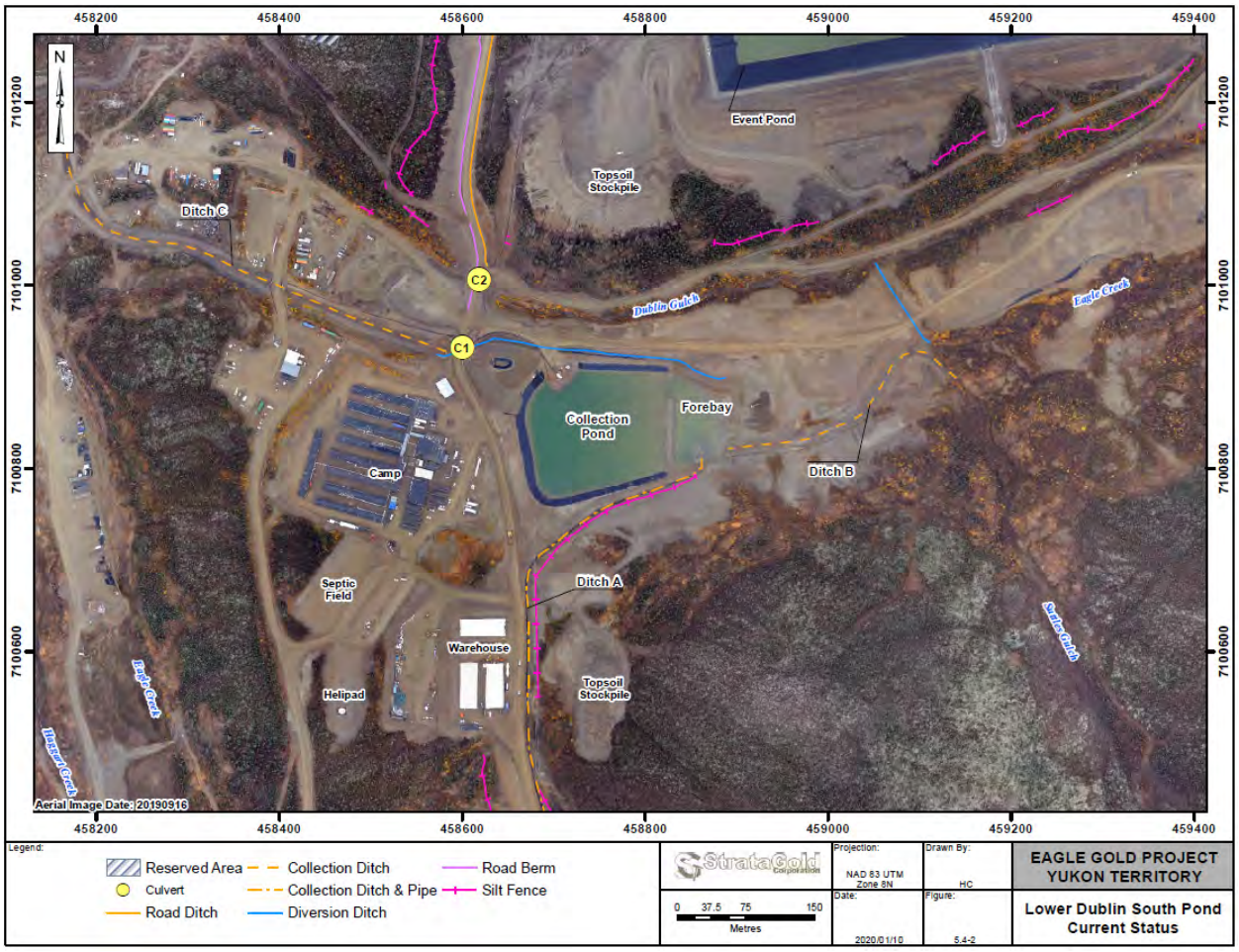


Figure 1 - Major Water Management Infrastructure

1.2 Initial Ditch B Design

The Engineer of Record (EOR) for the Issued for Construction design of Ditch B was Mauricio Herrera of Tetra Tech EBA. The design included a typical cross section which had a 2:1 side slope, a 1 m bottom width, and non-woven geotextile overlain by rip rap (with varying specifications based on hydrologic analysis) as shown below in Figure 2. To ensure that there were no seepage losses of contact water emanating from the EP WRSA, the Issued for Construction configuration of Ditch B included a 28“ diameter HDPE Pipe within the ditch as shown in Figure 3.

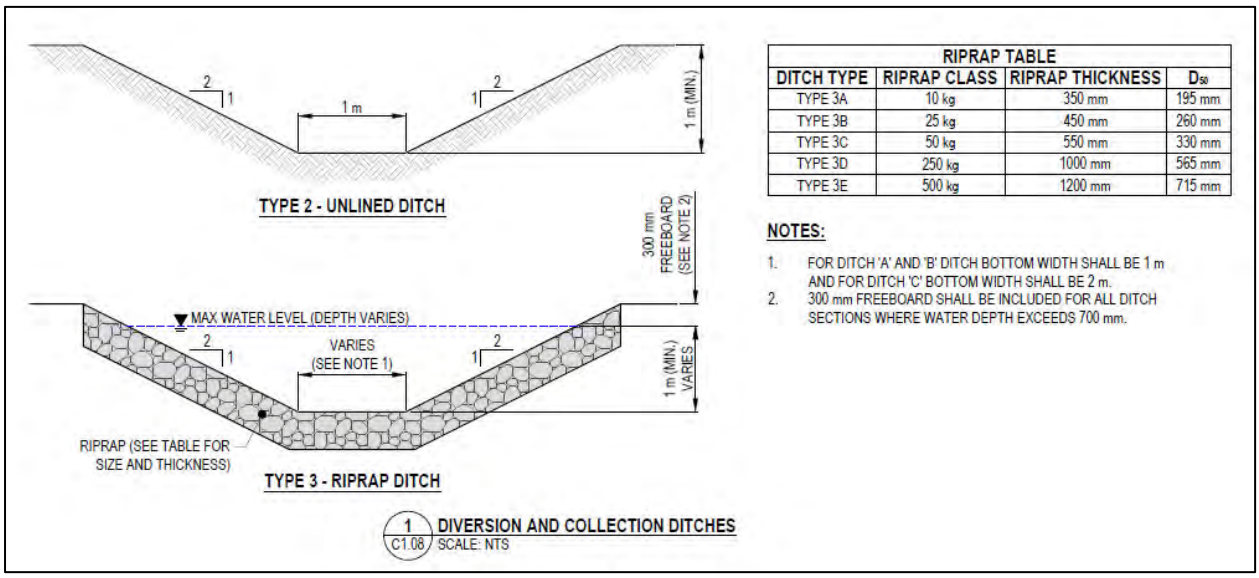


Figure 2 - Tetra Tech EBA Issued for Construction Ditch Specifications

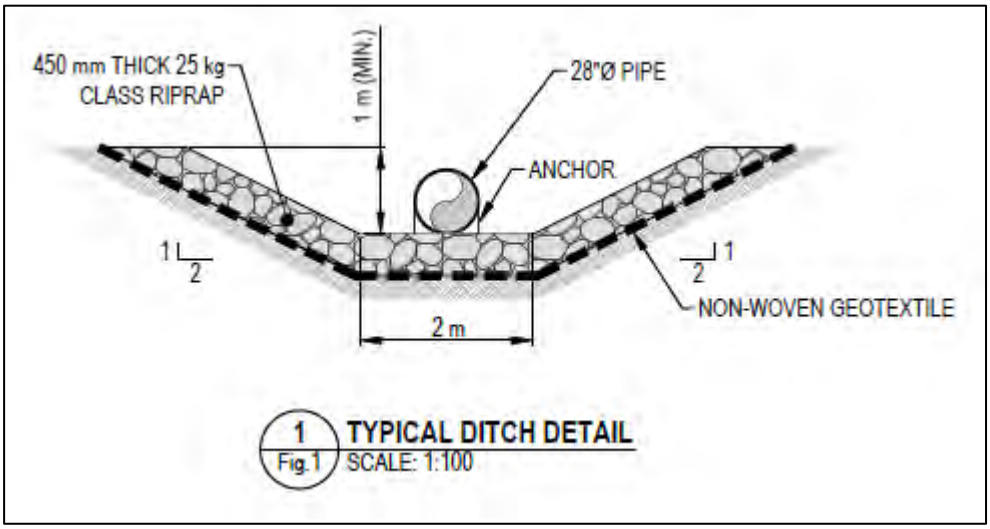


Figure 3 - Tetra Tech EBA Issued for Construction Typical Ditch with Pipe Detail

1.3 Initial Ditch B Construction

Ditch B was constructed under the supervision of Field Engineers and Earthworks Superintendents of JDS Energy & Mining Inc. (JDS). Minor modifications to the design suggested by JDS field engineers were approved by the EOR. Underhill Geomatics Ltd. (Underhill) performed all layout and survey work for the ditch construction. Ewing Transport Ltd. (Ewing) completed all earthworks including excavation, ditch shaping, installation of geotextile, culvert installation, and riprap installation. Nuway Crushing Ltd. (Nuway) completed all aggregate production for the ditch. A construction report was completed by JDS

for all works completed on Ditch B which included As-built drawings provided by Maurico Herrera of Tetra Tech EBA (JDS, 2019).

Relevant As-built configurations are provided below in Figure 5 and Figure 6.

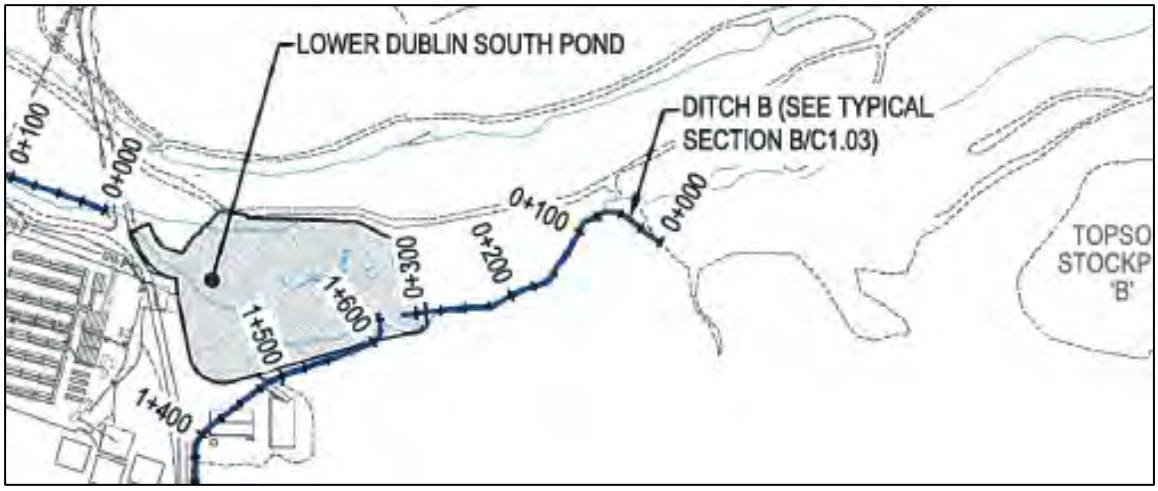


Figure 4 - Tetra Tech EBA As-built Ditch B Alignment

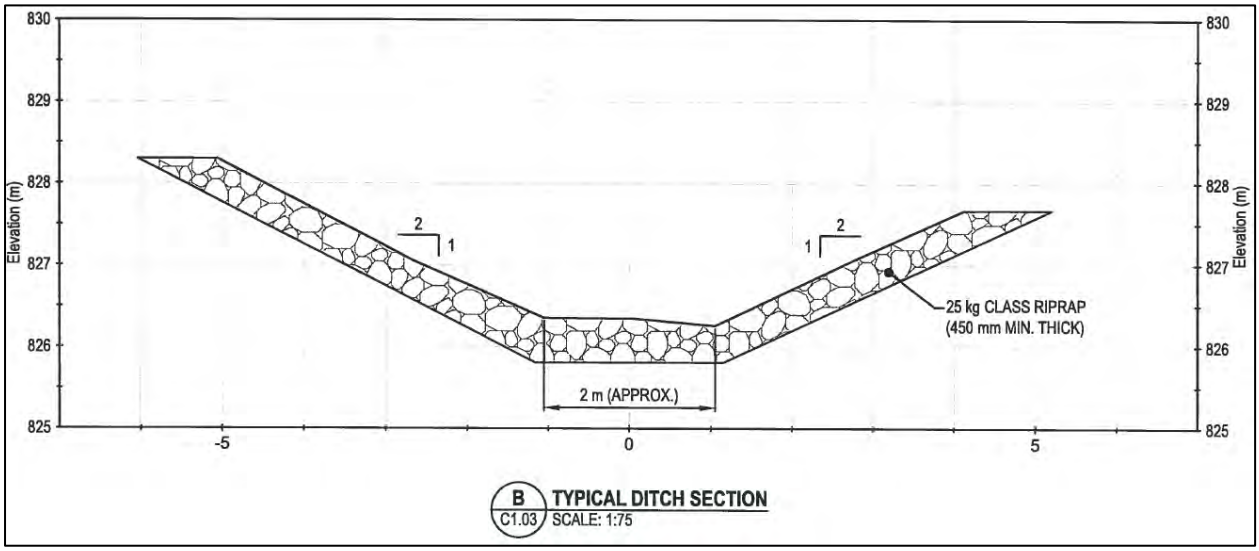


Figure 5 - Tetra Tech EBA As-built Ditch B Typical Cross Section

1.4 Ditch B Construction

Ditch B was partially constructed between December 2018 to April 2019. Approximately 314 m of the ditch was built, and its main intent at the time was to manage runoff from upgradient construction areas. Eventually the rest of the ditch would need to be built before commencing dumping in the proposed Eagle Pup Waste Rock Storage Area (EP WRSA). The ditch was built as a 2:1 sloped ditch with a 2 m base, and it was lined with permeable non-woven geotextile overlain by rip rap. The entirety of the

ditch was constructed using 25 kg class rip rap, except for the last approximately 50 m which was built using 50 kg class rip rap and an energy dissipater with large boulders into the LDSP Forebay (Figure 2). The 28-in OD HDPE pipe that was originally used in Ditch A was designed to also be installed in Ditch B once the rest of the ditch was completed.



Figure 6 – Section of Ditch B Entering LDSP Forebay

A field fit extension of 75m to the southeast was built to capture runoff from Suttles Gulch (Figure 3). The ditch will continue East when construction recommences.



Figure 7 - Ditch B Field Fit Extension to Suttles Gulch

1.5 Ditch B Minor Modifications

Although there were no directives to modify the Ditch B design, lessons learned from the operational issues experienced with Ditch A were enough to make the decision to complete Ditch B with the same minor modifications as were done to Ditch A. The minor modification to remove the 28 in HDPE pipe and line the ditch with impermeable liner and rip rap was considered by the Technical Services team under the supervision of the Engineer of Record, Mr. Richard Tuohey, established for the work.

2 Ditch B Construction Summary

2.1 Responsibilities

Ditch B construction was supervised by the Site Services department at VGC under the direction of the VGC EOR Mr. Richard Tuohey, P.Eng. Day-to-day supervision of the ditch progression was completed by Clint Abel, JDS's representative on site. Ewing completed all earthworks, liner placement, and rip rap sorting and placement in the ditch. Underhill completed an as-built survey of the ditch in the form of ditch slope surveys and drone survey of placed rip rap. The Technical Services team completed QA/QC of rip rap placement using Wipfrag Software (Wipware, 2020). Wipfrag is a tool used for particle size analysis using size-referenced photos from the field. Final engineering sign-off on the ditch construction is provided by Richard Tuohey, VGC's Technical Services Superintendent.

2.2 Construction Material Sources

The impermeable liner installed in the ditch was sourced from unused liner available from the Ditch A Improvement Construction program and new liner purchased. The unused liner from Ditch A is 2 mm Linear Low-Density Polyethylene (LLDPE) black textured geomembrane, and the new liner purchased for the completion of the project is 80 mil Textured HDPE liner. Manufacturing documentation for both liners can be seen in Appendix A.

Rip rap used to complete the ditch was sourced from the small portion of the ditch already constructed and from supplemental sources. The supplement sources of rock used were:

- Leftover rip rap from other Mine construction areas sourced from the Dublin Gulch valley
- Metasediment/granodiorite waste rock from the open pit

All supplemental rip rap used for the Ditch B works were tested for compliance with the construction grade waste rock requirements of the Quartz Mining License QML-0011 and Water Use Licence QZ14-041-1 and were deemed suitable. Certificates of analysis for the geochemical and durability testing undertaken on the rip rap placed in Ditch B are provided in Appendix B.

2.3 Construction Summary

The construction of Ditch B completed between October 11, 2020 and May 12, 2021.

The alignment of the original small portion of Ditch B that was completed in 2019 was not altered during the construction works. The new Ditch B alignment begins from the culvert under conveyor CV 22, which is directly below the outlet of the EP WRSA, and follows the natural Eagle Creek configuration into the Control Pond.

The cross section of Ditch B also remains unchanged and includes a minimum 1 m wide base and 2:1 side slope.

The ditch was dammed when the impermeable liner was being placed, and liner strips were placed in shingles with at least 1 m overlap. Once liner was placed the original rip rap from the ditch or supplemental rock was placed back in the ditch.

The entirety of Ditch B is 1,100 m long. The liner was tied in to the culvert under conveyor CV 22.

Size 25 – 50 kg class rip rap was used for the entirety of the ditch.

Appendix C provides the daily reports completed by Ewing and documents all liner placement, materials removed from the ditch, materials replaced in the ditch, and supplemental rock placed in the ditch from additional sources.

A selection of construction photos is provided in Appendix D.

The as-built alignment with chainage and cross sections can be seen in Appendix E.

QA/QC test results can be seen in Appendix F.

3 Letter of Assurance

I hereby confirm that:

- I am a Professional Engineer registered with the Association of Professional Engineers of Yukon, and licensed to practice in the Yukon Territory;
- I have utilized the standards of care, skill and diligence that, in accordance with the standards of my professional, are required of Professional Engineers in the Yukon Territory;
- I am the Engineer of Record (EoR) for the Eagle Gold Mine Ditch B;
- I consider the construction improvements described within this report as “Minor Modifications”, as defined in the Water Use Licence QZ14-041-1, to the submitted final designs of Ditch B and that these improvements do not affect the functionality of Ditch B to meets its design criteria or environmental performance requirements and do not affect the ability of another Engineered Structure to meet their design and performance criteria;
- All Quality Assurance and Quality Controls during construction were conducted to my satisfaction.

PERMIT TO PRACTICE
VICTORIA GOLD (YUKON) CORP.
SIGNATURE 
Date July 15,2021
PERMIT NUMBER PP680
Association of Professional Engineers of Yukon

Richard Tuohey, P.Eng.
Technical Services Superintendent
rtuohey@vgcx.com
867-456-7700 extension 6315

4 References

JDS (2019), Ditches A, B, & C Construction Report Eagle Gold Project, May 31 2019, prepared for Victoria Gold Corp.

SGC (2020), Eagle Gold Project Water Management Plan Version 2020-01, January 2020, prepared by StrataGold Corporation.

Wipware Inc. (2020). Wipfrag 3 [Cross-Platform Particle Analysis Software]. Ontario, Canada.

APPENDIX A

LINER MANUFACTURING DOCUMENTATION

Geomembrane [HDPE 80 Textured Black]

Our HDPE 80 geomembranes are designed in accordance with the Geomembrane Research Institute GM 13 standard. It is manufactured to meet the properties of GRI GM13 and has been extensively used in a variety of containment applications. Our textured geomembrane provides better interface friction properties with various soil types and other geosynthetic materials when compared to smooth geomembranes. HDPE geomembranes have low permeability, good ultra violet resistance properties and excellent chemical resistance. HDPE 80 is a field assembled lining material that must be installed by trained installers. HDPE is used in a multitude of applications as a landfill liner, pond linings, and water containment projects.

Property	ASTM	HDPE 80 Textured Black Double Sided
Thickness (min.avg)	D5199	80 mil 2.0 mm
Thickness	D5199 Lowest Individual for 8 out of 10 values Lowest individual for any of the 10 values	 72 mil/1.8 mm 68 mil/1.7 mm
Asperity Height (min.ave)	D 7466	16 mil 0.4 mm
Sheet Density (minimum)	D792	≥0.940 g/cc
Dimensional Stability	D 1204	±2%
Tensile Properties (min. avg) ASTM D 638; Modified Type IV Die Gage length break: 2” (50 mm) Gage length yield: 1.3” (33 mm)	Tensile Strength @ Break Tensile Strength @ Yield	120 ppi 21 kN/m 168 ppi 29 kN/m
	Tensile Elongation @ Break Tensile Elongation @ Yield	100% 12%
Tear Resistance (min. avg)	D1004	56 lbs 249 N
Puncture Resistance (min. avg)	D4833	120 lbs 534 N
High Pressure Oxidative Induction Time (HPOIT)	D5885	400 mins
Stress Cracking	D5397	500 hrs
Carbon Black Content	D1603	2.0 - 3.0%
Carbon Black Dispersion	D5596	CAT 1 or 2
Oven Aging **85° C,** HPOIT retained after 90 days	D5721 D D5885	80%
UV Resistance- % HPOIT retained after 1600 hrs	D7238 D5885	50%
	Typical Roll Dimensions **(Rolls dimensions may vary ± 1%)**	
Roll Width	-	22.5 feet 6.86 mtrs
Roll Length	-	420 feet 128 mtrs

Disclaimer: Layfield disclaims any and all express, implied, or statutory standards, warranties or guarantees, including without limitation any implied warranty as to merchantability or fitness for a particular purpose or arising from a course of dealing or usage of trade as to any equipment, materials, or information furnished herewith. This document should not be construed as engineering advice.

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job # E0006148
Stock Code 606270080
Start Date 9/15/2017
Result Pass

Customer Name LAYFIELD GEO USA - C05356
Description HDPE 270"x420' 80MIL SE TEX-1
Inspection Number 27476

Serial	Result	Roll Length (ft)	Roll Weight - Net (3946 lbs +/- 50 lbs)	Sheet Width (270 in +/- 2 in)	Roll Area (877.9 m2 +/- 0 m2)	Thickness - Average ASTM D5199 (76 mil min.)	Thickness - Minimum ASTM D5199 (72 mils min.)
606270080-E0006148-001	Pass	420	3891	270.00	877.9	77.6	74.6
606270080-E0006148-002	Pass	420	4151	268.50	873.0	79.5	76.3
606270080-E0006148-003	Pass	249	2581	268.50	517.6	82.5	80.1
606270080-E0006148-004	Pass	420	4261	268.80	874.0	82.8	80.0
606270080-E0006148-005	Pass	420	4256	269.00	874.7	83.0	80.4
606270080-E0006148-006	Pass	420	4206	269.00	874.7	82.4	80.4
606270080-E0006148-007	Pass	420	4156	269.00	874.7	82.0	80.7
606270080-E0006148-008	Pass	420	4151	270.50	879.6	81.9	80.2
606270080-E0006148-009	Pass	420	4151	270.50	879.6	81.4	75.4
606270080-E0006148-010	Pass	420	4156	270.50	879.6	82.8	80.4
606270080-E0006148-011	Pass	420	4141	270.30	878.9	81.8	80.1
606270080-E0006148-012	Pass	420	4146	269.50	876.3	82.0	80.2
606270080-E0006148-013	Pass	420	4156	269.50	876.3	81.7	77.4
606270080-E0006148-014	Pass	420	4156	269.30	875.7	80.4	74.7
606270080-E0006148-015	Pass	420	4156	269.30	875.7	81.9	80.4
606270080-E0006148-016	Pass	420	4156	269.30	875.7	81.9	80.4
606270080-E0006148-017	Pass	420	4166	270.00	877.9	79.8	75.5
606270080-E0006148-018	Pass	420	4161	270.00	877.9	79.7	73.9
606270080-E0006148-019	Pass	420	4171	270.00	877.9	80.6	78.2
606270080-E0006148-020	Pass	420	4166	270.00	877.9	80.9	78.2
606270080-E0006148-021	Pass	420	4156	270.30	878.9	81.6	80.0

LAYFIELD Leaders in Film & Geosynthetic Technology

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Job # E0006148
Stock Code 606270080
Start Date 9/15/2017
Result Pass

Customer Name LAYFIELD GEO USA - C05356
Description HDPE 270"x420' 80MIL SE TEX-1
Inspection Number 27476

Serial	Asperity - Average (18 mil to 30 mil)	Strength at Yield - MD Average ASTM D6693 IV (168 lbs/in min.)	Elongation at Yield - MD Average ASTM D6693 IV (12 % min.)	Strength at Break - MD Average ASTM D6693 IV (120 lbs/in min.)	Elongation at Break - MD Average ASTM D6693 IV (100 % min.)	Strength at Yield - TD Average ASTM D6693 IV (168 lbs/in min.)	Elongation at Yield - TD Average ASTM D6693 IV (12 % min.)
606270080-E0006148-001	23.4	214	17	227	372	218	18
606270080-E0006148-002	23.4	214	17	227	372	218	18
606270080-E0006148-003	22.9	214	17	227	372	218	18
606270080-E0006148-004	25.1	214	17	227	372	218	18
606270080-E0006148-005	22.3	214	17	227	372	218	18
606270080-E0006148-006	25.6	219	18	223	369	180	18
606270080-E0006148-007	27.4	219	18	223	369	180	18
606270080-E0006148-008	25.1	219	18	223	369	180	18
606270080-E0006148-009	24.7	219	18	223	369	180	18
606270080-E0006148-010	25.6	219	18	223	369	180	18
606270080-E0006148-011	25.7	239	18	249	452	246	17
606270080-E0006148-012	23.0	239	18	249	452	246	17
606270080-E0006148-013	24.9	239	18	249	452	246	17
606270080-E0006148-014	22.8	239	18	249	452	246	17
606270080-E0006148-015	20.9	239	18	249	452	246	17
606270080-E0006148-016	22.7	228	18	236	341	229	17
606270080-E0006148-017	24.3	228	18	236	341	229	17
606270080-E0006148-018	22.4	228	18	236	341	229	17
606270080-E0006148-019	23.0	228	18	236	341	229	17
606270080-E0006148-020	22.3	228	18	236	341	229	17
606270080-E0006148-021	24.9	243	18	257	488	248	17

LAYFIELD Leaders in Film & Geosynthetic Technology

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Job # E0006148
Stock Code 606270080
Start Date 9/15/2017
Result Pass

Customer Name LAYFIELD GEO USA - C05356
Description HDPE 270"x420' 80MIL SE TEX-1
Inspection Number 27476

Serial	Strength at Break - TD Average ASTM D6693 IV (120 lbs/in min.)	Elongation at Break - TD Average ASTM D6693 IV (100 % min.)	Tear Strength - MD Average ASTM D1004 (56 lbs min.)	Tear Strength - TD Average ASTM D1004 (56 lbs min.)	Puncture Strength - Average ASTM D4833 (120 lbs min.)	Carbon Black Content ASTM D4218 (2 % to 3 %)	Density ASTM D1505 (0.94 g/cc to 0.95 g/cc)
606270080-E0006148-001	232	475	64	64	155	2.60	0.942
606270080-E0006148-002	232	475	64	64	155	2.60	0.942
606270080-E0006148-003	232	475	64	64	155	2.60	0.942
606270080-E0006148-004	232	475	64	64	155	2.60	0.942
606270080-E0006148-005	232	475	64	64	155	2.60	0.942
606270080-E0006148-006	237	513	64	64	155	2.60	0.942
606270080-E0006148-007	237	513	64	64	155	2.60	0.942
606270080-E0006148-008	237	513	64	64	155	2.60	0.942
606270080-E0006148-009	237	513	64	64	155	2.60	0.942
606270080-E0006148-010	237	513	64	64	155	2.60	0.942
606270080-E0006148-011	275	556	77	76	161	2.59	0.942
606270080-E0006148-012	275	556	77	76	161	2.59	0.942
606270080-E0006148-013	275	556	77	76	161	2.59	0.942
606270080-E0006148-014	275	556	77	76	161	2.59	0.942
606270080-E0006148-015	275	556	77	76	161	2.59	0.942
606270080-E0006148-016	237	456	77	76	161	2.70	0.942
606270080-E0006148-017	237	456	77	76	161	2.70	0.942
606270080-E0006148-018	237	456	77	76	161	2.70	0.942
606270080-E0006148-019	237	456	77	76	161	2.70	0.942
606270080-E0006148-020	237	456	77	76	161	2.70	0.942
606270080-E0006148-021	267	508	78	76	154	2.60	0.942

LAYFIELD Leaders in Film & Geosynthetic Technology

Mill Certification Report

Job # E0006148
Stock Code 606270080
Start Date 9/15/2017
Result Pass

Customer Name LAYFIELD GEO USA - C05356
Description HDPE 270"x420' 80MIL SE TEX-1
Inspection Number 27476

Serial	Carbon Black Dispersion ASTM D5596	OIT - High Pressure ASTM D5885
606270080-E0006148-001	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-002	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-003	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-004	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-005	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-006	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-007	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-008	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-009	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-010	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-011	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-012	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-013	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-014	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-015	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-016	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-017	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-018	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-019	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-020	>= 9 in Category 1 or 2	Pass > 400 mins
606270080-E0006148-021	>= 9 in Category 1 or 2	Pass > 400 mins

Product: 60-HD-00-BLK-BLK-AVG-STD-23.5
Project : Layfield Canada, AB
Cust PO: E31722

Quality Manager: Rajesh Patel
Date: May 8, 2020
SKAPS SO: 31C2000155

We hereby certify the following test results for the above referenced product/project :

Roll Number	Area (sq ft)	Gross Weight (lb)	Thickness MAV (mil)	Thickness MIN (mil)	Tensile at Yield (ppi)		Elong at Yield (%)		Tensile at Break (ppi)		Elong at Break (%)		Tear Resistance (lb)		Punct Resist (lb)	Density (g/cc)	Carbon Black (%)	CB Disp (Views in Cat 1 or 2)	Resin OIT	Resin Lot #
			ASTM D 5199	ASTM D 5199	ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 6693		ASTM D 1004		ASTM D 4833	ASTM D 1505	ASTM D 4218	ASTM D 5596	ASTM D 3895	
					MD	TD	MD	TD	MD	TD	MD	TD	MD	TD						
3111001267	12,925	3,964	61	58	149	160	19	17	271	305	760	911	47	50	145	0.948	2.6	10	280	PKF610080
3111001276	12,925	3,978	61	59	149	151	18	17	290	311	817	928	49	51	147	0.946	2.5	10	280	PKF610080
3111001283	12,925	3,950	61	58	145	156	19	16	293	297	828	904	49	51	151	0.947	2.5	10	280	PKF610080
3112004773	12,925	3,948	62	60	156	166	19	17	247	259	785	796	49	52	155	0.948	2.4	10	256	19K1022
3112004774	12,925	3,944	61	60	159	167	19	17	248	271	713	831	50	53	150	0.947	2.3	10	256	19K1022
3112004775	12,925	3,946	61	59	159	167	19	17	248	271	713	831	50	53	150	0.947	2.3	10	256	19K1022
3112004776	12,925	3,930	61	59	159	167	19	17	248	271	713	831	50	53	150	0.947	2.3	10	256	19K1022
3112004777	12,925	3,940	61	59	159	167	19	17	248	271	713	831	50	53	150	0.947	2.3	10	256	19K1022
3112004778	12,925	3,942	61	59	164	167	18	17	270	289	786	880	50	53	150	0.947	2.5	10	256	19K1022
3112004779	12,925	3,936	61	58	164	167	18	17	270	289	786	880	50	53	150	0.947	2.5	10	256	19K1022
3112004780	12,925	3,964	62	60	164	167	18	17	270	289	786	880	50	53	150	0.947	2.5	10	256	19K1022
3112004781	12,925	3,978	62	61	164	167	18	17	270	289	786	880	50	53	150	0.947	2.5	10	256	19K1022

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529

Phone: 706-336-7000
Fax: 706-336-7007
E-Mail:contact@skaps.com

APPENDIX B

GEOCHEMICAL AND DURABILITY TEST RESULTS

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA21A0465**	Page	: 1 of 6
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: Ditch B, Rock drain (January)	Date Samples Received	: 09-Jan-2021 15:55
PO	: 14723	Date Analysis Commenced	: 30-Jan-2021
C-O-C number	: 20210108c	Issue Date	: 01-Mar-2021 11:10
Sampler	: LJ/RB		
Site	: ABA		
Quote number	: Q67596		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Metals, Burnaby, British Columbia
Erin Gatdula	Account Manager Assistant	Internal Subcontracting, North Vancouver, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Shaneel Dayal	Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
%	percent
µS/cm	Microsiemens per centimetre
kg	kilograms
mg/L	milligrams per litre
pH units	pH units
ppm	parts per million
tCaCO3/kt	tons CaCO3 per kiloton

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in reports identified as "Preliminary Report" are considered authorized for use.

Analytical Results

Sub-Matrix: **Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	E00074947-Dublin Gulch Till	E00074948-1145 Bench	E00074950-1100 Dump	----	----
					Client sampling date / time	28-Dec-2020	28-Dec-2020	28-Dec-2020	----	----
						VA21A0465-001	VA21A0465-002	VA21A0465-003	--------	--------
						Result	Result	Result	----	----
Physical Tests										
conductivity, leachable	----	E103	2.0	µS/cm		82.1	90.3	123	----	----
moisture	----	E144	0.25	%		<0.25	<0.25	0.50	----	----
pH	----	E116	0.10	pH units		7.66	8.23	8.29	----	----
Acid Base Accounting										
carbon dioxide	124-38-9	C-GAS05	0.2	%		<0.2	0.2	0.5	----	----
carbon, total inorganic [TIC]	----	C-GAS05	0.05	%		<0.05	0.05	0.13	----	----
fizz rating	----	OA-VOL08m	1	-		1	1	1	----	----
maximum potential acidity [MPA]	----	OA-VOL08m	0.3	tCaCO3/kt		0.3	1.3	2.8	----	----
net neutralization potential [NNP]	----	OA-VOL08m	1	tCaCO3/kt		8	5	9	----	----
neutralization potential [NP]	----	OA-VOL08m	1	tCaCO3/kt		8	6	12	----	----
neutralization potential ratio [NPR], (NP/MPA)	----	OA-VOL08m	0.01	-		25.60	4.80	4.27	----	----
pH (1:1 soil:water)	----	OA-ELE07	0.10	pH units		8.60	9.10	8.50	----	----
sulfate (as S), carbonate leach	14808-79-8	S-GRA06	0.01	%		<0.01	<0.01	<0.01	----	----
sulfate (as S), HCl leach	14808-79-8	S-GRA06A	0.01	%		<0.01	0.03	<0.01	----	----
sulfide (as S), total minus carbonate leach	18496-25-8	S-CAL06	0.01	%		0.01	0.04	0.09	----	----
sulfur, total	7704-34-9	S-IR08	0.01	%		0.01	0.04	0.09	----	----
weight, sample received	NA	WEI-21	0.02	kg		3.76	4.98	5.90	----	----
Metals										
aluminum	7429-90-5	ME-MS41	0.01	%		1.27	1.53	1.61	----	----
antimony	7440-36-0	ME-MS41	0.05	ppm		41.6	0.58	12.05	----	----
arsenic	7440-38-2	ME-MS41	0.1	ppm		2870	69.6	68.3	----	----
barium	7440-39-3	ME-MS41	10	ppm		270	80	130	----	----
beryllium	7440-41-7	ME-MS41	0.05	ppm		0.45	0.48	0.68	----	----
bismuth	7440-69-9	ME-MS41	0.01	ppm		13.25	0.18	0.86	----	----
boron	7440-42-8	ME-MS41	10	ppm		<10	<10	<10	----	----
cadmium	7440-43-9	ME-MS41	0.01	ppm		0.14	<0.01	0.15	----	----
calcium	7440-70-2	ME-MS41	0.01	%		0.57	0.20	0.50	----	----
cerium	7440-45-1	ME-MS41	0.02	ppm		55.9	56.1	51.4	----	----
cesium	7440-46-2	ME-MS41	0.05	ppm		2.57	8.94	7.73	----	----
chromium	7440-47-3	ME-MS41	1	ppm		22	39	36	----	----

Analytical Results

Sub-Matrix: **Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	E00074947-Dublin Gulch Till	E00074948-1145 Bench	E00074950-1100 Dump	----	----
					Client sampling date / time	28-Dec-2020	28-Dec-2020	28-Dec-2020	----	----
						VA21A0465-001	VA21A0465-002	VA21A0465-003	--------	--------
						Result	Result	Result	----	----
Metals										
cobalt	7440-48-4	ME-MS41	0.1	ppm		8.4	10.4	8.5	----	----
copper	7440-50-8	ME-MS41	0.2	ppm		35.2	10.4	15.4	----	----
gallium	7440-55-3	ME-MS41	0.05	ppm		5.32	5.89	6.40	----	----
germanium	7440-56-4	ME-MS41	0.05	ppm		0.11	0.10	0.11	----	----
gold	7440-57-5	ME-MS41	0.02	ppm		0.48	<0.02	0.02	----	----
hafnium	7440-58-6	ME-MS41	0.02	ppm		0.13	0.19	0.17	----	----
indium	7440-74-6	ME-MS41	0.005	ppm		0.024	0.013	0.017	----	----
iron	7439-89-6	ME-MS41	0.01	%		2.39	2.32	2.53	----	----
lanthanum	7439-91-0	ME-MS41	0.2	ppm		28.8	28.9	26.7	----	----
lead	7439-92-1	ME-MS41	0.2	ppm		29.9	2.2	12.8	----	----
lithium	7439-93-2	ME-MS41	0.1	ppm		20.0	40.2	32.6	----	----
magnesium	7439-95-4	ME-MS41	0.01	%		0.58	0.56	0.61	----	----
manganese	7439-96-5	ME-MS41	5	ppm		281	155	228	----	----
mercury	7439-97-6	ME-MS41	0.01	ppm		0.21	<0.01	0.01	----	----
molybdenum	7439-98-7	ME-MS41	0.05	ppm		1.56	2.74	2.03	----	----
nickel	7440-02-0	ME-MS41	0.2	ppm		17.5	24.0	19.4	----	----
niobium	7440-03-1	ME-MS41	0.05	ppm		1.17	0.28	0.33	----	----
phosphorus	7723-14-0	ME-MS41	10	ppm		470	110	210	----	----
potassium	7440-09-7	ME-MS41	0.01	%		0.39	0.94	0.80	----	----
rhenium	7440-15-5	ME-MS41	0.001	ppm		0.006	0.001	0.001	----	----
rubidium	7440-17-7	ME-MS41	0.1	ppm		36.5	88.6	76.1	----	----
scandium	7440-20-2	ME-MS41	0.1	ppm		3.7	5.0	5.1	----	----
selenium	7782-49-2	ME-MS41	0.2	ppm		0.3	0.2	0.3	----	----
silver	7440-22-4	ME-MS41	0.01	ppm		0.53	0.01	0.03	----	----
sodium	7440-23-5	ME-MS41	0.01	%		0.08	0.03	0.04	----	----
strontium	7440-24-6	ME-MS41	0.2	ppm		43.0	11.4	35.1	----	----
sulfur	7704-34-9	ME-MS41	0.01	%		0.01	0.03	0.09	----	----
tantalum	7440-25-7	ME-MS41	0.01	ppm		<0.01	<0.01	<0.01	----	----
tellurium	13494-80-9	ME-MS41	0.01	ppm		0.01	0.02	0.04	----	----
thallium	7440-28-0	ME-MS41	0.02	ppm		0.34	0.54	0.50	----	----
thorium	7440-29-1	ME-MS41	0.2	ppm		12.0	12.8	11.9	----	----
tin	7440-31-5	ME-MS41	0.2	ppm		0.6	0.6	0.7	----	----

Analytical Results

Sub-Matrix: **Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	E00074947-Dublin Gulch Till	E00074948-1145 Bench	E00074950-1100 Dump	----	----
					Client sampling date / time	28-Dec-2020	28-Dec-2020	28-Dec-2020	----	----
						VA21A0465-001	VA21A0465-002	VA21A0465-003	--------	--------
						Result	Result	Result	----	----
Metals										
titanium	7440-32-6	ME-MS41	0.005	%		0.129	0.133	0.117	----	----
tungsten	7440-33-7	ME-MS41	0.05	ppm		610	5.79	4.47	----	----
uranium	7440-61-1	ME-MS41	0.05	ppm		1.74	1.60	1.84	----	----
vanadium	7440-62-2	ME-MS41	1	ppm		40	34	33	----	----
yttrium	7440-65-5	ME-MS41	0.05	ppm		6.60	5.23	5.40	----	----
zinc	7440-66-6	ME-MS41	2	ppm		39	26	70	----	----
zirconium	7440-67-7	ME-MS41	0.5	ppm		3.6	6.7	5.4	----	----
Leachable Metals										
aluminum, leachable	7429-90-5	E446	0.0050	mg/L		0.741	1.22	0.198	----	----
antimony, leachable	7440-36-0	E446	0.00010	mg/L		0.0345	0.00575	0.0681	----	----
arsenic, leachable	7440-38-2	E446	0.0010	mg/L		1.82	0.0792	0.0238	----	----
barium, leachable	7440-39-3	E446	0.0010	mg/L		0.0576	0.0084	0.0040	----	----
beryllium, leachable	7440-41-7	E446	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
bismuth, leachable	7440-69-9	E446	0.00050	mg/L		0.00090	<0.00050	<0.00050	----	----
boron, leachable	7440-42-8	E446	0.010	mg/L		0.010	0.011	0.013	----	----
cadmium, leachable	7440-43-9	E446	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
calcium, leachable	7440-70-2	E446	0.10	mg/L		8.72	5.97	11.5	----	----
chromium, leachable	7440-47-3	E446	0.00050	mg/L		0.00058	<0.00050	<0.00050	----	----
cobalt, leachable	7440-48-4	E446	0.00010	mg/L		0.00025	0.00014	<0.00010	----	----
copper, leachable	7440-50-8	E446	0.0010	mg/L		0.0016	<0.0010	<0.0010	----	----
iron, leachable	7439-89-6	E446	0.030	mg/L		0.550	0.199	<0.030	----	----
lead, leachable	7439-92-1	E446	0.00010	mg/L		0.00054	0.00011	<0.00010	----	----
lithium, leachable	7439-93-2	E446	0.0050	mg/L		0.0066	0.0170	0.0130	----	----
magnesium, leachable	7439-95-4	E446	0.050	mg/L		1.71	0.679	2.38	----	----
manganese, leachable	7439-96-5	E446	0.00050	mg/L		0.0124	0.00247	0.00263	----	----
mercury, leachable	7439-97-6	E515	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
molybdenum, leachable	7439-98-7	E446	0.00010	mg/L		0.00619	0.00680	0.00517	----	----
nickel, leachable	7440-02-0	E446	0.00050	mg/L		0.00082	<0.00050	<0.00050	----	----
phosphorus, leachable	7723-14-0	E446	0.30	mg/L		<0.30	<0.30	<0.30	----	----
potassium, leachable	7440-09-7	E446	0.050	mg/L		5.02	13.9	11.9	----	----
selenium, leachable	7782-49-2	E446	0.00050	mg/L		0.00062	0.00062	0.00152	----	----
silicon, leachable	7440-21-3	E446	0.050	mg/L		4.52	4.12	3.29	----	----

Analytical Results

Sub-Matrix: **Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	E00074947-Dublin Gulch Till	E00074948-1145 Bench	E00074950-1100 Dump	----	----
					Client sampling date / time	28-Dec-2020	28-Dec-2020	28-Dec-2020	----	----
						VA21A0465-001	VA21A0465-002	VA21A0465-003	--------	--------
						Result	Result	Result	----	----
Leachable Metals										
silver, leachable	7440-22-4	E446	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
sodium, leachable	7440-23-5	E446	0.050	mg/L		3.38	3.53	3.57	----	----
strontium, leachable	7440-24-6	E446	0.00050	mg/L		0.0516	0.0211	0.139	----	----
sulfur, leachable	7704-34-9	E446	0.50	mg/L		1.90	4.09	5.92	----	----
thallium, leachable	7440-28-0	E446	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
tin, leachable	7440-31-5	E446	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
titanium, leachable	7440-32-6	E446	0.010	mg/L		0.014	0.014	<0.010	----	----
uranium, leachable	7440-61-1	E446	0.000010	mg/L		0.00175	0.000685	0.00129	----	----
vanadium, leachable	7440-62-2	E446	0.0010	mg/L		0.0038	0.0048	0.0015	----	----
zinc, leachable	7440-66-6	E446	0.010	mg/L		<0.010	<0.010	<0.010	----	----
hardness (as CaCO3), dissolved	----	E446	0.60	mg/L		28.8	17.7	38.5	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA21A0465**	Page	: 1 of 11
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: Ditch B, Rock drain (January)	Date Samples Received	: 09-Jan-2021 15:55
PO	: 14723	Issue Date	: 01-Mar-2021 11:10
C-O-C number	: 20210108c		
Sampler	: LJ/RB		
Site	: ABA		
Quote number	: Q67596		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 15:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 15:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Acid Base Accounting : Acid Base Accounting (Modified Sobek)										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	OA-VOL08m	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Acid Base Accounting (Modified Sobek)										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	OA-VOL08m	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Acid Base Accounting (Modified Sobek)										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	OA-VOL08m	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Inorganic Carbon by Coulometer										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	C-GAS05	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Inorganic Carbon by Coulometer										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	C-GAS05	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Inorganic Carbon by Coulometer										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	C-GAS05	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Received Sample Weight										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	WEI-21	28-Dec-2020	----	----	----		23-Feb-2021	180 days	57 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Acid Base Accounting : Received Sample Weight										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	WEI-21	28-Dec-2020	----	----	----		23-Feb-2021	180 days	57 days	✓
Acid Base Accounting : Received Sample Weight										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	WEI-21	28-Dec-2020	----	----	----		23-Feb-2021	180 days	57 days	✓
Acid Base Accounting : Saturated Paste pH										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	OA-ELE07	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Saturated Paste pH										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	OA-ELE07	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Saturated Paste pH										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	OA-ELE07	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Sulfates by HCl Leaching and Gravimetry										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	S-GRA06A	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Sulfates by HCl Leaching and Gravimetry										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	S-GRA06A	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Sulfates by HCl Leaching and Gravimetry										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	S-GRA06A	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Sulfates by NaCO3 Leaching and Gravimetry										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	S-GRA06	28-Dec-2020	----	----	----		23-Feb-2021	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Acid Base Accounting : Sulfates by NaCO3 Leaching and Gravimetry										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	S-GRA06	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Sulfates by NaCO3 Leaching and Gravimetry										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	S-GRA06	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Sulfide S (as S) Calc. (Total-S - SO4-S)										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	S-CAL06	28-Dec-2020	----	----	----		23-Feb-2021	28 days	57 days	× EHT
Acid Base Accounting : Sulfide S (as S) Calc. (Total-S - SO4-S)										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	S-CAL06	28-Dec-2020	----	----	----		23-Feb-2021	28 days	57 days	× EHT
Acid Base Accounting : Sulfide S (as S) Calc. (Total-S - SO4-S)										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	S-CAL06	28-Dec-2020	----	----	----		23-Feb-2021	28 days	57 days	× EHT
Acid Base Accounting : Total Sulfur by Combustion and IR										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	S-IR08	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Total Sulfur by Combustion and IR										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	S-IR08	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Acid Base Accounting : Total Sulfur by Combustion and IR										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	S-IR08	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	E515	28-Dec-2020	30-Jan-2021	28 days	33 days	× EHT	01-Feb-2021	-6 days	1 days	×

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	E515	28-Dec-2020	30-Jan-2021	28 days	33 days	× EHT	01-Feb-2021	-6 days	1 days	×
Leachable Metals : Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	E515	28-Dec-2020	30-Jan-2021	28 days	33 days	× EHT	01-Feb-2021	-6 days	1 days	×
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	E446	28-Dec-2020	30-Jan-2021	180 days	33 days	✓	01-Feb-2021	146 days	1 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	E446	28-Dec-2020	30-Jan-2021	180 days	33 days	✓	01-Feb-2021	146 days	1 days	✓
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	E446	28-Dec-2020	30-Jan-2021	180 days	33 days	✓	01-Feb-2021	146 days	1 days	✓
Metals : 51 Elements by Aqua Regia digestion and ICP-AES/MS										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	ME-MS41	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Metals : 51 Elements by Aqua Regia digestion and ICP-AES/MS										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	ME-MS41	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Metals : 51 Elements by Aqua Regia digestion and ICP-AES/MS										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	ME-MS41	28-Dec-2020	----	----	----		23-Feb-2021	----	----	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	E103	28-Dec-2020	30-Jan-2021	28 days	33 days	× EHT	27-Feb-2021	-6 days	27 days	×

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	E103	28-Dec-2020	30-Jan-2021	28 days	33 days	× EHT	27-Feb-2021	-6 days	27 days	×
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	E103	28-Dec-2020	30-Jan-2021	28 days	33 days	× EHT	27-Feb-2021	-6 days	27 days	×
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	E144	28-Dec-2020	----	----	----		31-Jan-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	E144	28-Dec-2020	----	----	----		31-Jan-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	E144	28-Dec-2020	----	----	----		31-Jan-2021	----	----	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074947-Dublin Gulch Till	E116	28-Dec-2020	30-Jan-2021	30 days	33 days	× EHT	01-Feb-2021	-4 days	1 days	×
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074948-1145 Bench	E116	28-Dec-2020	30-Jan-2021	30 days	33 days	× EHT	01-Feb-2021	-4 days	1 days	×
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
Glass soil jar/Teflon lined cap										
E00074950-1100 Dump	E116	28-Dec-2020	30-Jan-2021	30 days	33 days	× EHT	01-Feb-2021	-4 days	1 days	×

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	146592	1	18	5.5	5.0	✓
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	146594	1	18	5.5	5.0	✓
Moisture Content by Gravimetry	E144	146768	1	3	33.3	5.0	✓
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	146593	1	18	5.5	5.0	✓
Laboratory Control Samples (LCS)							
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	156069	1	3	33.3	5.0	✓
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	146592	1	18	5.5	5.0	✓
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	146594	1	18	5.5	5.0	✓
Moisture Content by Gravimetry	E144	146768	1	3	33.3	5.0	✓
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	146593	1	18	5.5	5.0	✓
Method Blanks (MB)							
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	156069	1	3	33.3	5.0	✓
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	146592	1	18	5.5	5.0	✓
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	146594	1	18	5.5	5.0	✓
Moisture Content by Gravimetry	E144	146768	1	3	33.3	5.0	✓
Matrix Spikes (MS)							
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515	146592	1	18	5.5	5.0	✓
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	146594	1	18	5.5	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Inorganic Carbon by Coulometer	C-GAS05 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals C-GAS05	Determine Total Inorganic Carbon (TIC) by using diluted perchloric acid to react with metal carbonate and yield carbon dioxide. Concentration of CO_2 is determined by coulometer.
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103 Vancouver - Environmental	Soil/Solid	MEND (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. Conductivity measurements are temperature-compensated to 25°C.
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116 Vancouver - Environmental	Soil/Solid	MEND (mod)/APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. The pH is then measured by a standard pH probe. .
Moisture Content by Gravimetry	E144 Vancouver - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446 Vancouver - Environmental	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 6020B (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by Collision/Reaction Cell ICPMS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of some elements (Ag, Bi, and Sn) by this method can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQOs has been established at 50-130% for these elements.
Mercury by CVAAS (Shakeflask, 3:1 Ratio with Water)	E515 Vancouver - Environmental	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 245.7	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by CVAAS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of mercury can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQO has been established at 50-130%.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
51 Elements by Aqua Regia digestion and ICP-AES/MS	ME-MS41 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals ME-MS41	A prepared sample is digested with aqua regia in a graphite heating block. After cooling, the resulting solution is diluted to with deionized water, mixed and analyzed by ICP-AES. Samples are then analyzed by ICP-MS for the remaining suite of elements.
Saturated Paste pH	OA-ELE07 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals OA-ELE07	Sample mix with water in 1:1 ratio to make a paste, pH is then determined.
Acid Base Accounting (Modified Sobek)	OA-VOL08m ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals OA-VOL08m	Determine the acid generation power of a sample as tonne $CaCO_3$ per kilo-tonne using modified Sobek method
Sulfide S (as S) Calc. (Total-S - SO4-S)	S-CAL06 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals S-CAL06	Sulfide Sulfur (as S) is calculated by subtracting the Carbonate Leachable Sulfate Sulfur (as S) from the Total Sulfur (as S) obtained from combustion.
Sulfates by NaCO3 Leaching and Gravimetry	S-GRA06 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals S-GRA06	A preppared sample is heated with diluted Na_2CO_3 and then filtered. The sulfate in the filtrate is precipitated with $BaCl_2$ in a dilute HCl. The $BaSO_4$ precipitate is filtered, ignited, weighed and the Sulfate Sulfur is determined (as S).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfates by HCl Leaching and Gravimetry	S-GRA06A ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals S-GRA06A	A prepared sample is heated with dilute HCl and then filtered. The sulfate in the filtrate is precipitated with BaCl2 in a dilute HCl. The BaSO4 precipitate is filtered, ignited, weighed and the Sulfate Sulfur is determined (as S).
Total Sulfur by Combustion and IR	S-IR08 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals S-IR08	A prepared sample is heated to approximately 1350°C in an induction furnace with oxygen stream. Sulfur dioxide released from the sample are measured by IR (Leco analyzer) and the Total Sulfur result is provided.
Received Sample Weight	WEI-21 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals WEI-21	Weigh out sample received.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Shakeflask Leachate Preparation (3:1 Ratio with Water)	EP446 Vancouver - Environmental	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solids ratio for 24 hours, then filtered through a 0.45 micron membrane filter.

QUALITY CONTROL REPORT

Work Order	: **VA21A0465**	Page	: 1 of 10
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: Ditch B, Rock drain (January)	Date Samples Received	: 09-Jan-2021 15:55
PO	: 14723	Date Analysis Commenced	: 30-Jan-2021
C-O-C number	: 20210108c	Issue Date	: 01-Mar-2021 11:10
Sampler	: LJ/RB		
Site	: ABA		
Quote number	: Q67596		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Metals, Burnaby, British Columbia
Erin Gatdula	Account Manager Assistant	Internal Subcontracting, North Vancouver, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Shaneel Dayal	Analyst	Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 146593)											
VA21A1619-002	Anonymous	pH	----	E116	0.10	pH units	9.20	9.17	0.327%	5%	----
Physical Tests (QC Lot: 146768)											
VA21A0465-001	E00074947-Dublin Gulch Till	moisture	----	E144	0.25	%	<0.25	<0.25	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 146592)											
VA21A1619-002	Anonymous	mercury, leachable	7439-97-6	E515	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 146594)											
VA21A1619-002	Anonymous	aluminum, leachable	7429-90-5	E446	0.0050	mg/L	0.635	0.618	2.75%	30%	----
		antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00016	0.00019	0.00002	Diff <2x LOR	----
		arsenic, leachable	7440-38-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0060	0.0056	0.0004	Diff <2x LOR	----
		beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		calcium, leachable	7440-70-2	E446	0.10	mg/L	6.29	6.23	0.905%	30%	----
		chromium, leachable	7440-47-3	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, leachable	7440-48-4	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		copper, leachable	7440-50-8	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		iron, leachable	7439-89-6	E446	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
		lead, leachable	7439-92-1	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		magnesium, leachable	7439-95-4	E446	0.050	mg/L	0.524	0.499	4.94%	30%	----
		manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.00208	0.00159	0.00048	Diff <2x LOR	----
		molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00917	0.0101	9.46%	30%	----
		nickel, leachable	7440-02-0	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		potassium, leachable	7440-09-7	E446	0.050	mg/L	2.59	2.68	3.70%	30%	----
		selenium, leachable	7782-49-2	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silicon, leachable	7440-21-3	E446	0.050	mg/L	3.35	3.34	0.423%	40%	----
		silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		sodium, leachable	7440-23-5	E446	0.050	mg/L	3.57	3.83	7.01%	30%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Leachable Metals (QC Lot: 146594) - continued											
VA21A1619-002	Anonymous	strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.107	0.105	2.07%	30%	----
		sulfur, leachable	7704-34-9	E446	0.50	mg/L	3.40	3.84	12.3%	30%	----
		thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.00112	0.00112	0.772%	30%	----
		vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 146768)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 156069)						
conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Leachable Metals (QCLot: 146592)						
mercury, leachable	7439-97-6	E515	0.00005	mg/L	<0.000050	----
Leachable Metals (QCLot: 146594)						
aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----
molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 146594) - continued						
titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 146593)									
pH	----	E116	----	pH units	7.04 pH units	99.3	95.0	105	----
Physical Tests (QCLot: 146768)									
moisture	----	E144	0.25	%	50 %	101	90.0	110	----
Physical Tests (QCLot: 156069)									
conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	101	90.0	110	----
Leachable Metals (QCLot: 146592)									
mercury, leachable	7439-97-6	E515	0.00005	mg/L	0.0005 mg/L	85.5	50.0	130	----
Leachable Metals (QCLot: 146594)									
aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	102	70.0	130	----
antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	104	70.0	130	----
arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	104	70.0	130	----
barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	104	70.0	130	----
beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	96.0	70.0	130	----
bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	103	70.0	130	----
boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	97.6	70.0	130	----
cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	102	70.0	130	----
calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	99.5	70.0	130	----
chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	101	70.0	130	----
cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	102	70.0	130	----
copper, leachable	7440-50-8	E446	----	mg/L	0.025 mg/L	100.0	70.0	130	----
iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	97.5	70.0	130	----
lead, leachable	7439-92-1	E446	----	mg/L	0.05 mg/L	102	70.0	130	----
lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	90.5	70.0	130	----
magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	107	70.0	130	----
manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	102	70.0	130	----
molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	98.3	70.0	130	----
nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	98.9	70.0	130	----
phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	106	70.0	130	----
potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	98.6	70.0	130	----
selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	106	70.0	130	----
silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	101	70.0	130	----
silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	97.0	70.0	130	----
sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	110	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 146594) - continued									
strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	96.0	70.0	130	----
sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	104	70.0	130	----
thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	96.3	70.0	130	----
tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	96.4	70.0	130	----
titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	90.3	70.0	130	----
uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	96.3	70.0	130	----
vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	105	70.0	130	----
zinc, leachable	7440-66-6	E446	----	mg/L	0.05 mg/L	103	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 146592)										
VA21A1619-003	Anonymous	mercury, leachable	7439-97-6	E515	0.000105 mg/L	0.0001 mg/L	105	70.0	130	----
Leachable Metals (QCLot: 146594)										
VA21A1619-003	Anonymous	aluminum, leachable	7429-90-5	E446	ND mg/L	0.2 mg/L	ND	70.0	130	----
		antimony, leachable	7440-36-0	E446	0.0195 mg/L	0.02 mg/L	97.5	70.0	130	----
		arsenic, leachable	7440-38-2	E446	0.0209 mg/L	0.02 mg/L	104	70.0	130	----
		barium, leachable	7440-39-3	E446	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		beryllium, leachable	7440-41-7	E446	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		bismuth, leachable	7440-69-9	E446	0.00978 mg/L	0.01 mg/L	97.8	70.0	130	----
		boron, leachable	7440-42-8	E446	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		cadmium, leachable	7440-43-9	E446	0.00421 mg/L	0.004 mg/L	105	70.0	130	----
		calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, leachable	7440-47-3	E446	0.0411 mg/L	0.04 mg/L	103	70.0	130	----
		cobalt, leachable	7440-48-4	E446	0.0208 mg/L	0.02 mg/L	104	70.0	130	----
		copper, leachable	7440-50-8	E446	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		iron, leachable	7439-89-6	E446	2.07 mg/L	2 mg/L	104	70.0	130	----
		lead, leachable	7439-92-1	E446	0.0203 mg/L	0.02 mg/L	102	70.0	130	----
		lithium, leachable	7439-93-2	E446	0.103 mg/L	0.1 mg/L	103	70.0	130	----
		magnesium, leachable	7439-95-4	E446	1.02 mg/L	1 mg/L	102	70.0	130	----
		manganese, leachable	7439-96-5	E446	0.0204 mg/L	0.02 mg/L	102	70.0	130	----
		molybdenum, leachable	7439-98-7	E446	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	----
		nickel, leachable	7440-02-0	E446	0.0412 mg/L	0.04 mg/L	103	70.0	130	----
		phosphorus, leachable	7723-14-0	E446	10.3 mg/L	10 mg/L	103	70.0	130	----
		potassium, leachable	7440-09-7	E446	4.41 mg/L	4 mg/L	110	70.0	130	----
		selenium, leachable	7782-49-2	E446	0.0431 mg/L	0.04 mg/L	108	70.0	130	----
		silicon, leachable	7440-21-3	E446	9.61 mg/L	10 mg/L	96.1	70.0	130	----
		silver, leachable	7440-22-4	E446	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		sodium, leachable	7440-23-5	E446	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, leachable	7440-24-6	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, leachable	7704-34-9	E446	21.8 mg/L	20 mg/L	109	70.0	130	----
		thallium, leachable	7440-28-0	E446	0.00397 mg/L	0.004 mg/L	99.2	70.0	130	----
		tin, leachable	7440-31-5	E446	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 146594) - continued										
VA21A1619-003	Anonymous	titanium, leachable	7440-32-6	E446	0.038 mg/L	0.04 mg/L	94.9	70.0	130	----
		uranium, leachable	7440-61-1	E446	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		vanadium, leachable	7440-62-2	E446	0.105 mg/L	0.1 mg/L	105	70.0	130	----
		zinc, leachable	7440-66-6	E446	0.426 mg/L	0.4 mg/L	106	70.0	130	----

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To: **ALS ENVIRONMENTAL**
100 - 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Finalized Date: 24-FEB-2021
Account: APN

CERTIFICATE VA21008538

Project: VA21A0465

This report is for 3 samples of Rock submitted to our lab in Vancouver, BC, Canada on 12-JAN-2021.

The following have access to data associated with this certificate:

ALSE VANCOUVER WEBTRIEVE HILARY WOODS	ALSEV DATASUBLET	SOFTWARE DEVELOPMENT GROUP

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
DISP-01	Disposal of all sample fractions
SPL-21X	Addnl Crush Split w No Analysis
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um
SND-01	Send samples to external laboratory

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
OA-VOL08m	Modified NP	
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
OA-ELE07	Paste pH	
S-GRA06	Sulfate Sulfur-carbonate leach	WST-SEQ
S-CAL06	Sufide Sulfur (calculated)	LECO
C-GAS05	Inorganic Carbon (CO2)	
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ
ME-MS41	Ultra Trace Aqua Regia ICP-MS	

This is the Final Report and supersedes any preliminary report with this certificate number.Results apply to samples as submitted.All pages of this report have been checked and approved for release.
***** See Appendix Page for comments regarding this certificate *****

Signature:



Saa Traxler, General Manager, North Vancouver

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BURNABY BC V5A 1W9

Finalized Date: 24-FEB-2021
Account: APN

Project: VA21A0465

CERTIFICATE OF ANALYSIS VA21008538

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	ME-MS41 Ag ppm 0.01	ME-MS41 Al % 0.01	ME-MS41 As ppm 0.1	ME-MS41 Au ppm 0.02	ME-MS41 B ppm 10	ME-MS41 Ba ppm 10	ME-MS41 Be ppm 0.05	ME-MS41 Bi ppm 0.01	ME-MS41 Ca % 0.01	ME-MS41 Cd ppm 0.01	ME-MS41 Ce ppm 0.02	ME-MS41 Co ppm 0.1	ME-MS41 Cr ppm 1	ME-MS41 Cs ppm 0.05
VA21A0465-001		3.76	0.53	1.27	2870	0.48	<10	270	0.45	13.25	0.57	0.14	55.9	8.4	22	2.57
VA21A0465-002		4.98	0.01	1.53	69.6	<0.02	<10	80	0.48	0.18	0.20	<0.01	56.1	10.4	39	8.94
VA21A0465-003		5.90	0.03	1.61	68.3	0.02	<10	130	0.68	0.86	0.50	0.15	51.4	8.5	36	7.73

***** See Appendix Page for comments regarding this certificate *****

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Account: APN

Project: VA21A0465

CERTIFICATE OF ANALYSIS VA21008538

Sample Description	Method Analyte Units LOD	ME-MS41 Cu ppm 0.2	ME-MS41 Fe % 0.01	ME-MS41 Ga ppm 0.05	ME-MS41 Ge ppm 0.05	ME-MS41 Hf ppm 0.02	ME-MS41 Hg ppm 0.01	ME-MS41 In ppm 0.005	ME-MS41 K % 0.01	ME-MS41 La ppm 0.2	ME-MS41 Li ppm 0.1	ME-MS41 Mg % 0.01	ME-MS41 Mn ppm 5	ME-MS41 Mo ppm 0.05	ME-MS41 Na % 0.01	ME-MS41 Nb ppm 0.05
VA21A0465-001		35.2	2.39	5.32	0.11	0.13	0.21	0.024	0.39	28.8	20.0	0.58	281	1.56	0.08	1.17
VA21A0465-002		10.4	2.32	5.89	0.10	0.19	<0.01	0.013	0.94	28.9	40.2	0.56	155	2.74	0.03	0.28
VA21A0465-003		15.4	2.53	6.40	0.11	0.17	0.01	0.017	0.80	26.7	32.6	0.61	228	2.03	0.04	0.33

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Project: VA21A0465

CERTIFICATE OF ANALYSIS VA21008538

Sample Description	Method Analyte Units LOD	ME-MS41 Ni ppm 0.2	ME-MS41 P ppm 10	ME-MS41 Pb ppm 0.2	ME-MS41 Rb ppm 0.1	ME-MS41 Re ppm 0.001	ME-MS41 S % 0.01	ME-MS41 Sb ppm 0.05	ME-MS41 Sc ppm 0.1	ME-MS41 Se ppm 0.2	ME-MS41 Sn ppm 0.2	ME-MS41 Sr ppm 0.2	ME-MS41 Ta ppm 0.01	ME-MS41 Te ppm 0.01	ME-MS41 Th ppm 0.2	ME-MS41 Ti % 0.005
VA21A0465-001		17.5	470	29.9	36.5	0.006	0.01	41.6	3.7	0.3	0.6	43.0	<0.01	0.01	12.0	0.129
VA21A0465-002		24.0	110	2.2	88.6	0.001	0.03	0.58	5.0	0.2	0.6	11.4	<0.01	0.02	12.8	0.133
VA21A0465-003		19.4	210	12.8	76.1	0.001	0.09	12.05	5.1	0.3	0.7	35.1	<0.01	0.04	11.9	0.117

***** See Appendix Page for comments regarding this certificate *****

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Finalized Date: 24-FEB-2021
Account: APN

Project: VA21A0465

CERTIFICATE OF ANALYSIS VA21008538

Sample Description	Method	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	ME-MS41	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-VOL08m	OA-ELE07	OA-VOL08m	S-IR08	S-GRA06
	Analyte	Tl	U	V	W	Y	Zn	Zr	MPA	FIZZ RAT	NNP	NP	pH	Ratio (N	S	S
	Units	ppm	ppm	ppm	ppm	ppm	ppm	ppm	tCaCO3/1Kt	Unity	tCaCO3/1Kt	tCaCO3/1Kt	Unity	Unity	%	%
	LOD	0.02	0.05	1	0.05	0.05	2	0.5	0.3	1	1	1	0.1	0.01	0.01	0.01
VA21A0465-001		0.34	1.74	40	610	6.60	39	3.6	0.3	1	8	8	8.6	25.60	0.01	<0.01
VA21A0465-002		0.54	1.60	34	5.79	5.23	26	6.7	1.3	1	5	6	9.1	4.80	0.04	<0.01
VA21A0465-003		0.50	1.84	33	4.47	5.40	70	5.4	2.8	1	9	12	8.5	4.27	0.09	<0.01

***** See Appendix Page for comments regarding this certificate *****

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100 - 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Finalized Date: 24-FEB-2021
Account: APN

Project: VA21A0465

CERTIFICATE OF ANALYSIS VA21008538

Sample Description	Method Analyte Units LOD	S-GRA06a S % 0.01	S-CAL06 S % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2
VA21A0465-001		<0.01	0.01	<0.05	<0.2
VA21A0465-002		0.03	0.04	0.05	0.2
VA21A0465-003		<0.01	0.09	0.13	0.5

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To: **ALS ENVIRONMENTAL**
100 - 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Finalized Date: 24-FEB-2021
Account: APN

Project: VA21A0465

CERTIFICATE OF ANALYSIS VA21008538

CERTIFICATE COMMENTS

ANALYTICAL COMMENTS

Applies to Method: Gold determinations by this method are semi-quantitative due to the small sample weight used (0.5g).
ME-MS41

LABORATORY ADDRESSES

Applies to Method: Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

C-GAS05	CRU-31	DISP-01	LOG-21
ME-MS41	OA-ELE07	OA-VOL08m	PUL-31
S-CAL06	S-GRA06	S-GRA06a	S-IR08
SND-01	SPL-21	SPL-21X	WEI-21

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Affix ALS barcode label here
(lab use only)

COC Number: 20210108c

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	Lindsay Rear/Bill Bowden
Phone:	867-456-7700 x.6381
	Company address below will appear on the final report
Street:	Suite 1000 - 1050 W. Pender St.
City/Province:	Vnacouver, B.C.
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	accountspayable@vgcx.com
Contact:	

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	swilbur@vgcx.com, rtuohey@vgcx.com
Email 2	pemerson@vgcx.com; lrear@vgcx.com
Email 3	bbowden@vgcx.com, ljohnston@vgcx.com

Invoice Distribution	
Select Invoice Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	accountspayable@vgcx.com
Email 2	rtuohey@vgcx.com, mhildebrandt@vgcx.com

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Regular [R]	☑ Standard TAT if received by 3 pm - business days - no surcharges apply
PRIORITY (Business Days)	4 day [P4-20%] ☐
	3 day [P3-25%] ☐
	2 day [P2-50%] ☐
EMERGENCY	1 Business day [E1 - 100%] ☐
	Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
Date and Time Required for all E&P TATs:	
For tests that can not be performed according to the service level selected, you will be contacted.	

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	Q67596	AFE/Cost Center:	PO# 14723
Job #:	Ditch B, Rock drain (January)	Major/Minor Code:	Routing Code:
PO / AFE:	14723	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only):		**ALS Contact: Hilary Wood**	**Sampler:** LJ/RB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	EC and pH by PCT (SHAKEFLASK)	Aqua Regia ICPMS	Metals by CCMS & CVAFS (SHAKEFLASK)	Moisture content	Shakeflask - Sample Preparation	Sample Handing and Disposal Fee	Special Request ALS Minerals Vancouver	Modified ABA	Shake Flask Extraction 3:1 water to solid ratio	LA Abrasion (ASTM C131)	Durability - Magnesium Sulphate (ASTM D52)	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	E00074947 - Dublin Gulch Till	28-Dec-20		Grab	R	R	R	R	R	R	R	R	R					1
	E00074948 - 1145 Bench	28-Dec-20		Grab	R	R	R	R	R	R	R	R	R					1
	E00074950 - 1100 Dump	28-Dec-20		Grab	R	R	R	R	R	R	R	R	R					1

Environmental Division
Vancouver
Work Order Reference
VA21A0465

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instruction	he drop-down list below
Are samples taken from a Regulated DW System? ☐ YES ☑ NO		
Are samples for human consumption/ use? ☐ YES ☑ NO		

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs ☐ Ice Cubes ☐		Custody seal intact	Yes ☐	No	☐
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
							6

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
B.Bowden	2021-Jan-08	8:00				cw	09 Jan. 2021	2:55pm

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

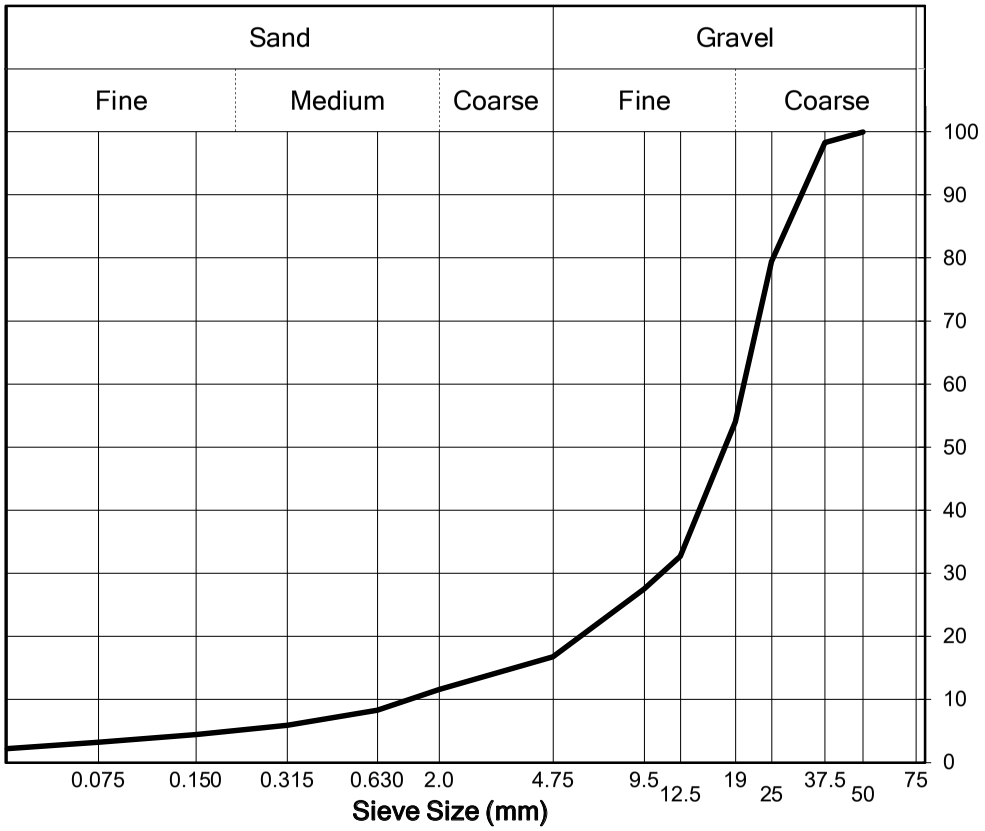
1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.WARC03945-01	Sample No.:	887.1
Project:	Victoria Gold Eagle Gold Operation	Date Received:	Jan 19, 2021
Client:	Victoria Gold Corp.	Sampled by:	Client
Attention:	Lea Johnston	Date Tested:	Jan 25, 2021
Email:	ljohnston@vgcx.com	Tested by:	MA Office: Edmonton
Soil Proportions (%):	Silt & Clay 2 Gravel 83	Moisture Content (as received):	1.1%
	Sand 15 Cobbles 0	No. Crushed Faces:	Two (2) or Three (3)
Description:	GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown	By Particle Mass:	
Source:	E00074947 - Dublin Gulch Till		
Sample Location:	Eagle Gold Mine, supplied by Client		
Specification:	N/A		

Sieve Size	Percent Passing
50	100
37.5	98
25	79
19	54
12.5	33
9.5	28
4.75	17
2.0	12
1.25	8
0.630	6
0.315	4
0.150	3
0.075	2.2



Remarks:

Reviewed By: _____ P.Eng.

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TETRA TECH

SOUNDNESS OF AGGREGATES BY USE OF MAGNESIUM SULPHATE

ASTM C88

Project No:	ENG.WARC03945-01	**Sample No.:**	887.1
Project:	Victoria Gold Eagle Gold Operation	**Date Received:**	Jan 19, 2021
Client:	Victoria Gold Corp.	**Sampled By:**	Client
		Date Tested:	Jan 29, 2021
Attention:	Lea Johnston **Ph:** 867-456-7700	**Tested By:**	MA
Email:	ljohnston@vgcx.com	**Office:**	Edmonton

Description: GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown

Source: E00074947 - Dublin Gulch Till

Sample Location: Eagle Gold Mine, supplied by Client

Supplier N/A

Coarse Aggregate

Sieve Size		Sample Grading, % Passing	Proportion of Sample in Size Fraction, %	Initial Mass (g)	Final Mass (g)	Loss (%)	Weighted Average (corrected (%) loss)
Passing	Retained						
80 mm	63 mm	100	0			--	--
63 mm	50 mm	100	0			5.7	0.11
50 mm	37.5 mm	100	2				
37.5 mm	25 mm	98	19	1005.8	1432.6	5.7	2.51
25 mm	19 mm	79	25	513.4			
19 mm	12.5 mm	54	21	673.0	946.7	5.6	1.46
12.5 mm	9.5 mm	33	5	330.0			
9.5 mm	4.75 mm	28	11	300.2	282.0	6.1	0.67
4.75 mm	--	17	17	--	--	--	--
		Totals	100.0	--	--		**5**

Remarks:

Reviewed By: _____ P.Eng.

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TETRA TECH

Los Angeles Abrasion of Small-Size Coarse Aggregate

ASTM C131 / AASTHO T-96

Project No:	ENG.WARC03945-01	**Sample No.:**	887.1
Project:	Victoria Gold Eagle Gold Operation	**Date Sampled:**	Jan 19, 2021
Client:	Victoria Gold Corp.	**Sampled By:**	Client
		Date Tested:	Feb 1, 2021
Attention:	Lea Johnston **Ph:** 867-456-7700	**Tested By:**	MA
Email:	ljohnston@vgcx.com	**Office:**	Edmonton

Description:	GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown
Source:	E00074947 - Dublin Gulch Till
Sample Location:	Eagle Gold Mine, supplied by Client
Supplier	N/A

		Mass of Indicated Sizes , g				
Test Grading						
Sieve Size (mm)		**Grading A**	**Grading B**	**Grading C**	**Grading D**	**Sample 887.1**
Passing	Retained					
37.5	25	1250 ± 25	--	--	--	1252.4
25	19	1250 ± 25	--	--	--	1252.0
19	12.5	1250 ± 10	2500 ± 10	--	--	1250.0
12.5	9.5	1250 ± 10	2500 ± 10	--	--	1252.0
9.5	6.3	--	--	2500 ± 10	--	
6.3	4.75	--	--	2500 ± 10	--	
4.75	2.36	--	--	--	5,000 ± 10	
	Total:	5,000 ± 10				5,006.4

Test Grading	Initial Mass (g)	Final Mass (g)	Mass Loss (g)	Loss (%)
A	5,006.4	3,268.4	1,738.0	**35**

Remarks:

Reviewed By: _____ P. Eng.

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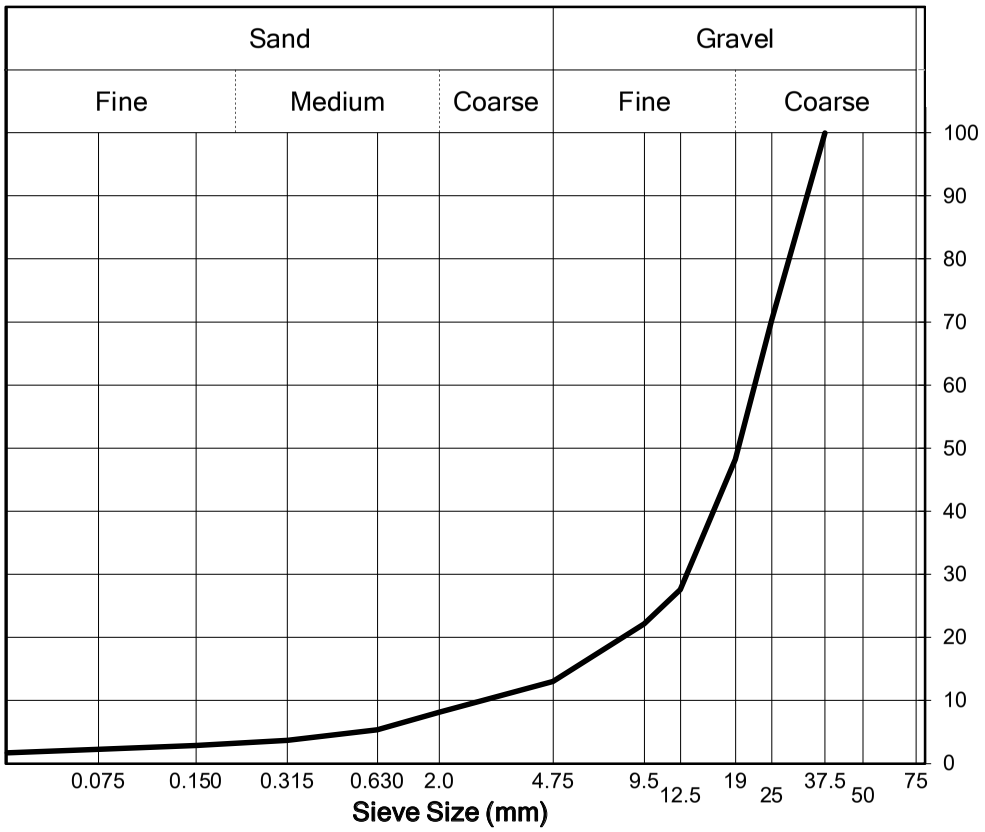
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.WARC03945-01	Sample No.:	887.3
Project:	Victoria Gold Eagle Gold Operation	Date Received:	Jan 19, 2021
Client:	Victoria Gold Corp.	Sampled by:	Client
Attention:	Lea Johnston	Date Tested:	Jan 25, 2021
Email:	ljohnston@vgcx.com	Tested by:	MA Office: Edmonton
Soil Proportions (%):	Silt & Clay 2 Gravel 87	Moisture Content (as received):	0.2%
	Sand 11 Cobbles 0	No. Crushed Faces:	Two (2) or Three (3)
Description:	GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown	By Particle Mass:	
Source:	E00074948 - 1145 Bench		
Sample Location:	Eagle Gold Mine, supplied by Client		
Specification:	N/A		

Sieve Size	Percent Passing
37.5	100
25	70
19	48
12.5	28
9.5	22
4.75	13
2.0	8
1.25	5
0.630	4
0.315	3
0.150	2
0.075	1.7



Remarks:

Reviewed By: _____ P.Eng.

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TETRA TECH

SOUNDNESS OF AGGREGATES BY USE OF MAGNESIUM SULPHATE

ASTM C88

Project No:	ENG.WARC03945-01	**Sample No.:**	887.3
Project:	Victoria Gold Eagle Gold Operation	**Date Received:**	Jan 19, 2021
Client:	Victoria Gold Corp.	**Sampled By:**	Client
		Date Tested:	Jan 29, 2021
Attention:	Lea Johnston **Ph:** 867-456-7700	**Tested By:**	MA
Email:	ljohnston@vgcx.com	**Office:**	Edmonton

Description:	GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown
Source:	E00074948 - 1145 Bench
Sample Location:	Eagle Gold Mine, supplied by Client
Supplier	N/A

Coarse Aggregate

Sieve Size		Sample Grading, % Passing	Proportion of Sample in Size Fraction, %	Initial Mass (g)	Final Mass (g)	Loss (%)	Weighted Average (corrected (%) loss)
Passing	Retained						
80 mm	63 mm	100	0			--	--
63 mm	50 mm	100	0			--	--
50 mm	37.5 mm	100	0				
37.5 mm	25 mm	100	30	1001.9	1468.0	2.5	1.31
25 mm	19 mm	70	22	503.9			
19 mm	12.5 mm	48	20	671.3	964.4	3.7	0.97
12.5 mm	9.5 mm	28	6	330.6			
9.5 mm	4.75 mm	22	9	300.1	292.7	2.5	0.22
4.75 mm	--	13	13	--	--	--	--
		Totals	100.0	--	--		**3**

Remarks:

Reviewed By: _____ P.Eng.

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TETRA TECH

Los Angeles Abrasion of Small-Size Coarse Aggregate

ASTM C131 / AASTHO T-96

Project No:	ENG.WARC03945-01	**Sample No.:**	887.3
Project:	Victoria Gold Eagle Gold Operation	**Date Sampled:**	Jan 19, 2021
Client:	Victoria Gold Corp.	**Sampled By:**	Client
		Date Tested:	Feb 1, 2021
Attention:	Lea Johnston **Ph:** 867-456-7700	**Tested By:**	MA
Email:	ljohnston@vgcx.com	**Office:**	Edmonton

Description:	GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown
Source:	E00074948 - 1145 Bench
Sample Location:	Eagle Gold Mine, supplied by Client
Supplier	N/A

		Mass of Indicated Sizes , g				
Test Grading		**Grading A**	**Grading B**	**Grading C**	**Grading D**	**Sample 887.3**
Sieve Size (mm)						
Passing	Retained					
37.5	25	1250 ± 25	--	--	--	1257.0
25	19	1250 ± 25	--	--	--	1250.8
19	12.5	1250 ± 10	2500 ± 10	--	--	1252.1
12.5	9.5	1250 ± 10	2500 ± 10	--	--	1250.4
9.5	6.3	--	--	2500 ± 10	--	
6.3	4.75	--	--	2500 ± 10	--	
4.75	2.36	--	--	--	5,000 ± 10	
	Total:	5,000 ± 10				5,010.3

Test Grading	Initial Mass (g)	Final Mass (g)	Mass Loss (g)	Loss (%)
A	5,010.3	3,807.8	1,202.5	**24**

Remarks:

Reviewed By: _____ P. Eng.

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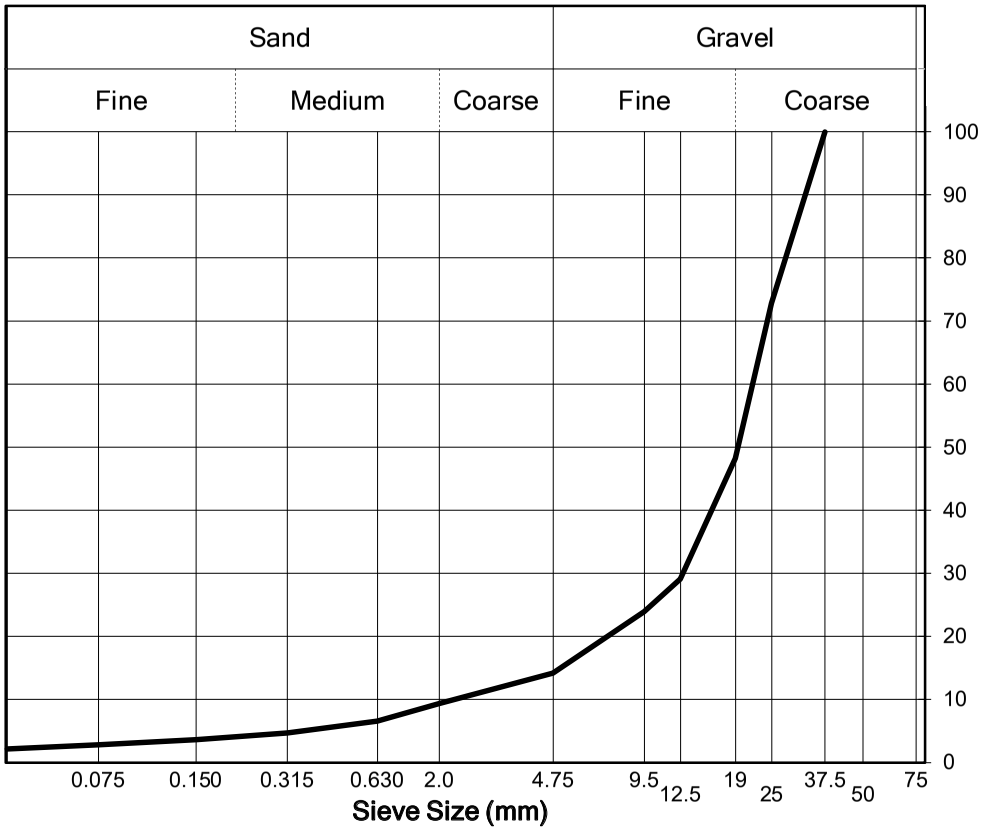
TETRA TECH

SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.:	ENG.WARC03945-01	Sample No.:	887.2
Project:	Victoria Gold Eagle Gold Operation	Date Received:	Jan 19, 2021
Client:	Victoria Gold Corp.	Sampled by:	Client
Attention:	Lea Johnston	Date Tested:	Jan 25, 2021
Email:	ljohnston@vgcx.com	Tested by: MA	Office: Edmonton
Soil Proportions (%):	Silt & Clay 2 / Gravel 86	Moisture Content (as received):	0.8%
	Sand 12 / Cobbles 0	No. Crushed Faces:	Two (2) or Three (3)
Description:	GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown	By Particle Mass:	
Source:	E00074950 - 1100 Dump		
Sample Location:	Eagle Gold Mine, supplied by Client		
Specification:	N/A		

Sieve Size	Percent Passing
37.5	100
25	73
19	48
12.5	29
9.5	24
4.75	14
2.0	9
1.25	7
0.630	5
0.315	4
0.150	3
0.075	2.2



Remarks:

Reviewed By: IDR P.Eng.

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TETRA TECH

SOUNDNESS OF AGGREGATES BY USE OF MAGNESIUM SULPHATE

ASTM C88

Project No:	ENG.WARC03945-01	**Sample No.:**	887.2
Project:	Victoria Gold Eagle Gold Operation	**Date Received:**	Jan 19, 2021
Client:	Victoria Gold Corp.	**Sampled By:**	Client
		Date Tested:	Jan 29, 2021
Attention:	Lea Johnston **Ph:** 867-456-7700	**Tested By:**	MA
Email:	ljohnston@vgcx.com	**Office:**	Edmonton

Description: GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown

Source: E00074950 - 1100 Dump

Sample Location: Eagle Gold Mine, supplied by Client

Supplier N/A

Coarse Aggregate

Sieve Size		Sample Grading, % Passing	Proportion of Sample in Size Fraction, %	Initial Mass (g)	Final Mass (g)	Loss (%)	Weighted Average (corrected (%) loss)
Passing	Retained						
80 mm	63 mm	100	0			--	--
63 mm	50 mm	100	0			--	--
50 mm	37.5 mm	100	0				
37.5 mm	25 mm	100	27	1000.4	1448.3	3.8	1.98
25 mm	19 mm	73	25	505.2			
19 mm	12.5 mm	48	19	671.0	951.0	5.1	1.23
12.5 mm	9.5 mm	29	5	331.3			
9.5 mm	4.75 mm	24	10	300.6	277.7	7.6	0.76
4.75 mm	--	14	14	--	--	--	--
		Totals	100.0	--	--		**4**

Remarks:

Reviewed By: _____ P.Eng.

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TETRA TECH

Los Angeles Abrasion of Small-Size Coarse Aggregate

ASTM C131 / AASTHO T-96

Project No:	ENG.WARC03945-01	**Sample No.:**	887.2
Project:	Victoria Gold Eagle Gold Operation	**Date Sampled:**	Jan 19, 2021
Client:	Victoria Gold Corp.	**Sampled By:**	Client
		Date Tested:	Feb 1, 2021
Attention:	Lea Johnston **Ph:** 867-456-7700	**Tested By:**	MA
Email:	ljohnston@vgcx.com	**Office:**	Edmonton

Description:	GRAVEL (37.5 mm max, crush), some sand, trace silt & clay, brown
Source:	E00074950 - 1100 Dump
Sample Location:	Eagle Gold Mine, supplied by Client
Supplier	N/A

		Mass of Indicated Sizes , g				
Test Grading		**Grading A**	**Grading B**	**Grading C**	**Grading D**	**Sample 887.2**
Sieve Size (mm)						
Passing	Retained					
37.5	25	1250 ± 25	--	--	--	1253.2
25	19	1250 ± 25	--	--	--	1250.0
19	12.5	1250 ± 10	2500 ± 10	--	--	1250.6
12.5	9.5	1250 ± 10	2500 ± 10	--	--	1251.3
9.5	6.3	--	--	2500 ± 10	--	
6.3	4.75	--	--	2500 ± 10	--	
4.75	2.36	--	--	--	5,000 ± 10	
	Total:	5,000 ± 10				5,005.1

Test Grading	Initial Mass (g)	Final Mass (g)	Mass Loss (g)	Loss (%)
A	5,005.1	3,801.1	1,204.0	**24**

Remarks:

Reviewed By: _____ P. Eng.

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TETRA TECH

APPENDIX C

DAILY REPORTS AND MATERIAL TRACKING

Time			Equipment		Haul Information					Liner Information		
Year	Period (Wk End)	Date	Load Unit	Load m3	Material	From (General Area)	To (General Area)	# Loads	Volume (ECM)	Liner (M)	Liner Cum. Meters	Approximate Liner chainage off drawing
2020	14-Nov-20	10-Nov-20	730	14	waste	Ditch B	Eagle Waste Dump	20	280			
2020	28-Nov-20	26-Nov-20								35	35	
2020	28-Nov-20	27-Nov-20								47	82	
2020	28-Nov-20	28-Nov-20	730	14	rip rap	eagle stockpile	ditch B	10	140			
2020	28-Nov-20	28-Nov-20	730	14	common	eagle	ditch B	20	280			
2020	5-Dec-20	30-Nov-20								99	181	
2020	5-Dec-20	3-Dec-20	730	14	common	ditch B	90 day washout	19	266			
2020	5-Dec-20	4-Dec-20	730	14	common	Ditch B	90 day washout	46	644			
2020	5-Dec-20	5-Dec-20	730	14	common	Ditch B	90 day washout	43	602			
2020	12-Dec-20	6-Dec-20	730	14	common	Ditch B	90 day washout	46	644			
2020	12-Dec-20	7-Dec-20	730	14	common	Ditch B	90 day washout	22	308			
2020	12-Dec-20	8-Dec-20	730	14	common	Ditch B	90 day washout	41	574			
2020	12-Dec-20	9-Dec-20	730	14	common	Ditch B	90 day washout	45	630			
2020	12-Dec-20	10-Dec-20	730	14	common	Ditch B	90 day washout	34	476			
2020	12-Dec-20	11-Dec-20	730	14	common	Ditch B	90 day washout	18	252			
2021	5-Mar-21	4-Mar-21								168	349	28 panels x 6m
2021	6-Mar-21	5-Mar-21								144	493	24 panels x 6m
2021	6-Mar-21	6-Mar-21								162	655	27 panels x 6m
2021	13-Mar-21	7-Mar-21								150	805	30 panels x 5m
2021	13-Mar-21	8-Mar-21								132	937	22 panels x 6m
2021	17-Apr-21	14-Apr-21	730	14	rip rap	work shop laydown	ditch B	11	154			
2021	17-Apr-21	15-Apr-21	730	14	rip rap	work shop laydown	ditch B	12	168			
2021	17-Apr-21	16-Apr-21	730	14	rip rap	work shop laydown	ditch B	8	112			
2021	17-Apr-21	17-Apr-21	730	14	rip rap	work shop laydown	ditch B	8	112			
2021	24-Apr-21	18-Apr-21	730	14	rip rap	work shop laydown	ditch B	11	154			
2021	24-Apr-21	19-Apr-21	730	14	rip rap	work shop laydown	ditch B	7	98			
2021	24-Apr-21	19-Apr-21	745	20	rip rap	work shop laydown	ditch B	3	60			
2021	24-Apr-21	21-Apr-21	730	14	common	work shop laydown	ditch B	13	182			
2021	24-Apr-21	22-Apr-21	730	14	rip rap	work shop laydown	ditch b	9	126			
2021	24-Apr-21	23-Apr-21	730	14	rip rap	Truck Shop	ditch b	2	28			
2021	24-Apr-21	23-Apr-21	730	14	rip rap	work shop laydown	ditch b	9	126			
2021	29-Apr-21	24-Apr-21	730	14	rip rap	work shop laydown	ditch B	10	140			
2021	1-May-21	25-Apr-21	730	14	rip rap	work shop laydown	ditch B	16	224			
2021	1-May-21	26-Apr-21	730	14	rip rap	work shop laydown	ditch B	7	98			
2021	1-May-21	27-Apr-21	730	14	Common	Truck Shop	ditch B	10	140			
2021	1-May-21	28-Apr-21	730	14	rip rap	work shop laydown	ditch b	10	140			
2021	1-May-21	28-Apr-21	730	14	Common	Truck Shop	ditch b	7	98			
2021	1-May-21	29-Apr-21	730	14	Common	Truck Shop	ditch b	5	70			
2021	1-May-21	29-Apr-21	730	14	rip rap	work shop laydown	ditch b	5	70	54	991	9 panels x 6m
2021	1-May-21	30-Apr-21	730	14	rip rap	work shop laydown	dicth b	13	182			
2021	1-May-21	1-May-21	730	14	rip rap	work shop laydown	ditch b	14	196			
2021	8-May-21	2-May-21	730	14	Common	Truck Shop	ditch B	5	70	12	1003	2 panels x 6m
2021	8-May-21	2-May-21	730	14	Common	work shop laydown	ditch b	8	112			
2021	8-May-21	3-May-21	730	14	rip rap	work shop laydown	ditch b	5	70			
2021	14-May-21	9-May-21	730	14	common	eagle	ditch B	11	154	42	1045	7 panels
2021	14-May-21	10-May-21	730	14	rip	eagle	ditch B	6	84			
2021	14-May-21	12-May-21	730	14	common	eagle	ditch B	9	126			
2021	14-May-21	12-May-21	730	14	rip rap	eagle	ditch B	8	112	42	1087	7 panels

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 30
	Eagle Gold
	Monday, October 12th 2020, 6:50 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Grubbing and shaping ditch B* *Placing rip rap* *Ditch repair*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-4*
Weather(PM):	*-3*
Date:	*October 11, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Cold weather
Flying debris
Work with caution
Icy road conditions

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Placing rip rap on liner
Clearing brush and shaping ditch B
Ditch repair

ACTIVITIES COMPLETED

Activities:

No comments



Grubbing at ditch B

ACTIVITIES COMPLETED

Activities:

No comments



Screening rip rap at switchback 1

ACTIVITIES COMPLETED

Activities:

No comments



Removing rip rap from ditch A for repairs

ACTIVITIES COMPLETED

Activities:

No comments



Shaping ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 022 (Quick Attach)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 12th 2020, 6:50 PM (GMT +00:00)

64.0311648, -135.8485236



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 31
	Eagle Gold
	Tuesday, October 13th 2020, 5:31 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Grubbing and shaping ditch B* *Placing rip rap* *Ditch repair*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-7*
Weather(PM):	*-6*
Date:	*October 12, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Cold weather
Reduce radio chatter
Confusing task, ask supervisor
Work with caution
Icy road conditions

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Placing rip rap on liner
Clearing brush and shaping ditch B
Ditch repair
Washout repair below 90 day

ACTIVITIES COMPLETED

Activities:

No comments



Removing unsuitable material

ACTIVITIES COMPLETED

Activities:

No comments



Wash out repair

ACTIVITIES COMPLETED

Activities:

No comments



Sub grade repair

ACTIVITIES COMPLETED

Activities:

No comments



Water diversion

ACTIVITIES COMPLETED

Activities:

No comments



ACTIVITIES COMPLETED

Activities:

No comments



D10 working at ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 022 (Quick Attach)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 016

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 016

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 018

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D10R UNIT 030

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers	*No comments*
Total Hrs Worked:	*No comments*

Marshall Ewing, *Supervisor*
October 13th 2020, 5:31 PM (GMT +00:00)

64.0311514, -135.8485174



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 31
	Eagle Gold
	Wednesday, October 14th 2020, 6:37 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Grubbing and shaping ditch B* *Placing rip rap* *Ditch repair* *Stockpile rip rap at eagle*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-10*
Weather(PM):	*-11*
Date:	*October 13, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Confusing tasks
Heavy lifting
Very slippery surfaces
New work areas

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Placing rip rap on liner
Clearing brush and shaping ditch
Ditch repair
Stockpile rip rap at eagle
Screening rip rap at switchback 1

ACTIVITIES COMPLETED

Activities:

No comments



Placing rip rap

ACTIVITIES COMPLETED

Activities:

No comments



Removing boulders from ditch B area

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader > 950H UNIT 013

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 325DL UNIT 022 (Quick Attach)

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 016

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 14th 2020, 6:37 PM (GMT +00:00)

64.0311685, -135.8485098



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 32
	Eagle Gold
	Thursday, October 15th 2020, 6:55 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Grubbing and shaping ditch B* *Screening rip rap*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-10*
Weather(PM):	*-4*
Date:	*October 14, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Check in when working alone
Proper berms for rock trucks
3-point contact

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Grubbing and shaping at top of ditch B
Screening rip rap at switchback 1

ACTIVITIES COMPLETED

Activities:

No comments



Top of ditch B

ACTIVITIES COMPLETED

Activities:

No comments



Widening ditch B route

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

VISITORS ON SITE

Visitor:

JDS

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

7

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 15th 2020, 6:55 PM (GMT +00:00)

64.0311277, -135.8485191

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 33
	Eagle Gold
	Friday, October 16th 2020, 6:25 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Grubbing and shaping ditch B* *Screening rip rap*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-6*
Weather(PM):	*-4*
Date:	*October 15, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Check in when working alone
Proper berms for rock trucks
3-point contact

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Grubbing and shaping at top and bottom of ditch B
Screening rip rap at switchback 1

ACTIVITIES COMPLETED

Activities:

No comments



Top of ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

VISITORS ON SITE

Visitor:

JDS

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

4

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

4

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

8

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 16th 2020, 6:25 PM (GMT +00:00)

64.0311515, -135.8484024



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 34
	Eagle Gold
	Saturday, October 17th 2020, 8:21 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Grubbing and shaping ditch B* *Screening rip rap* *Placing rip rap on liner*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-12*
Weather(PM):	*-8*
Date:	*October 16, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Cold weather
Chalk blocks when parking vehicles with tires
Check-in when working alone for long periods of time

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Grubbing and shaping at top and bottom of ditch B
Screening rip rap at switchback 1

ACTIVITIES COMPLETED

Activities:

No comments



Placing rip rap

ACTIVITIES COMPLETED

Activities:

No comments



Ditch B access

ACTIVITIES COMPLETED

Activities:

No comments



Removing material for ditch B access

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 021**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 17th 2020, 8:21 PM (GMT +00:00)

64.0311553, -135.8485111



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - Day 36
	Eagle Gold
	Sunday, October 18th 2020, 6:12 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Access along exist Ditch B* *Screening rip rap* *Placing rip rap on liner* *Access down into fore bay*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-20*
Weather(PM):	*-10*
Date:	*October 17, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

House keeping
Hauling on steep slopes
Working near heavy/bigger equipment
Berms
Lots of communication

Incident(s)

> **None**

Total Incidents

0

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Placed rip rap on liner
Screened rip rap
Access along ditch B

ACTIVITIES COMPLETED

Activities:

No comments



Fore bay access

ACTIVITIES COMPLETED

Activities:

No comments



Placing rip rap

ACTIVITIES COMPLETED

Activities:

No comments



Access along ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

3

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator › 325DL UNIT 021

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck › 730 UNIT 017

Hrs Used:

3

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Original View

Marshall Ewing, *Supervisor*
October 18th 2020, 6:12 PM (GMT +00:00)

64.031163, -135.8485266



Revised on October 18th 2020, 10:06 PM (GMT +00:00) Current View

Harrison Ewing, *Safety Manager*
October 18th 2020, 10:06 PM (GMT +00:00)

63.597, -135.9091



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 36
	Eagle Gold
	Monday, October 19th 2020, 11:27 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Placed rip rap on liner*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-18*
Weather(PM):	*-10*
Date:	*October 18, 2020*

Reported By:

- **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

3-point contact
PPE when out of equipment
Check fire extinguishers

Incident(s)

- **None**

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Placed rip rap on liner



ACTIVITIES COMPLETED

Activities:

No comments



ACTIVITIES COMPLETED

Activities:

No comments



EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 021**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 19th 2020, 11:27 PM (GMT +00:00)

64.0311296, -135.8484318



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 38
	Eagle Gold
	Wednesday, October 21st 2020, 12:46 AM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Placed rip rap on liner*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-19*
Weather(PM):	*-13*
Date:	*October 19, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

3-point contact
PPE when out of equipment
Check fire extinguishers

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Placed rip rap on liner



EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

VISITORS ON SITE

Visitor:

JDS

# of Visits

No comments

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 21st 2020, 12:46 AM (GMT +00:00)

64.0311489, -135.84851



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 39
	Eagle Gold
	Wednesday, October 21st 2020, 7:30 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Placed rip rap on liner*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-20*
Weather(PM):	*-10*
Date:	*October 20, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Cold weather
Icy roads
Falling debris
Use a spotter if required

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Placed rip rap on liner



EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

VISITORS ON SITE

Visitor:

JDS

# of Visits

No comments

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator › 329EL UNIT 027

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck › 730 UNIT 017

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 21st 2020, 7:30 PM (GMT +00:00)

64.0311797, -135.8485067

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 40
	Eagle Gold
	Thursday, October 22nd 2020, 10:31 PM (GMT +00:00)

Daily Report

Job:	*Reclaim Ditch A / shape Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Placed rip rap on liner*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-20*
Weather(PM):	*-10*
Date:	*October 21, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Pre trips
Check fire extinguishers
Check spill kits

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Placed rip rap on liner



ACTIVITIES COMPLETED

Activities:

No comments



Removing rip rap from existing ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

VISITORS ON SITE

Visitor:

JDS

# of Visits

No comments

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

6

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 22nd 2020, 10:31 PM (GMT +00:00)

64.0311271, -135.8484878



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch A/B - day 41
	Eagle Gold
	Saturday, October 24th 2020, 1:15 AM (GMT +00:00)

Daily Report

Job:	*Ditch B*
Location:	*Ditch A/B*
Project Name:	*Ditch A/B*
Description of Work:	*Excavation and sub grade prep*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-18*
Weather(PM):	*-14*
Date:	*October 23, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

3 point contact
Head lamps
Brake tests

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Rip rap completed at ditch A



ACTIVITIES COMPLETED

Activities:

No comments



Ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

Visitor:

Vic Gold

# of Visits

1

VISITORS ON SITE

Visitor:

JDS

# of Visits

No comments

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

No comments

Total Hrs Worked:

No comments

Marshall Ewing, *Supervisor*
October 24th 2020, 1:15 AM (GMT +00:00)

64.0312226, -135.8485067



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Daily Report Ditch B and wash out repairs
	Eagle Gold
	Monday, October 26th 2020, 12:39 AM (GMT +00:00)

Daily Report

Job:	*Ditch B*
Location:	*Eagle Pup*
Project Name:	*Construction of Ditch B*
Description of Work:	*Excavation, ripping and hauling materials for wash out*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-15c clear*
Weather(PM):	*-13c clear*
Date:	*October 25, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Cold weather- proper warm
Procedures, park all equipment in level sanded areas to avoid slips and falls

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

Frozen ground permafrost approx 1 m thick

EXTRAS

Type:

Redesign(hrs)

Hrs:

6

Description:

Repair was out below crusher access

ACTIVITIES COMPLETED

Activities:

Ripping and excavation



D10 ripping

ACTIVITIES COMPLETED

Activities:

Hauling



Loading rock backfill for washout

ACTIVITIES COMPLETED

Activities:

Sloping



Excavation and sloping

ACTIVITIES COMPLETED

Activities:

No comments



Wash out backfill w/rock and common fill

ACTIVITIES COMPLETED

Activities:

Up close with D10 ripping



1 m of frost

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Russell Noksana, *Supervisor*
October 26th 2020, 12:39 AM (GMT +00:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch B report
	Eagle Gold
	Monday, October 26th 2020, 11:14 PM (GMT +00:00)

Daily Report

Job:	*Ditch B and wash out repairs*
Location:	*Eagle Pup*
Project Name:	*Ditch B construction*
Description of Work:	*Ripping, excavation, sloping and wash out repairs*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-9c heavy snow fall*
Weather(PM):	*-3c heavy snow*
Date:	*October 26, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Slippery conditions due to ice and snow, update FLRAs when conditions change, stay focus and team work

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

Frozen ground conditions due to frost

EXTRAS

Type:

Extra- wash out repairs

Hrs:

6

Description:

Repair and backfill wash outs between crusher access and shop

ACTIVITIES COMPLETED

Activities:

No comments



D10 ripping ahead of 336

ACTIVITIES COMPLETED

Activities:

No comments



Continue with excavation and sloping

ACTIVITIES COMPLETED

Activities:

No comments



Bulking and finishing on Ditch B-2x336s

ACTIVITIES COMPLETED

Activities:

No comments



2x336s hard at work

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

Snow limited visibility and slippery conditions

If conditions affected work progress, provide the number of hours and a brief description:

1

VISITORS ON SITE

Visitor:

# of Visits	*0*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

Dozer > D10R UNIT 030

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 025

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 016

Hrs Used:

6

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 017

Hrs Used:

6

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 329EL UNIT 027

Hrs Used:

CONTRACTORS LABOUR AND HOURS UTILIZED

Russell Noksana, *Supervisor*
October 26th 2020, 11:14 PM (GMT +00:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch B daily reports
	Eagle Gold
	Wednesday, October 28th 2020, 12:59 AM (GMT +00:00)

Daily Report

Job:	*Ditch B and 90 day wash out repairs*
Location:	*Eagle*
Project Name:	*Construction of Ditch B*
Description of Work:	*Excavation, ripping, shaping and backfill wash out repairs*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-9c clear*
Weather(PM):	*-11c sunny*
Date:	*October 27, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Communication, post trips and update all FLRAs

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

Frost approx 1 m

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Ditch B -D10 prepare right away

ACTIVITIES COMPLETED

Activities:

No comments



Finishing touches to Ditch B

ACTIVITIES COMPLETED

Activities:

No comments



2x336s bulking and sloping

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

JDS

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 024**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 016

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 018

Hrs Used:

5

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 329EL UNIT 027

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader > 950H UNIT 013

Hrs Used:

6

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Grader > 740R UNIT 014

Hrs Used:

2

CONTRACTORS LABOUR AND HOURS UTILIZED

Russell Noksana, *Supervisor*
October 28th 2020, 12:59 AM (GMT +00:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch B
	Eagle Gold
	Friday, October 30th 2020, 4:47 PM (GMT +00:00)

Daily Report

Job:	*Ditch B*
Location:	*Eagle pup*
Project Name:	*Ditch B construction*
Description of Work:	*Excavation, sloping, and ripping*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-17c clear*
Weather(PM):	*-14c clear*
Date:	*October 29, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Pre trip completed daily mandatory, this goes for multiple equipment during the day of switching between equipment

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

Frost

EXTRAS

ACTIVITIES COMPLETED

Activities:

None

ACTIVITIES COMPLETED

Activities:

No comments



D10-ripping through Frost



1m of frost

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used: *5*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used: *12*

CONTRACTORS LABOUR AND HOURS UTILIZED

Russell Noksana, *Supervisor*
October 30th 2020, 4:47 PM (GMT +00:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ditch B and 4 Bay clean out
	Eagle Gold
	Saturday, October 31st 2020, 1:08 AM (GMT +00:00)

Daily Report

Job:	*Ditch B and 4 Bay clean out*
Location:	*Eagle Pup*
Project Name:	*Ditch B*
Description of Work:	*Excavation and sloping* *Excavation and hauling of silt*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-17c light snow*
Weather(PM):	*-13c snow*
Date:	*October 30, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Complete a proper pre trip all employees are responsible for completing daily

Incident(s)

Total Incidents	*No comments*

QUALITY TOPICS

Topics:

Frost and water

EXTRAS

Type:

Added scope

Hrs:

12

Description:

4 Bay clean out



336 loading rock truck at 4 Bay

EXTRAS

Type:

Added scope

Hrs:

12

Description:

No comments



Diversion of water prior to excavation

EXTRAS

Type:

Hrs:

No comments

Description:

No comments



ACTIVITIES COMPLETED

Activities:

No comments



336 bulking material from Ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

No comments

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

10

CONTRACTORS LABOUR AND HOURS UTILIZED

Russell Noksana, *Supervisor*
October 31st 2020, 1:08 AM (GMT +00:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Monday, November 9th 2020, 5:12 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Eagle Pup, secondary, HLF, 90 day wash out, amd access road*
Project Name:	*Vic Gold*
Description of Work:	*Excavation, ripping,loading and hauling materials, road maintenance, sanding, materials relocation*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-6c snowing*
Weather(PM):	*-8c cloudy*
Date:	*November 9, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Heavy snow fall- drive defensively, safe following distance

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Ripping at Ditch B



4 bay flooding

ACTIVITIES COMPLETED

Activities:

No comments



D7- waste dump clean from 4 bay



Rock hauling at secondary/Nuway dump expansion

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

# of Visits	*1*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D10R UNIT 030

Hrs Used: *11.5*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D7R-XR UNIT 032 (OLD)

Hrs Used: *7*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 025

Hrs Used: *11*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used: *11*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 024

Hrs Used: *10.5*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

9

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

2

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

10

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

1

Total Hrs Worked:

12

Russell Noksana, *Supervisor*
November 9th 2020, 5:12 PM (MST -07:00)

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Tuesday, November 10th 2020, 5:24 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Eagle Pup, HLF, Secondary,90 day washout*
Project Name:	*Vic Gold*
Description of Work:	*Sanding, HLF support, excavation, loading and hauling materials, reclaimed washout and materials relocation*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-19c snow*
Weather(PM):	*-19c cloudy*
Date:	*November 10, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Housekeeping

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Materials relocation at HLF

ACTIVITIES COMPLETED

Activities:

No comments



336 at ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

- **JDS**

# of Visits	*1*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used: *10*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used: *10*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used: *10*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used: *10*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used: *11*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Excavator** > **336EL UNIT 024**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Dozer** > **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Wheel Loader** > **950H UNIT 013**

Hrs Used:

4

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Skid Steer** > **289D UNIT 015**

Hrs Used:

7

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Excavator** > **329EL UNIT 027**

Hrs Used:

5

CONTRACTORS LABOUR AND HOURS UTILIZED

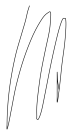
Contractors/Sub Name:

> **Ewing**

# of Labourers

	1
Total Hrs Worked:	*12*

Russell Noksana, *Supervisor*
November 10th 2020, 5:24 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Thursday, November 12th 2020, 3:50 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Eagle Pup, HLF, Event Pond*
Project Name:	*Vic Gold*
Description of Work:	*Excavation, Ripping, materials relocation, pipe/culvert install, HLF support, Ore haul*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-19c snow*
Weather(PM):	*-11c cloudy*
Date:	*November 12, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Property damage
Housekeeping

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



D10 -Ripping at Ditch B

ACTIVITIES COMPLETED

Activities:

No comments



336 excavation at ditch B

ACTIVITIES COMPLETED

Activities:

No comments



Crews working at Ditch B

ACTIVITIES COMPLETED

Activities:

No comments



EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

JDS

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 024**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:	*11*

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D7R-XR UNIT 033 (WINCH)**

Hrs Used:	*4*

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers	*1*
Total Hrs Worked:	*12*

Russell Noksana, *Supervisor*
November 12th 2020, 3:50 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Saturday, November 14th 2020, 8:32 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*Ditch A,B, HLF*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-13c*
Weather(PM):	*-15c*
Date:	*November 13, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Report all near misses
Clear communication

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



329 Ditch A clean out

ACTIVITIES COMPLETED

Activities:

No comments



336s Ditch B excavation

ACTIVITIES COMPLETED

Activities:

No comments





Pipe installed at ditch B

ACTIVITIES COMPLETED

Activities:

No comments



Culvert installed at ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

- **Ewing**

Equipment:

- **Excavator** › **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 024**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D7R-XR UNIT 033 (WINCH)**

Hrs Used:

7

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

5

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Rock Truck** > **730 UNIT 018**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

# of Labourers

1

Total Hrs Worked:

13

Russell Noksana, *Supervisor*
November 14th 2020, 8:32 AM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Saturday, November 14th 2020, 4:48 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*Excavation, stockpiling, ripping, hauling ore, ditch clean out, HLF support, tow up heavy losses from security*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-18c*
Weather(PM):	*-14c*
Date:	*November 14, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Stay focus, report all near misses

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments





Ditch B construction

ACTIVITIES COMPLETED

Activities:

No comments



Ditch A clean out

ACTIVITIES COMPLETED

Activities:

No comments



Ditch A ice removal

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

6.5

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

9

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 024**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

9

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader **950H UNIT 013**

Hrs Used: *5*

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers: *1*

Total Hrs Worked: *12*

Russell Noksana, *Supervisor*
November 14th 2020, 4:48 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Sunday, November 15th 2020, 6:43 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*Ditch A clean out, ditch B excavation and sloping, HLF Support, Ore haul,*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-20c*
Weather(PM):	*-21c*
Date:	*November 15, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Stay focus, cold weather dress for conditions

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Ditch B final touches

ACTIVITIES COMPLETED

Activities:

No comments



Ditch A clean out

ACTIVITIES COMPLETED

Activities:

No comments



More Ditch B

ACTIVITIES COMPLETED

Activities:

No comments



Ditch A

ACTIVITIES COMPLETED

Activities:

No comments



336- levelling pad for new conveyor assembly lay down

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 026 (Long Stick)

Hrs Used:

9

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 329EL UNIT 027

Hrs Used:

9

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D7R-XR UNIT 033 (WINCH)

Hrs Used:

3

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D10R UNIT 030

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Wheel Loader > 950H UNIT 013

Hrs Used:

2.5

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer > 289D UNIT 015

Hrs Used:	*8*

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers	*1*
Total Hrs Worked:	*12*

Russell Noksana, *Supervisor*
November 15th 2020, 6:43 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Monday, November 16th 2020, 4:19 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Eagle pup, 4 Bay, HLF and Ditch A,B*
Project Name:	*Victoria Gold*
Description of Work:	*Ore haul, HLF support, 4 bay clean out, excavation and sloping of ditch B, ice removal at ditch A*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-18c*
Weather(PM):	*-20c*
Date:	*November 16, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Be aware of complacent drivers on-site

Incident(s)

None

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



336's at Ditch B

ACTIVITIES COMPLETED

Activities:

No comments



Completion of East lay down for new conveyor's at HLF

ACTIVITIES COMPLETED

Activities:

No comments



4 bay attempt

ACTIVITIES COMPLETED

Activities:

No comments



ACTIVITIES COMPLETED

Activities:

No comments



Cleaning up remaining silt from 4 bay

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

Visitor:

JDS

# of Visits

1

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 026 (Long Stick)**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 024**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

8

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D7R-XR UNIT 033 (WINCH)**

Hrs Used:

3

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

9

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

> **Skid Steer** > **289D UNIT 015**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

# of Labourers

1

Total Hrs Worked:

12

Russell Noksana, *Supervisor*
November 16th 2020, 4:19 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Friday, November 20th 2020, 5:30 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*90 day, ROM road, Eagle pup and HLF*
Project Name:	*Victoria Gold*
Description of Work:	*Construction of ROM rod, stockpiling at 90 day, Ditch B cleanup, conveyor clean outs and HLF*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-31c*
Weather(PM):	*-30c*
Date:	*November 20, 2020*

Reported By:

> **Russell Noksana**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Any focus, mind of task and clear communication

Incident(s)

> **None**

Total Incidents	*0*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



D10(Vic Gold) and 336 padding road

ACTIVITIES COMPLETED

Activities:

No comments



ROM road

ACTIVITIES COMPLETED

Activities:

No comments



D10-at 90 day

ACTIVITIES COMPLETED

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 024**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

> **Dozer** > **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Rock Truck** > **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Rock Truck** > **730 UNIT 017**

Hrs Used:

5

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Rock Truck** > **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Skid Steer** > **289D UNIT 015**

Hrs Used:

11

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

# of Labourers

1

Total Hrs Worked:

12

Russell Noksana, *Supervisor*
November 20th 2020, 5:30 PM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing Daily Job Report
	Eagle Gold
	Sunday, November 22nd 2020, 8:15 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*Assist with ROM Road, 90 day stockpiling, 90 day wash out, HLF support, Ditch B*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-29c*
Weather(PM):	*-20c*
Date:	*November 21, 2020*

Reported By:

Russell Noksana

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Stay focus, proper hygiene practices

Incident(s)

None

Total Incidents	*No comments*

QUALITY TOPICS

Topics:

None

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



D10- stockpiling at 90 day

ACTIVITIES COMPLETED

Activities:

No comments



336- ROM road slope clean up

ACTIVITIES COMPLETED

Activities:

No comments



Vic Gold D10 at ROM road

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup , waiting on confirmation on sand bedding and process for liner placement

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

Conditions:

None

If conditions affected work progress, provide the number of hours and a brief description:

None

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck > 730 UNIT 018

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D10R UNIT 030

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer > D7R-XR UNIT 033 (WINCH)

Hrs Used:

7

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 025

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 336EL UNIT 024

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer > 289D UNIT 015

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

# of Labourers

1

Total Hrs Worked:

12

Russell Noksana, *Supervisor*
November 22nd 2020, 8:15 AM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Friday, November 27th 2020, 3:27 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day stockpile, HLF support, Ditch A ice removal, installing liner, installed 6 panels*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-19*
Weather(PM):	*—11*
Date:	*November 26, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Communication when passing equipment, icy conditions, heavy lifting, work together

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Installing liner

ACTIVITIES COMPLETED

Activities:

No comments



HLF support

ACTIVITIES COMPLETED

Activities:

No comments



Removing ice and rip rap from existing Ditch B

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 022 (Quick Attach)**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Grader **740R UNIT 014**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*

November 27th 2020, 3:27 PM (MST -07:00)

64.0311963, -135.8484344

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Saturday, November 28th 2020, 1:10 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day stockpile, HLF support, installing liner, installed 8 panels*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-14*
Weather(PM):	*—22*
Date:	*November 27, 2020*

Reported By:

> **Marshall Ewing**

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Communication when passing equipment, icy conditions, heavy lifting, work together, take micro brake, proper winter gear

Incident(s)

> **Injury**

Total Incidents	*1*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Hauling ore

ACTIVITIES COMPLETED

Activities:

No comments



HLF support

ACTIVITIES COMPLETED

Activities:

No comments



Deploying liner

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 022 (Quick Attach)**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Grader **740R UNIT 014**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*
November 28th 2020, 1:10 PM (MST -07:00)

64.0311751, -135.8485703



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Sunday, November 29th 2020, 12:37 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day stockpile, HLF support, installing liner, ditch B*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-18*
Weather(PM):	*—8 snowing*
Date:	*November 28, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Men on the ground, “line of fire”, icy conditions, cold weather, busy haul road, update FLRA when changing work area or tasks

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 325DL UNIT 022 (Quick Attach)

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator > 329EL UNIT 027

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer > 289D UNIT 015

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer > 289D UNIT 051

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Grader > 740R UNIT 014

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*

November 29th 2020, 12:37 PM (MST -07:00)

64.0311544, -135.8485336



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Monday, November 30th 2020, 12:34 PM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day stockpile, HLF support, installing liner, ditch B, installed 20 panels*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-12*
Weather(PM):	*—9*
Date:	*November 29, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Proper PPE, congested work areas, spotters, 3-point contact

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Liner placement

ACTIVITIES COMPLETED

Activities:

No comments



Placing rip rap

ACTIVITIES COMPLETED

Activities:

No comments



EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 022 (Quick Attach)**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Grader **740R UNIT 014**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*
November 30th 2020, 12:34 PM (MST -07:00)

64.031164, -135.8484463

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Tuesday, December 1st 2020, 9:42 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day stockpile, HLF support, installing liner, ditch B, installed 17 panels, placed rip rap*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-10*
Weather(PM):	*—7*
Date:	*November 30, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Proper PPE, congested work areas, spotters, 3-point contact, lots of communication, check fire extinguishers

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Liner deployment and rip rap

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 017**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

11

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **325DL UNIT 022 (Quick Attach)**

Hrs Used:

10

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **329EL UNIT 027**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Grader** > **740R UNIT 014**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor* *64.0311536, -135.8485238*

December 1st 2020, 9:42 AM (MST -07:00)



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Tuesday, December 8th 2020, 9:43 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day washout, HLF support sanding main roads, ditch B*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*-11*
Weather(PM):	*-8*
Date:	*December 7, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Icy roads, single lane haul roads, wildlife, fire hazards, housekeeping

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



90 day washout

ACTIVITIES COMPLETED

Activities:

No comments



Placing rip rap

ACTIVITIES COMPLETED

Activities:

No comments



Snow removal

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck › **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck › **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator › **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer › **D7R-XR UNIT 033 (WINCH)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*
December 8th 2020, 9:43 AM (MST -07:00)

64.0311599, -135.8485005



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Wednesday, December 9th 2020, 9:39 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day washout, HLF support sanding main roads, ditch B, conveyor clean up*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*—4*
Weather(PM):	*-13*
Date:	*December 8, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Icy roads, single lane haul roads, wildlife, working in the dark, housekeeping, seat belts, use a spotter

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

Padding at the 90-day washout

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D7R-XR UNIT 033 (WINCH)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Skid Steer** > **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Skid Steer** > **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Dozer** > **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*
December 9th 2020, 9:39 AM (MST -07:00)

64.0311496, -135.8485072



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Thursday, December 10th 2020, 10:59 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day washout, HLF support sanding main roads, ditch B, conveyor clean up*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*—8*
Weather(PM):	*-10 snowing*
Date:	*December 9, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Icy roads, single lane haul roads, wildlife, working in the dark, housekeeping, seat belts, use a spotter

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

Topics:

No comments

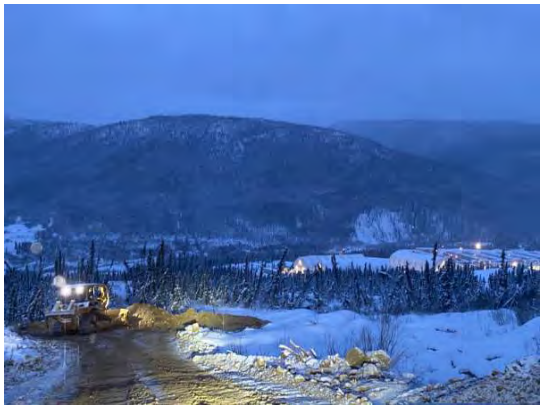


Labour support at the conveyors

QUALITY TOPICS

Topics:

No comments



90 day washout

EXTRAS

ACTIVITIES COMPLETED

Activities:

Padding at the 90-day washout

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

- **Ewing**

Equipment:

> **Rock Truck** > **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Rock Truck** > **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Excavator** > **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Dozer** > **D7R-XR UNIT 033 (WINCH)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Skid Steer** > **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

> **Ewing**

Equipment:

> **Skid Steer** > **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*

64.0311354, -135.8485393

December 10th 2020, 10:59 AM (MST -07:00)

Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Friday, December 11th 2020, 11:00 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*90 day washout, HLF support sanding main roads, ditch B, conveyor clean up, forebay, sanding site roads*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*—8*
Weather(PM):	*-15*
Date:	*December 10, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Icy roads, single lane haul roads, wildlife, working in the dark, housekeeping, seat belts, use a spotter

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Digging ice in the forebay

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

Info:

Waiting on dewatering at control pond for final cleanup

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 018**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D7R-XR UNIT 033 (WINCH)**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Dozer **D10R UNIT 030**

Hrs Used:

12

CONTRACTORS LABOUR AND HOURS UTILIZED

Marshall Ewing, *Supervisor*
December 11th 2020, 11:00 AM (MST -07:00)

64.0311427, -135.8485162



Ewing Transport Ltd
PO Box 61, Mayo, Yukon Territory Y0B 1M0
867-334-6457

Daily Report

Private

Label	Ewing daily job report
	Eagle Gold
	Wednesday, December 23rd 2020, 8:06 AM (MST -07:00)

Daily Report

Job:	*Various*
Location:	*Various*
Project Name:	*Victoria Gold*
Description of Work:	*HLF support, secondary support, Forebay*
Contract Ref. NO.: e.g. (WO, PO, CWP)	*17486*
Weather(AM):	*—20*
Weather(PM):	*-17*
Date:	*December 22, 2020*

Reported By:

Marshall Ewing

Onsite Rep: Bill, Lea, Matt, Mike

Daily Report must be Supplied to Vic Gold by 9:00am

SAFETY TOPICS

Topics:

Icy conditions, cold weather, men on the ground working near equipment, house keeping

Incident(s)

Total Incidents	*0*

QUALITY TOPICS

EXTRAS

ACTIVITIES COMPLETED

Activities:

No comments



Liner in the forebay

ACTIVITIES COMPLETED

Activities:

No comments



ACTIVITIES COMPLETED

Activities:

No comments



Placing rip rap

EXTRA WORK/CONTRACT ISSUES AND/OR ENGINEERING IMPACTS (RFI'S0 AND/OR DELAYS

GEOTEXTILE AND LINER INSTALL CONDITION DURING EXCAVATION PER CHAINAGE SECTION OF DITCH A

ENVIRONMENTAL CONDITIONS

VISITORS ON SITE

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Rock Truck **730 UNIT 016**

Hrs Used:

2

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Excavator **336EL UNIT 025**

Hrs Used:

8

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 015**

Hrs Used:

12

CONTRACTORS EQUIPMENT AND HOURS UTILIZED

Contractors/Sub Name:

Ewing

Equipment:

Skid Steer **289D UNIT 051**

Hrs Used:

	12

CONTRACTORS LABOUR AND HOURS UTILIZED

Contractors/Sub Name:	
# of Labourers	*3*
Total Hrs Worked:	*36*

Marshall Ewing, *Supervisor* *64.0311272, -135.8484882*

December 23rd 2020, 8:06 AM (MST -07:00)



APPENDIX D

CONSTRUCTION PHOTOS



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201010 – SHAPING DITCH

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-1

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201017 – BUILDING ACCESS TO DITCH ALIGNMENT

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-2

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201017 – CULVERT UNDER CV22 BEFORE DITCH CONSTRUCTION

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-3

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201031 – SHAPING DITCH (~0+700 LOOKING WEST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-4

VGCX xceptional xcellence xtraordinary xperts xpression xploration xtra xperienced xecutives xplode xplorer xhilarating xtraordinary xcavation xamine VICTORIA GOLD CORP

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201031 – SHAPING DITCH (~0+200 LOOKING EAST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-5

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20201031 – SHAPING DITCH (~0+200 LOOKING WEST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-6

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210306 – LINING DITCH (~0+800 LOOKING EAST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-7

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210324 – LINED DITCH WHILE WAITING FOR RIP RAP (~0+900 LOOKING EAST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-8

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210324 – LINED DITCH WHILE WAITING FOR RIP RAP (~0+550 LOOKING WEST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-9

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210324 – LINED DITCH WHILE WAITING FOR RIP RAP (~0+200 LOOKING EAST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-10

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210422 – PLACING RIP RAP IN DITCH (~0+200 LOOKING EAST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-11

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210424 – PLACING RIP RAP IN DITCH (~0+200 LOOKING WEST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-12

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210429 – PLACING RIP RAP IN DITCH (~0+800 LOOKING EAST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-13

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210505 – COMPLETED DITCH (~0+050 LOOKING WEST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-14

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210505 – COMPLETED DITCH (~0+600 LOOKING WEST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-15

VGCX xceptional xploration xcellence xpression xtraordinary xperts xtra xperienced xecutives xplode xplorer xhilarating xtraordinary xcavation VICTORIA GOLD CORP

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210505 – COMPLETED DITCH AT INTERSECTION OF SUTTLES GULCH (~0+900 LOOKING EAST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-16

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

1) ADDITIONAL PHOTOS ARE ARCHIVED BY VICTORIA GOLD

TITLE

20210505 – COMPLETED DITCH TIED INTO CV22 (0+000 LOOKING EAST)

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX D – Construction Photos	LJ	RT	7/2/2021	D-17

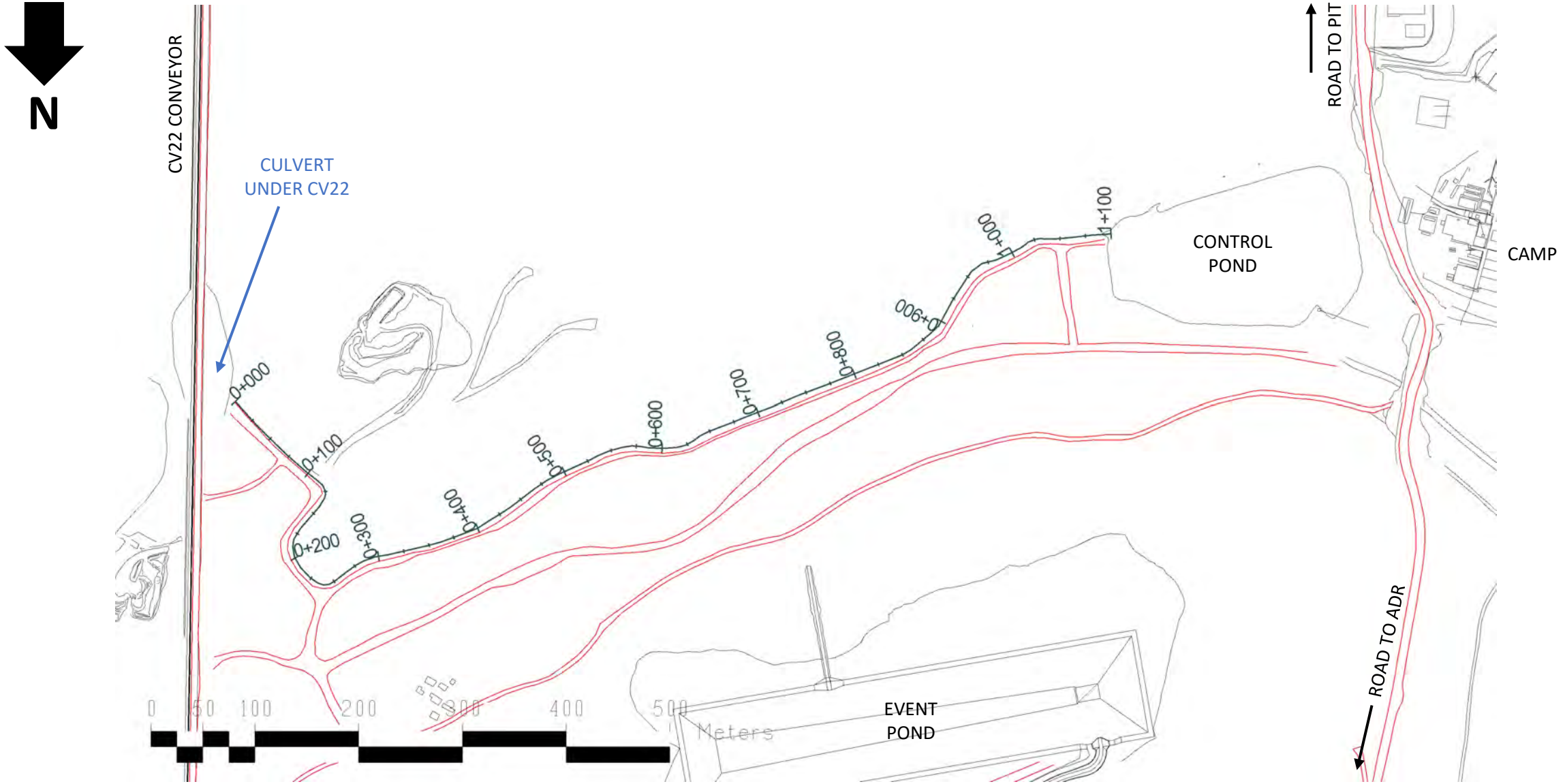
VGCX xceptional xcellence xtraordinary xperts xpression xploration xcel xet xtra xperienced xecutives xplode xplorer xhilarating xtraordinary xcavation xamine VICTORIA GOLD CORP

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com

APPENDIX E

AS-BUILT FIGURES



NOTES

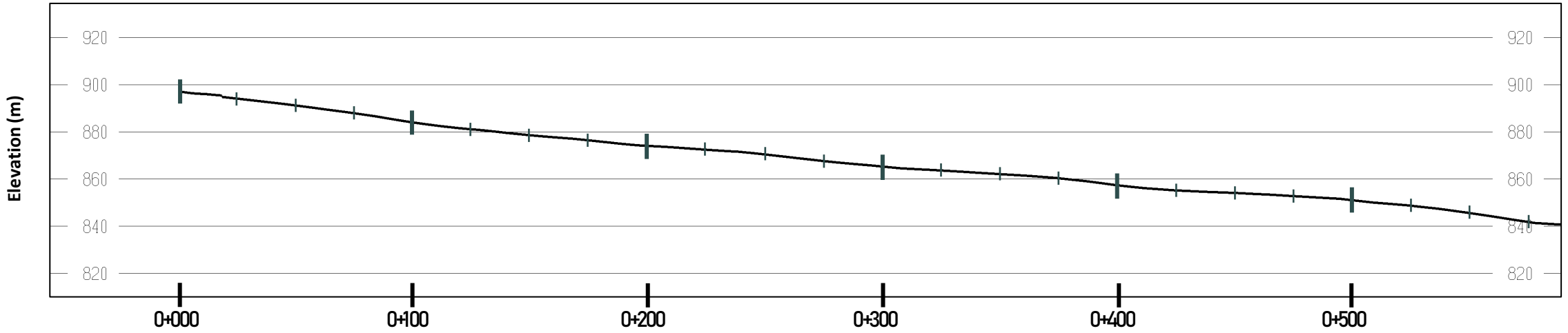
TITLE

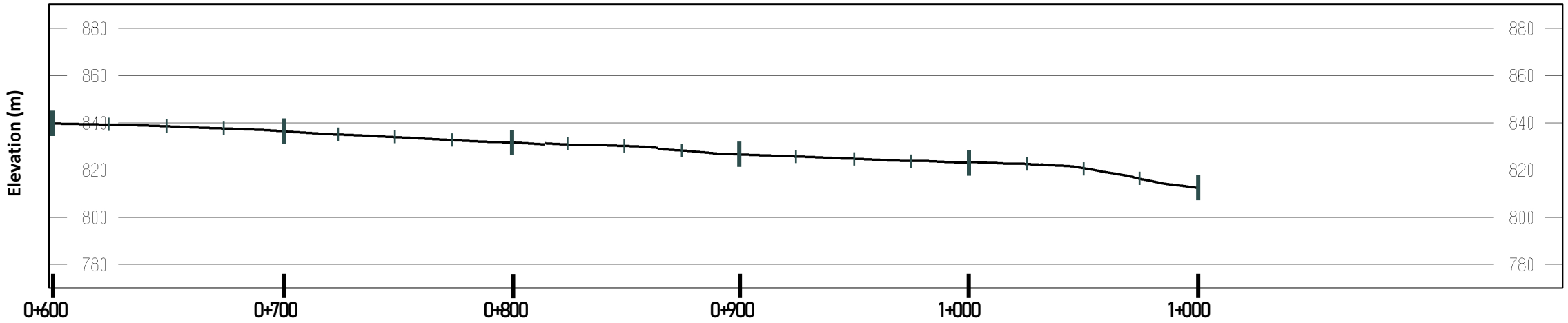
AS-BUILT PLAN VIEW OF DITCH B

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX E – As-built Figures	LJ	RT	7/2/2021	E-1

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com





NOTES

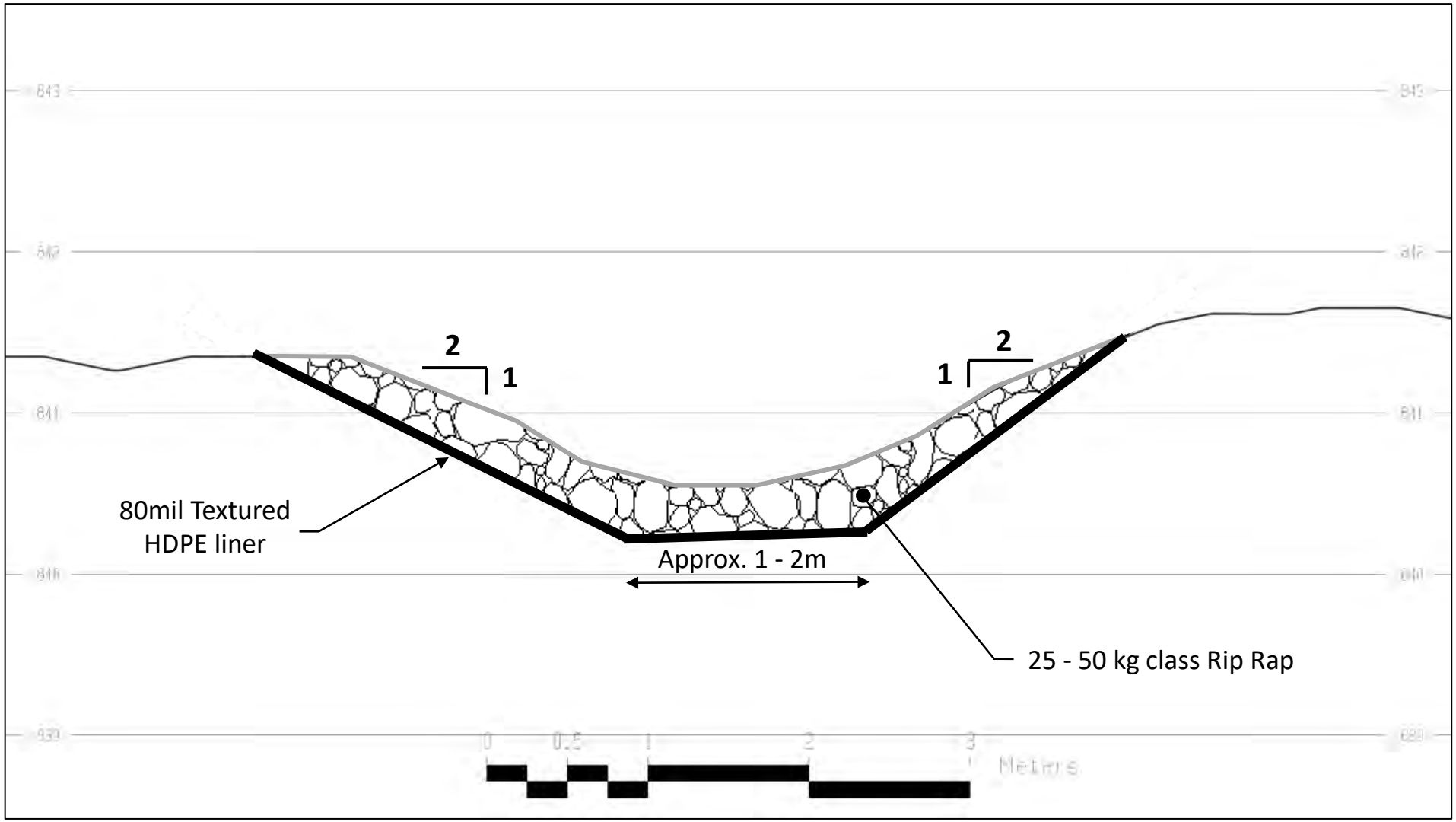
TITLE

DITCH B PROFILE

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX E – As-built Figures	LJ	RT	7/2/2021	E-2

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



VGCX xceptional xploration xcellence xpression xtraordinary xperts xtra xperienced xecutives xplode xplorer xhilarating xtraordinary xcavation VICTORIA GOLD CORP

NOTES

TITLE

TYPICAL CROSS SECTION OF DITCH B

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX E – As-built Figures	LJ	RT	7/2/2021	E-3

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com

APPENDIX F

QA/QC



NOTES

TITLE

SHINGLED LINER PLACEMENT CONVEYING WATER

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX F – QAQC	LJ	RT	7/2/2021	F-1

VGCX xceptional xploration xcellence xpression xtraordinary xperts xtra xperienced xecutives xplode xplorer xhilarating xtraordinary xcavation VICTORIA GOLD CORP

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com



NOTES

TITLE

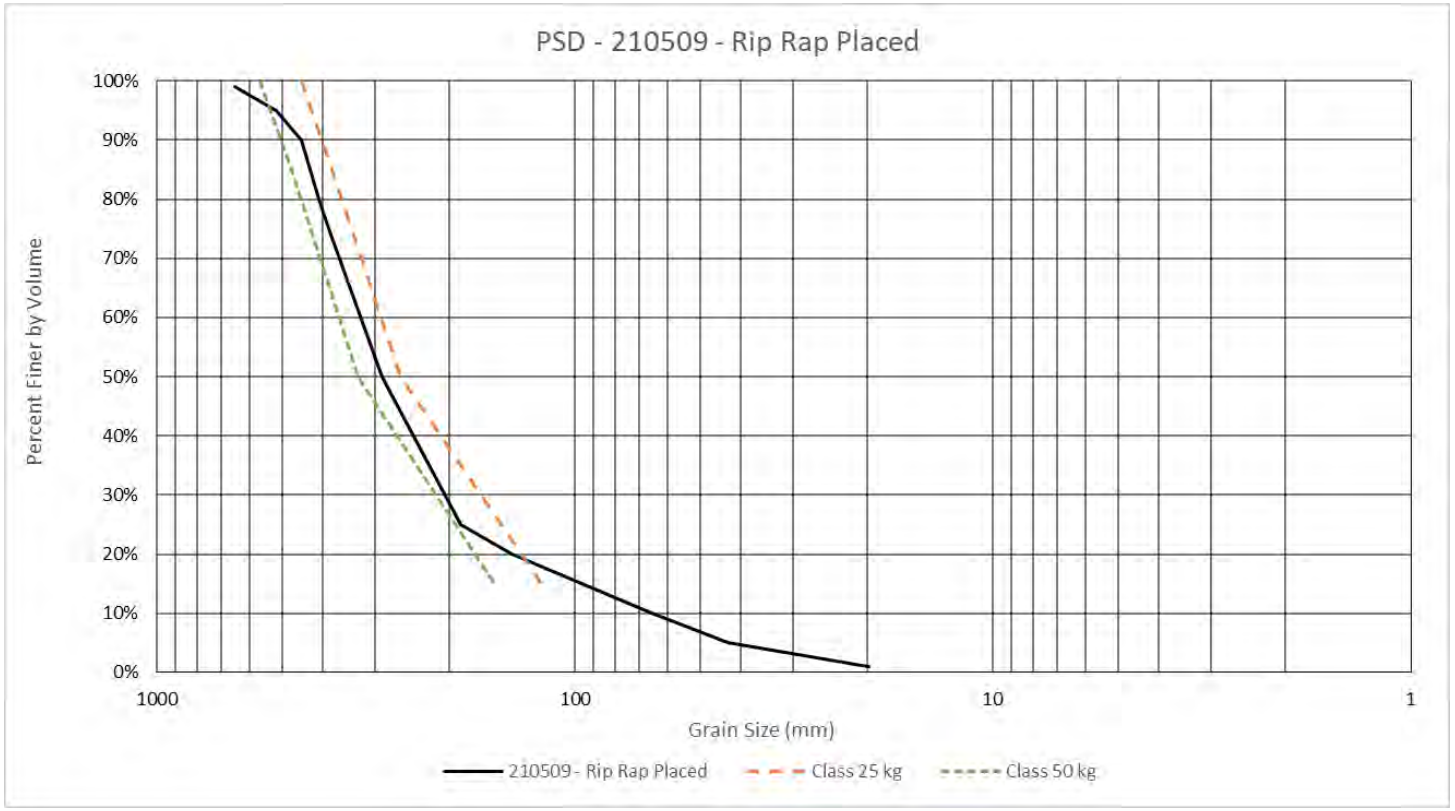
SHINGLED LINER OVERLAP

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX F – QAQC	LJ	RT	7/2/2021	F-2

VGCX xceptional xploration xcellence xpression xtraordinary xperts xtra xperienced xecutives xplode xplorer xhilarating xtraordinary xcavation VICTORIA GOLD CORP

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com





NOTES

1) RIP RAP GRADATION OBTAINED USING WIPFRAG SOFTWARE
2) APPROXIMATE RIP RAP GRADATION LIMIT BASED ON BC MINISTRY OF TRANSPORTATION AND INFRASTRUCTURE RIP RAP INSTALLATION GUIDE (SEPT 2013)

TITLE

25 – 50 KG CLASS RIP RAP PARTICLE SIZE DISTRIBUTION

DOCUMENT TITLE	APPENDIX	PREPARED BY	REVIEWED BY	DATE	FIGURE
Ditch B Construction Report	APPENDIX F – QAQC	LJ	RT	7/2/2021	F-3

VGCX xceptional xploration xcellence xpression xperts xtraordinary xtra xperienced xecutives xplode xplorer xhilarating xtraordinary xcavation xamine VICTORIA GOLD CORP

Path: O:\03-ENG\11 Projects\02-Drains, Ditches, Water\02-Ditch B\2_Construction

TSX: VGCX OTC: VITFF VGCX.com

APPENDIX A3

As-Built Drawings and Construction - Eagle HLF Phase 1A and 1B

VICTORIA GOLD CORP

Eagle HLF Phase 1A and 1B-2021
Record of Construction
Project No. 109018
Document No. 109018-51010-CV-ROC-2000



Prepared by:

FORTE DYNAMICS, INC
120 Commerce Drive
Units 3 & 4
Fort Collins, CO 80524
(720) 642-9328

Revision	Date	Status	Prepared By	Checked By	Approved By
REV A	3/8/22	Issued for Internal Review	W. Reinhardt	C. Green	
REV B	3/18/22	Issued for Client Review	W. Reinhardt	C. Green	
REV 0	04/1/22	Final Issued to Client	R. Morlan	C. Green	B. Carlson

Table of Contents

1. Introduction **3**

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3. Overline Drain Fill (ODF) **4**

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3.2 Material Criteria 4
3.3 QC During Production 4

4. PLS Collection Piping **7**

5. Heap Instrumentation **7**

6. Closure **8**

7. References **9**

Tables

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Table 2: QC Summary of ODF Test Results 5

1. INTRODUCTION

The report provides the record of construction (ROC) for items within Phase 1 of the heap leach facility (HLF) at the Eagle Gold Mine, located in the Yukon Territory, Canada, owned and operated by Victoria Gold Corp (VGC). The HLF is located approximately 1.2 km north of the Eagle Zone orebody. The HLF is located in the Ann Gulch catchment, a small ephemeral tributary to Dublin Gulch.

The HLF was designed with three general facility construction phases. Phase 1 included construction of the HLF embankment, event pond, spillways and a portion of the Phase 1 pad. The Phase 1 pad area was broken into two sub-phases (Phase 1A and Phase 1B). Phase 1A of the HLF was constructed over several seasons starting in 2017 and began operations in Fall of 2019. Mr. Troy Meyer and BGC Engineering, Inc. were the engineer of record (EoR) for Phase 1A and transitioned the role to Barry Carlson and Forte Dynamics, Inc. in late 2019 at the end of Phase 1A construction. Forte Dynamics performed detailed design of the Phase 1B and served as EoR through construction in 2020.

A ROC report for Phase 1A titled, “Heap Leach Facility Construction Summary Report for Phase 1A” was produced by Mr. Troy Meyer and BGC in September of 2019 (BGC 2019a). The scope of the document did not include the remaining collection piping and overliner drain fill (ODF) placement on the Phase 1A Pad above the In-Heap pond area (generally above elevation 938m). Additionally, the report excluded installation of the piezometers in the confining embankment as well as the horizontal pad cell piezometers. It was agreed upon that after June 30, 2019, VGC would produce and place the remaining ODF, install the remaining collection pipes, and install the embankment and horizontal pad cell piezometers and provide quality control (QC) for this work.

A ROC report for Phase 1B titled, “Eagle Gold HLF Phase 1B Record of Construction-2021” was prepared by Mr. Barry Carlson and Forte Dynamics in March of 2021 (Forte 2021). Similar to the Phase 1A report, the collection piping and ODF placement on the Phase 1B Pad were excluded from the scope of the report due to not being complete at time of documentation. Due to the progression of ODF and collection pipe installation being completed in a lift by lift procedure, it was agreed upon that VGC would produce and place the remaining ODF and install the remaining collection pipes for Phase 1B and provide QC for this work.

2. CONSTRUCTION OBSERVATIONS, CHANGES, AND QA/QC TEST RESULTS

The collection piping and ODF production and placement in Phase 1 (generally between the elevation 938m and 1030m) was self-performed between 2020 and 2021. Off-site EoR support was performed by Forte Dynamics, Inc.. QC of the ODF material was also performed by VGC with EoR approval of material prior to placement. The installation of the embankment piezometers was completed on July 25, 2019 (BGC 2019b) and the horizontal piezometers were installed in the Phase 1B pad footprint on July 19, 2021 by VGC. Appendix A includes record drawings presenting the ODF, collection piping and pad cell piezometer as-built data received from VGC.

3. OVERLINE DRAIN FILL (ODF)

3.1 Material Production

Material 4 – ODF was used as drainage material over the liner system in the Phase 1A and 1B heap footprint. ODF material placed above the 938m elevation was produced from open pit material processed through the existing crushing and screening plant located on site.

3.2 Material Criteria

The technical specification for the ODF material was modified by Forte Dynamics for the remaining Phase 1A and 1B areas prior to resuming ODF placement in Spring of 2020. The updated ODF material specification required a free-draining granular material with 38-mm maximum particles size and having a minimum operational permeability of $1x10^{-2}$ cm/s to maintain a maximum allowable phreatic surface of 0.6 meters. The ODF material was also required to have no more than 10% passing the 200 mesh sieve (Forte 2020).

Any samples that had higher than 10% but less than 15% passing the 200 mesh sieve, but achieved permeability rates higher than the specified minimum, were required to be evaluated by the EoR on a case-by-case basis. All samples with higher than 15% passing the 200 mesh sieve or permeability rate lower than $1x10^{-2}$ cm/s were rejected (Forte 2020).

Liner repairs required are documented and documentation can be provided by Layfield.

3.3 QC During Production

Gradation and permeability analysis was required on ODF produced at the frequencies stated in Table 1 below from the Technical Specification (Forte 2020). QC of the ODF material was performed by VGC with EoR approval of material prior to placement.

Table 1: Overline Drain Fill

Laboratory/Field Test	Test Frequency
Gradation	Minimum 1 per 5,000 m^3
Laboratory Compacted Permeability	Minimum 1 per 50,000 m^3 or as directed by the Engineer based on gradation results

All ODF material placed within the Phase 1 heap footprint between the 938m and 1030m elevations met the Technical Specifications.. A summary of the ODF QC Test Results are presented below in Table 2. Appendix B includes the QC documentation for the ODF produced and placed on the HLF.

Table 2: QC Summary of ODF Test Results

ID	Date	Average Percolation Rate (cm/s)	% Passing 38 mm	% Passing 200 mesh (75 micron)	Sample Passes Specification (Yes/No)
HLF ODF - 1	5/15/2020	9.97E-03	100	10.6	N/A[3]
HLF ODF - 2	5/15/2020	2.21E-02	100	7.4	YES
HLF ODF - May 15 DS	5/16/2020	*[2]	100	5.4	N/A[3]
HLF ODF - 3	5/17/2020	4.01E-02	100	9.5	YES
HLF ODF - 4	5/17/2020	2.54E-02	100	11.9	YES
HLF ODF - May 16 DS	5/17/2020	*[2]	100	7.7	N/A[3]
HLF ODF - 5	5/18/2020	1.03E-01	100	9.0	YES
HLF ODF - 6	5/18/2020	7.16E-02	100	8.3	YES
HLF ODF - May 17 DS	5/18/2020	3.33E-02	100	10	YES
HLF ODF - May 19	5/20/2020	1.07E-02	100	9.6	YES
HLF ODF May 17 NS[1]	5/18/2020	8.92E-03	*[2]	*[2]	N/A[3]
HLF ODF May 18 NS[1]	5/19/2020	5.19E-02	*[2]	*[2]	N/A[3]
HLF ODF June 25	6/25/2020	2.47E-02	100	8.9	YES
HLF ODF June 30	6/30/2020	1.50E-02	100	8.8	YES
HLF ODF July 4	7/4/2020	7.64E-02	100	8.0	YES
HLF ODF July 7	7/7/2020	1.50E-02	100	9.9	YES
ODF Jul 9[1]	7/9/2020	1.14E-01	100	10.5	YES

ODF Jul 10[1]	7/10/2020	1.12E-01	100	6.5	YES
ODF Jul 15[1]	7/15/2020	2.96E-02	100	6.1	YES
ODF Jul 21[1]	7/21/2020	1.07E-02	100	6.7	YES
ODF Jul 24[1]	7/24/2020	2.47E-02	100	9.9	YES
HLF-ODF Aug 18[1]	8/18/2020	5.37E-02	100	4.3	YES
HLF-ODF Aug 21[1]	8/21/2020	1.43E-01	100	7.2	YES
HLF-ODF Jan 21	1/21/2021	4.07E-01	100	4.7[4]	YES
Nuway ODF Apr 23	4/24/2021	3.75E-01	100	11.3[5]	YES
HLF-ODF May 28	5/28/2021	6.12E-01	100	6.6[4]	YES
HLF-ODF May 29	5/29/2021	6.59E-01	100	3.9[4]	YES
HLF-ODF May 30	5/30/2021	4.62E-01	100	1.7	YES
HLF-ODF May 31	5/31/2021	6.50E-02	100	1.8	YES
HLF-ODF June 2	6/2/2021	5.23E-02	100	1.7	YES
HLF-ODF June 9	6/9/2021	1.62E-01	100	1.8	YES
HLF-ODF June 18	6/19/2021	3.48E-02	100	5.6	YES
HLF-ODF June 19	6/20/2021	5.95E-02	100	7.1	YES
HLF-ODF June 21	6/22/2021	3.57E-01	100	4.5	YES
HLF-ODF June 25	6/26/2021	1.66E-02	100	9.0	YES
HLF-ODF June 30[1]	7/1/2021	8.73E-02	100	8.8	YES
HLF-ODF July 2	7/3/2021	1.16E-02	100	9.2	YES
HLF-ODF July 23	7/23/2021	3.15E-01	100	3.0	YES
HLF-ODF July 26[1]	7/26/2021	2.83E-01	100	3.3	YES

Note 1 – Completed test reports not provided by VGC and therefore not included in Appendix B.

Note 2 – (*) indicates that no test data was reported.

Note 3 – Any ODF material noted “N/A” was well mixed over course of a week and retested until material met specifications.

Note 4 – Value reported is % passing the 1250 micron sieve size which satisfies the spec of <10% passing the 75 micron sieve.

Note 5 – Value reported is % passing the 1250 micron sieve size. No value was reported for % passing the 75 micron sieve. Based on the % passing being below 15% at the 1250 micron sieve and permeability reported being significantly higher than the minimum of 1E-02 cm/s, this sample met the design intent.

4. PLS COLLECTION PIPING

100mm perforated corrugated polyethylene pipes (CPP) were installed by VGC along the surface of the high density polyethylene (HDPE) geomembrane liner in a herring bone arrangement generally between the 938m and 1030m elevations. The 100mm perforated CPP collection pipes were connected to 250mm perforated CPPs. Each 250mm perforated CPP collection pipe was then tied into 450mm solid SDR 11 HDPE header pipe. Areas previously specified at 12 m spacing between 100mm primary collection pipes were reduced to 7 m and areas previously specified at 17.5 m spacing between 100mm primary collection pipes were reduced to 10 m. These spacing changes were implemented due to the ODF material requirement changes mentioned in the previous section. In areas where the heap ultimate height will exceed 130m, the spacing of the 100mm CPPs was reduced and 300mm HDPE SDR11 used in place of the 250mm CPPs per the Design Drawings (Forte 2020).

5. HEAP INSTRUMENTATION

The installation of the embankment piezometer P1, P2, and P3 boreholes were completed and documented during Phase 1A construction. VGC completed the installation of the embankment piezometers on July 25, 2019. The horizontal piezometers were initially planned for installation in the Phase 1A footprint, but were moved into Phase 1B at the direction of VGC. The horizontal piezometers were installed on July 19, 2021 by VGC per the Design Drawings (Forte 2020).

6. CLOSURE

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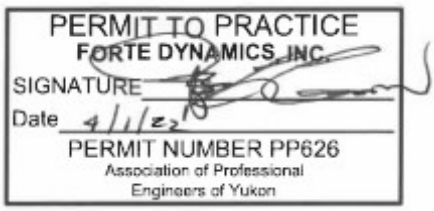
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We trust the above satisfies your requirements at this time. Should you have any questions or comments, please do not hesitate to contact us.

Yours sincerely,

Forte Dynamics Inc.
per:





Barry Carlson, P.Eng.
Principal Engineer

120 Commerce Drive., Units 3 & 4, Fort Collins, CO 80524

7. REFERENCES

BGC Engineering, Inc. (2019a). Eagle Gold Project Heap Leach Facility Construction Summary Report for Phase 1A. September 24, 2019.

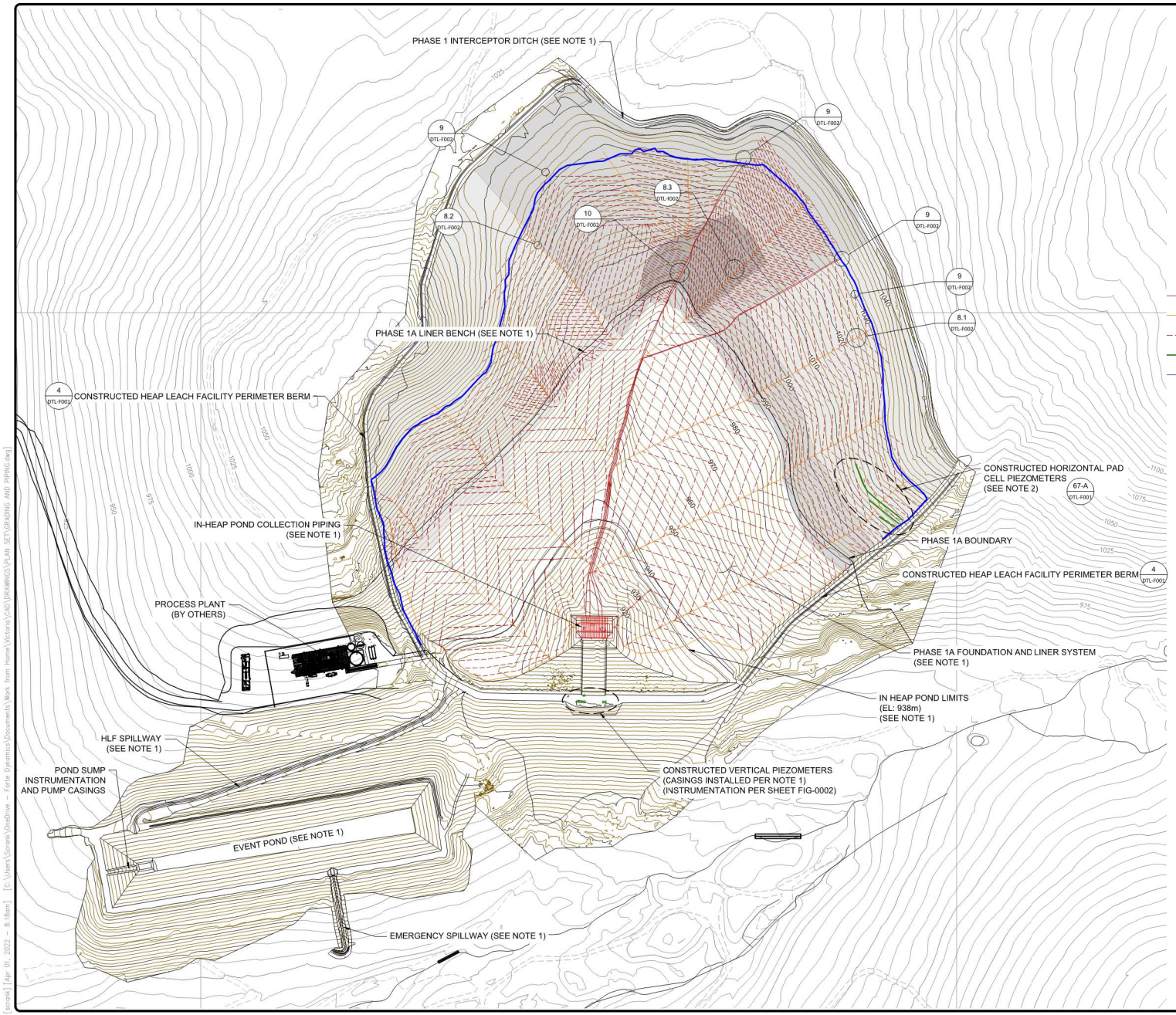
BGC Engineering, Inc. (2019b). Eagle Gold Heap Leach Facility – Annual Inspection. November 19, 2019.

Forte Dynamics, Inc. (2020). Detail Design Report for Eagle HLF Phase 1B. Document No. 109005-47310-03-DES-0001. January 6, 2020.

Forte Dynamics, Inc. (2021). Eagle Gold HLF Phase 1B Record of Construction. Document No. 109005-51100-03-ROC-0002. March 19, 2021.

Appendix A
Record Drawings

120 Commerce Drive., Units 3 & 4, Fort Collins, CO 80524



75 0 75

(In Meters)
1 cm = 25 M
(1 : 2,500)

LEGEND

- CONSTRUCTED 450mm SOLUTION COLLECTION LINE
- CONSTRUCTED 250mm SOLUTION COLLECTION LINE
- CONSTRUCTED 100mm SOLUTION COLLECTION LINE
- CONSTRUCTED PAD CELL PIEZOMETER
- EDGE OF PLACED ODF MATERIAL (12-3-2021)
- 10m O.C. SPACING FOR PRIMARY DRAIN PIPES ON STEEPER SLOPES
- 7m O.C. SPACING FOR PRIMARY DRAIN PIPES ON GENTLER SLOPES
- 3.5m O.C. SPACING FOR PRIMARY DRAIN PIPES IN ULTIMATE DEPTHS GREATER THAN 130m

NOTES:

1. "HEAP LEACH FACILITY CONSTRUCTION SUMMARY REPORT FOR PHASE 1A" WAS PRODUCED BY MR. TROY MYERS AND BGC IN SEPTEMBER OF 2019.
2. "EAGLE GOLD HLF PHASE 1B RECORD OF CONSTRUCTION" WAS PREPARED BY BARRY CARLSON AND FORTE DYNAMICS IN MARCH OF 2021.

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RECORD DRAWINGS

NO.	DATE	DESCRIPTION	DRAWN	CHKD	APP'D
0	03/22	RECORD OF CONSTRUCTION	SMC	MR	BC

COORD SYSTEM: NAD 83 UTM ZONE 8

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FD PROJECT NO. 109005

PREPARED BY:
FORTE DYNAMICS
120 COMMERCE DRIVE, UNITS 3 & 4
FORT COLLINS, CO 80524

VICTORIA EAGLE GOLD, HLF

PHASE 1A / 1B
2022 RECORD OF CONSTRUCTION

YUKON, CANADA

DRAWING NUMBER: 109005-51100-03

FIG-0001

[scrona] [Apr 01, 2022 – 8:18am] [C:\Users\Scrona\OneDrive – Forte Dynamics\Documents\Work from Home\Victoria\CAD\DRAWINGS\PLAN SETS\GRADING AND PIPING.dwg]

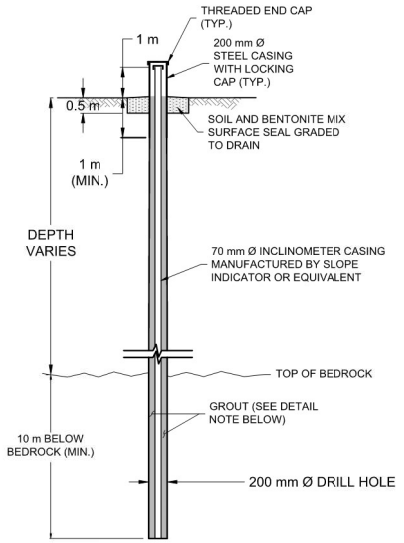


30 0 30

(In Meters)
1 cm = 10 M
(1 : 1,000)

LEGEND

EXISTING GROUND CONTOURS



NOTE: THE ANNULUS BETWEEN THE BOREHOLE AND INCLINOMETER CASING SHOULD BE FILLED WITH GROUT AS SPECIFIED BELOW:

GROUT MIX TABLE		
MATERIALS	WEIGHT	RATIO BY WEIGHT
PORTLAND CEMENT	94 LB (1 BAG)	1
WATER	30 GALLONS	2.5
BENTONITE	+/- 25 LBS. *	0.3

* MIX CEMENT WITH WATER FIRST. THEN MIX IN THE BENTONITE. ADJUST THE AMOUNT OF BENTONITE TO PRODUCE A GROUT WITH THE CONSISTENCY OF HEAVY CREAM. IF THE GROUT IS TOO THIN, THE SOLIDS AND THE WATER WILL SEPARATE.

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RECORD DRAWINGS

#	DD/MM/YY	RECORD OF CONSTRUCTION	DRAWN	CHKD	APP'D
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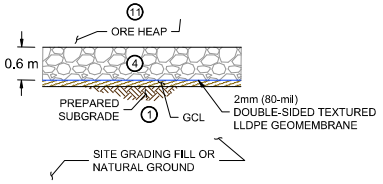
VICTORIA EAGLE GOLD, HLF

DEDICATED CASED BOREHOLE 2022 LOCATION AND DETAIL

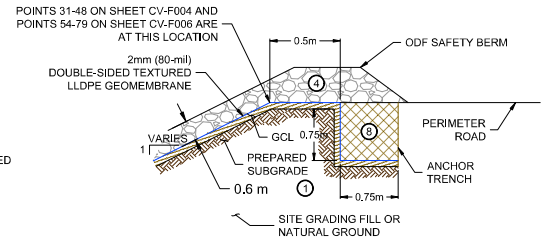
YUKON, CANADA

DRAWING NUMBER:
FIG-0002

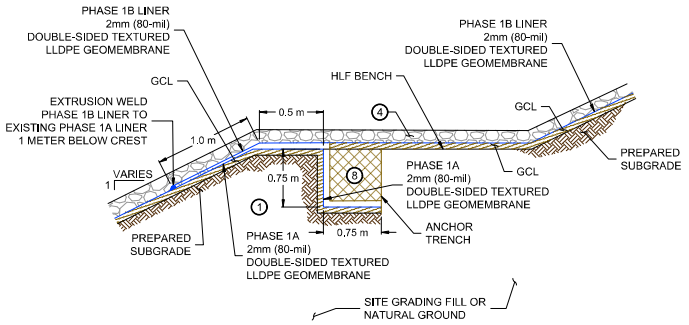
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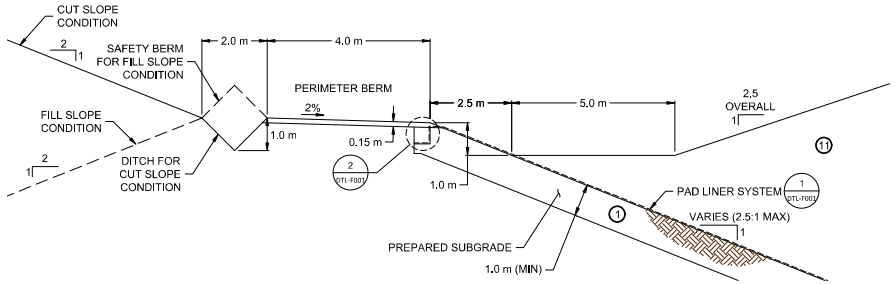
1 PAD SINGLE LINER DETAIL
CV-F004/DTL-F001 SCALE: NTS



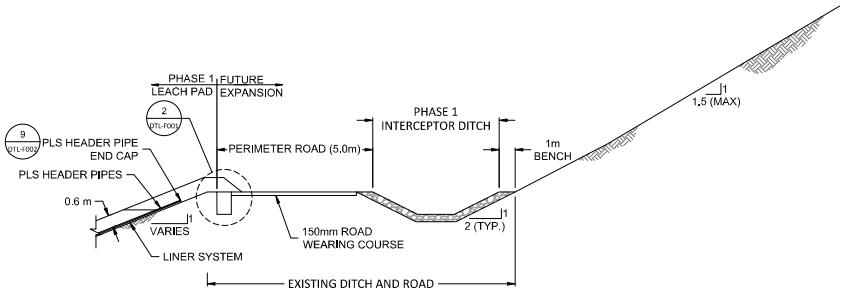
2 SINGLE LINER ANCHOR TRENCH DETAIL
DTL-F001 SCALE: NTS



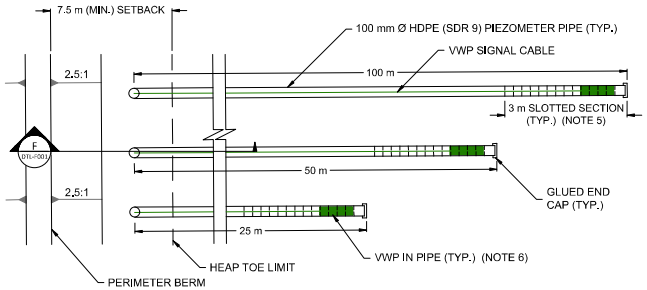
3 PHASE 1B LINER AND ANCHOR TRENCH TIE-IN DETAIL
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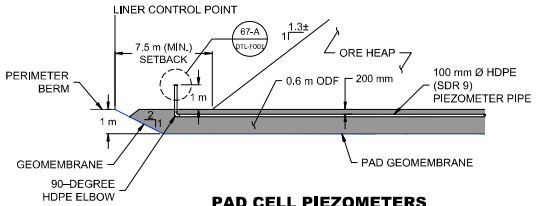
4 PERIMETER BERM DETAIL
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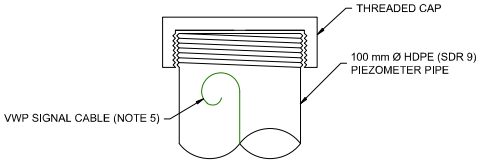
5 TYPICAL PHASE 1 PERIMETER ROAD W/ INTERCEPTOR DITCH
CV-F004 SCALE: NTS



67-A HORIZONTAL PAD CELL PIEZOMETERS TYPICAL LAYOUT
CV-F005 SCALE: NTS



F PAD CELL PIEZOMETERS PIPE SECTION
DTL-F001 SCALE: NTS



68-A PIEZOMETER CAP DETAIL
DTL-F001 SCALE: NTS

NOTES:
1. SEE DRAWING 109005-51100-03-GA-F002 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. OVERLINER DRAIN FILL THICKNESS SHALL BE 0.6 m (MINIMUM) IN UPPER PAD AREAS. ENGINEER MAY REQUIRE THICKER ODF LAYER BASED ON SITE CONDITIONS AND PLACEMENT METHOD.
3. PLACE SELECT FILL AS REQUIRED PRIOR TO PLACEMENT OF GCL AT ENGINEER'S DISCRETION TO MAINTAIN INTEGRITY OF GCL.
4. LOCATE PIEZOMETER PIPES WITH THE PIPE OUTLETS NEAR THE ACCESS ROAD. PIPES SHALL BE INSTALLED HALF WAY BETWEEN PLS DRAIN PIPES AND EXTEND INTO THE PAD ALONG ITS FLATTEST GRADE.
5. SLOTS SHALL BE AT CROWN OF PIPE AND SHALL BE EQUALLY SPACED AT 75 mm CENTRES. SLOTS DIMENSIONS SHALL BE 3 mm WIDE BY 38 mm LONG.
6. VIBRATING WIRE PIEZOMETERS (VWPs) SHALL BE GEOKON MODEL 4500AL/ALV-170kPa OR APPROVED EQUIVALENT. VWP INSTRUMENTS SHALL BE INSTALLED IN A GLYCOL BATH FOR FROST PROTECTON.

ISSUE	DATE	DESCRIPTION	COORD SYSTEM: NAD 83 UTM ZONE 8				
2	03/2022	RECORD OF CONSTRUCTION	DRAWN: SMC	CHKD: WR	APP'D: BC		
1	09/1900	ADD PIEZOMETERS	DRAWN: SMC	CHKD: CJS	APP'D: BC		
0	09/1900	ISSUED FOR CONSTRUCTION	DRAWN: SMC	CHKD: CJS	APP'D: BC		

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FD PROJECT NO: 109005

PREPARED BY:
FORTE DYNAMICS
120 COMMERCE DRIVE, UNITS 3 & 4
FORT COLLINS, CO 80524

VICTORIA EAGLE GOLD, HLF

TYPICAL DETAILS SHEET 1 OF 2
2022 RECORD DRAWINGS

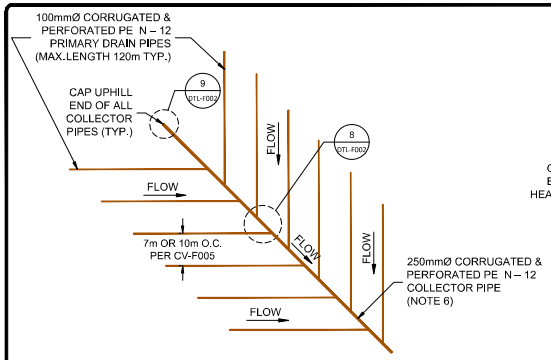
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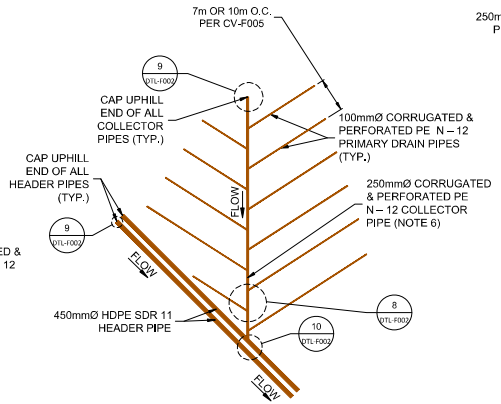
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DTL-F001

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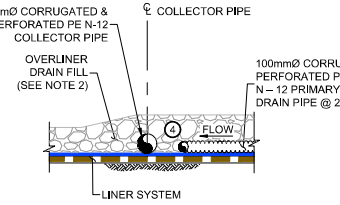
TYPICAL 100mm Ø PRIMARY DRAIN PIPE LAYOUT

6 CV-F005 SCALE: NTS



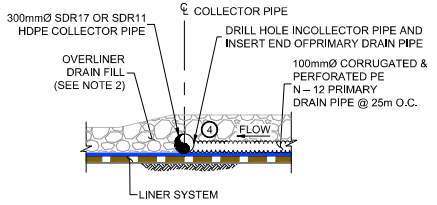
TYPICAL DOUBLE HEADER PIPE LAYOUT

7 CV-F005 SCALE: NTS



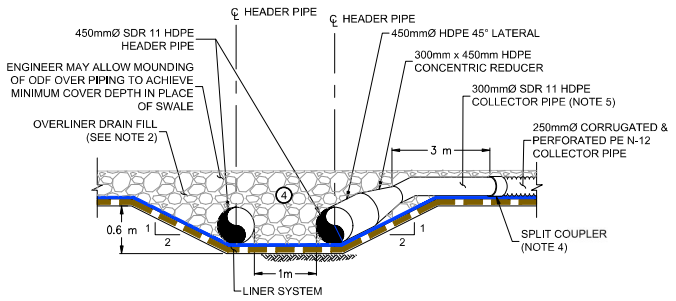
PRIMARY DRAIN TO SINGLE COLLECTOR CROSS SECTION

A.1 DTL-002 SCALE: NTS



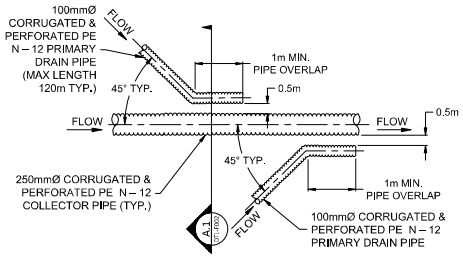
PRIMARY DRAIN TO SINGLE COLLECTOR DEEPER THAN 130m CROSS SECTION

A.2 DTL-002 SCALE: NTS



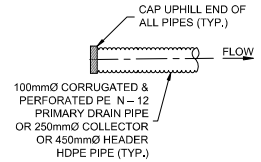
TYPICAL DOUBLE DRAIN PIPE CROSS SECTION

B DTL-002 SCALE: NTS



TYPICAL PRIMARY DRAIN TO SINGLE COLLECTOR PIPE ON TWO SIDES DETAIL

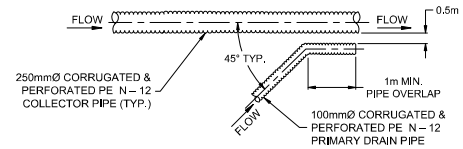
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TYPICAL PIPE CAP DETAIL

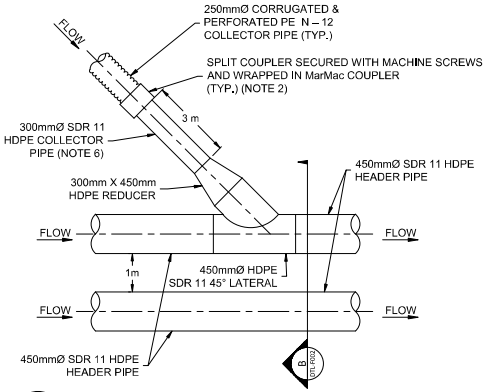
9 – SCALE: NTS

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PERMIT NUMBER PP826
Association of Professional Engineers of Yukon



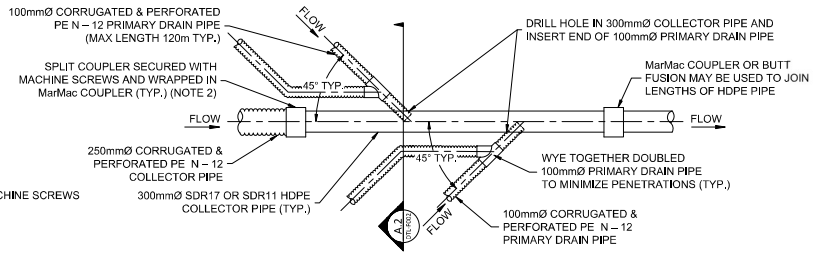
TYPICAL PRIMARY DRAIN TO SINGLE COLLECTOR PIPE ON ONE SIDE DETAIL

8.2 CV-F005 SCALE: NTS



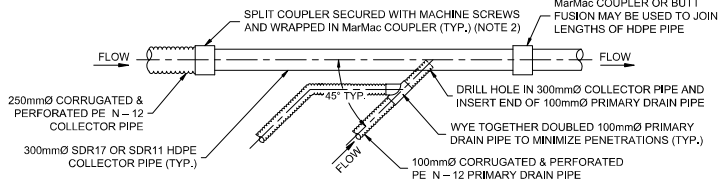
TYPICAL DOUBLE HEADER PIPE DETAIL

10 CV-F005 SCALE: NTS



TYPICAL PRIMARY DRAIN TO SINGLE COLLECTOR PIPE DEEPER THAN 130m ON TWO SIDES DETAIL

8.3 CV-F005 SCALE: NTS



TYPICAL PRIMARY DRAIN TO SINGLE COLLECTOR PIPE DEEPER THAN 130m ON ONE SIDE DETAIL

8.4 CV-F005 SCALE: NTS

NOTES:

1. SEE DRAWING 109005-51100-03-GA-F002 FOR GENERAL NOTES, ABBREVIATIONS, LEGEND AND FILL TYPES.
2. ALL PIPE CONNECTIONS SHALL BE FORMED USING MANUFACTURER SUPPLIED TEES, WYES AND COUPLERS. ALL PIPE CONNECTIONS SHALL BE SECURED TO THE PIPE USING WIRE TIES AROUND BOTH ENDS OF THE CONNECTIONS, ALL SOLUTION COLLECTION PIPEWORK CONNECTED WITH SPLIT COUPLERS SHALL HAVE THE COUPLER SEAM ROTATED TO THE SIDE OF THE PIPE.
3. WHERE CPP SOLUTION PIPES TERMINATE, THEY SHALL BE FITTED WITH MANUFACTURER SUPPLIED END CAPS. ALL PIPEWORK, INCLUDING TERMINATION POINTS, SHALL BE SURVEYED FOR FUTURE IDENTIFICATION.
4. OVERLINER DRAIN FILL THICKNESS SHALL BE A MINIMUM 0F 0.5 m COVER DEPTH OR TWICE THE PIPE DIAMETER, WHICH EVER IS LARGER, OVER TOP OF ALL PIPES.
5. CAP UPHILL END OF ALL PIPES.
6. THE FIRST 3 m OF ALL COLLECTORS WILL BE 300mmØ HDPE SDR 11, THEN WILL TRANSITION TO 250mmØ CORRUGATED & PERFORATED PE N-12.

ISSUE	DATE	DESCRIPTION	COORD. SYSTEM: NAD 83 UTM ZONE 8
3	03/2022	RECORD OF CONSTRUCTION	SMC MC BC
2	09/1800	REVISE COLLECTION PIPING IN DEEP AREAS	SMC CJC BC
1	09/1800	COLLECTION PIPE SPACING UPDATE	SMC JA CJC BC
0	09/0600	ISSUED FOR CONSTRUCTION	SMC SMC CJC BC

PROFESSIONAL ENGINEER YUKON BARRY L CARLSON 12411 LICENCE

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FD PROJECT NO. 109005

PREPARED BY: FORTE DYNAMICS

120 COMMERCE DRIVE, UNITS 3 & 4
FORT COLLINS, CO 80524

VICTORIA EAGLE GOLD, HLF

TYPICAL DETAILS SHEET 2 OF 2
2022 RECORD DRAWINGS

YUKON, CANADA

DRAWING NUMBER: 109005-51100-03

DTL-F002

RECORD DRAWINGS

[jacpark] [Apr 01, 2022 – 8:27pm] [C:\Users\JacobPark\Documents\Work from Home\Victoria\CAD\DRAWINGS\PLAN SET\DETAILS.dwg]

Appendix B
ODF Laboratory Test Results

120 Commerce Drive., Units 3 & 4, Fort Collins, CO 80524

Appendix B.1
ODF PSD Results

120 Commerce Drive., Units 3 & 4, Fort Collins, CO 80524

PARTICLE SIZE DISTRIBUTION

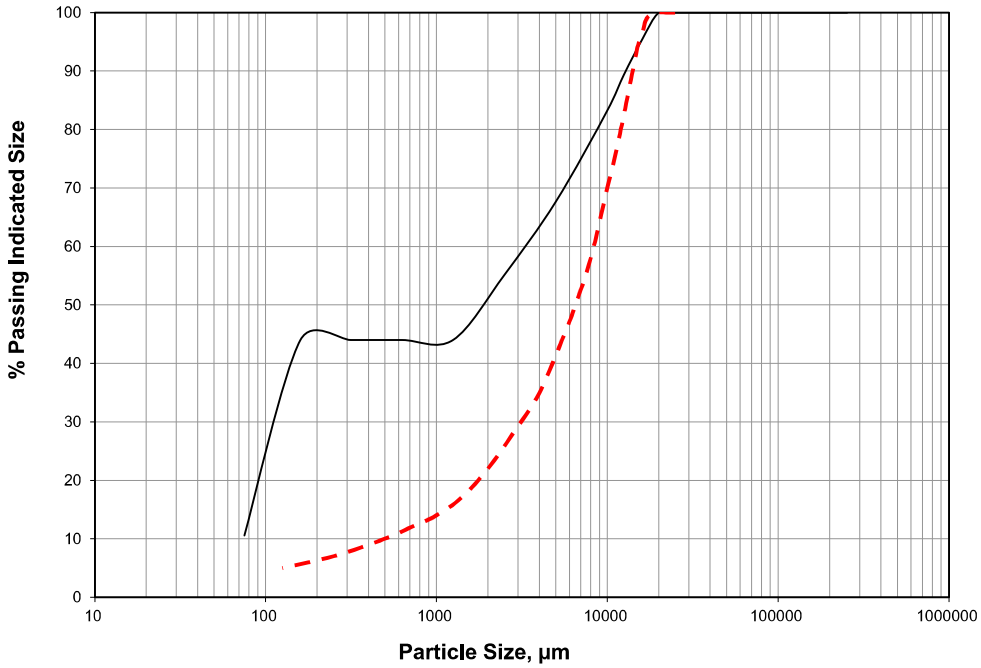
Test ID : HLF ODF - 1

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 1,391.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	0.0	0.0	100.0
12		16000	64.0	4.6	95.4
13		12500	84.0	6.0	89.4
14		10000	85.0	6.1	83.2
15		5000	217.0	15.6	67.6
16		2500	174.0	12.5	55.1
17		1250	155.0	11.1	44.0
18		630	0.0	0.0	44.0
19		315	0.0	0.0	44.0
20		160	0.0	0.0	44.0
21		75	465.0	33.4	10.6
22		0	147.0	10.6	
TOTAL			1391.0	100.0	



D_{80} = 8,755 µm D_{50} = 1,851 µm

Notes:

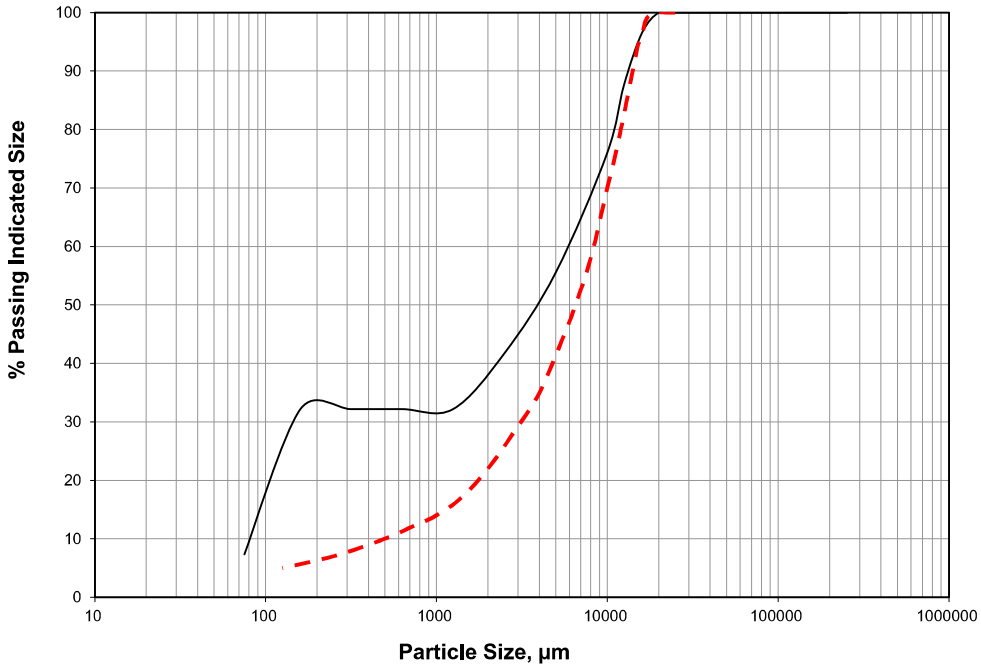
PARTICLE SIZE DISTRIBUTION

Test ID : HLF ODF - 2

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g	1,222.00	(Dry) Target P_{80} 12 mm
% Solid	100.00%	

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	0.0	0.0	100.0
12		16000	42.0	3.4	96.6
13		12500	110.0	9.0	87.6
14		10000	141.0	11.5	76.0
15		5000	250.0	20.5	55.6
16		2500	169.0	13.8	41.7
17		1250	117.0	9.6	32.2
18		630	0.0	0.0	32.2
19		315	0.0	0.0	32.2
20		160	0.0	0.0	32.2
21		75	303.0	24.8	7.4
22		0	90.0	7.4	
TOTAL			1222.0	100.0	



D_{80} = 10,839 µm

D_{50} = 3,872 µm

Notes:

PARTICLE SIZE DISTRIBUTION

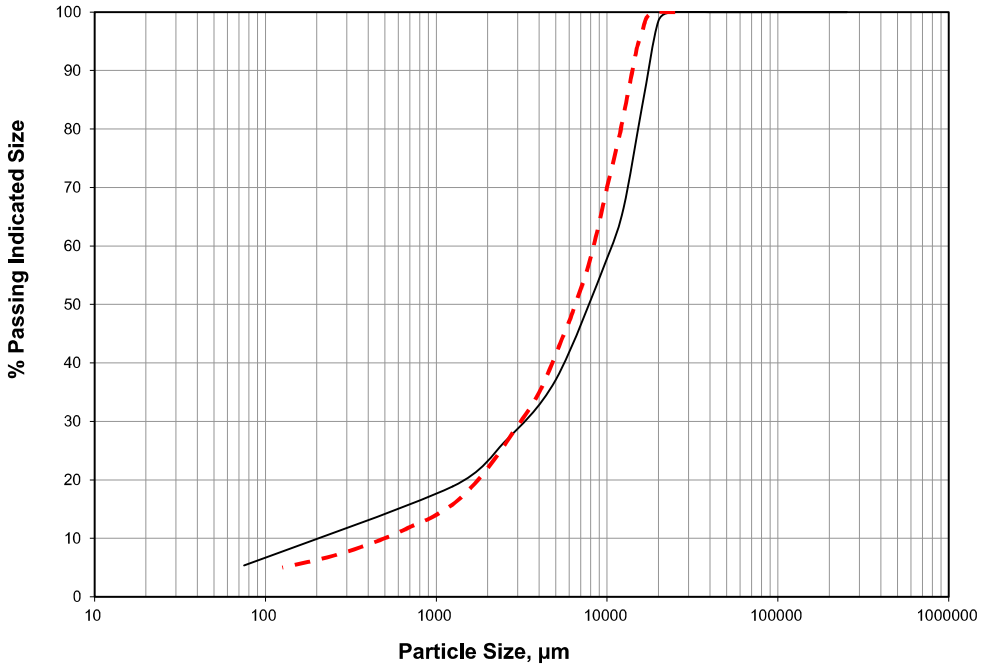
Test ID : HLF ODF -May 15 D/S

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 878.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	13.0	1.5	98.5
12		16000	131.0	14.9	83.6
13		12500	150.0	17.1	66.5
14		10000	76.0	8.7	57.9
15		5000	182.0	20.7	37.1
16		2500	94.0	10.7	26.4
17		1250	66.0	7.5	18.9
18		630			
19		315			
20		160			
21		75	119.0	13.6	5.4
22		0	47.0	5.4	
TOTAL			878.0	100.0	



D_{80} = 15,257 µm

D_{50} = 7,960 µm

Notes:

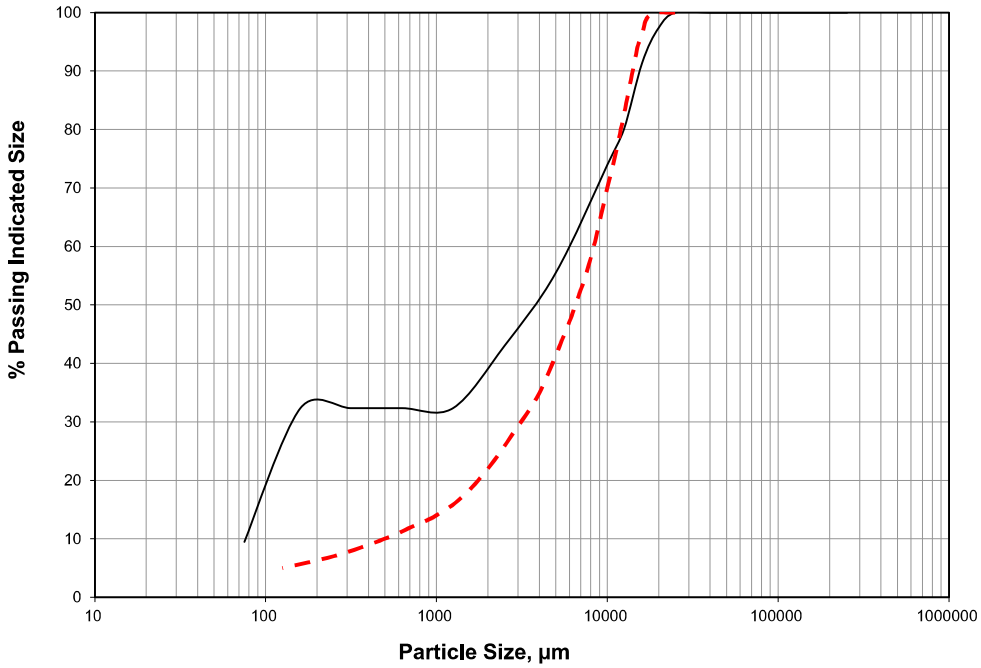
PARTICLE SIZE DISTRIBUTION

Test ID : HLF ODF - 3

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g	1,116.00	(Dry) Target P_{80} 12 mm
% Solid	100.00%	

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	29.0	2.6	97.4
12		16000	67.0	6.0	91.4
13		12500	127.0	11.4	80.0
14		10000	68.0	6.1	73.9
15		5000	206.0	18.5	55.5
16		2500	139.0	12.5	43.0
17		1250	119.0	10.7	32.3
18		630	0.0	0.0	32.3
19		315	0.0	0.0	32.3
20		160	0.0	0.0	32.3
21		75	255.0	22.8	9.5
22		0	106.0	9.5	
TOTAL			1116.0	100.0	



D_{80} = 12,492 µm

D_{50} = 3,769 µm

Notes:

PARTICLE SIZE DISTRIBUTION

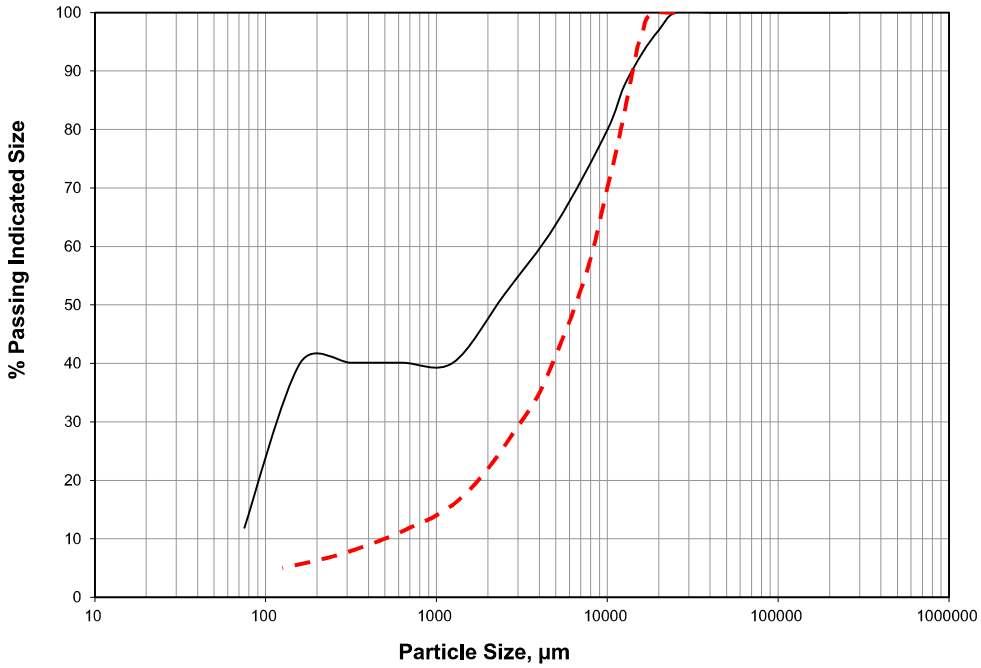
Test ID : HLF ODF - 4

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 1,059.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	32.0	3.0	97.0
12		16000	42.0	4.0	93.0
13		12500	60.0	5.7	87.3
14		10000	79.0	7.5	79.9
15		5000	171.0	16.1	63.7
16		2500	126.0	11.9	51.8
17		1250	124.0	11.7	40.1
18		630	0.0	0.0	40.1
19		315	0.0	0.0	40.1
20		160	0.0	0.0	40.1
21		75	299.0	28.2	11.9
22		0	126.0	11.9	
TOTAL			1059.0	100.0	



D_{80} = 10,035 µm D_{50} = 2,267 µm

Notes:

PARTICLE SIZE DISTRIBUTION

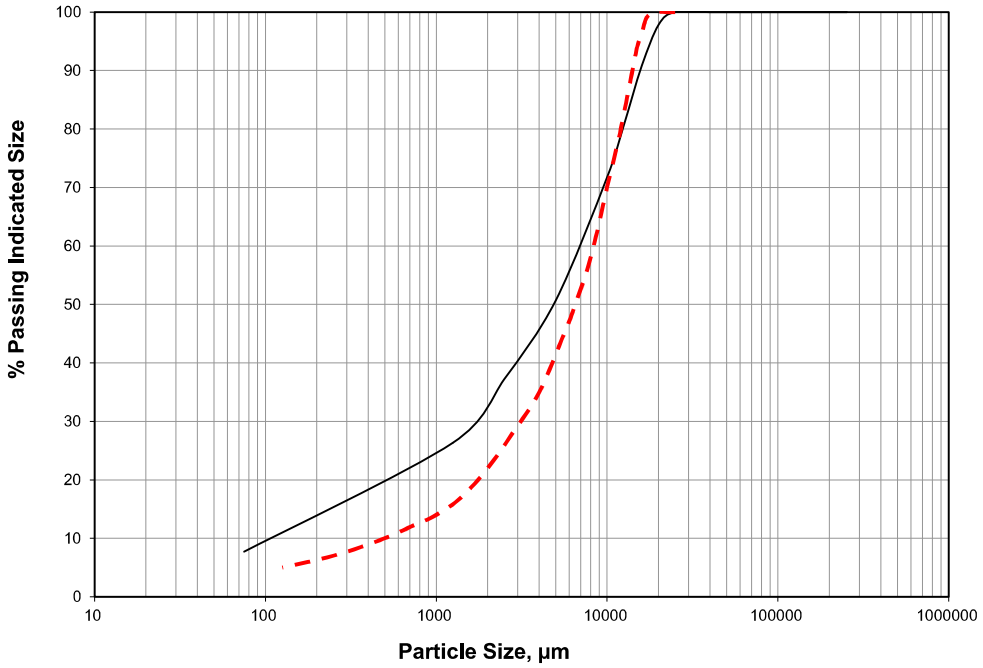
Test ID : HLF ODF -May 16 D/S

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 1,215.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	27.0	2.2	97.8
12		16000	84.0	6.9	90.9
13		12500	126.0	10.4	80.5
14		10000	107.0	8.8	71.7
15		5000	255.0	21.0	50.7
16		2500	164.0	13.5	37.2
17		1250	132.0	10.9	26.3
18		630			
19		315			
20		160			
21		75	226.0	18.6	7.7
22		0	94.0	7.7	
TOTAL			1215.0	100.0	



D_{80} = 12,353 µm D_{50} = 4,847 µm

Notes:

PARTICLE SIZE DISTRIBUTION

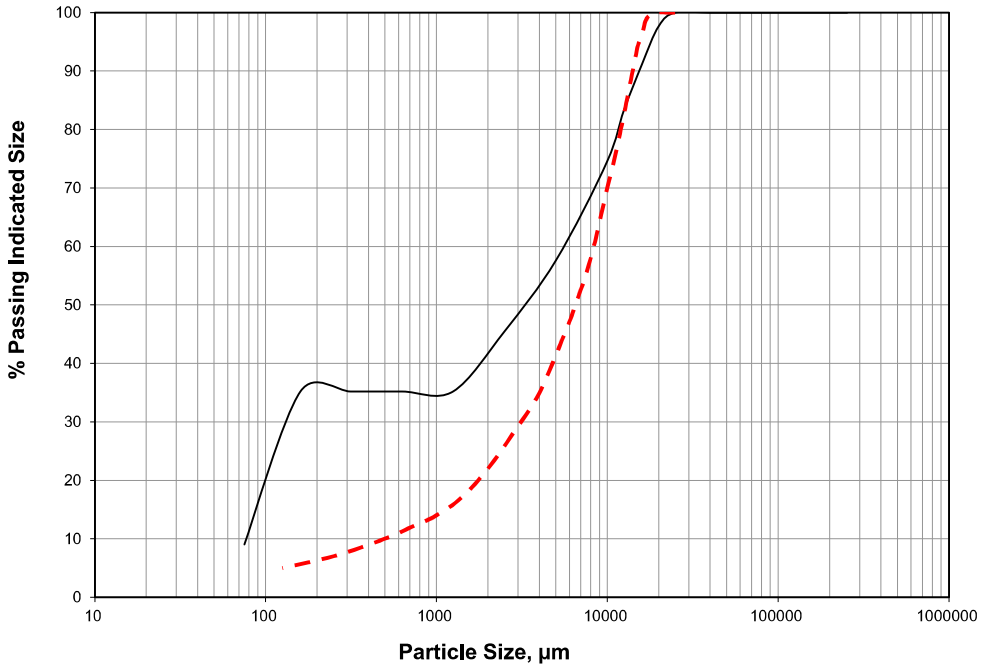
Test ID : HLF ODF - 5

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 1,207.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	28.0	2.3	97.7
12		16000	78.0	6.5	91.2
13		12500	96.0	8.0	83.3
14		10000	105.0	8.7	74.6
15		5000	205.0	17.0	57.6
16		2500	146.0	12.1	45.5
17		1250	124.0	10.3	35.2
18		630	0.0	0.0	35.2
19		315	0.0	0.0	35.2
20		160	0.0	0.0	35.2
21		75	316.0	26.2	9.0
22		0	109.0	9.0	
TOTAL			1207.0	100.0	



D_{80} = 11,529 µm D_{50} = 3,302 µm

Notes:

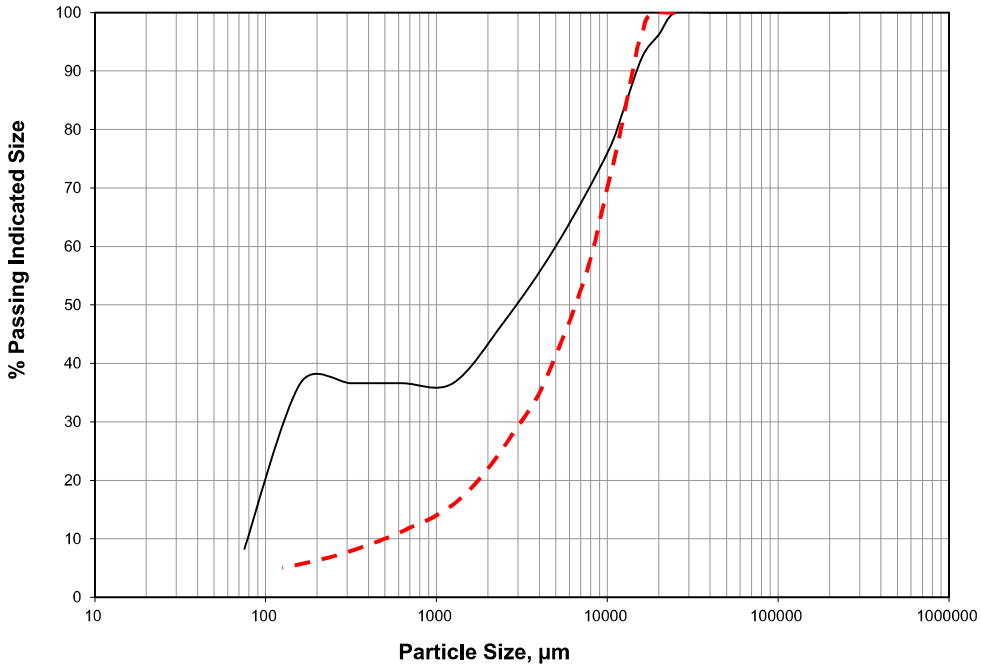
PARTICLE SIZE DISTRIBUTION

Test ID : HLF ODF - 6

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g	1,103.00	(Dry) Target P_{80} 12 mm
% Solid	100.00%	

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	42.0	3.8	96.2
12		16000	42.0	3.8	92.4
13		12500	97.0	8.8	83.6
14		10000	84.0	7.6	76.0
15		5000	176.0	16.0	60.0
16		2500	141.0	12.8	47.2
17		1250	117.0	10.6	36.6
18		630	0.0	0.0	36.6
19		315	0.0	0.0	36.6
20		160	0.0	0.0	36.6
21		75	313.0	28.4	8.3
22		0	91.0	8.3	
TOTAL			1103.0	100.0	



D_{80} = 11,282 µm

D_{50} = 2,947 µm

Notes:

PARTICLE SIZE DISTRIBUTION

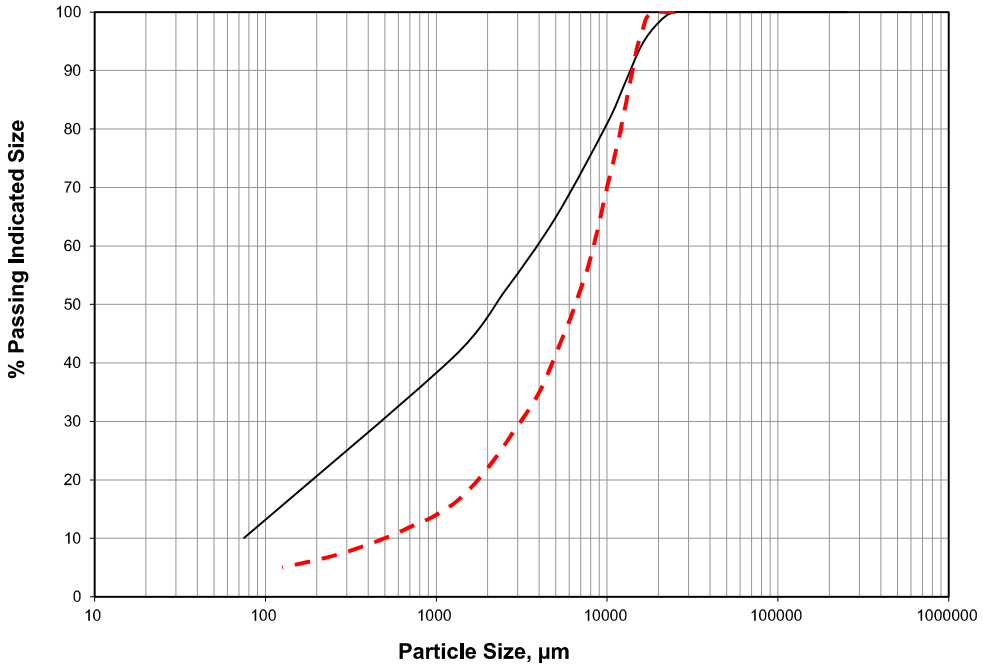
Test ID : HLF ODF -May 17 D/S

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 1,413.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	26.0	1.8	98.2
12		16000	53.0	3.8	94.4
13		12500	101.0	7.1	87.3
14		10000	90.0	6.4	80.9
15		5000	226.0	16.0	64.9
16		2500	180.0	12.7	52.2
17		1250	159.0	11.3	40.9
18		630			
19		315			
20		160			
21		75	436.0	30.9	10.0
22		0	142.0	10.0	
TOTAL			1413.0	100.0	



D_{80} = 9,657 µm D_{50} = 2,216 µm

Notes:

PARTICLE SIZE DISTRIBUTION

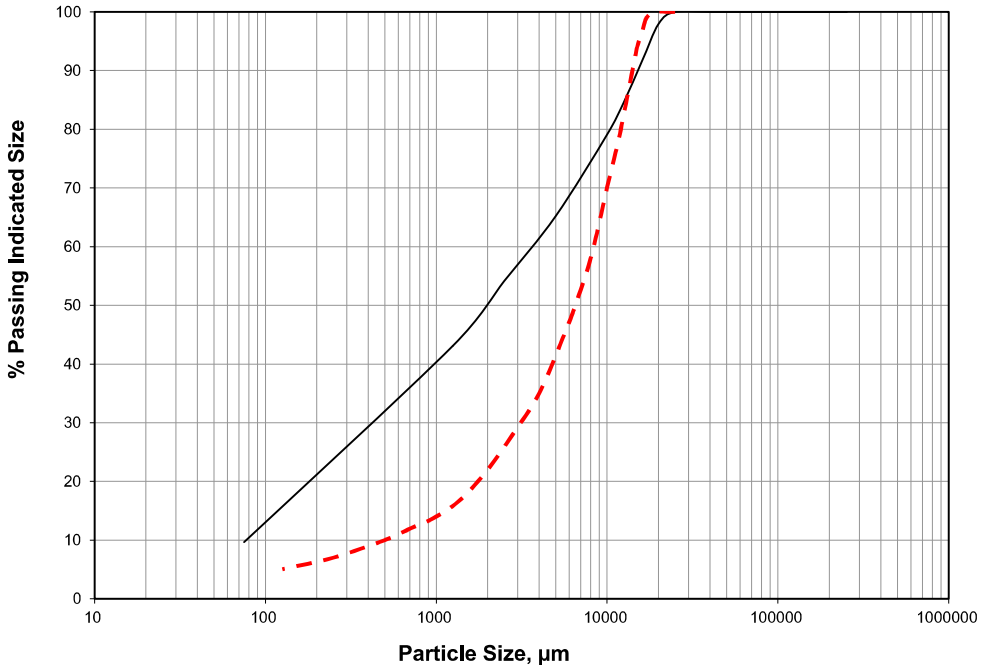
Test ID : HLF ODF -May 19

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 2,158.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	44.0	2.0	98.0
12		16000	138.0	6.4	91.6
13		12500	152.0	7.0	84.5
14		10000	118.0	5.5	79.1
15		5000	299.0	13.9	65.2
16		2500	239.0	11.1	54.1
17		1250	238.0	11.0	43.1
18		630			
19		315			
20		160			
21		75	722.0	33.5	9.6
22		0	208.0	9.6	
TOTAL			2158.0	100.0	



D_{80} = 10,405 µm D_{50} = 1,964 µm

Notes:

PARTICLE SIZE DISTRIBUTION

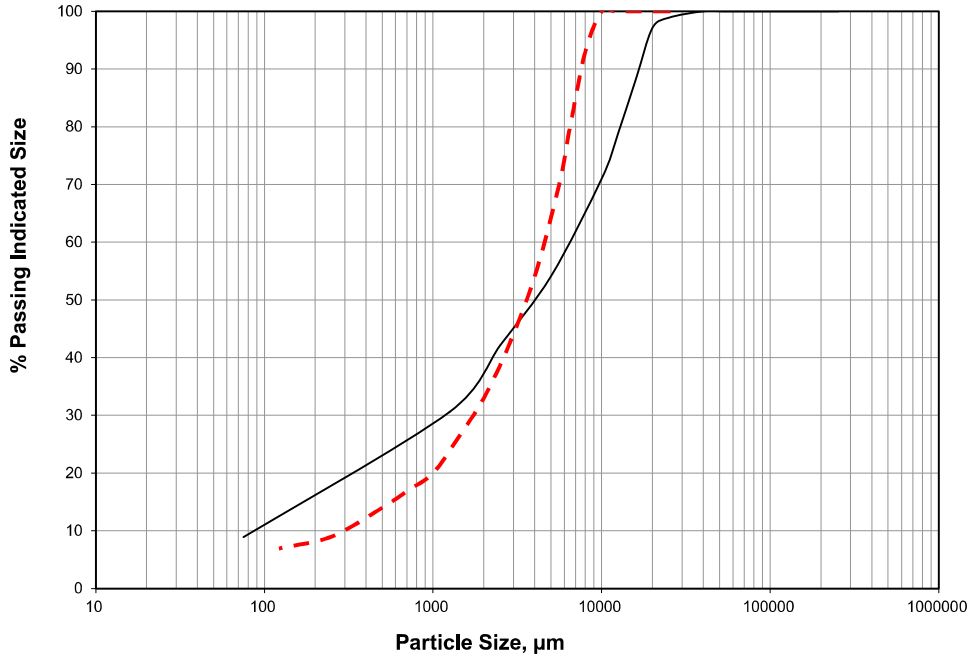
Test ID : HLF ODF June 25

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 2,105.00 (Dry) Target P_{80} 6.5 mm

% Solid 96.91%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	23.0	1.1	98.9
11		20000	38.0	1.8	97.1
12		16000	184.0	8.7	88.4
13		12500	203.0	9.6	78.7
14		10000	164.0	7.8	70.9
15		5000	354.0	16.8	54.1
16		2500	253.0	12.0	42.1
17		1250	242.0	11.5	30.6
18		630			
19		315			
20		160			
21		75	457.0	21.7	8.9
22		0	187.0	8.9	
TOTAL			2105.0	100.0	



D_{80} = 12,939 µm

D_{50} = 4,021 µm

Notes:

PARTICLE SIZE DISTRIBUTION

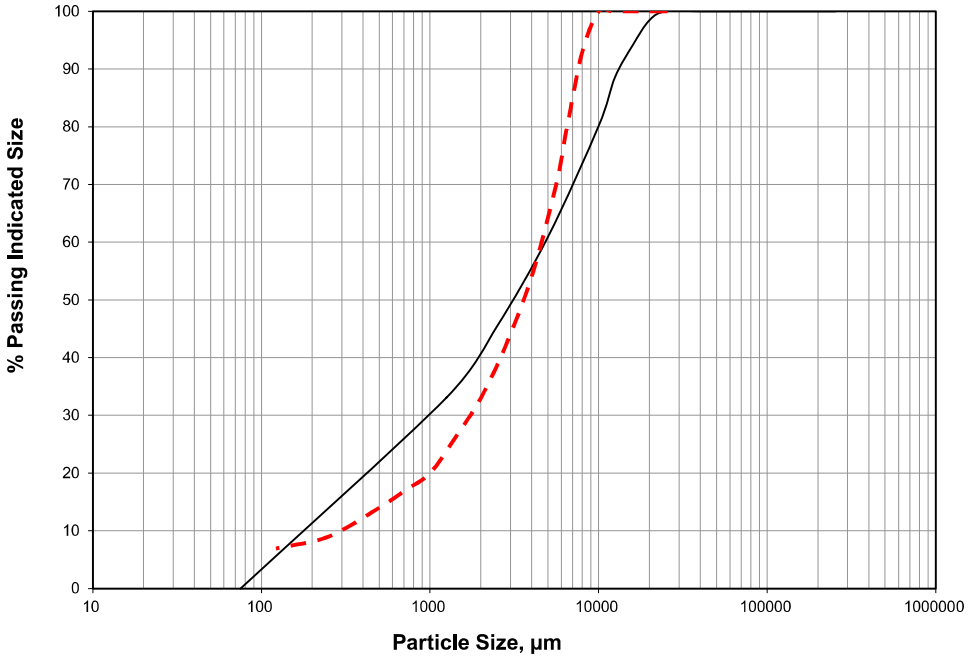
Test ID : HLF ODF June 30

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 1,681.00 (Dry) Target P_{80} 6.5 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	26.0	1.5	98.5
12		16000	71.0	4.2	94.2
13		12500	96.0	5.7	88.5
14		10000	142.0	8.4	80.1
15		5000	322.0	19.2	60.9
16		2500	260.0	15.5	45.4
17		1250	208.0	12.4	33.1
18		630			
19		315			
20		160			
21		75			
22		0	556.0	33.1	
TOTAL			1681.0	100.0	



D_{80} = 9,977 µm

D_{50} = 3,133 µm

Notes:

PARTICLE SIZE DISTRIBUTION

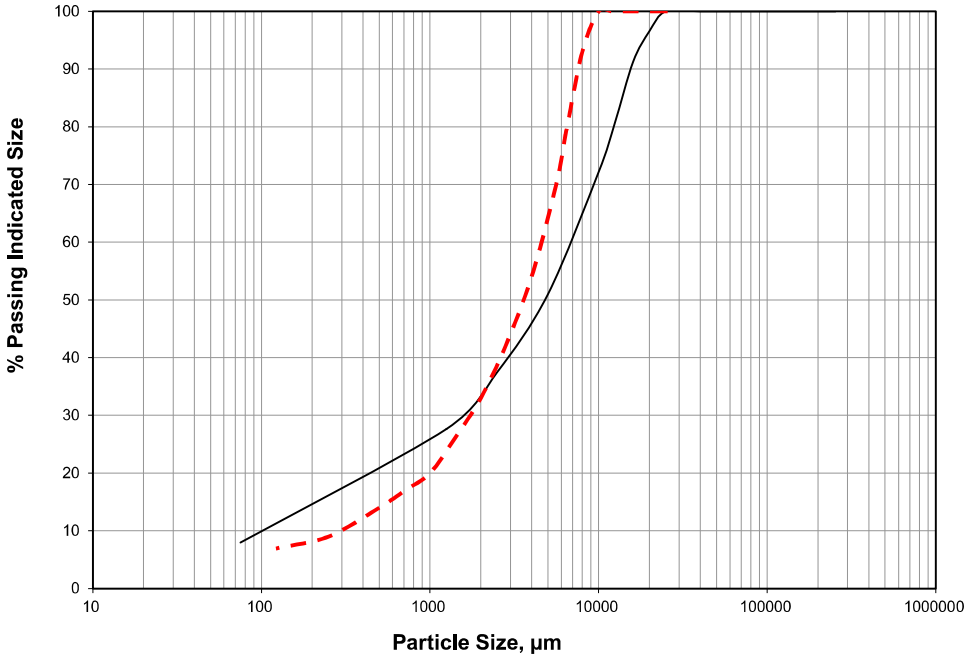
Victoria GOLD CORP

Test ID : HLF ODF July 4

TOTAL SAMPLE WEIGHT, g 1,735.00 (Dry) Target P_{80} 6.5 mm

% Solid 98.16%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	60.0	3.5	96.5
12		16000	92.0	5.3	91.2
13		12500	184.0	10.6	80.6
14		10000	148.0	8.5	72.1
15		5000	366.0	21.1	51.0
16		2500	235.0	13.5	37.5
17		1250	170.0	9.8	27.7
18		630			
19		315			
20		160			
21		75	342.0	19.7	8.0
22		0	138.0	8.0	
TOTAL			1735.0	100.0	



D_{80} = 12,305 µm

D_{50} = 4,781 µm

Notes:

PARTICLE SIZE DISTRIBUTION

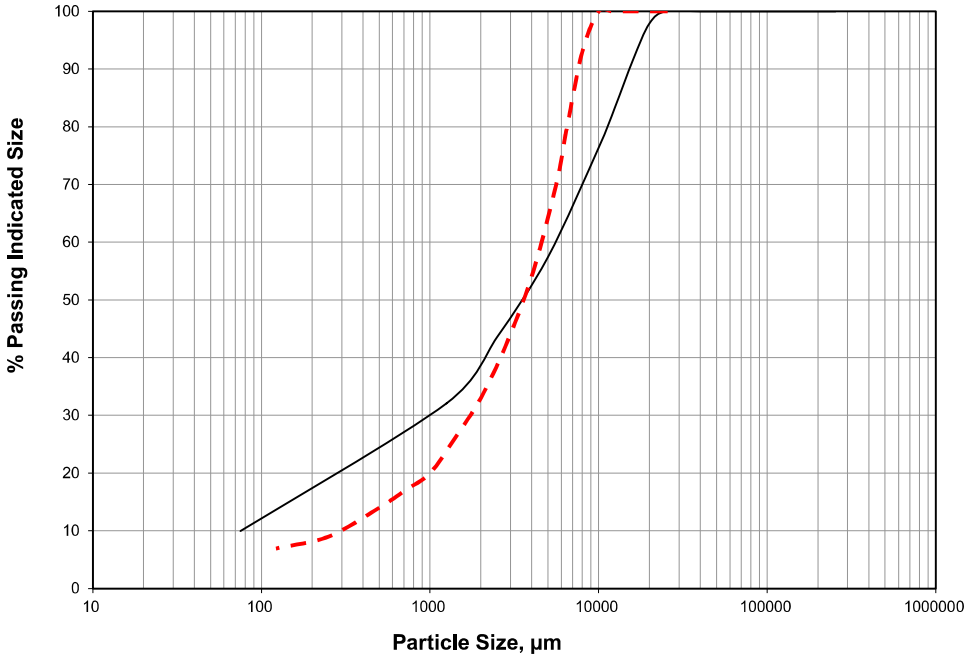
Test ID : HLF ODF July 7

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 1,508.00 (Dry) Target P_{80} 6.5 mm

% Solid 97.08%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	32.0	2.1	97.9
12		16000	94.0	6.2	91.6
13		12500	126.0	8.4	83.3
14		10000	105.0	7.0	76.3
15		5000	285.0	18.9	57.4
16		2500	209.0	13.9	43.6
17		1250	173.0	11.5	32.1
18		630			
19		315			
20		160			
21		75	334.0	22.1	9.9
22		0	150.0	9.9	
TOTAL			1508.0	100.0	



D_{80} = 11,277 µm

D_{50} = 3,532 µm

Notes:

PARTICLE SIZE DISTRIBUTION

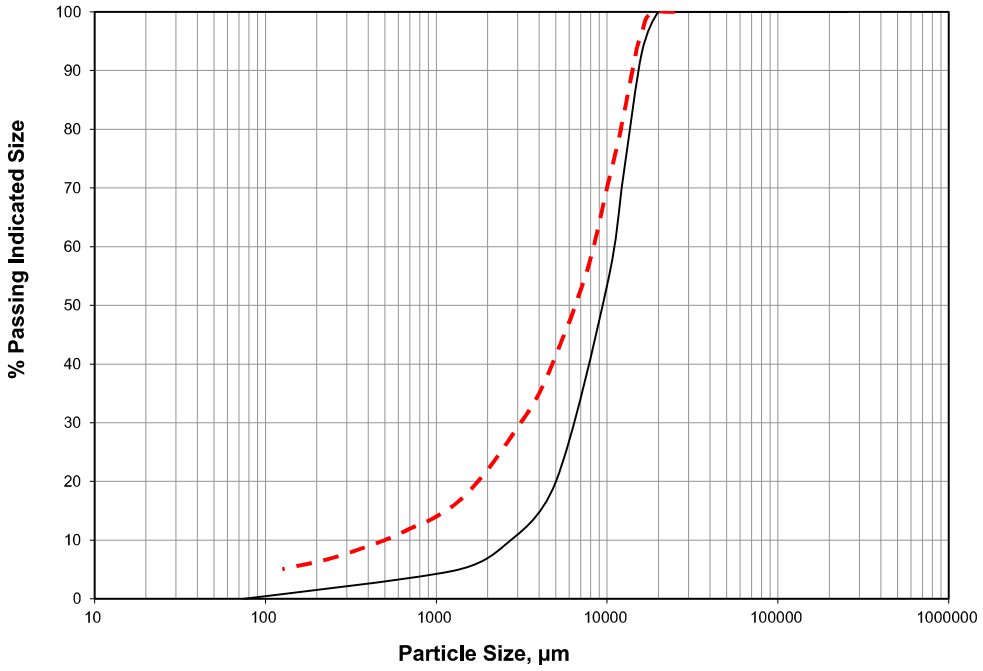
Test ID : HLF-ODF Jan 21

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 6,475.00 (Dry) Target P_{80} 12 mm

% Solid 97.54%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	0.0	0.0	100.0
12		16000	448.0	6.9	93.1
13		12500	1340.0	20.7	72.4
14		10000	1232.0	19.0	53.4
15		5000	2166.0	33.5	19.9
16		2500	701.0	10.8	9.1
17		1250	282.0	4.4	4.7
18		630			
19		315			
20		160			
21		75			
22		0	306.0	4.7	
TOTAL			6475.0	100.0	



D_{80} = 13,790 µm D_{50} = 9,553 µm

Notes: Manual sampling feed from stacker pile.

PARTICLE SIZE DISTRIBUTION

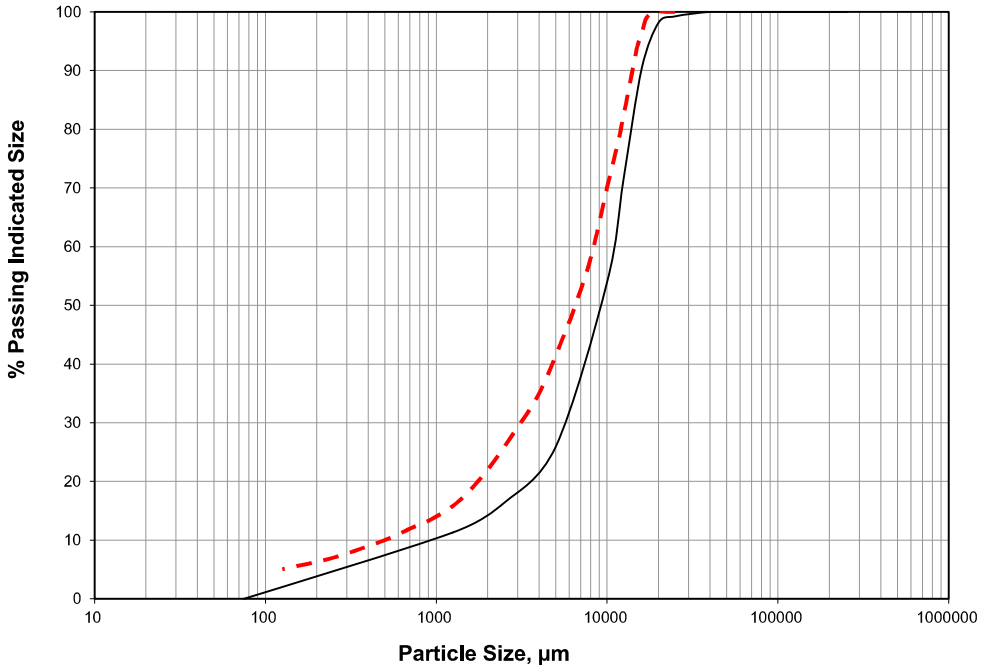
Test ID : Nuway ODF Apr 23

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 4,102.00 (Dry) Target P_{80} 12 mm

% Solid 98.71%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	31.0	0.8	99.2
11		20000	44.0	1.1	98.2
12		16000	316.0	7.7	90.5
13		12500	776.0	18.9	71.6
14		10000	725.0	17.7	53.9
15		5000	1147.0	28.0	25.9
16		2500	391.0	9.5	16.4
17		1250	209.0	5.1	11.3
18		630			
19		315			
20		160			
21		75			
22		0	463.0	11.3	
TOTAL			4102.0	100.0	



D_{80} = 14,058 µm

D_{50} = 9,317 µm

Notes:

PARTICLE SIZE DISTRIBUTION

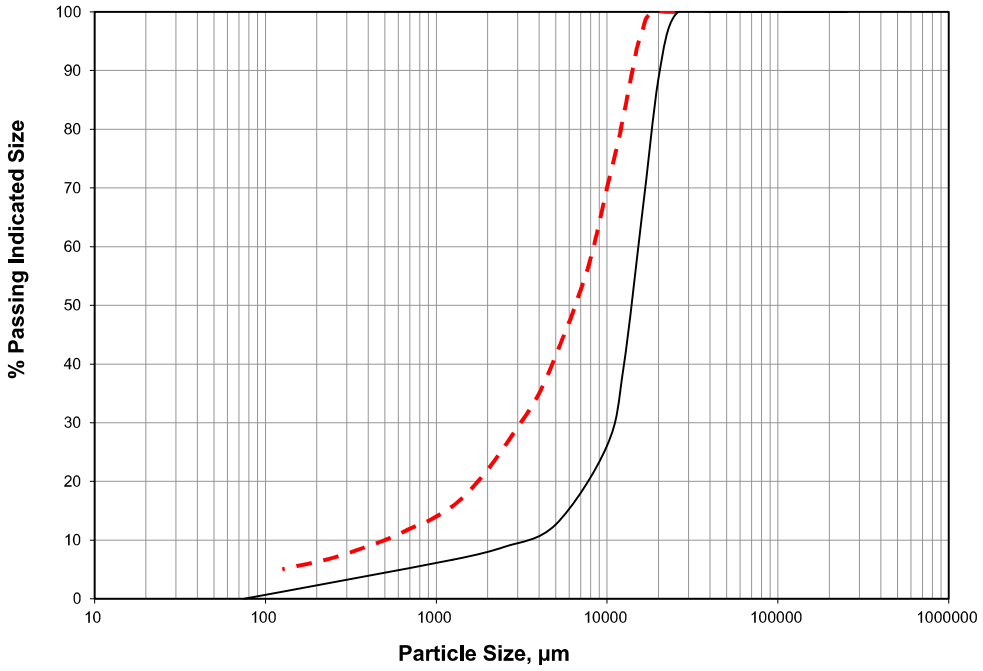
Test ID : HLF-ODF May 28

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 4,403.00 (Dry) Target P_{80} 12 mm

% Solid 98.50%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	24.0	0.5	99.5
11		20000	476.0	10.8	88.6
12		16000	1035.0	23.5	65.1
13		12500	1129.0	25.6	39.5
14		10000	592.0	13.4	26.1
15		5000	589.0	13.4	12.7
16		2500	169.0	3.8	8.8
17		1250	97.0	2.2	6.6
18		630			
19		315			
20		160			
21		75			
22		0	292.0	6.6	
TOTAL			4403.0	100.0	



D_{80} = 18,568 µm D_{50} = 14,043 µm

Notes: Manual sampling from pile. 6.5% <1.3 mm, passing ODF spec 10% <80 um

PARTICLE SIZE DISTRIBUTION

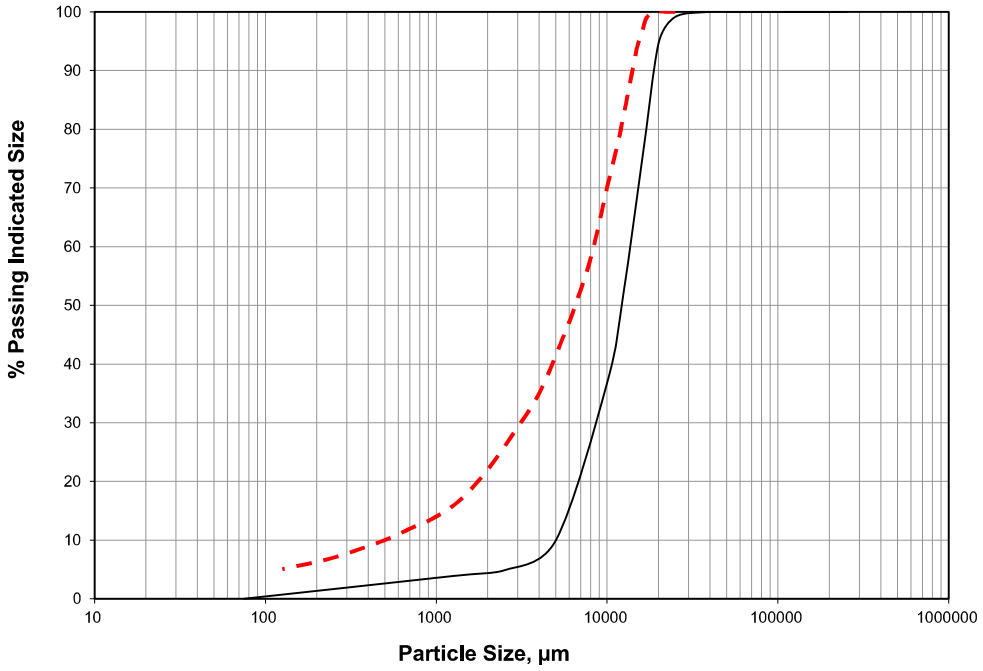
Test ID : HLF-ODF May 29

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 5,022.00 (Dry) Target P_{80} 12 mm

% Solid 95.66%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	43.0	0.9	99.1
11		20000	229.0	4.6	94.6
12		16000	1013.0	20.2	74.4
13		12500	1115.0	22.2	52.2
14		10000	779.0	15.5	36.7
15		5000	1344.0	26.8	9.9
16		2500	256.0	5.1	4.8
17		1250	49.0	1.0	3.9
18		630			
19		315			
20		160			
21		75			
22		0	194.0	3.9	
TOTAL			5022.0	100.0	



D_{80} = 17,115 µm D_{50} = 12,162 µm

Notes: Manual sampling from pile. 3.9% <1.3 mm, passing ODF spec 10% <80 um. Wet, rainy conditions.

PARTICLE SIZE DISTRIBUTION

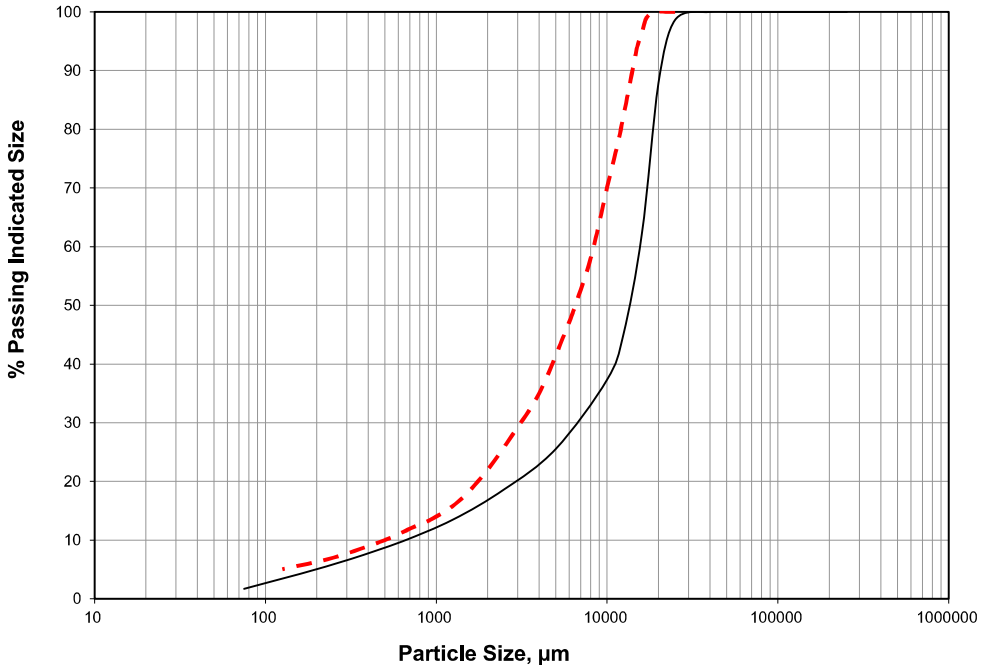
Test ID : HLF-ODF May 30

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,575.00 (Dry) Target P_{80} 12 mm

% Solid 98.15%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	49.0	1.4	98.6
11		20000	384.0	10.7	87.9
12		16000	920.0	25.7	62.2
13		12500	607.0	17.0	45.2
14		10000	281.0	7.9	37.3
15		5000	421.0	11.8	25.5
16		2500	247.0	6.9	18.6
17		1250	184.0	5.1	13.5
18		630	132.0	3.7	9.8
19		315	108.0	3.0	6.8
20		160	89.0	2.5	4.3
21		75	93.0	2.6	1.7
22		0	60.0	1.7	
TOTAL			3575.0	100.0	



D_{80} = 18,825 µm D_{50} = 13,521 µm

Notes: Manual sampling from pile.

PARTICLE SIZE DISTRIBUTION

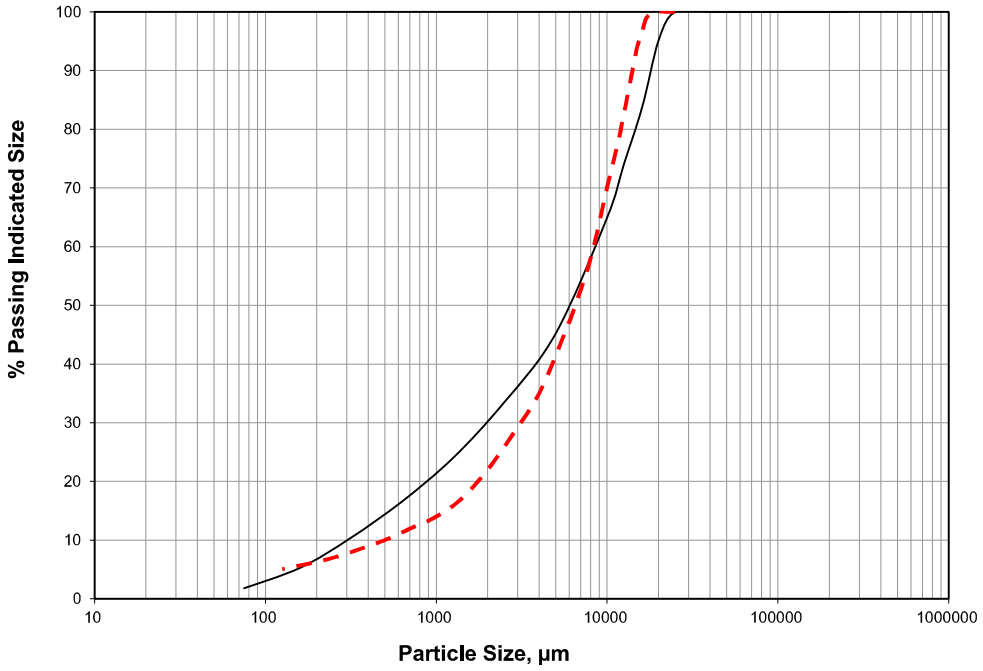
Test ID : HLF-ODF May 31

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,177.00 (Dry) Target P_{80} 12 mm

% Solid 97.04%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	156.0	4.9	95.1
12		16000	366.0	11.5	83.6
13		12500	307.0	9.7	73.9
14		10000	286.0	9.0	64.9
15		5000	626.0	19.7	45.2
16		2500	373.0	11.7	33.5
17		1250	302.0	9.5	24.0
18		630	234.0	7.4	16.6
19		315	198.0	6.2	10.4
20		160	161.0	5.1	5.3
21		75	111.0	3.5	1.8
22		0	57.0	1.8	
TOTAL			3177.0	100.0	



D_{80} = 14,657 µm D_{50} = 6,067 µm

Notes: Autosampler. Secondary stockpile feeding crusher, soft feed.

PARTICLE SIZE DISTRIBUTION

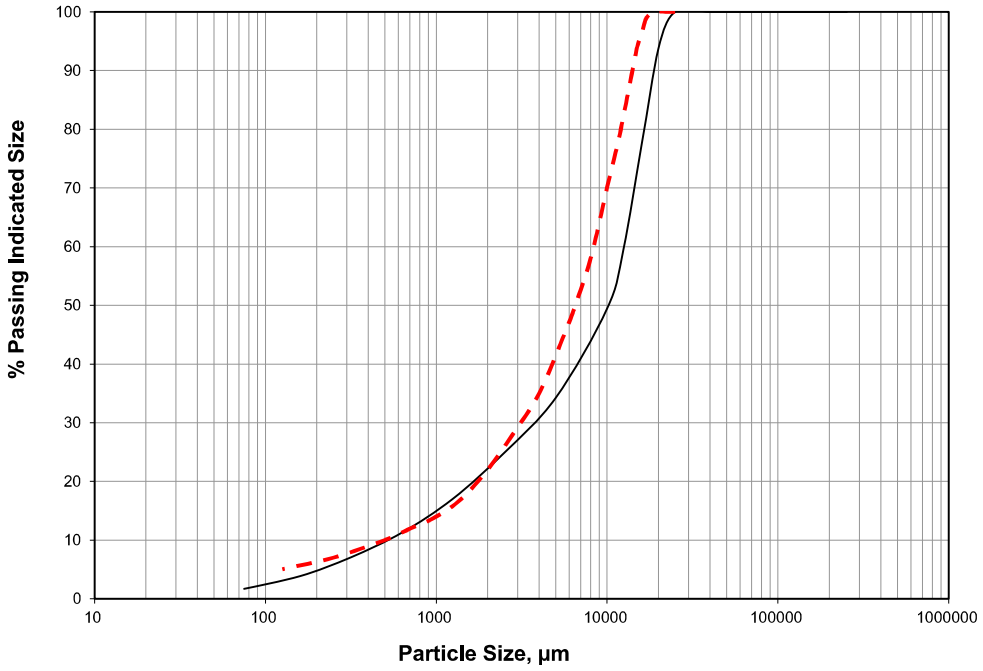
Test ID : HLF-ODF June 2

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,331.00 (Dry) Target P_{80} 12 mm

% Solid 97.48%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	207.0	6.2	93.8
12		16000	539.0	16.2	77.6
13		12500	598.0	18.0	59.7
14		10000	342.0	10.3	49.4
15		5000	505.0	15.2	34.2
16		2500	311.0	9.3	24.9
17		1250	262.0	7.9	17.0
18		630	191.0	5.7	11.3
19		315	141.0	4.2	7.1
20		160	106.0	3.2	3.9
21		75	73.0	2.2	1.7
22		0	56.0	1.7	
TOTAL			3331.0	100.0	



D_{80} = 16,584 µm

D_{50} = 10,147 µm

Notes: Manual sampling feed. Secondary stockpile feeding crusher, soft feed.

PARTICLE SIZE DISTRIBUTION

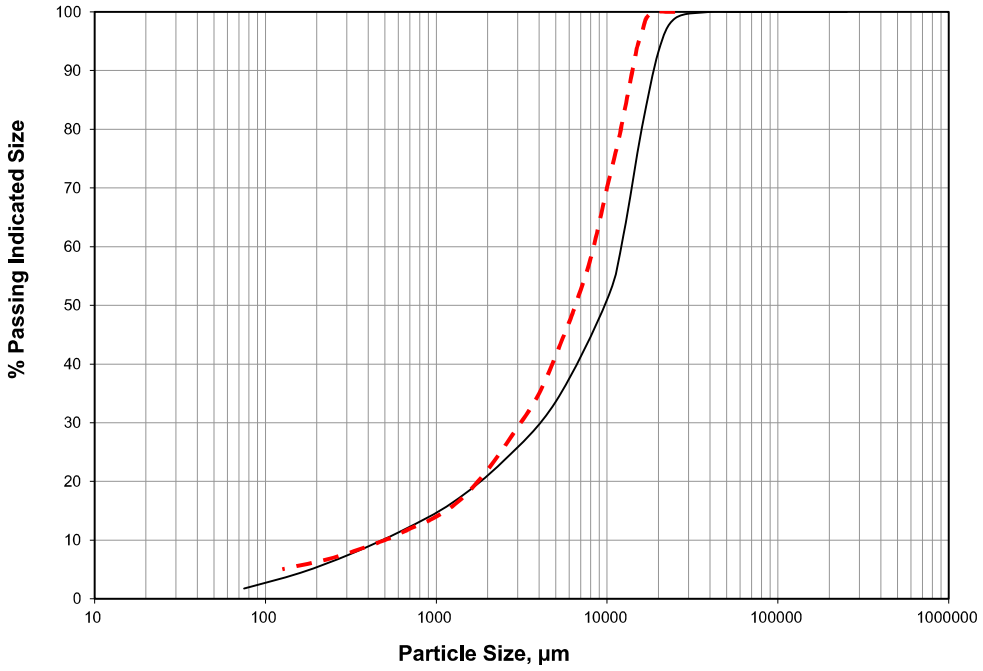
Test ID : HLF-ODF June 9

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,827.00 (Dry) Target P_{80} 12 mm

% Solid 97.60%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	42.0	1.1	98.9
11		20000	216.0	5.6	93.3
12		16000	499.0	13.0	80.2
13		12500	692.0	18.1	62.1
14		10000	429.0	11.2	50.9
15		5000	664.0	17.4	33.6
16		2500	382.0	10.0	23.6
17		1250	275.0	7.2	16.4
18		630	184.0	4.8	11.6
19		315	152.0	4.0	7.6
20		160	123.0	3.2	4.4
21		75	102.0	2.7	1.8
22		0	67.0	1.8	
TOTAL			3827.0	100.0	



D_{80} = 15,958 µm D_{50} = 9,699 µm

Notes: Autosampler sample.

PARTICLE SIZE DISTRIBUTION

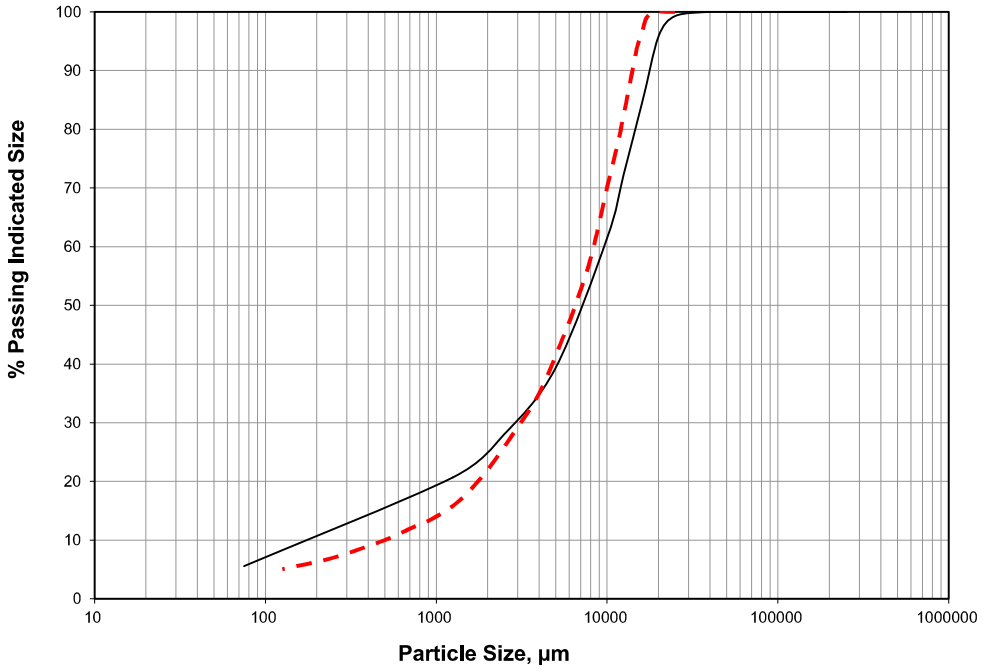
Test ID : HLF-ODF June 18

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,863.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	28.0	0.7	99.3
11		20000	133.0	3.4	95.8
12		16000	443.0	11.5	84.4
13		12500	467.0	12.1	72.3
14		10000	421.0	10.9	61.4
15		5000	849.0	22.0	39.4
16		2500	440.0	11.4	28.0
17		1250	283.0	7.3	20.7
18		630			
19		315			
20		160			
21		75	583.0	15.1	5.6
22		0	216.0	5.6	
TOTAL			3863.0	100.0	



D_{80} = 14,699 µm D_{50} = 7,257 µm

Notes: Autosampler sample.

PARTICLE SIZE DISTRIBUTION

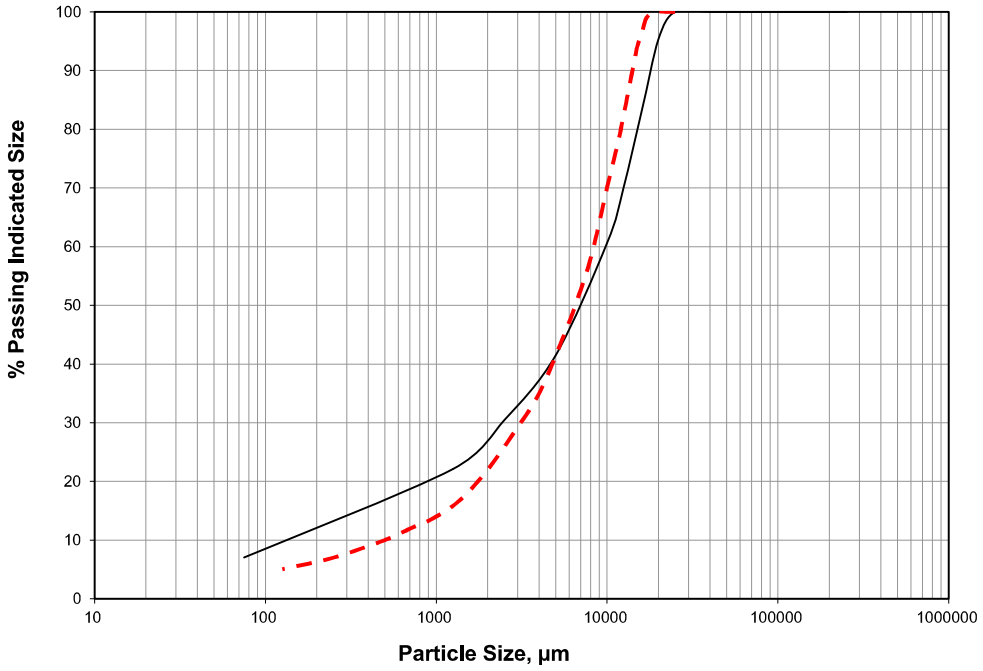
Test ID : HLF-ODF June 19

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,399.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	157.0	4.6	95.4
12		16000	413.0	12.2	83.2
13		12500	447.0	13.2	70.1
14		10000	322.0	9.5	60.6
15		5000	649.0	19.1	41.5
16		2500	377.0	11.1	30.4
17		1250	283.0	8.3	22.1
18		630			
19		315			
20		160			
21		75	511.0	15.0	7.1
22		0	240.0	7.1	
TOTAL			3399.0	100.0	



D_{80} = 15,116 µm D_{50} = 7,030 µm

Notes: Autosampler sample.

PARTICLE SIZE DISTRIBUTION

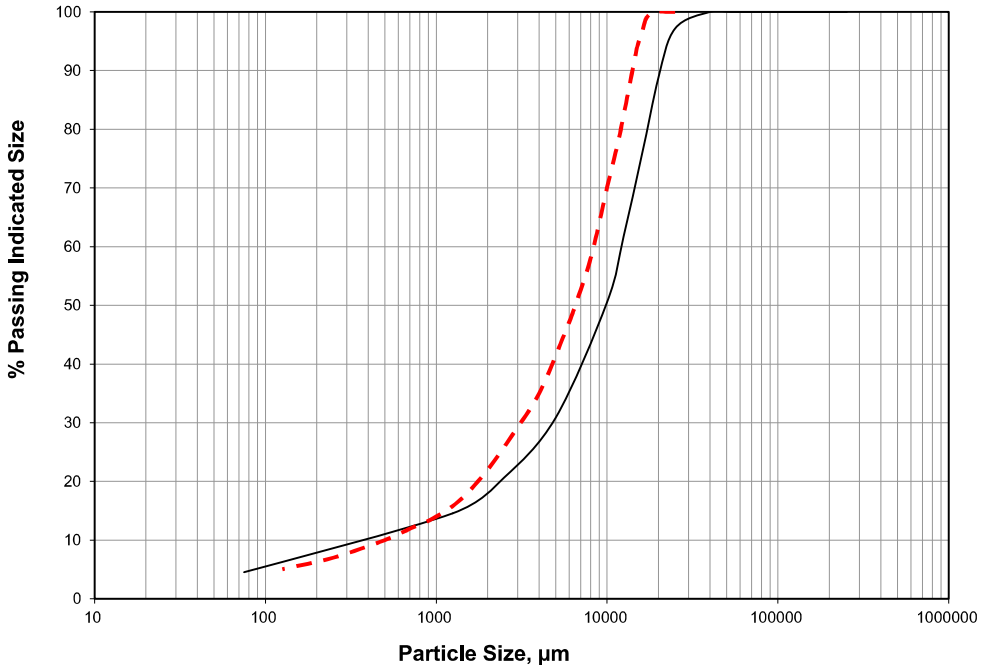
Test ID : HLF-ODF June 21

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 4,923.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	138.0	2.8	97.2
11		20000	412.0	8.4	88.8
12		16000	649.0	13.2	75.6
13		12500	686.0	13.9	61.7
14		10000	551.0	11.2	50.5
15		5000	967.0	19.6	30.9
16		2500	502.0	10.2	20.7
17		1250	300.0	6.1	14.6
18		630			
19		315			
20		160			
21		75	496.0	10.1	4.5
22		0	222.0	4.5	
TOTAL			4923.0	100.0	



D_{80} = 17,294 µm D_{50} = 9,856 µm

Notes: Autosampler sample.

PARTICLE SIZE DISTRIBUTION

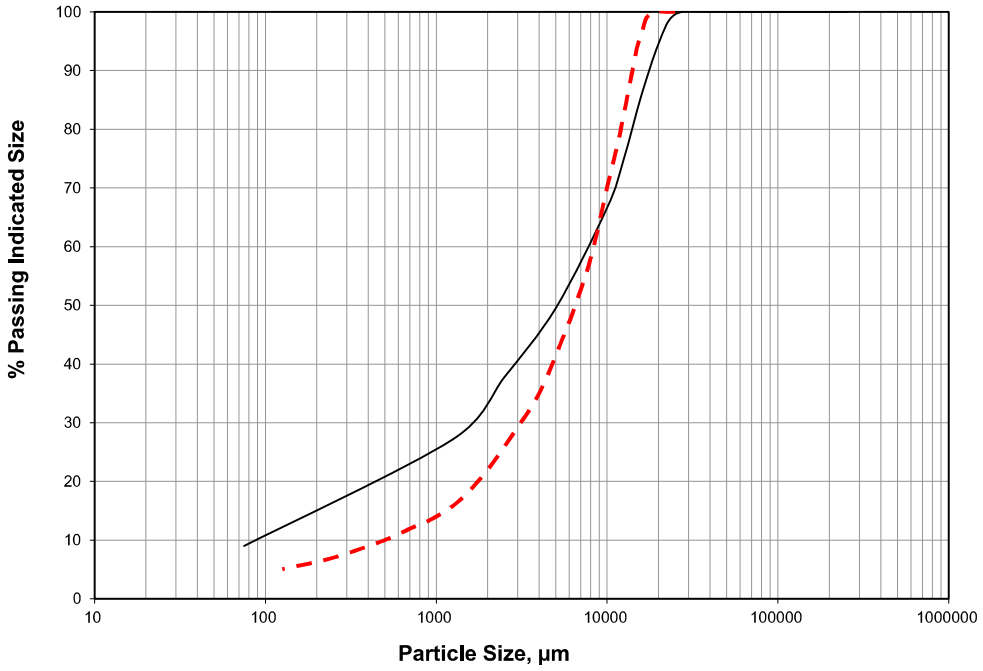
Test ID : HLF-ODF June 25

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,259.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	14.0	0.4	99.6
11		20000	164.0	5.0	94.5
12		16000	276.0	8.5	86.1
13		12500	367.0	11.3	74.8
14		10000	268.0	8.2	66.6
15		5000	556.0	17.1	49.5
16		2500	384.0	11.8	37.7
17		1250	345.0	10.6	27.2
18		630			
19		315			
20		160			
21		75	591.0	18.1	9.0
22		0	294.0	9.0	
TOTAL			3259.0	100.0	



D_{80} = 14,067 µm D_{50} = 5,113 µm

Notes: Autosampler sample.

PARTICLE SIZE DISTRIBUTION

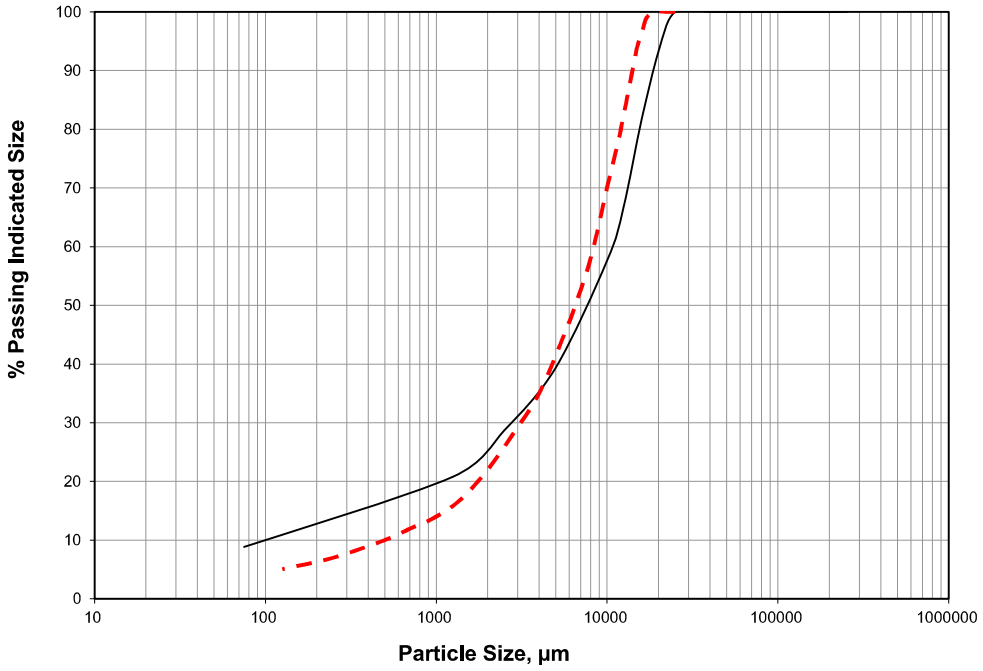
Test ID : HLF-ODF June 30

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,516.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	238.0	6.8	93.2
12		16000	401.0	11.4	81.8
13		12500	531.0	15.1	66.7
14		10000	322.0	9.2	57.6
15		5000	639.0	18.2	39.4
16		2500	377.0	10.7	28.7
17		1250	277.0	7.9	20.8
18		630			
19		315			
20		160			
21		75	421.0	12.0	8.8
22		0	310.0	8.8	
TOTAL			3516.0	100.0	



D_{80} = 15,569 µm D_{50} = 7,730 µm

Notes: Autosampler sample.

PARTICLE SIZE DISTRIBUTION

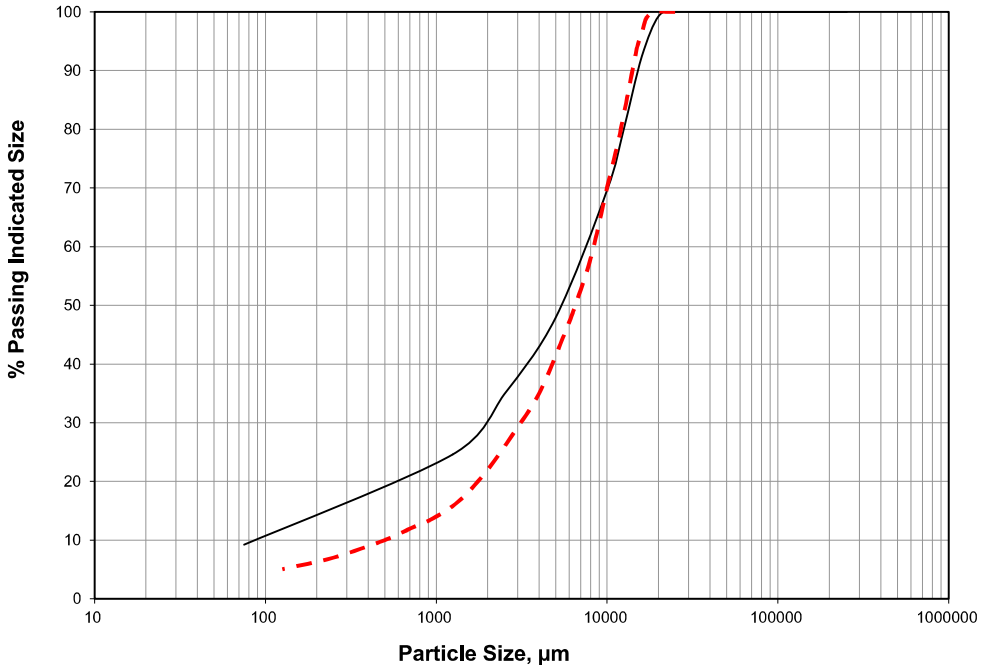
Test ID : HLF-ODF July 2

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 2,016.00 (Dry) Target P_{80} 12 mm

% Solid 100.00%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	0.0	0.0	100.0
11		20000	15.0	0.7	99.3
12		16000	138.0	6.8	92.4
13		12500	252.0	12.5	79.9
14		10000	208.0	10.3	69.6
15		5000	437.0	21.7	47.9
16		2500	264.0	13.1	34.8
17		1250	206.0	10.2	24.6
18		630			
19		315			
20		160			
21		75	310.0	15.4	9.2
22		0	186.0	9.2	
TOTAL			2016.0	100.0	



D_{80} = 12,524 µm D_{50} = 5,411 µm

Notes: Autosampler sample.

PARTICLE SIZE DISTRIBUTION

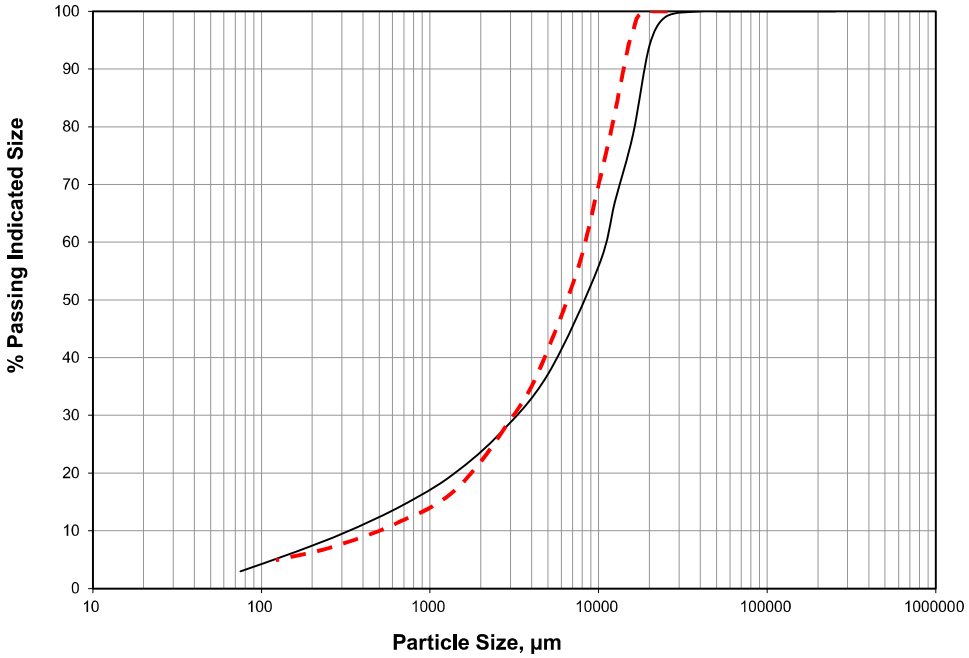
Test ID : HLF-ODF July 23

Victoria GOLD CORP

TOTAL SAMPLE WEIGHT, g 3,196.00 (Dry) Target P_{80} 12 mm

% Solid 98.44%

i	Mesh #	Mesh Opening µm	Retained Weight g	Retained Weight %	Cumm. Passing %
1		254000	0.0	0.0	100.0
2		203200	0.0	0.0	100.0
3		152400	0.0	0.0	100.0
4		127000	0.0	0.0	100.0
5		100000	0.0	0.0	100.0
6		75000	0.0	0.0	100.0
7		63000	0.0	0.0	100.0
8		53000	0.0	0.0	100.0
9		40000	0.0	0.0	100.0
10		25000	30.0	0.9	99.1
11		20000	162.0	5.1	94.0
12		16000	488.0	15.3	78.7
13		12500	377.0	11.8	66.9
14		10000	356.0	11.1	55.8
15		5000	596.0	18.6	37.1
16		2500	344.0	10.8	26.4
17		1250	237.0	7.4	19.0
18		630	163.0	5.1	13.9
19		315	132.0	4.1	9.7
20		160	107.0	3.3	6.4
21		75	109.0	3.4	3.0
22		0	95.0	3.0	
TOTAL			3196.0	100.0	



D_{80} = 16,327 µm D_{50} = 8,298 µm

Notes: Autosampler sample.

Appendix B.2
ODF Percolation Rate Results

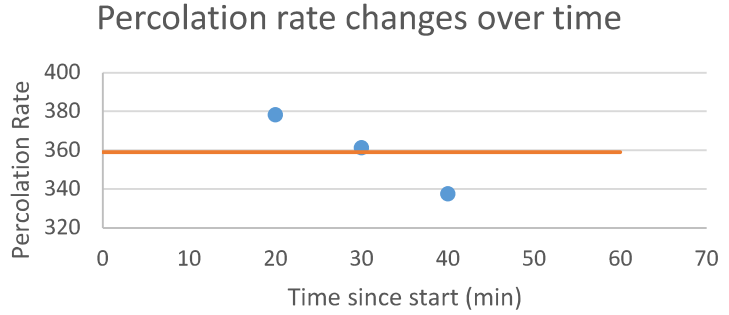
120 Commerce Drive., Units 3 & 4, Fort Collins, CO 80524

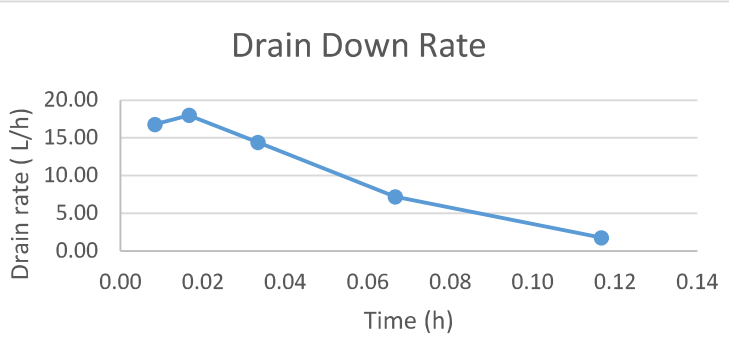
Percolation Rate

Test ID: HLF ODF - 1 Date: 5/15/2020 By: JL

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	30.29	0.2100	405	20	378
2	30.32	0.1950	376	20	
3	30.34	0.1900	366	20	
4	30.41	0.1900	365	20	
5	30.50	0.1900	364	30	361
6	30.44	0.1900	365	30	
7	30.10	0.1850	359	30	
8	30.35	0.1850	356	30	
9	30.40	0.1850	356	40	337
10	30.34	0.1800	347	40	
11	30.50	0.1700	326	40	
12	30.94	0.1700	321	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			359		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.50	0.140	0.01	0.14	16.80
0.50	0.150	0.02	0.29	18.00
1.00	0.240	0.03	0.53	14.40
2.00	0.240	0.07	0.77	7.20
3.00	0.090	0.12	0.86	1.80

Comments

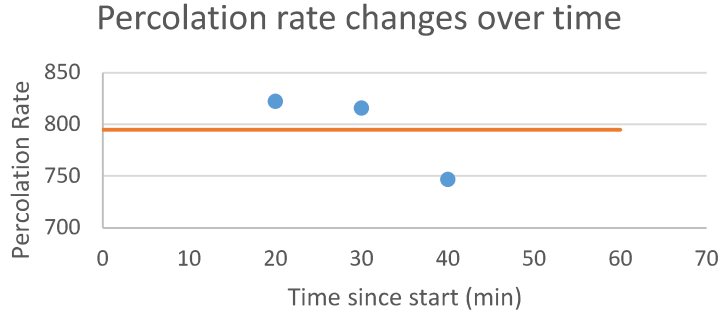
-200mesh = 10.6%
P80 = 8.76 mm
P50 = 1.85 mm

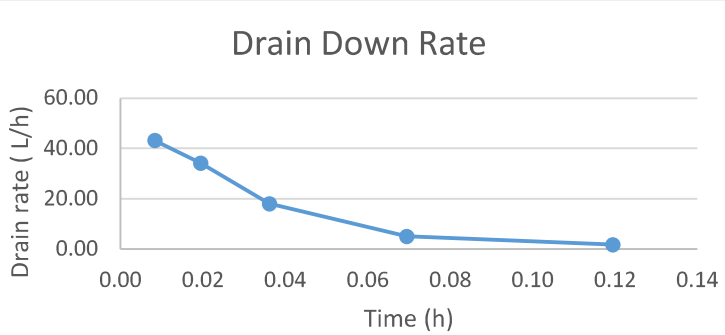
Percolation Rate

Test ID: HLF ODF - 2 Date: 5/15/2020 By: JL

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	30.30	0.4300	830	20	822
2	30.37	0.4200	809	20	
3	30.34	0.4300	829	20	
4	30.25	0.4250	821	20	
5	30.43	0.4300	826	30	816
6	30.13	0.4200	815	30	
7	30.25	0.4200	812	30	
8	30.31	0.4200	810	30	
9	30.41	0.3900	750	40	747
10	30.10	0.3900	758	40	
11	30.16	0.3850	746	40	
12	30.28	0.3800	734	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			795		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.50	0.360	0.01	0.36	43.20
0.67	0.380	0.02	0.74	34.20
1.00	0.300	0.04	1.04	18.00
2.00	0.170	0.07	1.21	5.10
3.00	0.090	0.12	1.30	1.80

Comments

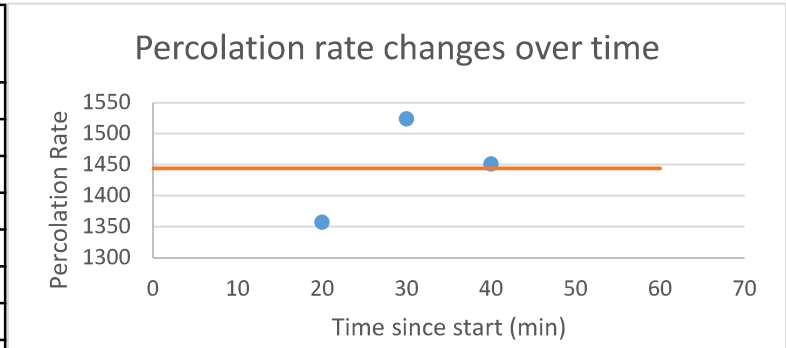
-200mesh = 7.4%
P80 = 10.39 mm
P50 = 3.87 mm

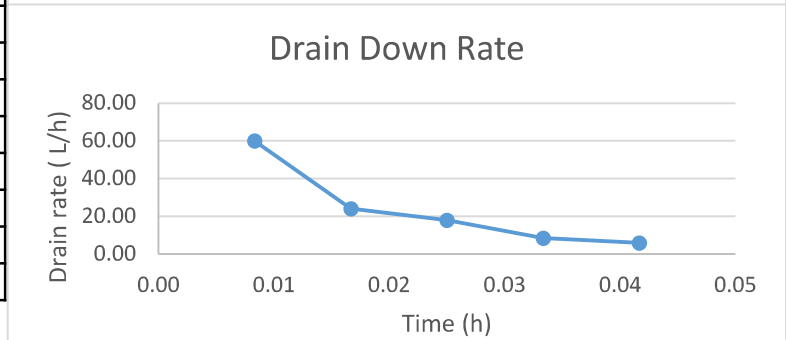
Percolation Rate

Test ID: HLF ODF - 3 Date: 5/17/2020 By: JL

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	30.30	0.7000	1351	20	1357
2	30.30	0.7000	1351	20	
3	30.00	0.7000	1364	20	
4	30.00	0.7000	1364	20	
5	30.10	0.8000	1554	30	1524
6	30.20	0.7900	1529	30	
7	30.28	0.7750	1496	30	
8	30.47	0.7900	1516	30	
9	30.19	0.7500	1452	40	1451
10	30.35	0.7600	1464	40	
11	29.72	0.7400	1456	40	
12	30.19	0.7400	1433	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			1444		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.50	0.500	0.01	0.50	60.00
0.50	0.200	0.02	0.70	24.00
0.50	0.150	0.03	0.85	18.00
0.50	0.070	0.03	0.92	8.40
0.50	0.050	0.04	0.97	6.00

Comments

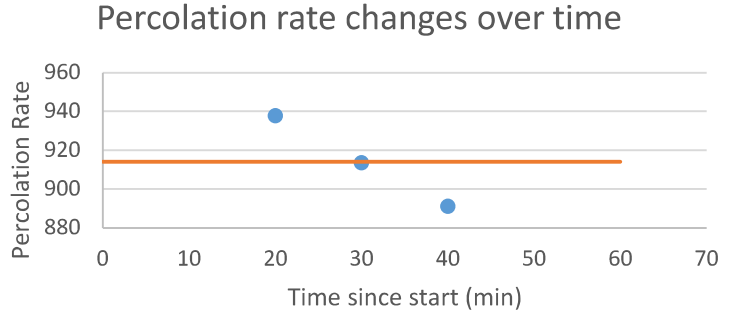
-200mesh = 7.4%

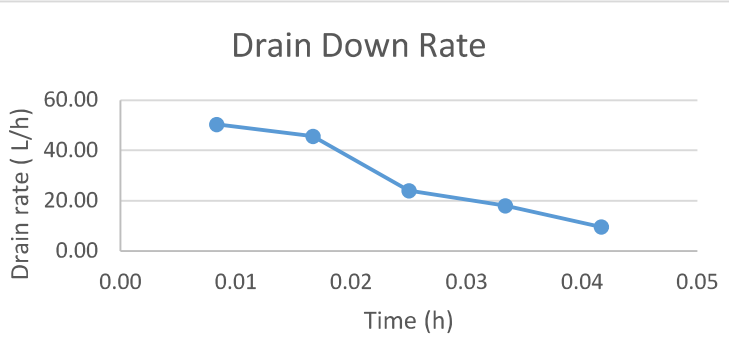
Percolation Rate

Test ID: HLF ODF - 4 Date: 5/17/2020 By: JL

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	30.25	0.4900	947	20	938
2	30.40	0.4800	923	20	
3	30.18	0.4900	949	20	
4	30.13	0.4800	931	20	
5	30.04	0.4600	895	30	914
6	30.03	0.4600	896	30	
7	29.92	0.4700	918	30	
8	30.32	0.4900	945	30	
9	30.31	0.4600	887	40	891
10	30.13	0.4600	893	40	
11	30.21	0.4600	890	40	
12	30.07	0.4600	894	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			914		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.50	0.420	0.01	0.42	50.40
0.50	0.380	0.02	0.80	45.60
0.50	0.200	0.03	1.00	24.00
0.50	0.150	0.03	1.15	18.00
0.50	0.080	0.04	1.23	9.60

Comments

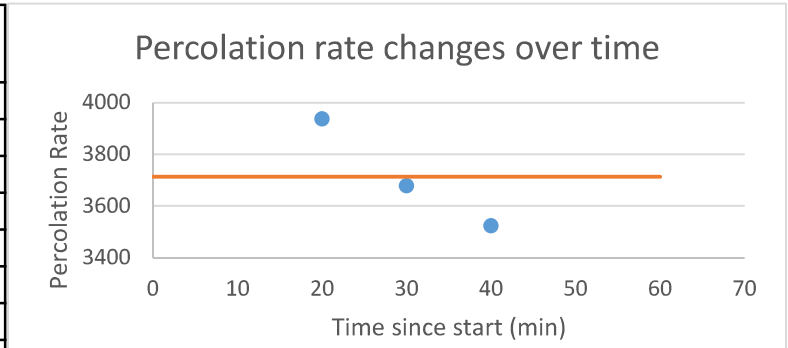
-200mesh = 11.9%

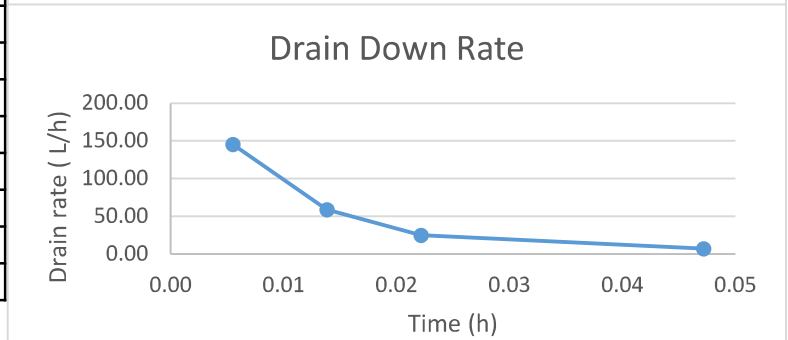
Percolation Rate

Test ID: HLF ODF-5 Date: 5/18/2020 By: JL

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	15.25	1.0000	3834	20	3937
2	15.16	1.0000	3857	20	
3	15.30	0.9900	3783	20	
4	15.05	1.1000	4273	20	
5	15.21	0.9500	3652	30	3679
6	14.98	0.9450	3688	30	
7	15.12	0.9600	3712	30	
8	15.16	0.9500	3664	30	
9	15.18	0.9200	3543	40	3524
10	15.22	0.9200	3534	40	
11	15.27	0.9100	3484	40	
12	15.22	0.9200	3534	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			3713		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.33	0.800	0.01	0.80	145.45
0.50	0.490	0.01	1.29	58.80
0.50	0.210	0.02	1.50	25.20
1.50	0.180	0.05	1.68	7.20

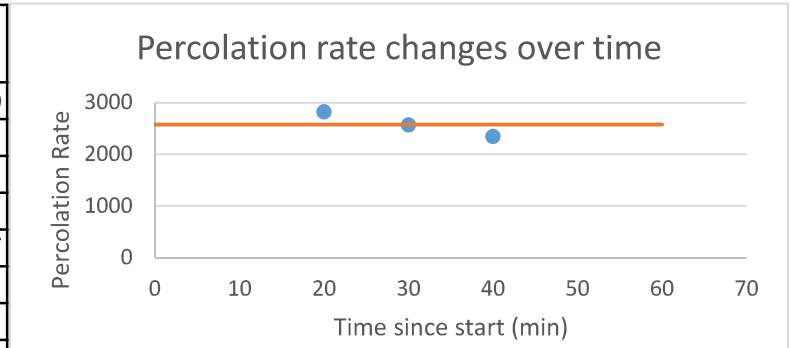
Comments

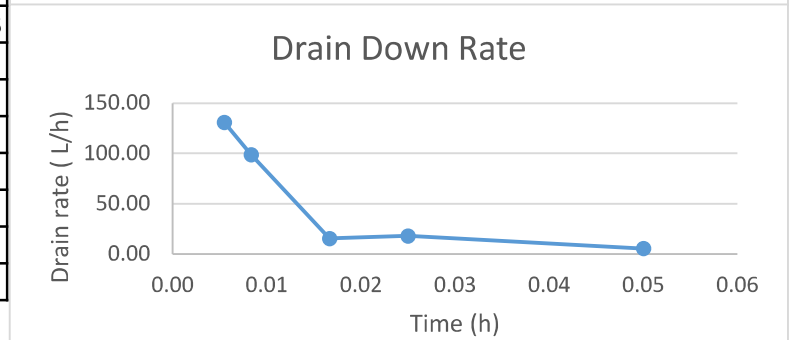
Percolation Rate

Test ID: HLF ODF-6 Date: 5/18/2020 By: JL

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	20.66	0.9800	2773	20	2820
2	20.12	0.9700	2819	20	
3	20.34	0.9900	2846	20	
4	20.15	0.9800	2843	20	
5	20.28	0.9000	2595	30	2567
6	20.35	0.9000	2586	30	
7	19.97	0.8700	2547	30	
8	20.03	0.8700	2539	30	
9	20.21	0.8200	2372	40	2348
10	20.34	0.8200	2357	40	
11	20.35	0.8100	2327	40	
12	20.28	0.8100	2335	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			2578		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.33	0.720	0.01	0.72	130.91
0.17	0.280	0.01	1.00	98.82
0.50	0.130	0.02	1.13	15.60
0.50	0.150	0.03	1.28	18.00
1.50	0.140	0.05	1.42	5.60

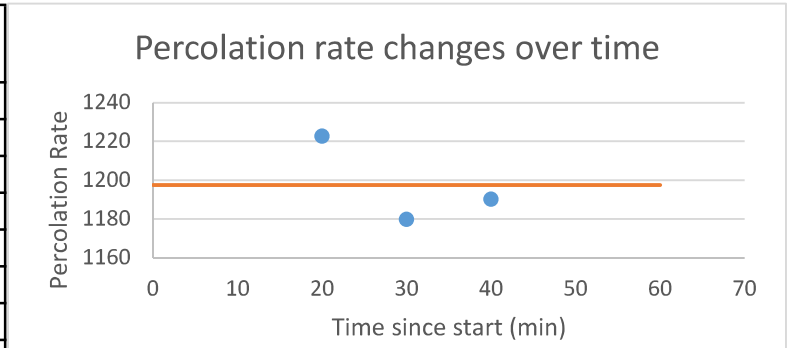
Comments

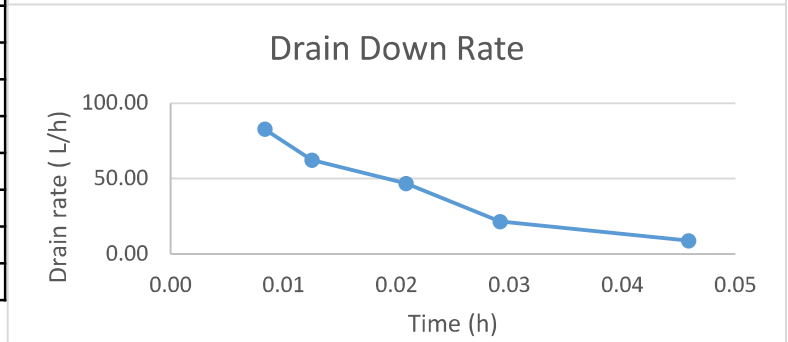
Percolation Rate

Test ID: HLF ODF May 17 DS Date: 5/18/2020 By: JL

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	30.19	0.6400	1239	20	1223
2	30.31	0.6300	1215	20	
3	30.00	0.6300	1228	20	
4	30.00	0.6200	1208	20	
5	30.12	0.6100	1184	30	1180
6	30.25	0.6100	1179	30	
7	30.35	0.6100	1175	30	
8	30.19	0.6100	1181	30	
9	30.31	0.6200	1196	40	1190
10	30.09	0.6200	1205	40	
11	30.00	0.6100	1189	40	
12	29.94	0.6000	1172	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			1198		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.50	0.690	0.01	0.69	82.80
0.25	0.260	0.01	0.95	62.40
0.50	0.390	0.02	1.34	46.80
0.50	0.180	0.03	1.52	21.60
1.00	0.150	0.05	1.67	9.00

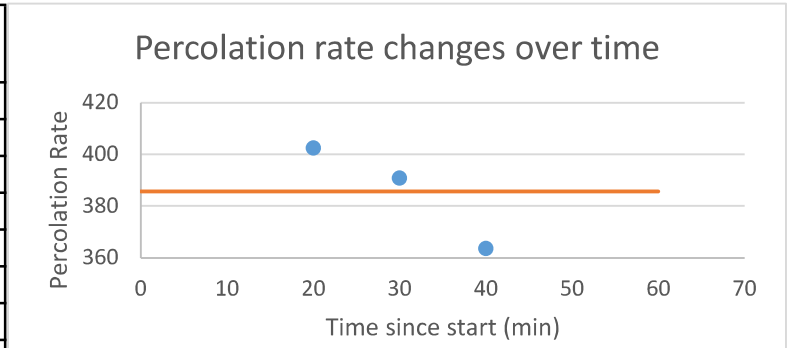
Comments

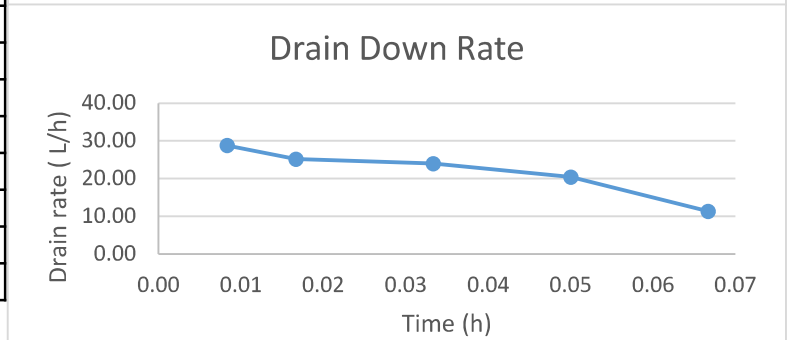
Percolation Rate

Test ID: HLF ODF May 19 Date: 5/18/2020 By: JL

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	30.06	0.2100	408	20	402
2	30.09	0.2050	398	20	
3	30.39	0.2100	404	20	
4	30.03	0.2050	399	20	
5	30.28	0.2100	405	30	391
6	30.13	0.2000	388	30	
7	30.41	0.2000	385	30	
8	30.35	0.2000	385	30	
9	30.16	0.1900	368	40	364
10	30.25	0.1900	367	40	
11	30.07	0.1900	369	40	
12	30.11	0.1800	350	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			386		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.50	0.240	0.01	0.24	28.80
0.50	0.210	0.02	0.45	25.20
1.00	0.400	0.03	0.85	24.00
1.00	0.340	0.05	1.19	20.40
1.00	0.190	0.07	1.38	11.40

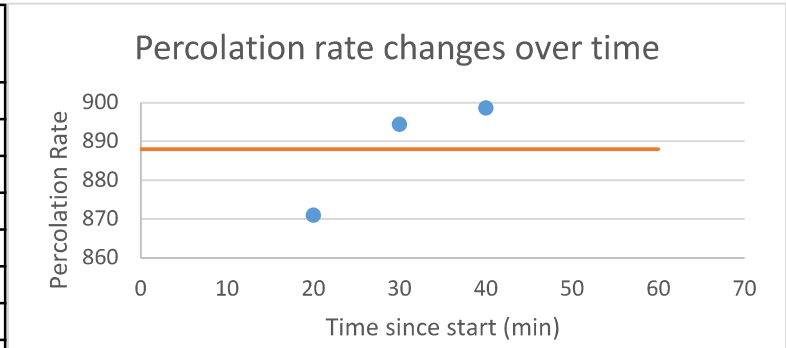
Comments

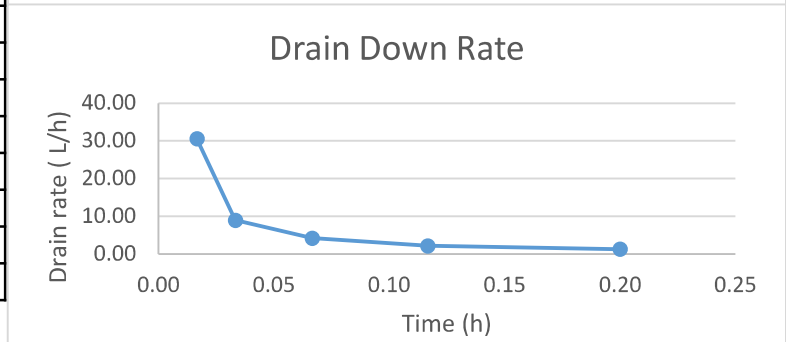
Percolation Rate

Test ID: ODF 06/25 Hand Sample Date: 2020-06-25 By: KC

Percolation Rate

	Time (s)	Volume (L)	L/m2/h	Time since start (min)	Average per set
1	67.16	0.9800	853	20	871
2	64.38	0.9700	881	20	
3	63.82	0.9600	879	20	
4	64.47	0.9700	871	20	
5	62.50	0.9600	907	30	894
6	62.31	0.9600	901	30	
7	64.07	0.9800	876	30	
8	64.13	0.9800	893	30	
9	67.12	0.9900	854	40	899
10	62.89	0.9700	920	40	
11	62.72	0.9800	904	40	
12	62.53	0.9700	916	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			888		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
1.00	0.510	0.02	0.51	30.60
1.00	0.150	0.03	0.66	9.00
2.00	0.140	0.07	0.80	4.20
3.00	0.110	0.12	0.91	2.20
5.00	0.110	0.20	1.02	1.32

Comments

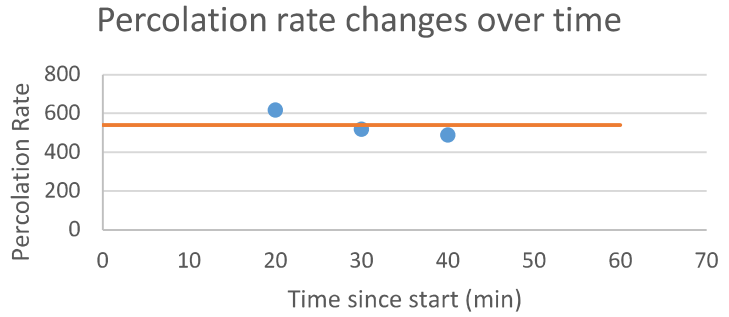
1" slump
p80 = 12.9 mm
p50 = 4.0 mm
p25 =

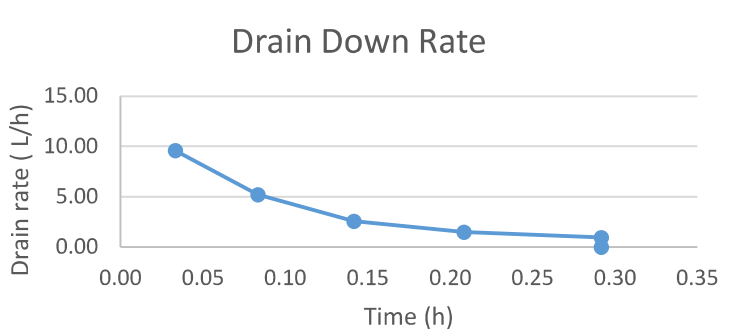
Percolation Rate

Test ID: ODF June 30 Date: 2020-06-30 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	84.17	0.9300	646	20	617
2	89.50	0.9600	627	20	
3	87.13	0.9200	617	20	
4	92.82	0.9400	579	20	
5	102.23	0.9400	538	30	517
6	103.94	0.9400	529	30	
7	107.51	0.9500	511	30	
8	112.92	0.9600	492	30	
9	109.64	0.9300	512	40	488
10	116.85	0.9600	465	40	
11	112.39	0.9400	499	40	
12	115.24	0.9500	477	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			541		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
2.00	0.320	0.03	0.32	9.60
3.00	0.260	0.08	0.58	5.20
3.50	0.150	0.14	0.73	2.57
4.00	0.100	0.21	0.83	1.50
5.00	0.080	0.29	0.91	0.96
		0.29	0.91	0.00

Comments

Zero slump
p80 = 8.1 mm
p50 = 2.9 mm
p25 = 1 mm

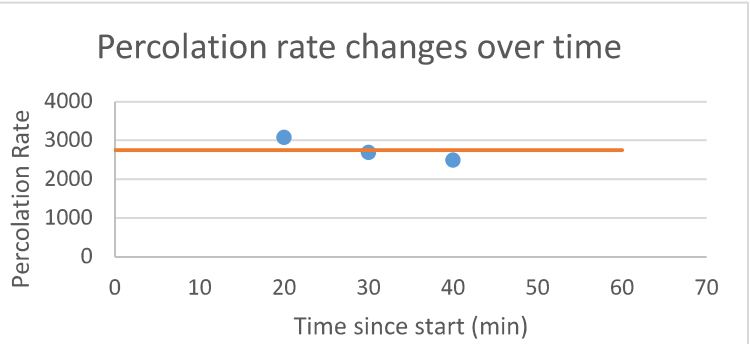
Void ratio 6%

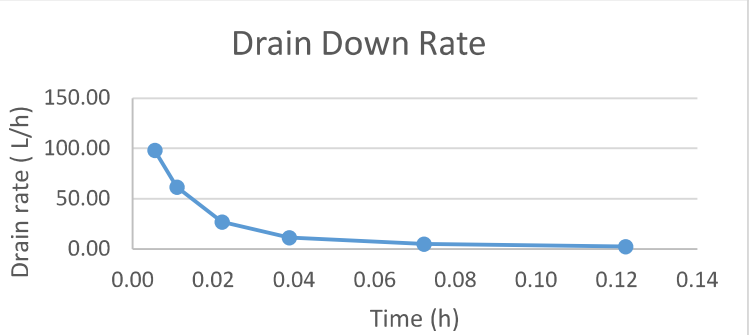
Percolation Rate

Test ID: ODF July 4 Date: 2020-07-04 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	17.65	0.9400	3114	20	3075
2	18.73	0.9700	3028	20	
3	19.02	0.9900	3043	20	
4	18.57	0.9600	3117	20	
5	20.26	0.9500	2770	30	2692
6	21.58	0.9900	2574	30	
7	20.01	0.9100	2893	30	
8	21.01	0.9500	2532	30	
9	21.68	0.9200	2562	40	2488
10	22.63	0.9500	2377	40	
11	23.09	0.9700	2405	40	
12	21.75	0.9000	2607	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			2752		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.33	0.540	0.01	0.54	98.18
0.33	0.340	0.01	0.88	61.82
0.67	0.300	0.02	1.18	26.87
1.00	0.190	0.04	1.37	11.40
2.00	0.170	0.07	1.54	5.10
3.00	0.130	0.12	1.67	2.60

Comments

Zero slump
p80 = 12.3 mm
p50 = 4.8 mm
p25 = 0.9 mm

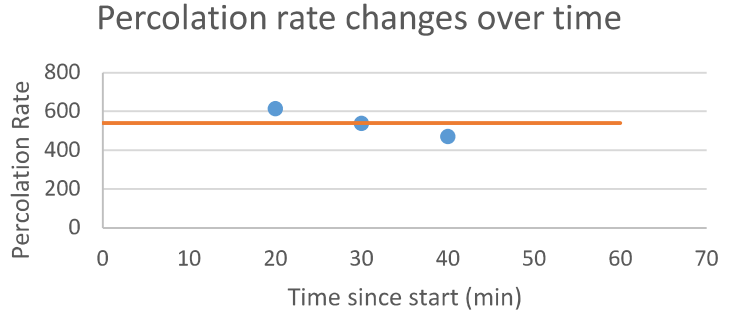
Void ratio 12%

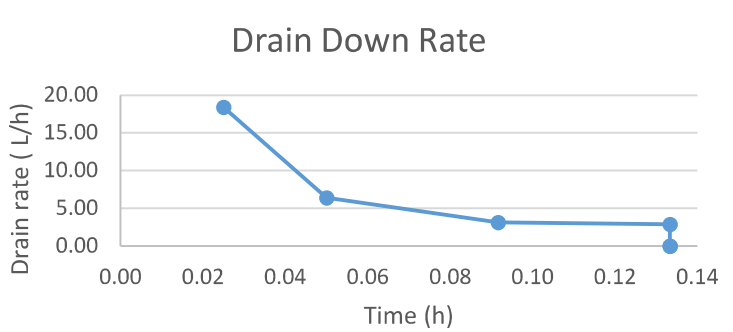
Percolation Rate

Test ID: HLF-ODF July 7 Date: 2020-07-07 By: KC

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	90.60	0.9900	639	20	613
2	90.97	0.9600	617	20	
3	93.06	0.9600	603	20	
4	97.47	0.9900	594	20	
5	10.82	0.0970	524	30	537
6	10.57	0.0990	548	30	
7	10.43	0.0980	549	30	
8	10.84	0.0980	529	30	
9	12.31	0.0980	465	40	471
10	12.31	0.1000	475	40	
11	12.28	0.1000	476	40	
12	12.28	0.0980	467	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			540		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
1.50	0.460	0.03	0.46	18.40
1.50	0.160	0.05	0.62	6.40
2.50	0.130	0.09	0.75	3.12
2.50	0.120	0.13	0.87	2.88
		0.13	0.87	0.00
		0.13	0.87	0.00

Comments

Zero slump
p80 = 11.3 mm
p50 = 3.5 mm
p25 = 0.5 mm

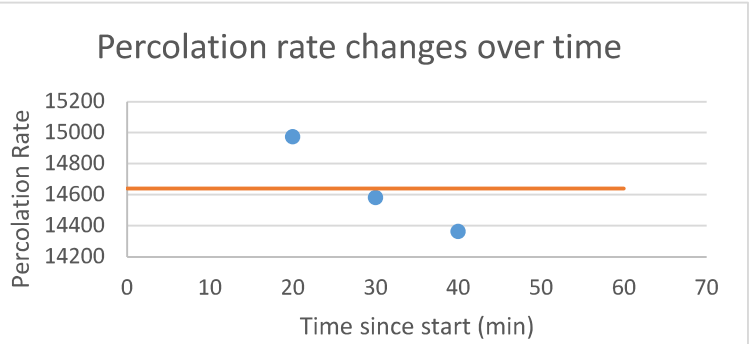
Void ratio 6%

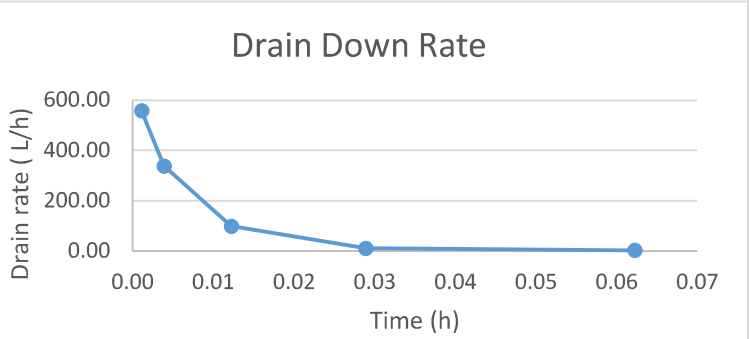
Percolation Rate

Test ID: Jan 21 Stacker Pile Date: 1/21/2021 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	3.93	1.0000	14877	20	14974
2	3.88	1.0000	15068	20	
3	3.84	0.9600	14616	20	
4	3.66	0.9600	15335	20	
5	4.00	1.0000	14616	30	14582
6	4.02	1.0000	14544	30	
7	3.94	0.9700	14394	30	
8	3.72	0.9400	14773	30	
9	3.82	0.9200	14081	40	14363
10	3.83	0.9500	14502	40	
11	4.00	0.9900	14470	40	
12	4.06	1.0000	14400	40	
13				50	#DIV/0!
14				50	
15				50	
16				50	
Average			14640		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.07	0.620	0.00	0.62	558.00
0.17	0.940	0.00	1.56	338.40
0.50	0.830	0.01	2.39	99.60
1.00	0.200	0.03	2.59	12.00
2.00	0.120	0.06	2.71	3.60
3.00	0.110	0.11	2.82	2.20

Comments

P80 = 14.5
P50 = 8.4
P25 = 4.7

1" slump

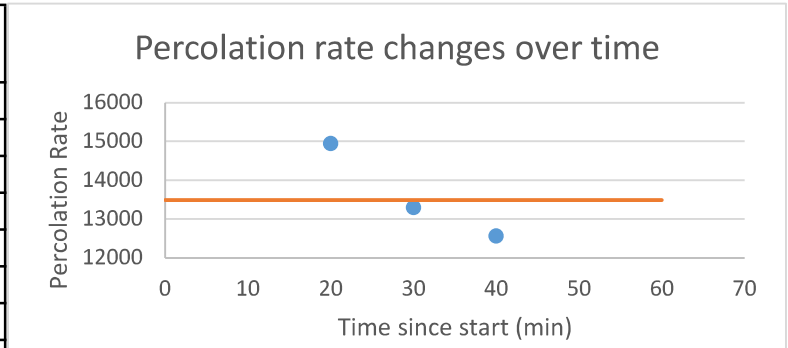
Void ratio

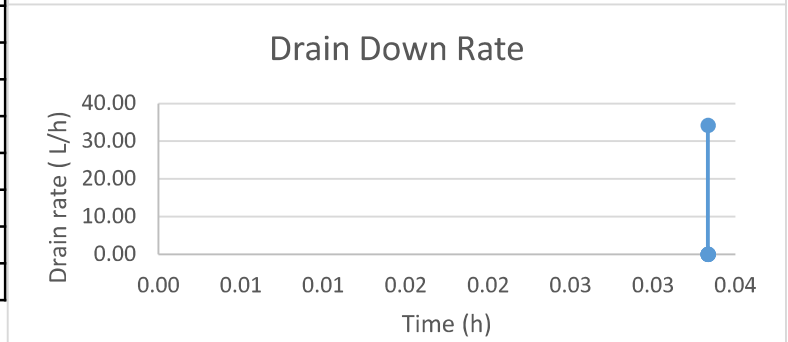
Percolation Rate

Test ID: Nuway 0422 Date: 4/23/2021 By: KC

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	3.50	0.9000	15034	20	14948
2	3.44	0.8900	15126	20	
3	3.72	0.9300	14616	20	
4	3.66	0.9400	15016	20	
5	4.03	0.9000	13057	30	13297
6	3.97	0.9000	13254	30	
7	4.00	0.9100	13301	30	
8	4.22	0.9800	13577	30	
9	4.12	0.9000	12771	40	12557
10	4.15	0.9000	12679	40	
11	4.78	1.0100	12354	40	
12	4.47	0.9500	12425	40	
13	84.07	20.0000	13909	20	13142
14	84.97	20.0000	13761	20	
15	88.53	20.0000	13208	30	
16	100.03	20.0000	11690	40	
Average			13486		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
2.00	1.138	0.03	1.14	34.14
		0.03	1.14	0.00
		0.03	1.14	0.00
		0.03	1.14	0.00
		0.03	1.14	0.00
		0.03	1.14	0.00

Comments

P80 = 12.9
P50 = 6.7
P25 = 3.4

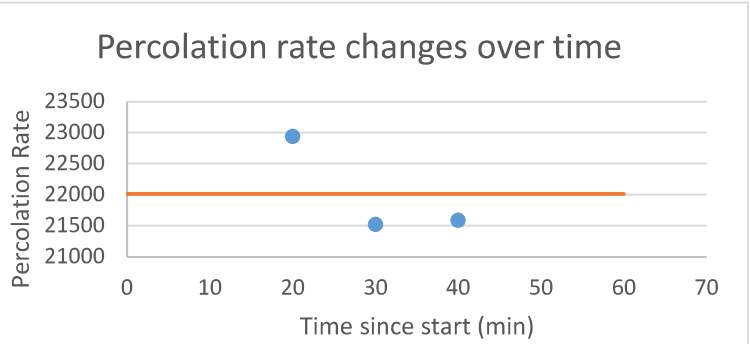
Void ratio

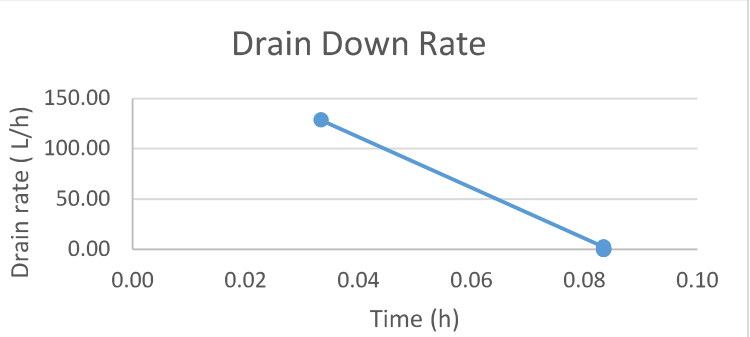
Percolation Rate

Test ID: HLF-ODF May 28 Date: 5/28/2021 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	2.57	0.9200	20929	20	22937
2	2.22	0.9800	25809	20	
3	2.31	0.9000	22779	20	
4	2.63	1.0000	22230	20	
5	54.93	20.0000	21287	30	21519
6	2.43	0.8800	21173	30	
7	2.43	0.9100	21894	30	
8	2.53	0.9400	21722	30	
9	55.15	20.0000	21202	40	21586
10	2.53	0.9400	21722	40	
11	2.25	0.8300	21567	40	
12	2.06	0.7700	21853	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			22014		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
2.00	4.290	0.03	4.29	128.70
3.00	0.130	0.08	4.42	2.60
		0.08	4.42	0.00
		0.08	4.42	0.00
		0.08	4.42	0.00
		0.08	4.42	0.00

Comments

P80 = 18.6
P50 = 14
P25 = 9.6
Manual pile sample

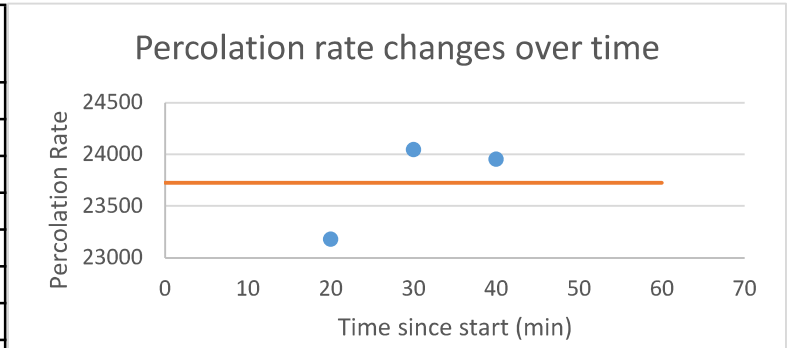
Void ratio

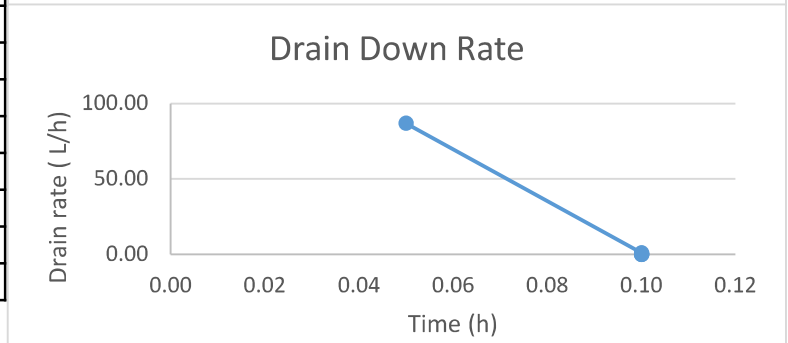
Percolation Rate

Test ID: HLF-ODF May 29 Date: 5/29/2021 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	51.59	20.0000	22665	20	23179
2	2.28	0.9000	23078	20	
3	2.32	0.9300	23436	20	
4	2.31	0.9300	23538	20	
5	50.72	20.0000	23054	30	24045
6	2.40	1.0000	24360	30	
7	1.93	0.8100	24537	30	
8	2.22	0.9200	24229	30	
9	50.66	20.0000	23081	40	23953
10	1.94	0.8200	24712	40	
11	2.19	0.9000	24027	40	
12	2.12	0.8700	23993	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			23726		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
3.00	4.340	0.05	4.34	86.80
3.00	0.050	0.10	4.39	1.00
		0.10	4.39	0.00
		0.10	4.39	0.00
		0.10	4.39	0.00
		0.10	4.39	0.00

Comments

P80 = 17.1
P50 = 12.1
P25 = 8.1
Manual pile sample

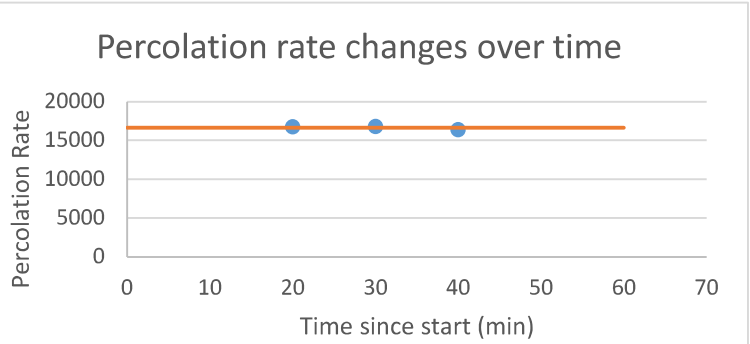
Void ratio

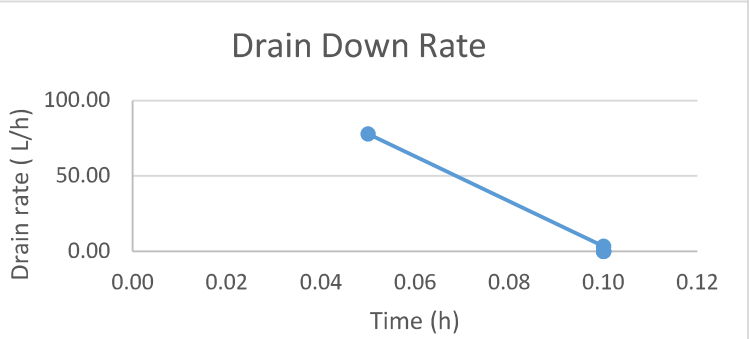
Percolation Rate

Test ID: HLF-ODF May 30 Date: 5/30/2021 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	3.34	0.9400	16454	20	16734
2	3.31	0.9400	16603	20	
3	3.12	0.9100	17052	20	
4	3.44	0.9900	16826	20	
5	3.31	0.9500	16780	30	16778
6	3.31	0.9600	16957	30	
7	3.56	1.0000	16423	30	
8	3.38	0.9800	16951	30	
9	3.38	0.9600	16605	40	16394
10	3.20	0.9100	16626	40	
11	3.44	0.9400	15976	40	
12	71.44	20.0000	16368	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			16635		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
3.00	3.890	0.05	3.89	77.80
3.00	0.170	0.10	4.06	3.40
		0.10	4.06	0.00
		0.10	4.06	0.00
		0.10	4.06	0.00
		0.10	4.06	0.00

Comments

P80 = 18.8
P50 = 13.5
P25 = 4.8
Manual pile sample

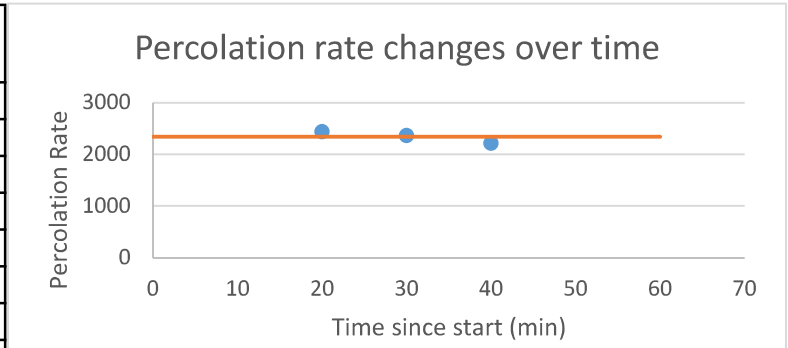
Void ratio

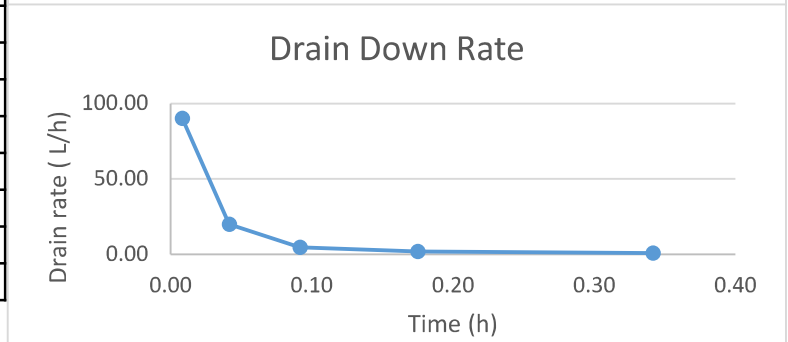
Percolation Rate

Test ID: HLF-ODF May 31 Date: 5/31/2021 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	21.75	0.9000	2419	20	2440
2	22.46	0.9500	2473	20	
3	21.38	0.9100	2488	20	
4	22.37	0.9100	2378	20	
5	21.31	0.8700	2387	30	2364
6	22.50	0.9200	2391	30	
7	23.13	0.9100	2300	30	
8	23.09	0.9400	2380	30	
9	24.46	0.9300	2223	40	2214
10	25.32	0.9600	2217	40	
11	24.84	0.9400	2212	40	
12	24.93	0.9400	2204	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			2339		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.50	0.750	0.01	0.75	90.00
2.00	0.660	0.04	1.41	19.80
3.00	0.230	0.09	1.64	4.60
5.00	0.160	0.18	1.80	1.92
10.00	0.140	0.34	1.94	0.84
15.00	0.120	0.59	2.06	0.48

Comments

P80 = 14.6
P50 = 6.1
P25 = 1.4
Autosampler spot sample. Fine material.

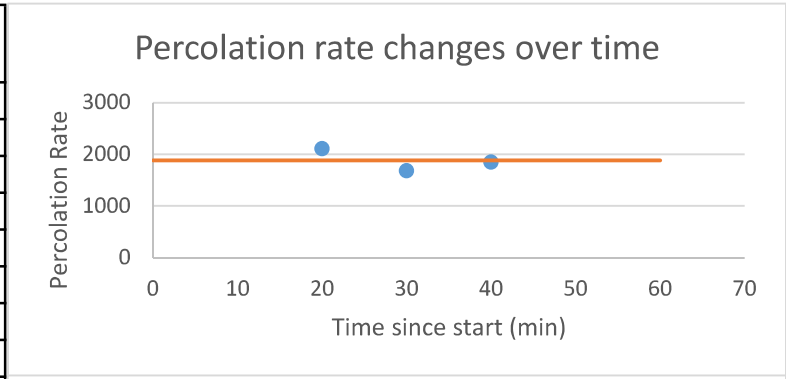
Void ratio

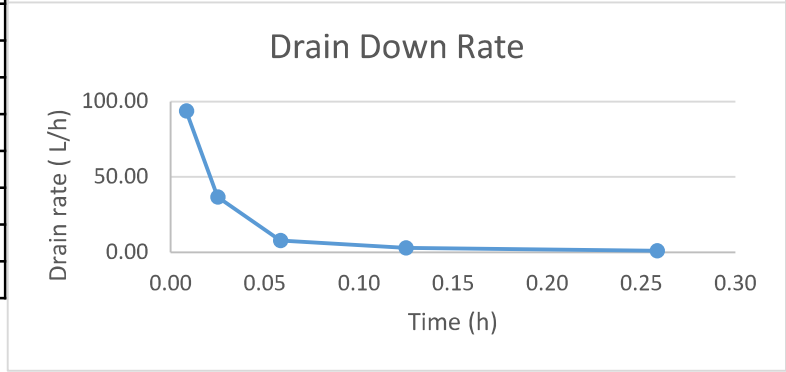
Percolation Rate

Test ID: HLF-ODF June 2 Date: 6/2/2021 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	26.37	0.9600	2128	20	2109
2	27.78	0.9700	2041	20	
3	25.60	0.8900	2033	20	
4	25.13	0.9600	2233	20	
5	29.78	0.8700	1708	30	1683
6	28.91	0.8500	1719	30	
7	32.12	0.9100	1656	30	
8	31.94	0.9000	1647	30	
9	28.34	0.9200	1898	40	1852
10	27.84	0.8900	1869	40	
11	28.10	0.9000	1873	40	
12	27.46	0.8300	1767	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			1881		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.50	0.780	0.01	0.78	93.60
1.00	0.610	0.03	1.39	36.60
2.00	0.260	0.06	1.65	7.80
4.00	0.190	0.13	1.84	2.85
8.00	0.140	0.26	1.98	1.05
8.00	0.080	0.39	2.06	0.60

Comments

P80 = 16.6
P50 = 10.1
P25 = 2.5
Fine material. Manual sample.

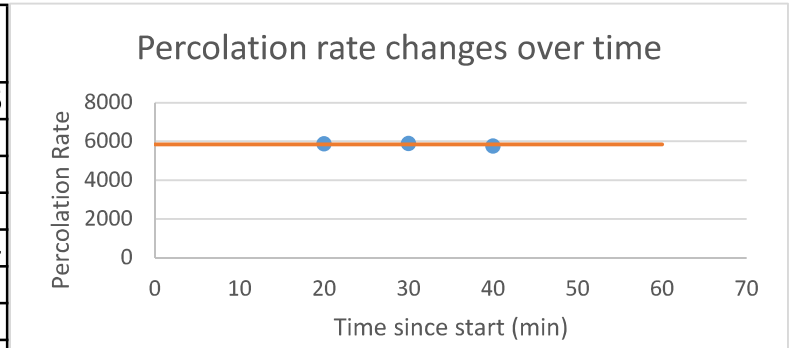
Void ratio

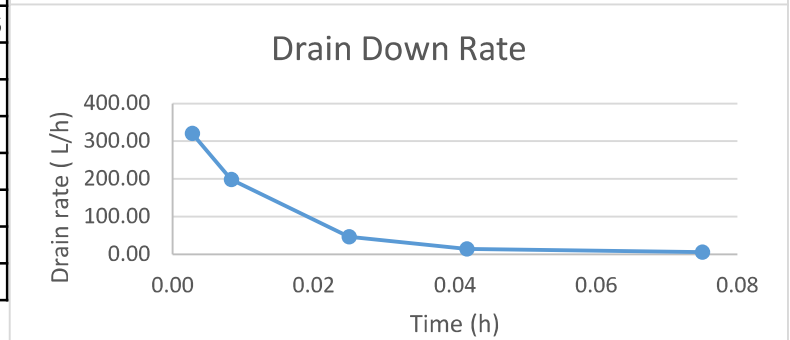
Percolation Rate

Test ID: HLF-ODF June 9 Date: 6/9/2021 By: KC

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	9.47	0.9550	5896	20	5875
2	9.50	0.9500	5847	20	
3	9.78	0.9800	5858	20	
4	9.71	0.9800	5901	20	
5	9.63	0.9600	5828	30	5894
6	9.60	0.9700	5907	30	
7	9.55	0.9700	5938	30	
8	9.71	0.9800	5901	30	
9	9.84	0.9700	5763	40	5756
10	9.87	0.9700	5746	40	
11	9.44	0.9300	5760	40	
12	10.06	0.9900	5754	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			5842		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.17	0.890	0.00	0.89	320.40
0.33	1.100	0.01	1.99	198.00
1.00	0.780	0.03	2.77	46.80
1.00	0.240	0.04	3.01	14.40
2.00	0.200	0.08	3.21	6.00
		0.08	3.21	0.00

Comments

P80 = 15.9
P50 = 9.7
P25 = 2.8
Autosampler.

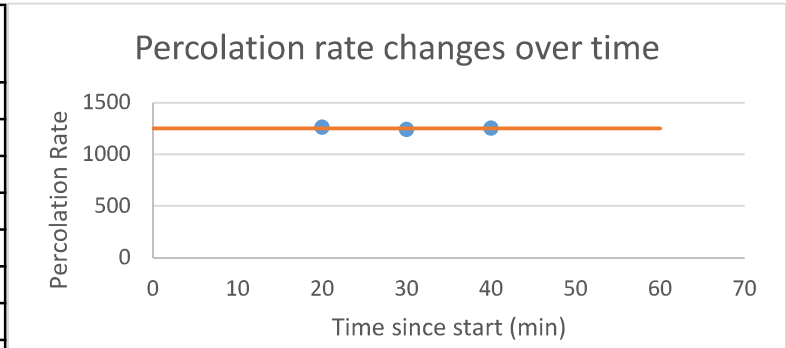
Void ratio

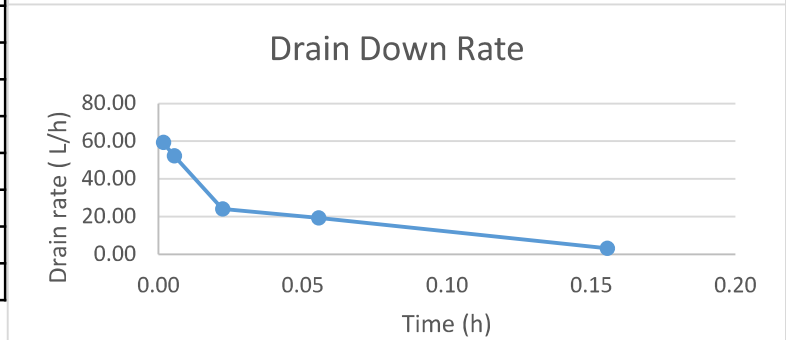
Percolation Rate

Test ID: HLF-ODF June 18 Date: 6/19/2021 By: ZL

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	5.56	0.1160	1220	20	1263
2	8.50	0.1860	1279	20	
3	3.37	0.0770	1336	20	
4	16.47	0.3430	1218	20	
5	22.50	0.4760	1237	30	1240
6	31.22	0.6570	1230	30	
7	39.44	0.8380	1242	30	
8	91.78	1.9610	1249	30	
9	122.59	2.6920	1284	40	1254
10	35.45	0.7580	1250	40	
11	40.91	0.8710	1245	40	
12	60.52	1.2820	1238	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			1252		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.10	0.100	0.00	0.10	59.31
0.23	0.200	0.01	0.30	52.17
1.00	0.400	0.02	0.70	24.00
2.00	0.644	0.06	1.34	19.32
6.00	0.324	0.16	1.67	3.24
		0.16	1.67	0.00

Comments

P80 =
P50 =
P25 =
Autosampler.

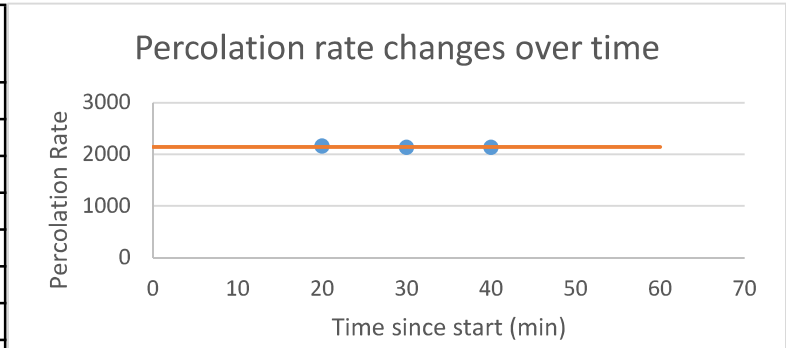
Void ratio

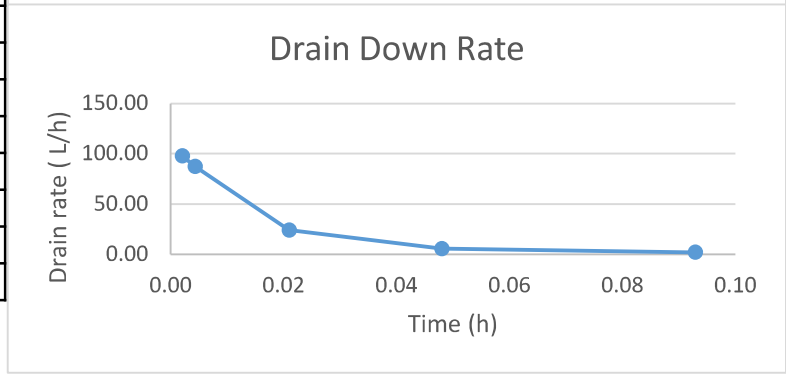
Percolation Rate

Test ID: HLF-ODF June 19 Date: 6/20/2021 By: ZL

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	2.44	0.0930	2228	20	2159
2	6.10	0.2200	2109	20	
3	9.16	0.3370	2151	20	
4	12.00	0.4410	2149	20	
5	23.97	0.8800	2146	30	2135
6	45.85	1.6800	2142	30	
7	63.47	2.3100	2128	30	
8	79.43	2.8840	2123	30	
9	50.21	1.8350	2137	40	2133
10	46.85	1.7040	2126	40	
11	62.73	2.2870	2132	40	
12	58.38	2.1360	2139	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			2142		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.12	0.200	0.00	0.20	97.96
0.14	0.200	0.00	0.40	87.27
1.00	0.400	0.02	0.80	24.00
1.62	0.150	0.05	0.95	5.55
2.69	0.095	0.09	1.05	2.12
		0.09	1.05	0.00

Comments

P80 =
P50 =
P25 =
Autosampler.

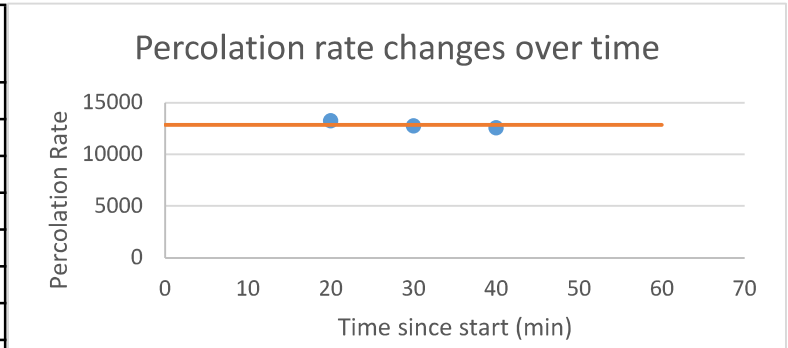
Void ratio

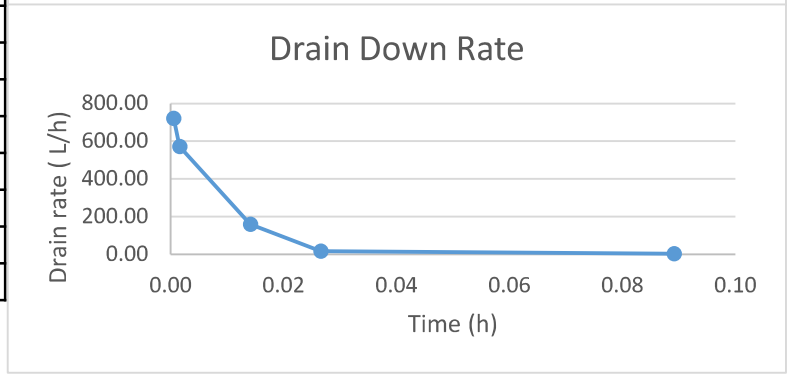
Percolation Rate

Test ID: HLF-ODF June 21 Date: 6/22/2021 By: ZL

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	2.69	0.6100	13258	20	13225
2	1.94	0.4500	13561	20	
3	3.25	0.7200	12952	20	
4	3.63	0.8150	13126	20	
5	2.09	0.4500	12588	30	12756
6	2.91	0.6500	13059	30	
7	4.16	0.9200	12930	30	
8	16.65	3.5450	12448	30	
9	27.13	5.9490	12820	40	12569
10	34.41	7.3170	12432	40	
11	42.12	8.9590	12436	40	
12	36.96	7.9580	12588	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			12850		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.03	0.400	0.00	0.40	720.00
0.06	0.600	0.00	1.00	571.43
0.75	2.000	0.01	3.00	160.00
0.75	0.200	0.03	3.20	16.00
3.75	0.200	0.09	3.40	3.20
		0.09	3.40	0.00

Comments

P80 =
P50 =
P25 =
Autosampler.

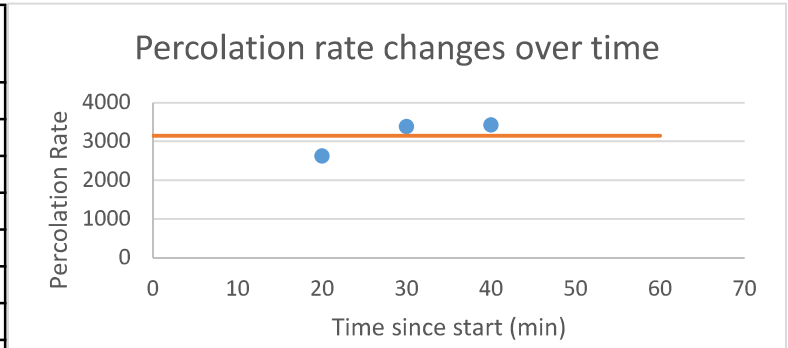
Void ratio

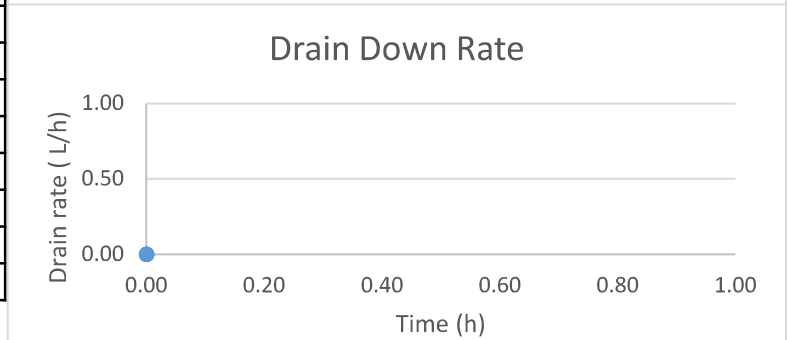
Percolation Rate

Test ID: HLF-ODF June 25 Date: 6/26/2021 By: ZL

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	2.31	0.1350	3417	20	2619
2	4.47	0.2570	3361	20	
3	8.19	0.4710	3362	20	
4	105.00	0.6050	337	20	
5	13.40	0.7750	3381	30	3385
6	15.25	0.8830	3385	30	
7	17.50	1.0110	3378	30	
8	53.28	3.0940	3395	30	
9	18.36	1.0900	3471	40	3427
10	22.45	1.3300	3464	40	
11	13.37	0.7800	3411	40	
12	16.86	0.9700	3364	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			3144		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
		0.00	0.00	0.00
		0.00	0.00	0.00
		0.00	0.00	0.00
		0.00	0.00	0.00
		0.00	0.00	0.00
		0.00	0.00	0.00

Comments

P80 =
P50 =
P25 =
Autosampler.

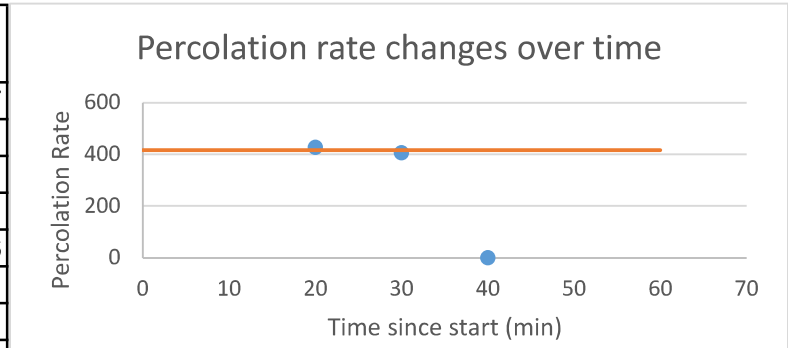
Void ratio

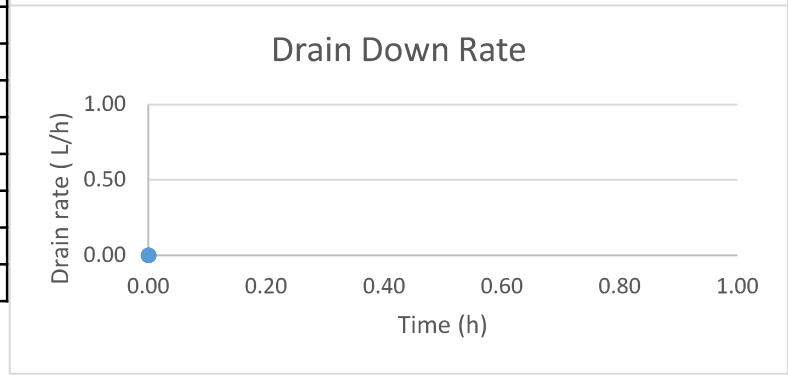
Percolation Rate

Test ID: HLF-ODF July 2 Date: 7/2/2021 By: ZL

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	6.90	0.0510	432	20	427
2	12.28	0.0850	405	20	
3	25.97	0.1870	421	20	
4	44.55	0.3420	449	20	
5	65.18	0.4500	404	30	406
6	43.13	0.3100	420	30	
7	18.28	0.1200	384	30	
8	29.37	0.2100	418	30	
9				40	#DIV/0!
10				40	
11				40	
12				40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			417		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
		0.00	0.00	0.00
		0.00	0.00	0.00
		0.00	0.00	0.00
		0.00	0.00	0.00
		0.00	0.00	0.00
		0.00	0.00	0.00

Comments

P80 =
P50 =
P25 =
Autosampler.

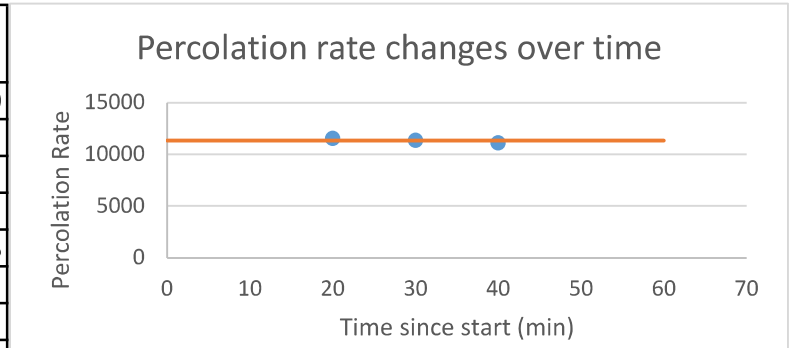
Void ratio

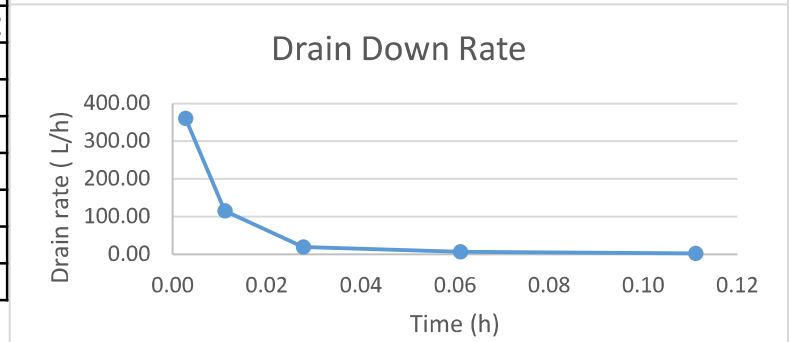
Percolation Rate

Test ID: HLF-ODF July 23 Date: 7/23/2021 By: SH

Percolation Rate

	Time (s)	Volume (L)	L/m2/hr	Time since start (min)	Average per set
1	4.66	0.9200	11542	20	11529
2	4.29	0.8400	11448	20	
3	4.04	0.8000	11577	20	
4	4.81	0.9500	11547	20	
5	4.47	0.8800	11510	30	11358
6	4.59	0.8900	11336	30	
7	4.71	0.9100	11296	30	
8	4.66	0.9000	11292	30	
9	5.03	0.9600	11158	40	11112
10	4.59	0.8700	11082	40	
11	4.66	0.8900	11166	40	
12	5.03	0.9500	11042	40	
13				20	#DIV/0!
14				20	
15				30	
16				40	
Average			11333		





Drain down time

Interval (min)	*Volume (L)*	*Total Time (h)*	*Total Volume (L)*	*Rate (L/h)*
0.17	1.000	0.00	1.00	360.00
0.50	0.960	0.01	1.96	115.20
1.00	0.320	0.03	2.28	19.20
2.00	0.220	0.06	2.50	6.60
3.00	0.140	0.11	2.64	2.80
5.00	0.120	0.19	2.76	1.44

Comments

P80 = 16.3
P50 = 8.3
P25 = 2.2

Void ratio



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APPENDIX B

Daily HLF Solution Information and Ore Placed

HLF Solution Information and Ore Placed

Date	Meas. Level (m)	Free Volume (m3)	Pumpable Vol. (m3)	Total ore placed (DMT)	% Moisture	Moisture volume in ore (m3)
1-Jan-21	930.6	33,151	24,612	31,495	2.35%	740
2-Jan-21	930.1	34,616	23,147	26,370	1.97%	519
3-Jan-21	929.9	35,356	22,407	32,015	2.05%	656
4-Jan-21	929.8	35,530	22,233	14,280	2.32%	331
5-Jan-21	929.7	35,954	21,809	10,343	2.13%	220
6-Jan-21	931.1	31,425	26,338	368	0.00%	0
7-Jan-21	931.8	28,570	29,193	0	0.00%	0
8-Jan-21	931.9	28,407	29,356	0	0.00%	0
9-Jan-21	932.0	27,851	29,912	0	0.00%	0
10-Jan-21	932.0	27,941	29,821	0	0.00%	0
11-Jan-21	931.9	28,243	29,520	0	0.00%	0
12-Jan-21	931.6	29,398	28,365	0	0.00%	0
13-Jan-21	931.3	30,443	27,320	0	0.00%	0
14-Jan-21	931.1	33,223	24,540	0	0.00%	0
15-Jan-21	930.5	33,223	24,540	1,387	2.30%	32
16-Jan-21	930.4	33,599	24,164	1,724	2.30%	40
17-Jan-21	930.2	34,354	23,408	1,805	2.30%	42
18-Jan-21	930.2	34,487	23,276	1,551	2.30%	36
19-Jan-21	929.9	35,201	22,562	2,140	2.30%	49
20-Jan-21	930.1	34,688	23,074	0	0.00%	0
21-Jan-21	930.1	34,636	23,127	0	0.00%	0
22-Jan-21	930.2	34,527	23,236	0	0.00%	0
23-Jan-21	930.2	34,523	23,239	0	0.00%	0
24-Jan-21	930.2	34,527	23,236	0	0.00%	0
25-Jan-21	930.4	33,873	23,890	0	0.00%	0
26-Jan-21	930.4	33,629	24,134	0	0.00%	0
27-Jan-21	930.5	33,387	24,375	0	0.00%	0
28-Jan-21	930.5	33,329	24,434	0	0.00%	0
29-Jan-21	930.6	32,895	24,867	0	0.00%	0
30-Jan-21	930.8	32,171	25,592	0	0.00%	0
31-Jan-21	931.1	31,310	26,453	0	0.00%	0
1-Feb-21	931.1	31,114	26,649	0	2.30%	0
2-Feb-21	931.4	30,321	27,442	0	2.30%	0
3-Feb-21	931.4	30,150	27,613	0	2.30%	0
4-Feb-21	931.6	29,413	28,350	0	2.30%	0
5-Feb-21	931.9	28,430	29,333	0	2.30%	0
6-Feb-21	932.2	26,875	30,888	0	2.30%	0
7-Feb-21	932.2	26,923	30,839	0	2.30%	0
8-Feb-21	932.4	26,381	31,382	0	2.30%	0
9-Feb-21	932.5	25,770	31,993	0	2.30%	0
10-Feb-21	932.7	25,075	32,688	0	2.30%	0
11-Feb-21	932.8	24,467	33,296	0	2.30%	0
12-Feb-21	932.9	24,165	33,598	0	2.30%	0
13-Feb-21	932.9	23,985	33,778	0	2.30%	0
14-Feb-21	933.1	23,467	34,296	2,286	2.30%	53
15-Feb-21	933.1	23,306	34,456	3,295	2.30%	76
16-Feb-21	933.2	22,883	34,880	469	2.30%	11
17-Feb-21	933.2	18,218	39,545	10,449	2.65%	277
18-Feb-21	934.2	18,218	39,545	16,349	2.30%	376
19-Feb-21	935.6	10,931	46,832	10,173	2.00%	203
20-Feb-21	935.7	10,594	47,168	14,786	2.30%	340
21-Feb-21	935.0	14,419	43,344	1,924	2.30%	44
22-Feb-21	934.6	16,340	41,423	347	2.30%	8
23-Feb-21	934.5	16,883	40,880	20,208	2.70%	546
24-Feb-21	934.4	17,191	40,571	21,033	2.30%	484

Date	Meas. Level (m)	Free Volume (m3)	Pumpable Vol. (m3)	Total ore placed (DMT)	% Moisture	Moisture volume in ore (m3)
25-Feb-21	934.4	17,498	40,264	15,246	2.30%	351
26-Feb-21	934.5	16,809	40,954	11,444	2.20%	252
27-Feb-21	934.5	16,666	41,097	18,248	2.50%	456
28-Feb-21	934.5	16,582	41,181	23,017	3.20%	737
1-Mar-21	934.7	15,882	41,881	16,660	2.30%	383
2-Mar-21	935.0	14,188	43,575	16,202	2.30%	373
3-Mar-21	935.3	12,493	45,269	20,130	1.73%	347
4-Mar-21	935.5	11,738	46,024	27,111	2.80%	759
5-Mar-21	935.4	11,979	45,784	13,697	3.75%	514
6-Mar-21	935.4	12,176	45,587	16,834	1.50%	252
7-Mar-21	935.4	11,979	45,784	22,120	1.40%	310
8-Mar-21	936.0	9,008	48,755	33,648	1.10%	370
9-Mar-21	936.4	6,781	50,982	1,007	2.30%	23
10-Mar-21	936.7	5,044	52,719	2,245	2.30%	52
11-Mar-21	936.4	6,717	51,045	21,871	0.90%	197
12-Mar-21	936.5	6,289	51,473	24,343	1.68%	408
13-Mar-21	936.3	7,171	50,592	23,221	2.10%	488
14-Mar-21	936.0	8,980	48,783	29,503	2.23%	659
15-Mar-21	935.2	13,474	44,289	20,119	1.00%	201
16-Mar-21	935.4	12,314	45,449	24,392	2.05%	500
17-Mar-21	935.1	13,526	44,237	26,666	2.40%	640
18-Mar-21	934.8	15,385	42,378	30,724	2.33%	714
19-Mar-21	934.5	16,981	40,782	8,269	2.30%	190
20-Mar-21	934.3	18,006	39,756	23,841	2.03%	485
21-Mar-21	934.1	18,700	39,062	27,477	1.16%	319
22-Mar-21	934.1	18,719	39,043	22,381	1.52%	340
23-Mar-21	934.1	18,890	38,873	29,005	2.00%	580
24-Mar-21	934.1	18,947	38,816	22,842	1.35%	308
25-Mar-21	934.1	18,772	38,991	26,697	2.47%	659
26-Mar-21	934.1	18,696	39,067	25,941	2.37%	614
27-Mar-21	934.1	18,619	39,143	27,719	2.75%	762
28-Mar-21	934.2	18,266	39,497	27,718	4.00%	1,109
29-Mar-21	934.6	16,429	41,334	20,781	2.00%	416
30-Mar-21	935.0	14,398	43,364	23,415	2.00%	468
31-Mar-21	936.1	8,380	49,382	1,177	2.30%	27
1-Apr-21	936.5	5,859	51,904	8,197	1.60%	131
2-Apr-21	937.3	1,094	56,669	12,464	1.35%	168
3-Apr-21	936.2	7,946	49,817	26,767	1.20%	321
4-Apr-21	934.7	15,681	42,082	29,068	1.74%	506
5-Apr-21	933.2	22,760	35,003	28,535	1.74%	497
6-Apr-21	932.1	27,646	30,117	27,921	2.97%	828
7-Apr-21	931.2	30,935	26,827	32,997	2.25%	742
8-Apr-21	930.4	33,765	23,998	27,545	2.58%	711
9-Apr-21	930.0	35,178	22,584	22,313	1.93%	431
10-Apr-21	929.8	35,651	22,111	9,085	4.00%	363
11-Apr-21	929.7	35,900	21,863	17,674	1.44%	255
12-Apr-21	929.7	36,033	21,730	12,008	4.00%	480
13-Apr-21	929.8	35,728	22,035	16,805	1.95%	328
14-Apr-21	930.0	34,954	22,809	8,565	1.60%	137
15-Apr-21	930.4	33,829	23,934	14,770	1.20%	177
16-Apr-21	931.3	30,591	27,172	29,602	2.10%	622
17-Apr-21	932.9	24,361	33,402	38,250	1.50%	574
18-Apr-21	934.4	17,245	40,518	31,886	4.00%	1,275
19-Apr-21	935.4	12,176	45,587	35,222	1.45%	511
20-Apr-21	935.9	9,297	48,466	20,538	1.23%	253

Date	Meas. Level (m)	Free Volume (m3)	Pumpable Vol. (m3)	Total ore placed (DMT)	% Moisture	Moisture volume in ore (m3)
21-Apr-21	936.2	7,753	50,010	35,109	1.04%	365
22-Apr-21	935.7	10,529	47,234	37,164	2.33%	864
23-Apr-21	935.1	13,811	43,951	24,404	1.93%	472
24-Apr-21	934.7	15,601	42,162	28,927	1.03%	299
25-Apr-21	934.4	17,284	40,479	30,948	4.05%	1,253
26-Apr-21	933.7	20,501	37,262	27,047	1.68%	453
27-Apr-21	933.2	23,071	34,692	10,269	2.05%	211
28-Apr-21	932.6	25,242	32,521	39,068	1.82%	710
29-Apr-21	931.9	28,403	29,360	29,082	1.95%	567
30-Apr-21	931.1	31,172	26,591	33,048	1.62%	534
1-May-21	931.0	31,745	26,018	30,536	2.34%	715
2-May-21	930.3	34,027	23,736	18,289	1.13%	206
3-May-21	929.8	35,565	22,198	26,195	1.55%	406
4-May-21	928.5	39,641	18,122	24,842	2.43%	604
5-May-21	926.7	44,107	13,656	22,704	3.82%	867
6-May-21	926.1	45,542	12,221	27,767	2.63%	731
7-May-21	926.7	44,105	13,658	20,734	2.30%	477
8-May-21	926.6	44,485	13,278	29,435	2.07%	608
9-May-21	926.1	45,388	12,375	19,089	2.30%	439
10-May-21	926.5	44,523	13,239	31,577	2.10%	663
11-May-21	929.1	37,975	19,787	26,739	3.20%	856
12-May-21	930.6	33,165	24,598	17,795	2.30%	409
13-May-21	931.1	31,284	26,479	31,843	3.36%	1,070
14-May-21	931.3	30,701	27,062	16,507	1.70%	281
15-May-21	931.2	30,870	26,893	23,491	1.43%	337
16-May-21	931.0	31,502	26,261	26,116	1.75%	457
17-May-21	931.1	31,237	26,526	13,842	2.30%	318
18-May-21	931.1	31,364	26,399	24,329	2.30%	560
19-May-21	931.0	31,737	26,025	22,811	2.72%	622
20-May-21	930.9	31,994	25,769	14,794	2.77%	409
21-May-21	930.9	31,859	25,904	19,504	2.30%	449
22-May-21	931.5	29,647	28,115	23,918	3.14%	751
23-May-21	932.7	25,108	32,654	36,679	2.22%	814
24-May-21	933.2	22,861	34,902	29,252	2.33%	683
25-May-21	933.0	23,519	34,244	24,649	2.60%	641
26-May-21	932.9	24,148	33,615	26,058	1.77%	460
27-May-21	933.0	23,778	33,984	33,050	1.18%	391
28-May-21	933.3	22,473	35,290	22,230	2.10%	467
29-May-21	933.5	21,404	36,359	28,005	4.00%	1,120
30-May-21	933.7	20,432	37,331	29,556	2.96%	875
31-May-21	933.6	21,068	36,694	25,869	4.45%	1,151
1-Jun-21	933.2	22,944	34,819	20,121	4.00%	805
2-Jun-21	932.7	24,978	32,785	26,168	2.97%	776
3-Jun-21	932.1	27,336	30,427	13,397	1.93%	259
4-Jun-21	931.9	28,243	29,520	27,427	3.52%	965
5-Jun-21	931.1	31,259	26,504	35,095	1.06%	371
6-Jun-21	930.8	32,425	25,338	39,223	2.25%	883
7-Jun-21	929.8	35,562	22,201	23,816	2.68%	639
8-Jun-21	929.1	37,851	19,912	31,302	2.03%	634
9-Jun-21	928.6	39,358	18,405	19,575	1.63%	320
10-Jun-21	928.2	40,330	17,433	25,609	1.40%	359
11-Jun-21	928.9	38,425	19,338	28,750	2.35%	676
12-Jun-21	929.4	36,788	20,975	14,350	1.75%	251
13-Jun-21	929.9	35,356	22,407	39,584	1.88%	746
14-Jun-21	929.6	36,178	21,585	35,422	1.62%	574

Date	Meas. Level (m)	Free Volume (m3)	Pumpable Vol. (m3)	Total ore placed (DMT)	% Moisture	Moisture volume in ore (m3)
15-Jun-21	928.5	39,467	18,295	25,410	0.00%	0
16-Jun-21	928.1	40,761	17,001	22,581	1.45%	327
17-Jun-21	926.8	43,944	13,818	16,023	1.27%	203
18-Jun-21	926.0	45,781	11,982	27,324	1.35%	369
19-Jun-21	925.9	45,828	11,935	26,774	4.00%	1,071
20-Jun-21	927.0	43,440	14,323	30,595	1.65%	505
21-Jun-21	927.5	42,241	15,522	28,841	2.30%	663
22-Jun-21	926.9	43,592	14,171	34,674	2.06%	714
23-Jun-21	928.2	40,512	17,251	34,076	1.50%	511
24-Jun-21	928.4	39,977	17,786	21,557	2.30%	496
25-Jun-21	928.8	38,753	19,010	22,913	1.55%	355
26-Jun-21	929.3	37,216	20,547	47,740	1.68%	802
27-Jun-21	929.8	35,715	22,047	40,941	1.12%	457
28-Jun-21	930.2	34,537	23,226	38,446	2.20%	846
29-Jun-21	930.5	33,452	24,311	41,908	1.60%	671
30-Jun-21	930.3	33,926	23,836	43,670	2.17%	946
1-Jul-21	930.1	34,793	22,969	42,785	1.96%	839
2-Jul-21	929.6	36,444	21,319	38,093	1.60%	609
3-Jul-21	928.9	38,553	19,210	25,739	1.72%	444
4-Jul-21	929.5	36,553	21,210	31,950	2.50%	799
5-Jul-21	929.7	35,938	21,825	46,879	2.04%	958
6-Jul-21	929.7	35,938	21,825	37,332	1.50%	560
7-Jul-21	930.8	32,199	25,563	57,748	2.63%	1,521
8-Jul-21	931.3	30,554	27,209	42,835	5.70%	2,442
9-Jul-21	932.0	27,839	29,924	33,642	3.20%	1,077
10-Jul-21	933.1	23,228	34,535	30,130	2.68%	808
11-Jul-21	933.8	20,183	37,580	46,642	1.80%	840
12-Jul-21	933.7	20,634	37,128	43,693	2.10%	918
13-Jul-21	933.3	22,269	35,494	20,177	2.30%	464
14-Jul-21	932.7	25,159	32,604	41,244	1.76%	726
15-Jul-21	932.3	26,653	31,110	62,252	2.22%	1,380
16-Jul-21	931.1	31,248	26,515	43,486	2.98%	1,296
17-Jul-21	930.4	33,744	24,019	46,162	1.51%	697
18-Jul-21	930.3	34,168	23,595	39,051	1.88%	734
19-Jul-21	930.4	33,636	24,127	36,669	2.08%	764
20-Jul-21	930.0	34,947	22,815	51,170	1.78%	911
21-Jul-21	929.7	35,941	21,822	35,092	2.30%	807
22-Jul-21	928.2	40,528	17,235	32,311	3.77%	1,217
23-Jul-21	926.7	44,107	13,656	40,032	1.74%	697
24-Jul-21	926.6	44,496	13,266	36,906	2.37%	873
25-Jul-21	927.6	42,064	15,699	35,951	2.77%	995
26-Jul-21	929.7	36,036	21,727	36,851	3.13%	1,152
27-Jul-21	929.6	36,353	21,410	33,480	2.30%	770
28-Jul-21	929.4	36,353	21,410	38,148	2.13%	814
29-Jul-21	928.9	38,340	19,422	29,704	3.75%	1,114
30-Jul-21	931.2	30,979	26,784	38,118	1.37%	521
31-Jul-21	931.5	29,625	28,138	42,427	1.67%	707
1-Aug-21	929.7	36,004	21,759	39,893	2.82%	1,124
2-Aug-21	928.4	39,783	17,980	29,940	1.97%	591
3-Aug-21	928.8	38,715	19,047	33,100	2.60%	861
4-Aug-21	928.6	39,358	18,405	36,311	2.24%	813
5-Aug-21	927.8	41,458	16,305	47,595	1.93%	920
6-Aug-21	928.4	39,877	17,886	34,809	2.10%	731
7-Aug-21	928.4	39,877	17,886	38,937	1.97%	766
8-Aug-21	929.5	36,521	21,241	42,430	2.77%	1,177

Date	Meas. Level (m)	Free Volume (m3)	Pumpable Vol. (m3)	Total ore placed (DMT)	% Moisture	Moisture volume in ore (m3)
9-Aug-21	930.0	34,918	22,845	41,281	4.00%	1,651
10-Aug-21	931.3	30,638	27,124	36,907	3.33%	1,230
11-Aug-21	931.6	29,284	28,479	26,921	2.40%	646
12-Aug-21	931.5	29,881	27,882	22,548	3.20%	722
13-Aug-21	930.8	32,217	25,546	23,556	4.64%	1,093
14-Aug-21	930.5	33,479	24,283	28,250	5.35%	1,511
15-Aug-21	930.5	33,363	24,399	49,656	2.40%	1,192
16-Aug-21	930.5	33,418	24,345	58,988	2.38%	1,406
17-Aug-21	930.4	33,741	24,022	53,366	1.78%	952
18-Aug-21	930.7	32,554	25,209	54,849	4.00%	2,194
19-Aug-21	930.4	33,707	24,056	41,782	3.10%	1,295
20-Aug-21	929.9	35,417	22,345	31,934	2.20%	703
21-Aug-21	929.8	35,600	22,162	52,735	4.32%	2,276
22-Aug-21	929.6	36,462	21,300	33,569	3.00%	1,007
23-Aug-21	929.2	37,630	20,133	18,115	0.00%	0
24-Aug-21	928.7	39,028	18,734	32,601	0.00%	0
25-Aug-21	929.2	37,504	20,259	33,351	2.15%	717
26-Aug-21	929.9	35,443	22,320	39,213	3.07%	1,203
27-Aug-21	930.1	34,843	22,920	24,626	0.00%	0
28-Aug-21	929.8	35,565	22,198	24,179	0.00%	0
29-Aug-21	929.5	36,667	21,096	42,189	2.17%	914
30-Aug-21	929.0	38,261	19,501	21,803	2.74%	597
31-Aug-21	927.9	41,102	16,661	45,026	2.04%	919
1-Sep-21	928.0	40,956	16,807	30,155	1.58%	476
2-Sep-21	928.8	38,655	19,108	32,452	2.93%	952
3-Sep-21	929.9	35,311	22,452	11,345	2.30%	261
4-Sep-21	929.9	35,304	22,458	31,713	2.35%	745
5-Sep-21	929.4	36,966	20,797	26,232	2.00%	525
6-Sep-21	929.2	37,678	20,085	39,734	2.42%	960
7-Sep-21	928.3	40,012	17,750	32,328	2.30%	744
8-Sep-21	928.0	41,022	16,741	33,507	2.60%	871
9-Sep-21	927.2	42,998	14,764	32,752	2.00%	655
10-Sep-21	926.7	44,208	13,554	25,759	2.62%	676
11-Sep-21	930.1	34,767	22,996	33,264	1.70%	565
12-Sep-21	928.1	40,544	17,219	28,658	2.92%	838
13-Sep-21	925.0	47,779	9,983	32,681	4.00%	1,307
14-Sep-21	929.3	37,085	20,678	33,461	2.50%	837
15-Sep-21	926.8	43,989	13,774	41,841	2.70%	1,130
16-Sep-21	926.1	45,539	12,223	26,099	4.00%	1,044
17-Sep-21	925.5	46,686	11,077	32,525	4.00%	1,301
18-Sep-21	925.3	47,208	10,554	45,009	3.10%	1,395
19-Sep-21	925.4	46,934	10,829	43,181	2.68%	1,155
20-Sep-21	926.0	45,681	12,082	32,984	2.83%	935
21-Sep-21	925.9	45,916	11,846	31,019	4.00%	1,241
22-Sep-21	926.9	43,582	14,180	30,774	4.00%	1,231
23-Sep-21	928.5	39,523	18,239	28,630	2.65%	759
24-Sep-21	928.6	39,182	18,581	23,097	3.00%	693
25-Sep-21	929.3	37,125	20,638	36,766	3.65%	1,342
26-Sep-21	929.8	35,562	22,201	30,137	2.00%	603
27-Sep-21	930.3	33,980	23,783	20,544	2.00%	411
28-Sep-21	930.1	34,734	23,028	19,089	2.30%	439
29-Sep-21	929.9	35,430	22,333	24,279	2.03%	494
30-Sep-21	929.4	36,920	20,843	23,515	4.00%	941
1-Oct-21	929.0	38,035	19,728	25,856	2.30%	595
2-Oct-21	928.8	38,787	18,975	28,388	3.28%	932

Date	Meas. Level (m)	Free Volume (m3)	Pumpable Vol. (m3)	Total ore placed (DMT)	% Moisture	Moisture volume in ore (m3)
3-Oct-21	929.0	38,070	19,693	32,956	2.12%	698
4-Oct-21	928.9	38,364	19,399	30,617	2.58%	790
5-Oct-21	929.2	37,546	20,217	17,101	2.95%	504
6-Oct-21	932.7	25,150	32,613	37,905	3.12%	1,183
7-Oct-21	931.8	28,508	29,255	25,563	2.03%	518
8-Oct-21	930.7	32,722	25,041	13,310	1.70%	226
9-Oct-21	930.0	34,928	22,835	36,106	2.48%	897
10-Oct-21	929.9	35,275	22,487	43,538	3.60%	1,567
11-Oct-21	929.8	35,798	21,965	32,923	2.46%	810
12-Oct-21	929.8	35,642	22,121	12,901	2.00%	258
13-Oct-21	930.0	34,967	22,796	30,190	2.83%	855
14-Oct-21	929.8	35,728	22,035	27,754	2.82%	782
15-Oct-21	929.5	36,568	21,195	21,168	2.70%	572
16-Oct-21	929.3	37,256	20,507	27,824	2.82%	784
17-Oct-21	929.0	38,002	19,761	20,814	2.30%	479
18-Oct-21	927.6	42,082	15,681	33,803	2.20%	744
19-Oct-21	927.2	43,030	14,733	34,891	2.16%	754
20-Oct-21	927.3	42,808	14,955	29,884	2.16%	646
21-Oct-21	928.0	40,982	16,780	42,765	4.60%	1,967
22-Oct-21	928.9	38,367	19,396	39,607	3.50%	1,386
23-Oct-21	928.8	38,576	19,186	27,291	2.30%	628
24-Oct-21	929.1	37,776	19,987	34,986	3.68%	1,287
25-Oct-21	929.2	37,498	20,265	35,123	4.43%	1,557
26-Oct-21	929.4	36,871	20,892	42,332	2.63%	1,111
27-Oct-21	929.1	37,901	19,862	31,183	1.60%	499
28-Oct-21	928.3	40,237	17,525	42,944	1.40%	601
29-Oct-21	926.9	43,776	13,987	27,616	1.32%	366
30-Oct-21	925.8	46,055	11,708	41,453	2.80%	1,161
31-Oct-21	926.2	45,334	12,429	35,184	2.55%	897
1-Nov-21	926.2	45,273	12,490	35,284	2.53%	893
2-Nov-21	926.2	45,273	12,490	39,722	2.17%	861
3-Nov-21	930.4	33,737	24,025	45,839	2.10%	963
4-Nov-21	932.6	25,351	32,412	23,193	3.50%	812
5-Nov-21	934.9	14,848	42,915	41,006	3.23%	1,326
6-Nov-21	933.3	22,269	35,494	32,666	2.98%	972
7-Nov-21	930.5	26,855	30,908	29,789	2.68%	798
8-Nov-21	928.1	40,536	17,227	30,482	2.18%	666
9-Nov-21	926.0	45,623	12,140	28,648	1.49%	427
10-Nov-21	926.2	45,220	12,542	27,096	2.03%	551
11-Nov-21	926.8	43,951	13,811	34,109	2.56%	874
12-Nov-21	927.0	43,461	14,302	29,906	2.63%	788
13-Nov-21	927.3	42,731	15,031	17,450	2.30%	401
14-Nov-21	929.6	36,437	21,325	37,822	3.98%	1,507
15-Nov-21	929.3	37,256	20,507	21,306	4.00%	852
16-Nov-21	930.4	33,737	24,025	31,799	4.00%	1,272
17-Nov-21	931.0	31,655	26,108	33,540	2.30%	771
18-Nov-21	931.7	29,066	28,697	26,685	2.30%	614
19-Nov-21	932.2	26,887	30,876	30,491	4.00%	1,220
20-Nov-21	932.7	24,940	32,822	22,488	2.30%	517
21-Nov-21	933.4	22,135	35,627	24,646	3.13%	772
22-Nov-21	933.3	22,211	35,552	37,500	3.25%	1,219
23-Nov-21	933.4	22,140	35,623	38,561	2.83%	1,093
24-Nov-21	934.1	18,814	38,948	31,345	3.60%	1,128
25-Nov-21	933.8	20,136	37,626	22,195	2.77%	614
26-Nov-21	933.6	20,964	36,799	11,697	1.90%	222

Date	*Meas. Level (m)*	*Free Volume (m3)*	*Pumpable Vol. (m3)*	*Total ore placed (DMT)*	*% Moisture*	*Moisture volume in ore (m3)*
27-Nov-21	933.5	21,512	36,251	45,262	2.30%	1,041
28-Nov-21	933.3	22,455	35,308	25,049	3.30%	827
29-Nov-21	933.2	22,645	35,118	19,818	4.67%	925
30-Nov-21	932.9	24,122	33,641	26,042	2.50%	651
1-Dec-21	933.4	22,135	35,627	28,804	2.76%	796
2-Dec-21	933.2	22,689	35,074	29,154	1.70%	495
3-Dec-21	933.2	22,948	34,814	20,561	3.05%	627
4-Dec-21	933.1	23,259	34,504	14,100	3.41%	481
5-Dec-21	933.3	22,552	35,210	8,215	2.96%	243
6-Dec-21	933.4	22,153	35,610	17,287	2.78%	480
7-Dec-21	933.2	23,023	34,740	16,619	4.03%	670
8-Dec-21	933.2	22,904	34,858	36,200	2.33%	843
9-Dec-21	933.1	23,198	34,565	11,322	2.30%	260
10-Dec-21	932.7	24,982	32,780	16,277	3.88%	632
11-Dec-21	933.3	22,313	35,450	24,996	3.18%	795
12-Dec-21	932.9	24,280	33,483	31,996	2.49%	798
13-Dec-21	931.5	29,753	28,010	28,524	2.84%	810
14-Dec-21	930.3	34,047	23,715	23,275	4.00%	931
15-Dec-21	929.8	35,773	21,990	17,550	3.49%	613
16-Dec-21	929.5	36,658	21,105	21,012	2.77%	582
17-Dec-21	929.3	37,322	20,440	33,039	2.18%	721
18-Dec-21	929.2	37,531	20,232	22,033	2.07%	457
19-Dec-21	931.1	31,150	26,613	15,904	2.65%	421
20-Dec-21	932.4	26,352	31,411	36,743	1.77%	649
21-Dec-21	931.7	28,859	28,904	26,872	2.84%	764
22-Dec-21	930.7	32,655	25,107	22,358	2.31%	517
23-Dec-21	929.9	35,279	22,484	23,139	2.67%	619
24-Dec-21	929.6	36,337	21,425	17,998	2.22%	400
25-Dec-21	929.4	36,880	20,883	19,007	2.50%	474
26-Dec-21	929.3	37,338	20,425	13,558	1.73%	235
27-Dec-21	929.4	36,948	20,815	6,101	2.30%	140
28-Dec-21	929.7	36,108	21,654	9,946	2.30%	229
29-Dec-21	929.3	37,158	20,604	9,153	2.30%	211
30-Dec-21	930.5	33,274	24,488	35,306	2.30%	812
31-Dec-21	931.6	29,534	28,229	36,853	1.84%	677

Victoria GOLD CORP

Eagle Gold
Streamflow Monitoring Report – 2021 Update



Project No. A610-1
25 March 2022

LORAX ENVIRONMENTAL

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1. Introduction



1. Introduction

1.1 Scope of Report

This report presents a summary of all streamflow data (i.e., baseline, construction and operational data) collected for the Eagle Gold Project (Project) since August 2007, including hydrometric information summarized in previous reports (Jacques Whitford 2008; Stantec 2010; Stantec 2011; Stantec 2012; Knight Piésold 2013, Lorax 2017, Lorax 2018, Lorax 2019, Lorax 2020, and Lorax 2021).

An overview of the streamflow monitoring program is provided in Section 2. Methods for the measurement of streamflow and stage (both spot and continuous) are presented in Section 3, along with the approach used to develop the rating curves for each station, the paired stage-discharge measurements and associated rating curve error. Stage record corrections (*e.g.,* due to station relocation, frost jacking of the staff gauge, channel aggradation, *etc*.) are also presented.

In Section 4, streamflow data are presented in the following formats:

- Monthly tables showing average, maximum and minimum 15-minute discharge values (m^3/s);
- Monthly tables showing average discharge (m^3/s), average unit yields ($L/s/km^2$) and total runoff (mm);
- Time-series plots of continous average daily discharge (m^3/s) and spot flow measurements (m^3/s), and;
- Time series plots of average daily unit yields ($L/s/km^2$), by year.

1.2 Previous Reports

The streamflow data collected at the Eagle Gold Project site from 2007 up to and including 2018, has been previously summarized in the following reports:

- *Dublin Gulch Project – Climate and Hydrology Environmental Baseline Report* (2008), prepared by Jacques Whitford AXYS (Burnaby, BC) for Strata Gold Corp. (Vancouver, BC).
- *Eagle Gold Project, Environmental Baseline Report: Hydrology* (2010), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., February 2010.

- *Eagle Gold Project, Environmental Data Summary Report: Hydrology 2011 Update* (2011), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2011.
- *Eagle Gold Project, Surface Water Balance Model Report* (2011), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2011.
- *Eagle Gold Project, Environmental Baseline Data Report: Hydrology 2011 Update* (2012), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2012.
- *Victoria Gold Corp., Eagle Gold Project – Hydrology Baseline Data Summary. VA101-290/6-10*, prepared by Knight Piésold Ltd. (Vancouver, BC) for Victoria Gold Corp., August 2013.
- *Victoria Gold Corp., Eagle Gold Project – Indirect Discharge Measurement at W-29 and Repair of Stream gauges at W-22, W-5 and W-29* (2013), prepared by Laberge Environmental Services (Whitehorse, YT) for Victoria Gold Corp., September 2013.
- *Victoria Gold Corp., Eagle Gold Project – Hydrology Baseline Report* (2017), prepared by Lorax Environmental Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2017.
- *Victoria Gold Corp. Eagle Gold Project – Hydrometeorology Report.* A413-3, prepared by Lorax Environmental Services Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2017.
- *Victoria Gold Corp., Eagle Gold Project – Hydrology Baseline Report* (2018), prepared by Lorax Environmental Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2018.
- *Victoria Gold Corp., Eagle Gold Project – Streamflow Monitoring Report* (2019), prepared by Lorax Environmental Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2019.
- *Victoria Gold Corp., Eagle Gold Project – Streamflow Monitoring Report – 2019 Update* (2020), prepared by Lorax Environmental Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2020.
- *Victoria Gold Corp., Eagle Gold Project – Streamflow Monitoring Report – 2020 Update* (2021), prepared by Lorax Environmental Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2021.

1.3 Project Area Characteristics

The majority of the Project site lies within the Dublin Gulch watershed, a second order tributary to the larger Haggart Creek watershed, which is a major tributary of the South McQuesten River. The South McQuesten River joins the Stewart River, which flows west to its eventual confluence with the Yukon River.

The hydrology of the region is characterized by a dominant snowmelt driven freshet signature, which typically peaks between early May and early June. The recession limb of the freshet hydrograph tapers to a lower summer flow regime reflective of groundwater primarily, which is punctuated by periodic rainfall driven runoff events, typically one to four days in duration. Base flows are lowest in the winter and flow sub-ice; in the smaller creeks, groundwater is depleted in the winter and no flow conditions under the ice are typical of second and third order tributaries.

In larger tributaries, groundwater discharge maintains limited amounts of streamflow below the ice throughout the winter (*i.e.,* November through end March). Aufeis (*i.e.,* groundwater that seeps and freezes onto- and adjacent to local watercourses) is present in several places throughout streams at the Project site. As with shelf ice in the streams, aufeis melts during the freshet, but may in some cases persist into the early summer.

Historical placer mining activities in the Project site streams have altered the natural channel conditions, and in some cases, have also altered the drainage areas of several sub-watersheds. More information is provided in Stantec (2012) as it relates to placer mining near the Project.

2. Streamflow Monitoring Program

Victoria GOLD CORP

2. Streamflow Monitoring Program

2.1 Data Sources

Data collection was originally undertaken by Hallam Knight Piésold (1993 to 1995), then a new program was initiated in 2007 by Jacques Whitford AXYS (now Stantec Consulting Ltd., or Stantec). Field support for this program was provided by Laberge Environmental Services (Laberge), through to 2018. All streamflow data collected at the Project site up to the end of 2018 has been previously summarized in the reports per Section 1.2.

Laberge continued to participate in the field program, conducting field visits with Victoria Gold staff during freshet and early summer. Since then, Victoria Gold site staff have assumed all hydrometric monitoring activities, with the exception of routine benchmark levelling surveys which were conducted by Laberge in the autumn of 2021. Initial QA/QC of the streamflow data collected in 2021 and associated development and updates of rating curves were undertaken by Lorax Environmental. At the time report preparation, there are eleven continuously recording hydrometric stations operating at the Project site. Of these, continuous data for ten stations are presented in this report, including the W99 station which was installed on Haggart Creek downstream of all Project activity in 2019. The eleventh station, W45, has only a water level record for 2018 through 2020, as the stage and discharge record is not sufficient at this time to develop a preliminary rating curve and a continuous discharge record. A rating curve and continuous discharge time-series will be developed for this station and reported once sufficient data exists with which to do so.

2.2 Project Site Hydrometric Stations

The number of continuously recording hydrometric stations has varied over the period of record, but nine of the eleven stations presented in this report update have the most complete records (the ninth, W21, was installed in 2018, and the tenth, W99 was installed in 2019). In addition, several more stations are monitored as required by the Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP) and Water Use Licence QZ14-041-1. The continuous hydrometric stations and the associated metadata are presented in Table 2-1 and shown in Figure 2-1, while the additional spot flow stations are described in Table 2-2.

Additional manual streamflow measurements have been collected (often concurrently with water quality samples) at an additional 20 locations at the Project site. Previously collected continuous streamflow records for the Eagle Creek Pond (WECP), W13, W20 and W31 stations span shorter durations (1 to 3 years), and are presented in previous reports.

Table 2-1:
Eagle Gold Project continuous hydrometric stations

Station ID	Station Name	Record Period	Northing	Easting	Drainage Area (km^2)	Median Basin Elevation (m)	Notes
W1	Dublin Gulch above Stewart Gulch	2007 – 2021	7,101,545	460,249	7.0	1,303	Continuous discharge time-series 2021 logging period: Jul 5 to Oct 4
W4	Haggart Creek below Dublin Gulch	2007 – 2021	7,101,223	458,144	76.8	1,125	Continuous discharge time-series 2021 logging period: Apr 19 to Oct 3
W5	Haggart Creek above Lynx Creek	2007 – 2021	7,095,888	457,815	97.7	1,091	Continuous discharge time-series 2021 logging period: May 8 to Oct 3
W6	Lynx Creek above Haggart Creek	2007 – 2021	7,095,964	458,099	100.9	1,049	Continuous discharge time-series 2021 logging period: Jul 5 to Oct 3
W21[2]	Dublin Gulch near the Mouth	2018 - 2021	7,101,261	458,359	10.1	1,216	Continuous discharge time-series 2021 logging period: May 8 to Oct 13
W22	Haggart Creek above Dublin Gulch	2007 – 2021	7,101,377	458,319	66.5	1,113	Continuous discharge time-series 2021 logging period: May 7 to Oct 3
W26	Stewart Gulch	2007 – 2021	7,101,443	460,331	1.4	1,183	Continuous discharge time-series, manual data only for 2007 - 2009, 2011. 2021 logging period: Jun 18 to Oct 4
W27	Eagle Creek near Camp	2007 – 2021	7,100,997	458,235	2.6	1,037	Continuous discharge time-series, manual data only for 2007 and 2018 2021 logging period: May 16 to Oct 2
W29[3]	Haggart Creek below Eagle Creek	2010 – 2015 2020-2021	7,099,583	458,225	86.1	1,112	Manual measurements for 2010, continuous data thereafter 2021 logging period: May 7 to Oct 3
W45	Eagle Creek at mouth	2018 – 2021	7,099,740	458,243	3.9	1,018	Continuous water level time-series, manual measurements 2021 logging period: Apr 19 to Oct 2
W99	Haggart Creek above 15 Pup	2019 – 2021	7,098,180	458,322	88.3	1,116	Continuous discharge time-series 2021 logging period: Jul 5 to Oct 3

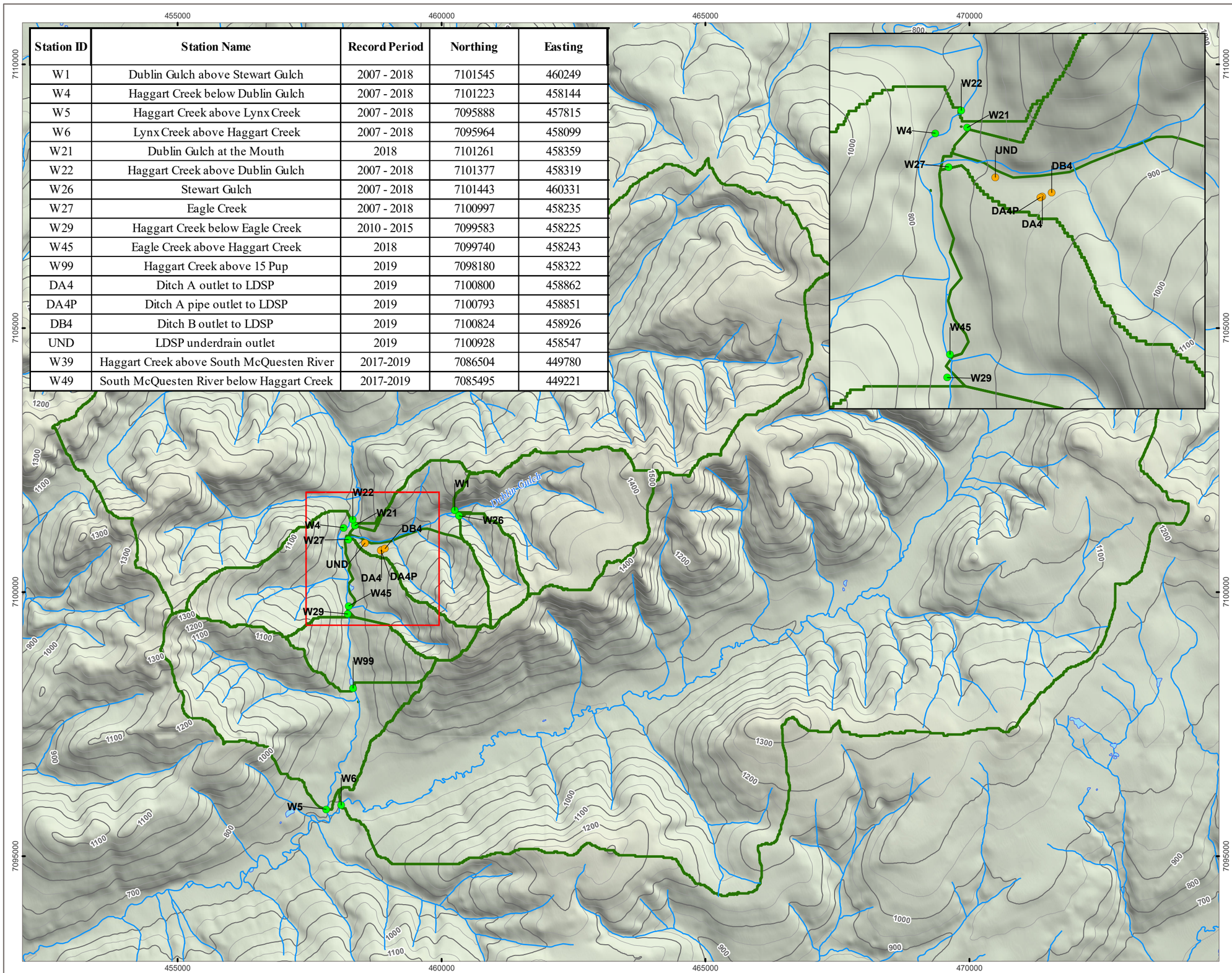
Notes:
1. Source of UTM co-ordinates, drainage area and median basin elevation (Knight-Piésold, 2013).
2. Water level sensor malfunctioned in 2019 and 2020, therefore no continuous water level data are available for these years.
3. No continuous water level data are available for this station for 2016-2019, however manual measurements continue. See Section 2.2.3 for details.

Table 2-2:
Eagle Gold Project spot flow hydrometric stations

Station ID	Station Name	UTM N	UTM E	Description
PDI*	Ditch A outlet to LDSP	7,100,800	458,862	Transfer between engineered structures
PGS*	Ditch A pipe outlet to LDSP	7,100,793	458,851	Transfer between engineered structures
EPS*	Ditch B outlet to LDSP	7,100,824	458,926	Transfer between engineered structures
UND	LDSP underdrain outlet	7,100,928	458,547	Water management infrastructure
W20	Bawn Boy Gulch	7,101,961	461,945	Upstream Environment
W23	Haggart Creek below Lynx Creek	7,095,683	457,790	Receiving Environment
W39	Haggart Creek above South McQuesten River	7,086,504	449,780	Receiving Environment
W49	South McQuesten River below Haggart Creek	7,085,495	449,221	Receiving Environment

Notes:
- *PDI + PGS + EPS= LDSPI (Lower Dublin South Pond inflow)
- PDI and PGS locations are currently surrogate sites until the Platinum Gulch WRSA rock drain is completed
- EPS location is currently a surrogate site for Ditch B inflow until the full length of Ditch B and the Eagle Pup WRSA rock drain are completed

Station ID	Station Name	Record Period	Northing	Easting
W1	Dublin Gulch above Stewart Gulch	2007 - 2018	7101545	460249
W4	Haggart Creek below Dublin Gulch	2007 - 2018	7101223	458144
W5	Haggart Creek above Lynx Creek	2007 - 2018	7095888	457815
W6	Lynx Creek above Haggart Creek	2007 - 2018	7095964	458099
W21	Dublin Gulch at the Mouth	2018	7101261	458359
W22	Haggart Creek above Dublin Gulch	2007 - 2018	7101377	458319
W26	Stewart Gulch	2007 - 2018	7101443	460331
W27	Eagle Creek	2007 - 2018	7100997	458235
W29	Haggart Creek below Eagle Creek	2010 - 2015	7099583	458225
W45	Eagle Creek above Haggart Creek	2018	7099740	458243
W99	Haggart Creek above 15 Pup	2019	7098180	458322
DA4	Ditch A outlet to LDSP	2019	7100800	458862
DA4P	Ditch A pipe outlet to LDSP	2019	7100793	458851
DB4	Ditch B outlet to LDSP	2019	7100824	458926
UND	LDSP underdrain outlet	2019	7100928	458547
W39	Haggart Creek above South McQuesten River	2017-2019	7086504	449780
W49	South McQuesten River below Haggart Creek	2017-2019	7085495	449221



LEGEND

- Continuous Hydrometric Station
- Manual Spot Flow Measurements
- Watershed Boundary
- Watercourse
- Waterbody
- Contour (100m)
- Contour (50m)

NOTES
Base data source:

STATUS
FOR INTERNAL USE ONLY

EAGLE GOLD PROJECT
YUKON TERRITORY

Hydrometric Station Network

PROJECTION	DATUM	CLIENT
Transverse Mercator UTM Zone 8	NAD83	Victoria GOLD CORP

Scale: 1:70,000
700 350 0 700
Metres

LORAX ENVIRONMENTAL

FILE NO.

PROJECT	DWN	CKD	APVD	REV
Eagle Gold	GM	SJ	DHF	1

OFFICE	DATE
	March 16, 2020

Figure 2-1

Path: P:\@Drafting\Eagle Gold\Drafting Figures\MXD\Hydrometric Stations_20200312.mxd

2.2.1 Hydrometric Station Summary

A brief summary of the hydrometric network history is provided below. Further details are available in the previous baseline reports listed in Section 1.2.

W1

- Installed in 2007 with a continuous water level recorder, staff gauge, and stilling well and survey benchmarks
- Transducer malfunctions in 2013 and 2014 resulted in loss of data
- Channel bed can be unstable at high flows; channel condition reflects historical placer mining activity.
- The water level recorder returned inaccurate stage data for extended periods of time in 2019, and thus no continuous water level record is available from which to calculate discharge prior to August 5, 2019.

W4

- Installed in 2007 with a continuous water level recorder, staff gauge, and stilling well and survey benchmarks
- Datalogger failure resulted in no continuous water level data for 2016

W5

- Installed in 2007 with a continuous water level recorder, staff gauge, and stilling well and survey benchmarks
- Staff gauge was knocked over in the 2013 freshet and repaired in July 2013

W6

- Installed in 2007 with a continuous water level recorder, staff gauge, and stilling well and survey benchmarks
- A portion of the 2014 record is influenced by a beaver dam located downstream of the control section – influence is minimal and it was possible to correct for the artificially elevated stage.

W20

- Station re-established in 2016 and has water level records for 2016 and 2017, but not continued in 2018 through 2021.
- Manual flow and stage measurements conducted when access allows.
- Data is not sufficient to develop a rating curve.

W21

- A staff gauge, stilling well and water level logger were installed on June 13, 2018.
- Six paired staff gauge:discharge measurements are available for this site, therefore the rating curve and estimated discharges are considered preliminary.
- The W21 water level logger experienced malfunctions in 2019 and 2020, therefore no usable continuous water level data were collected for these years. Continuous data collection resumed in 2021.

W22

- Installed in 2007 with a continuous water level recorder, staff gauge, and stilling well and survey benchmarks
- No data was available for 2011 due to a pressure transducer malfunction. The water level record estimated by Stantec was carried forward in this report.
- Staff gauge was knocked over in the 2013 freshet and repaired in July 2013.
- Technical issues with the datalogger resulted in a data gap from August 11 to September 7, 2020.

W26

- Manual measurements from 2007 to 2009, instrumented with a continuous water level recorder, staff gauge, and stilling well and survey benchmarks in 2009.
- V-notch weir installed in 2009, and replaced with a Parshall flume in August 2011
- Technical issues with datalogger installation in 2011 resulted in loss of continous data – only manual measurements are available for 2011 as a result.

W27

- Installed in 2007 with a continuous water level recorder, staff gauge, and stilling well and survey benchmarks however data is not reported due to apparent sedimentation in the stilling well resulting in a continuously rising water level
- V-notch weir installed in 2009, and replaced with a Parshall flume in August 2011
- Malfunction of pressure transducer in August 2015 resulted in loss of data for remainder of this year.
- Technical issues with datalogger and/or flume installation in 2018 resulted in loss of continous water level data. Therefore, only manual measurements are available for this year.

- Issues with the datalogger resulted in loss of continuous water level data for the period of July 23 – August 31, 2019.

W29

- Manual measurements in 2010, instrumented with a continuous water level recorder, staff gauge, and stilling well and survey benchmarks in 2011
- Station was destroyed in the 2013 freshet, and a replacement pressure transducer was deployed on an anchor in the streambed just upstream; water levels were surveyed at the old location and the temporary installation to determine the required offset. A new stilling well was installed in July 2015 at the original gauge location.
- Datalogger malfunctions and channel stability issues, including frost jacking of the stilling well resulted in the loss of continuous water level data for 2016 through 2018.
- The stilling well and datalogger were decomissioned in 2019. W99 utilized as a surrogate station by Victoria Gold.
- The station was re-commissioned in July 2020 as a backup for the W99 record and to maintain site in accordance with licence terms, and was operated during the open water season in 2021.
- Manual measurements continue to be reported for this station in Table 3-12.

W45

- A staff gauge, stilling well and water level logger were installed on June 13, 2018
- Eighteen paired staff gauge:discharge measurements are available for this site, however there is not sufficient range in flow and stage data to develop a rating curve; thus only the stage data are provided with spot discharge measurements, noting that a malfunction of the transducer in 2021 precludes inclusion of water level data for this year.
- As such, a continuous discharge record has not yet been developed for this station. Further refinement of the stage:discharge relationship is required to develop a robust rating curve from which to derive a continuous discharge time-series.

W99

- A staff gauge, stilling well and water level logger were installed on June 7, 2019
- Thirteen paired staff gauge:discharge measurements are available for this site, and a stable rating curve has been developed.

2.2.2 Manual Discharge Measurements

Over time, manual discharge measurements have been conducted using the following methods:

- Velocity area techniques using a current meter;
- Salt dilution;
- Calibrated V-notch weir;
- Calibrated Parshall flume;
- Bucket/Bag and stopwatch, and;
- Float-area method.

The majority of the manual discharge measurements were conducted using the velocity-area method, with approximately one quarter made using the salt dilution technique. Most winter measurements were made while ice encroached on the channel, and therefore salt dilution was the preferred method for winter flow measurements. Typically, one discharge measurement was made at each visit when using a current meter, however, duplicate salt dilution streamflow measurements were made on every site visit where this method was used in 2021, allowing the calculation of relative percent difference (RPD) metrics to quantify the measurement accuracy.

2.2.3 Stage Measurements and Corrections

All stations were instrumented with metric staff gauges, mounted to vertical angle iron in the stream channel, and regularly surveyed to nearby benchmarks. Continuously recording HOBO pressure transducers were installed in stilling wells and set to record water level every 15 minutes. These readings were corrected for fluctuations in barometric pressure in a post-processing step. During each site visit, the water level was noted on the staff gauge. These readings formed the basis for the continuous water level records, which were adjusted to match the manual stage readings. Regular benchmark surveys were conducted to determine the staff gauge zero datum and water level, and these measurements were used to correct the station records for changes due to shifts in the channel bed (*i.e.*, aggradation or scour), frost-jacking or station relocation following a high-magnitude flood event.

At each station, an annual offset was developed to bring the staff gauge measurements into line with the reference datum from the 2012 benchmark surveys. W27 was the exception, as no survey information was available for 2012, so 2009 was used as the benchmark reference year for this station following Knight Piésold (2013). In this way, the reference

datum at each station was kept consistent for the duration of the record period, regardless of station location or streambed conditions.

With the exception of the W45 station, no notable issues were encountered with the stage records in 2021 at any of the continuous hydrometric stations, noting that flows were significantly higher than the baseline median for the majority of the open water season. Benchmark surveys were conducted for operating hydrometric stations in September, to allow for stage corrections to be made if evidence of staff gauge shifts was found. There are 4.5 consecutive years with no continuous water level at W29, as channel instability led to the rejection of the 2016 water level record, and in June 2017, the stilling well frost jacked completely out of the streambed. This station was located in a highly mobile channel that has not reached equilibrium yet, following historical placer mining disturbances, and is therefore challenging to gauge. This station was decommissioned and replaced by the new W99 station in 2019, and then recommissioned in July 2020 as a backup to W99 and to satisfy QZ14-041-1 requirements.

3. Streamflow Record Development

Victoria GOLD CORP

3. Streamflow Record Development

3.1 General Approach

To develop continuous time-series of discharge for the Project streams, spot measurements of stage and discharge are combined with continuous water level records collected by the pressure transducers. Mathematical relationships are derived to describe the relationship between water level and discharge, and then applied to the continuous water level records to estimate discharge. By convention, assembled stage and discharge relationships are commonly referred to as rating curves, where the relationship between stage and discharge are unique and specific to each monitoring station.

3.2 Rating Curve Development

Adjustments for stage (Section 2.2.3) were made prior to the assembly of rating curves. Winter spot flow measurements provided information on the magnitude of winter discharge, but due to ice effects and greater measurement uncertainty for both stage and discharge, these measurements were not employed in the rating curve development process.

Rating curves were developed using the standard rating equation, and the coefficient, offset and exponent were selected to conform to hydraulic theory (*e.g.*, Maidment, 1993) and the stream channel properties.

$$Q = C(h - a)^n$$

Where:

Q = discharge (m^3/s)

C = coefficient (function of channel geometry)

h = stage (m)

a = stage at point of zero flow, offset (m)

n = exponent (function of channel geometry)

The term C is usually 0.5 to 2.5 times the channel width at the control section, and n is often between 1.6 and 3 for moderate gradient streams. The BC RISC standards (RISC, 2009) state that ideally, a rating curve will be based on a minimum of 10 stage-discharge measurements. Given the long duration of monitoring activities at the Project site, all stations meet these guiding criteria.

More recently installed stations now have sufficient data with which to construct rating curves, including W21 and W99. W21 was installed in 2018, and now has fifteen paired measurements, noting that there is relatively high average and standard error in the rating curve (Table 3-6 and Table 3-7), and thus it is still considered preliminary. W99 was installed in 2019 and there are now eleven paired flow and stage measurements with relatively low average and standard errors (Table 3-14), indicating that the rating curve is stable. Survey benchmarks are installed at both stations and will continue to be surveyed annually to confirm stability of the staff gauge, and thus the rating curves.

3.3 Rating Curve Error

The overall quality of the discharge record can be assessed by reviewing the average and standard errors calculated from the differences between the measured discharges, and those estimated from the rating equation. A positive rating curve error is defined where the discharge calculated from the rating curve overestimates the value when compared to the measured discharge, and vice-versa for a negative error. A summary of the error metrics for all stations is presented in Table 3-1, with reporting for each station in Table 3-2 through Table 3-10.

Table 3-1 also reports rating curve control percentages by monitoring station. These values indicate the percent of time that a continuously recorded observation (15-minute intervals) falls between the highest and lowest manually recorded measurements for each monitoring station. For example, at the W5 station, 97% of the 15-minute water level measurements are lower than the highest recorded manual stage measurement. Therefore, the measurements used in the rating curve development are able to represent 97% of the entire continuous water level record, and only 3% of the continuous discharge data derived from the rating curve are based on an extrapolation beyond the highest manually recorded stage-discharge measurement.

For monitoring stations where effort is limited to manual flow measurements, period of record data for the stations are presented in Table 3-12 through Table 3-15.

Overall, the rating curves provide reasonable estimates of discharge across a wide range of flows at most of the Project stations. The rating curve errors presented in Table 3-1 indicate that the average errors are relatively low, ranging from -9% (W29) to 5% (W21). The standard error, or the degree of variability about the average error values varies more between stations, from a high of 31% for station W21, to a low of 6% for station W99. Note that continuous discharge data are sporadic for W21 prior to 2021 due to limited water level data, and that the W29 data, due to bank and stream section instabilities, are considered only as a potential backup in regard to adaptive management evaluations in the event that data from W99 are not available.

Rating curves for the site hydrometric stations are presented in Figure 3-1 through Figure 3-8. For the 2017 update, the rating equations were compared to those previously developed for each station to ensure that the coefficients and exponents were consistent through time. After examining the 2018 data, no further updates to the rating curves developed in 2017 were necessary, and the same curves were applied to the 2018 through 2020 continuous water level data. A similar conclusion was drawn based on inclusion of field data collected in 2021 within the rating relations per monitoring station. Note that because stations W26 and W27 are instrumented with Parshall flumes, rating curves were not developed for these stations. The rating curve plot and error table for the relatively new hydrometric station W99, are presented in Figure 3-8 and Table 3-14, and based on measurements collected in 2019 through 2021.

Table 3-1:
Rating curve error metric summary for Eagle Gold Project site hydrometric stations

Station	Measurements (n)	Average Error (%)	Standard Error (%)	Rating Curve Control
W1	55	-3%	22%	97%
W4	58	-1%	15%	99%
W5	47	3%	17%	97%
W6	37	-1%	9%	95%
W21	17	5%	31%	64%
W22	47	1%	14%	100%
W26	42	--	--	100%
W27	85	--	--	100%
W29	29	-9%	23%	96%
W99	13	-1%	6%	99%
Average	46	-1%	17%	95%

Notes:
1. Stations W26 and W27 currently have Parshall flumes installed, and therefore rating curves have not been developed for these sites as part of this baseline streamflow update.

Table 3-2:
Station W1 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2007-08-14	-	3.5	0.059	0.059	0%	
2007-08-29	-	3.494	0.062	0.055	-12%	
2007-09-12	-	3.513	0.063	0.068	8%	
2007-09-26	-	3.532	0.092	0.084	-9%	
2007-10-19	-	3.514	0.047	0.069	-	Stage affected by snow in channel
2007-11-20	Salt Dilution		0.04	-	-	Stage measurement not available
2008-04-25	Salt Dilution		0.015	-	-	Stage measurement not available
2008-06-09	-		0.072	-	-	Stage measurement not available
2008-08-12	-	3.614	0.177	0.175	-1%	Average of 2 measurements
2008-10-20	-	3.594	0.097	0.148	-	Stage affected by snow in channel
2009-07-19	Current Meter	3.467	0.045	0.039	-14%	
2009-07-26	-	3.454	0.032	0.032	1%	
2009-08-09	-	3.443	0.025	0.028	10%	
2009-08-20	-	3.438	0.044	0.025	-42%	
2009-09-01	Current Meter	3.459	0.074	0.035	-53%	
2009-10-07	Current Meter	3.447	0.055	0.029	-47%	
2009-10-21	-	3.455	0.036	0.033	-9%	
2010-03-31	Salt Dilution		0.021	-	-	Stage measurement not available
2010-05-04	-	3.520	0.055	0.074	-	Stage affected by snow in channel
2010-06-01	-	3.597	0.143	0.152	6%	
2010-06-15	-	3.558	0.113	0.108	-5%	
2010-08-17	-	3.542	0.234	0.092	-60%	
2010-09-23	-	3.509	-	0.065	-	Discharge measurement not available
2010-10-19	Salt Dilution	3.512	0.034	0.067	-	Stage affected by snow in channel
2011-03-30	Salt Dilution	-	0.017	-	-	Stage measurement not available
2011-04-19	Salt Dilution	3.450	0.021	0.031	-	Stage affected by snow in channel
2011-05-04	-	3.484	0.032	0.049	-	Stage affected by snow in channel
2011-05-17	Current Meter	3.593	0.147	0.147	0%	
2011-05-18	Current Meter	3.591	0.172	0.145	-16%	
2011-06-07	Current Meter	3.522	0.073	0.075	3%	
2011-08-16	Current Meter	3.573	0.190	0.124	-35%	
2011-10-17	Current Meter	3.535	0.084	0.086	3%	
2011-11-16	Salt Dilution	-	0.041	-	-	Stage measurement not available
2011-12-06	Salt Dilution	-	0.036	-	-	Stage measurement not available
2012-04-18	Salt Dilution	3.460	0.015	0.035	-	Stage affected by snow in channel
2012-05-06	Current Meter	3.469	0.023	0.040	-	Stage affected by snow in channel
2012-08-15	Current Meter	3.531	0.087	0.083	-5%	
2012-10-16	Current Meter	3.499	0.044	0.058	32%	
2012-11-20	Salt Dilution	-	0.033	-	-	Stage measurement not available
2013-04-15	Salt Dilution	-	0.010	-	-	Stage measurement not available
2013-05-21	Current Meter	0.099	0.051	0.069	34%	
2013-07-25	Current Meter	0.050	0.011	0.019	69%	
2013-09-14	Current Meter	0.064	0.039	0.030	-24%	
2013-10-19	Current Meter	0.065	0.036	0.031	-15%	
2014-05-06	Current Meter	-	0.381	-	-	Stage measurement not available
2014-08-06	Current Meter	0.083	0.055	0.049	-11%	
2014-10-17	-	0.095	-	-	-	Discharge measurement not available
2015-06-18	Current Meter	0.121	0.080	0.101	26%	
2015-07-31	Current Meter	0.159	0.181	0.169	-7%	
2016-07-14	Current Meter	0.178	0.202	0.210	4%	
2016-07-15	Salt dilution	-	0.374	-	-	Stage measurement not available
2016-10-13	Salt dilution	-	0.072	-	-	Stage measurement not available
2017-03-15	Salt dilution	-	0.019	-	-	Stage measurement not available
2017-04-13	Salt dilution	-	0.013	-	-	Stage measurement not available
2017-05-03	Salt dilution	-	0.040	-	-	Stage measurement not available
2017-06-10	Salt dilution	-	0.071	-	-	Stage measurement not available
2017-08-03	Salt dilution	0.078	0.045	0.043	-3%	
2017-08-16	Current Meter	0.079	0.045	0.045	-1%	
2017-10-11	Salt dilution	-	0.167	-	-	Stage affected by ice in channel
2017-12-06	Salt dilution	-	0.040	-	-	Stage affected by ice in channel
2018-01-28	Salt dilution	-	0.021	-	-	Stage affected by ice in channel
2018-03-22	Salt dilution	-	0.013	-	-	Stage affected by ice in channel
2018-04-24	Salt dilution	-	0.011	-	-	Stage affected by ice in channel

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2018-08-19	Current Meter	0.118	0.108	0.093	-14%	
2018-08-19	Salt dilution	0.119	0.096	0.095	-1%	
2018-08-26	Salt dilution	0.147	0.117	0.144	23%	
2018-09-22	Salt dilution	0.100	0.085	0.067	-21%	
2018-10-12	Salt dilution	-	0.048	-	-	Stage affected by ice in channel
2018-11-09	Salt dilution	-	0.030	-	-	Stage affected by ice in channel
2018-11-23	Salt dilution	-	0.023	-	-	Stage affected by ice in channel
2018-12-03	Salt dilution	-	0.026	-	-	Stage affected by ice in channel
2018-12-18	Salt dilution	-	0.021	-	-	Stage affected by ice in channel
2019-01-15	Salt dilution	-	0.016	-	-	Stage affected by ice in channel
2019-01-22	Salt dilution	-	0.021	-	-	Stage affected by ice in channel
2019-02-04	Salt dilution	-	0.017	-	-	Stage affected by ice in channel
2019-02-24	Salt dilution	-	0.017	-	-	Stage affected by ice in channel
2019-03-04	Salt dilution	-	0.011	-	-	Stage affected by ice in channel
2019-03-15	Salt dilution	-	0.012	-	-	Stage affected by ice in channel
2019-04-10	Salt dilution	-	0.011	-	-	Stage affected by ice in channel
2019-04-16	Salt dilution	-	0.012	-	-	Stage affected by ice in channel
2019-04-23	Salt dilution	-	0.011	-	-	Stage affected by ice in channel
2019-05-01	Salt dilution	-	0.006	-	-	Stage affected by ice in channel
2019-05-04	Salt dilution	-	0.012	-	-	Stage measurement not available
2019-06-03	Salt dilution	-	0.061	-	-	Stage measurement not available
2019-07-01	Salt dilution	0.072	0.037	0.035	-3%	
2019-08-05	Salt dilution	0.063	0.026	0.027	5%	
2019-09-07	Salt dilution	0.061	0.025	0.026	1%	
2019-10-01	Salt dilution	0.076	0.044	0.039	-10%	
2019-10-08	Salt dilution	0.079	0.035	0.042	20%	
2019-10-08	Salt dilution	-	0.035	-	-	Stage measurement not available
2019-12-03	Salt dilution	-	0.002	-	-	Stage affected by ice in channel
2020-05-08	Salt dilution	0.121	0.097	0.098	1%	
2020-06-04	Current Meter	0.204	0.283	0.273	-3%	
2020-06-22	Current Meter	0.235	0.379	0.361	-5%	
2020-07-04	Current Meter	0.167	0.188	0.185	-2%	
2020-07-12	Current Meter	0.170	0.213	0.191	-10%	
2020-07-21	Current Meter	0.164	0.169	0.178	6%	
2020-08-03	Current Meter	0.165	0.157	0.180	15%	
2020-08-10	Current Meter	0.157	0.208	0.163	-21%	
2020-09-02	Current Meter	0.157	0.199	0.163	-18%	
2020-10-06	Salt dilution	0.140	0.164	0.131	-20%	
2020-12-07	Salt dilution	0.080	0.040	0.043	9%	Average of 2 salt dilutions (RPD = 5%)
2021-01-03	Salt dilution	-	0.025			Average of 2 salt dilutions (RPD = 5%)
2021-02-04	Salt dilution	-	0.019			Average of 2 salt dilutions (RPD = 0%)
2021-03-07	Salt dilution	-	0.016			Average of 2 salt dilutions (RPD = 5%)
2021-04-10	Salt dilution	-	0.010			Average of 2 salt dilutions (RPD = 4%)
2021-05-01	Salt dilution	-	0.026			Average of 2 salt dilutions (RPD = 0%)
2021-07-04	Salt dilution	-	0.060			Average of 2 salt dilutions (RPD = 3%)
2021-07-05	Salt dilution	0.095	0.060	6%	2%	Average of 2 salt dilutions (RPD = 3%)
2021-08-06	Salt dilution	0.087	0.061	5%	-16%	Average of 2 salt dilutions (RPD = 3%)
2021-10-31	Salt dilution	-	0.052			Average of 2 salt dilutions (RPD = 4%)
2021-11-02	Salt dilution	0.105	0.051	7%	47%	Average of 2 salt dilutions (RPD = 20%)
2021-12-03	Salt dilution	-	0.029			Average of 2 salt dilutions (RPD = 2%)
Average Error (%)					-3%	
Standard Error (%)					22%	

Notes:
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2019 are the staff gauge readings relative to the staff gauge datum from 2012.

Table 3-3:
Station W4 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2007-08-13	-	-	0.701	-	-	Stage measurement not available
2007-08-15	-	3.046	0.693	0.665	-4%	
2007-08-28	-	3.033	0.631	0.594	-6%	
2007-09-11	-	3.073	0.810	0.829	2%	
2007-09-25	-	3.091	0.737	-	-	Stage affected by snow in channel
2007-10-19	-	3.048	0.442	-	-	Stage affected by snow in channel
2007-11-21	-	-	0.360	-	-	Stage measurement not available
2008-04-25	Salt Dilution	-	0.050	-	-	Stage measurement not available
2008-06-09	-	3.056	0.740	0.724	-2%	
2008-08-12	-	3.164	1.575	1.543	-2%	
2008-10-21	-	3.104	0.926	-	-	Stage affected by snow in channel
2009-07-18	Current Meter	2.983	0.361	0.362	0%	
2009-07-26	Current Meter	2.966	0.303	0.298	-2%	
2009-08-09	Current Meter	2.973	0.298	0.323	8%	
2009-08-20	Current Meter	2.973	0.344	0.323	-6%	
2009-09-02	Current Meter	3.040	0.834	0.632	-24%	
2009-10-07	Current Meter	3.008	0.449	0.469	5%	
2009-10-21	Current Meter	2.999	0.430	0.429	0%	
2010-05-04	Current Meter	3.078	0.970	0.862	-11%	
2010-06-15	-	3.109	1.122	1.081	-4%	
2010-08-17	-	3.053	0.619	0.706	14%	
2010-09-23	-	3.024	-	-	-	Discharge measurement not available
2010-10-19	-	2.406	0.294	-	-	Stage affected by snow in channel
2011-01-27	Salt Dilution	-	0.187	-	-	Stage measurement not available
2011-03-30	Salt Dilution	-	0.212	-	-	Stage measurement not available
2011-04-19	Salt Dilution	-	0.229	-	-	Stage measurement not available
2011-05-04	Current Meter	3.128	0.445	-	-	Stage affected by snow in channel
2011-05-17	Current Meter	3.295	2.050	3.051	49%	
2011-05-18	Current Meter	3.554	-	-	-	Discharge measurement not available
2011-06-07	Current Meter	3.072	0.724	0.823	14%	
2011-06-28	Current Meter	3.032	0.741	0.589	-21%	
2011-08-16	Current Meter	3.169	1.970	1.590	-19%	
2011-10-17	Current Meter	3.065	0.591	0.778	32%	
2011-11-16	Salt Dilution	-	0.333	-	-	Stage measurement not available
2011-12-06	Salt Dilution	-	0.248	-	-	Stage measurement not available
2012-02-14	Salt Dilution	-	0.169	-	-	Stage measurement not available
2012-04-17	Salt Dilution	2.968	0.167	-	-	Stage affected by snow in channel
2012-05-04	Current Meter	3.069	0.759	0.804	6%	
2012-08-15	Current Meter	3.056	0.738	0.724	-2%	
2012-10-16	Current Meter	3.027	0.478	0.562	18%	
2012-11-20	Salt Dilution	-	0.277	-	-	Stage affected by snow in channel
2013-02-19	Salt Dilution	-	0.216	-	-	Stage measurement not available
2013-05-21	Current Meter	0.318	1.183	1.178	0%	
2013-07-24	Current Meter	0.160	0.322	0.325	1%	
2013-09-14	Current Meter	0.236	0.696	0.673	-3%	
2013-10-19	Current Meter	0.171	0.370	0.368	0%	
2014-05-07	-	0.485	-	-	-	Discharge measurement not available
2014-08-06	Current Meter	0.183	0.416	0.418	1%	
2014-10-17	Current Meter	0.212	0.707	0.551	-22%	
2015-06-18	Current Meter	0.234	0.699	0.663	-5%	
2015-07-31	Current Meter	0.349	1.609	1.402	-13%	
2015-10-14	-	0.251	-	-	-	Discharge measurement not available
2016-07-14	Current Meter	0.263	0.911	0.825	-9%	
2017-03-15	Current Meter	-	0.054	-	-	
2017-04-13	Current Meter	-	0.150	-	-	
2017-06-08	Current Meter	0.251	0.822	0.756	-8%	
2018-08-03	Current Meter	0.231	0.797	0.647	-19%	
2017-08-16	Current Meter	0.190	0.376	0.449	19%	
2017-10-11	Current Meter	0.265	0.832	0.837	1%	
2017-12-05	Current Meter	-	0.294	-	-	Stage affected by ice in channel
2018-01-28	Current Meter	-	0.198	-	-	Stage affected by ice in channel
2018-02-13	Current Meter	-	0.203	-	-	Stage affected by ice in channel
2018-03-20	Current Meter	-	0.162	-	-	Stage affected by ice in channel
2018-04-25	Current Meter	-	0.151	-	-	Stage affected by ice in channel
2018-05-16	Current Meter	0.500	3.271	2.797	-14%	
2018-06-11	Current Meter	0.371	1.827	1.609	-12%	
2018-07-22	Current Meter	0.218	0.618	0.600	-3%	

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2018-08-21	Current Meter	0.261	0.851	0.838	-2%	
2018-09-09	Current Meter	0.258	0.777	0.820	6%	
2018-10-24	Current Meter	-	0.395	-	-	Stage affected by ice in channel
2018-11-06	Current Meter	-	0.275	-	-	Stage affected by ice in channel
2018-11-25	Current Meter	-	0.289	-	-	Stage affected by ice in channel
2018-12-03	Current Meter	-	0.250	-	-	Stage affected by ice in channel
2018-12-17	Current Meter	-	0.251	-	-	Stage affected by ice in channel
2019-01-12	Salt Dilution	-	0.291	-	-	Stage measurement not available
2019-01-22	Salt Dilution	-	0.225	-	-	Stage measurement not available
2019-02-15	Salt Dilution	-	0.160	-	-	Stage measurement not available
2019-02-24	Salt Dilution	-	0.166	-	-	Stage measurement not available
2019-03-04	Salt Dilution	-	0.165	-	-	Stage measurement not available
2019-03-15	Salt Dilution	-	0.160	-	-	Stage measurement not available
2019-04-03	Salt Dilution	-	0.187	-	-	Stage measurement not available
2019-04-15	Salt Dilution	-	0.166	-	-	Stage measurement not available
2019-04-23	Salt Dilution	-	0.201	-	-	Stage measurement not available
2019-04-26	Salt Dilution	-	0.200	-	-	Stage measurement not available
2019-05-05	Current Meter	0.100	0.195	0.142	-27%	
2019-06-03	Current Meter	0.275	1.000	0.923	-8%	
2019-07-02	Current Meter	0.161	0.293	0.342	17%	
2019-08-02	Current Meter	0.178	0.349	0.412	18%	
2019-09-06	Current Meter	0.134	0.230	0.243	6%	
2019-10-03	Salt Dilution	0.171	0.373	0.383	2%	
2019-10-16	Salt Dilution	-	0.336	-	-	Stage measurement not available
2019-11-01	Salt Dilution	-	0.174	-	-	Stage affected by ice in channel
2019-12-03	Salt Dilution	-	0.175	-	-	Stage affected by ice in channel
2020-01-07	Salt Dilution	-	0.136	-	-	Stage measurement not available
2020-02-09	Salt Dilution	-	0.162	-	-	Stage measurement not available
2020-03-09	Salt Dilution	-	0.232	-	-	Stage measurement not available
2020-04-20	Salt Dilution	-	0.254	-	-	Stage measurement not available
2020-04-21	Salt Dilution	-	0.239	-	-	Stage measurement not available
2020-04-22	Salt Dilution	-	0.147	-	-	Stage measurement not available
2020-04-23	Salt Dilution	-	0.321	-	-	Stage measurement not available
2020-04-24	Salt Dilution	-	0.369	-	-	Stage measurement not available
2020-04-25	Salt Dilution	-	0.434	-	-	Stage measurement not available
2020-04-26	Salt Dilution	-	0.557	-	-	Stage measurement not available
2020-04-27	Salt Dilution	-	0.174	-	-	Stage measurement not available
2020-05-06	Current Meter	0.300	1.088	1.078	-1%	
2020-06-04	Current Meter	0.499	2.725	2.776	2%	
2020-06-22	Current Meter	0.601	4.812	3.922	-18%	
2020-07-04	Current Meter	0.413	1.721	1.953	13%	
2020-07-21	Current Meter	0.399	1.498	1.832	22%	
2020-08-03	Current Meter	0.435	1.781	2.151	21%	
2020-08-10	Current Meter	0.426	1.791	2.069	16%	
2020-09-01	Current Meter	0.441	2.223	2.206	-1%	
2020-12-07	Salt Dilution	-	0.381	-	-	Average of 5 salt dilutions (RPD = 17%)
2021-01-03	Salt Dilution	-	0.282	-	-	Stage measurement not available
2021-02-04	Salt Dilution	-	0.105	-	-	Average of 2 salt dilutions (RPD = 6%)
2021-02-15	Salt Dilution	-	0.418	-	-	Stage measurement not available
2021-03-06	Salt Dilution	-	0.194	-	-	Average of 2 salt dilutions (RPD = 4%)
2021-05-01	Current Meter	0.228	1.065	0.647	-39%	
2021-04-07	Salt Dilution	-	0.365	-	-	Average of 2 salt dilutions (RPD = 5%)
2021-07-04	Current Meter	-	0.574	-	-	Stage measurement not available
2021-07-05	Salt Dilution	0.207	0.574	0.541	-6%	
2021-08-05	Current Meter	0.250	0.836	0.768	-8%	
2021-09-01	Current Meter		0.372			Stage measurement not available
2021-10-03	Current Meter		0.487			Stage measurement not available
2021-11-15	Salt Dilution		0.497			Stage measurement not available
2021-12-03	Salt Dilution	-	0.278	-	-	Average of 2 salt dilutions (RPD = 5%)
Average Error (%)					-1%	
Standard Error (%)					15%	

Notes:
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2019 are the staff gauge readings relative to the staff gauge datum from 2012.

Table 3-4:
Station W5 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2007-08-12	-	-	0.744	-	-	Stage measurement not available
2007-08-28	-	3.510	0.689	0.691	0%	
2007-09-11	-	3.546	0.896	0.914	2%	
2007-09-25	-	3.559	0.873	1.001	15%	
2007-10-20	-	3.699	0.323	-	-	Stage affected by snow in channel
2007-11-21	Salt Dilution	-	0.280	-	-	Stage measurement not available
2008-04-25	Salt Dilution	-	0.282	-	-	Stage measurement not available
2008-06-10	-	3.506	0.653	0.668	2%	
2008-08-13	-	-	1.900	-	-	Stage measurement not available
2008-10-21	-	3.633	1.230	-	-	Stage affected by snow in channel
2009-07-20	Current Meter	3.499	0.452	0.629	39%	
2009-07-26	-	3.476	0.419	0.507	21%	
2009-08-09	-	3.462	0.385	0.439	14%	
2009-08-20	-	3.456	0.458	0.411	-10%	
2009-09-02	Current Meter	3.526	0.895	0.787	-12%	
2009-10-07	Current Meter	3.473	0.605	0.492	-19%	
2009-10-22	-	3.573	0.466	-	-	Stage affected by snow in channel
2010-05-04	-	-	1.166	-	-	Stage measurement not available
2010-05-30	-	3.617	1.486	1.431	-4%	
2010-06-15	-	3.583	1.043	1.17	12%	
2010-08-17	-	3.509	0.674	0.686	2%	
2011-05-17	-	3.864	3.799	3.987	5%	
2011-06-08	-	3.532	0.868	0.824	-5%	
2011-06-29	Current Meter	3.523	0.965	0.769	-20%	
2011-08-19	-	3.609	1.357	1.367	1%	
2011-10-18	-	3.528	0.778	0.799	3%	
2012-05-04	Current Meter	3.579	1.285	1.141	-11%	
2012-07-18	-	3.612	-	-	-	Discharge measurement not available
2012-08-16	Current Meter	3.553	0.963	0.960	0%	
2012-09-19	-	3.503	-	-	-	Discharge measurement not available
2012-10-17	Current Meter	3.532	0.578	-	-	Stage affected by snow in channel
2012-11-20	Salt Dilution	-	0.278	-	-	Stage measurement not available
2013-05-22	Current Meter	0.280	1.877	1.801	-4%	
2013-08-05	-	0.120	-	-	-	
2013-09-14	Current Meter	0.195	0.948	0.918	-3%	
2013-10-20	Current Meter	0.145	0.510	0.528	4%	
2014-08-05	Current Meter	0.152	0.570	0.577	1%	
2014-10-17	Current Meter	0.185	0.864	0.832	-4%	
2015-06-19	Current Meter	0.175	0.735	0.750	2%	
2015-07-30	Current Meter	0.308	2.032	2.150	6%	
2015-10-14	-	0.200	-	-	-	Discharge measurement not available
2016-07-13	Current Meter	0.219	1.126	1.139	1%	
2017-06-09	Current Meter	0.193	0.933	0.900	-4%	
2017-08-02	Current Meter	0.147	0.607	0.542	-11%	
2017-08-18	Current Meter	0.144	0.580	0.522	-10%	
2017-10-14	Current Meter	-	1.143	-	-	Stage affected by ice in channel
2017-12-06	Salt Dilution	-	0.314	-	-	Stage affected by ice in channel
2018-01-28	Salt Dilution	-	0.219	-	-	Stage affected by ice in channel
2018-05-17	Current Meter	0.450	-	-	-	
2018-06-13	Current Meter	0.279	1.594	1.788	12%	
2018-07-30	Current Meter	0.139	0.516	0.488	-5%	
2018-08-21	Current Meter	0.219	0.993	1.139	15%	
2018-09-10	Current Meter	0.216	0.878	1.110	26%	
2018-10-16	Current Meter	-	0.308	-	-	Stage affected by ice in channel
2018-11-30	Salt Dilution	-	0.402	-	-	Stage affected by ice in channel
2018-12-06	Salt Dilution	-	0.475	-	-	Stage affected by ice in channel
2018-12-18	Salt Dilution	-	0.512	-	-	Stage affected by ice in channel
2019-01-12	Salt Dilution	-	0.377	-	-	Stage affected by ice in channel
2019-01-26	Salt Dilution	-	0.370	-	-	Stage affected by ice in channel
2019-02-19	Salt Dilution	-	0.155	-	-	Stage affected by ice in channel
2019-02-25	Salt Dilution	-	0.169	-	-	Stage affected by ice in channel
2019-04-14	Salt Dilution	-	0.379	-	-	Stage affected by ice in channel
2019-05-03	Salt Dilution	-	0.683	-	-	Stage measurement not available
2019-06-02	Current Meter	0.397	2.871	3.450	20%	
2019-07-02	Current Meter	0.121	0.386	0.377	-2%	
2019-08-02	Current Meter	0.090	0.328	0.217	-34%	
2019-09-05	Current Meter	0.080	0.275	0.174	-36%	
2019-10-02	Salt Dilution	0.151	0.455	0.570	25%	

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2019-10-07	Salt Dilution	0.189	-	-	-	Discharge measurement not available
2019-11-01	Salt Dilution	-	0.191	-	-	Stage affected by ice in channel
2019-11-05	Salt Dilution	-	0.022	-	-	Stage affected by ice in channel
2019-12-02	Salt Dilution	-	0.099	-	-	Stage affected by ice in channel
2020-05-05	Current Meter	0.365	1.695	2.428	43%	
2020-06-03	Current Meter	0.432	2.535	3.154	24%	
2020-07-03	Current Meter	0.362	1.802	2.397	33%	
2020-08-06	Current Meter	0.363	2.344	2.408	3%	
2020-09-02	Current Meter	0.388	2.076	2.670	29%	
2020-10-02	Current Meter	-	1.269	-	-	Stage affected by ice in channel
2020-12-05	Salt Dilution	-	0.325	-	-	Stage affected by ice in channel
2021-01-02	Salt Dilution	-	0.260	-	-	Stage measurement not available
2021-02-01	Salt Dilution	-	0.247	-	-	Average of two salt dilutions (RPD = 8%)
2021-03-05	Salt Dilution	-	0.280	-	-	Average of two salt dilutions (RPD = 2%)
2021-04-15	Salt Dilution	-	0.221	-	-	Average of two salt dilutions (RPD = 3%)
2021-05-18	Current Meter	-	1.916	-	-	Stage measurement not available
2021-06-19	Current Meter	-	0.902	-	-	Staff gauge broken
2021-07-05	-	0.161	-	-	-	Discharge measurement not available
2021-07-10	Salt Dilution	-	1.188	-	-	Stage measurement not available
2021-08-05	Current Meter	0.220	1.030	1.107	7%	
2021-10-25	Salt Dilution	0.215	1.530	1.068	-30%	
2021-11-06	Salt Dilution	-	0.333	-	-	Average of two salt dilutions (RPD = 22%)
2021-12-07	Salt Dilution	-	0.117	-	-	Average of two salt dilutions (RPD = 3%)
Average Error (%)					3%	
Standard Error (%)					17%	

Notes:
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2019 are the staff gauge readings relative to the staff gauge datum from 2012.

Table 3-5:
Station W6 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2007-08-28	-	3.820	0.872	0.850	-2%	
2007-09-11	-	3.901	1.399	1.291	-8%	
2007-09-25	-	3.880	1.059	1.169	10%	
2007-10-20	-	3.787	0.231	-	-	Stage affected by snow in channel
2007-11-21	Salt Dilution	-	0.274	-	-	Stage measurement not available
2008-04-25	Salt Dilution	-	0.335	-	-	Stage measurement not available
2008-06-10	-	3.720	0.433	0.422	-3%	
2008-08-13	-	-	1.810	-	-	Stage measurement not available
2008-10-21	-	3.893	1.179	-	-	Stage affected by snow in channel
2009-07-20	Current Meter	3.701	0.408	0.356	-13%	
2009-07-26	-	3.715	0.533	0.404	-24%	
2009-08-09	-	3.710	0.343	0.386	13%	
2009-08-20	-	3.753	0.499	0.549	10%	
2009-09-02	Current Meter	3.873	1.161	1.130	-3%	
2009-10-07	Current Meter	-	0.771	-	-	Stage measurement not available
2009-10-22	-	-	0.521	-	-	Stage measurement not available
2010-05-04	-	-	2.474	-	-	Stage measurement not available
2010-05-30	-	3.807	0.824	0.787	-4%	
2010-06-15	-	3.846	1.003	0.983	-2%	
2010-08-17	-	3.763	0.550	0.590	7%	
2010-10-19	-	3.460	0.379	-	-	Stage affected by snow in channel
2011-06-09	-	-	0.962	-	-	Stage measurement not available
2011-06-29	Current Meter	2.905	1.216	-	-	Stage affected by snow in channel
2011-08-19	-	3.894	1.253	1.250	0%	
2011-10-18	-	3.786	0.703	0.690	-2%	
2012-05-04	Current Meter	3.959	1.806	1.656	-8%	
2012-07-18	-	3.987	-	-	-	Discharge measurement not available
2012-08-16	-	3.838	0.929	0.941	1%	
2012-09-19	-	3.817	-	0.836	-	Discharge measurement not available
2012-10-17	-	3.781	-	0.667	-	Discharge measurement not available
2013-05-22	Current Meter	0.453	2.971	2.650	-11%	
2013-07-25	-	0.172	-	-	-	Discharge measurement not available
2013-09-14	Current Meter	0.286	1.171	1.227	5%	
2013-10-20	Current Meter	0.196	0.699	0.652	-7%	
2014-08-05	Current Meter	0.245	0.449	-	-	Beaver dam downstream of gauge site, therefore unreliable stage.
2014-10-17	Current Meter	0.250	0.973	0.980	1%	
2015-06-19	Current Meter	0.201	0.702	0.680	-3%	
2015-07-30	Current Meter	0.271	1.173	1.121	-4%	
2016-07-13	Current Meter	0.317	1.345	1.458	8%	
2017-06-09	Current Meter	0.212	0.780	0.743	-5%	
2017-08-02	Current Meter	0.174	0.517	0.534	3%	

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2017-08-18	Current Meter	0.177	0.449	0.550	22%	
2017-09-22	Current Meter	0.263	1.161	1.067	-8%	
2017-10-14	Current Meter	-	0.563	0.993	-	Stage affected by ice in channel
2017-12-06	Salt Dilution	-	0.365	-	-	Stage affected by ice in channel
2018-01-28	Salt Dilution	-	0.310	-	-	Stage affected by ice in channel
2018-06-13	Current Meter	0.314	1.437	1.457	1%	
2018-07-30	Current Meter	0.123	0.405	0.306	-24%	
2018-08-21	Current Meter	0.213	0.762	0.764	0%	
2018-09-10	Current Meter	0.238	0.864	0.919	6%	
2018-10-16	Current Meter	-	0.390	-	-	Stage affected by ice in channel
2018-11-30	Salt Dilution	-	0.402	-	-	Stage affected by ice in channel
2018-12-13	Salt Dilution	-	0.235	-	-	Stage affected by ice in channel
2018-12-18	Salt Dilution	-	0.268	-	-	Stage affected by ice in channel
2019-01-12	Salt Dilution	-	0.221	-	-	Stage affected by ice in channel
2019-01-27	Salt Dilution	-	0.219	-	-	Stage affected by ice in channel
2019-02-21	Salt Dilution	-	0.148	-	-	Stage affected by ice in channel
2019-02-25	Salt Dilution	-	0.155	-	-	Stage affected by ice in channel
2019-05-08	Salt Dilution	-	2.802	-	-	Stage affected by ice in channel
2019-06-02	Current Meter	-	2.900	-	-	Stage measurement not available
2019-07-02	Current Meter	0.111	0.258	0.258	0%	
2019-08-02	Current Meter	0.112	0.256	0.262	2%	
2019-09-05	Current Meter	-	0.258	-	-	Stage measurement not available
2019-10-02	Salt Dilution	0.151	0.406	0.431	6%	
2020-07-03	Current Meter	-	1.493	-	-	Stage measurement not available
2020-08-06	Current Meter	0.316	1.384	1.481	7%	
2020-10-02	Current Meter	0.308	1.613	1.419	-12%	
2020-12-05	Salt Dilution	-	0.580	-	-	Stage measurement not available
2021-01-02	Salt Dilution	-	2.119	-	-	Stage measurement not available
2021-03-05	Salt Dilution	-	0.272	-	-	Stage measurement not available
2021-04-05	Salt Dilution	-	0.233	-	-	Stage measurement not available
2021-05-08	Current Meter	-	1.600	-	-	Stage measurement not available
2021-05-18	Current Meter	-	2.779	-	-	Stage measurement not available
2021-06-19	Current Meter	-	0.103	-	-	Stage measurement not available
2021-07-05	-	0.114		-	-	Discharge measurement not available
2021-07-10	Current Meter	-	1.037	-	-	Stage measurement not available
2021-08-05	Current Meter	0.195	0.717	0.665	-7%	
2021-11-06	Salt Dilution	-	0.355	-	-	Average of two salt dilutions (RPD = 1%)
2021-12-06	Salt Dilution	-	0.225	-	-	Average of two salt dilutions (RPD = 2%)
Average Error (%)					-1%	
Standard Error (%)					9%	

Notes:
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2019 are the staff gauge readings relative to the staff gauge datum from 2012.

Table 3-6:
Station W20 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Comments
2007-08-14	Current Meter	-	0.025	No staff gauge reading available
2007-08-29	Current Meter	-	0.033	No staff gauge reading available
2007-09-12	Current Meter	-	0.028	No staff gauge reading available
2008-06-09	Current Meter	-	0.015	No staff gauge reading available
2008-08-12	Current Meter	-	0.045	No staff gauge reading available
2009-07-19	Current Meter	0.17	0.018	
2009-07-26	Current Meter	0.18	0.022	
2009-08-09	Current Meter	0.16	0.012	
2009-08-20	Current Meter	-	0.014	No staff gauge reading available
2009-10-05	Current Meter	0.18	0.024	
2016-07-14	Current Meter	-	0.064	No staff gauge reading available
2017-05-04	Current Meter	-	0.005	No staff gauge reading available
2017-06-10	Salt Dilution	-	0.025	No staff gauge reading available
2017-08-03	Salt Dilution	-	0.024	No staff gauge reading available
2017-10-12	Salt Dilution	-	0.068	No staff gauge reading available
2017-12-06	Salt Dilution	-	0.014	Stage affected by ice in channel
2018-02-12	Salt Dilution	-	0.004	Stage affected by ice in channel
2018-06-13	Salt Dilution	-	0.040	Stage affected by ice in channel
2018-07-13	Salt Dilution	-	0.044	No staff gauge reading available
2018-08-21	Salt Dilution	-	0.037	No staff gauge reading available
2018-09-22	Salt Dilution	0.291	0.029	
2018-10-12	Salt Dilution	-	0.018	Stage affected by ice in channel
2018-11-09	Salt Dilution	-	0.013	Stage affected by ice in channel
2018-12-31	Salt Dilution	-	0.008	Stage affected by ice in channel
2019-01-25		-	0.007	Stage affected by ice in channel
2019-01-25		-	0.007	Stage affected by ice in channel
2019-02-26		-	0.006	Stage affected by ice in channel
2019-03-01	Salt dilution	-	0.004	Stage affected by ice in channel
2019-04-19	Salt dilution	-	0.004	Stage affected by ice in channel
2019-04-19	Salt dilution	-	0.004	Stage affected by ice in channel
2019-05-11	Salt dilution	-	0.061	No staff gauge reading available
2019-06-01	Current Meter	-	0.022	No staff gauge reading available
2019-07-13	Salt dilution	-	0.006	No staff gauge reading available
2019-08-05	Salt dilution	-	0.009	No staff gauge reading available
2019-09-19	Salt dilution	-	0.033	No staff gauge reading available
2019-10-01	Salt dilution	-	0.013	No staff gauge reading available
2020-06-04	Salt dilution	-	0.095	No staff gauge reading available
2020-07-10	Salt dilution	-	0.050	No staff gauge reading available
2020-08-12	Salt dilution	-	0.053	No staff gauge reading available
2020-09-01	Salt dilution	-	0.052	No staff gauge reading available
2021-01-09	Salt dilution	-	0.011	No staff gauge reading available
2021-06-20	Salt dilution	-	0.045	No staff gauge reading available
2021-07-14	Salt dilution	-	0.031	No staff gauge reading available
2021-08-12	Salt dilution	-	0.034	No staff gauge reading available
2021-09-03	Salt dilution	-	0.036	No staff gauge reading available
2021-10-31	Salt dilution	-	0.024	No staff gauge reading available
2021-11-09	Salt dilution	-	0.015	No staff gauge reading available
2021-12-12	Salt dilution	-	0.011	No staff gauge reading available

Notes:
[1]Due to the limited number of stage measurements for this station, no rating curve has been developed.

Table 3-7:
Station W21 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2007-08-15	Current Meter	-	0.059	-	-	Staff gauge not installed yet
2007-08-28	Current Meter	-	0.05	-	-	Staff gauge not installed yet
2007-09-11	Current Meter	-	0.071	-	-	Staff gauge not installed yet
2007-09-25	Current Meter	-	0.099	-	-	Staff gauge not installed yet
2007-10-19	Current Meter	-	0.043	-	-	Staff gauge not installed yet
2007-11-21	Current Meter	-	0.02	-	-	Staff gauge not installed yet
2008-08-12	Current Meter	-	0.25	-	-	Staff gauge not installed yet
2008-10-21	Current Meter	-	0.098	-	-	Staff gauge not installed yet
2009-07-18	Current Meter	0.150	0.012	-	-	
2009-07-26	Current Meter	0.150	0.008	-	-	
2009-08-09	Current Meter	0.130	0.008	-	-	
2009-08-20	Current Meter	0.160	0.012	-	-	
2009-09-01	Current Meter	0.200	0.067	-	-	
2009-10-20	Current Meter	0.274	0.362	-	-	
2017-12-05	Salt Dilution	-	0.031	-	-	Staff gauge not installed yet
2018-04-24	Salt Dilution	-	0.032	-	-	Staff gauge not installed yet
2018-05-16	Current Meter	-	0.485	-	-	Staff gauge not installed yet
2018-06-11	Current Meter	0.335	0.205	0.206	0%	
2018-08-19	Current Meter	0.302	0.139	0.130	-7%	
2018-09-22	Current Meter	0.291	0.109	0.106	-3%	
2018-10-12	Current Meter	0.273	0.064	0.069	9%	
2018-12-03	Salt Dilution	-	0.024	-	-	Stage affected by ice in channel
2018-12-18	Salt Dilution	-	0.023	-	-	Stage affected by ice in channel
2019-01-15	Salt Dilution	-	0.016	-	-	Stage affected by ice in channel
2019-01-15	Salt Dilution	-	0.010	-	-	Stage affected by ice in channel
2019-01-21	Salt Dilution	-	0.013	-	-	Stage affected by ice in channel
2019-02-25	Salt Dilution	-	0.007	-	-	Stage affected by ice in channel
2019-04-15	Salt Dilution	-	0.021	-	-	Stage affected by ice in channel
2019-04-23	Salt Dilution	-	0.024	-	-	Stage affected by ice in channel
2019-05-04	Salt Dilution	-	0.017	-	-	Stage affected by ice in channel
2019-05-08	Salt Dilution	-	0.019	-	-	Stage measurement not available
2019-05-24	Salt Dilution	-	0.086	-	-	Stage measurement not available
2019-05-27	Salt Dilution	-	0.048	-	-	Stage measurement not available
2019-06-03	Salt Dilution	0.265	0.072	0.054	-25%	
2019-07-05	Salt Dilution	-	0.030	-	-	Stage measurement not available
2019-08-06	Salt Dilution	-	0.018	-	-	Stage measurement not available
2019-09-19	Salt Dilution	0.288	0.100	0.100	0%	
2019-10-01	Salt Dilution	-	0.036	-	-	Stage measurement not available
2019-10-08	Salt Dilution	-	0.016	-	-	Stage measurement not available
2019-11-05	Salt Dilution	-	0.014	-	-	Stage affected by ice in channel
2019-12-03	Salt Dilution	-	0.001	-	-	Stage affected by ice in channel
2020-02-09	Salt Dilution	-	0.009	-	-	Stage affected by ice in channel
2020-04-13	Salt Dilution	-	0.016	-	-	Stage affected by ice in channel
2020-04-21	Salt Dilution	-	0.127	-	-	Stage affected by ice in channel
2020-05-08	Salt Dilution	0.103	0.169	0.201	19%	Average of two measurements (RPD = 26%)
2020-06-04	Current Meter	0.136	0.337	0.282	-16%	
2020-06-22	Current Meter	-	0.937	-	-	Stage measurement not available
2020-07-05	Current Meter	0.115	0.281	0.230	-18%	
2020-07-12	Current Meter	0.119	0.134	0.240	80%	
2020-07-21	Current Meter	0.105	0.377	0.206	-45%	
2020-08-03	Current Meter	0.115	0.188	0.230	23%	
2020-08-10	Current Meter	0.112	0.142	0.223	57%	
2020-09-01	Current Meter	0.114	0.299	0.228	-24%	
2020-10-05	Current Meter	0.096	0.177	0.185	4%	
2021-01-03	Salt Dilution	-	0.030	-	-	Average of two salt dilutions (RPD = 6%)
2021-02-04	Salt Dilution	-	0.017	-	-	Average of two salt dilutions (RPD = 0%)
2021-03-07	Salt Dilution	-	0.012	-	-	Average of two salt dilutions (RPD = 0%)
2021-05-01	Salt Dilution	-	0.071	-	-	Average of two salt dilutions (RPD = 7%)
2021-06-13	Salt Dilution	-		-	-	Stage measurement not available
2021-07-04	Salt Dilution	0.044	0.068	0.071	5%	Average of two salt dilutions (RPD = 1%)
2021-07-05	-	0.043		0.069		Discharge measurement not available
2021-08-06	Salt Dilution	0.056	0.074	0.096	30%	Average of two salt dilutions (RPD = 4%)
2021-10-14	Salt Dilution	-	0.078	-	-	Average of two salt dilutions (RPD = 21%)
2021-11-02	Salt Dilution	-	0.068	-	-	Average of two salt dilutions (RPD = 6%)
2021-12-03	Salt Dilution	-	0.115	-	-	Average of two salt dilutions (RPD = 4%)
Average Error (%)					5%	
Standard Error (%)					31%	

Notes:
[1]A rating curve for W21 was not developed in 2009, and no continuous discharge record is available for 2007-2009, therefore no error metrics are reported for this period.

Table 3-8:
Station W22 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2007-08-13	-	-	0.597	-	-	Stage measurement not available
2007-08-15	-	2.846	0.577	0.515	-11%	
2007-08-28	-	2.831	0.538	0.414	-23%	
2007-09-11	-	2.898	0.684	0.941	38%	
2007-09-25	-	2.877	0.641	0.755	18%	
2007-10-19	-	2.873	0.372	-	-	Stage affected by snow in channel
2007-11-21	Salt Dilution	-	0.343	-	-	Stage measurement not available
2008-04-25	Salt Dilution	-	0.266	-	-	Stage measurement not available
2008-06-09	-	2.866	0.688	0.666	-3%	
2008-08-12	-	2.927	1.237	1.226	-1%	
2008-10-21	-	2.936	0.741		-	Stage affected by snow in channel
2009-04-21	Salt Dilution	1.570	0.191	-	-	Stage affected by snow in channel
2009-07-18	Current Meter	2.809	0.749	0.284	-62%	
2009-07-26	-	2.809	0.294	0.284	-4%	
2009-08-09	-	2.810	0.278	0.289	4%	
2009-08-20	-	2.811	0.276	0.295	7%	
2009-09-01	Current Meter	2.874	0.749	0.730	-2%	
2009-10-07	Current Meter	2.824	0.361	0.370	3%	
2010-03-31	Salt Dilution	-	0.173	-	-	Stage measurement not available
2010-05-04	-	2.873	0.915	0.722	-21%	
2010-06-15	-	2.905	0.791	1.006	27%	
2010-08-17	-	2.847	0.531	0.522	-2%	
2010-09-23	-	2.816	-	-	-	Discharge measurement not available
2010-10-19	-	2.910	0.265	-	-	Stage affected by snow in channel
2011-01-27	Salt Dilution	-	0.158	-	-	Stage measurement not available
2011-03-30	Salt Dilution	-	0.203	-	-	Stage measurement not available
2011-04-19	Salt Dilution	-	0.194	-	-	Stage measurement not available
2011-05-04	Current Meter	2.975	0.418	-	-	Stage affected by snow in channel
2011-05-17	-	2.964	2.010	-	-	Uncertainty in dataset
2011-05-18	-	2.936	4.989	-	-	Uncertainty in dataset
2011-06-07	-	2.856	0.567	-	-	Uncertainty in dataset
2011-06-28	Current Meter	3.099	0.676	-	-	Uncertainty in dataset
2011-08-16	-	2.968	1.655	-	-	Uncertainty in dataset
2011-10-17	Current Meter	2.962	0.523	-	-	Stage affected by snow in channel
2011-11-16	Salt Dilution	-	0.288	-	-	Stage measurement not available
2011-12-06	Salt Dilution	-	0.207	-	-	Stage measurement not available
2012-03-19	Salt Dilution	-	0.154	-	-	Stage measurement not available
2012-04-17	Salt Dilution	2.790	0.117	-	-	Stage affected by snow in channel
2012-05-04	Current Meter	2.876	0.737	0.747	1%	
2012-07-18	-	2.924	1.055	1.195	13%	
2012-08-15	Current Meter	2.860	0.609	0.619	2%	
2012-09-19	-	2.841	-	-	-	Discharge measurement not available
2012-10-16	Current Meter	2.827	0.403	0.389	-4%	
2012-11-20	Salt Dilution	-	0.245	-	-	Stage measurement not available
2012-12-17	Salt Dilution	-	0.258	-	-	Stage measurement not available
2013-02-19	Salt Dilution	-	0.216	-	-	Stage measurement not available
2013-04-15	Salt Dilution	-	0.159	-	-	Stage measurement not available.
2013-05-21	Current Meter	0.215	0.994	0.935	-6%	
2013-07-24	Current Meter	-	0.264	-	-	Stage measurement not available
2013-08-04	-	0.105	-	-	-	Discharge measurement not available
2013-09-14	Current Meter	0.183	0.698	0.699	0%	
2013-10-19	Current Meter	0.113	0.309	0.293	-5%	
2014-08-06	Current Meter	0.135	0.391	0.404	3%	
2014-10-17	Current Meter	0.165	0.587	0.580	-1%	
2015-06-18	Current Meter	0.178	0.633	0.665	5%	
2015-07-31	Current Meter	0.261	1.379	1.326	-4%	
2015-10-14	-	0.191	-	-	-	Discharge measurement not available
2016-07-14	Current Meter	0.193	0.731	0.769	5%	
2017-05-04	Current Meter	-	0.748	-	-	Stage measurement ice affected
2017-06-08	Current Meter	0.190	0.718	0.748	4%	
2017-08-04	Current Meter	0.155	0.471	0.518	10%	
2017-08-16	Current Meter	0.130	0.377	0.377	0%	
2017-10-11	Current Meter	-	0.698	-	-	Stage affected by ice in channel
2017-12-06	Salt Dilution	-	0.241	-	-	Stage affected by ice in channel
2018-01-28	Salt Dilution	-	0.176	-	-	Stage affected by ice in channel
2018-02-13	Salt Dilution	-	0.182	-	-	Stage affected by ice in channel
2018-03-20	Salt Dilution	-	0.172	-	-	Stage affected by ice in channel
2018-04-25	Current Meter	-	0.098	-	-	Stage affected by ice in channel
2018-05-16	Current Meter	0.410	3.015	2.971	-1%	
2018-06-11	Current Meter	0.261	1.544	1.311	-15%	
2018-07-22	Current Meter	0.151	0.473	0.486	3%	
2018-08-21	Current Meter	0.200	0.760	0.809	6%	
2018-09-09	Current Meter	0.190	0.660	0.738	12%	
2018-10-24	Current Meter	-	0.065	-	-	Stage affected by ice in channel

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2018-11-06	Salt Dilution	-	0.249	-	-	Stage affected by ice in channel
2018-11-25	Salt Dilution	-	0.189	-	-	Stage affected by ice in channel
2018-12-03	Salt Dilution	-	0.235	-	-	Stage affected by ice in channel
2018-12-17	Salt Dilution	-	0.216	-	-	Stage affected by ice in channel
2019-01-15	Salt Dilution	-	0.153	-	-	Stage measurement not available
2019-01-26	Salt Dilution	-	0.215	-	-	Stage measurement not available
2019-01-26	Salt Dilution	-	0.226	-	-	Stage measurement not available
2019-02-19	Salt Dilution	-	0.341	-	-	Stage measurement not available
2019-02-25	Salt Dilution	-	0.097	-	-	Stage measurement not available
2019-03-04	Salt Dilution	-	0.111	-	-	Stage measurement not available
2019-03-15	Salt Dilution	-	0.132	-	-	Stage measurement not available
2019-04-03	Salt Dilution	-	0.116	-	-	Stage measurement not available
2019-04-15	Salt Dilution	-	0.093	-	-	Stage measurement not available
2019-04-23	Salt Dilution	-	0.287	-	-	Stage measurement not available
2019-04-26	Salt Dilution	-	0.140	-	-	Stage measurement not available
2019-05-05	Salt Dilution	-	0.169	-	-	Stage affected by ice in channel
2019-06-03	Current Meter	0.228	1.030	1.026	0%	
2019-07-02	Current Meter	0.122	0.307	0.331	8%	
2019-08-02	Current Meter	0.109	0.237	0.270	14%	
2019-09-06	Current Meter	0.095	0.233	0.210	-10%	
2019-10-03	Salt Dilution	0.132	0.331	0.381	15%	
2019-10-07	Salt Dilution	-	0.545	-	-	Stage affected by ice in channel
2019-11-01	Salt Dilution	-	0.165	-	-	Stage measurement not available
2019-12-03	Salt Dilution	-	0.185	-	-	Stage measurement not available
2020-01-07	Salt Dilution	-	0.091	-	-	Stage measurement not available
2020-02-09	Salt Dilution	-	0.131	-	-	Stage measurement not available
2020-03-09	Salt Dilution	-	0.127	-	-	Stage measurement not available
2020-04-20	Salt Dilution	-	0.181	-	-	Stage measurement not available
2020-04-21	Salt Dilution	-	0.133	-	-	Stage measurement not available
2020-04-22	Salt Dilution	-	0.324	-	-	Stage measurement not available
2020-04-23	Salt Dilution	-	0.305	-	-	Stage measurement not available
2020-04-24	Salt Dilution	-	0.242	-	-	Stage measurement not available
2020-04-25	Salt Dilution	-	0.198	-	-	Stage measurement not available
2020-04-26	Current Meter	-	0.135	-	-	Stage measurement not available
2020-04-27	Current Meter	-	0.125	-	-	Stage measurement not available
2020-05-07	Current Meter	0.279	1.452	1.479	2%	
2020-06-04	Current Meter	0.353	2.649	2.265	-14%	
2020-07-04	Current Meter	0.228	0.977	1.026	5%	
2020-07-21	Current Meter	0.229	1.067	1.034	-3%	
2020-08-03	Current Meter	0.244	1.188	1.160	-2%	
2020-08-10	Current Meter	0.260	1.320	1.302	-1%	
2020-09-01	Current Meter	-	1.516	-	-	Stage measurement not available
2020-10-05	Current Meter	-	0.902	-	-	Stage affected by ice in channel
2020-12-07	Salt Dilution	-	0.389	-	-	Stage affected by ice in channel
2021-01-03	Salt Dilution	-	0.128	-	-	Average of 2 salt dilutions (RPD = 22%)
2021-02-04	Salt Dilution	-	0.280	-	-	Average of 2 salt dilutions (RPD = 15%)
2021-03-06	Salt Dilution	-	0.165	-	-	Average of 2 salt dilutions (RPD = 7%)
2021-04-07	Salt Dilution	-	0.182	-	-	Average of 2 salt dilutions (RPD = 4%)
2021-05-01	Salt Dilution	-	0.223	-	-	Average of 2 salt dilutions (RPD = 1%)
2021-07-04	-	0.150		-	-	Discharge measurement not available
2021-07-05	Current Meter	-	0.224	-	-	Stage measurement not available
2021-08-05	Current Meter	0.200	0.698	0.809	16%	
2021-10-14	Salt Dilution	-	0.346	-	-	Stage measurement not available
2021-11-19	Salt Dilution	-	0.293	-	-	Stage measurement not available
2021-12-03	Salt Dilution	-	0.043	-	-	Average of 2 salt dilutions (RPD = 11%)
Average Error (%)					1%	
Standard Error (%)					14%	

Notes:
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2019 are the staff gauge readings relative to the staff gauge datum from 2012.

Table 3-9:
Station W23 – Discharge Measurement Summary

Date	Method	Discharge (m^3/s)	Date	Method	Discharge (m^3/s)
2007-08-12	Current Meter	1.584	2019-03-21	Salt Dilution	0.502
2007-08-28	Current Meter	1.695	2019-04-19	Salt Dilution	0.603
2007-09-11	Current Meter	2.261	2019-05-03	Salt Dilution	0.64
2007-09-25	Current Meter	2.025	2019-05-09	Salt Dilution	1.633
2007-10-20	Current Meter	0.634	2019-06-25	Salt Dilution	0.788
2008-04-25	Current Meter	0.659	2019-07-02	Salt Dilution	0.7
2008-06-10	Current Meter	1.139	2019-08-02	Salt Dilution	0.649
2008-08-13	Current Meter	4.048	2019-09-05	Salt Dilution	0.476
2008-10-21	Current Meter	2.125	2019-10-02	Salt Dilution	0.807
2009-04-22	Salt Dilution	0.551	2019-11-01	Salt Dilution	0.3
2009-07-20	Current Meter	0.844	2019-11-01	Salt Dilution	0.29
2009-07-26	Current Meter	0.788	2019-12-02	Salt Dilution	0.035
2009-08-09	Current Meter	0.669	2020-01-02	Salt Dilution	0.211
2009-08-20	Current Meter	0.974	2020-01-02	Salt Dilution	0.423
2009-09-02	Current Meter	2.269	2020-01-27	Salt Dilution	0.295
2010-05-04	Current Meter	4.299	2020-02-07	Salt Dilution	0.1405
2010-06-01	Current Meter	2.378	2020-03-08	Salt Dilution	0.205
2010-06-15	Current Meter	2.159	2020-04-17	Salt Dilution	0.3175
2010-08-17	Current Meter	1.169	2020-05-05	Salt Dilution	3.102
2010-10-19	Current Meter	0.722	2020-07-03	Salt Dilution	3.259
2011-01-27	Salt Dilution	0.5	2020-08-05	Salt Dilution	3.251
2011-06-09	Current Meter	1.979	2020-12-05	Salt Dilution	1.572
2011-10-18	Current Meter	1.5	2021-01-02	Salt Dilution	0.407
2018-01-28	Current Meter	0.478	2021-02-01	Salt Dilution	0.142
2018-02-13	Current Meter	0.565	2021-03-05	Salt Dilution	0.350
2018-04-25	Current Meter	0.392	2021-04-05	Salt Dilution	0.456
2018-06-13	Current Meter	3.031	2021-05-18	Current Meter	4.481
2018-07-22	Current Meter	1.125	2021-06-19	Current Meter	1.291
2018-08-20	Current Meter	1.801	2021-07-10	Current Meter	2.376
2018-10-14	Current Meter	0.963	2021-08-05	Current Meter	1.777
2018-12-06	Current Meter	0.517	2021-09-01	Current Meter	2.239
2019-01-18	Salt Dilution	0.716	2021-10-04	Current Meter	2.263
2019-02-19	Salt Dilution	0.489	2021-11-07	Salt Dilution	0.798
2019-03-21	Salt Dilution	0.545	2021-12-06	Salt Dilution	0.184

Table 3-10:
Station W26 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Comments
2010-06-02	-	0.168	0.030	
2010-06-15	-	0.152	0.023	
2010-06-18	-	0.120	0.013	
2010-09-23	-	0.110	0.010	
2010-10-19	-	0.065	0.003	Stage affected by snow in channel
2011-05-18	-	-	0.121	Stage measurement not available
2011-05-19	-	-	0.142	Stage measurement not available
2011-08-19	-	-	0.017	Stage measurement not available
2011-10-16	Flume	-	0.007	Stage affected by snow in channel
2011-11-16	Flume	-	0.003	Stage measurement not available
2012-07-17	Flume	0.117	0.020	
2012-08-15	Flume	0.090	0.012	
2013-07-25	Flume	-	0.001	Stage measurement not available
2013-09-15	Flume	0.040	0.004	
2014-08-06	Flume	0.047	0.005	
2014-10-17	Flume	0.059	0.007	
2015-07-31	Flume	0.131	0.024	
2015-10-14	Flume	0.192	0.043	
2016-07-14	Flume	0.120	0.017	
2017-08-03	Flume	0.025	0.003	
2017-08-16	Flume	0.330	0.098	
2017-09-20	Flume	0.070	0.009	
2017-10-11	Flume	0.065	0.008	
2018-06-13	Flume	-	0.024	Stage measurement not available
2018-07-13	Flume	0.020	0.002	
2018-08-26	Flume	0.060	0.008	
2018-09-09	Flume	0.070	0.011	
2019-06-01	Flume	-	0.009	Stage measurement not available
2019-08-05	Flume	-	0.000	Stage measurement not available
2019-10-01	Flume	0.023	0.005	
2019-10-08	Flume	0.012	0.003	
2019-11-05	Flume	-	0.002	Stage measurement not available
2020-06-04	Flume	0.105	0.029	
2020-07-05	Flume	0.009	0.019	
2020-08-02	Flume	-	0.015	Stage measurement not available
2020-09-02	Flume	0.011	0.036	
2020-10-06	Flume	-	0.020	Stage measurement not available
2021-07-03	Salt Dilution	-	0.002	Stage measurement not available
2021-08-10	Salt Dilution	-	0.010	Stage measurement not available
2021-10-31	Salt Dilution	-	0.006	Stage measurement not available
2021-11-09	Salt Dilution	-	0.005	Stage measurement not available
2021-12-08	Salt Dilution	-	0.001	Stage measurement not available

Notes:
1. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.
2. A V-notch weir was installed in 2009, and replaced with a Parshall flume in August 2011.

Table 3-11:
Station W27 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Comments
2007-08-14	Current Meter	-	0.015	-	Stage measurement not available
2007-08-28	-	-	0.039	-	Stage measurement not available
2007-09-12	-	-	0.017	-	Stage measurement not available
2007-09-26	Current Meter	0.146	0.017	-	Stage measurement not available
2007-10-20	-	-	0.011	-	Stage measurement not available
2007-11-21	-	-	0.004	-	Stage measurement not available
2008-04-26	Salt Dilution	-	0.011	-	Stage measurement not available
2008-06-10	-	0.185	0.026	0.023	
2008-08-13	Current Meter	-	0.050	-	Stage measurement not available
2008-10-21	Current Meter	0.250	0.051	0.056	
2009-07-19	-	0.209	0.033	0.034	
2009-07-26	-	0.201	0.033	0.030	
2009-08-09	-	0.187	0.024	0.024	
2009-08-11	-	0.189	0.023	0.025	
2009-08-20	-	0.193	0.026	0.026	
2009-08-26	-	0.221	0.038	0.040	
2009-09-01	-	0.197	0.029	0.028	
2009-10-22	-	-	0.013	-	Stage measurement not available
2010-05-04	Salt Dilution	-0.025	0.072	-	
2010-05-05	Salt Dilution	0.225	0.086	-	Average of 3 measurements
2010-05-06	-	0.209	0.069	-	
2010-06-01	Salt Dilution	0.258	0.035	0.061	Average of 3 measurements
2010-06-02	-	0.261	0.035	0.063	
2010-06-15	-	0.243	0.052	0.052	
2010-06-16	-	0.238	0.049	0.049	
2010-06-18	-	0.227	0.046	0.043	
2010-09-23	-	0.020	0.015	-	Erratic logger data
2010-10-19	-	0.025	0.014	-	Stage affected by snow in channel
2011-03-30	Salt Dilution	-	0.010	-	Stage measurement not available
2011-04-19	Salt Dilution	-	0.009	-	Stage measurement not available
2011-05-17	Current Meter	0.339	0.120	0.127	
2011-05-18	Current Meter	0.363	0.261	-	Erratic logger data
2011-06-06	-	0.165	0.016	0.016	
2011-08-16	-	0.008	0.031	-	Erratic logger data
2011-10-17	-	0.173	0.008	-	Stage affected by snow in channel
2012-03-19	-	-	0.004	-	Unreliable discharge measurement
2012-04-17	-	-	0.007	-	Stage measurement not available
2012-05-06	-	-	0.040	-	Stage affected by snow in channel
2012-07-18	-	0.281	0.025	0.077	
2012-08-15	-	0.207	0.027	0.033	
2012-09-19	-	0.158	0.018	0.014	
2012-10-16	-	-	0.014	-	Stage measurement not available
2013-07-25	Flume	0.127	0.030		
2013-09-15	Flume	0.110	0.023		
2013-10-19	Flume	0.119	0.027		
2014-05-07	Flume	0.130	0.032		
2014-08-05	Flume	0.119	0.027		
2014-10-17	Flume	0.073	0.013		
2015-07-31	Flume	0.187	0.054		
2015-10-14	Flume	0.149	0.038		
2016-05-03	Flume	0.260	0.090		
2016-07-14	Flume	0.145	0.038		
2017-06-09	Flume	0.101	0.024		
2017-08-17	Flume	0.100	0.021		
2017-09-20	Flume	0.072	0.012		
2017-10-11	Flume	0.021	0.002		
2018-05-16	Flume	0.044	0.006		
2018-06-12	Flume	0.018	0.002		
2018-07-13	Flume	0.030	0.004		
2018-08-17	Flume	0.030	0.004		
2018-09-09	Flume	0.040	0.006		
2019-05-04	Flume	-	0.001	-	Stage measurement not available
2019-05-12	Flume	-	0.003	-	Stage measurement not available
2019-05-20	Flume	-	0.005	-	Stage measurement not available
2019-05-27	Flume	-	0.002	-	Stage measurement not available
2019-06-03	Flume	-	0.007	-	Stage measurement not available
2019-07-05	Flume	-	0.008	-	Stage measurement not available
2019-08-06	Flume	-	0.005	-	Stage measurement not available
2019-10-01	Flume	0.039	0.003		
2019-10-08	Flume	-	0.005	-	Stage measurement not available
2020-05-07	Flume	-	0.003	-	Stage measurement not available
2020-06-02	Flume	-	0.008	-	Stage measurement not available
2020-07-05	Flume	-	0.008	-	Stage measurement not available
2020-08-02	Flume	-	0.111	-	Stage measurement not available
2020-09-02	Flume	0.040	0.005	-	
2020-10-04	Flume	0.004	0.002	-	
2020-12-02	Flume	-	0.003	-	Stage measurement not available
2021-01-05	Salt Dilution	-	0.003	-	Stage measurement not available
2021-05-03	Salt Dilution	-	0.003	-	Stage measurement not available
2021-07-03	Salt Dilution	-	0.006	-	Stage measurement not available
2021-08-03	Salt Dilution	-	0.010	-	Stage measurement not available
2021-10-02	Salt Dilution	-	0.004	-	Stage measurement not available
2021-10-30	Salt Dilution	-	0.003	-	Stage measurement not available
2021-11-07	Salt Dilution	-	0.006	-	Stage measurement not available
2021-12-06	Salt Dilution	-	0.004	-	Stage measurement not available

Notes:
1. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.
2. A V-notch weir was installed in 2009, and replaced with a Parshall flume in August 2011.

Table 3-12:
Station W29 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2010-10-19	Current Meter	-	0.359	-	-	Stage measurement not available
2011-03-30	Salt Dilution	-	0.200	-	-	Stage measurement not available
2011-05-17	Current Meter	-	2.309	-	-	Stage measurement not available
2011-06-08	Current Meter	3.639	0.776	0.791	2%	
2011-06-28	Current Meter	3.630	0.839	0.735	-12%	
2011-08-16	-	3.788	1.971	1.986	1%	
2011-10-17	-	3.647	0.722	-	-	Stage affected by snow in channel
2011-11-16	Salt Dilution	-	0.377	-	-	Stage measurement not available
2011-12-06	Salt Dilution	-	0.269	-	-	Stage measurement not available
2012-05-04	Current Meter	3.644	0.859	-	-	Stage affected by snow in channel
2012-06-14	-	3.749	-	1.591	-5%	Discharge measurement not available
2012-07-18	-	3.702	-	-	-	Discharge measurement not available
2012-08-16	Current Meter	3.626	0.711	0.703	-1%	
2012-10-17	Current Meter	3.581	0.447	-	-	Stage affected by snow in channel
2012-11-20	Salt Dilution	-	0.264	-	-	Stage measurement not available
2012-12-17	Salt Dilution	-	0.281	-	-	Stage measurement not available
2013-02-19	Salt Dilution		0.350			Salt dilution, but based on few concentration determinations
2013-04-15	Current Meter	0.298	0.165	-	-	Stage affected by snow in channel
2013-05-21	Current Meter	0.366	1.513	1.628	8%	
2013-07-25	Current Meter	0.180	0.526	0.476	-9%	
2013-08-04	-	0.151	-	-	-	Discharge measurement not available
2013-09-14	Current Meter	0.275	0.793	0.884	11%	
2013-10-19	Current Meter	0.217	0.566	0.619	9%	
2014-08-05	Current Meter	0.191	0.505	0.516	2%	
2014-10-17	Current Meter	0.274	0.793	-	-	Stage affected by snow in channel
2015-06-18	Current Meter	0.208	0.709	0.582	-18%	
2015-07-31	Current Meter	0.385	1.834	1.534	-16%	
2015-10-14	Salt Dilution	0.274	0.754	-	-	Salt dilution, but based on few concentration determinations
2016-07-14	Current Meter	0.329	1.189	1.332	12%	
2017-06-09	Current Meter	-	0.865	-	-	Stage measurement not available
2017-08-04	Current Meter	0.259	0.600	0.562	-6%	
2017-08-16	Current Meter	-	0.501	-	-	Stage measurement not available
2017-10-13	Salt Dilution	-	1.124	-	-	Stage affected by ice in channel
2018-04-24	Current Meter	-	0.256	-	-	Stage affected by ice in channel
2018-06-12	Current Meter	0.355	1.546	1.406	-9%	
2018-07-22	Current Meter	0.237	0.665	0.735	11%	
2018-08-21	Current Meter	0.275	1.064	0.933	-12%	
2018-09-09	Current Meter	0.275	0.954	0.933	-2%	
2018-10-16	Current Meter	-	0.360	-	-	Stage affected by ice in channel
2018-11-06	Salt Dilution	-	0.380	-	-	Stage affected by ice in channel
2018-11-29	Salt Dilution	-	0.251	-	-	Stage affected by ice in channel
2018-12-04	Salt Dilution	-	0.200	-	-	Stage affected by ice in channel
2018-12-31	Salt Dilution	-	0.210	-	-	Stage affected by ice in channel
2019-01-12	Salt Dilution	-	0.189	-	-	Stage affected by ice in channel
2019-01-21	Salt Dilution	-	0.193	-	-	Stage affected by ice in channel
2019-02-15	Salt Dilution	-	0.205	-	-	Stage affected by ice in channel
2019-02-24	Salt Dilution	-	0.179	-	-	Stage affected by ice in channel
2019-03-03	Salt Dilution	-	0.174	-	-	Stage affected by ice in channel
2019-03-15	Salt Dilution	-	0.541	-	-	Stage affected by ice in channel
2019-03-21	Salt Dilution	-	0.216	-	-	Stage affected by ice in channel
2019-04-03	Salt Dilution	-	0.202	-	-	Stage affected by ice in channel
2019-04-15	Salt Dilution	-	0.217	-	-	Stage affected by ice in channel
2019-04-20	Salt Dilution	-	0.220	-	-	Stage affected by ice in channel
2019-04-26	Salt Dilution	-	0.289	-	-	Stage affected by ice in channel
2019-04-27	Salt Dilution	-	0.217	-	-	Stage affected by ice in channel
2019-05-04	Salt Dilution	-	0.198	-	-	Stage affected by ice in channel
2019-06-10	Current Meter	0.182	1.756	0.481	-73%	
2019-08-02	Current Meter	-	0.282	-	-	Stage measurement not available
2019-08-08	Current Meter	-	0.268	-	-	Stage measurement not available
2019-09-06	Current Meter	0.132	0.279	0.288	3%	
2019-10-03	Salt Dilution	0.174	0.488	0.448	-8%	
2019-11-01	Salt Dilution	-	0.172	-	-	Stage affected by ice in channel
2019-12-03	Salt Dilution	-	0.175	-	-	Stage affected by ice in channel
2020-01-06	Salt Dilution	-	0.130	-	-	Stage affected by ice in channel
2020-02-09	Salt Dilution	-	0.174	-	-	Stage affected by ice in channel
2020-03-09	Salt Dilution	-	0.337	-	-	Stage affected by ice in channel
2020-04-20	Salt Dilution	-	0.316	-	-	Stage affected by ice in channel
2020-04-21	Salt Dilution	-	0.329	-	-	Stage affected by ice in channel
2020-04-22	Salt Dilution	-	0.345	-	-	Stage affected by ice in channel
2020-04-23	Salt Dilution	-	0.363	-	-	Stage affected by ice in channel
2020-04-24	Salt Dilution	-	0.319	-	-	Stage affected by ice in channel
2020-04-25	Salt Dilution	-	0.293	-	-	Stage affected by ice in channel
2020-04-26	Salt Dilution	-	0.284	-	-	Stage affected by ice in channel
2020-04-27	Salt Dilution	-	0.165	-	-	Stage affected by ice in channel

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2020-05-06	Salt Dilution	0.226	0.778	0.681	-12%	
2020-07-04	Current Meter	0.256	0.767	0.832	9%	
2020-07-21	Current Meter	0.280	1.886	0.961	-49%	
2020-08-03	Current Meter	-	1.690	-	-	Stage measurement not available
2020-08-10	Current Meter	0.295	2.103	1.045	-50%	
2020-09-01	Current Meter	0.314	1.828	1.154	-37%	
2020-12-07	Salt Dilution	-	0.390	-	-	Stage affected by ice in channel
2021-01-03	Salt Dilution	-	0.320	-	-	Average of two salt dilutions (RPD = 17%)
2021-03-06	Salt Dilution	-	0.191	-	-	Average of two salt dilutions (RPD = 1%)
2021-02-04	Salt Dilution	-	-	-	-	Two measurements made, both in error
2021-04-07	Salt Dilution	-	0.171	-	-	Average of two salt dilutions (RPD = 16%)
2021-05-01	Salt Dilution	-	0.169	-	-	Average of two salt dilutions (RPD = 8%)
2021-06-19	Current Meter	0.216	0.531	0.634	19%	
2021-07-04	Current Meter	0.172	0.390	0.440	13%	
2021-08-05	Current Meter	0.189	1.077	0.512	-53%	
2021-10-03	Salt Dilution	-	0.714	-	-	Stage measurement not available
2021-11-15	Salt Dilution	-	0.507	-	-	Stage measurement not available
2021-12-03	Salt Dilution	-	0.259	-	-	Average of two salt dilutions (RPD = 0%)
Average Error (%)					-9%	
Standard Error (%)					23%	

Notes:
1. Measurements highlighted in grey were conducted in ice-affected waters, and were not employed in rating curve development.
2. Stage measurements for the period 2007 to 2012 are as reported in Knight Piésold (2013). Stage measurements for the period 2013 to 2018 are the staff gauge readings relative to the staff gauge datum from 2012.
3. Station measurements considered unreliable. Measurements continued to comply with QZ14-041-1 requirements.

Table 3-13:
Station W45 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Comments
2017-10-11	Salt Dilution	-	0.016	Stage measurement not available
2018-05-16	Salt Dilution	-	0.086	Stage measurement not available
2018-06-12	Salt Dilution	-	0.006	Stage measurement not available
2018-07-02	Salt Dilution	0.120	0.006	
2018-07-13	Salt Dilution	0.112	0.003	
2018-08-17	Salt Dilution	0.122	0.006	
2018-09-23	Salt Dilution	0.124	0.006	
2018-10-25	Salt Dilution	0.135	0.006	
2018-11-21	Salt Dilution	-	0.007	Stage measurement not available
2018-12-03	Salt Dilution	-	0.004	Stage measurement not available
2018-12-17	Salt Dilution	-	0.005	Stage measurement not available
2019-04-14	Salt Dilution	-	0.013	Stage measurement not available
2019-04-23	Salt Dilution	-	0.014	Stage measurement not available
2019-04-26	Salt Dilution	-	0.004	Stage measurement not available
2019-05-04	Salt Dilution	-	0.003	Stage measurement not available
2019-05-12	Salt Dilution	-	0.014	Stage measurement not available
2019-05-20	Salt Dilution	-	0.006	Stage measurement not available
2019-05-27	Salt Dilution	-	0.003	Stage measurement not available
2019-06-03	Salt Dilution	0.132	0.003	
2019-07-05	Salt Dilution	0.240	0.001	
2019-08-06	Salt Dilution	-	0.001	Stage measurement not available
2019-09-19	Salt Dilution	0.261	0.003	
2019-10-01	Salt Dilution	0.254	0.003	
2019-10-08	Salt Dilution	0.253	0.003	
2019-11-05	Salt Dilution	-	0.002	Stage measurement not available
2019-11-05	Salt Dilution	-	0.004	Stage measurement not available
2020-02-07	Salt Dilution	-	0.002	Stage measurement not available
2020-05-07	Salt Dilution	-	0.019	Stage measurement not available
2020-06-02	Salt Dilution	0.091	0.002	
2020-07-05	Salt Dilution	0.102	0.006	
2020-07-21	Salt Dilution	-	0.004	Stage measurement not available
2020-08-02	Salt Dilution	0.110	0.080	
2020-09-02	Salt Dilution	0.150	0.077	
2020-10-04	Salt Dilution	-	0.010	Stage measurement not available
2020-11-02	Salt Dilution	-	0.007	Stage measurement not available
2020-12-02	Salt Dilution	-	0.009	Stage measurement not available
2021-01-02	Salt Dilution	-	0.008	Average of two measurements (RPD = 0%)
2021-02-02	Salt Dilution	-	0.004	Average of two measurements (RPD = 0%)
2021-03-09	Salt Dilution	-	0.002	Average of two measurements (RPD = 0%)
2021-05-03	Salt Dilution	0.081	0.025	Average of two measurements (RPD = 8%)
2021-07-03	Salt Dilution	0.012	0.002	Average of two measurements (RPD = 0%)
2021-08-03	Salt Dilution	0.041	0.003	Average of two measurements (RPD = 0%)
2021-10-30	Salt Dilution	0.044	0.006	Average of two measurements (RPD = 0%)
2021-11-07	Salt Dilution	-	0.005	Average of two measurements (RPD = 0%)
2021-12-06	Salt Dilution	-	0.005	Average of two measurements (RPD = 0%)

Notes:
[1]Due to the limited number of measurements for this station, no rating curve has been developed.

Table 3-14:
Station W99 – Discharge Measurement Summary

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2019-06-03	Current Meter	-	1.283	-	-	Stage measurement not available
2019-04-14	Salt Dilution	-	1.625	-	-	Stage measurement not available
2019-04-22	Salt Dilution	-	1.035	-	-	Stage measurement not available
2019-05-04	current meter	-	0.254	-	-	Stage measurement not available
2019-06-10	Current Meter	0.178	0.558	0.560	1%	
2019-07-02	Current Meter	0.141	0.373	0.380	2%	
2019-08-02	Current Meter	0.123	0.300	0.303	1%	
2019-10-03	Salt Dilution	0.161	0.426	0.474	11%	
2019-10-07	Salt Dilution	-	0.167	-	-	Stage measurement not available
2019-10-16	Salt Dilution	0.155	0.521	0.445	-15%	
2019-11-01	Salt Dilution	-	3.435	-	-	Stage measurement not available
2019-12-03	Salt Dilution	-	0.280	-	-	Stage measurement not available
2020-01-06	Salt Dilution	-	0.130	-	-	Stage measurement not available
2020-02-09	Salt Dilution	-	0.172	-	-	Stage measurement not available
2020-03-09	Salt Dilution	-	0.132	-	-	Stage measurement not available
2020-04-12	Salt Dilution	-	0.147	-	-	Stage measurement not available
2020-05-06	Current Meter	0.278	1.226	1.181	-4%	
2020-06-04	Current Meter	0.440	2.661	2.537	-5%	
2020-07-04	Current Meter	0.325	1.572	1.532	-3%	
2020-08-03	Current Meter	0.379	1.849	1.979	7%	
2020-09-01	Current Meter	0.400	2.124	2.165	2%	
2020-10-06	Current Meter	0.322	1.596	1.509	-6%	
2020-11-03	Salt Dilution	-	0.750	-	-	Stage affected by ice in channel
2020-12-07	Salt Dilution	-	0.521	-	-	Stage affected by ice in channel
2021-01-03	Salt Dilution	-	0.368	-	-	Average of two salt dilutions (RPD = 13%)
2021-02-04	Salt Dilution	-	0.163	-	-	Average of two salt dilutions (RPD = 1%)
2021-03-06	Salt Dilution	-	0.220	-	-	Average of two salt dilutions (RPD = 7%)

Date	Method	Stage (m)	Discharge (m^3/s)	Rating Curve Discharge (m^3/s)	Rating Curve Error (%)	Comments
2021-04-07	Salt Dilution	-	0.205	-	-	Average of two salt dilutions (RPD = 5%)
2021-05-01	Salt Dilution	-	0.192	-	-	Average of two salt dilutions (RPD = 0%)
2021-06-19	Current Meter	-	0.760	-	-	Stage measurement not available
2021-07-04	Current Meter	0.183	0.599	0.589	-2%	
2021-08-05	Current Meter	0.249	0.978	0.983	1%	
2021-11-19	Salt Dilution	-	0.288	-	-	Average of two salt dilutions (RPD = 3%)
2021-12-03	Salt Dilution	-	0.233	-	-	Average of two salt dilutions (RPD = 11%)
Average Error (%)					-1%	
Standard Error (%)					6%	

Table 3-15:
Station W39 and W49- Discharge Measurements Summary

Station ID	Station Name	Date	Discharge (m^3/s)
W39	Haggart Creek above South McQuesten River	2017-08-17	0.995
		2018-08-20	2.125
		2019-05-03	0.995
		2019-07-02	2.125
		2019-11-12	1.065
		2019-11-12	0.672
		2020-07-03	4.872
		2020-12-05	1.66
		2021-02-04	1.11
		2021-06-19	2.0231
		2021-10-11	2.053
W49	South McQuesten River below Haggart Creek[3]	2017-08-17	4.523
		2018-06-14	19.334
		2019-05-03	4.975
		2019-07-02	4.562
		2019-11-12	1.283
		2020-01-02	0.296
		2020-05-05	0.851
		2020-09-23	18.131
		2020-11-05	8.9
		2021-05-09	35.635

Notes:
[1]Due to the limited number of measurements for these stations, no rating curves have been developed.
[2]Q2 W39 measurements were not achievable due to winter site access restrictions. W39 was relocated to a more accessible location on
Haggart creek in July to mitigate this in the future.
[3]Ice precluded flow measurements in Q1 and Q2 of 2021, equipment malfunction prevented measurement in Q4

Table 3-16:
Station PDI – Ditch A Outlet to LDSP – Discharge Measurement Summary

Date	Discharge (m^3/s)		Date	Discharge (m^3/s)
08-Apr-19	0.008		31-May-20	0.001
11-Apr-19	0.001		02-Jun-20	0.003
12-Apr-19	0.008		11-Aug-20	0.008
12-Apr-19	0.001		03-Sep-20	0.007
12-Apr-19	0.002		08-Sep-20	0.004
13-Apr-19	0.008		08-Sep-20	0.004
13-Apr-19	0.010		20-Apr-20	0.031
14-Apr-19	0.007		16-May-20	0.001
14-Apr-19	0.007		19-May-20	0.001
15-Apr-19	0.010		31-May-20	0.001
16-Apr-19	0.012		02-Jun-20	0.003
17-Apr-19	0.007		11-Aug-20	0.008
18-Apr-19	0.012		30-Aug-20	0.006
19-Apr-19	0.013		03-Sep-20	0.007
20-Apr-19	0.013		09-Oct-20	0.016
21-Apr-19	0.010		02-May-21	0.016
22-Apr-19	0.009		06-May-21	0.006
23-Apr-19	0.009		07-May-21	0.036
26-Apr-19	0.005		07-May-21	0.027
28-Apr-19	0.005		08-May-21	0.032
29-Apr-19	0.007		08-May-21	0.017
01-May-19	0.005		09-May-21	0.017
02-May-19	0.004		09-May-21	0.019
03-May-19	0.003		10-May-21	0.011
04-May-19	0.003		10-May-21	0.013
05-May-19	0.003		11-May-21	0.007
08-May-19	0.009		11-May-21	0.008
09-May-19	0.009		12-May-21	0.006
10-May-19	0.007		12-May-21	0.007
12-May-19	0.007		13-May-21	0.005
13-May-19	0.005		13-May-21	0.006
14-May-19	0.020		14-May-21	0.004
15-May-19	0.037		14-May-21	0.005
16-May-19	0.004		15-May-21	0.005
17-May-19	0.005		15-May-21	0.005
18-May-19	0.002		16-May-21	0.004
20-May-19	0.003		16-May-21	0.006
21-May-19	0.002		17-May-21	0.004
01-Jun-19	0.002		17-May-21	0.005
06-Jun-19	0.011		18-May-21	0.002
10-Jun-19	0.001		18-May-21	0.004
13-Jun-19	0.003		19-May-21	0.261
17-Jun-19	0.002		19-May-21	0.565
22-Jun-19	0.001		20-May-21	0.003
01-Jul-19	0.0003		20-May-21	0.004
13-Jul-19	0.0004		19-Jun-21	0.004
05-Aug-19	0.001		20-Jun-21	0.002
19-Sep-19	0.050		03-Jul-21	0.003
20-Apr-20	0.031		11-Aug-21	0.004
16-May-20	0.001		06-Oct-21	0.004
19-May-20	0.001			

Table 3-17:
Station PGS – Ditch A Platinum Gulch Seep - Discharge Measurement Summary

Date	Discharge (m^3/s)		Date	Discharge (m^3/s)
13-Apr-19	0.004		13-May-19	0.010
14-Apr-19	0.005		16-May-19	0.010
14-Apr-19	0.006		17-May-19	0.006
15-Apr-19	0.005		18-May-19	0.011
16-Apr-19	0.005		20-May-19	0.009
17-Apr-19	0.003		21-May-19	0.009
18-Apr-19	0.001		01-Jun-19	0.003
19-Apr-19	0.000		06-Jun-19	0.006
21-Apr-19	0.003		10-Jun-19	0.001
23-Apr-19	0.001		13-Jun-19	0.005
29-Apr-19	0.005		17-Jun-19	0.005
01-May-19	0.007		19-May-20	0.002
02-May-19	0.003		11-Aug-20	0.004
03-May-19	0.002		03-Sep-20	0.004
04-May-19	0.001		11-Oct-20	0.003
05-May-19	0.002		02-Apr-21	0.056
08-May-19	0.017		02-Apr-21	0.056
09-May-19	0.013		03-Jul-21	0.001
10-May-19	0.013		08-Aug-21	0.001
12-May-19	0.011		06-Oct-21	0.002

Table 3-18:
Station EPS/DB4 – Flows from Future Ditch B Outlet to LDSP – Discharge Measurement Summary

Date	Discharge (m^3/s)		Date	Discharge (m^3/s)
08-Apr-19	0.001		17-Jun-19	0.001
11-Apr-19	0.006		05-Aug-19	0.001
11-Apr-19	0.002		19-Sep-19	0.020
12-Apr-19	0.001		10-May-20	0.130
12-Apr-19	0.003		09-Oct-20	0.004
12-Apr-19	0.001		10-Apr-21	0.041
13-Apr-19	0.004		06-May-21	0.037
14-Apr-19	0.001		07-May-21	0.066
14-Apr-19	0.002		07-May-21	0.066
15-Apr-19	0.005		08-May-21	0.059
16-Apr-19	0.007		08-May-21	0.073
17-Apr-19	0.005		09-May-21	0.048
18-Apr-19	0.010		09-May-21	0.087
19-Apr-19	0.009		10-May-21	0.034
20-Apr-19	0.007		10-May-21	0.027
21-Apr-19	0.007		11-May-21	0.021
23-Apr-19	0.006		11-May-21	0.024
26-Apr-19	0.002		12-May-21	0.009
28-Apr-19	0.002		12-May-21	0.005
29-Apr-19	0.003		13-May-21	0.003
01-May-19	0.012		13-May-21	0.003
02-May-19	0.006		14-May-21	0.002
03-May-19	0.003		14-May-21	0.002
04-May-19	0.003		15-May-21	0.002
05-May-19	0.001		15-May-21	0.002
08-May-19	0.027		16-May-21	0.001
09-May-19	0.018		16-May-21	0.001
10-May-19	0.036		17-May-21	0.001
11-May-19	0.018		17-May-21	0.001
12-May-19	0.013		18-May-21	0.000
13-May-19	0.009		19-May-21	0.212
14-May-19	0.010		19-May-21	0.284
15-May-19	0.007		20-May-21	0.000
16-May-19	0.012		20-May-21	0.002
17-May-19	0.004		19-Jun-21	0.001
18-May-19	0.005		20-Jun-21	0.002
19-May-19	0.006		03-Jul-21	0.001
20-May-19	0.007		08-Aug-21	0.005
21-May-19	0.008		10-Sep-21	0.010
01-Jun-19	0.003		22-Oct-21	0.017
06-Jun-19	0.002		08-Nov-21	0.006
13-Jun-19	0.001			

Table 3-19:
Station UND – LDSP Underdrain – Discharge Measurement Summary

Date	Discharge (m^3/s)		Date	Discharge (m^3/s)
19-Jan-20	0.002		02-Jan-21	0.002
06-Feb-20	0.001		05-Feb-21	0.002
07-Mar-20	0.002		09-Mar-21	0.003
08-Apr-20	0.002		02-Apr-21	0.003
10-May-20	0.002		10-May-21	0.002
01-Jun-20	0.002		22-Jun-21	0.003
01-Jul-20	0.002		09-Jul-21	0.002
02-Aug-20	0.008		03-Aug-21	0.002
25-Aug-20	0.001		02-Sep-21	0.002
03-Sep-20	0.003		02-Oct-21	0.003
06-Oct-20	0.002		08-Nov-21	0.002
02-Nov-20	0.002		07-Dec-21	0.004
02-Dec-20	0.002			

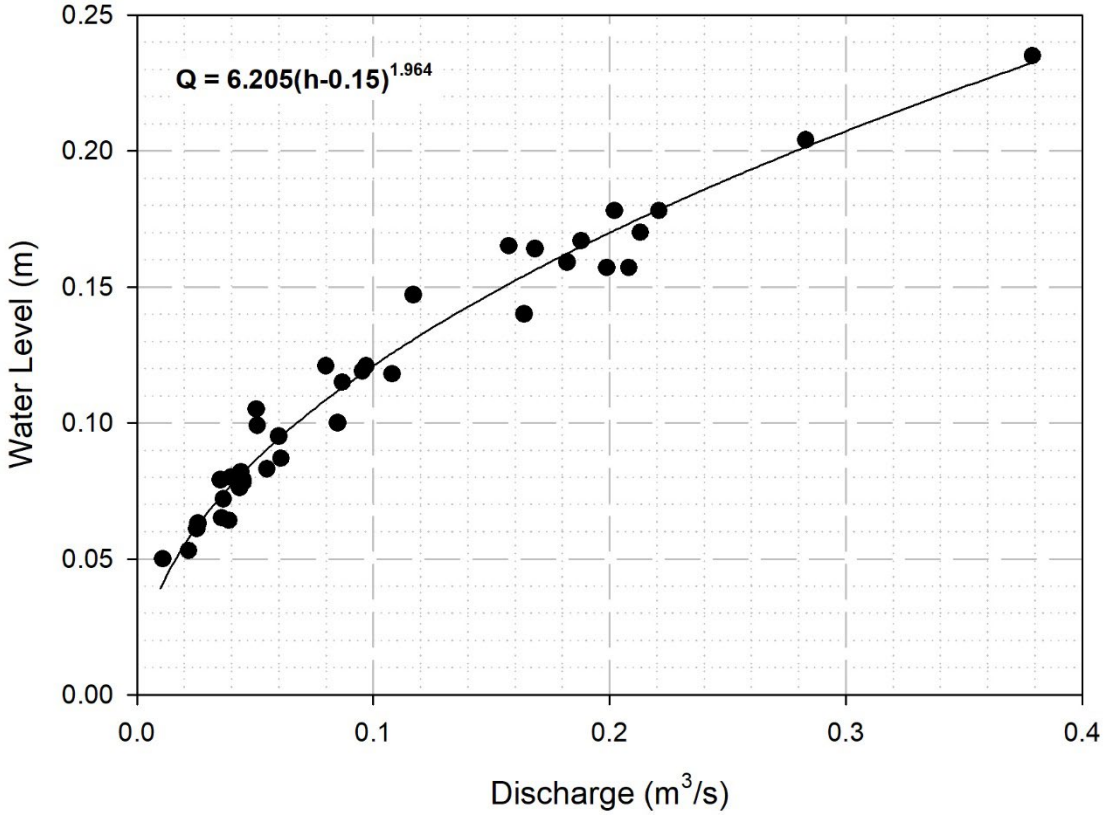


Figure 3-1: Rating curve for station W1 (2012 – 2021).

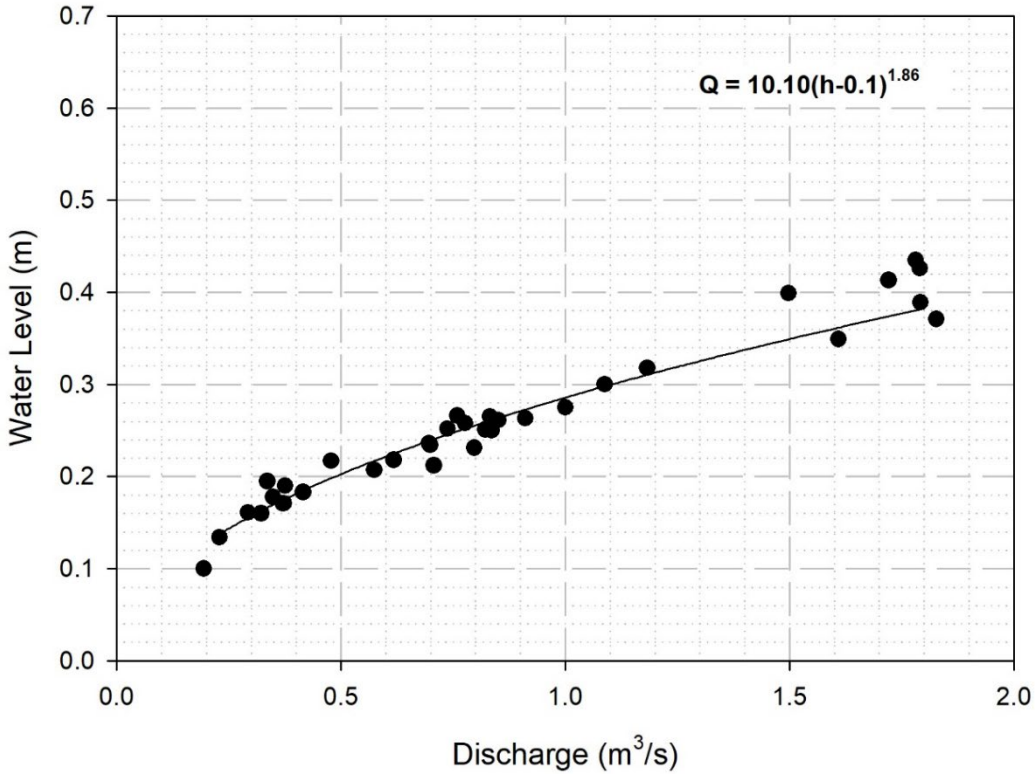


Figure 3-2: Rating curve for station W4 (2012 – 2021).

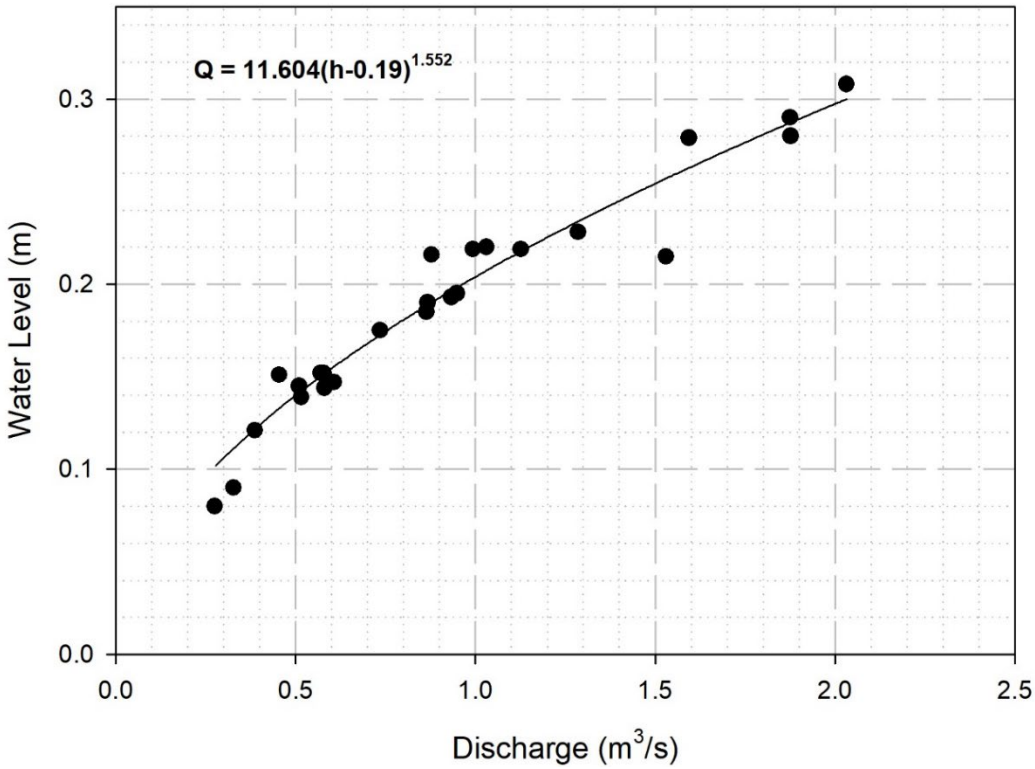


Figure 3-3: Rating curve for station W5 (2012 – 2021).

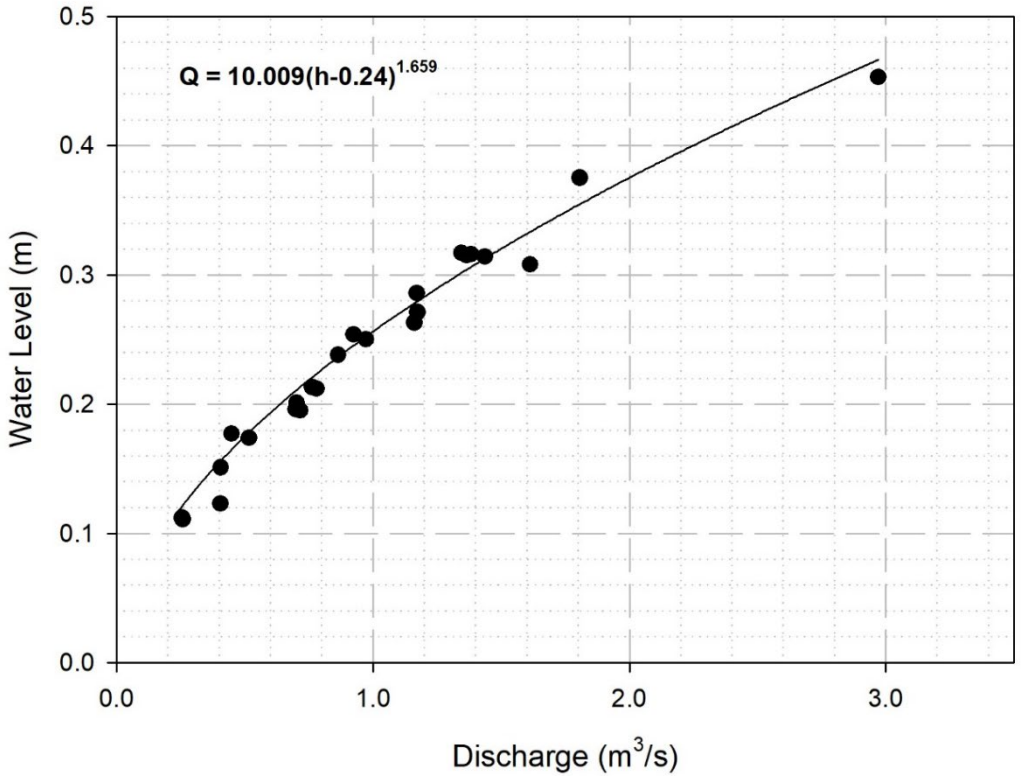


Figure 3-4: Rating curve for station W6 (2012 – 2021).

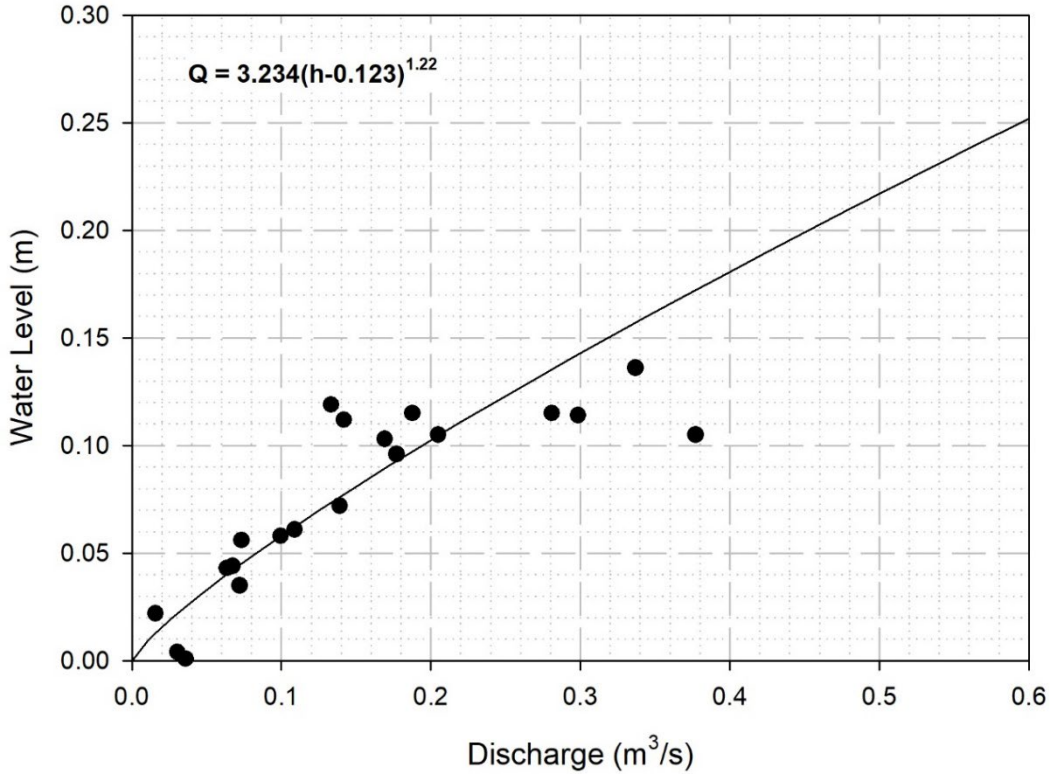


Figure 3-5: Preliminary rating curve for station W21 (2018 – 2021).

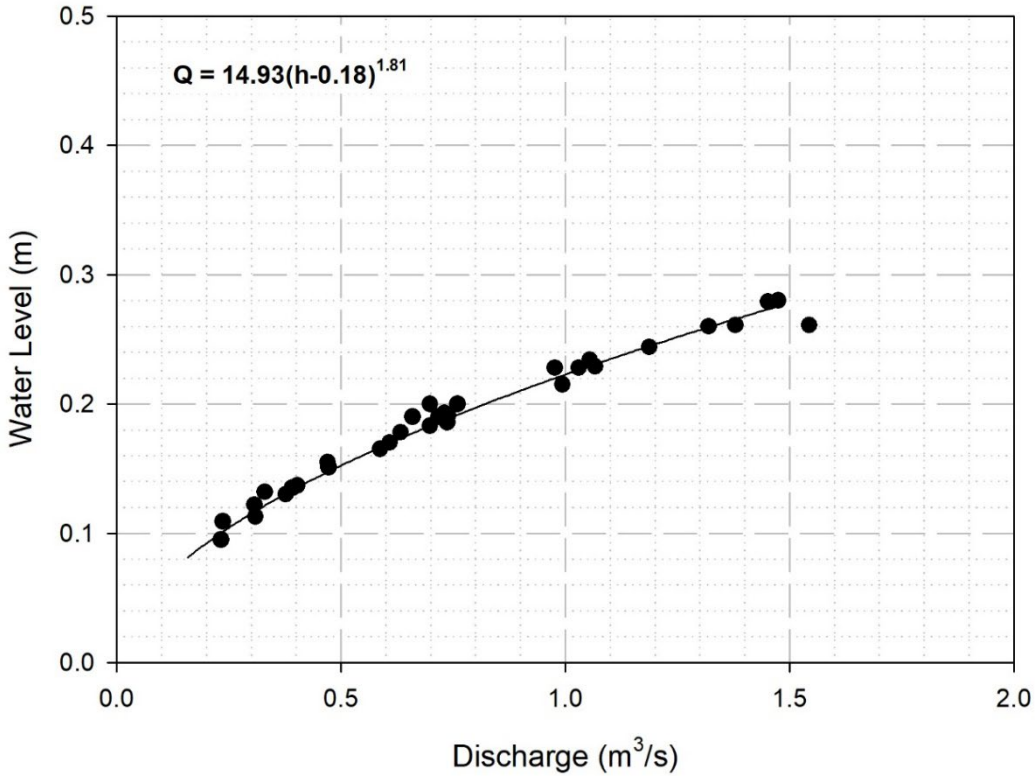


Figure 3-6: Rating curve for station W22 (2012 – 2021).

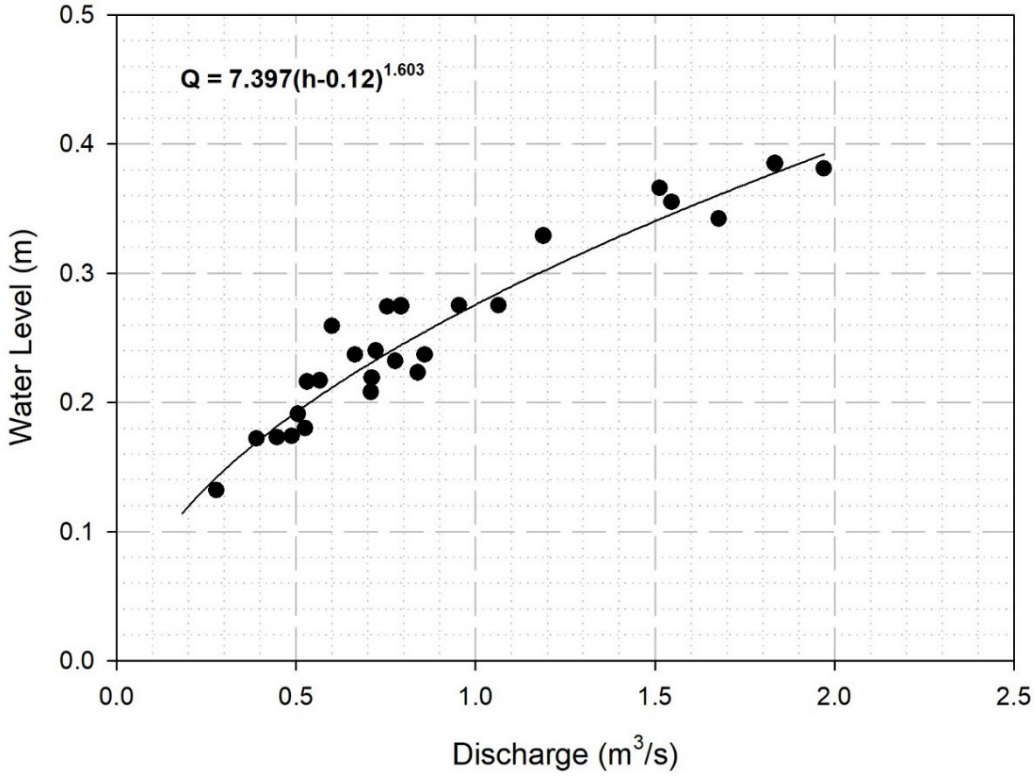


Figure 3-7: Rating curve for station W29 (2012 – 2021).

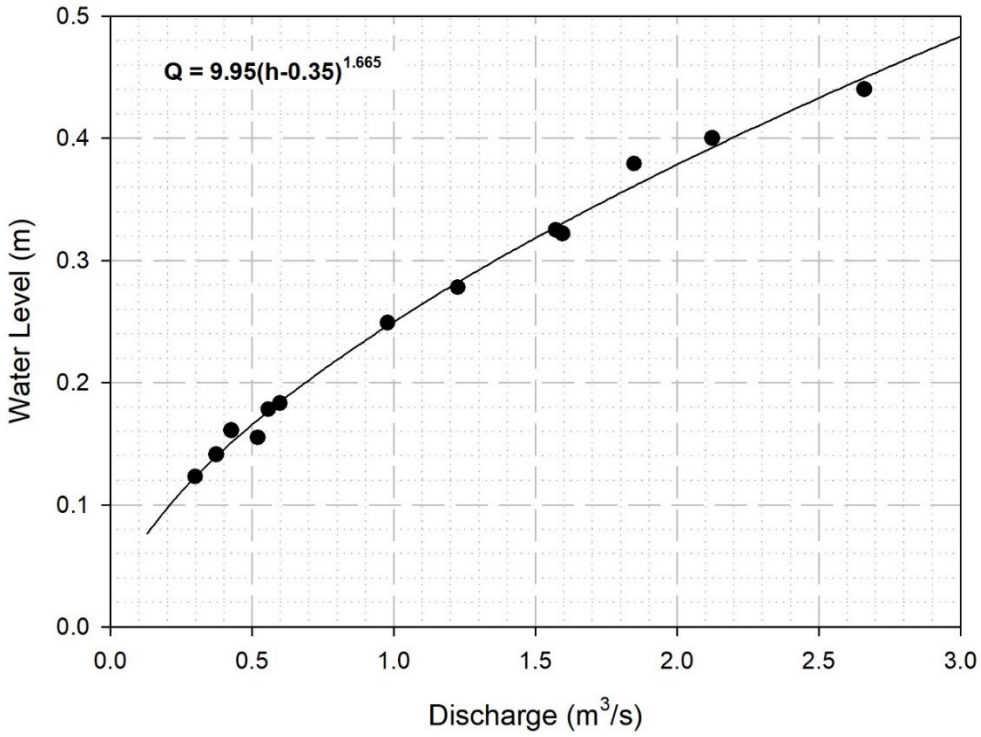


Figure 3-8: Rating curve for station W99 (2019 – 2021).

3.4 Winter Streamflow Interpolation

Due to extensive channel icing and complete freezing to the bed in some cases, reliable continuous water level data is not available for the winter season (mid-October to early May in most years). However, spot flow measurements collected during the winter water quality sampling trips are available for most years. Where these measurements span the majority of the winter season, streamflows were estimated by interpolating between the spot flow measurements. This was done by assuming that mid-winter melt or rain events do not occur at site, and that the streamflows are a result of recession from the open-water season discharge regime to a steady-state baseflow driven by the local groundwater system discharging to the stream channel. This recession curve is defined by the equation (Maidment, 1993):

$$Q_t = Q_0\, e^{-kt}$$

Where:

Q_t = discharge at time t (m^3/s)

Q_0 = initial discharge (both Q_t and Q_0 are measured within the same straight segment

k = decay rate (negative for declining flows)

t = number of days between spot measurements (interpolation period)

The decay rate, denoted k, was unique to each pair of subsequent discharge measurements, and was commonly in the range of -1×10^{-3} to -0.5×10^{-5}.

4. Results

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4. Results

4.1 Streamflow Records – Discharge

The computed flow records for all site stations listed in Table 2-1 are presented as average daily discharge time-series and plotted with spot discharge measurements and interpolated baseflows in Figure 4-1 through Figure 4-11. As a rating curve for W45 has not yet been developed, continuous water level data are presented for this station in Figure 4-10 for 2018-2020. The same flow records are also presented as unit yield plots, with each plot showing annual data for all stations on a single plot (refer to Figure 4-13 to Figure 4-27).

While discharge magnitude varies with watershed area (*i.e.,* larger basin areas result in higher discharge values), it is more often instructive to compare runoff and/or unit yields to remove the influence of watershed area. The variation in runoff and yields across the gauged basins at the Project site is relatively low, with unit yields averaging 14 ± 2 L/s/km^2 and an average runoff of 183 ± 43 mm for the open water season (Table 4-1).

W4 and W27 display slightly lower average unit yields than the other stations, and W1, W5, W29 and W99 yield slightly more water on average. There appears to be lower than average yields at W26, however, this result is biased lower by the absence of data for the month of May, which is typically the month with the highest proportion of annual runoff. W1 appears to experience the highest overall yields, and in particular, the highest magnitude freshet (in yield terms). Higher than average yields at this station are sustained throughout the seasonal falling limb from September through November.

Table 4-2 through Table 4-21 present the monthly summaries of streamflow as discharge, unit yields and runoff, by station. As noted in Section 2.2.3, reliable continuous water level data is not available for W29 for 2016 through 2019, and much of 2020.

Table 4-1:
Summary of monthly average discharge, unit yield and runoff for Project site hydrometric stations.

Station (Discharge Area)	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average/Total
W1 (6.8 km²)	Average Discharge (m³/s)	--	--	--	0.024	0.255	0.110	0.091	0.088	0.089	0.099	0.069	--	0.103
	Average Yield (L/s/km²)	--	--	--	3.5	37.5	16.1	13.4	13.0	13.0	14.6	10.1	--	15.2
	Runoff (mm)	--	--	--	5	63	39	35	33	34	21	4	--	234
W4 (76.9 km²)	Average Discharge (m³/s)	--	--	--	0.256	2.281	1.176	0.858	0.903	0.917	0.829	--	--	1.031
	Average Yield (L/s/km²)	--	--	--	3.3	29.7	15.3	11.2	11.7	11.9	10.8	--	--	13.4
	Runoff (mm)	--	--	--	2	56	38	30	31	31	16	--	--	203
W5 (97.5 km²)	Average Discharge (m³/s)	--	--	--	--	3.088	1.450	1.060	1.041	1.049	1.106	--	--	1.466
	Average Yield (L/s/km²)	--	--	--	--	31.7	14.9	10.9	10.7	10.8	11.3	--	--	15.0
	Runoff (mm)	--	--	--	--	64	36	29	28	28	14	--	--	199
W6 (100.9 km²)	Average Discharge (m³/s)	--	--	--	--	3.653	1.158	0.933	1.127	1.203	1.061	0.574	--	1.387
	Average Yield (L/s/km²)	--	--	--	--	36.2	11.5	9.2	11.2	11.9	10.5	5.7	--	13.7
	Runoff (mm)	--	--	--	--	63	25	23	29	31	15	3	--	191
W21 (10.1 km²)	Average Discharge (m³/s)	--	--	--	--	0.280	0.123	0.067	0.118	0.074	0.055	--	--	0.120
	Average Yield (L/s/km²)	--	--	--	--	27.68	13.8	7.5	14.3	8.3	6.1	--	--	13.0
	Runoff (mm)	--	--	--	--	74.15	18	8	7	6	1	--	--	115
W22 (66.8 km²)	Average Discharge (m³/s)	--	--	--	0.531	2.211	1.009	0.713	0.832	0.794	0.764	0.937	--	0.974
	Average Yield (L/s/km²)	--	--	--	7.9	33.1	15.1	10.7	12.5	11.9	11.4	14.0	--	14.6
	Runoff (mm)	--	--	--	13	60	38	27	30	30	15	15	--	228
W26 (1.3 km²)	Average Discharge (m³/s)	--	--	--	--	0.029	0.016	0.011	0.014	0.011	0.007	--	--	0.015
	Average Yield (L/s/km²)	--	--	--	--	22.3	12.2	8.9	10.5	8.5	6.0	--	--	11.4
	Runoff (mm)	--	--	--	--	40	26	23	28	21	6	--	--	144
W27 (2.7 km²)	Average Discharge (m³/s)	--	--	--	0.007	0.054	0.027	0.024	0.021	0.019	0.023	--	--	0.025
	Average Yield (L/s/km²)	--	--	--	2.507412	20.0	10.0	8.7	7.8	6.9	8.7	--	--	9.2
	Runoff (mm)	--	--	--	3.032965	38	24	20	20	18	9	--	--	131
W29 (8 km²)	Average Discharge (m³/s)	--	--	--	--	2.886	1.163	1.099	1.170	1.081	0.968	--	--	1.395
	Average Yield (L/s/km²)	--	--	--	--	33.5	13.5	12.8	13.6	12.6	11.2	--	--	16.2
	Runoff (mm)	--	--	--	--	43	28	34	35	33	18	--	--	191
W99 (90.1 km²)	Average Discharge (m³/s)	--	--	--	1.503	2.657	1.595	0.915	0.990	0.936	1.077	--	--	1.382
	Average Yield (L/s/km²)	--	--	--	17.0	30.1	18.1	10.4	11.2	10.6	12.2	--	--	15.7
	Runoff (mm)	--	--	--	19	81	45	27	30	27	11	--	--	240

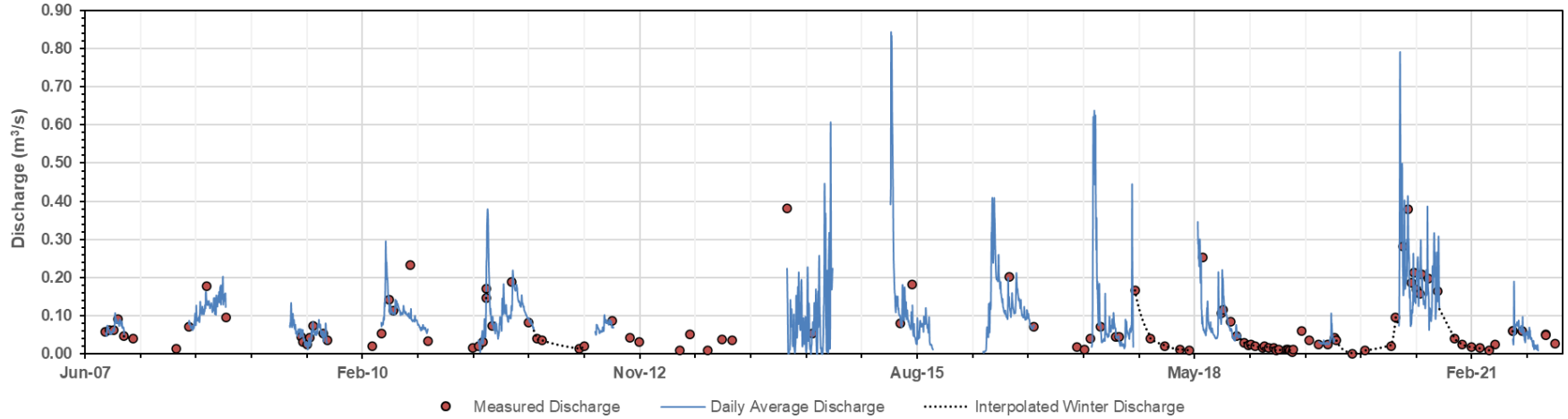


Figure 4-1: W1 Average daily discharge record (2007 to 2021).

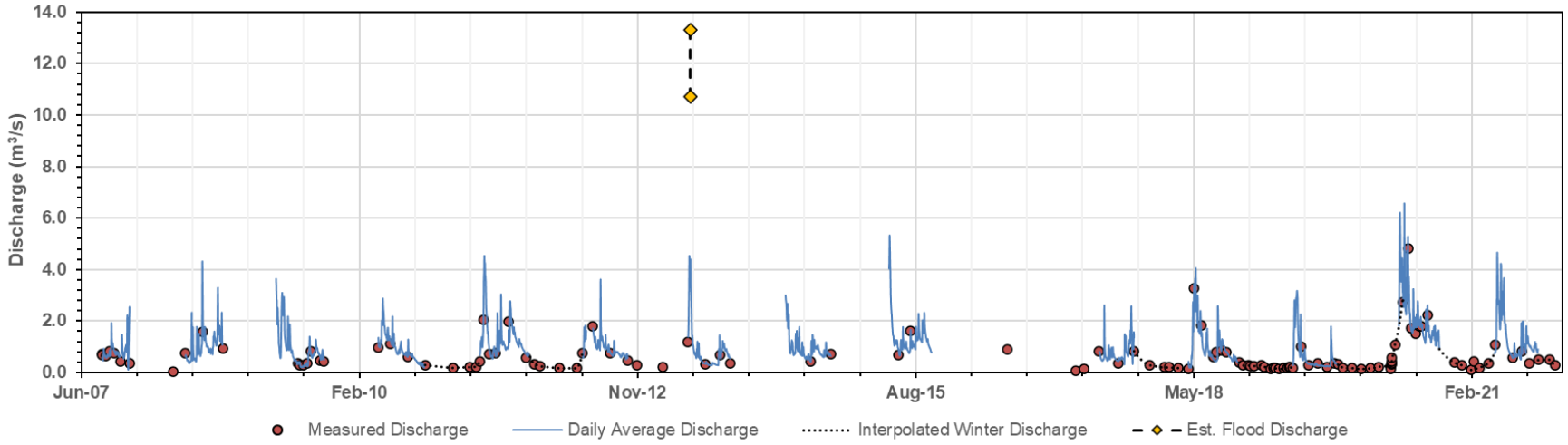


Figure 4-2: W4 Average daily discharge record (2007 to 2021). Note that values for May 29, 2013, are estimates based on high water marks and channel surveys at W29 extrapolated by drainage area to W4 (Laberge, 2013).

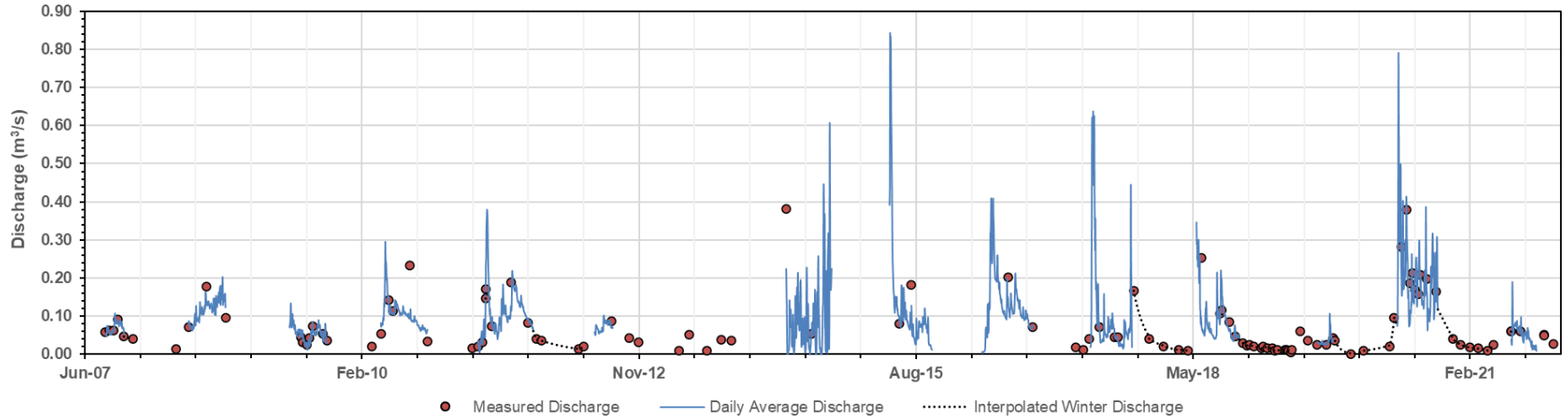


Figure 4-3: W5 Average daily discharge record (2007 to 2021). Note that values for May 29, 2013, are estimates based on high water marks and channel surveys at W29 extrapolated by drainage area to W5 (Laberge, 2013).

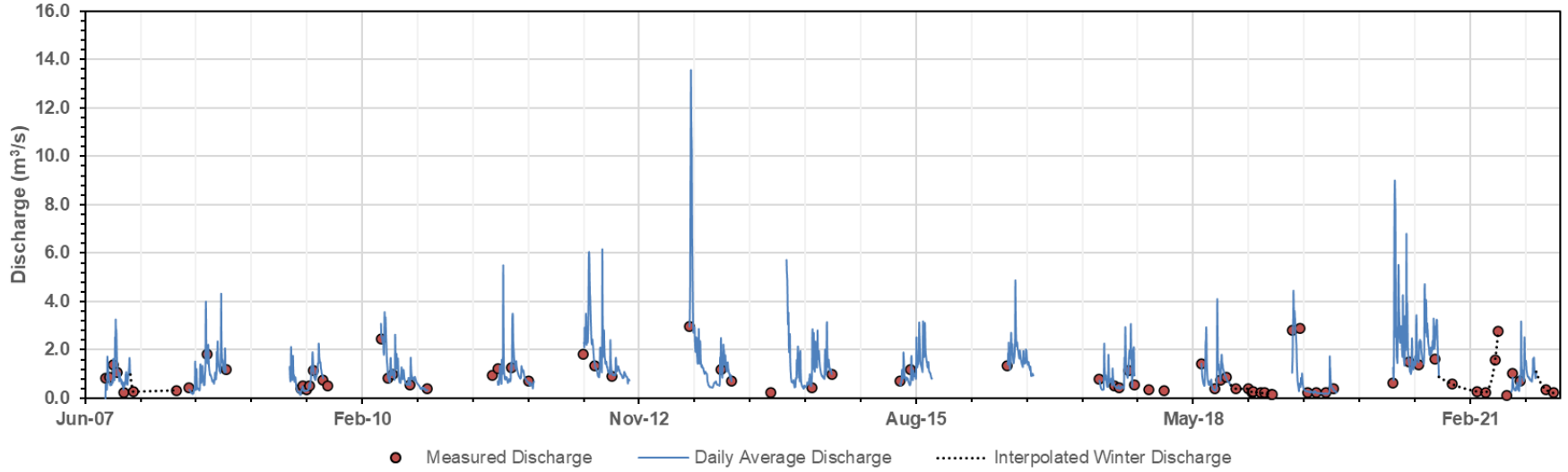


Figure 4-4: W6 Average daily discharge record (2007 to 2021).

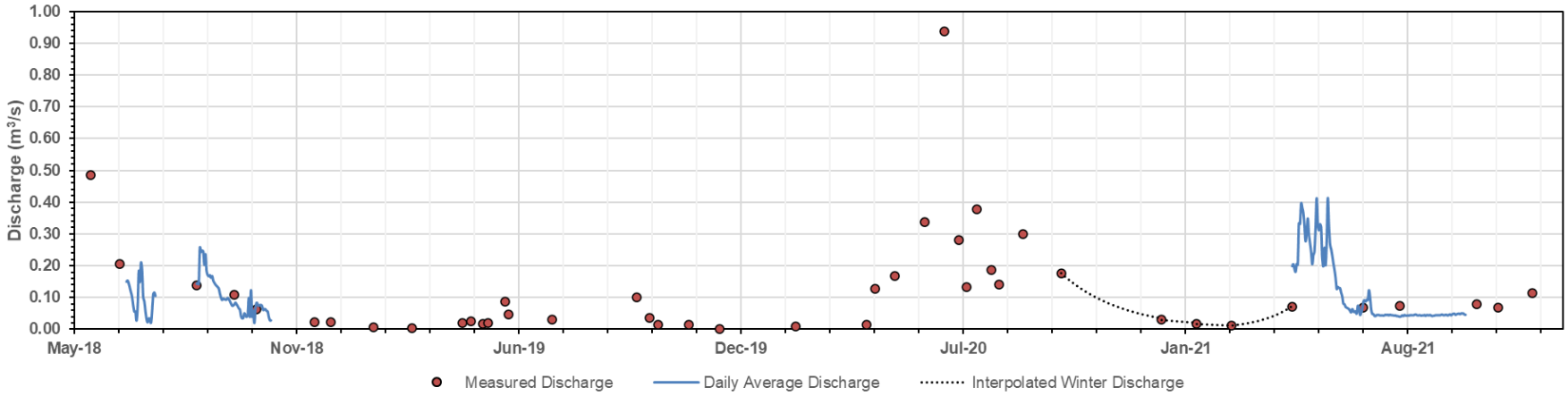


Figure 4-5: Preliminary W21 Average daily discharge record (2018 to 2021).

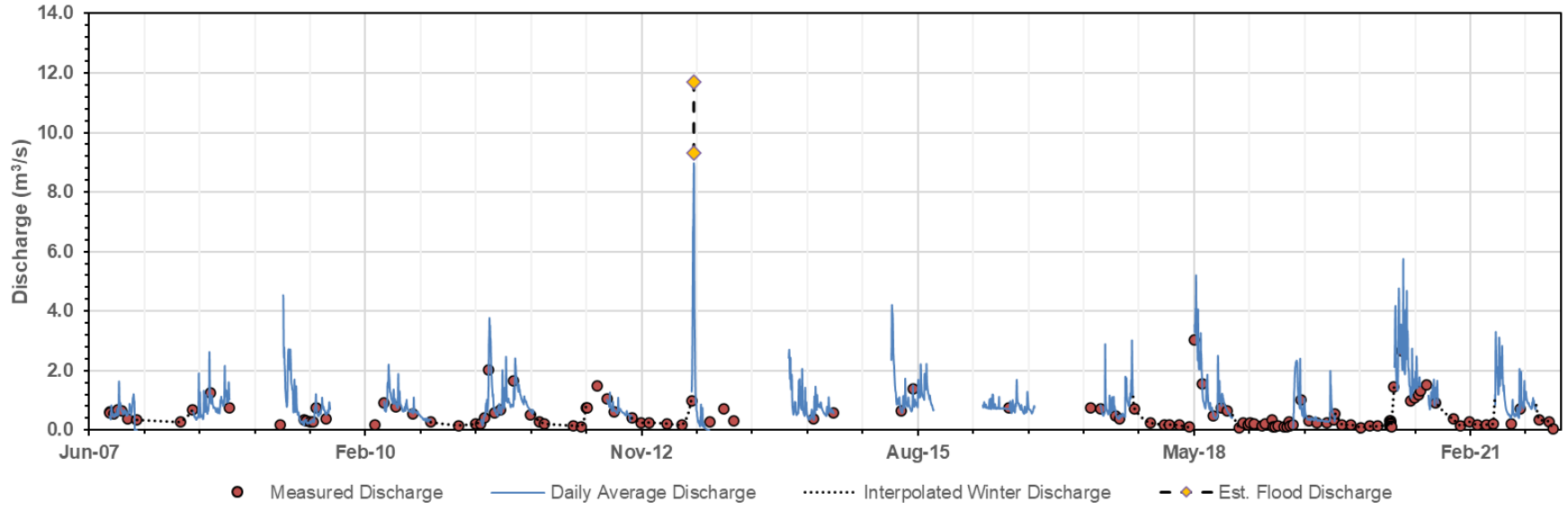


Figure 4-6: W22 Average daily discharge record (2007 to 2021). Note that values for May 29, 2013 are estimates based on high water marks and channel surveys at W29 extrapolated by drainage area to W22 (Laberge, 2013).

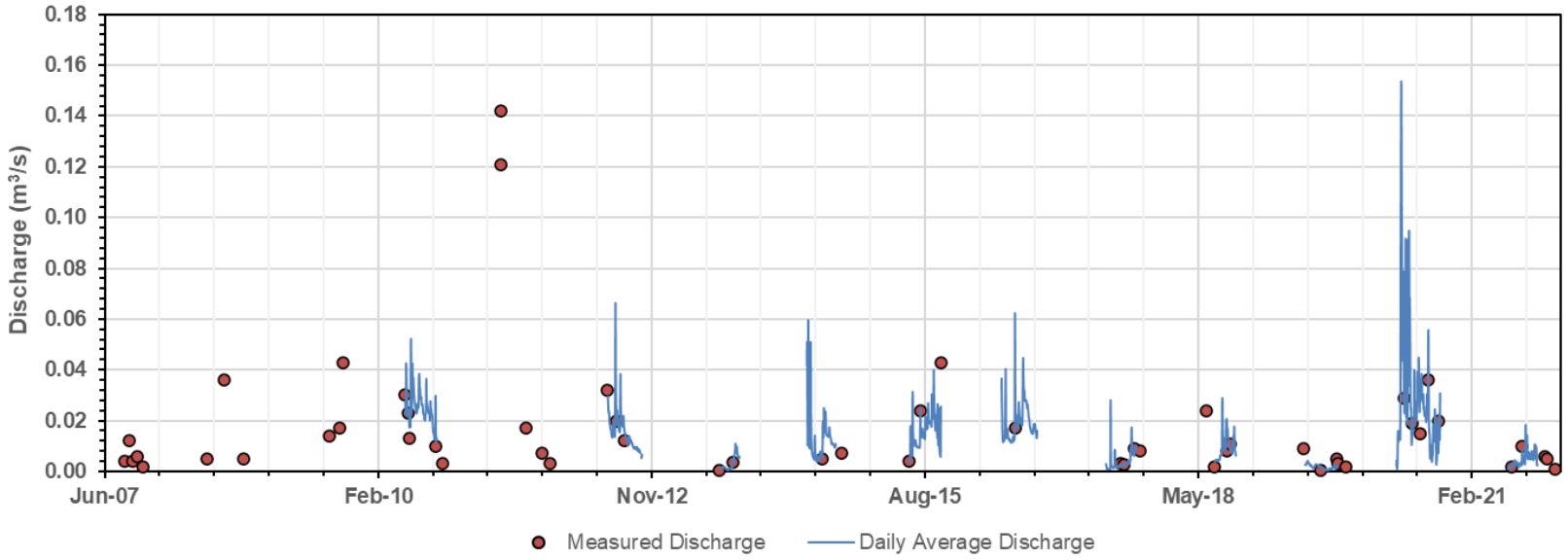


Figure 4-7: W26 Average daily discharge record (2007 to 2021).

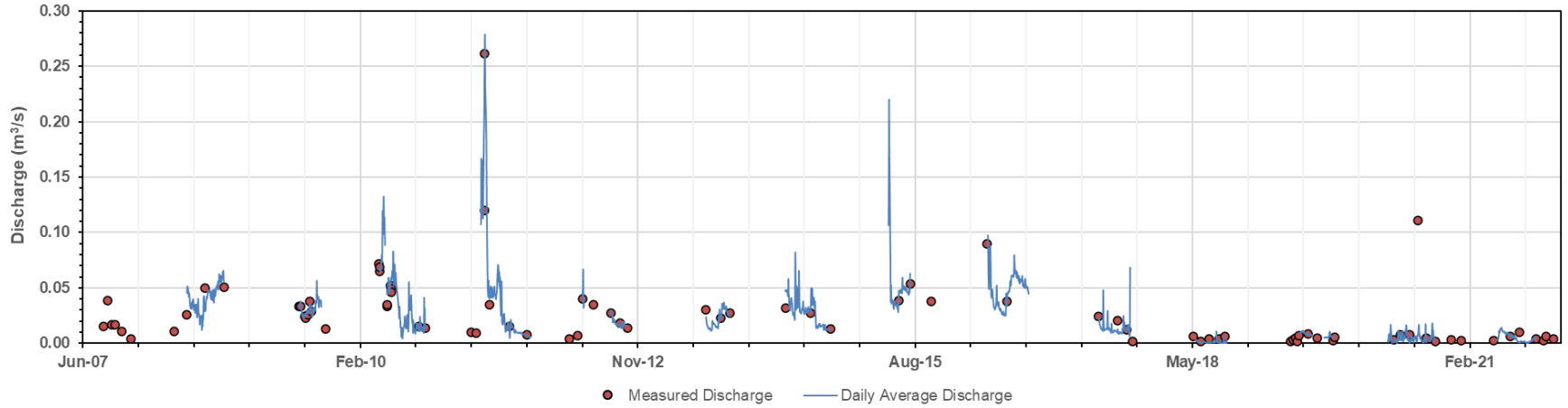


Figure 4-8: W27 Average daily discharge record (2007 to 2021).

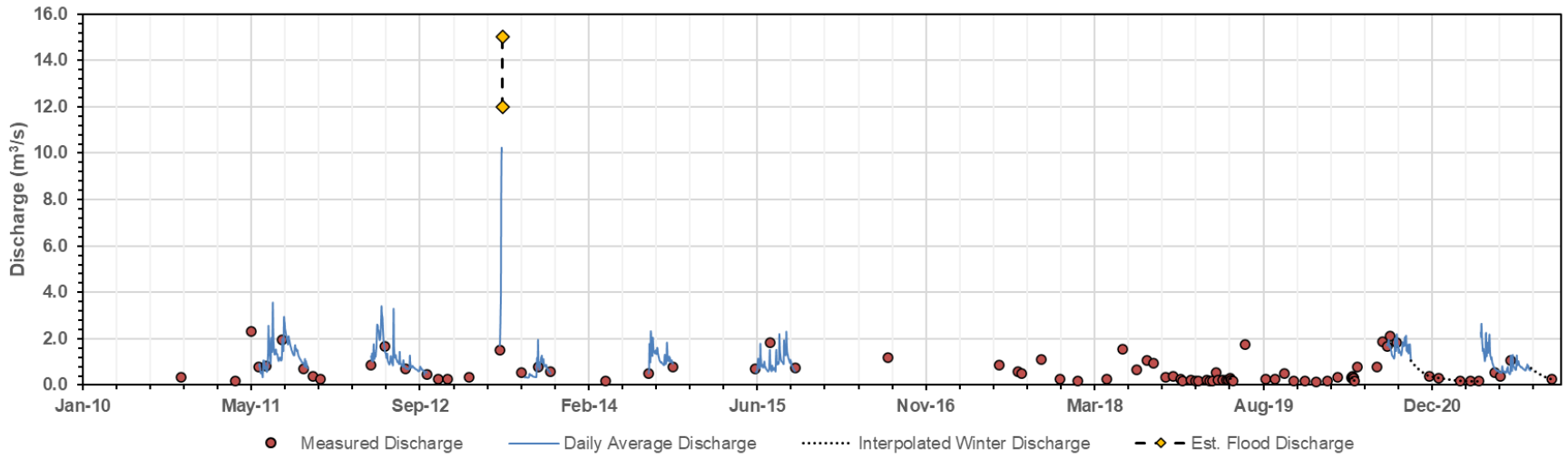


Figure 4-9: W29 Average daily discharge record (2011 to 2021). Note that values for May 29, 2013 are estimates based on high water marks and channel surveys at W29 (Laberge, 2013).

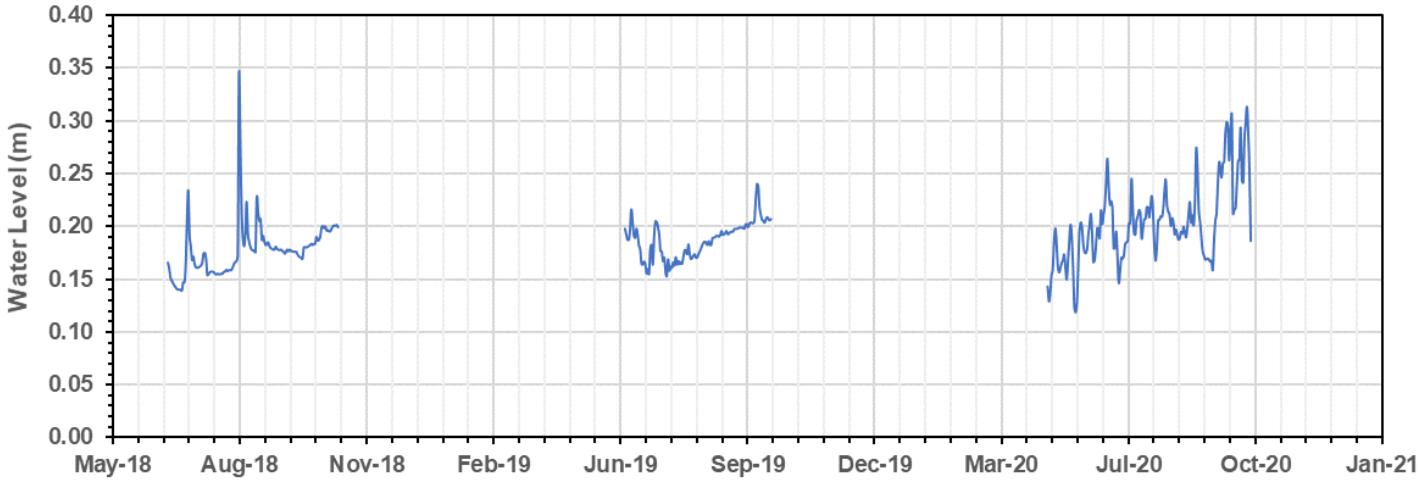


Figure 4-10: W45 Average daily water level record (2018 to 2020). Note that 2021 water level data are affected by sensor error and are not shown.

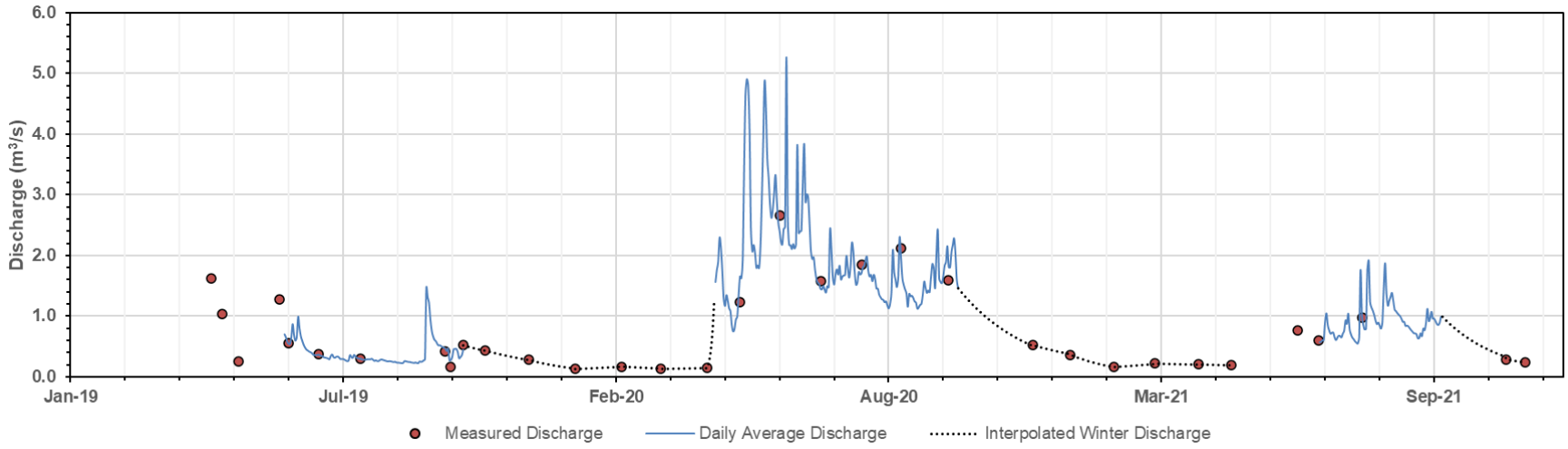


Figure 4-11: W99 Average daily discharge record (2019 to 2021).

4.2 Streamflow Records – Unit Yields

Period of record (Figure 4-12) and unit yield plots per year (Figure 4-13 through Figure 4-27) are presented for the eight hydrometric stations in this section.

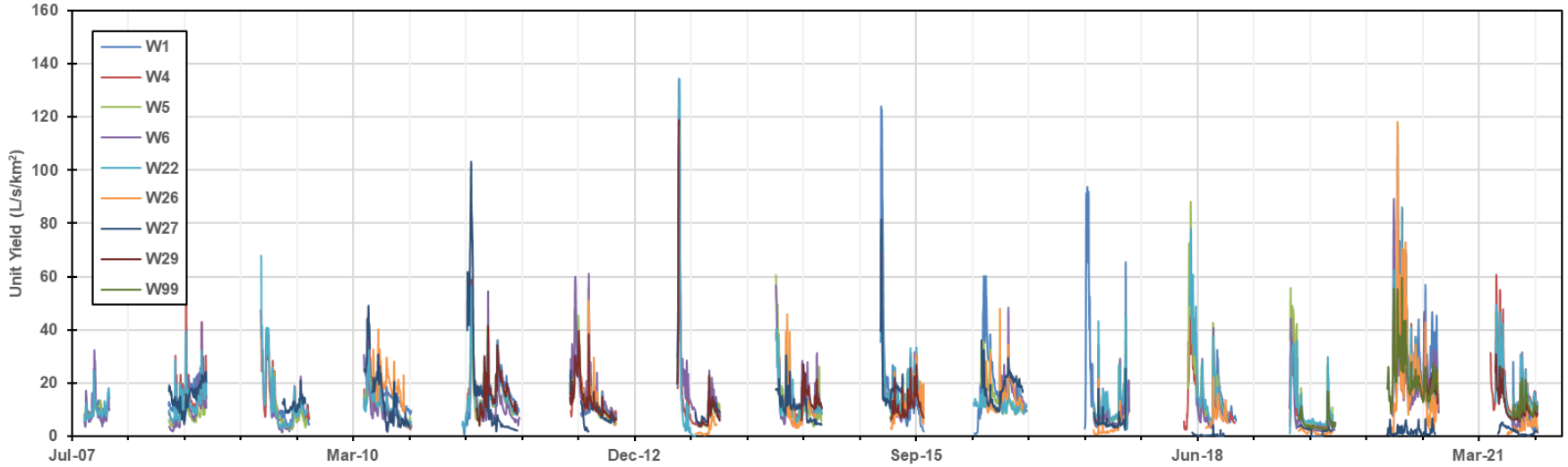


Figure 4-12: Average daily unit yield time-series for Project stations (2007-2021)

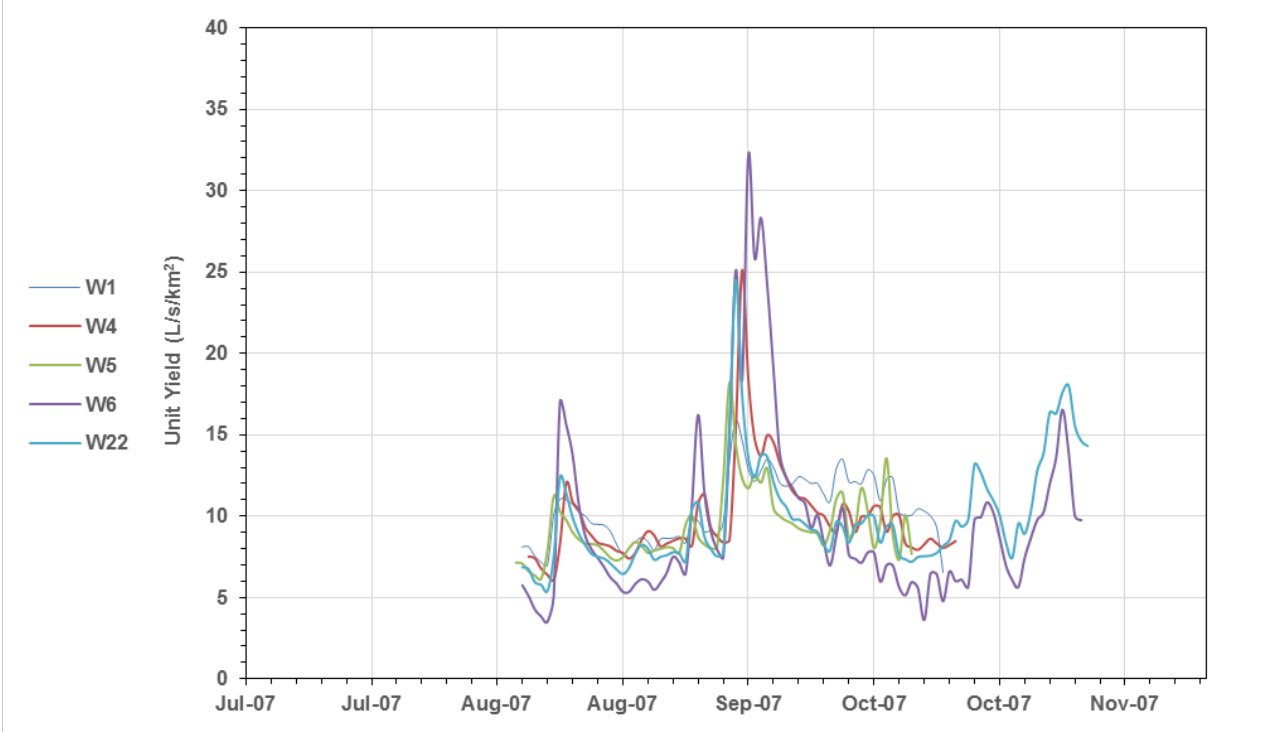


Figure 4-13: Average daily unit yield time-series for Project stations (2007)

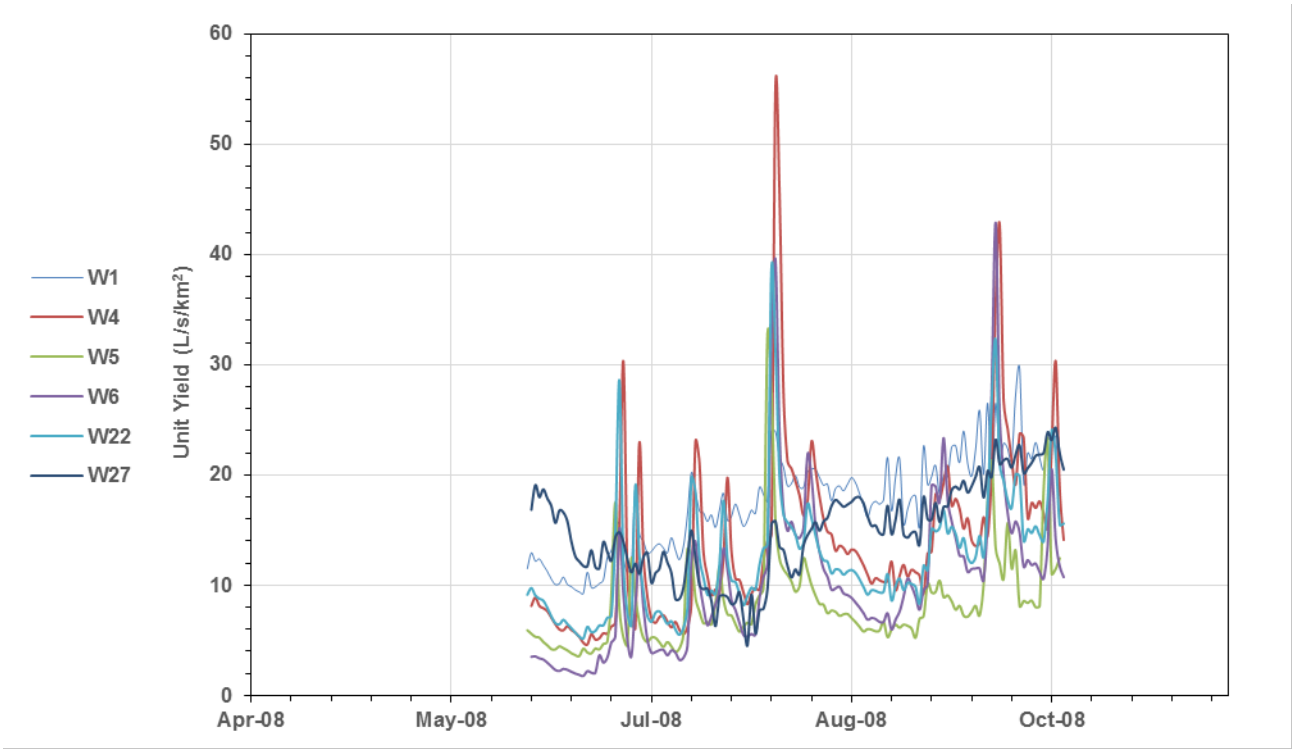


Figure 4-14: Average daily unit yield time-series for Project stations (2008)

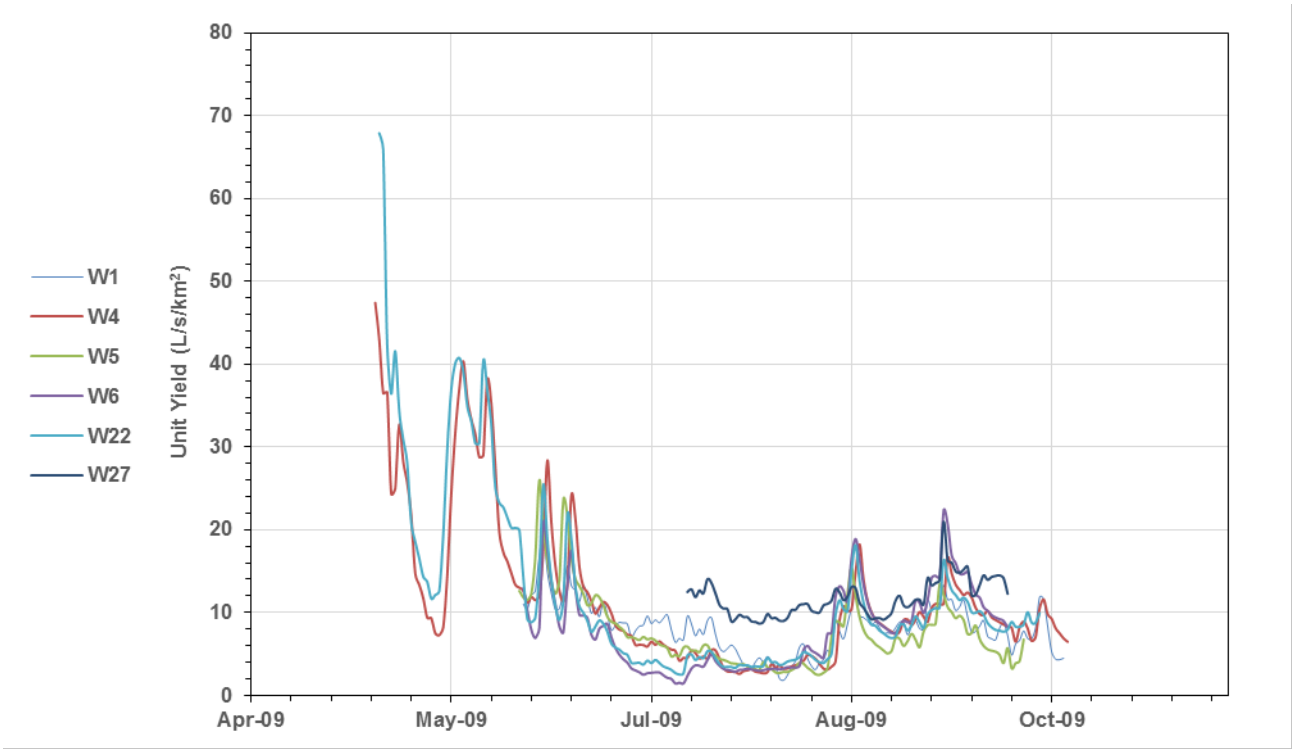


Figure 4-15: Average daily unit yield time-series for Project stations (2009)

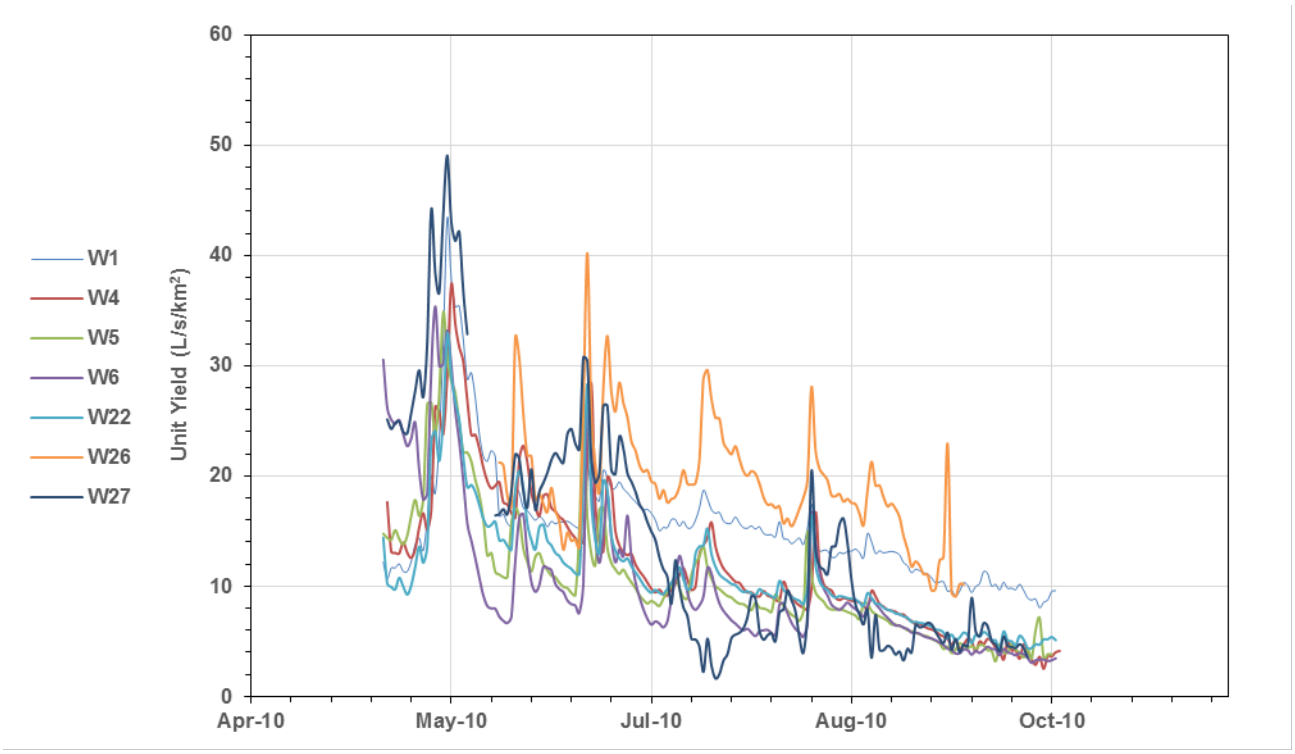


Figure 4-16: Average daily unit yield time-series for Project stations (2010)

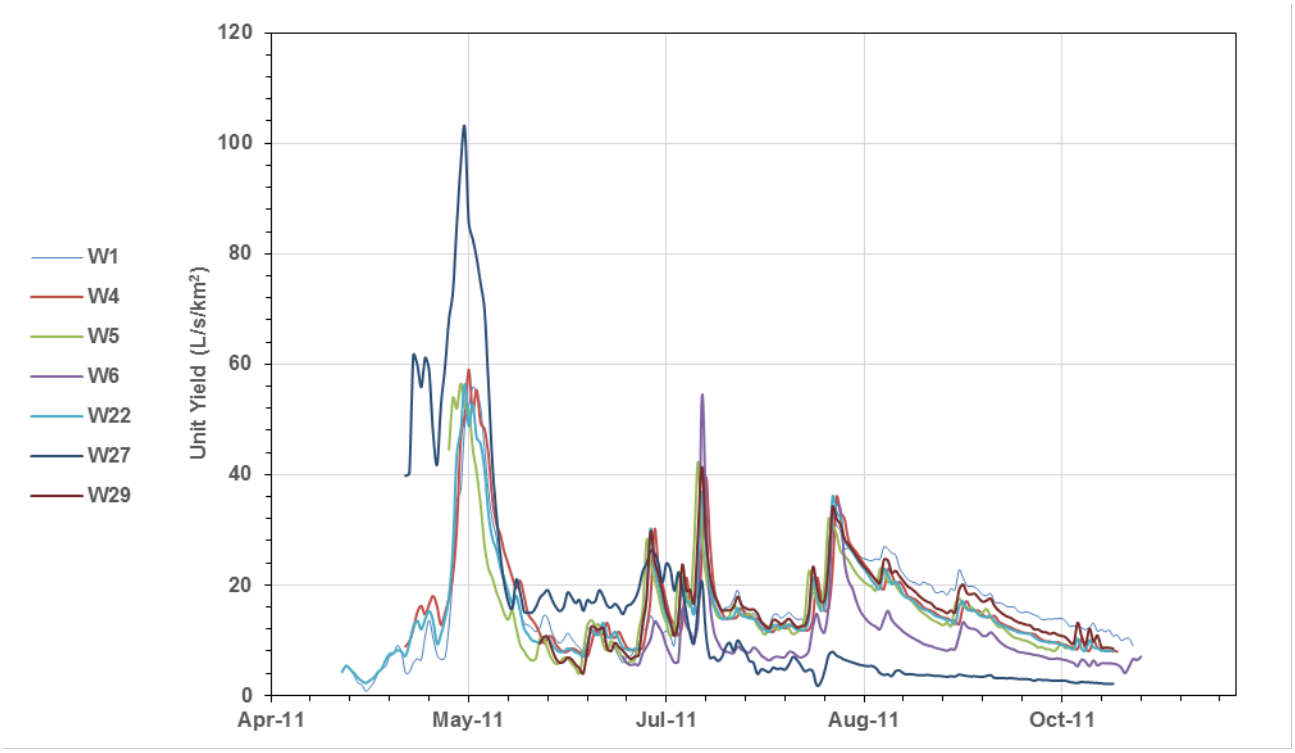


Figure 4-17: Average daily unit yield time-series for Project stations (2011)

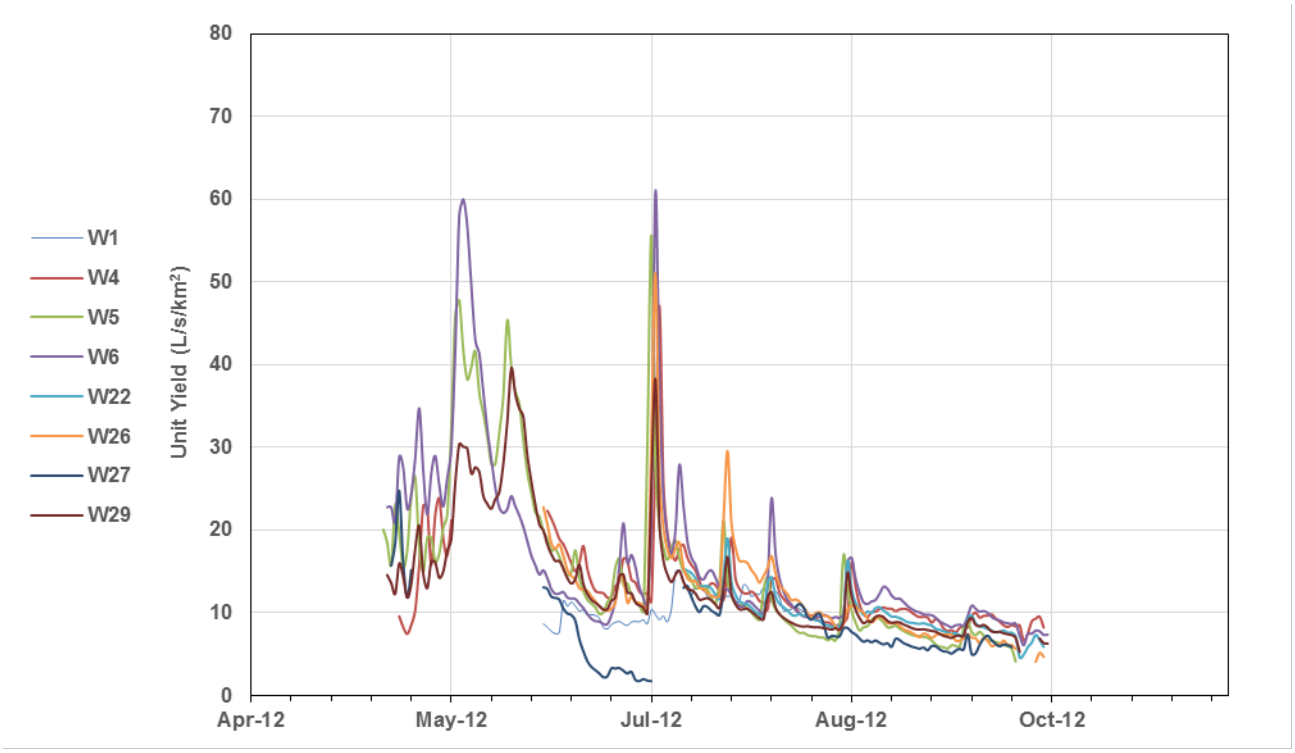


Figure 4-18: Average daily unit yield time-series for Project stations (2012)

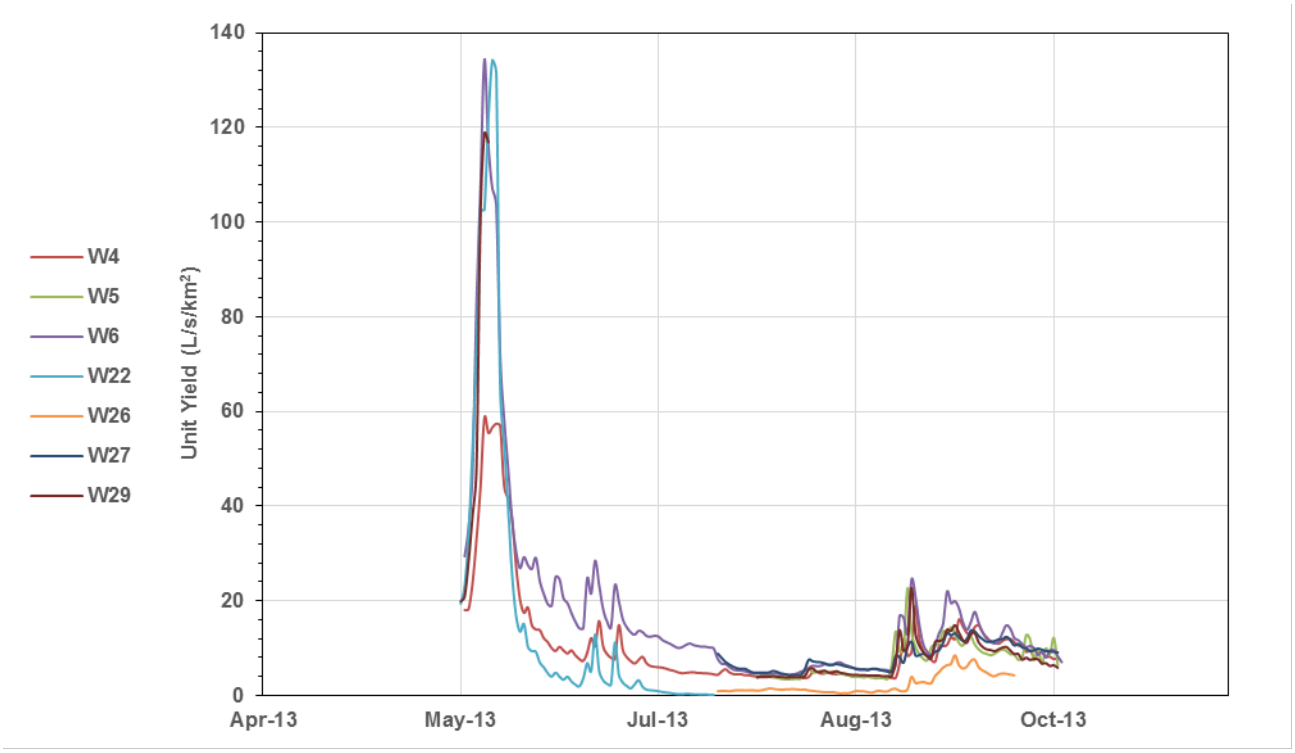


Figure 4-19: Average daily unit yield time-series for Project stations (2013)

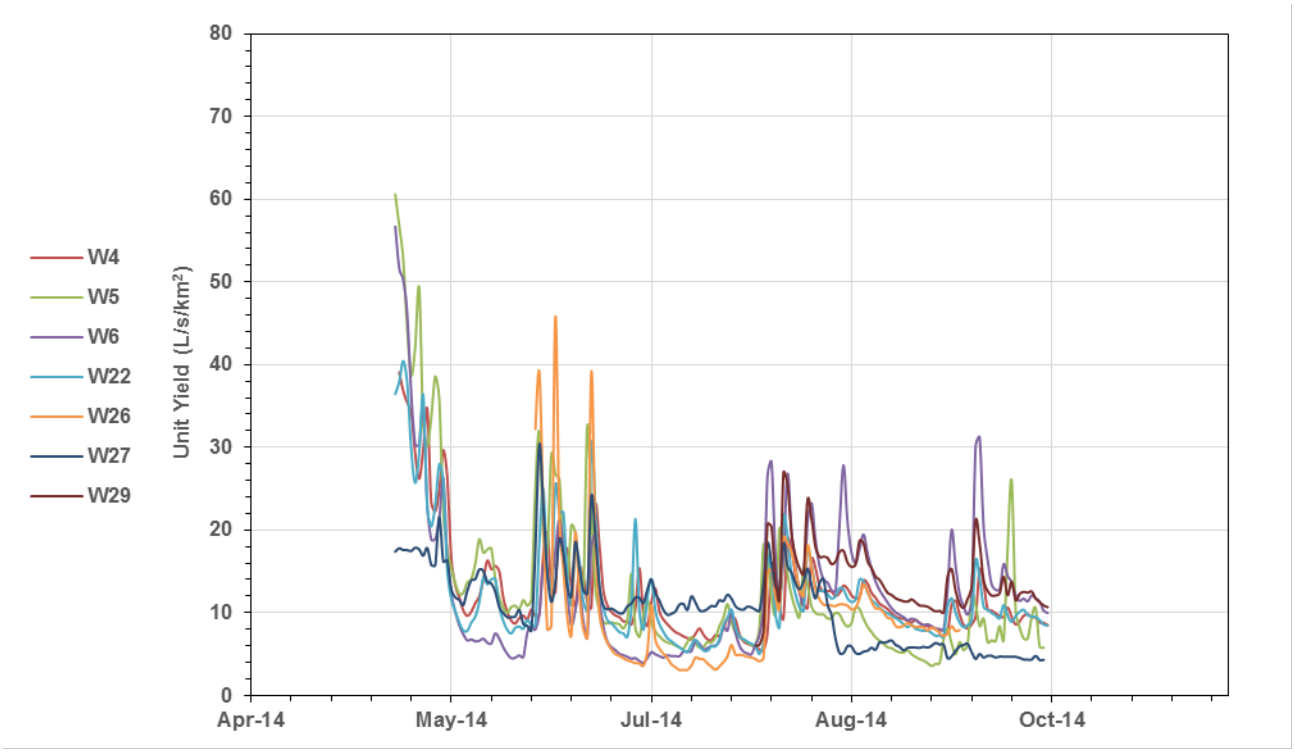


Figure 4-20: Average daily unit yield time-series for Project stations (2014)

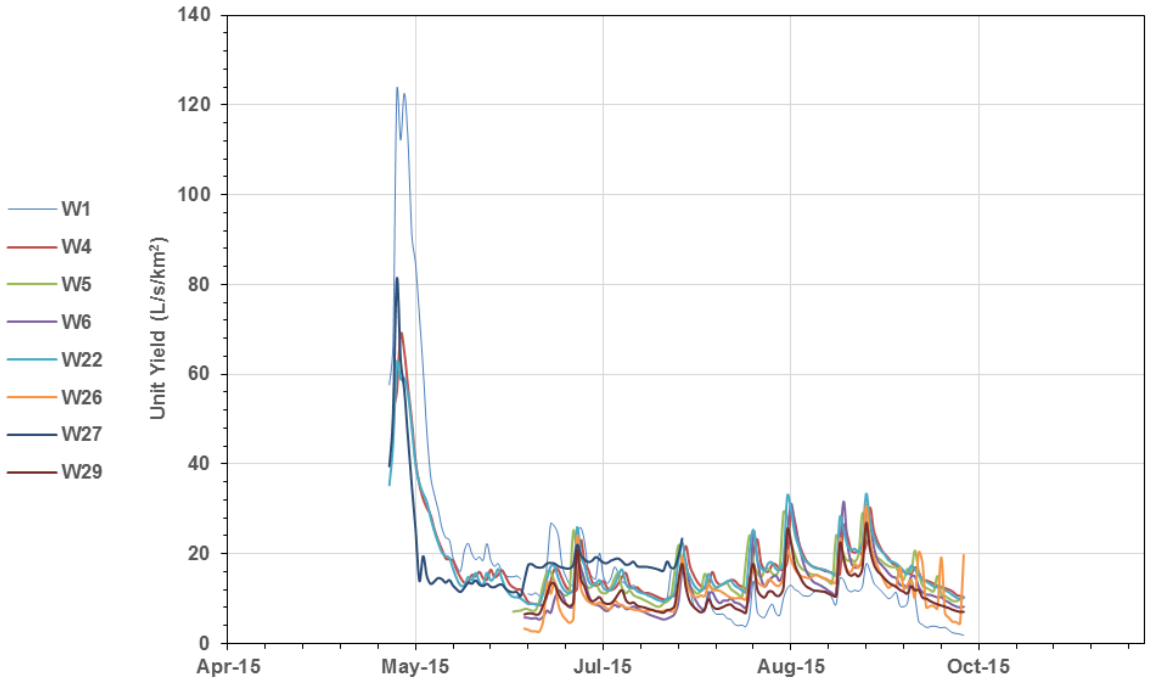


Figure 4-21: Average daily unit yield time-series for Project stations (2015)

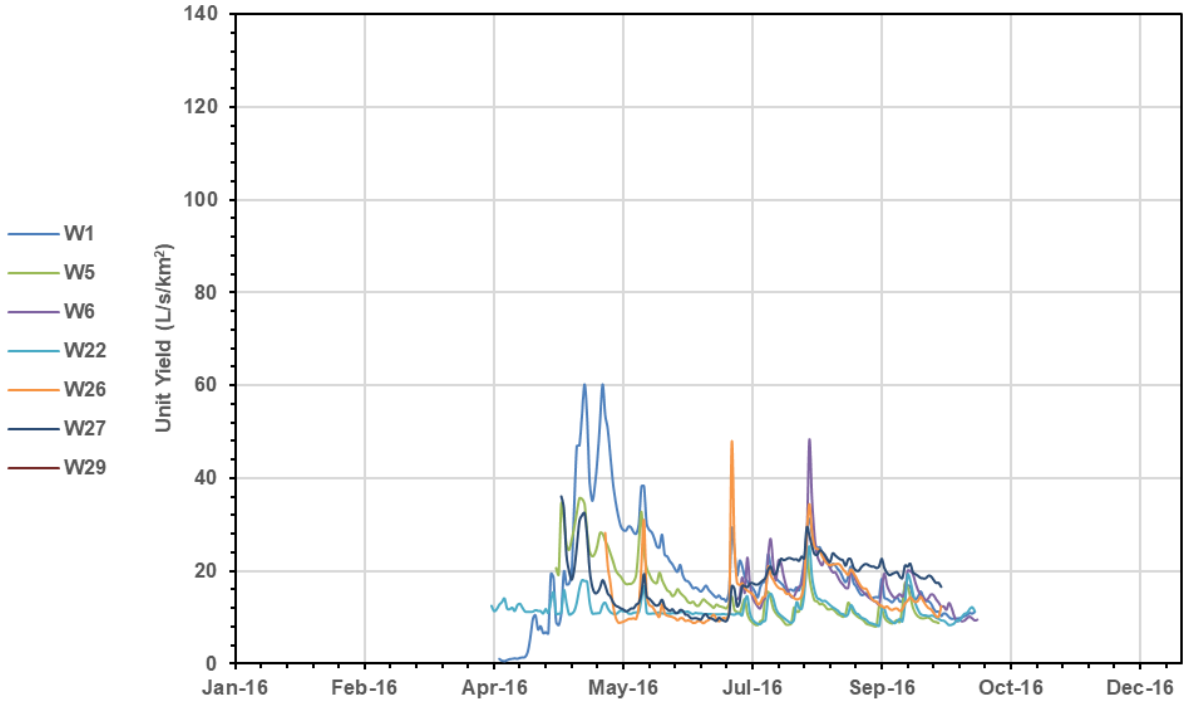


Figure 4-22: Average daily unit yield time-series for Project stations (2016)

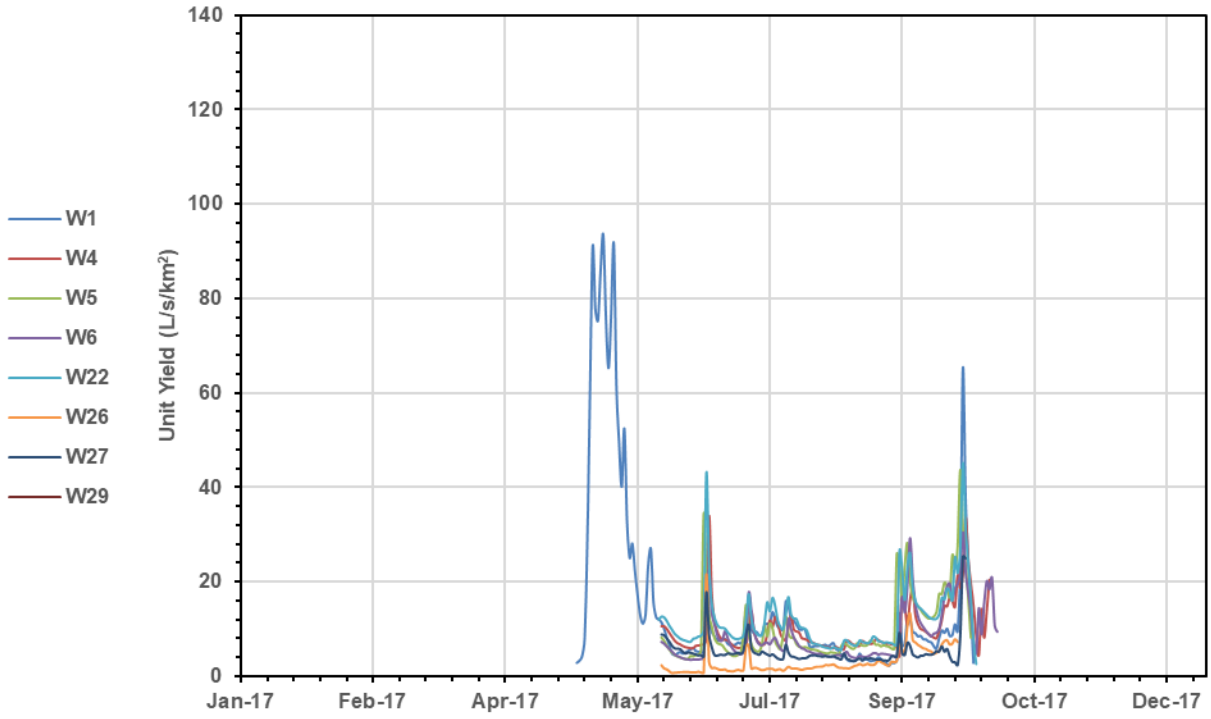


Figure 4-23: Average daily unit yield time-series for Project stations (2017)

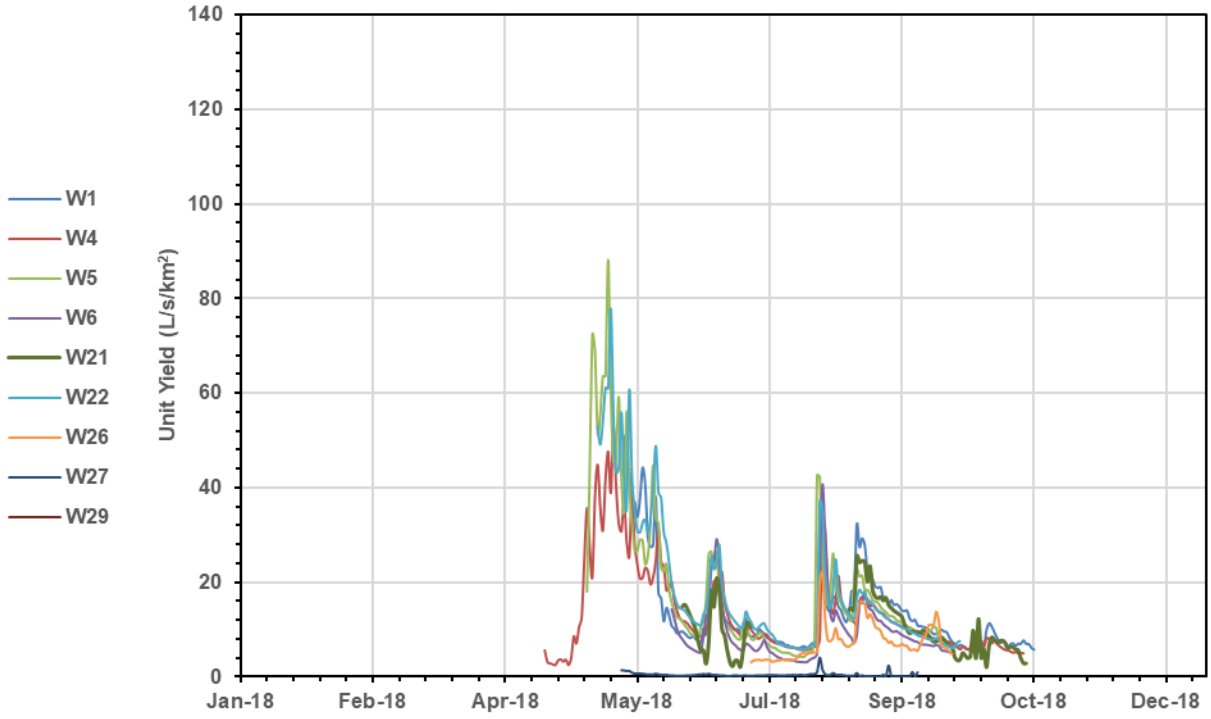


Figure 4-24: Average daily unit yield time-series for Project stations (2018)

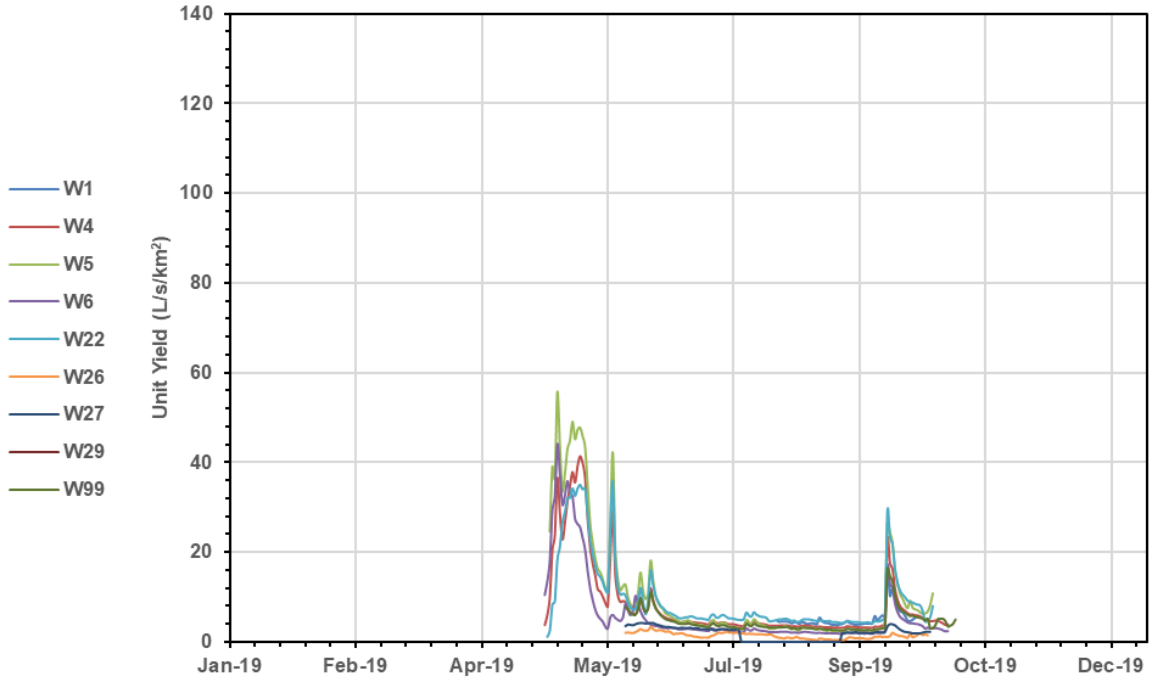


Figure 4-25: Average daily unit yield time-series for Project stations (2019)

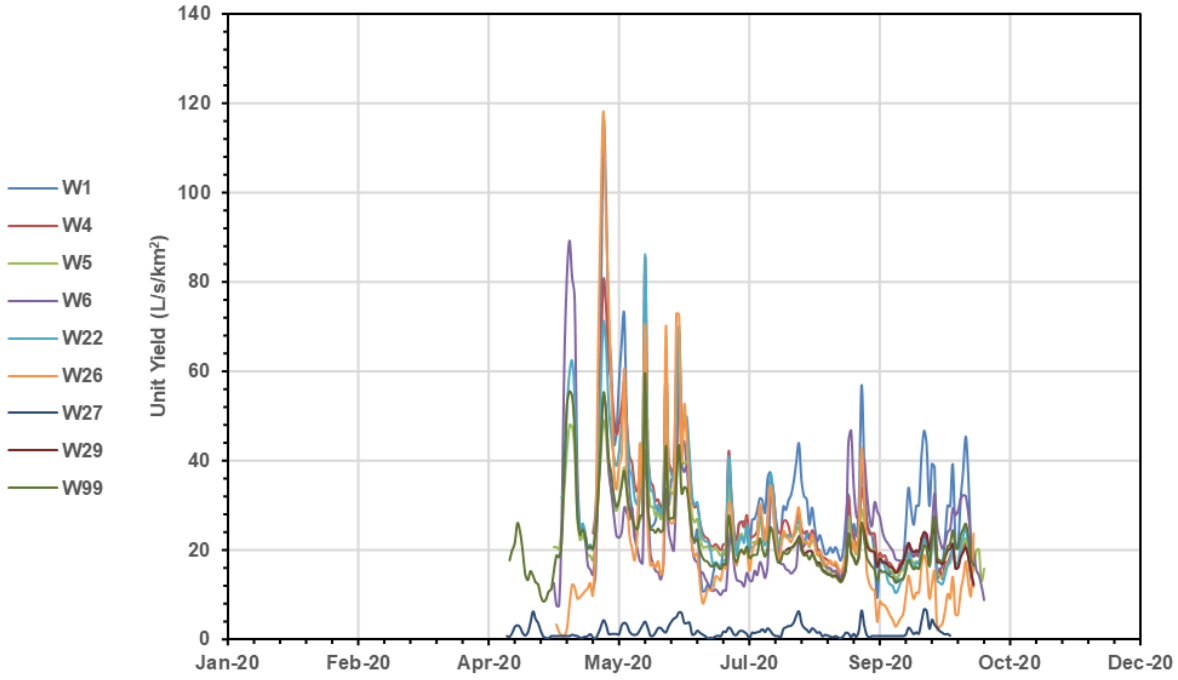


Figure 4-26: Average daily unit yield time-series for Project stations (2020)

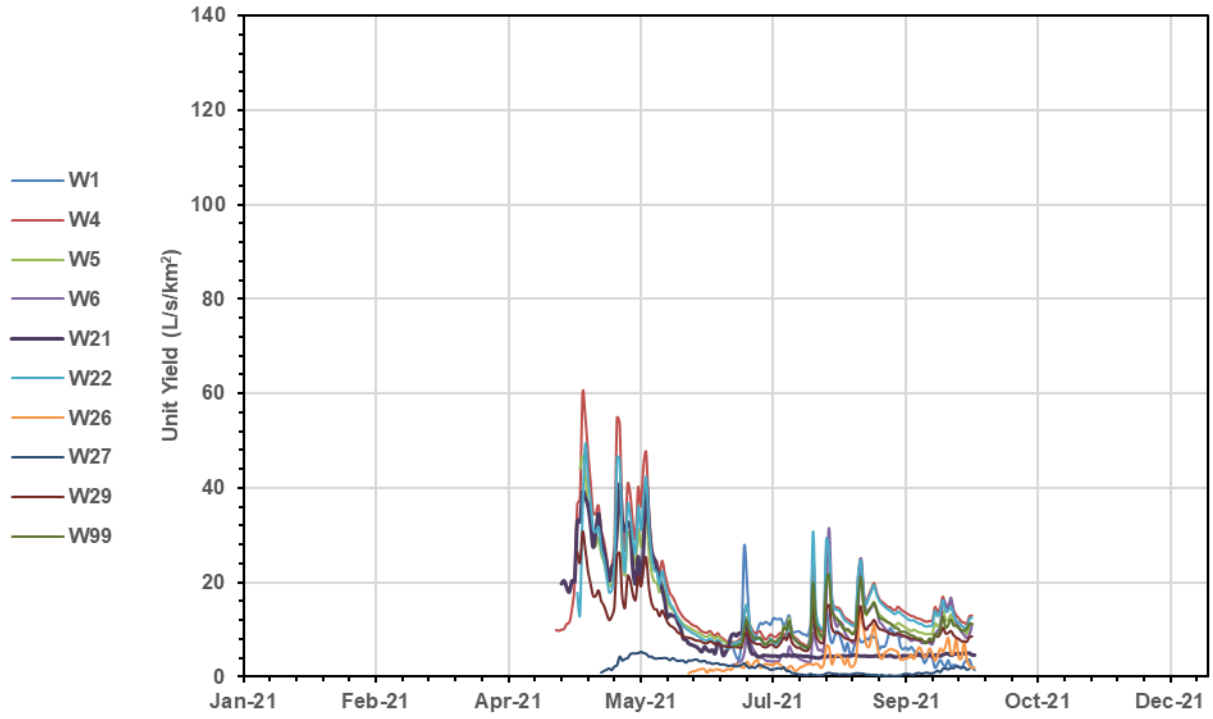


Figure 4-27: Average daily unit yield time-series for Project stations (2021)

4.3 Streamflow Records – Monthly Summary Tables

Monthly summary tables are presented for the ten hydrometric stations in this section.

Table 4-2:
W1 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	Average	--	--	--	--	--	--	--	0.062	0.074	0.077	--	--
	Maximum	--	--	--	--	--	--	--	0.096	0.128	0.097	--	--
	Minimum	--	--	--	--	--	--	--	0.044	0.049	0.042	--	--
2008	Average	--	--	--	--	--	0.074	0.102	0.130	0.133	0.154	--	--
	Maximum	--	--	--	--	--	0.106	0.184	0.207	0.251	0.265	--	--
	Minimum	--	--	--	--	--	0.054	0.067	0.091	0.085	0.075	--	--
2009	Average	--	--	--	--	--	0.083	0.054	0.035	0.063	0.049	--	--
	Maximum	--	--	--	--	--	0.244	0.083	0.099	0.109	0.117	--	--
	Minimum	--	--	--	--	--	0.012	0.012	0.002	0.026	0.006	--	--
2010	Average	--	--	--	--	0.149	0.117	0.114	0.097	0.078	0.065	--	--
	Maximum	--	--	--	--	0.344	0.195	0.148	0.164	0.126	0.085	--	--
	Minimum	--	--	--	--	0.060	0.092	0.090	0.075	0.054	0.047	--	--
2011	Average	--	--	--	0.024	0.151	0.075	0.104	0.133	0.143	0.094	0.069	--
	Maximum	--	--	--	0.045	0.482	0.138	0.257	0.290	0.215	0.124	0.091	--
	Minimum	--	--	--	0.003	0.017	0.026	0.034	0.072	0.117	0.063	0.053	--
2012	Average	--	--	--	--	--	0.064	0.075	0.079	--	--	--	--
	Maximum	--	--	--	--	--	0.095	0.123	0.096	--	--	--	--
	Minimum	--	--	--	--	--	0.047	0.052	0.066	--	--	--	--
2013	Average	--	--	--	--	--	--	--	--	--	--	--	--
	Maximum	--	--	--	--	--	--	--	--	--	--	--	--
	Minimum	--	--	--	--	--	--	--	--	--	--	--	--
2014	Average	--	--	--	--	0.076	0.091	0.066	0.091	0.120	0.217	--	--
	Maximum	--	--	--	--	0.781	0.273	0.284	0.289	0.557	0.719	--	--
	Minimum	--	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	--	--
2015	Average	--	--	--	--	0.433	0.120	0.103	0.056	0.080	0.026	--	--
	Maximum	--	--	--	--	1.304	0.295	0.202	0.250	0.172	0.086	--	--
	Minimum	--	--	--	--	0.116	0.067	0.001	0.022	0.033	0.010	--	--
2016	Average	--	--	--	0.024	0.231	0.163	0.121	0.138	0.096	0.070	--	--
	Maximum	--	--	--	0.104	0.583	0.326	0.346	0.255	0.148	0.093	--	--
	Minimum	--	--	--	0.002	0.033	0.095	0.083	0.089	0.061	0.055	--	--
2017	Average	--	--	--	--	0.335	0.066	0.068	0.036	0.055	0.212	--	--
	Maximum	--	--	--	--	1.006	0.281	0.198	0.076	0.289	0.535	--	--
	Minimum	--	--	--	--	0.001	0.025	0.038	0.017	0.008	0.000	--	--
2018	Average	--	--	--	--	0.269	0.116	0.062	0.115	0.078	0.048	--	--
	Maximum	--	--	--	--	0.415	0.474	0.148	0.311	0.131	0.131	--	--
	Minimum	--	--	--	--	0.169	0.039	0.032	0.033	0.025	0.018	--	--
2019	Average	--	--	--	--	--	--	--	0.029	0.039	--	--	--
	Maximum	--	--	--	--	--	--	--	0.045	0.166	--	--	--
	Minimum	--	--	--	--	--	--	--	0.020	0.021	--	--	--
2020	Average	--	--	--	--	0.415	0.242	0.159	0.189	0.168	0.196	--	--
	Maximum	--	--	--	--	1.147	0.707	0.346	0.503	0.378	0.328	--	--
	Minimum	--	--	--	--	0.049	0.086	0.050	0.113	0.048	0.086	--	--
2021	Average	--	--	--	--	--	--	0.075	0.055	0.033	0.019	--	--
	Maximum	--	--	--	--	--	--	0.250	0.157	0.094	0.034	--	--
	Minimum	--	--	--	--	--	--	0.016	0.022	0.006	0.007	--	--
All Years	Average	--	--	--	0.024	0.260	0.113	0.091	0.091	0.089	0.096	0.069	--
	Maximum	--	--	--	0.104	1.923	0.707	0.346	0.503	0.557	0.719	0.091	--
	Minimum	--	--	--	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.053	--

Table 4-3:
W1 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	# days with data	--	--	--	--	--	--	--	*18*	30	*20*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	*0.06*	0.07	*0.08*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	*9.03*	10.85	*11.14*	--	--
	Runoff (mm)	--	--	--	--	--	--	--	*14.0*	28.1	*19.3*	--	--
2008	# days with data	--	--	--	--	--	*22*	31	31	30	*20*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.07*	0.10	0.13	0.13	*0.15*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*10.85*	15.03	19.08	19.55	*22.64*	--	--
	Runoff (mm)	--	--	--	--	--	*20.6*	40.3	51.1	50.7	*39.1*	--	--
2009	# days with data	--	--	--	--	--	*23*	31	31	30	*21*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.08*	0.05	0.04	0.06	*0.05*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*12.19*	7.88	5.18	9.28	*7.21*	--	--
	Runoff (mm)	--	--	--	--	--	*24.2*	21.1	13.9	24.1	*13.1*	--	--
2010	# days with data	--	--	--	--	28	30	31	31	30	19	--	--
	Average Discharge (m^3/s)	--	--	--	--	0.15	0.12	0.11	0.10	0.08	0.07	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	21.54	17.20	16.72	14.25	11.43	9.61	--	--
	Runoff (mm)	--	--	--	--	52.1	44.6	44.8	38.2	29.6	15.8	--	--
2011	# days with data	--	--	--	*12*	31	30	31	31	30	31	*5*	--
	Average Discharge (m^3/s)	--	--	--	*0.02*	0.15	0.07	0.10	0.13	0.14	0.09	*0.07*	--
	Average Yield ($L/s/km^2$)	--	--	--	*3.38*	22.18	10.99	15.23	19.57	21.04	13.83	*10.10*	--
	Runoff (mm)	--	--	--	*3.5*	59.4	28.5	40.8	52.4	54.5	37.0	*4.4*	--
2012	# days with data	--	--	--	--	--	*18*	31	*18*	--	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.06*	0.08	*0.08*	--	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*9.33*	11.03	*11.54*	--	--	--	--
	Runoff (mm)	--	--	--	--	--	*14.5*	29.6	*17.9*	--	--	--	--
2013	# days with data	--	--	--	--	--	--	--	--	--	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	--	--	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	--	--	--	--	--
	Runoff (mm)	--	--	--	--	--	--	--	--	--	--	--	--
2014	# days with data	--	--	--	--	*23*	30	31	31	29	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.07*	0.09	0.06	0.08	0.11	*0.20*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*10.85*	13.35	9.27	12.46	16.79	*29.78*	--	--
	Runoff (mm)	--	--	--	--	*21.6*	34.6	24.8	33.4	42.1	*43.7*	--	--
2015	# days with data	--	--	--	--	*18*	29	28	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.43*	0.12	0.10	0.06	0.08	*0.03*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*63.51*	17.26	14.47	8.24	11.71	*3.78*	--	--
	Runoff (mm)	--	--	--	--	*98.8*	43.2	35.0	22.1	30.3	*4.6*	--	--
2016	# days with data	--	--	--	*19*	31	30	31	31	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	*0.02*	0.23	0.16	0.12	0.14	0.10	*0.07*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*3.59*	33.94	23.96	17.80	20.24	14.12	*10.32*	--	--
	Runoff (mm)	--	--	--	*5.9*	90.9	62.1	47.7	54.2	36.6	*11.6*	--	--
2017	# days with data	--	--	--	--	*24*	30	31	31	30	*5*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.33*	0.07	0.07	0.04	0.06	*0.20*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*48.73*	9.72	10.01	5.27	8.11	*28.95*	--	--
	Runoff (mm)	--	--	--	--	*101.1*	25.2	26.8	14.1	21.0	*12.5*	--	--
2018	# days with data	--	--	--	--	*6*	30	31	31	30	28	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.3*	0.1	0.1	0.1	0.1	0.0	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*40.9*	17.1	9.1	16.9	11.4	7.1	--	--
	Runoff (mm)	--	--	--	--	*21.2*	44.4	24.4	45.3	29.6	17.2	--	--
2019	# days with data	--	--	--	--	*14*	--	--	*26*	30	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	*0.0*	0.0	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	*4.3*	5.8	--	--	--
	Runoff (mm)	--	--	--	--	--	--	--	*9.6*	15.0	--	--	--
2020	# days with data	--	--	--	--	*12*	30	31	31	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.4*	0.2	0.2	0.2	0.2	*0.2*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*58.2*	35.6	23.4	27.8	24.8	*28.4*	--	--
	Runoff (mm)	--	--	--	--	*60.3*	92.2	62.6	74.5	64.2	*31.9*	--	--
2021	# days with data	--	--	--	--	--	--	*27*	31	30	*4*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	*0.1*	0.1	0.0	*0.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	*10.9*	8.1	4.8	*2.7*	--	--
	Runoff (mm)	--	--	--	--	--	--	*25.5*	21.8	12.3	*0.9*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	*0.024*	*0.255*	0.110	0.091	0.088	0.089	*0.099*	*0.069*	--
	Average Yield ($L/s/km^2$)	--	--	--	*3.5*	*37.5*	16.1	13.4	13.0	13.0	*14.6*	*10.1*	--
	Average Runoff (mm)	--	--	--	*4.7*	*63.2*	39.5	35.3	33.0	33.7	*20.6*	*4.4*	--

Table 4-4:
W4 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	Average	--	--	--	--	--	--	--	0.641	0.875	0.768	--	--
	Maximum	--	--	--	--	--	--	--	1.047	2.281	2.061	--	--
	Minimum	--	--	--	--	--	--	--	0.416	0.560	0.499	--	--
2008	Average	--	--	--	--	--	0.479	0.868	1.334	1.034	1.666	--	--
	Maximum	--	--	--	--	--	0.742	4.241	6.649	2.237	5.001	--	--
	Minimum	--	--	--	--	--	0.307	0.378	0.543	0.594	0.614	--	--
2009	Average	--	--	--	--	1.949	1.109	0.406	0.426	0.795	0.654	--	--
	Maximum	--	--	--	--	5.288	3.115	0.706	1.565	1.473	1.230	--	--
	Minimum	--	--	--	--	0.060	0.554	0.090	0.159	0.531	0.296	--	--
2010	Average	--	--	--	--	1.619	1.355	0.879	0.723	0.492	0.306	--	--
	Maximum	--	--	--	--	3.059	2.780	1.338	1.558	0.833	0.497	--	--
	Minimum	--	--	--	--	0.764	0.921	0.643	0.555	0.021	0.021	--	--
2011	Average	--	--	--	--	2.218	0.845	1.301	1.430	1.268	0.768	--	--
	Maximum	--	--	--	--	5.350	1.764	3.743	3.321	1.986	1.220	--	--
	Minimum	--	--	--	--	0.614	0.492	0.573	0.802	0.942	0.564	--	--
2012	Average	--	--	--	--	1.224	1.211	1.271	0.833	0.726	0.662	--	--
	Maximum	--	--	--	--	2.086	1.871	4.834	1.484	0.899	0.846	--	--
	Minimum	--	--	--	--	0.475	0.817	0.781	0.591	0.544	0.405	--	--
2013	Average	--	--	--	--	3.341	1.065	0.420	0.317	0.749	0.753	--	--
	Maximum	--	--	--	--	7.034	3.902	0.818	0.421	1.903	0.996	--	--
	Minimum	--	--	--	--	1.155	0.540	0.287	0.259	0.265	0.465	--	--
2014	Average	--	--	--	--	1.664	1.004	0.671	0.899	0.759	0.727	--	--
	Maximum	--	--	--	--	4.388	2.274	2.035	2.456	1.311	1.041	--	--
	Minimum	--	--	--	--	0.614	0.625	0.488	0.383	0.452	0.579	--	--
2015	Average	--	--	--	--	2.781	1.014	1.019	1.271	1.470	0.962	--	--
	Maximum	--	--	--	--	7.008	1.510	2.324	3.133	2.699	1.373	--	--
	Minimum	--	--	--	--	1.144	0.566	0.690	0.825	1.004	0.717	--	--
2016	Average	--	--	--	--	--	--	--	--	--	--	--	--
	Maximum	--	--	--	--	--	--	--	--	--	--	--	--
	Minimum	--	--	--	--	--	--	--	--	--	--	--	--
2017	Average	--	--	--	--	--	0.718	0.665	0.522	0.934	1.254	--	--
	Maximum	--	--	--	--	--	5.411	1.431	0.771	2.545	2.904	--	--
	Minimum	--	--	--	--	--	0.408	0.412	0.404	0.309	0.168	--	--
2018	Average	--	--	--	0.237	1.987	1.266	0.687	1.088	0.693	0.488	--	--
	Maximum	--	--	--	0.592	5.742	2.623	2.121	4.161	1.091	1.247	--	--
	Minimum	--	--	--	0.150	0.136	0.597	0.377	0.384	0.263	0.304	--	--
2019	Average	--	--	--	--	1.814	0.645	0.319	0.267	0.472	0.366	--	--
	Maximum	--	--	--	--	4.105	3.468	0.424	0.329	2.905	0.504	--	--
	Minimum	--	--	--	--	0.178	0.304	0.239	0.224	0.220	0.219	--	--
2020	Average	--	--	--	--	4.136	3.206	1.954	1.710	1.522	1.340	--	--
	Maximum	--	--	--	--	8.079	9.600	3.664	3.049	2.650	1.871	--	--
	Minimum	--	--	--	--	1.531	1.812	1.430	1.041	0.901	0.839	--	--
2021	Average	--	--	--	--	2.494	1.342	0.689	1.137	0.946	0.849	--	--
	Maximum	--	--	--	--	6.680	5.005	1.832	3.573	1.366	1.034	--	--
	Minimum	--	--	--	--	0.666	0.525	0.439	0.409	0.700	0.687	--	--
All Years	Average	--	--	--	0.237	2.154	1.199	0.858	0.908	0.910	0.802	0.847	--
	Maximum	--	--	--	0.592	8.079	9.600	4.834	6.649	2.905	5.001	1.145	--
	Minimum	--	--	--	0.150	0.060	0.304	0.090	0.159	0.021	0.021	0.565	--

Table 4-5:
W4 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	# days with data	--	--	--	--	--	--	--	*18*	30	31	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	*0.64*	0.87	0.77	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	*8.30*	11.38	9.98	--	--
	Runoff (mm)	--	--	--	--	--	--	--	*12.9*	29.5	26.7	--	--
2008	# days with data	--	--	--	--	--	*22*	31	31	30	*21*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.48*	0.87	1.34	1.03	*1.65*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*6.30*	11.29	17.40	13.45	*21.48*	--	--
	Runoff (mm)	--	--	--	--	--	*12.0*	30.2	46.6	34.9	*39.0*	--	--
2009	# days with data	--	--	--	--	31	30	31	31	30	*21*	--	--
	Average Discharge (m^3/s)	--	--	--	--	2.01	1.11	0.41	0.43	0.80	*0.65*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	26.12	14.42	5.28	5.54	10.34	*8.48*	--	--
	Runoff (mm)	--	--	--	--	70.0	37.4	14.1	14.8	26.8	*15.4*	--	--
2010	# days with data	--	--	--	--	28	30	31	31	30	*19*	--	--
	Average Discharge (m^3/s)	--	--	--	--	1.61	1.35	0.88	0.72	0.49	*0.31*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	20.96	17.62	11.43	9.40	6.40	*3.98*	--	--
	Runoff (mm)	--	--	--	--	50.7	45.7	30.6	25.2	16.6	*6.5*	--	--
2011	# days with data	--	--	--	--	28	30	31	31	30	31	--	--
	Average Discharge (m^3/s)	--	--	--	--	2.18	0.85	1.30	1.43	1.27	0.77	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	28.41	10.99	16.91	18.60	16.49	9.99	--	--
	Runoff (mm)	--	--	--	--	68.7	28.5	45.3	49.8	42.7	26.8	--	--
2012	# days with data	--	--	--	--	*14*	*18*	31	31	30	*16*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*1.23*	*1.23*	1.27	0.83	0.73	*0.66*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*16.02*	*15.93*	16.53	10.83	9.44	*8.57*	--	--
	Runoff (mm)	--	--	--	--	*19.4*	*24.8*	44.3	29.0	24.5	*11.9*	--	--
2013	# days with data	--	--	--	--	*11*	30	31	31	30	*19*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*3.26*	1.07	0.42	0.32	0.75	*0.75*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*42.39*	13.85	5.46	4.12	9.75	*9.72*	--	--
	Runoff (mm)	--	--	--	--	*40.3*	35.9	14.6	11.0	25.3	*15.9*	--	--
2014	# days with data	--	--	--	--	*25*	30	31	31	30	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*1.69*	1.00	0.67	0.90	0.76	*0.72*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*21.93*	13.06	8.73	11.69	9.87	*9.42*	--	--
	Runoff (mm)	--	--	--	--	*47.4*	33.8	23.4	31.3	25.6	*13.8*	--	--
2015	# days with data	--	--	--	--	*18*	30	31	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*2.81*	1.01	1.02	1.27	1.47	*0.96*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*36.55*	13.18	13.24	16.53	19.11	*12.45*	--	--
	Runoff (mm)	--	--	--	--	*56.8*	34.2	35.5	44.3	49.5	*15.1*	--	--
2016	# days with data	--	--	--	--	--	--	--	--	--	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	--	--	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	--	--	--	--	--
	Runoff (mm)	--	--	--	--	--	--	--	--	--	--	--	--
2017	# days with data	--	--	--	--	--	*23*	31	31	30	*11*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.72*	0.67	0.52	0.93	*1.26*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*9.39*	8.65	6.78	12.14	*16.37*	--	--
	Runoff (mm)	--	--	--	--	--	*18.7*	23.2	18.2	31.5	*15.6*	--	--
2018	# days with data	--	--	--	*6*	31	30	31	31	30	*24*	--	--
	Average Discharge (m^3/s)	--	--	--	*0.3*	2.0	1.3	0.7	1.1	0.7	*0.5*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*3.3*	25.8	16.5	8.9	14.1	9.0	*6.3*	--	--
	Runoff (mm)	--	--	--	*1.7*	69.2	42.7	23.9	37.9	23.4	*13.1*	--	--
2019	# days with data	--	--	--	--	*26*	30	31	31	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*1.8*	0.6	0.3	0.3	0.5	*0.4*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*23.3*	8.4	4.2	3.5	6.1	*4.7*	--	--
	Runoff (mm)	--	--	--	--	*52.3*	21.7	11.1	9.3	15.9	*5.3*	--	--
2020	# days with data	--	--	--	--	*12*	30	31	31	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*4.0*	3.2	2.0	1.7	1.5	*1.3*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*52.4*	41.7	25.4	22.2	19.8	*17.2*	--	--
	Runoff (mm)	--	--	--	--	*54.3*	108.0	68.1	59.6	51.3	*19.3*	--	--
2021	# days with data	--	--	--	--	31	30	31	31	30	*3*	--	--
	Average Discharge (m^3/s)	--	--	--	--	2.5	1.3	0.7	1.1	0.9	*0.9*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	32.4	17.5	9.0	14.8	12.3	*11.1*	--	--
	Runoff (mm)	--	--	--	--	86.9	45.2	24.0	39.6	31.9	*2.9*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	*0.256*	2.281	1.176	0.858	0.900	0.910	*0.823*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*3.3*	29.7	15.3	11.2	11.7	11.8	*10.7*	--	--
	Average Runoff (mm)	--	--	--	*1.7*	56.0	37.6	29.9	30.7	30.7	*16.2*	--	--

Table 4-6:
W5 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	Average	--	--	--	--	--	--	--	0.788	0.970	1.083	--	--
	Maximum	--	--	--	--	--	--	--	1.221	2.065	2.135	--	--
	Minimum	--	--	--	--	--	--	--	0.548	0.679	0.678	--	--
2008	Average	--	--	--	--	--	0.431	0.726	0.994	0.703	1.202	--	--
	Maximum	--	--	--	--	--	0.622	3.599	4.574	1.228	4.904	--	--
	Minimum	--	--	--	--	--	0.315	0.336	0.490	0.463	0.410	--	--
2009	Average	--	--	--	--	--	1.425	0.589	0.474	0.768	1.187	--	--
	Maximum	--	--	--	--	--	3.461	0.944	1.669	1.508	2.903	--	--
	Minimum	--	--	--	--	--	0.825	0.225	0.156	0.441	0.156	--	--
2010	Average	--	--	--	--	1.990	1.273	0.991	0.817	0.569	0.423	--	--
	Maximum	--	--	--	--	3.623	3.180	1.428	1.709	0.910	0.916	--	--
	Minimum	--	--	--	--	1.060	0.817	0.742	0.623	0.124	0.081	--	--
2011	Average	--	--	--	--	3.554	0.859	1.681	1.756	1.625	0.984	--	--
	Maximum	--	--	--	--	7.146	1.682	4.928	3.588	2.631	1.586	--	--
	Minimum	--	--	--	--	1.273	0.264	0.447	0.934	1.117	0.551	--	--
2012	Average	--	--	--	--	2.599	2.119	1.626	0.924	0.734	0.621	--	--
	Maximum	--	--	--	--	6.239	5.160	6.883	1.996	1.007	0.794	--	--
	Minimum	--	--	--	--	0.819	0.837	0.871	0.566	0.497	0.344	--	--
2013	Average	--	--	--	--	--	--	--	0.417	0.933	0.893	--	--
	Maximum	--	--	--	--	--	--	--	0.623	3.880	2.321	--	--
	Minimum	--	--	--	--	--	--	--	0.284	0.315	0.579	--	--
2014	Average	--	--	--	--	2.916	1.625	0.769	1.055	0.615	0.926	--	--
	Maximum	--	--	--	--	7.135	4.536	2.807	3.277	1.323	3.345	--	--
	Minimum	--	--	--	--	1.072	0.801	0.488	0.542	0.322	0.496	--	--
2015	Average	--	--	--	--	--	1.066	1.227	1.541	1.762	1.237	--	--
	Maximum	--	--	--	--	--	1.860	2.965	3.814	3.041	3.056	--	--
	Minimum	--	--	--	--	--	0.627	0.734	0.953	1.258	0.883	--	--
2016	Average	--	--	--	--	2.540	1.685	1.152	1.202	1.007	--	--	--
	Maximum	--	--	--	--	4.003	3.725	1.790	2.854	2.334	--	--	--
	Minimum	--	--	--	--	1.578	1.112	0.771	0.755	0.731	--	--	--
2017	Average	--	--	--	--	--	0.772	0.724	0.584	1.557	2.392	--	--
	Maximum	--	--	--	--	--	6.140	1.729	0.840	4.196	4.631	--	--
	Minimum	--	--	--	--	--	0.279	0.360	0.395	0.522	0.231	--	--
2018	Average	--	--	--	--	4.921	1.951	0.857	1.614	1.015	--	--	--
	Maximum	--	--	--	--	11.424	4.799	3.145	6.815	1.708	--	--	--
	Minimum	--	--	--	--	1.471	0.743	0.354	0.323	0.504	--	--	--
2019	Average	--	--	--	--	3.299	1.102	0.381	0.283	0.685	0.701	--	--
	Maximum	--	--	--	--	6.205	5.798	0.594	0.434	4.118	1.664	--	--
	Minimum	--	--	--	--	1.026	0.324	0.153	0.132	0.170	0.315	--	--
2020	Average	--	--	--	--	3.048	3.227	2.253	1.963	1.772	1.737	--	--
	Maximum	--	--	--	--	5.699	7.265	3.659	3.110	2.920	2.568	--	--
	Minimum	--	--	--	--	1.523	2.110	1.719	1.281	1.231	1.136	--	--
2021	Average	--	--	--	--	2.857	1.405	0.799	1.211	1.039	0.978	--	--
	Maximum	--	--	--	--	5.954	4.142	2.022	3.141	1.468	1.161	--	--
	Minimum	--	--	--	--	1.668	0.685	0.566	0.486	0.820	0.826	--	--
All Years	Average	--	--	--	--	3.053	1.524	1.060	1.056	1.050	1.063	--	--
	Maximum	--	--	--	--	17.273	7.265	6.883	6.815	4.196	4.904	--	--
	Minimum	--	--	--	--	0.819	0.264	0.153	0.132	0.124	0.081	--	--

Table 4-7:
W5 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	# days with data	--	--	--	--	--	--	--	*18*	30	*20*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	*0.79*	0.97	*1.09*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	*8.06*	9.94	*11.22*	--	--
	Runoff (mm)	--	--	--	--	--	--	--	*12.5*	25.8	*19.4*	--	--
2008	# days with data	--	--	--	--	--	*21*	31	31	30	*21*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.43*	0.73	1.00	0.70	*1.20*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*4.46*	7.44	10.22	7.21	*12.33*	--	--
	Runoff (mm)	--	--	--	--	--	*8.1*	19.9	27.4	18.7	*22.4*	--	--
2009	# days with data	--	--	--	--	--	*23*	31	31	30	*22*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*1.42*	0.59	0.47	0.77	*1.19*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*14.56*	6.04	4.86	7.88	*12.19*	--	--
	Runoff (mm)	--	--	--	--	--	*28.9*	16.2	13.0	20.4	*23.2*	--	--
2010	# days with data	--	--	--	--	28	30	31	31	30	*19*	--	--
	Average Discharge (m^3/s)	--	--	--	--	1.99	1.27	0.99	0.82	0.57	*0.42*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	20.36	13.06	10.16	8.38	5.83	*4.32*	--	--
	Runoff (mm)	--	--	--	--	49.3	33.8	27.2	22.4	15.1	*7.1*	--	--
2011	# days with data	--	--	--	--	*15*	30	31	31	30	*21*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*3.59*	0.86	1.68	1.76	1.62	*0.98*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*36.82*	8.81	17.24	18.01	16.67	*10.09*	--	--
	Runoff (mm)	--	--	--	--	*47.7*	22.8	46.2	48.2	43.2	*18.3*	--	--
2012	# days with data	--	--	--	--	27	30	31	31	30	*10*	--	--
	Average Discharge (m^3/s)	--	--	--	--	2.59	2.12	1.63	0.92	0.73	*0.61*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	26.52	21.73	16.68	9.47	7.53	*6.29*	--	--
	Runoff (mm)	--	--	--	--	61.9	56.3	44.7	25.4	19.5	*5.4*	--	--
2013	# days with data	--	--	--	--	--	--	--	27	30	*20*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	0.42	0.93	*0.89*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	4.26	9.57	*9.09*	--	--
	Runoff (mm)	--	--	--	--	--	--	--	9.9	24.8	*15.7*	--	--
2014	# days with data	--	--	--	--	*25*	30	31	31	30	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*3.03*	1.63	0.77	1.05	0.62	*0.92*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*31.09*	16.67	7.88	10.81	6.31	*9.41*	--	--
	Runoff (mm)	--	--	--	--	*67.2*	43.2	21.1	29.0	16.4	*13.8*	--	--
2015	# days with data	--	--	--	--	--	*15*	31	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.98*	1.23	1.54	1.76	*1.23*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*10.01*	12.58	15.81	18.07	*12.63*	--	--
	Runoff (mm)	--	--	--	--	--	*13.0*	33.7	42.3	46.8	*15.3*	--	--
2016	# days with data	--	--	--	--	28	*30*	31	31	30	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	2.54	*1.69*	1.15	1.20	1.01	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	26.01	*17.28*	11.81	12.32	10.33	--	--	--
	Runoff (mm)	--	--	--	--	62.9	*44.8*	31.6	33.0	26.8	--	--	--
2017	# days with data	--	--	--	--	--	*22*	31	31	30	*5*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.77*	0.72	0.58	1.56	*2.39*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*7.92*	7.42	5.99	15.97	*24.54*	--	--
	Runoff (mm)	--	--	--	--	--	*15.1*	19.9	16.1	41.4	*10.6*	--	--
2018	# days with data	--	--	--	--	*20*	30	31	31	*28*	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	*4.9*	2.0	0.9	1.6	*1.0*	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*49.9*	20.0	8.8	16.6	*10.3*	--	--	--
	Runoff (mm)	--	--	--	--	*86.2*	51.9	23.6	44.3	*24.9*	--	--	--
2019	# days with data	--	--	--	--	*24*	30	31	31	30	*7*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*3.3*	1.1	0.4	0.3	0.7	*0.7*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*33.7*	11.3	3.9	2.9	7.0	*7.4*	--	--
	Runoff (mm)	--	--	--	--	*69.8*	29.3	10.5	7.8	18.2	*4.5*	--	--
2020	# days with data	--	--	--	--	27	30	31	31	30	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	3.0	3.2	2.3	2.0	1.8	*1.7*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	31.0	33.1	23.1	20.1	18.2	*17.8*	--	--
	Runoff (mm)	--	--	--	--	72.3	85.8	61.9	53.9	47.1	*26.1*	--	--
2021	# days with data	--	--	--	--	*24*	30	31	31	30	*3*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*2.9*	1.4	0.8	1.2	1.0	*1.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*29.7*	14.4	8.2	12.4	10.7	*10.2*	--	--
	Runoff (mm)	--	--	--	--	*61.6*	37.3	21.9	33.3	27.6	*2.7*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	--	*3.088*	1.450	1.060	1.041	1.049	*1.106*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*31.7*	14.9	10.9	10.7	10.8	*11.3*	--	--
	Average Runoff (mm)	--	--	--	--	*64.3*	36.2	29.1	27.9	27.8	*14.2*	--	--

Table 4-8:
W6 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	Average	--	--	--	--	--	--	--	0.783	1.303	0.725	--	--
	Maximum	--	--	--	--	--	--	--	2.057	4.249	1.494	--	--
	Minimum	--	--	--	--	--	--	--	0.299	0.467	0.239	--	--
2008	Average	--	--	--	--	--	0.274	0.741	1.340	1.121	1.665	--	--
	Maximum	--	--	--	--	--	0.545	1.780	4.636	2.652	5.172	--	--
	Minimum	--	--	--	--	--	0.136	0.265	0.456	0.542	0.675	--	--
2009	Average	--	--	--	--	--	1.063	0.318	0.647	1.223	0.964	--	--
	Maximum	--	--	--	--	--	2.266	0.675	1.988	2.509	1.118	--	--
	Minimum	--	--	--	--	--	0.617	0.038	0.267	0.724	0.709	--	--
2010	Average	--	--	--	--	2.213	1.181	0.946	0.779	0.578	0.379	--	--
	Maximum	--	--	--	--	4.325	2.817	1.811	1.840	0.948	0.544	--	--
	Minimum	--	--	--	--	0.746	0.626	0.580	0.509	0.247	0.112	--	--
2011	Average	--	--	--	--	--	0.626	1.180	1.350	1.101	0.708	0.569	--
	Maximum	--	--	--	--	--	1.207	6.749	3.864	1.630	1.169	0.722	--
	Minimum	--	--	--	--	--	0.535	0.525	0.591	0.797	0.340	0.385	--
2012	Average	--	--	--	--	3.349	1.506	1.854	1.183	1.048	0.842	--	--
	Maximum	--	--	--	--	7.528	2.769	7.120	2.681	1.367	1.054	--	--
	Minimum	--	--	--	--	1.511	0.814	0.991	0.912	0.803	0.497	--	--
2013	Average	--	--	--	--	8.676	2.479	1.055	0.546	1.308	1.084	--	--
	Maximum	--	--	--	--	17.947	6.767	1.754	0.738	2.809	2.429	--	--
	Minimum	--	--	--	--	2.496	1.337	0.489	0.412	0.499	0.686	--	--
2014	Average	--	--	--	--	2.106	1.034	0.892	1.661	1.282	1.324	--	--
	Maximum	--	--	--	--	6.637	2.706	2.186	3.689	3.653	2.651	--	--
	Minimum	--	--	--	--	0.572	0.419	0.375	0.834	0.774	0.960	--	--
2015	Average	--	--	--	--	--	0.765	0.879	1.402	1.722	1.039	--	--
	Maximum	--	--	--	--	--	1.269	2.255	3.733	3.688	1.635	--	--
	Minimum	--	--	--	--	--	0.486	0.508	0.712	1.046	0.784	--	--
2016	Average	--	--	--	--	--	--	1.788	2.057	1.541	1.046	--	--
	Maximum	--	--	--	--	--	--	2.992	5.348	2.116	1.688	--	--
	Minimum	--	--	--	--	--	--	1.177	1.367	1.073	0.686	--	--
2017	Average	--	--	--	--	--	0.677	0.778	0.462	1.294	1.566	--	--
	Maximum	--	--	--	--	--	3.127	1.958	0.635	3.253	3.264	--	--
	Minimum	--	--	--	--	--	0.295	0.440	0.371	0.389	0.328	--	--
2018	Average	--	--	--	--	--	1.145	0.672	1.239	0.763	--	--	--
	Maximum	--	--	--	--	--	3.203	3.131	4.880	1.221	--	--	--
	Minimum	--	--	--	--	--	0.468	0.278	0.266	0.383	--	--	--
2019	Average	--	--	--	--	2.108	0.487	0.263	0.209	0.418	0.311	--	--
	Maximum	--	--	--	--	5.138	1.077	0.370	0.272	2.821	0.452	--	--
	Minimum	--	--	--	--	0.280	0.247	0.181	0.166	0.162	0.161	--	--
2020	Average	--	--	--	--	3.701	2.621	1.597	2.183	2.364	2.382	--	--
	Maximum	--	--	--	--	10.881	8.308	3.721	6.007	4.427	3.357	--	--
	Minimum	--	--	--	--	0.496	1.239	0.938	1.370	1.703	0.848	--	--
2021	Average	--	--	--	--	--	--	0.450	1.159	0.981	0.910	--	--
	Maximum	--	--	--	--	--	--	1.102	4.140	1.848	1.151	--	--
	Minimum	--	--	--	--	--	--	0.198	0.240	0.659	0.785	--	--
All Years	Average	--	--	--	--	3.112	1.285	0.938	1.144	1.205	1.050	0.903	--
	Maximum	--	--	--	--	17.947	8.308	7.120	6.007	4.427	5.172	1.788	--
	Minimum	--	--	--	--	0.280	0.136	0.038	0.166	0.162	0.112	0.385	--

Table 4-9:
W6 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	# days with data	--	--	--	--	--	--	--	*18*	30	31	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	*0.78*	1.30	0.73	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	*7.70*	12.91	7.19	--	--
	Runoff (mm)	--	--	--	--	--	--	--	*12.0*	33.5	19.2	--	--
2008	# days with data	--	--	--	--	--	*21*	31	31	30	*21*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.28*	0.74	1.34	1.12	*1.66*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*2.74*	7.35	13.31	11.11	*16.41*	--	--
	Runoff (mm)	--	--	--	--	--	*5.0*	19.7	35.7	28.8	*29.8*	--	--
2009	# days with data	--	--	--	--	--	*23*	31	31	30	*7*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*1.07*	0.32	0.65	1.22	*0.96*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*10.60*	3.15	6.41	12.12	*9.48*	--	--
	Runoff (mm)	--	--	--	--	--	*21.1*	8.4	17.2	31.4	*5.7*	--	--
2010	# days with data	--	--	--	--	28	30	31	31	30	*19*	--	--
	Average Discharge (m^3/s)	--	--	--	--	2.23	1.18	0.95	0.78	0.58	*0.38*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	22.09	11.71	9.37	7.72	5.73	*3.75*	--	--
	Runoff (mm)	--	--	--	--	53.4	30.3	25.1	20.7	14.9	*6.1*	--	--
2011	# days with data	--	--	--	--	--	*2*	31	31	30	31	*7*	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.65*	1.18	1.35	1.10	0.71	*0.57*	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*6.42*	11.69	13.38	10.91	7.02	*5.69*	--
	Runoff (mm)	--	--	--	--	--	*1.1*	31.3	35.8	28.3	18.8	*3.4*	--
2012	# days with data	--	--	--	--	27	30	31	31	30	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	3.33	1.51	1.85	1.18	1.05	*0.84*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	32.98	14.92	18.37	11.72	10.38	*8.32*	--	--
	Runoff (mm)	--	--	--	--	76.9	38.7	49.2	31.4	26.9	*12.2*	--	--
2013	# days with data	--	--	--	--	*10*	30	31	31	30	*20*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*8.43*	2.48	1.06	0.55	1.31	*1.08*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*83.51*	24.57	10.46	5.41	12.96	*10.66*	--	--
	Runoff (mm)	--	--	--	--	*72.2*	63.7	28.0	14.5	33.6	*18.4*	--	--
2014	# days with data	--	--	--	--	*25*	30	31	31	30	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*2.20*	1.03	0.56	1.58	1.28	*1.32*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*21.84*	10.25	5.57	15.62	12.71	*13.05*	--	--
	Runoff (mm)	--	--	--	--	*47.2*	26.6	14.9	41.8	32.9	*19.2*	--	--
2015	# days with data	--	--	--	--	--	*12*	31	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.75*	0.88	1.40	1.72	*1.03*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*7.48*	8.71	13.89	17.06	*10.26*	--	--
	Runoff (mm)	--	--	--	--	--	*7.8*	23.3	37.2	44.2	*12.4*	--	--
2016	# days with data	--	--	--	--	--	--	*19*	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	*1.78*	2.06	1.54	*1.05*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	*17.6*	20.4	15.3	*10.4*	--	--
	Runoff (mm)	--	--	--	--	--	--	*28.9*	54.6	39.6	*12.5*	--	--
2017	# days with data	--	--	--	--	--	*22*	31	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.68*	0.78	0.46	1.29	*1.54*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*6.72*	7.71	4.58	12.82	*15.28*	--	--
	Runoff (mm)	--	--	--	--	--	*12.8*	20.6	12.3	33.2	*18.5*	--	--
2018	# days with data	--	--	--	--	--	*18*	31	31	28	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*1.2*	0.7	1.2	0.8	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*11.4*	6.7	12.3	7.6	--	--	--
	Runoff (mm)	--	--	--	--	--	*17.8*	17.8	32.9	18.3	--	--	--
2019	# days with data	--	--	--	--	*26*	*30*	31	31	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*2.1*	*0.5*	0.3	0.2	0.4	*0.3*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*20.7*	*4.8*	2.6	2.1	4.1	*3.0*	--	--
	Runoff (mm)	--	--	--	--	*46.6*	*12.5*	7.0	5.6	10.7	*3.4*	--	--
2020	# days with data	--	--	--	--	27	30	31	31	30	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	3.6	2.6	1.6	2.2	2.4	*2.3*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	36.0	26.0	15.8	21.6	23.4	*23.1*	--	--
	Runoff (mm)	--	--	--	--	84.1	67.3	42.4	57.8	60.7	*33.9*	--	--
2021	# days with data	--	--	--	--	--	--	*27*	31	30	*3*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	*0.4*	1.2	1.0	*0.9*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	*4.4*	11.5	9.7	*9.3*	--	--
	Runoff (mm)	--	--	--	--	--	--	*10.3*	30.8	25.2	*2.4*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	--	*3.653*	*1.158*	0.933	1.127	1.203	*1.061*	*0.574*	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*36.2*	*11.5*	9.2	11.2	11.9	*10.5*	*5.7*	--
	Average Runoff (mm)	--	--	--	--	*63.4*	*25.4*	23.4	29.3	30.8	*15.2*	*3.4*	--

Table 4-10:
W21 Summary statistics for preliminary 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	Average	--	--	--	--	--	0.114	0.074	0.200	0.098	0.060	--	--
	Maximum	--	--	--	--	--	0.295	0.270	0.349	0.187	0.251	--	--
	Minimum	--	--	--	--	--	0.003	0.009	0.127	0.000	0.000	--	--
2021	Average	--	--	--	--	0.281	0.135	0.058	0.044	0.046	0.049	--	--
	Maximum	--	--	--	--	0.525	0.500	0.199	0.059	0.063	0.063	--	--
	Minimum	--	--	--	--	0.139	0.012	0.010	0.030	0.032	0.034	--	--
All Years	Average	--	--	--	--	0.281	0.128	0.063	0.088	0.072	0.059	--	--
	Maximum	--	--	--	--	0.525	0.500	0.270	0.349	0.187	0.251	--	--
	Minimum	--	--	--	--	0.139	0.003	0.009	0.030	0.000	0.000	--	--

Table 4-11:
W21 Summary statistics for preliminary daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2018	# days with data	--	--	--	--	--	*14*	13	*13*	30	25	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.12*	0.07	*0.20*	0.10	0.06	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*14.35*	9.20	*24.30*	12.04	7.37	--	--
	Runoff (mm)	--	--	--	--	--	*1.2*	0.8	*2.1*	1.0	0.6	--	--
2021	# days with data	--	--	--	--	31	30	31	*31*	30	*4*	--	--
	Average Discharge (m^3/s)	--	--	--	--	0.3	0.1	0.1	*0.0*	0.1	*0.1*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	27.7	13.3	5.8	*4.3*	4.6	*4.8*	--	--
	Runoff (mm)	--	--	--	--	74.2	34.6	15.4	*11.6*	11.8	*1.7*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	--	0.28	*0.12*	0.07	0.12	0.07	*0.05*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	27.7	*13.8*	7.5	14.3	8.3	*6.1*	--	--
	Average Runoff (mm)	--	--	--	--	74.2	*17.9*	8.1	6.9	6.4	*1.1*	--	--

Table 4-12:
W22 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	Average	--	--	--	--	--	--	--	0.518	0.701	0.608	0.937	--
	Maximum	--	--	--	--	--	--	--	0.927	1.951	1.028	1.342	--
	Minimum	--	--	--	--	--	--	--	0.320	0.425	0.440	0.558	--
2008	Average	--	--	--	--	--	0.462	0.727	0.943	0.788	1.233	--	--
	Maximum	--	--	--	--	--	0.685	3.198	3.928	1.335	2.773	--	--
	Minimum	--	--	--	--	--	0.297	0.324	0.469	0.495	0.473	--	--
2009	Average	--	--	--	--	2.070	0.959	0.273	0.404	0.658	0.638	--	--
	Maximum	--	--	--	--	5.340	2.355	0.474	1.312	1.222	1.010	--	--
	Minimum	--	--	--	--	0.193	0.330	0.056	0.186	0.433	0.371	--	--
2010	Average	--	--	--	--	1.164	1.024	0.749	0.642	0.451	0.338	--	--
	Maximum	--	--	--	--	2.395	2.510	1.112	1.296	0.675	0.474	--	--
	Minimum	--	--	--	--	0.503	0.693	0.578	0.520	0.106	0.112	--	--
2011	Average	--	--	--	0.257	1.596	0.696	1.121	1.244	1.103	0.668	--	--
	Maximum	--	--	--	0.485	4.473	1.354	3.075	2.889	1.728	1.061	--	--
	Minimum	--	--	--	0.125	0.405	0.428	0.499	0.698	0.819	0.491	--	--
2012	Average	--	--	--	--	--	--	0.929	0.699	0.594	0.466	--	--
	Maximum	--	--	--	--	--	--	2.003	1.259	0.757	0.600	--	--
	Minimum	--	--	--	--	--	--	0.729	0.519	0.460	0.190	--	--
2013	Average	--	--	--	--	5.565	0.654	0.062	--	--	--	--	--
	Maximum	--	--	--	--	20.630	4.736	0.362	--	--	--	--	--
	Minimum	--	--	--	--	1.179	0.105	0.002	--	--	--	--	--
2014	Average	--	--	--	--	1.365	0.927	0.548	0.785	0.649	0.649	--	--
	Maximum	--	--	--	--	3.143	2.561	2.737	2.543	1.197	0.904	--	--
	Minimum	--	--	--	--	0.467	0.457	0.310	0.245	0.385	0.523	--	--
2015	Average	--	--	--	--	2.432	0.870	0.896	1.121	1.328	0.841	--	--
	Maximum	--	--	--	--	5.322	1.503	2.104	2.911	2.408	1.206	--	--
	Minimum	--	--	--	--	1.002	0.531	0.574	0.701	0.978	0.620	--	--
2016	Average	--	--	--	0.796	0.845	0.750	0.732	0.851	0.719	0.660	--	--
	Maximum	--	--	--	1.455	1.513	1.426	1.407	2.104	1.464	0.906	--	--
	Minimum	--	--	--	0.660	0.581	0.660	0.531	0.543	0.507	0.426	--	--
2017	Average	--	--	--	--	--	0.793	0.753	0.478	1.041	1.429	--	--
	Maximum	--	--	--	--	--	5.287	1.474	0.729	2.846	3.330	--	--
	Minimum	--	--	--	--	--	0.431	0.471	0.321	0.404	0.060	--	--
2018	Average	--	--	--	--	3.335	1.543	0.717	1.024	0.598	--	--	--
	Maximum	--	--	--	--	7.264	3.547	2.252	3.745	0.925	--	--	--
	Minimum	--	--	--	--	1.951	0.668	0.346	0.337	0.315	--	--	--
2019	Average	--	--	--	--	1.473	0.687	0.368	0.319	0.560	0.433	--	--
	Maximum	--	--	--	--	2.680	3.371	0.524	0.398	2.951	1.129	--	--
	Minimum	--	--	--	--	0.015	0.289	0.275	0.254	0.248	0.169	--	--
2020	Average	--	--	--	--	2.781	2.727	1.556	1.584	1.083	1.210	--	--
	Maximum	--	--	--	--	5.840	8.811	3.101	1.899	1.986	1.752	--	--
	Minimum	--	--	--	--	1.175	1.592	1.009	1.346	0.650	0.703	--	--
2021	Average	--	--	--	--	2.051	1.019	0.544	1.035	0.843	0.775	--	--
	Maximum	--	--	--	--	4.661	3.685	1.159	3.670	1.176	0.921	--	--
	Minimum	--	--	--	--	0.509	0.407	0.350	0.345	0.608	0.635	--	--
All Years	Average	--	--	--	0.613	1.951	1.027	0.715	0.802	0.789	0.726	0.937	--
	Maximum	--	--	--	1.455	20.630	8.811	3.198	3.928	2.951	3.330	1.342	--
	Minimum	--	--	--	0.125	0.015	0.105	0.002	0.186	0.106	0.060	0.558	--

Table 4-13:
W22 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	# days with data	--	--	--	--	--	--	--	*18*	30	31	*12*	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	*0.52*	0.70	0.61	*0.94*	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	*7.71*	10.49	9.10	*14.02*	--
	Runoff (mm)	--	--	--	--	--	--	--	*12.0*	27.2	24.4	*14.5*	--
2008	# days with data	--	--	--	--	--	*22*	31	31	30	*21*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.47*	0.73	0.94	0.79	*1.23*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*6.99*	10.88	14.14	11.80	*18.39*	--	--
	Runoff (mm)	--	--	--	--	--	*13.3*	29.1	37.9	30.6	*33.4*	--	--
2009	# days with data	--	--	--	--	29	30	31	31	30	*20*	--	--
	Average Discharge (m^3/s)	--	--	--	--	2.10	0.96	0.27	0.40	0.66	*0.64*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	31.46	14.36	4.08	6.05	9.84	*9.56*	--	--
	Runoff (mm)	--	--	--	--	78.8	37.2	10.9	16.2	25.5	*16.5*	--	--
2010	# days with data	--	--	--	--	28	30	31	31	30	*19*	--	--
	Average Discharge (m^3/s)	--	--	--	--	1.16	1.02	0.75	0.64	0.45	*0.34*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	17.36	15.34	11.22	9.61	6.75	*5.07*	--	--
	Runoff (mm)	--	--	--	--	42.0	39.8	30.0	25.7	17.5	*8.3*	--	--
2011	# days with data	--	--	--	*12*	31	30	31	31	30	31	--	--
	Average Discharge (m^3/s)	--	--	--	*0.27*	1.60	0.70	1.12	1.24	1.10	0.67	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*3.98*	23.90	10.42	16.78	18.63	16.52	10.00	--	--
	Runoff (mm)	--	--	--	*4.1*	64.0	27.0	44.9	49.9	42.8	26.8	--	--
2012	# days with data	--	--	--	--	--	--	*14*	31	30	*16*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	*0.93*	0.70	0.59	*0.46*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	*13.95*	10.46	8.89	*6.95*	--	--
	Runoff (mm)	--	--	--	--	--	--	*16.9*	28.0	23.0	*9.6*	--	--
2013	# days with data	--	--	--	--	*11*	30	24	--	--	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	*5.22*	0.65	0.06	--	--	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*78.11*	9.79	0.92	--	--	--	--	--
	Runoff (mm)	--	--	--	--	*74.2*	25.4	1.9	--	--	--	--	--
2014	# days with data	--	--	--	--	25	30	31	31	30	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	1.41	0.93	0.55	0.79	0.65	*0.65*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	21.06	13.88	8.20	11.75	9.72	*9.68*	--	--
	Runoff (mm)	--	--	--	--	45.5	36.0	22.0	31.5	25.2	*14.2*	--	--
2015	# days with data	--	--	--	--	*18*	29	31	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*2.43*	0.86	0.90	1.12	1.33	*0.84*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*36.38*	12.93	13.42	16.79	19.88	*12.51*	--	--
	Runoff (mm)	--	--	--	--	*56.6*	32.4	35.9	45.0	51.5	*15.1*	--	--
2016	# days with data	--	--	--	*22*	31	30	31	31	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	*0.80*	0.84	0.75	0.73	0.85	0.72	*0.66*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*11.9*	12.6	11.2	11.0	12.7	10.8	*9.9*	--	--
	Runoff (mm)	--	--	--	*22.6*	33.6	29.1	29.3	34.1	27.9	*11.2*	--	--
2017	# days with data	--	--	--	--	--	*23*	31	31	30	*6*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.79*	0.75	0.48	1.04	*1.42*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*11.88*	11.27	7.16	15.58	*21.29*	--	--
	Runoff (mm)	--	--	--	--	--	*23.6*	30.2	19.2	40.4	*11.0*	--	--
2018	# days with data	--	--	--	--	*16*	30	31	31	30	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	*3.3*	1.5	0.7	1.0	0.6	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*50.1*	23.1	10.7	15.3	9.0	--	--	--
	Runoff (mm)	--	--	--	--	*69.2*	59.9	28.7	41.1	23.2	--	--	--
2019	# days with data	--	--	--	--	*25*	30	31	31	30	*7*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*1.4*	0.7	0.4	0.3	0.6	*0.4*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*21.5*	10.3	5.5	4.8	8.4	*6.6*	--	--
	Runoff (mm)	--	--	--	--	*46.4*	26.7	14.7	12.8	21.7	*4.0*	--	--
2020	# days with data	--	--	--	--	*24*	30	31	10	23	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*2.8*	2.7	1.6	1.6	1.1	*1.2*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*41.3*	40.8	23.3	23.7	16.2	*17.9*	--	--
	Runoff (mm)	--	--	--	--	*85.7*	105.8	62.4	20.5	32.3	*20.1*	--	--
2021	# days with data	--	--	--	--	*25*	30	31	31	30	*3*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*2.0*	1.0	0.5	1.0	0.8	*0.8*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*30.3*	15.3	8.1	15.5	12.6	*11.7*	--	--
	Runoff (mm)	--	--	--	--	*65.5*	39.5	21.8	41.5	32.7	*3.0*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	*0.531*	2.211	1.009	0.713	0.832	0.794	0.764	*0.937*	--
	Average Yield ($L/s/km^2$)	--	--	--	*7.9*	33.1	15.1	10.7	12.5	11.9	11.4	*14.0*	--
	Average Runoff (mm)	--	--	--	*13.4*	60.1	38.1	27.1	29.7	30.1	15.2	*14.5*	--

Table 4-14:
W26 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	Average	--	--	--	--	--	0.028	0.029	0.024	0.019	--	--	--
	Maximum	--	--	--	--	--	0.079	0.044	0.041	0.063	--	--	--
	Minimum	--	--	--	--	--	0.013	0.019	0.016	0.010	--	--	--
2011	Average	--	--	--	--	--	--	--	--	--	--	--	--
	Maximum	--	--	--	--	--	--	--	--	--	--	--	--
	Minimum	--	--	--	--	--	--	--	--	--	--	--	--
2012	Average	--	--	--	--	--	0.019	0.022	0.016	0.010	0.008	--	--
	Maximum	--	--	--	--	--	0.032	0.094	0.024	0.014	0.010	--	--
	Minimum	--	--	--	--	--	0.012	0.013	0.009	0.007	0.004	--	--
2013	Average	--	--	--	--	--	--	0.001	0.001	0.005	0.006	--	--
	Maximum	--	--	--	--	--	--	0.002	0.003	0.012	0.007	--	--
	Minimum	--	--	--	--	--	--	0.001	0.000	0.000	0.004	--	--
2014	Average	--	--	--	--	--	0.022	0.006	0.015	0.012	--	--	--
	Maximum	--	--	--	--	--	0.094	0.019	0.042	0.019	--	--	--
	Minimum	--	--	--	--	--	0.006	0.003	0.005	0.008	--	--	--
2015	Average	--	--	--	--	--	0.009	0.012	0.017	0.021	0.012	--	--
	Maximum	--	--	--	--	--	0.027	0.047	0.031	0.044	0.058	--	--
	Minimum	--	--	--	--	--	0.003	0.005	0.012	0.015	0.005	--	--
2016	Average	--	--	--	--	0.018	0.015	0.020	0.026	0.017	--	--	--
	Maximum	--	--	--	--	0.060	0.071	0.143	0.050	0.022	--	--	--
	Minimum	--	--	--	--	0.010	0.010	0.011	0.017	0.012	--	--	--
2017	Average	--	--	--	--	--	0.003	0.002	0.003	0.008	--	--	--
	Maximum	--	--	--	--	--	0.080	0.029	0.005	0.033	--	--	--
	Minimum	--	--	--	--	--	0.000	0.001	0.001	0.001	--	--	--
2018	Average	--	--	--	--	--	--	0.005	0.013	0.010	--	--	--
	Maximum	--	--	--	--	--	--	0.008	0.054	0.030	--	--	--
	Minimum	--	--	--	--	--	--	0.003	0.005	0.005	--	--	--
2019	Average	--	--	--	--	--	0.003	0.002	0.001	0.001	0.002	--	--
	Maximum	--	--	--	--	--	0.005	0.003	0.003	0.005	0.003	--	--
	Minimum	--	--	--	--	--	0.002	0.001	0.000	0.000	0.001	--	--
2020	Average	--	--	--	--	0.041	0.043	0.025	0.028	0.013	0.014	--	--
	Maximum	--	--	--	--	0.182	0.176	0.052	0.065	0.059	0.039	--	--
	Minimum	--	--	--	--	0.001	0.013	0.008	0.018	0.000	0.002	--	--
2021	Average	--	--	--	--	--	0.002	0.003	0.006	0.007	0.003	--	--
	Maximum	--	--	--	--	--	0.004	0.007	0.025	0.026	0.007	--	--
	Minimum	--	--	--	--	--	0.000	0.000	0.001	0.003	0.001	--	--
All Years	Average	--	--	--	--	0.035	0.020	0.014	0.014	0.011	0.009	--	--
	Maximum	--	--	--	--	0.182	0.176	0.143	0.065	0.063	0.058	--	--
	Minimum	--	--	--	--	0.001	0.000	0.000	0.000	0.000	0.001	--	--

Table 4-15:
W26 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2010	# days with data	--	--	--	--	--	29	31	31	26	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	0.03	0.03	0.02	0.02	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	21.44	22.18	18.71	14.30	--	--	--
	Runoff (mm)	--	--	--	--	--	53.7	59.4	50.1	32.1	--	--	--
2011	# days with data	--	--	--	--	--	--	--	--	--	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	--	--	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	--	--	--	--	--
	Runoff (mm)	--	--	--	--	--	--	--	--	--	--	--	--
2012	# days with data	--	--	--	--	--	*18*	31	31	30	*12*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.02*	0.02	0.02	0.01	*0.01*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*14.56*	17.00	12.00	7.83	*5.85*	--	--
	Runoff (mm)	--	--	--	--	--	*22.6*	45.5	32.1	20.3	*6.1*	--	--
2013	# days with data	--	--	--	--	--	--	7	31	30	*8*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	0.00	0.00	0.00	*0.01*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	0.98	0.97	3.61	*4.42*	--	--
	Runoff (mm)	--	--	--	--	--	--	0.6	2.6	9.4	*3.1*	--	--
2014	# days with data	--	--	--	--	--	*20*	31	31	25	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.02*	0.01	0.01	0.01	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*17.19*	4.50	11.19	8.98	--	--	--
	Runoff (mm)	--	--	--	--	--	*29.7*	12.0	30.0	19.4	--	--	--
2015	# days with data	--	--	--	--	--	*12*	31	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.01*	0.01	0.02	0.02	*0.01*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*6.55*	9.00	12.87	16.26	*10.48*	--	--
	Runoff (mm)	--	--	--	--	--	*6.8*	24.1	34.5	42.2	*12.7*	--	--
2016	# days with data	--	--	--	--	*9*	30	31	31	30	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.02*	0.01	0.02	0.03	0.02	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*13.97*	11.38	15.46	20.21	12.73	--	--	--
	Runoff (mm)	--	--	--	--	*10.9*	29.5	41.4	54.1	33.0	--	--	--
2017	# days with data	--	--	--	--	--	*22*	31	31	29	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.00*	0.00	0.00	0.01	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*2.12*	1.74	2.12	5.99	--	--	--
	Runoff (mm)	--	--	--	--	--	*4.0*	4.7	5.7	15.0	--	--	--
2018	# days with data	--	--	--	--	--	--	*19*	31	*27*	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	*0.0*	0.0	*0.0*	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	*3.5*	9.7	*7.5*	--	--	--
	Runoff (mm)	--	--	--	--	--	--	*5.8*	26.0	*17.6*	--	--	--
2019	# days with data	--	--	--	--	--	*24*	*31*	31	*30*	*5*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.0*	0.0	0.0	0.0	*0.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*2.3*	1.6	0.8	1.0	*1.6*	--	--
	Runoff (mm)	--	--	--	--	--	*4.8*	4.3	2.2	2.7	*0.7*	--	--
2020	# days with data	--	--	--	--	*26*	*30*	*31*	31	*30*	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.0*	*0.0*	0.0	0.0	0.0	*0.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*30.6*	*32.9*	19.6	21.5	10.1	*10.9*	--	--
	Runoff (mm)	--	--	--	--	*68.6*	*85.3*	52.5	57.6	26.1	*12.3*	--	--
2021	# days with data	--	--	--	--	--	*13*	31	31	30	*4*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.0*	0.0	0.0	0.0	*0.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*1.3*	2.2	4.9	5.2	*2.5*	--	--
	Runoff (mm)	--	--	--	--	--	*1.5*	5.9	13.2	13.4	*0.9*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	--	*0.029*	0.016	0.011	0.014	0.011	*0.007*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*22.3*	12.2	8.9	10.5	8.5	*6.0*	--	--
	Average Runoff (mm)	--	--	--	--	*39.7*	26.4	23.3	28.0	21.0	*5.9*	--	--

Table 4-16:
W27 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	Average	--	--	--	--	--	--	--	--	--	--	--	--
	Maximum	--	--	--	--	--	--	--	--	--	--	--	--
	Minimum	--	--	--	--	--	--	--	--	--	--	--	--
2008	Average	--	--	--	--	--	0.040	0.030	0.037	0.045	0.058	--	--
	Maximum	--	--	--	--	--	0.061	0.053	0.059	0.062	0.075	--	--
	Minimum	--	--	--	--	--	0.003	0.001	0.001	0.022	0.024	--	--
2009	Average	--	--	--	--	--	--	0.031	0.028	0.034	0.038	--	--
	Maximum	--	--	--	--	--	--	0.048	0.079	0.082	0.046	--	--
	Minimum	--	--	--	--	--	--	0.021	0.021	0.021	0.028	--	--
2010	Average	--	--	--	--	0.090	0.057	0.029	0.025	0.014	0.016	--	--
	Maximum	--	--	--	--	0.146	0.115	0.070	0.076	0.074	0.105	--	--
	Minimum	--	--	--	--	0.011	0.037	0.001	0.006	0.001	0.001	--	--
2011	Average	--	--	--	--	0.160	0.046	0.041	0.014	0.010	0.007	--	--
	Maximum	--	--	--	--	0.335	0.070	0.111	0.044	0.014	0.010	--	--
	Minimum	--	--	--	--	0.037	0.032	0.011	0.003	0.008	0.005	--	--
2012	Average	--	--	--	--	0.047	--	0.030	0.023	0.016	0.017	--	--
	Maximum	--	--	--	--	0.128	--	0.315	0.036	0.040	0.021	--	--
	Minimum	--	--	--	--	0.018	--	0.021	0.015	0.012	0.015	--	--
2013	Average	--	--	--	--	--	--	0.018	0.015	0.025	0.028	--	--
	Maximum	--	--	--	--	--	--	0.030	0.061	0.123	0.035	--	--
	Minimum	--	--	--	--	--	--	0.014	0.010	0.012	0.021	--	--
2014	Average	--	--	--	--	0.042	0.037	0.030	0.031	0.015	0.012	--	--
	Maximum	--	--	--	--	0.088	0.144	0.050	0.097	0.020	0.014	--	--
	Minimum	--	--	--	--	0.027	0.012	0.024	0.012	0.010	0.010	--	--
2015	Average	--	--	--	--	0.081	0.039	0.049	--	--	--	--	--
	Maximum	--	--	--	--	0.304	0.052	0.241	--	--	--	--	--
	Minimum	--	--	--	--	0.005	0.027	0.041	--	--	--	--	--
2016	Average	--	--	--	--	0.053	0.033	0.041	0.06	0.05	--	--	--
	Maximum	--	--	--	--	0.123	0.064	0.127	0.14	0.07	--	--	--
	Minimum	--	--	--	--	0.029	0.024	0.023	0.05	0.04	--	--	--
2017	Average	--	--	--	--	--	0.017	0.013	0.01	0.01	0.07	--	--
	Maximum	--	--	--	--	--	0.100	0.095	0.03	0.10	0.08	--	--
	Minimum	--	--	--	--	--	0.010	0.009	0.01	0.01	0.05	--	--
2018	Average	--	--	--	--	0.00	0.001	0.001	0.00	0.00	--	--	--
	Maximum	--	--	--	--	0.01	0.016	0.004	0.02	0.04	--	--	--
	Minimum	--	--	--	--	0.00	0.000	0.000	0.00	0.00	--	--	--
2019	Average	--	--	--	--	--	0.010	0.008	--	0.006	0.006	--	--
	Maximum	--	--	--	--	--	0.013	0.011	--	0.012	0.007	--	--
	Minimum	--	--	--	--	--	0.007	0.006	--	0.004	0.004	--	--
2020	Average	--	--	--	0.007	0.002	0.007	0.003	0.006	0.004	0.002	--	--
	Maximum	--	--	--	0.020	0.013	0.020	0.013	0.028	0.025	0.004	--	--
	Minimum	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	0.000	--	--
2021	Average	--	--	--	--	0.009	0.010	0.005	0.001	0.003	0.004	--	--
	Maximum	--	--	--	--	0.020	0.016	0.095	0.013	0.009	0.005	--	--
	Minimum	--	--	--	--	0.001	0.004	0.000	0.000	0.000	0.003	--	--
All Years	Average	--	--	--	0.007	0.059	0.026	0.020	0.018	0.017	0.024	--	--
	Maximum	--	--	--	0.020	0.335	0.144	0.315	0.138	0.123	0.105	--	--
	Minimum	--	--	--	0.000	0.000	0.000	0.000	0.000	0.000	0.000	--	--

Table 4-17:
W27 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	# days with data	--	--	--	--	--	--	--	--	--	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	--	--	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	--	--	--	--	--
	Runoff (mm)	--	--	--	--	--	--	--	--	--	--	--	--
2008	# days with data	--	--	--	--	--	*21*	31	31	30	*21*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.040*	0.030	0.036	0.045	*0.058*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*14.77*	10.94	13.22	16.75	*21.50*	--	--
	Runoff (mm)	--	--	--	--	--	*26.8*	29.3	35.4	43.4	*39.0*	--	--
2009	# days with data	--	--	--	--	--	--	*13*	31	30	*7*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	*0.032*	0.028	0.034	*0.038*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	*11.70*	10.42	12.44	*14.01*	--	--
	Runoff (mm)	--	--	--	--	--	--	*13.1*	27.9	32.2	*8.5*	--	--
2010	# days with data	--	--	--	--	*21*	30	31	31	30	*19*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.090*	0.057	0.029	0.025	0.014	*0.016*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*33.21*	21.18	10.70	9.36	5.31	*5.94*	--	--
	Runoff (mm)	--	--	--	--	*60.3*	54.9	28.6	25.1	13.8	*9.7*	--	--
2011	# days with data	--	--	--	--	27	30	31	31	30	31	--	--
	Average Discharge (m^3/s)	--	--	--	--	0.159	0.045	0.041	0.014	0.010	0.007	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	58.90	16.85	15.25	5.29	3.71	2.64	--	--
	Runoff (mm)	--	--	--	--	137.4	43.7	40.9	14.2	9.6	7.1	--	--
2012	# days with data	--	--	--	--	*6*	--	*11*	*17*	30	*8*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.046*	--	*0.030*	*0.023*	0.016	*0.017*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*16.99*	--	*11.16*	*8.59*	5.96	*6.38*	--	--
	Runoff (mm)	--	--	--	--	*8.8*	--	*10.6*	*12.6*	15.5	*4.4*	--	--
2013	# days with data	--	--	--	--	--	--	*7*	31	30	*19*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	*0.018*	0.015	0.025	*0.028*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	*6.79*	5.58	9.35	*10.46*	--	--
	Runoff (mm)	--	--	--	--	--	--	*4.1*	14.9	24.2	*17.2*	--	--
2014	# days with data	--	--	--	--	*25*	30	31	31	30	*16*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.042*	0.037	0.030	0.031	0.016	*0.012*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*15.56*	13.86	11.08	11.41	5.75	*4.57*	--	--
	Runoff (mm)	--	--	--	--	*33.6*	35.9	29.7	30.6	14.9	*6.3*	--	--
2015	# days with data	--	--	--	--	*18*	30	31	--	--	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.081*	0.039	0.049	--	--	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*30.12*	14.30	18.14	--	--	--	--	--
	Runoff (mm)	--	--	--	--	*46.8*	37.1	48.6	--	--	--	--	--
2016	# days with data	--	--	--	--	*26*	30	31	31	30	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	*0.054*	0.033	0.041	0.06	0.05	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*20.03*	12.07	15.33	22.93	19.61	--	--	--
	Runoff (mm)	--	--	--	--	*45.0*	31.3	41.0	61.4	50.8	--	--	--
2017	# days with data	--	--	--	--	--	*22*	31	31	30	*2*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.017*	0.013	0.01	0.01	*0.07*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*6.40*	4.95	3.86	4.77	*25.15*	--	--
	Runoff (mm)	--	--	--	--	--	*12.2*	13.3	10.3	12.4	*4.3*	--	--
2018	# days with data	--	--	--	--	7	*30*	31	31	14	--	--	--
	Average Discharge (m^3/s)	--	--	--	--	0.0	*0.0*	0.0	0.0	0.0	--	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	1.0	*0.4*	0.3	0.5	0.4	--	--	--
	Runoff (mm)	--	--	--	--	0.6	*1.0*	0.7	1.3	0.5	--	--	--
2019	# days with data	--	--	--	--	--	*24*	21	--	30	*6*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.0*	0.0	--	0.0	*0.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*3.7*	2.8	--	2.3	*2.1*	--	--
	Runoff (mm)	--	--	--	--	--	*7.6*	5.1	--	6.1	*1.1*	--	--
2020	# days with data	--	--	--	*14*	31.0	*30*	31	31.0	30	*4*	--	--
	Average Discharge (m^3/s)	--	--	--	*0.0*	0.0	*0.0*	0.0	0.0	0.0	*0.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*2.5*	1.1	*2.7*	1.3	2.0	1.9	*1.2*	--	--
	Runoff (mm)	--	--	--	*3.0*	3.0	*7.0*	3.4	5.5	4.8	*0.4*	--	--
2021	# days with data	--	--	--	--	16	*30*	31	31	30	*2*	--	--
	Average Discharge (m^3/s)	--	--	--	--	0.0	*0.0*	0.0	0.0	0.0	*0.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	3.2	*3.6*	1.8	0.5	1.0	*1.6*	--	--
	Runoff (mm)	--	--	--	--	4.5	*9.3*	4.9	1.3	2.5	*0.3*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	*0.007*	*0.054*	0.027	0.024	0.021	0.019	*0.023*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*2.5*	*20.0*	10.0	8.7	7.8	6.9	*8.7*	--	--
	Average Runoff (mm)	--	--	--	*3.0*	*37.8*	24.2	19.5	20.0	17.7	*8.9*	--	--

Table 4-18:
W29 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	Average	--	--	--	--	--	0.720	1.561	1.662	1.606	1.003	--	--
	Maximum	--	--	--	--	--	1.269	4.466	3.312	2.407	1.629	--	--
	Minimum	--	--	--	--	--	0.229	0.441	0.914	1.223	0.623	--	--
2012	Average	--	--	--	--	1.690	1.736	1.222	0.823	0.714	0.638	--	--
	Maximum	--	--	--	--	3.259	3.766	4.497	1.429	0.881	0.786	--	--
	Minimum	--	--	--	--	0.653	0.823	0.786	0.656	0.577	0.432	--	--
2013	Average	--	--	--	--	5.019	--	--	0.380	0.866	0.711	--	--
	Maximum	--	--	--	--	13.604	--	--	0.535	2.818	0.935	--	--
	Minimum	--	--	--	--	1.370	--	--	0.308	0.328	0.448	--	--
2014	Average	--	--	--	--	--	--	--	1.467	1.110	1.063	--	--
	Maximum	--	--	--	--	--	--	--	4.955	2.568	1.703	--	--
	Minimum	--	--	--	--	--	--	--	0.495	0.692	0.864	--	--
2015	Average	--	--	--	--	--	0.789	0.856	0.954	1.249	0.771	--	--
	Maximum	--	--	--	--	--	1.460	2.406	3.023	2.477	1.275	--	--
	Minimum	--	--	--	--	--	0.494	0.543	0.007	0.859	0.582	--	--
2018	Average	--	--	--	--	--	1.642	1.259	1.689	0.710	1.346	--	--
	Maximum	--	--	--	--	--	1.985	1.984	2.888	1.673	2.623	--	--
	Minimum	--	--	--	--	--	1.144	0.493	0.620	0.177	0.356	--	--
2020	Average	--	--	--	--	--	--	--	1.561	1.663	1.550	--	--
	Maximum	--	--	--	--	--	--	--	2.403	2.395	2.069	--	--
	Minimum	--	--	--	--	--	--	--	1.086	1.244	0.023	--	--
2021	Average	--	--	--	--	1.656	0.938	0.597	0.845	0.733	0.691	--	--
	Maximum	--	--	--	--	3.434	2.697	1.605	2.059	0.962	0.800	--	--
	Minimum	--	--	--	--	0.922	0.472	0.421	0.383	0.568	0.606	--	--
All Years	Average	--	--	--	--	2.058	1.123	1.059	1.100	1.135	0.951	--	--
	Maximum	--	--	--	--	13.604	3.766	4.497	4.955	2.818	2.069	--	--
	Minimum	--	--	--	--	0.653	0.229	0.421	0.007	0.328	0.023	--	--

Table 4-19:
W29 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2011	# days with data	--	--	--	--	--	*23*	31	31	30	31	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.72*	1.56	1.66	1.61	1.00	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*8.39*	18.12	19.31	18.66	11.65	--	--
	Runoff (mm)	--	--	--	--	--	*16.7*	48.5	51.7	48.4	31.2	--	--
2012	# days with data	--	--	--	--	*27*	30	31	31	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*1.68*	1.74	1.22	0.82	0.71	*0.62*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*19.52*	20.16	14.19	9.55	8.29	*7.21*	--	--
	Runoff (mm)	--	--	--	--	*45.5*	52.3	38.0	25.6	21.5	*8.1*	--	--
2013	# days with data	--	--	--	--	*8*	--	--	28	30	*19*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*5.30*	--	--	0.38	0.87	*0.71*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*61.54*	--	--	4.40	10.06	*8.21*	--	--
	Runoff (mm)	--	--	--	--	*42.5*	--	--	10.6	26.1	*13.5*	--	--
2014	# days with data	--	--	--	--	--	--	--	27	30	*17*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	1.44	1.11	*1.06*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	16.74	12.89	*12.31*	--	--
	Runoff (mm)	--	--	--	--	--	--	--	39.1	33.4	*18.1*	--	--
2015	# days with data	--	--	--	--	--	*12*	31	31	30	*14*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.78*	0.86	0.95	1.25	*0.77*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*9.04*	9.94	11.09	14.51	*8.90*	--	--
	Runoff (mm)	--	--	--	--	--	*9.4*	26.6	29.7	37.6	*10.8*	--	--
2018	# days with data	--	--	--	--	--	*19*	31	31	30	29	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*1.6*	1.3	1.7	0.7	1.4	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*19.0*	14.6	19.6	8.2	15.7	--	--
	Runoff (mm)	--	--	--	--	--	*31.3*	39.2	52.5	21.4	39.3	--	--
2020	# days with data	--	--	--	--	--	--	--	30	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	--	1.6	1.7	*1.5*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	--	18.2	19.3	*17.9*	--	--
	Runoff (mm)	--	--	--	--	--	--	--	47.1	50.1	*20.1*	--	--
2021	# days with data	--	--	--	--	*25*	30	31	31	30	*3*	--	--
	Average Discharge (m^3/s)	--	--	--	--	*1.7*	0.9	0.6	0.9	0.7	*0.7*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*19.5*	10.9	6.9	9.8	8.5	*8.1*	--	--
	Runoff (mm)	--	--	--	--	*42.0*	28.3	18.6	26.3	22.1	*2.1*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	--	*2.886*	1.163	1.099	1.170	1.081	*0.968*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	*33.5*	13.5	12.8	13.6	12.6	*11.2*	--	--
	Average Runoff (mm)	--	--	--	--	*43.4*	27.6	34.2	35.3	32.6	*17.9*	--	--

Table 4-20:
W99 Summary statistics for 15-minute discharge record. All values are in m^3/s.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	Average	--	--	--	--	--	0.571	0.321	0.270	0.470	0.401	--	--
	Maximum	--	--	--	--	--	1.084	0.421	0.332	2.164	0.888	--	--
	Minimum	--	--	--	--	--	0.314	0.230	0.208	0.201	0.070	--	--
2020	Average	--	--	--	1.499	2.657	2.558	1.695	1.580	1.486	1.889	--	--
	Maximum	--	--	--	2.753	6.503	7.986	2.726	2.537	2.765	2.357	--	--
	Minimum	--	--	--	0.728	0.641	1.594	1.290	1.098	1.050	1.386	--	--
2021	Average	--	--	--	--	--	--	0.732	1.121	0.853	0.952	--	--
	Maximum	--	--	--	--	--	--	2.013	2.983	1.223	1.097	--	--
	Minimum	--	--	--	--	--	--	0.510	0.480	0.562	0.824	--	--
All Years	Average	--	--	--	1.499	2.657	1.312	0.925	0.990	0.936	1.054	--	--
	Maximum	--	--	--	2.753	6.503	7.986	2.726	2.983	2.765	2.357	--	--
	Minimum	--	--	--	0.728	0.641	0.314	0.230	0.208	0.201	0.070	--	--

Table 4-21:
W99 Summary statistics for daily discharge, unit yield and runoff. Months with incomplete data in italics.

Year	Variable	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	# days with data	--	--	--	--	--	*24*	31	31	30	*16*	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	*0.57*	0.32	0.27	0.47	*0.40*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	*6.50*	3.64	3.06	5.32	*4.56*	--	--
	Runoff (mm)	--	--	--	--	--	*13.5*	9.7	8.2	13.8	*6.3*	--	--
2020	# days with data	--	--	--	*13*	31	*30*	31	31	30	*13*	--	--
	Average Discharge (m^3/s)	--	--	--	*1.50*	2.66	*2.62*	1.69	1.58	1.49	*1.87*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*17.02*	30.09	*29.63*	19.19	17.89	16.83	*21.17*	--	--
	Runoff (mm)	--	--	--	*19.1*	80.6	*76.8*	51.4	47.9	43.6	*23.8*	--	--
2021	# days with data	--	--	--	--	--	--	27.0	31.0	30.0	3.0	--	--
	Average Discharge (m^3/s)	--	--	--	--	--	--	*0.7*	1.1	0.9	*1.0*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	--	--	--	*8.3*	12.7	9.7	*10.9*	--	--
	Runoff (mm)	--	--	--	--	--	--	*19.3*	34.0	25.0	*2.8*	--	--
All Years	Average Discharge (m^3/s)	--	--	--	*1.503*	2.657	1.595	0.915	0.990	0.936	*1.077*	--	--
	Average Yield ($L/s/km^2$)	--	--	--	*17.0*	30.1	18.1	10.4	11.2	10.6	*12.2*	--	--
	Average Runoff (mm)	--	--	--	*19.1*	80.6	45.1	26.8	30.0	27.5	*11.0*	--	--

5. Effluent Discharge

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5. Effluent Discharge

Water management infrastructure for the Project is designed to convey site contact water via Ditch C, which joins Haggart Creek above the W4 station. When discharging, flows in Ditch C are monitored continuously with a V-notch weir, staff gauge, pressure transducer, and when resources allow a flow meter. Salt dilution measurements are made periodically downstream of the weir to confirm the instantaneous discharge values as calculated from the weir equation and staff gauge reading. Total monthly discharge volumes are then calculated from the continuous weir discharge record or are metered with a functional totalizer. Daily surveys of Event Pond water level are used to evaluate potential erroneous data. The total volume of water discharged from the LDSP in 2021 was 168,468 m^3, over two discharge events in July 12-23 (80,933 m^3) and November 12-20 (87,535 m^3; Table 5-1).

Table 5-1:
Monthly Discharge Totals from Lower Dublin South Pond (2021)

Month	Discharge (m^3)
July	80,933
November	87,535
Total	168,468

Note:
July flows measured using staff gauge readings, continuous levelogger data and weir equation. November flows measured using pump totalizer for inputs to LDSP.

6. Adaptive Management Reporting

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6. Adaptive Management Reporting

6.1 Background and Approach

The Water Use License (WUL) QZ14-041-1 requires that all streamflow and discharge data collected in accordance with the Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP) be presented in the annual report. To capture any potential alterations to the baseline streamflow signature in Haggart Creek, a three-tiered threshold scheme has been developed for the adaptive management of surface water flow. The thresholds provided in Table 2.4-1 of the EMSAMP are different for the ice-free and ice-affected seasons, and are based on the median baseflows established for hydrometric stations W4 and W29 over the baseline period that encompassed the period August 2007 to August 2017. Note that the W29 station has been replaced by the W99 station, which has a 3% larger drainage area (Table 4-1). To account for this difference, the W29 baseline values have been adjusted upward by a factor of 1.03 to represent baseline conditions at W99. In addition, the rating curve for the W99 station has much lower error than the W29 curve, reflective of the more stable channel at the former station (Table 3-1).

The table describes four types of responses (*i.e.*, notification, review, evaluation and action) when each threshold is reached. The thresholds are based on an assumed level of effect to the wetted useable area in the stream channel based on the measured flow reduction from the median monthly baseflows at Haggart Creek hydrometric stations W4 and W99. While the affect of flow reduction, measured as a decrease in river stage, will be different for each channel reach due to varying width:depth ratios (as reflected in a stage rating curve, for example), generally streams with high width:depth ratios (such as Haggart Creek) have small changes in wetted useable area (or width) per unit decrease in flow. Thus, the three-tiered thresholds of 30%, 40% and 50% in reduction in flow from the median baseflow during the ice-free season reflect the affect of channel morphology on flow and wetted useable area (VGC, 2020).

For the ice-covered season, the three performance thresholds are set as a 20% reduction (from baseline) in median monthly baseflow for two consecutive monitoring events (Threshold 1), 20% for three consecutive events (Threshold 2), and 25% for two consecutive monitoring months (Threshold 3).

6.2 Results for 2021

Flow values presented in Table 6-1 and Figure 6-1 for the months of May through September inclusive are median values, derived from continuous time-series discharge data. Flow data for October are still representative of open water conditions, however ice

begins to form on local streams mid-month, and therefore the October value is the median of the first 10-14 days of the month, prior to freezing. In 2021, only three days of continuous data are available upon which to calculate the median monthly flow. The flow values reported for the months of November through April are based on one to two manual measurements (when possible), and therefore the deviation between baseline values and reported values for the current year may be higher due to limited baseline records and infrequent flow measurements taken in challenging conditions (*i.e.*, under ice). Note that there is much less inter- and intra-annual variability in the winter low flows, as they are primarily driven by groundwater discharge to the stream channels.

2021 was representative of an 'average' water year, which is reflected in the site climate record (see 2021 Climate Data Report). Overall, the 2021 water year (October 2020 to September 2021) was characterized by slightly cooler winter and spring air temperatures than normal and slightly higher summer air temperatures. A slightly lower than average peak spring snowpack (~10-15% lower than normal) was followed by higher than average summer rainfall in May through September, leading to elevated streamflows across the Project site throughout the open water season. At the regional scale, annual average air temperature at the Mayo A climate station (-3.2°C) was slightly cooler than the 1991-2019 annual average (-2.2°C; Table 2.1-3). In general, the late-winter and early-spring months were cooler than average, and the summer months were warmer than average. Peak spring snowpacks were slightly lower than the historical average by 6% to 10%. The lower than normal snowpack was followed by a wet summer in 2021, with the sixth highest May-September total precipitation on record at the Mayo climate station, placing it in the 90th percentile. Overall, the 2021 water year received 4% less precipitation than the 1991-2019 average.

In 2021, streamflows were lower than the median baseline condition in seven of twelve months at W99, yet were consistently elevated above baseline at W4 in all months except July. However, the lower flows at W99 relative to baseline only meet the Threshold 1 criteria in June and July, noting that the June reduction only exceeds the threshold of -20% by 4%, just below the accepted margin of streamflow measurement error of 5% (Table 6-1).

Given that streamflows are elevated above baseline at W4, it is unlikely that water management practices in the Dublin Creek catchment are resulting in the noted lower streamflows at the W99 station. However, flows from Platinum Gulch, Suttles Gulch and Eagle Pup that would normally report to lower Eagle Creek (W45) are being diverted to the LDSP, which may account for a portion of the reduction in streamflows noted at W99 during the open water season. Unfortunately, the levelogger at W45 did not produce reliable water level data in 2021, and therefore this mechanism cannot be confirmed with

any degree of certainty. Several factors should be considered when assessing deviations from the baseline (2010-2017) streamflow regime in Haggart Creek.

- W99 discharges appear to be lower than expected in 2021 relative to precipitation recorded at site;
- The streamflow record for W99 is higher quality than that for W29, due to a more robust rating curve and greater channel stability at W99 (see Table 3-1);
- Comparison to baseline flows is complicated by use of scaled W29 data to represent baseline at W99, due to the more limited record period at the latter station that does not include the baseline period; and,
- There is insufficient record length for W99 at this point to determine a cause for this discrepancy.

Table 6-1:
Median monthly streamflows for the baseline (2007-2017) period and for 2021, for Haggart Creek stations W4 and W29.

Month	Baseline (2007-2017)		2021		Percent Difference	
	W4	W99	W4	W99	W4	W99
Jan	0.187	0.258	0.282	0.368	51%	43%
Feb	0.193	0.232	0.262	0.163	36%	-30%
Mar	0.133	0.206	0.194	0.220	46%	7%
Apr	0.159	0.202	0.365	0.205	130%	1%
May	1.826	1.817	2.569	1.579	41%	-13%
Jun	0.922	0.995	0.999	0.760	8%	-24%
Jul	0.756	1.126	0.657	0.702	-13%	-38%
Aug	0.739	0.938	1.146	1.084	55%	16%
Sep	0.812	1.050	1.048	0.851	29%	-19%
Oct	0.729	0.866	0.986	0.990	35%	14%
Nov	0.333	0.330	N/A	0.288	N/A	-13%
Dec	0.248	0.283	0.278	0.233	12%	-18%

Notes:
Shaded areas in Table indicate ice covered season, when flow measurements are limited to monthly manual data
[1]Percent difference calculated as (2021 – Baseline)/Baseline. Positive values indicate that flows were higher than baseline in 2021, and *vice versa*.
[2] N/A = Manual flow measurements were not made in November 2021.

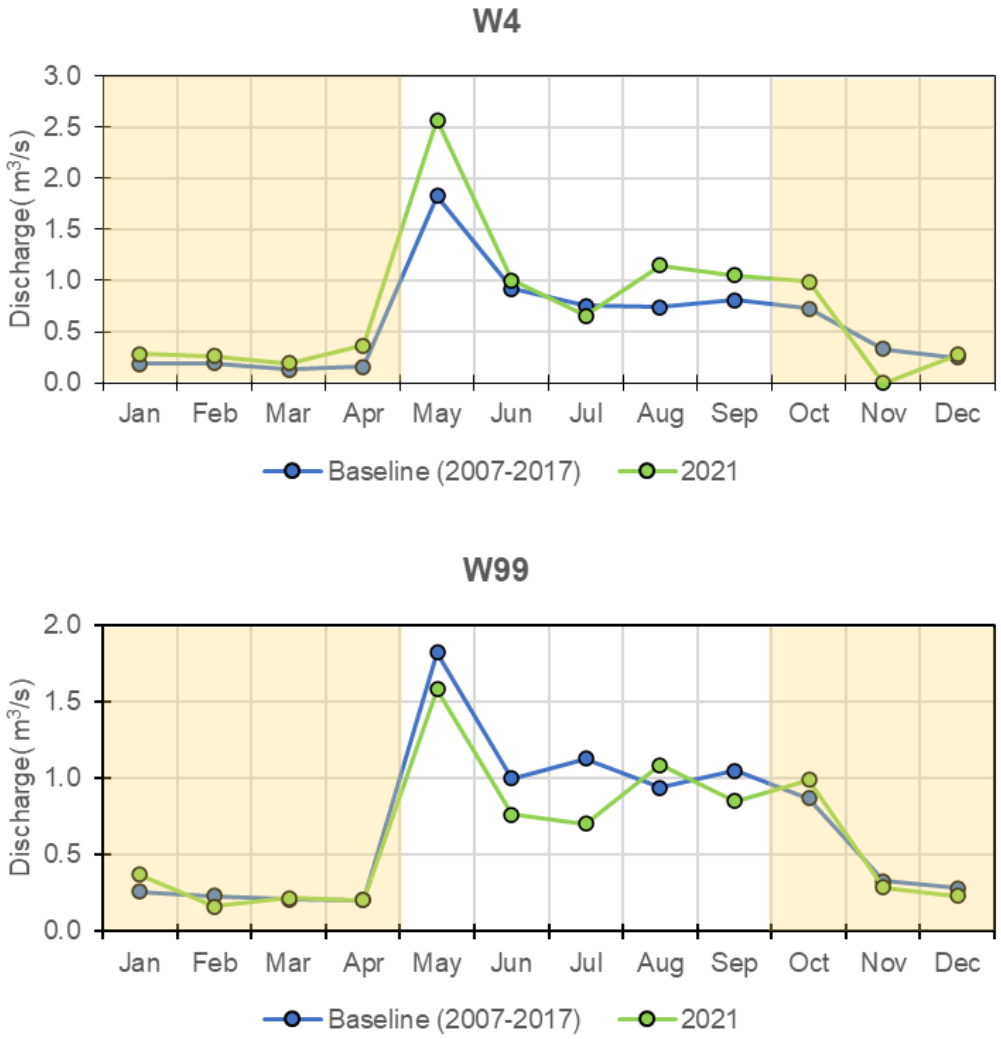


Figure 6-1: Median monthly streamflow for the baseline (2007-2017) period and for 2021, for Haggart Creek stations W4 (top) and W99 (bottom). Shaded areas indicate ice covered season, when flow measurements are limited to monthly manual data.

7. Closure



7. Closure

We trust that this report meets your expectations at this time. Please contact the undersigned with any questions or comments.

Sincerely,

LORAX ENVIRONMENTAL SERVICES LTD.

Prepared by:

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Reviewed by:



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Senior Hydrologist

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Appendix A: Topographical Characteristics of Gauged Catchments

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MEMORANDUM

To:	**Steve Wilbur, Victoria Gold Corp.**	**Date:**	**19 March, 2020**
From:	**Scott Jackson and Colin Fraser**	**Project #:**	**A562-1**
Subject:	**Eagle Gold Project – Topographical Characteristics of Gauged Catchments**		

1. Introduction

This brief technical memo presents the topographical characteristics of the Dublin Gulch tributaries and Haggart Creek mainstem, as measured from the hydrometric monitoring stations. This information is presented as hypsometric curves (cumulative percent basin area plotted against elevation), with the median elevations, average slope and catchment areas summarized in Table 1.

Table 1:
Topographical Characteristics of Gauged Catchments

Station ID	Station Name	Area (km^2)	Median Elevation (m)	Average Slope (°)
W1	Dublin Gulch above Stewart Gulch	7.0	1,313	11.3
W4	Haggart Creek below Dublin Gulch	76.8	1,129	15.4
W5	Haggart Creek above Lynx Creek	97.7	1,091	15.3
W6	Lynx Creek above Haggart Creek	100.9	1,044	13.2
W10	Stuttle Gulch	0.7	1,012	15.6
W20	Bawn Bay Gulch	2.4	1,364	8.4
W21	Dublin Gulch at the Mouth	10.1	1,263	12.5
W22	Haggart Creek above Dublin Gulch	66.5	1,113	15.9
W26	Stewart Gulch	1.4	1,211	16.1
W27	Eagle Creek	2.6	1,031	16.5
W29	Haggart Creek below Eagle Creek	84.9	1,112	15.3
W31	Olive Gulch	1.8	1,328	10.7
W45	Eagle Creek above Haggart Creek	3.9	957	14.9
W99	Haggart Creek above 15 Pup	88.7	1,105	15.4

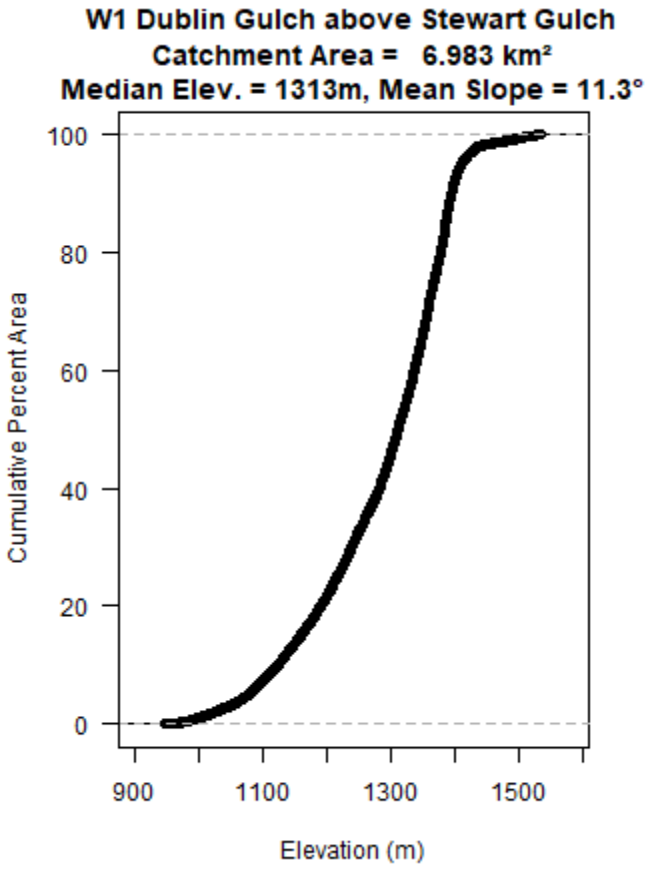


Figure 1: Hypsometric curve for station W1

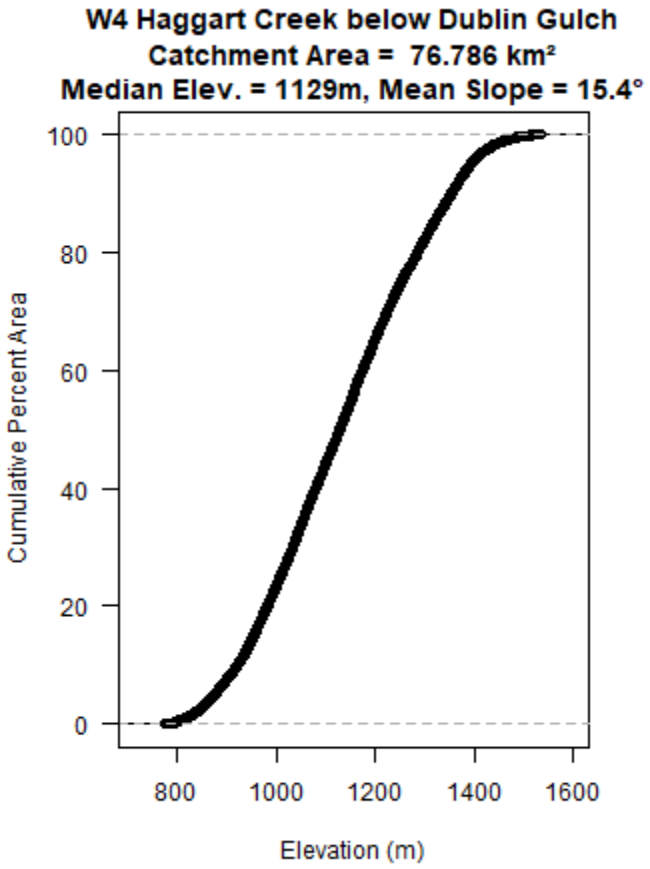


Figure 2: Hypsometric curve for station W4

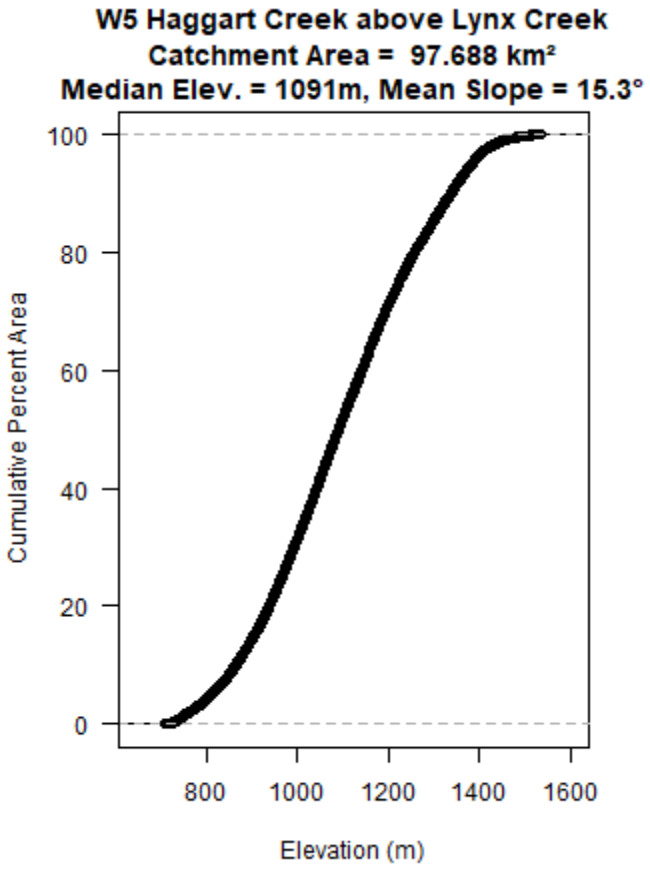


Figure 3: Hypsometric curve for station W5

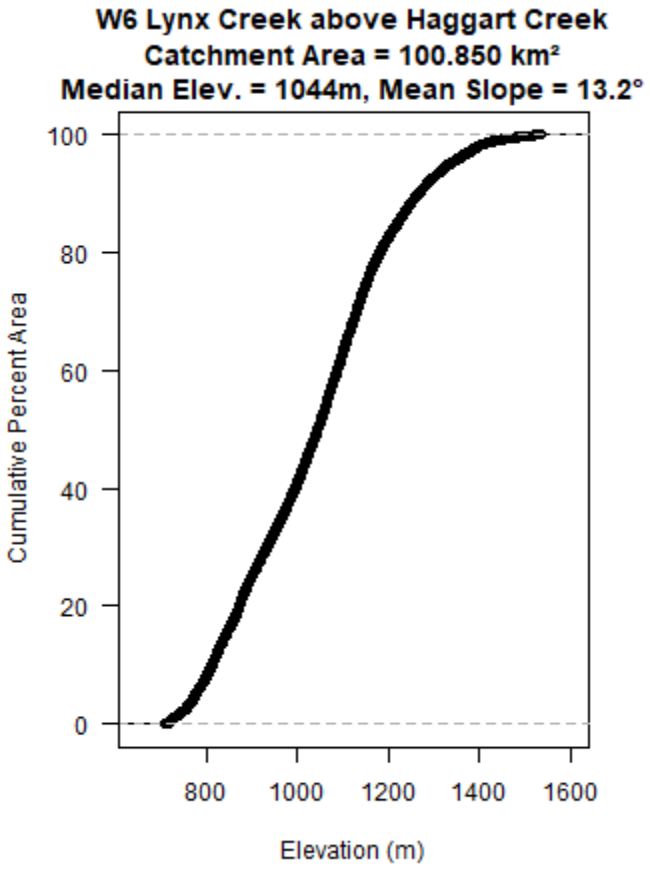


Figure 4: Hypsometric curve for station W6

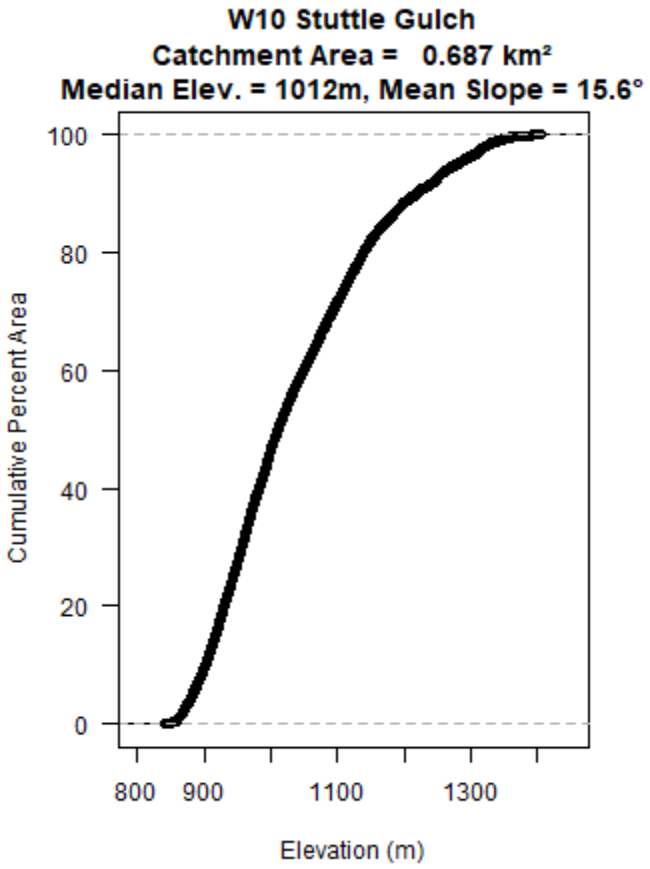


Figure 5: Hypsometric curve for station W10

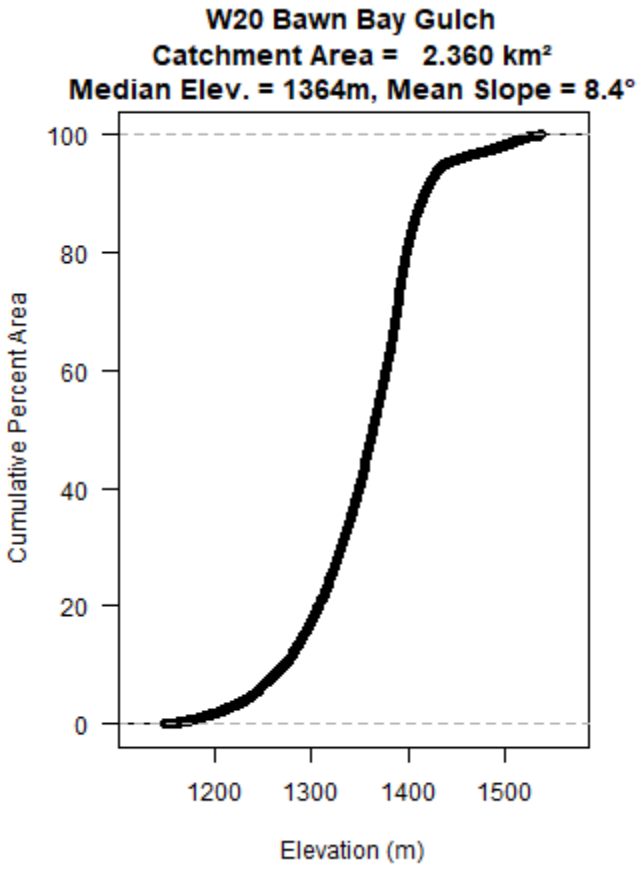


Figure 6: Hypsometric curve for station W20

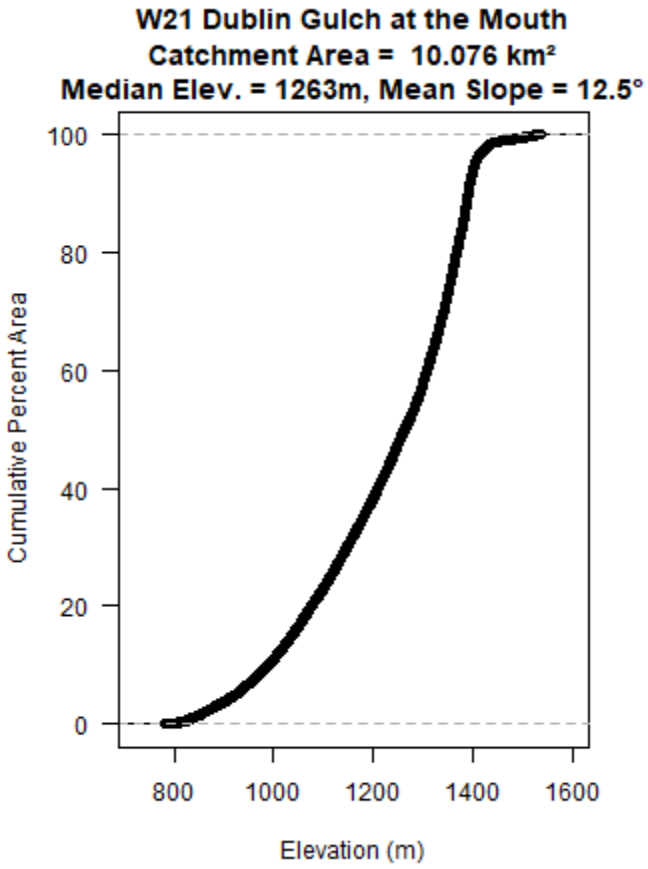


Figure 7: Hypsometric curve for station W21

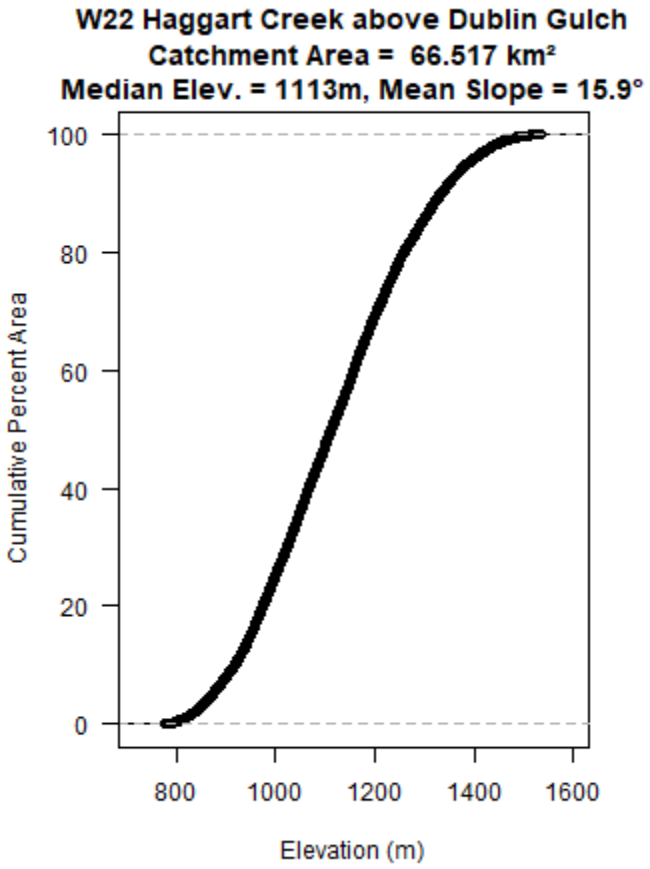


Figure 8: Hypsometric curve for station W22

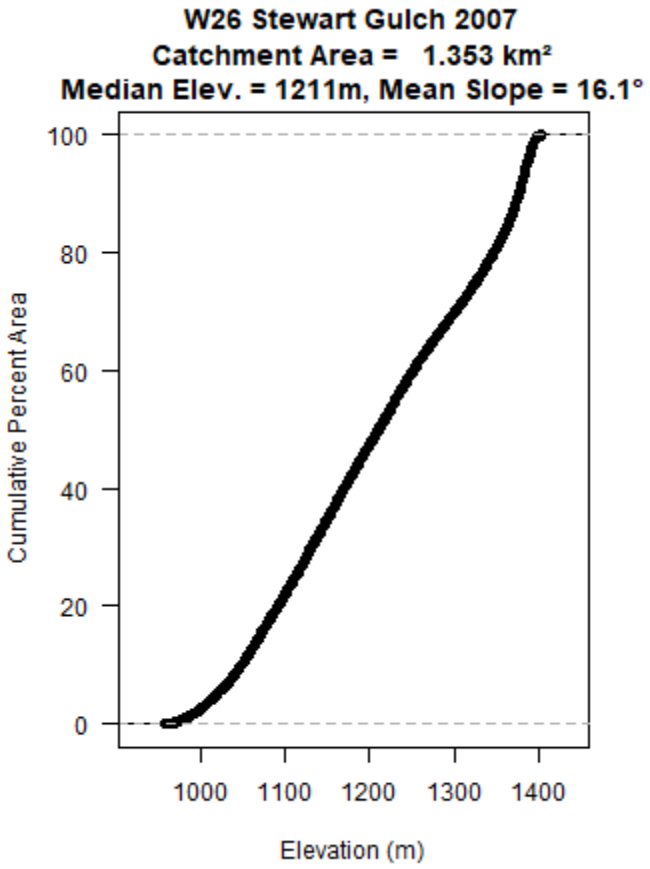


Figure 9: Hypsometric curve for station W26

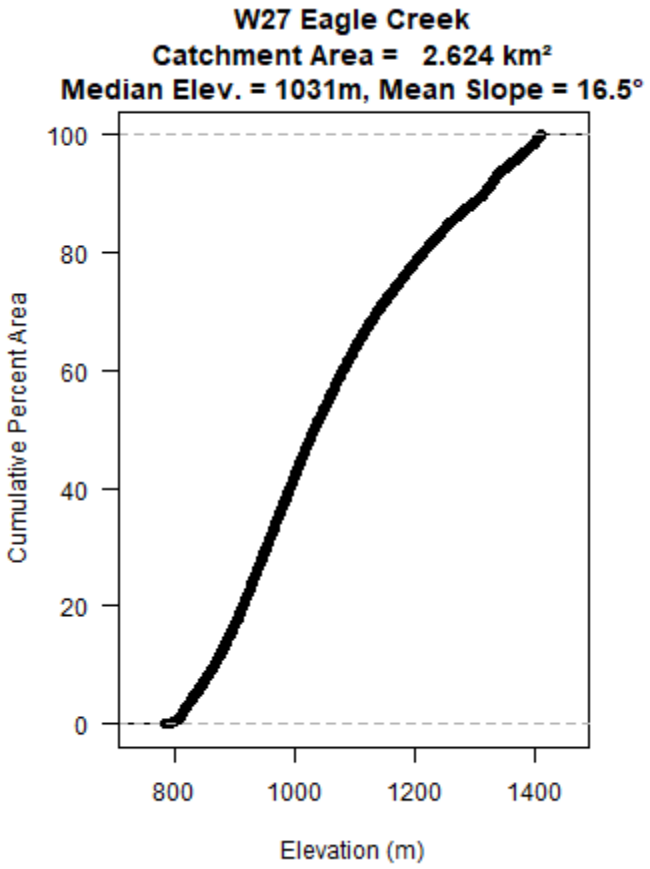


Figure 10: Hypsometric curve for station W27

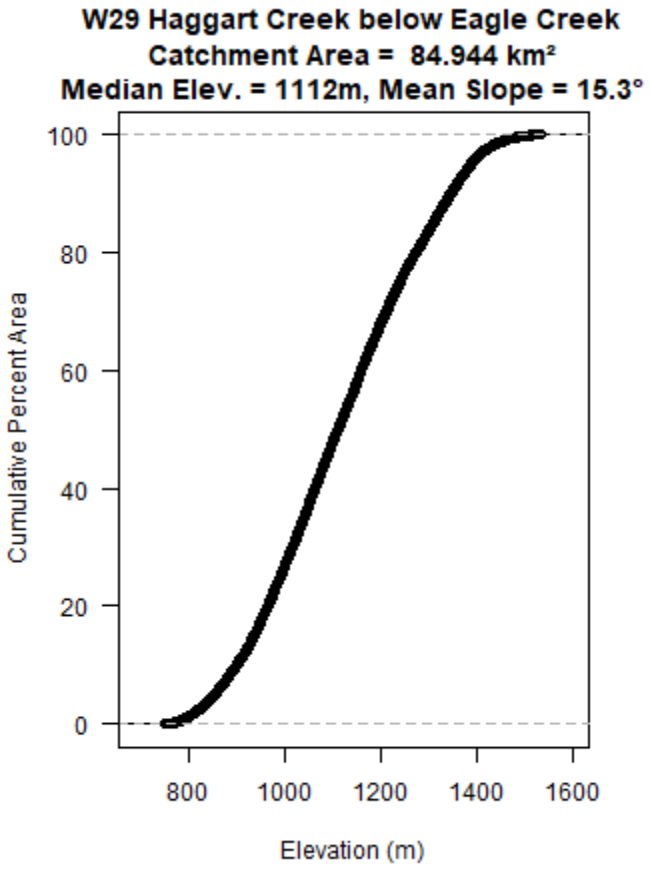


Figure 11: Hypsometric curve for station W29

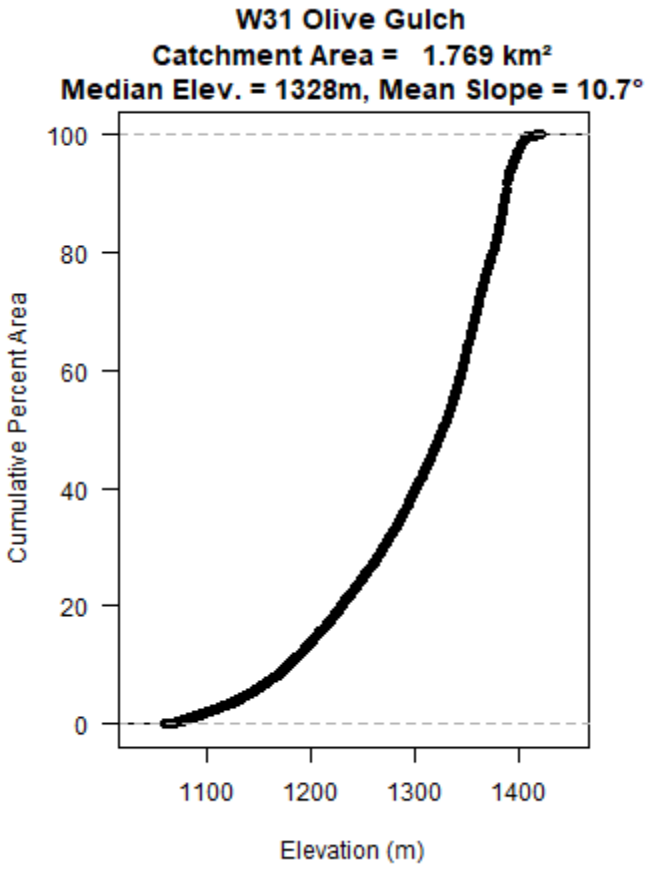


Figure 12: Hypsometric curve for station W31

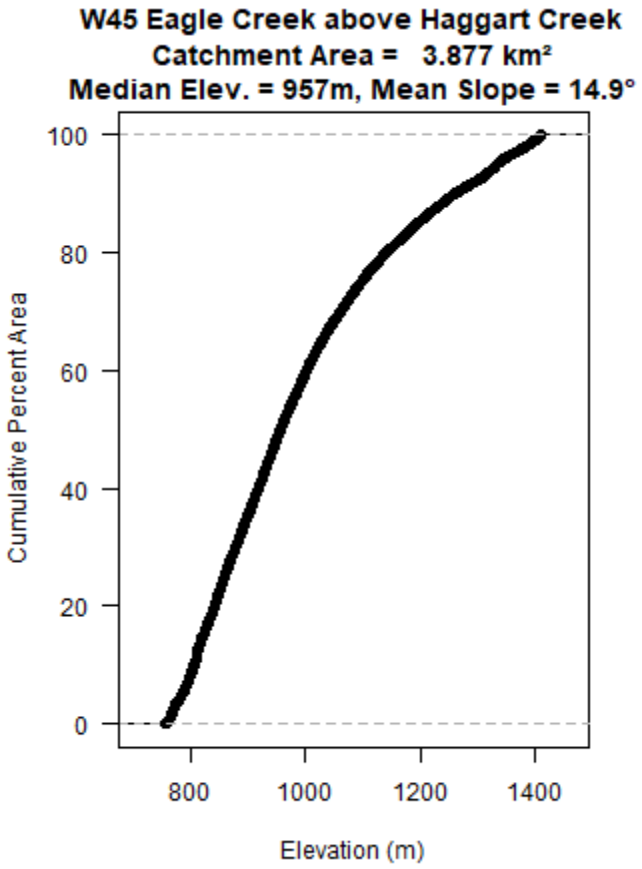


Figure 13: Hypsometric curve for station W45

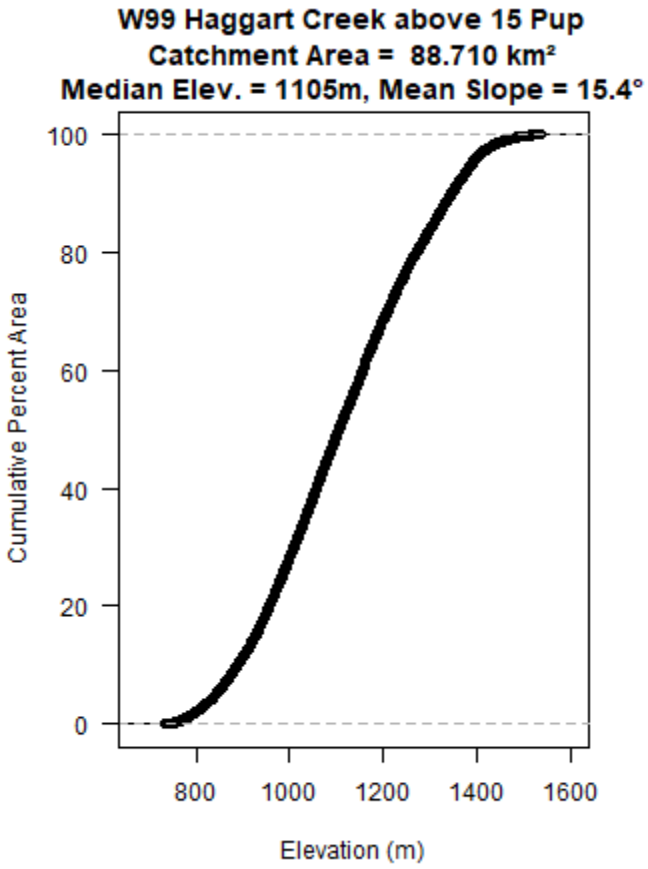


Figure 14: Hypsometric curve for station W99

APPENDIX D

Eagle Gold Project - 2021 Surface Water Quality Summary

VICTORIA GOLD CORP



Eagle Gold Project

2021 Surface Water Quality Summary

Project No. A610-1
4 April 2022

LORAX ENVIRONMENTAL

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1. Introduction

The surface water quality monitoring program for the Eagle Gold Mine (Project) includes monitoring of water quality of watercourses within the Project area at strategic mine site locations and at water management facilities that have the potential to discharge to the environment. The water quality monitoring plan has been designed to meet the following objectives:

- Collect water quality data in the receiving environment at stations upstream and downstream of Project influences.
- Collect water quality data to verify compliance with the Effluent Quality Standards (EQSs) and monitor receiving environment Water Quality Objectives (WQOs) specified in QZ14-041-1 for Haggart Creek at W4, W29, W99 and W23.
- Provide a continuous water quality database to support adaptive management strategies to meet water quality objectives in Haggart Creek to protect aquatic life.

Following this introduction, Section 2 describes the surface water quality monitoring methods and sampling locations and outlines the Quality Assurance and Quality Control (QA/QC) program and provides a summary of results for 2021. Section 3 presents the surface water quality results for monitoring conducted in 2021. Water quality results for mine site monitoring stations and mine site compliance monitoring are provided in Section 3.1. Receiving water quality data at key locations in Haggart Creek are presented in Section 3.2.

2. Monitoring Methods and QAQC

2.1 Methods and Monitoring Locations

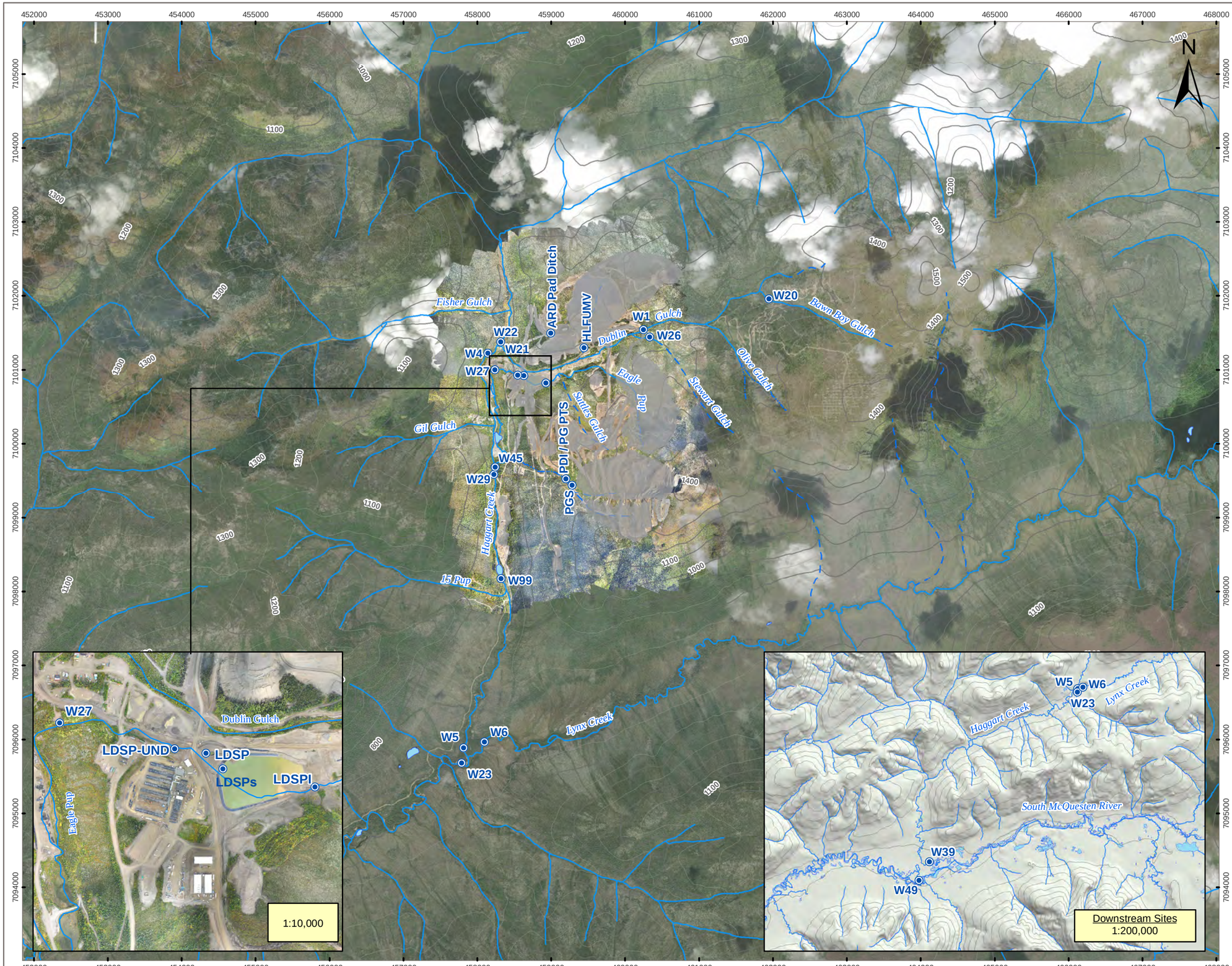
Surface water quality monitoring programs are outlined in Victoria Gold Corp's (VGC) Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP, 2020). Surface water quality monitoring in 2021 consisted of monitoring those sites as identified for the operations phase monitoring in the EMSAMP which were active and includes all receiving environment locations specified in QZ14-041-1 (Schedule 1A) for the Project (Figure 2-1 and Table 2-1).

The mine site compliance and receiving water quality monitoring programs have multiple objectives designed to:

- Collect water quality data in the receiving environment at stations upstream and downstream of Project influences.
- Collect water quality data to verify compliance with the Effluent Quality Standards (EQSs) and monitor receiving environment Water Quality Objectives (WQOs) specified in the Eagle Gold Mine Water Use Licence QZ14-041-1 for Haggart Creek at W4, W29, W99 and W23.
- Provide water quality data for receiving aquatic environments to be used as input for the water quality modeling and development of water quality predictions for key mining phases of the project. Ongoing monitoring data also provide results for water balance and water quality model validation.
- Provide a continuous water quality database to support adaptive management strategies to meet water quality objectives in Haggart Creek to protect aquatic life.

2.1.1 Field Sampling Methods

Water samples were collected following methods outlined in the 2013 British Columbia Field Sampling Manual Ambient Freshwater and Effluent Sampling, Part E – Water and Wastewater Sampling. In the receiving environment, samples were collected from just below the surface, facing upstream and using pre-cleaned bottles. For compliance monitoring locations, the Guidance Document for the Sampling and Analysis of Metal Mining Effluents (Environment Canada, Minerals and Metals Division 2001) was followed to meet QZ14-041-1 conditions and the requirements of the *Metals and Diamond Mining Effluent Regulations.*



LEGEND

- Water Quality Sample Sites
- Waterbodies
- Watercourse (perennial)
- Watercourse (ephemeral)
- Watercourse (intermittent)
- Contour (100m)
- Contour (50m)

NOTES
Base data source:

STATUS
FOR INTERNAL USE ONLY

EAGLE GOLD PROJECT
YUKON TERRITORY

Current Surface Water Quality Monitoring Locations

PROJECTION NAD83 UTM Zone 8		**DATUM** NAD83		**CLIENT** VICTORIA GOLD CORP
Scale: 1:50,000 — 500 250 0 500 Metres				LORAX ENVIRONMENTAL
FILE NO.				
PROJECT Eagle Gold	**DWN** AL	**CKD** DHF	**APVD** DHF	**REV** 1
OFFICE	**DATE** March 19, 2022			**Figure 2-1**

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Table 2-1:
Active Surface Water Quality Monitoring Locations and Frequency for Operations in 2021

Station Category	Monitoring Station	Location Description	Coordinates (Zone 8)		Sampling Frequency		
					Field Measurements	Laboratory Analysis	
			North	East	pH, Temp. DO Conductivity	Analytical Suite	48-Hour and 96-Hour LT50
Surface Water	W1	Dublin Gulch above Stewart	7101545	460249	M	M	-
	W21	Dublin Gulch below Events Ponds	7101261	458359	M	M	-
	W4	Haggart Creek below Dublin	7101223	458144	D, M	D[1], M[1]	-
	W22	Haggart Creek above Project Influence	7101378	458319	M	M[2]	-
	W5	Haggart Creek above Lynx Creek	7095888	457814	M	M[2]	-
	W6	Lynx Creek above Haggart Creek	7095964	458099	M	M[2]	-
	W20	Bawn Boy Gulch	7101961	461945	M	M	-
	W23	Haggart Creek below Lynx Creek	7095682	457790	M	M[2]	-
	W27	Eagle Creek near Camp below LDSP	7100997	458235	M	M	-
	W26	Stewart Gulch	7101443	460331	M	M	-
	W29	Haggart Creek below Eagle Creek & Platinum Gulch	7099583	458225	D, M	D[1], M[2]	-
	W39	Haggart Creek above South McQuesten River	7086504	449780	Q	Q[2]	-
	W45	Eagle Creek above Haggart Creek	7099684	458243	M	M	-
	W49	South McQuesten River below Haggart Creek	7085495	449221	Q	Q[2]	-
	W99	Haggart Creek above 15 Pup	7098180	458322	M	M[2]	-
Mine Site: Internal Water Transfer	PGS	Platinum Gulch WRSA Seepage	7099436	459281	M	M	-
	PDI	Platinum Gulch Ditch into Lower Dublin South Pond	7099523	459184	M	M	
	LDSPI	Lower Dublin South Pond Inflow	7100824	458926	D, M	D[2], M	M
Mine Site: Compliance	LDSP	Lower Dublin South Pond Outflow	7100857	458672	D, W	D[2], W[2,3]	Md
	HLFUMV	Heap Leach Facility Underdrain Monitoring Vault	7101298	459445	C, D, W	D[4], M[2,3]	M
	LDSP-UND	LDSP Underdrain Outflow	7100937	458570	M	M[3]	-

Notes:
1 – Laboratory analysis includes WAD, Total CN, Thiocyanate and Cyanate.
2 – Laboratory analysis includes WAD and Total CN.
3 – Calculation of un-ionized ammonia
4 - Laboratory analysis only includes WAD and Total CN - no other parameters required.
C – Continuous monitoring for specific conductance; D – Daily when discharging; W – Weekly when discharging; M – Monthly; Md – Monthly when discharging; Q – Quarterly

Sample filtration and/or preservation were performed in the field. Samples were at 4 °C until analysis. Elemental analysis was performed by ALS Environmental located in Vancouver or Burnaby BC and certified by the Canadian Association for Laboratory Accreditation (CALA). In situ measurements for pH, temperature, conductivity, and dissolved oxygen were also recorded at each site prior to sample collection.

2.1.2 Laboratory Methods

Samples were analyzed for parameters listed in Schedule 1B of QZ14-041-1 according to the station category and location (Table 2-1). For full suite analyses, samples were analyzed for physical parameters (pH, conductivity, hardness, TSS, TDS, turbidity), major anions, nutrients, dissolved organic carbon (DOC), total and weak acid dissociable (WAD) cyanide, and total and dissolved metals.

Conventional parameters, major ions and nutrients, and metals were analyzed using procedures described in APHA Standard Methods for the Examination of Water and Wastewater (2005). Cyanide analysis was carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable cyanide and weak acid dissociable cyanide are determined by sample distillation and analysis using the chloramine-t colorimetric method. The lowest available limit of detection for metals was achieved by using inductively coupled plasma/mass spectrometry (ICP/MS; EPA Method 6020). Mercury analysis in water was carried out by cold vapor atomic fluorescence spectrophotometry (EPA Method 245.7). This procedure involves a cold oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride.

Water quality results for all stations for the entire data record, including 2021, are provided electronically in Appendix A. The file is in a dashboard that allows for evaluation of each station and multiple statistics using drop-down menus. Graphical results for data for 2021 are provided in Appendix B.

2.2 Quality Assurance and Quality Control Program

VGC has a well-established quality assurance/quality control (QA/QC) program in place to ensure the surface water quality program for the Eagle Gold Project is reliable, representative of the water quality conditions throughout the project area and of the highest quality. This program is intended to validate the monitoring data, and to identify any potential methodological and/or analytical errors in the data set that might require modifications to the program and or laboratory analyses. The following sections provide a summary of the QA/QC program with respect to field quality, analytical data processing and internal laboratory procedures for the 2021 collection year.

2.2.1 QA/QC Methodology - Field Sampling Program

Water quality samples were collected in accordance with methods described in the EMSAMP (2020). As indicated above, water samples were collected following the methods outlined in the 2013 British Columbia Field Sampling Manual, Ambient Freshwater and Effluent Sampling, Part E – Water and Wastewater Sampling. The associated QA/QC protocols are designed to provide reliable data by preventing sampling error and cross contamination of the collected samples. In a given water course, samples were collected from downstream to upstream to avoid substrate disturbance and potential sample contamination. Haggart Creek samples and Dublin Gulch monitoring locations, within the immediate vicinity of the Project, were sampled on the same date, when possible, for data comparability and to support data analysis and adaptive management considerations. The integrity of the water quality sampling program is evaluated by the collection of quality control samples, including field blanks and replicates described in detail below.

Field Blanks

Field blank samples (SampleID02) are analyte-free reagent water samples used to assess the purity of chemical preservatives and potential contamination sources at the sampling location due to the collection method, handling, preservation, and exposure to the environment. Blank samples are generated by pouring de-ionized (DI) water into clean sample bottles and then exposing the sample bottles to the same environment in which actual samples are collected. The Field blanks are analyzed for the same parameters as is routinely performed in the actual collected samples.

The widely used acceptability criterion of 2×Reported Detection Limit (RDL) was used to evaluate the integrity of the collected field blanks. Detected values in blanks higher than the proposed criterion were flagged as a sample that required further investigation.

Travel Blanks

Travel blanks (SampleID03) are provided by the analytical laboratory and are used during field surveys to identify potential contamination during storage and transport. These blanks are kept sealed and transported with water collected samples. Concentrations in these blanks are generally below detection limits, however if any measured parameter is detected above detection limit this may suggest a potential contamination during sample handling and transport.

Field Duplicates

Field duplicate samples (SampleID01) were collected to assess water sampling integrity. The British Columbia Field Sampling Manual (Clark 2013) specifies that a relative percent

difference (RPD) greater than 20 percent indicates a possible sample contamination. An RPD greater than 50 percent indicates a definite sample integrity problem; however, it is not unusual to find high variability for field duplicates, especially if the water is turbid with elevated total suspended solids (TSS). Field duplicate samples are generally collected at the same location and time as a site sample to assess the natural variability of the site. For the purpose of this analysis, originals and duplicates are considered paired replicates collected from the same location sequentially in time and were used to calculate the RPD.

2.2.2 QA/QC Methodology - Laboratory Analytical

All analytical analyses were performed by ALS laboratories (Burnaby, BC) a member of the Canadian Association for Laboratory Accreditation Inc. (CALA). The laboratory QA/QC program included analysis of certified reference materials, laboratory control samples, laboratory duplicates, method blanks and matrix spikes to determine accuracy and precision of instrumentation and methods. The majority of reported data met the laboratory data quality objectives (DQOs). However, in some instances, method recovery was not accurately calculated due to matrix interferences; thus, detection limits were adjusted to prevent any influence on analytical results. Overall, reported data were of good quality and met the laboratory QA/QC objectives. Laboratory data reports are included in the monthly monitoring reports and are not duplicated herein.

Dissolved Metal versus Total Metal Concentrations

A dissolved metal concentration that was higher than the corresponding total metal concentration was considered an indicator of potential sample contamination and/or analytical error. Samples for total and dissolved metals are collected in separate bottles and are handled differently. For example, samples for dissolved metal analysis are filtered through a 45 µm filter and the filtering process can introduce error or contamination into the sample.

Dissolved metal concentrations were flagged as a potential QA/QC issue if the concentration was >20% higher than the corresponding total metal value in the same sample. Variability of less than 20% is excluded because it generally falls within the analytical margin of uncertainty (or error). Dissolved and total metal pairs are included in this analysis if the dissolved value is greater than five-times its RDL (Clark 2013).

2.2.3 Results and Discussion

Field Blanks

Field blanks were collected and analyzed to assess purity of chemical preservatives and potential contamination sources at the sampling location; a total of 19 field blank samples

were prepared and submitted for QA/QC as part of the routine water quality monitoring. Water quality analysis of field blanks is presented in Table 2-2. Some parameters exceeded the detection limit for a blank for samples collected in 2021. These results are indicated by red highlighting in Table 2-2. Parameters above detection limit included total and suspended solids, alkalinity, ammonia, nitrate, Total Kjeldahl Nitrogen (TKN), total nitrogen, total and dissolved organic carbon, chromium, manganese, sodium strontium, and titanium. For TSS, one sample (W2602) recorded a very elevated TSS concentration of 93 mg/L (Table 2-2) which appears to be highly erroneous and a possible analytical error. Values this elevated for TSS would be expected to be accompanied by elevated total metals, at least for some parameters; no corresponding elevated total metal concentrations were recorded for this parameter. For the other parameters noted above, the concentrations rarely occurred at the levels observed in the collected water samples at the monitoring stations with measured values only slightly above detection limits. This suggests that results in the field blanks may be due to matrix interferences within blank sample and the consequently adjustments of DLs by the analytical laboratory (e.g., titanium).

Table 2-2:
Summary of Field Blank Water Quality Results for 2021

Station ID	Year	Month	Day	Sample Date	Conductivity (µS/cm)	Hardness (as CaCO3) (mg/L)	pH (s.u.)	TSS (mg/L)	TDS (mg/L)	Turbidity (NTU)	Alkalinity, Total (as CaCO3) (mg/L)	NH3-N (mg/L)	Cl (mg/L)	NO3-N (mg/L)	NO2-N (mg/L)	TKN (mg/L)	T-N (mg/L)	SO4 (mg/L)
				MDL	2	0.6	5	3	1	0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	1	2	2021-01-02	2		5.43	3	**10**	0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	1	7	2021-01-07	2	0.6	5.41	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	2	4	2021-02-04	2	0.6	5.5	3		0.1	1	**0.106**	0.5	0.005	0.001	**0.106**	**0.103**	0.3
Field Blank	2021	3	6	2021-03-06	2		5.44	3	**10**	0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	3	9	2021-03-09	2	0.6	5.44	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	4	7	2021-04-07	2	0.6	5.51	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	4	10	2021-04-10	2		5.56	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	5	17	2021-05-17	2	0.6	5.31	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	6	3	2021-06-03	2		5.36				1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	6	13	2021-06-13	2	0.6	5.06	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	6	13	2021-06-13	2		4.91	3	**10**	0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	7	4	2021-07-04	2	0.6	5.19	3		**0.18**	1	0.005	0.5	**0.0069**	0.001	0.05	0.03	0.3
Field Blank	2021	7	9	2021-07-09	2		5.41	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	8	8	2021-08-08	2	0.6	5.11	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	8	10	2021-08-10	2	0.6	5.27	**93.9**		**0.37**	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	8	10	2021-08-10	2	0.6	5.16	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	8	12	2021-08-12	2		5.34	3	**10**	0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	8	22	2021-08-22	2		5.4	3	**10**	0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Field Blank	2021	9	3	2021-09-03	2	0.6	5.73	2		0.1	**1.3**	0.005	0.5	0.005	0.001	0.05	0.03	0.3

Station ID	Year	Month	Day	Sample Date	T-Al (mg/L)	T-Sb (mg/L)	T-As (mg/L)	T-Cd (mg/L)	T-Cr (mg/L)	T-Co (mg/L)	T-Cu (mg/L)	T-Fe (mg/L)	T-Pb (mg/L)	T-Mn (mg/L)	T-Hg (mg/L)	T-Mo (mg/L)	T-Ni (mg/L)	T-Se (mg/L)	T-Sn (mg/L)	T-U (mg/L)	T-Zn (mg/L)
				MDL	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	1	2	2021-01-02	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	1	7	2021-01-07	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	2	4	2021-02-04	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	3	6	2021-03-06	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	3	9	2021-03-09	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	4	7	2021-04-07	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	4	10	2021-04-10	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	5	17	2021-05-17	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	**0.00012**	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	6	3	2021-06-03																	
Field Blank	2021	6	13	2021-06-13	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	6	13	2021-06-13	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	7	4	2021-07-04	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	7	9	2021-07-09	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	8	8	2021-08-08	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	8	10	2021-08-10	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	8	10	2021-08-10	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	8	12	2021-08-12	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Field Blank	2021	8	22	2021-08-22											0.000005						
Field Blank	2021	9	3	2021-09-03	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003

Table 2-3 (Con't):
Summary of Field Blank Water Quality Results for 2021

Station ID	Year	Month	Day	Sample Date	D-Al (mg/L)	D-Sb (mg/L)	D-As (mg/L)	D-Cd (mg/L)	D-Cr (mg/L)	D-Co (mg/L)	D-Cu (mg/L)	D-Fe (mg/L)	D-Pb (mg/L)	D-Mn (mg/L)	D-Hg (mg/L)	D-Mo (mg/L)	D-Ni (mg/L)	D-Se (mg/L)	D-Sn (mg/L)	D-U (mg/L)	D-Zn (mg/L)
				MDL	0.001	0.0001	0.0001	0.000005	0.0001	0.0001	0.0002	0.01	0.000074	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	1	2	2021-01-02																	
Field Blank	2021	1	7	2021-01-07	0.001	0.0001	0.0001	0.000005	0.0001	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	2	4	2021-02-04	0.001	0.0001	0.0001	0.000005	0.0001	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	3	6	2021-03-06																	
Field Blank	2021	3	9	2021-03-09	0.001	0.0001	0.0001	0.000005	0.0001	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	4	7	2021-04-07	0.001	0.0001	0.0001	0.000005	0.0001	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	4	10	2021-04-10																	
Field Blank	2021	5	17	2021-05-17	0.001	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0002	0.01	0.00005	**0.00012**	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	6	3	2021-06-03																	
Field Blank	2021	6	13	2021-06-13	0.001	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	6	13	2021-06-13																	
Field Blank	2021	7	4	2021-07-04	0.001	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	7	9	2021-07-09																	
Field Blank	2021	8	8	2021-08-08	0.001	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	8	10	2021-08-10	0.001	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	8	10	2021-08-10	0.001	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001
Field Blank	2021	8	12	2021-08-12																	
Field Blank	2021	8	22	2021-08-22																	
Field Blank	2021	9	3	2021-09-03	0.001	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0002	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.001

Travel Blanks

Travel blank results are summarized in Table 2-3. The majority of measured parameters were below detection limit (DL). These results indicate that good protocols of sample handling and transporting were applied in the field, given all values were reported as non-detects (< DL). Parameters such as total dissolved solids and chromium (highlighted in red in Table 2-3) were detected above DL in travel blanks. These results maybe indicative of cross contamination occurring at sample collection. However, these results are not expected to compromise the quality of the collected samples.

Table 2-4:
Summary of Travel Blank Results for Selected Parameters

Station ID	Year	Month	Day	Sample Date	Conductivity (µS/cm)	Hardness (as CaCO3) (mg/L)	pH (s.u.)	TSS (mg/L)	TDS (mg/L)	Turbidity (NTU)	Alkalinity, Total (as CaCO3) (mg/L)	NH3-N (mg/L)	Cl (mg/L)	NO3-N (mg/L)	NO2-N (mg/L)	TKN (mg/L)	T-N (mg/L)	SO4 (mg/L)
				MDL	2	0.6	5	3	1	0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Travel Blank	2021	7	14	2021-07-14	2		5.22	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Travel Blank	2021	10	8	2021-10-08	2		5.18	3		0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3
Travel Blank	2021	11	9	2021-11-09	2		5.64	3	**10**	0.1	1	0.005	0.5	0.005	0.001	0.05	0.03	0.3

Station ID	Year	Month	Day	Sample Date	T-Al (mg/L)	T-Sb (mg/L)	T-As (mg/L)	T-Cd (mg/L)	T-Cr (mg/L)	T-Co (mg/L)	T-Cu (mg/L)	T-Fe (mg/L)	T-Pb (mg/L)	T-Mn (mg/L)	T-Hg (mg/L)	T-Mo (mg/L)	T-Ni (mg/L)	T-Se (mg/L)	T-Sn (mg/L)	T-U (mg/L)	T-Zn (mg/L)
				MDL	0.003	0.0001	0.0001	0.000005	0.0001	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Travel Blank	2021	7	14	2021-07-14	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Travel Blank	2021	10	8	2021-10-08	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003
Travel Blank	2021	11	9	2021-11-09	0.003	0.0001	0.0001	0.000005	**0.0005**	0.0001	0.0005	0.01	0.00005	0.0001	0.000005	0.00005	0.0005	0.00005	0.0001	0.00001	0.003

Field Duplicates

A total of 46 surface water field duplicates were collected as part of the surface water quality sampling program under the EMSAMP and for other environmental characterization purposes in 2021 (Table 2-4). A total of 303 full suite water quality samples were collected in 2021 from surface water monitoring stations specified in Table 2-1; accordingly, the field duplicate component of the QA/QC program was approximately 16% of the overall surface water quality monitoring effort. When field blank samples (e.g., 19 samples) are included, the number of QA/QC samples as part of the water quality monitoring program exceeds 22% of the sampling effort.

Tables 2-5 to 2-8 shows the number of duplicates that had parameters with RPDs greater than the acceptability criteria of 20% (red-highlighted) and 50% (yellow-highlighted). Water quality results were generally similar between field duplicates. Most duplicates had at least one parameter with an RPD between 20 and 50%, but typically less than half of duplicates had one or more parameters with an RPD greater than 50%. An RPD greater than 50 percent indicates a sample integrity problem; however, it is not unusual to find high variability for the field duplicates, especially under certain conditions such as for example, high total suspended solids, particularly occurring during freshet or after precipitation events.

Table 2-5:
Station and date of collected duplicates

Station	Date
W39 New	1-Feb-2021
HLFUMV	5-Feb-2021; 2-Apr-2021; 8-Nov-2021; 7-Dec-2021
W23	5-Mar-2021; 8-May-2021; 1-Sep-2021
W99	1-May-2021; 11-Dec-2021
W31	3-May-2021
LDSP	20-Jul-2021; 22-Jul-2021; 17-Nov-2021; 20-Nov-2021
LDSP-UND	10-May-2021
LDSPI	13-Nov-2021
W39 Old	19-Jun-2021
W49	10-Jul-2021
W1	12-Jul-2021; 6-Aug-2021; 27-Aug-2021; 12-Nov-2021
EP	20-Jul-2021; 19-Nov-2021
W29	21-Jul-2021; 23-Jul-2021; 1-Sep-2021; 16-Nov-2021; 18-Nov-2021
PDI	11-Aug-2021
W8	1-Sep-2021
W27	2-Sep-2021
W20	3-Sep-2021; 6-Oct-2021
W22	5-Sep-2021
W25	5-Sep-2021; 7-Nov-2021; 12-Dec-2021
W9	10-Sep-2021
W45	2-Oct-2021
W5	3-Oct-2021
ISH	5-Oct-2021
W26	9-Nov-2021
W4-Mix	14-Nov-2021
W21	3-Dec-2021

Dissolved Metal versus Total Metal Concentrations

QA/QC of dissolved versus total metal concentrations are presented in Appendix C. The number of analyte pairs with dissolved metal values greater than 120 and 150% of the corresponding total are uncommon (< 6 occurrences of the total collected samples per station, except for phosphorous). Parameters such as phosphorous and selenium showed > 150% exceedances for the majority of the stations and likely results from the very low concentrations present in the samples where values are very close to the analytical detection limit. Other parameters with percentages above 150% sporadically occurred for the remaining stations (e.g., aluminum in station W20, W23 and W29; cadmium in W1, W31, W6 and W99). It should be noted however, that the number of recorded

incidents in metal concentrations above 120% or 150% occurred only in a low number of the analyzed samples, which reflects reasonable confidence in the reported results.

Table 2-6:
Summary of Field Duplicate Results for Selected Physical and Nutrient Parameters

Sample Type	Station ID	Sample Date	Conductivity (µS/cm)	Hardness (as CaCO3) (mg/L)	pH (s.u.)	TSS (mg/L)	Turbidity (NTU)	Alkalinity, Total (as CaCO3) (mg/L)	NH3-N (mg/L)	Br (mg/L)	Cl (mg/L)	F (mg/L)	NO3-N (mg/L)	NO2-N (mg/L)	TKN (mg/L)	T-N (mg/L)	D-O-P (mg/L)	D-P-P (mg/L)	T-P-P (mg/L)	SO4 (mg/L)
-		MDL	2	0.6	5	3	0.1	1	0.005	0.05	0.5	0.02	0.005	0.001	0.05	0.03	0.001	0.002	0.002	0.3
M	W39 New	01-02-21	412	233	8.03	3	0.27	129	0.005	0.05	0.5	0.109	0.216	0.001	0.07	0.259	0.0012	0.002	0.002	90.7
D	W39 New	01-02-21	418	224	8.03	3	0.28	129	0.005	0.05	0.5	0.108	0.218	0.001	0.083	0.264	0.0012	0.002	0.002	91
		RPD	1%	4%	0%	0%	4%	0%	0%	0%	0%	1%	1%	0%	17%	2%	0%	0%	0%	0%
M	HLF-UMV	05-02-21	327	163	7.3	3	0.65	58.7	0.005	0.05	0.5	0.222	0.0599	0.001	0.05	0.066	0.0038	0.0049	0.0052	101
D	HLF-UMV	05-02-21	328	170	7.3	3	0.68	59	0.005	0.05	0.5	0.222	0.0482	0.001	0.05	0.064	0.004	0.0047	0.0055	101
		RPD	0%	4%	0%	0%	5%	1%	0%	0%	0%	0%	22%	0%	0%	3%	5%	4%	6%	0%
M	W23	05-03-21	443	252	7.96	3	0.19	136	0.0801	0.05	0.5	0.114	0.218	0.001	0.164	0.332	0.0018	0.0034	0.0034	101
D	W23	05-03-21	440	236	8	3	0.25	131	0.005	0.05	0.5	0.114	0.219	0.001	0.096	0.251	0.0025	0.0032	0.0029	101
		RPD	1%	7%	1%	0%	27%	4%	176%	0%	0%	0%	0%	0%	52%	28%	33%	6%	16%	0%
M	HLF-UMV	02-04-21	335	145	7.8	3	0.55	60.5	0.005	0.05	0.5	0.219	0.0476	0.001	0.05	0.056	0.0045	0.0045	0.0076	105
D	HLF-UMV	02-04-21	337	146	7.77	3	0.32	60.1	0.005	0.05	0.5	0.217	0.0463	0.001	0.05	0.053	0.0044	0.0055	0.0054	105
		RPD	1%	1%	0%	0%	53%	1%	0%	0%	0%	1%	3%	0%	0%	6%	2%	20%	34%	0%
M	W99	01-05-21	295	150	7.78	66	77.8	80.4	0.0062	0.05	0.97	0.101	0.0761	0.001	0.377	0.412	0.001	0.0098	0.0748	63.7
D	W99	01-05-21	290	148	7.78	65.8	77.4	80.4	0.0066	0.05	1	0.1	0.0769	0.001	0.385	0.438	0.0016	0.0106	0.0772	63.8
		RPD	2%	1%	0%	0%	1%	0%	6%	0%	3%	1%	1%	0%	2%	6%	46%	8%	3%	0%
M	W31	03-05-21	104	51.4	7.4	3	0.32	41.1	0.0234	0.05	0.5	0.128	0.0922	0.001	0.292	0.338	0.001	0.0147	0.0165	14.2
D	W31	03-05-21	105	50.7	7.4	3	0.32	42.4	0.0418	0.05	0.5	0.131	0.0958	0.001	0.29	0.346	0.0048	0.0138	0.0143	14.2
		RPD	1%	1%	0%	0%	0%	3%	56%	0%	0%	2%	4%	0%	1%	2%	131%	6%	14%	0%
M	W23	08-05-21	71.6	41.2	6.94	47.7	20.6	21.2	0.0082	0.05	0.5	0.044	0.0142	0.001	0.853	0.948	0.001	0.0229	0.109	12.1
D	W23	08-05-21	72.1	40	6.99	64.7	15.5	20.8	0.0086	0.05	0.5	0.044	0.0188	0.001	0.756	0.719	0.0023	0.024	0.0863	12
		RPD	1%	3%	1%	30%	28%	2%	5%	0%	0%	0%	28%	0%	12%	27%	79%	5%	23%	1%
M	LDSP-UND	10-05-21	435	224	7.86	4.6	4.27	165	0.0083	0.05	3.73	0.141	0.332	0.001	0.121	0.356	0.0018	0.0027	0.0044	75.9
D	LDSP-UND	10-05-21	430	233	7.94	3	3.35	166	0.005	0.05	3.98	0.154	0.355	0.0094	0.114	0.347	0.0018	0.0026	0.0041	76.8
		RPD	1%	4%	1%	42%	24%	1%	50%	0%	6%	9%	7%	162%	6%	3%	0%	4%	7%	1%
M	W39 Old	19-06-21	306	140	8.09	16.4	6.2	90.4	0.0052	0.05	0.5	0.097	0.0714	0.001	0.112	0.201	0.001	0.0029	0.0128	60
D	W39 Old	19-06-21	304	143	8.1	17	5.17	91.6	0.005	0.05	0.5	0.089	0.0719	0.001	0.096	0.194	0.001	0.0032	0.0134	60.1
		RPD	1%	2%	0%	4%	18%	1%	4%	0%	0%	9%	1%	0%	15%	4%	0%	10%	5%	0%
M	W49	10-07-21	316	158	8.21	51.4	16.3	100	0.005	0.05	0.5	0.102	0.0655	0.001	0.196	0.227	0.001	0.0032	0.0367	65.6
D	W49	10-07-21	317	153	8.22	54	23.8	99.8	0.005	0.05	0.5	0.102	0.0636	0.001	0.176	0.267	0.001	0.0037	0.0331	65.5
		RPD	0%	3%	0%	5%	37%	0%	0%	0%	0%	0%	3%	0%	11%	16%	0%	14%	10%	0%
M	W1	12-07-21	100	44.2	7.72	9.1	0.58	41.2	0.005	0.05	0.5	0.064	0.0233	0.001	0.055	0.084	0.0027	0.0097	0.0116	11.5
D	W1	12-07-21	100	43.7	7.72	15.3	2.98	40.2	0.005	0.05	0.5	0.064	0.0226	0.001	0.059	0.082	0.0028	0.002	0.0108	11.6
		RPD	0%	1%	0%	51%	135%	2%	0%	0%	0%	0%	3%	0%	7%	2%	4%	132%	7%	1%
M	LDSP	22-07-21	319	152	8.21	5.1	3.8	97.5	0.0191	0.05	3.92	0.146	0.248	0.007	0.223	0.462	0.0019	0.0037	0.0075	62.3
M	W1	06-08-21	111	49.8	7.86	3.8	0.7	42.5	0.005	0.05	0.5	0.078	0.0182	0.001	0.05	0.061	0.0024	0.0086	0.0068	12.6
D	W1	06-08-21	112	47.8	7.84	3	0.7	43.6	0.005	0.05	0.5	0.078	0.0184	0.001	0.05	0.06	0.0025	0.0026	0.0074	12.6
		RPD	1%	4%	0%	24%	0%	3%	0%	0%	0%	0%	1%	0%	0%	2%	4%	107%	8%	0%
M	PDI	11-08-21	624	296	8.36	221	68.1	157	0.0271	0.05	8.13	0.175	0.815	0.0081	0.326	0.988	0.0071	0.0093	0.238	158
D	PDI	11-08-21	627	290	8.36	223	53.3	153	0.0267	0.05	8.02	0.174	0.811	0.0082	0.278	1.04	0.0071	0.0088	0.171	159
		RPD	0%	2%	0%	1%	24%	3%	1%	0%	1%	1%	0%	1%	16%	5%	0%	6%	33%	1%
M	W1	27-08-21	106	47.7	7.83	8.2	1.04	42.7	0.005	0.05	0.5	0.072	0.0314	0.001	0.071	0.083	0.0029	0.0044	0.0108	11.2
D	W1	27-08-21	106	47.1	7.84	3.8	1.36	42.1	0.005	0.05	0.5	0.072	0.0518	0.001	0.072	0.079	0.0023	0.0042	0.0095	11.2
		RPD	0%	1%	0%	73%	27%	1%	0%	0%	0%	0%	49%	0%	1%	5%	23%	5%	13%	0%
M	W8	01-09-21	104	45.2	7.83	34.5	4.7	39.3	0.005	0.05	0.5	0.071	0.0638	0.001	0.053	0.093	0.0021	0.0053	0.0294	10.7
D	W8	01-09-21	104	44.6	7.84	2	0.36	38.9	0.005	0.05	0.5	0.072	0.029	0.001	0.05	0.076	0.003	0.0045	0.0056	10.7
		RPD	0%	1%	0%	178%	172%	1%	0%	0%	0%	1%	75%	0%	6%	20%	35%	16%	136%	0%
M	W23	01-09-21	305	148	8.09	2	0.34	93.4	0.005	0.05	0.5	0.09	0.0807	0.001	0.107	0.175	0.001	0.0024	0.0036	63.2
D	W23	01-09-21	304	149	8.09	2	0.32	93.1	0.005	0.05	0.5	0.091	0.0828	0.001	0.104	0.177	0.001	0.0026	0.004	63.1
		RPD	0%	1%	0%	0%	6%	0%	0%	0%	0%	1%	3%	0%	3%	1%	0%	8%	11%	0%

Table 2-7 (Con't):
Summary of Field Duplicate Results for Selected Physical and Nutrient Parameters

Sample Type	Station ID	Sample Date	Conductivity (µS/cm)	Hardness (as CaCO3) (mg/L)	pH (s.u.)	TSS (mg/L)	Turbidity (NTU)	Alkalinity, Total (as CaCO3) (mg/L)	NH3-N (mg/L)	Br (mg/L)	Cl (mg/L)	F (mg/L)	NO3-N (mg/L)	NO2-N (mg/L)	TKN (mg/L)	T-N (mg/L)	D-O-P (mg/L)	D-P-P (mg/L)	T-P-P (mg/L)	SO4 (mg/L)
-		MDL	2	0.6	5	3	0.1	1	0.005	0.05	0.5	0.02	0.005	0.001	0.05	0.03	0.001	0.002	0.002	0.3
M	W29	01-09-21	275	128	8.06	5.3	0.41	80.5	0.0061	0.05	0.5	0.086	0.0742	0.001	0.073	0.145	0.001	0.002	0.0041	58.4
D	W29	01-09-21	274	133	8.06	4.6	0.36	80.7	0.005	0.05	0.5	0.089	0.0739	0.001	0.068	0.131	0.001	0.002	0.0025	57.8
		RPD	0%	4%	0%	14%	13%	0%	20%	0%	0%	3%	0%	0%	7%	10%	0%	0%	48%	1%
M	W27	02-09-21	478	239	8.36	2	0.7	183	0.005	0.05	2.82	0.155	0.264	0.001	0.089	0.318	0.0019	0.0032	0.0051	71.6
D	W27	02-09-21	477	233	8.36	2	0.64	182	0.005	0.05	2.84	0.152	0.262	0.001	0.115	0.325	0.0016	0.0031	0.0065	71
		RPD	0%	3%	0%	0%	9%	1%	0%	0%	1%	2%	1%	0%	25%	2%	17%	3%	24%	1%
M	W20	03-09-21	83.9	35.6	7.75	2	1.08	32.1	0.005	0.05	0.5	0.064	0.0423	0.001	0.079	0.087	0.0038	0.0057	0.0142	8.59
D	W20	03-09-21	77.5	31.8	7.74	2	0.62	29.5	0.005	0.05	0.5	0.057	0.0205	0.001	0.063	0.068	0.0035	0.0051	0.0092	7.88
		RPD	8%	11%	0%	0%	54%	8%	0%	0%	0%	12%	69%	0%	23%	25%	8%	11%	43%	9%
M	W22	05-09-21	269	125	7.9	2	0.31	81.5	0.0071	0.05	0.5	0.084	0.0814	0.001	0.06	0.134	0.001	0.002	0.002	56
D	W22	05-09-21	269	129	7.9	2	0.27	81.2	0.005	0.05	0.5	0.084	0.0813	0.001	0.05	0.157	0.001	0.002	0.002	56
		RPD	0%	3%	0%	0%	14%	0%	35%	0%	0%	0%	0%	0%	18%	16%	0%	0%	0%	0%
M	W25	05-09-21	270	123	7.88	2	0.35	81.2	0.005	0.05	0.5	0.084	0.0811	0.001	0.05	0.13	0.001	0.002	0.0025	56.1
D	W25	05-09-21	268	125	7.88	2	0.27	81.5	0.005	0.05	0.5	0.084	0.0815	0.001	0.052	0.328	0.001	0.0033	0.0024	56.1
		RPD	1%	2%	0%	0%	26%	0%	0%	0%	0%	0%	0%	0%	4%	86%	0%	49%	4%	0%
M	W9	10-09-21	445	226	8.36	4.2	2.02	176	0.005	0.05	0.5	0.141	1.38	0.0011	0.147	1.44	0.0017	0.0038	0.0095	64.7
D	W9	10-09-21	444	228	8.34	3	2.13	177	0.005	0.05	0.5	0.141	1.38	0.001	0.153	1.4	0.0031	0.0035	0.0081	65.1
		RPD	0%	1%	0%	33%	5%	1%	0%	0%	0%	0%	0%	10%	4%	3%	58%	8%	16%	1%
M	W45	02-10-21	604	290	8.21	3	0.99	192	0.005	0.05	6.57	0.125	0.137	0.001	0.062	0.208	0.001	0.002	0.0029	112
D	W45	02-10-21	606	302	8.21	3	0.79	193	0.005	0.05	6.54	0.114	0.134	0.001	0.05	0.205	0.001	0.0022	0.003	112
		RPD	0%	4%	0%	0%	22%	1%	0%	0%	0%	9%	2%	0%	21%	1%	0%	10%	3%	0%
M	W5	03-10-21	319	163	7.96	17.4	19.1	95.7	0.005	0.05	0.56	0.097	0.0984	0.001	0.28	0.2	0.001	0.002	0.0126	66.3
D	W5	03-10-21	315	152	8.16	16.2	20.9	95	0.005	0.05	0.56	0.096	0.098	0.001	0.126	0.2	0.001	0.0036	0.0103	66.3
		RPD	1%	7%	2%	7%	9%	1%	0%	0%	0%	1%	0%	0%	76%	0%	0%	57%	20%	0%
M	W21	04-10-21	168	78.2	7.95	14.5	3.22	60.4	0.005	0.05	0.5	0.092	0.0711	0.001	0.06	0.119	0.0019	0.0038	0.0108	24.6
D	W21	04-10-21	168	78.8	7.96	8.5	2.2	60.2	0.005	0.05	0.5	0.093	0.0693	0.001	0.071	0.119	0.0021	0.0036	0.01	24.6
		RPD	0%	1%	0%	52%	38%	0%	0%	0%	0%	1%	3%	0%	17%	0%	10%	5%	8%	0%
M	ISH	05-10-21	494	260	8.3	3	0.31	198	0.005	0.05	3.08	0.147	0.449	0.001	0.105	0.494	0.0058	0.007	0.0111	73.3
D	ISH	05-10-21	494	262	8.28	3	0.27	196	0.005	0.05	3.06	0.147	0.45	0.001	0.086	0.495	0.006	0.0083	0.011	73.4
		RPD	0%	1%	0%	0%	14%	1%	0%	0%	1%	0%	0%	0%	20%	0%	3%	17%	1%	0%
M	W20	06-10-21	76.9	31.4	7.65	3	0.24	30.1	0.0062	0.05	0.5	0.058	0.0266	0.001	0.05	0.073	0.0038	0.0063	0.0116	7.85
D	W20	06-10-21	78.1	32.3	7.67	3.1	0.31	31	0.005	0.05	0.5	0.062	0.031	0.001	0.05	0.07	0.0035	0.007	0.0107	8.13
		RPD	2%	3%	0%	3%	25%	3%	21%	0%	0%	7%	15%	0%	0%	4%	8%	11%	8%	4%
M	MW96-10b	10-10-21	76.7	28.7	7.35	-	-	-	-	0.05	0.5	0.099	0.282	0.0033	-	-	-	-	0.102	7.75
D	MW96-10b	10-10-21	76.8	29.5	7.38	-	-	-	-	0.05	0.5	0.106	0.285	0.0017	-	-	-	-	0.115	7.78
		RPD	0%	3%	0%	-	-	-	-	0%	0%	7%	1%	64%	-	-	-	-	12%	0%
M	MW96-3	11-10-21	319	141	7.72	-	-	-	-	0.05	0.5	0.089	0.126	0.001	-	-	-	-	0.0175	92.5
D	MW96-3	11-10-21	319	148	7.81	-	-	-	-	0.05	0.5	0.091	0.124	0.001	-	-	-	-	0.0182	91.5
		RPD	0%	5%	1%	-	-	-	-	0%	0%	2%	2%	0%	-	-	-	-	4%	1%
M	W25	07-11-21	297	169	7.8	3	0.16	94.7	0.005	0.05	0.5	0.096	0.112	0.001	0.061	0.141	0.0017	0.002	0.002	69.6
D	W25	07-11-21	305	165	7.76	3	0.16	97.7	0.006	0.05	0.5	0.096	0.113	0.001	0.074	0.145	0.001	0.002	0.002	69.6
		RPD	3%	2%	1%	0%	0%	3%	18%	0%	0%	0%	1%	0%	19%	3%	52%	0%	0%	0%
M	HLFUMV	08-11-21	322	164	7.18	3	0.36	65.5	0.005	0.05	0.5	0.213	0.0636	0.001	0.05	0.072	0.0053	0.0046	0.0046	101
D	HLFUMV	08-11-21	319	157	7.08	3	0.26	66	0.005	0.05	0.5	0.213	0.0626	0.001	0.05	0.069	0.006	0.0049	0.0056	101
		RPD	1%	4%	1%	0%	32%	1%	0%	0%	0%	0%	2%	0%	0%	4%	12%	6%	20%	0%
M	W26	09-11-21	301	156	8.03	3	0.1	132	0.005	0.05	0.5	0.131	0.125	0.001	0.061	0.19	0.0065	0.0065	0.0068	37.8
D	W26	09-11-21	301	169	7.99	3	0.1	132	0.005	0.05	0.5	0.133	0.126	0.001	0.07	0.174	0.0064	0.0066	0.007	38.3
		RPD	0%	8%	0%	0%	0%	0%	0%	0%	0%	2%	1%	0%	14%	9%	2%	2%	3%	1%
M	W1	12-11-21	126	56	7.89	3.7	0.28	45.4	0.005	0.05	0.5	0.091	0.0908	0.001	0.05	0.112	0.0043	0.0053	0.0079	16.6
D	W1	12-11-21	125	56.1	7.89	4.1	0.25	45.4	0.005	0.05	0.5	0.093	0.0903	0.001	0.054	0.116	0.0048	0.005	0.0076	16.6
		RPD	1%	0%	0%	10%	11%	0%	0%	0%	0%	2%	1%	0%	8%	4%	11%	6%	4%	0%
M	W4-Mix	14-11-21	362	165	8.08	3	1.79	112	0.0102	0.05	2.22	0.119	0.246	0.0023	0.112	0.32	0.0011	0.0025	0.0048	71
D	W4-Mix	14-11-21	362	165	8.07	3.8	1.84	112	0.0079	0.05	2.22	0.119	0.246	0.0022	0.1	0.324	0.0011	0.0023	0.005	71.1
		RPD	0%	0%	0%	24%	3%	0%	25%	0%	0%	0%	0%	4%	11%	1%	0%	8%	4%	0%
M	W21	03-12-21	200	93.6	7.93	3	0.51	62.9	0.005	0.05	0.5	0.096	0.131	0.001	0.051	0.162	0.0028	0.0074	0.0062	37.2
D	W21	03-12-21	200	88.9	7.95	3	1.11	63.4	0.005	0.05	0.5	0.098	0.121	0.0013	0.05	0.168	0.0013	0.005	0.0064	37.1
		RPD	0%	5%	0%	0%	74%	1%	0%	0%	0%	2%	8%	26%	2%	4%	73%	39%	3%	0%
M	HLFUMV	07-12-21	326	137	7.45	3	0.33	62	0.005	0.05	0.5	0.214	0.0631	0.001	0.05	0.085	0.0044	0.0059	0.0061	101
D	HLFUMV	07-12-21	327	137	7.58	3	0.27	62.1	0.005	0.05	0.5	0.213	0.0585	0.001	0.05	0.086	0.004	0.0057	0.0056	100
		RPD	0%	0%	2%	0%	20%	0%	0%	0%	0%	0%	8%	0%	0%	1%	10%	3%	9%	1%
M	W99	11-12-21	412	208	8.14	3	0.33	123	0.005	0.05	0.55	0.097	0.135	0.001	0.05	0.182	0.001	0.002	0.002	91.9
D	W99	11-12-21	410	206	8.08	3	0.33	124	0.005	0.05	0.56	0.1	0.136	0.001	0.05	0.18	0.001	0.002	0.002	92.7
		RPD	0%	1%	1%	0%	0%	1%	0%	0%	2%	3%	1%	0%	0%	1%	0%	0%	0%	1%
M	W25	12-12-21	354	170	8.1	3	0.24	105	0.005	0.05	0.5	0.108	0.152	0.001	0.05	0.18	0.001	0.002	0.002	75.7
D	W25	12-12-21	355	174	8.13	3	0.15	105	0.005	0.05	0.5	0.108	0.148	0.001	0.05	0.18	0.001	0.002	0.002	75.6
		RPD	0%	2%	0%	0%	46%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%

Table 2-8:
Summary of Field Duplicate Results for Selected Total Metal Parameters

Sample Type	Station ID	Sample Date	T-Al (mg/L)	T-Sb (mg/L)	T-As (mg/L)	T-Ba (mg/L)	T-Be (mg/L)	T-Bi (mg/L)	T-B (mg/L)	T-Cd (mg/L)	T-Ca (mg/L)	T-Cr (mg/L)	T-Co (mg/L)	T-Cu (mg/L)	T-Fe (mg/L)	T-Pb (mg/L)	T-Li (mg/L)	T-Mg (mg/L)	T-Mn (mg/L)	T-Hg (mg/L)	T-Mo (mg/L)	T-Ni (mg/L)	T-P (mg/L)	T-K (mg/L)	T-Se (mg/L)	T-Si (mg/L)	T-Ag (mg/L)	T-Na (mg/L)	T-Sr (mg/L)	T-Tl (mg/L)	T-Sn (mg/L)	T-Ti (mg/L)	T-U (mg/L)	T-V (mg/L)	T-Zn (mg/L)
-		MDL	0.003	0.0001	0.0001	0.0001	0.00002	0.00005	0.01	0.000005	0.05	0.0001	0.0001	0.0005	0.01	0.00005	0.001	0.1	0.0001	0.000005	0.00005	0.0005	0.05	0.1	0.00005	0.1	0.00001	0.05	0.0002	0.00001	0.0001	0.0003	0.00001	0.0005	0.003
M	W39 New	01-02-21	0.0191	0.00045	0.00261	0.0565	0.00002	0.00005	0.01	1.04E-05	54.4	0.0001	0.0001	0.0005	0.041	0.00005	0.005	18.7	0.0157	0.000005	0.000403	0.00075	0.002	1.3	0.000458	4.62	0.00001	2.56	0.304	0.00001	0.0001	0.00045	0.00201	0.0005	0.003
D	W39 New	01-02-21	0.0135	0.00045	0.00257	0.0564	0.00002	0.00005	0.01	1.19E-05	54.9	0.0001	0.0001	0.0005	0.038	0.00005	0.0049	18.3	0.0158	0.000005	0.000408	0.00073	0.002	1.3	0.000458	4.62	0.00001	2.58	0.306	0.00001	0.0001	0.00043	0.00207	0.0005	0.003
		RPD	34%	0%	2%	0%	0%	0%	0%	13%	1%	0%	0%	0%	8%	0%	2%	2%	1%	0%	1%	3%	0%	0%	0%	0%	0%	1%	1%	0%	0%	5%	3%	0%	0%
M	HLF-UMV	05-02-21	0.0146	0.00267	0.0339	0.0214	0.00002	0.00005	0.01	3.02E-05	37.4	0.0001	0.0001	0.0005	0.042	0.00009	0.0736	14.9	0.00289	0.000005	0.000081	0.00291	0.0052	2.41	0.00018	7.76	0.00001	2.91	0.206	0.00001	0.0001	0.00038	0.000085	0.0005	0.01
D	HLF-UMV	05-02-21	0.0185	0.0026	0.0356	0.0227	0.00002	0.00005	0.01	3.39E-05	37.4	0.0001	0.0001	0.00095	0.064	0.000104	0.0781	15.6	0.00416	0.000005	0.00008	0.0031	0.0055	2.47	0.000209	7.75	0.00001	3.16	0.192	0.00001	0.0001	0.00048	0.00008	0.0005	0.0111
		RPD	24%	3%	5%	6%	0%	0%	0%	12%	0%	0%	0%	62%	42%	14%	6%	5%	36%	0%	1%	6%	6%	2%	15%	0%	0%	8%	7%	0%	0%	23%	6%	0%	10%
M	W23	05-03-21	0.0078	0.00043	0.00436	0.0573	0.00002	0.00005	0.01	1.26E-05	66.4	0.0001	0.0001	0.0005	0.035	0.00005	0.005	17.7	0.0394	0.000005	0.000543	0.00079	0.0034	1.46	0.000483	4.65	0.00001	2.61	0.321	0.00001	0.0001	0.0003	0.00197	0.0005	0.003
D	W23	05-03-21	0.01	0.00044	0.00447	0.0608	0.00002	0.00005	0.01	1.33E-05	58.1	0.0001	0.0001	0.0005	0.038	0.00005	0.005	17.5	0.0393	0.000005	0.000568	0.001	0.0029	1.45	0.000433	4.77	0.00001	2.73	0.3	0.00001	0.0001	0.00036	0.00193	0.0005	0.003
		RPD	25%	2%	2%	6%	0%	0%	0%	5%	13%	0%	0%	0%	8%	0%	0%	1%	0%	0%	5%	23%	16%	1%	11%	3%	0%	4%	7%	0%	0%	18%	2%	0%	0%
M	HLF-UMV	02-04-21	0.0165	0.00269	0.0359	0.0233	0.00002	0.00005	0.01	3.46E-05	36.7	0.0001	0.0001	0.00055	0.043	0.000075	0.0763	16.2	0.00258	0.000005	0.000102	0.00313	0.0076	2.65	0.000267	8.17	0.00001	3.27	0.211	0.00001	0.0001	0.00063	0.000074	0.0005	0.0119
D	HLF-UMV	02-04-21	0.0128	0.00265	0.0361	0.0229	0.00002	0.00005	0.01	0.000036	37.8	0.0001	0.0001	0.00051	0.027	0.000068	0.0811	15.9	0.0023	0.000005	0.000084	0.00311	0.0054	2.69	0.00023	8.12	0.00001	3.25	0.212	0.00001	0.0001	0.00036	0.00007	0.0005	0.0128
		RPD	25%	1%	1%	2%	0%	0%	0%	4%	3%	0%	0%	8%	46%	10%	6%	2%	11%	0%	19%	1%	34%	1%	15%	1%	0%	1%	0%	0%	0%	55%	6%	0%	7%
M	W99	01-05-21	1.16	0.00271	0.0599	0.0596	0.000117	0.000571	0.01	0.00012	37.2	0.00215	0.00174	0.00554	2.67	0.00843	0.0074	14.9	0.156	0.00005	0.000356	0.00522	0.0748	1.97	0.000204	5.21	0.000041	1.99	0.184	0.00003	0.0001	0.0385	0.00152	0.00266	0.0167
D	W99	01-05-21	1.68	0.00384	0.0778	0.0649	0.000141	0.000786	0.01	0.000131	36.3	0.00318	0.00206	0.00726	3.81	0.0106	0.0078	14.6	0.162	0.00005	0.000422	0.00655	0.0772	2.07	0.000237	5.97	0.000065	1.89	0.178	0.000043	0.0001	0.0556	0.0016	0.00368	0.0216
		RPD	37%	35%	26%	9%	19%	32%	0%	9%	2%	39%	17%	27%	35%	23%	5%	2%	4%	0%	17%	23%	3%	5%	15%	14%	45%	5%	3%	36%	0%	36%	5%	32%	26%
M	W31	03-05-21	0.0804	0.00245	0.0235	0.0328	0.00002	0.00005	0.01	2.22E-05	14.7	0.0005	0.0001	0.0009	0.09	0.000171	0.0026	3.43	0.00322	0.000005	0.00199	0.00108	0.0165	1.26	0.000261	5.02	0.00001	1.53	0.0738	0.00001	0.0001	0.00195	0.000512	0.0005	0.003
D	W31	03-05-21	0.0762	0.0024	0.0231	0.0326	0.00002	0.00005	0.01	2.28E-05	14.8	0.0005	0.0001	0.00091	0.082	0.000152	0.0026	3.38	0.00231	5.8E-06	0.00198	0.00107	0.0143	1.25	0.000189	4.83	0.00001	1.5	0.0728	0.00001	0.0001	0.0015	0.000508	0.0005	0.003
		RPD	5%	2%	2%	1%	0%	0%	0%	3%	1%	0%	0%	1%	9%	12%	0%	1%	33%	15%	1%	1%	14%	1%	32%	4%	0%	2%	1%	0%	0%	26%	1%	0%	0%
M	W23	08-05-21	1.13	0.00076	0.0164	0.0379	0.000051	0.000073	0.01	0.000106	12.2	0.00175	0.00108	0.00436	1.87	0.0023	0.0024	2.84	0.127	0.000025	0.000274	0.00354	0.109	1.42	0.000216	2.97	0.000034	0.518	0.0604	0.000019	0.0001	0.032	0.00029	0.0023	0.0127
D	W23	08-05-21	0.956	0.00071	0.0145	0.0329	0.000052	0.000062	0.01	9.91E-05	12	0.00142	0.00093	0.00384	1.59	0.00194	0.0021	2.67	0.107	0.000025	0.00026	0.00312	0.0863	1.34	0.000197	2.77	0.000034	0.497	0.0604	0.000017	0.0001	0.027	0.000274	0.00197	0.0109
		RPD	17%	7%	12%	14%	2%	16%	0%	7%	2%	21%	15%	13%	16%	17%	13%	6%	17%	0%	5%	13%	23%	6%	9%	7%	0%	4%	0%	11%	0%	17%	6%	15%	15%
M	LDSP-UND	10-05-21	0.0044	0.0029	0.0201	0.0635	0.00002	0.00005	0.01	1.31E-05	46	0.0005	0.0001	0.00077	0.01	0.000073	0.0102	25.7	0.00633	0.000005	0.000942	0.0006	0.0044	2.41	0.000508	4.64	0.00001	3.41	0.304	0.00001	0.0001	0.0003	0.00626	0.0005	0.003
D	LDSP-UND	10-05-21	0.123	0.00306	0.0245	0.0658	0.00002	0.000056	0.01	0.00002	46	0.0005	0.00014	0.00119	0.199	0.000694	0.0103	26.2	0.00957	0.000005	0.000885	0.00082	0.0041	2.53	0.000487	4.93	0.00001	3.56	0.305	0.000011	0.0001	0.0048	0.00617	0.0005	0.003
		RPD	186%	5%	20%	4%	0%	11%	0%	42%	0%	0%	33%	43%	181%	162%	1%	2%	41%	0%	6%	31%	7%	5%	4%	6%	0%	4%	0%	10%	0%	176%	1%	0%	0%
M	W39 Old	19-06-21	0.226	0.00071	0.00377	0.0502	0.00002	0.00005	0.01	2.28E-05	41.6	0.0005	0.00024	0.00147	0.507	0.00071	0.004	12.9	0.0204	0.000005	0.000378	0.00135	0.0128	1.1	0.00025	4.24	0.00001	1.66	0.203	0.00001	0.0001	0.00538	0.00102	0.00057	0.003
D	W39 Old	19-06-21	0.271	0.00074	0.00393	0.0486	0.00002	0.00005	0.01	2.43E-05	39.2	0.0005	0.00028	0.00162	0.593	0.000784	0.0038	12.4	0.0209	0.000005	0.000398	0.0014	0.0134	1.07	0.000267	4.15	0.00001	1.62	0.207	0.00001	0.0001	0.00686	0.000978	0.00068	0.003
		RPD	18%	4%	4%	3%	0%	0%	0%	6%	6%	0%	15%	10%	16%	10%	5%	4%	2%	0%	5%	4%	5%	3%	7%	2%	0%	2%	2%	0%	0%	24%	4%	18%	0%
M	W49	10-07-21	0.917	0.00109	0.00911	0.0688	0.00003	0.000057	0.01	5.02E-05	45.1	0.00147	0.00088	0.00331	1.81	0.00218	0.0054	13	0.054	7.4E-06	0.000469	0.00244	0.0367	1.19	0.000214	5.08	0.000022	1.84	0.237	0.000011	0.0001	0.024	0.00121	0.00214	0.0086
D	W49	10-07-21	0.867	0.00112	0.0088	0.0685	0.00003	0.000058	0.01	4.06E-05	45.7	0.00714	0.00082	0.00325	1.8	0.00216	0.0054	12.7	0.0516	0.000005	0.000649	0.00264	0.0331	1.14	0.000208	4.93	0.000023	1.79	0.24	0.000012	0.0001	0.0218	0.00123	0.00211	0.0083
		RPD	6%	3%	3%	0%	0%	2%	0%	21%	1%	132%	7%	2%	1%	1%	0%	2%	5%	39%	32%	8%	10%	4%	3%	3%	4%	3%	1%	9%	0%	10%	2%	1%	4%
M	W1	12-07-21	0.147	0.00117	0.0414	0.0406	0.00002	0.00005	0.01	1.04E-05	13.1	0.00053	0.00015	0.00059	0.292	0.000433	0.0023	2.76	0.00624	0.000005	0.00204	0.00075	0.0116	0.719	0.000113	5.94	0.00001	1.73	0.0815	0.00001	0.0001	0.00926	0.000468	0.00077	0.003
D	W1	12-07-21	0.0828	0.00102	0.0411	0.0418	0.00002	0.00005	0.01	9.6E-06	12.9	0.0005	0.0001	0.0005	0.108	0.000213	0.002	2.89	0.00504	0.000005	0.00188	0.0005	0.0108	0.729	0.000085	5.48	0.00001	1.79	0.0775	0.00001	0.0001	0.0047	0.00045	0.0005	0.003
		RPD	56%	14%	1%	3%	0%	0%	0%	8%	2%	6%	40%	17%	92%	68%	14%	5%	21%	0%	8%	40%	7%	1%	28%	8%	0%	3%	5%	0%	0%	65%	4%	43%	0%
M	W1	06-08-21	0.101	0.00113	0.0409	0.0445	0.00002	0.00005	0.01	1.08E-05	15	0.0005	0.00012	0.0005	0.205	0.000414	0.0022	3.11	0.00617	0.000005	0.00206	0.00062	0.0068	0.781	0.00014	6.02	0.00001	1.81	0.0864	0.00001	0.0001	0.00627	0.000575	0.00056	0.003
D	W1	06-08-21	0.109	0.0011	0.0419	0.046	0.00003	0.00005	0.01	1.24E-05	15.6	0.0005	0.00014	0.00069	0.22	0.000297	0.0024	3.12	0.006	0.000005	0.00197	0.001	0.0074	0.811	0.000147	5.84	0.00001	1.83	0.0856	0.00001	0.0001	0.00667	0.000569	0.00063	0.003
		RPD	8%	3%	2%	3%	40%	0%	0%	14%	4%	0%	15%	32%	7%	33%	9%	0%	3%	0%	4%	47%	8%	4%	5%	3%	0%	1%	1%	0%	0%	6%	1%	12%	0%
M	PDI	11-08-21	1.14	0.00545	0.211	0.0766	0.000123	0.000814	0.01	0.00029	88.3	0.00233	0.00286	0.00598	2.05	0.0171	0.0112	22.7	0.259	8.3E-06	0.00218	0.00447	0.238	5.14	0.0012	6.69	0.00001	4.39	0.423	0.000047	0.0001	0.0395	0.00822	0.00297	0.027
D	PDI	11-08-21	1.94	0.00905	0.241	0.0806	0.000164	0.00151	0.01	0.000296	89	0.00387	0.00317	0.00811	3.62	0.0197	0.0124	22.5	0.263	1.37E-05	0.00254	0.00566	0.171	5.27	0.00124	8.16	0.000114	4.46	0.418	0.000064	0.0001	0.109	0.00818	0.00461	0.0306
		RPD	52%	50%	13%	5%	29%	60%	0%	2%	1%	50%	10%	30%	55%	14%	10%	1%	2%	49%	15%	23%	33%	2%	3%	20%	168%	2%	1%	31%	0%	94%	0%	43%	13%
M	W1	27-08-21	0.238	0.00124	0.0481	0.0488	0.00002	0.00005	0.01	1.67E-05	14.2	0.00063	0.00033	0.0007	0.46	0.00101	0.0021	3.06	0.0133	0.000005	0.00207	0.00093	0.0108	0.798	0.000109	6.34	0.00001	1.84	0.0818	0.00001	0.0001	0.0153	0.000701	0.00094	0.003
D	W1	27-08-21	0.0959	0.00114	0.0435	0.0461	0.00002	0.00005	0.01	9.3E-06	13.8	0.0005	0.0001	0.0005	0.161	0.000213	0.0018	3.04	0.00453	0.000005	0.00206	0.0005	0.0095	0.755	0.000135	5.98	0.00001	1.77	0.0794	0.00001	0.0001	0.00548	0.000637	0.0005	0.003
		RPD	85%	8%	10%	6%	0%	0%	0%	57%	3%	23%	107%	33%	96%	130%	15%	1%	98%	0%	0%	60%	13%	6%	21%	6%	0%	4%	3%	0%	0%	95%	10%	61%	0%
M	W8	01-09-21	0.0378	0.00104	0.0424	0.0397	0.00002	0.00005	0.01	0.000005	13.4	0.0005	0.0001	0.0005	0.047	0.000071	0.0019	2.69	0.00188	0.000005	0.0021	0.0005	0.0294	0.74	0.00012	5.9	0.00001	1.9	0.0743	0.00001	0.0001	0.00216	0.000598	0.0005	0.003
D	W8	01-09-21	0.0424	0.00105	0.0426	0.039	0.00002	0.00005	0.01	7.2E-06	13.6	0.0005	0.0001	0.0005	0.054	0.000072	0.0019	2.64	0.00214	0.000005	0.0021	0.0005	0.0056	0.728	0.000137	5.83	0.00001	1.79	0.0761	0.00001	0.0001	0.0017	0.000614	0.0005	0.003
		RPD	11%	1%	0%	2%	0%	0%	0%	36%	1%	0%	0%	0%	14%	1%	0%	2%	13%	0%	0%	0%	136%	2%	13%	1%	0%	6%	2%	0%	0%	24%	3%	0%	0%
M	W23	01-09-21	0.0391	0.00046	0.00557	0.0427	0.00002	0.00005	0.01	1.36E-05	41.4	0.0005	0.0001	0.00076	0.097	0.000062	0.0033	10.7	0.0321	0.000005	0.000537	0.00098	0.0036	1.1	0.000261	4.24	0.00001	1.92	0.19	0.00001	0.0001	0.00116	0.000928	0.0005	0.003
D	W23	01-09-21	0.0276	0.00046	0.00549	0.0424	0.00002	0.00005	0.01	1.34E-05	42.2	0.0005	0.0001	0.00077	0.083	0.000061	0.0034	10.6	0.0314	0.000005	0.000521	0.00094	0.004	1.09	0.000214	4.22	0.00001	1.96	0.19	0.00001	0.0001	0.00067	0.000899	0.0005	0.003
		RPD	34%	0%	1%	1%	0%	0%	0%	1%	2%	0%	0%	1%	16%	2%	3%	1%	2%	0%	3%	4%	11%	1%	20%	0%	0%	2%	0%	0%	0%	54%	3%	0%	0%
M	W29	01-09-21	0.0551	0.00042	0.00573	0.0356	0.00002	0.00005	0.01	1.28E-05	34.1	0.0005	0.00018	0.00057	0.16	0.000221	0.0046	11.6	0.0438	0.000005	0.000295	0.00106	0.0041	0.923	0.000144	4.12	0.00001	1.76	0.169	0.00001	0.0001	0.0027	0.000928	0.0005	0.003
D	W29	01-09-21	0.0602	0.00043	0.00549	0.0342	0.00002	0.00005	0.01	1.03E-05	34.3	0.0005	0.00016	0.00063	0.151	0.000149	0.0048	11.7	0.044	0.000005	0.000296	0.00108	0.0025	0.928	0.00012	4.18	0.00001	1.79	0.166	0.00001	0.0001	0.00281	0.000914	0.0005	0.003
		RPD	9%	2%	4%	4%	0%	0%	0%	22%	1%	0%	12%	10%	6%	39%	4%	1%	0%	0%	0%	2%	48%	1%	18%	1%	0%	2%	2%	0%	0%	4%	2%	0%	0%

Table 2-9 (Con't):
Summary of Field Duplicate Results for Selected Total Metal Parameters

Sample Type	Station ID	Sample Date	T-Al (mg/L)	T-Sb (mg/L)	T-As (mg/L)	T-Ba (mg/L)	T-Be (mg/L)	T-Bi (mg/L)	T-B (mg/L)	T-Cd (mg/L)	T-Ca (mg/L)	T-Cr (mg/L)	T-Co (mg/L)	T-Cu (mg/L)	T-Fe (mg/L)	T-Pb (mg/L)	T-Li (mg/L)	T-Mg (mg/L)	T-Mn (mg/L)	T-Hg (mg/L)	T-Mo (mg/L)	T-Ni (mg/L)	T-P (mg/L)	T-K (mg/L)	T-Se (mg/L)	T-Si (mg/L)	T-Ag (mg/L)	T-Na (mg/L)	T-Sr (mg/L)	T-Tl (mg/L)	T-Sn (mg/L)	T-Ti (mg/L)	T-U (mg/L)	T-V (mg/L)	T-Zn (mg/L)
-		MDL	0.003	0.0001	0.0001	0.0001	0.00002	0.00005	0.01	0.000005	0.05	0.0001	0.0001	0.0005	0.01	0.00005	0.001	0.1	0.0001	0.000005	0.00005	0.0005	0.05	0.1	0.00005	0.1	0.00001	0.05	0.0002	0.00001	0.0001	0.0003	0.00001	0.0005	0.003
M	W27	02-09-21	0.0258	0.00466	0.0321	0.0843	0.00002	0.00005	0.01	1.33E-05	45.5	0.0005	0.00011	0.00092	0.068	0.000161	0.0114	27.6	0.00577	0.000005	0.00114	0.0007	0.0051	2.56	0.000352	5.55	0.00001	3.71	0.355	0.00001	0.0001	0.00133	0.00755	0.0005	0.0031
D	W27	02-09-21	0.0503	0.00464	0.0328	0.0833	0.00002	0.00005	0.01	1.51E-05	46	0.0005	0.00013	0.001	0.12	0.00025	0.0116	27.8	0.0066	0.000005	0.00111	0.00075	0.0065	2.59	0.000388	5.37	0.00001	3.78	0.352	0.00001	0.0001	0.00254	0.00759	0.0005	0.0033
		RPD	64%	0%	2%	1%	0%	0%	0%	13%	1%	0%	17%	8%	55%	43%	2%	1%	13%	0%	3%	7%	24%	1%	10%	3%	0%	2%	1%	0%	0%	63%	1%	0%	6%
M	W20	03-09-21	0.0739	0.00093	0.0749	0.0348	0.00002	0.00005	0.01	5.3E-06	10.2	0.0005	0.0001	0.0005	0.097	0.000505	0.0015	1.83	0.00487	0.000005	0.00123	0.0005	0.0142	0.553	0.000081	6.34	0.00001	1.92	0.0665	0.00001	0.0001	0.00402	0.000648	0.0005	0.003
D	W20	03-09-21	0.0483	0.00074	0.0768	0.0326	0.00002	0.00005	0.01	0.000005	9.67	0.0005	0.0001	0.0005	0.055	0.000155	0.0014	1.73	0.00355	0.000005	0.00108	0.0005	0.0092	0.552	0.000066	6.41	0.00001	1.98	0.0641	0.00001	0.0001	0.00229	0.000526	0.0005	0.003
		RPD	42%	23%	3%	7%	0%	0%	0%	6%	5%	0%	0%	0%	55%	106%	7%	6%	31%	0%	13%	0%	43%	0%	20%	1%	0%	3%	4%	0%	0%	55%	21%	0%	0%
M	W22	05-09-21	0.0202	0.00023	0.00071	0.0343	0.00002	0.00005	0.01	1.04E-05	33.9	0.0005	0.00015	0.0005	0.106	0.00005	0.0048	11	0.0425	0.000005	0.000092	0.00108	0.002	0.813	0.00014	3.68	0.00001	1.52	0.18	0.00001	0.0001	0.0003	0.000684	0.0005	0.003
D	W22	05-09-21	0.0218	0.00024	0.00071	0.0342	0.00002	0.00005	0.01	1.17E-05	34	0.0005	0.00016	0.0005	0.102	0.00005	0.0048	11.1	0.0443	0.000005	0.000082	0.00105	0.002	0.819	0.00013	3.67	0.00001	1.51	0.183	0.00001	0.0001	0.00036	0.000682	0.0005	0.003
		RPD	8%	4%	0%	0%	0%	0%	0%	12%	0%	0%	6%	0%	4%	0%	0%	1%	4%	0%	11%	3%	0%	1%	7%	0%	0%	1%	2%	0%	0%	18%	0%	0%	0%
M	W25	05-09-21	0.0214	0.00024	0.00071	0.0344	0.00002	0.00005	0.01	9.3E-06	34.6	0.0005	0.00016	0.0005	0.108	0.00005	0.0049	11.1	0.0435	0.000005	0.000075	0.00106	0.0025	0.831	0.000148	3.63	0.00001	1.54	0.18	0.00001	0.0001	0.00033	0.000721	0.0005	0.003
D	W25	05-09-21	0.022	0.00023	0.00073	0.0348	0.00002	0.00005	0.01	8.4E-06	33.9	0.0005	0.00017	0.0005	0.12	0.00005	0.0048	10.8	0.0432	0.000005	0.000074	0.00109	0.0024	0.834	0.000168	3.71	0.00001	1.53	0.179	0.00001	0.0001	0.00032	0.000685	0.0005	0.003
		RPD	3%	4%	3%	1%	0%	0%	0%	10%	2%	0%	6%	0%	11%	0%	2%	3%	1%	0%	1%	3%	4%	0%	13%	2%	0%	1%	1%	0%	0%	3%	5%	0%	0%
M	W9	10-09-21	0.186	0.00118	0.0222	0.0878	0.00002	0.000114	0.01	0.000024	45.9	0.0005	0.00035	0.00086	0.313	0.00123	0.0116	29.9	0.00604	0.000005	0.000843	0.00074	0.0095	1.6	0.000747	4.52	0.00001	3.18	0.356	0.00001	0.0001	0.014	0.0073	0.00085	0.003
D	W9	10-09-21	0.125	0.00111	0.0216	0.0808	0.00002	0.000176	0.01	2.19E-05	42.7	0.0005	0.00029	0.00078	0.217	0.000636	0.011	29.1	0.00456	0.000005	0.000848	0.0005	0.0081	1.58	0.000766	4.41	0.00001	3.28	0.348	0.00001	0.0001	0.00764	0.00739	0.0005	0.003
		RPD	39%	6%	3%	8%	0%	43%	0%	9%	7%	0%	19%	10%	36%	64%	5%	3%	28%	0%	1%	39%	16%	1%	3%	2%	0%	3%	2%	0%	0%	59%	1%	52%	0%
M	W45	02-10-21	0.0194	0.0011	0.0162	0.044	0.00002	0.00005	0.01	1.62E-05	83.9	0.0005	0.00013	0.0005	0.078	0.000142	0.0094	22.1	0.104	0.000005	0.000613	0.00068	0.0029	2.39	0.00112	3.9	0.00001	4.72	0.47	0.00001	0.0001	0.00052	0.00326	0.0005	0.003
D	W45	02-10-21	0.0191	0.0011	0.0159	0.0424	0.00002	0.00005	0.01	1.42E-05	84	0.0005	0.00012	0.0005	0.077	0.000138	0.0091	21.9	0.102	0.000005	0.000602	0.00065	0.003	2.5	0.00122	3.91	0.00001	4.64	0.471	0.00001	0.0001	0.00069	0.00319	0.0005	0.003
		RPD	2%	0%	2%	4%	0%	0%	0%	13%	0%	0%	8%	0%	1%	3%	3%	1%	2%	0%	2%	5%	3%	4%	9%	0%	0%	2%	0%	0%	0%	28%	2%	0%	0%
M	W5	03-10-21	0.551	0.00109	0.0189	0.0408	0.000036	0.000179	0.01	2.85E-05	38.5	0.00096	0.00065	0.00208	1.11	0.00196	0.0064	14.6	0.0904	0.000005	0.000268	0.00235	0.0126	1.23	0.000165	4.7	0.000012	1.8	0.188	0.000016	0.0001	0.0235	0.00128	0.00112	0.0049
D	W5	03-10-21	0.591	0.00111	0.0201	0.0451	0.000038	0.000158	0.01	3.32E-05	40.7	0.00104	0.00068	0.0022	1.18	0.002	0.0066	15.3	0.0961	0.000005	0.000272	0.00242	0.0103	1.3	0.000183	4.96	0.000011	1.89	0.189	0.000017	0.0001	0.0252	0.00128	0.00124	0.0052
		RPD	7%	2%	6%	10%	5%	12%	0%	15%	6%	8%	5%	6%	6%	2%	3%	5%	6%	0%	1%	3%	20%	6%	10%	5%	9%	5%	1%	6%	0%	7%	0%	10%	6%
M	W21	04-10-21	0.179	0.00109	0.0382	0.0539	0.00002	0.000091	0.01	1.24E-05	20.8	0.0005	0.00019	0.00059	0.337	0.000404	0.0045	6.38	0.0119	0.000005	0.00182	0.00077	0.0108	0.992	0.000121	6.31	0.00001	1.81	0.122	0.00001	0.0001	0.0117	0.00111	0.0006	0.003
D	W21	04-10-21	0.17	0.00111	0.0384	0.0529	0.00002	0.00005	0.01	1.33E-05	21	0.0005	0.00018	0.00055	0.315	0.000457	0.0046	6.42	0.0148	0.000005	0.00187	0.00076	0.01	1	0.000138	6.34	0.00001	1.83	0.122	0.00001	0.0001	0.0108	0.0011	0.00061	0.003
		RPD	5%	2%	1%	2%	0%	58%	0%	7%	1%	0%	5%	7%	7%	12%	2%	1%	22%	0%	3%	1%	8%	1%	13%	0%	0%	1%	0%	0%	0%	8%	1%	2%	0%
M	ISH	05-10-21	0.0284	0.00562	0.0421	0.104	0.00002	0.00005	0.01	2.37E-05	51.5	0.0005	0.00013	0.0011	0.066	0.00015	0.0147	30.3	0.00194	0.000005	0.00106	0.00112	0.0111	2.6	0.000446	5.76	0.00001	3.9	0.385	0.00001	0.0001	0.00127	0.00922	0.0005	0.003
D	ISH	05-10-21	0.0291	0.00576	0.0419	0.106	0.00002	0.00005	0.01	2.42E-05	52.2	0.0005	0.00013	0.00111	0.065	0.000138	0.0145	29.6	0.00197	0.000005	0.00108	0.00116	0.011	2.6	0.000355	5.78	0.00001	3.74	0.407	0.00001	0.0001	0.00173	0.00919	0.0005	0.003
		RPD	2%	2%	0%	2%	0%	0%	0%	2%	1%	0%	0%	1%	2%	8%	1%	2%	2%	0%	2%	4%	1%	0%	23%	0%	0%	4%	6%	0%	0%	31%	0%	0%	0%
M	W20	06-10-21	0.0352	0.00067	0.0714	0.0299	0.00002	0.00005	0.01	0.000005	9.8	0.0005	0.0001	0.0005	0.04	0.000115	0.0016	1.55	0.00214	0.000005	0.00101	0.0005	0.0116	0.506	0.000064	6.21	0.00001	1.9	0.0609	0.00001	0.0001	0.00154	0.000486	0.0005	0.003
D	W20	06-10-21	0.242	0.00126	0.0815	0.0362	0.00002	0.00005	0.01	1.01E-05	10	0.0005	0.00015	0.0005	0.354	0.00267	0.0018	1.69	0.0109	0.000005	0.00116	0.0005	0.0107	0.565	0.00008	6.3	0.000024	1.92	0.0639	0.00001	0.0001	0.0124	0.000683	0.00074	0.003
		RPD	149%	61%	13%	19%	0%	0%	0%	68%	2%	0%	40%	0%	159%	183%	12%	9%	134%	0%	14%	0%	8%	11%	22%	1%	82%	1%	5%	0%	0%	156%	34%	39%	0%
M	MW96-10b	10-10-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.102	-	-	-	-	-	-	-	-	-	-	-	-
D	MW96-10b	10-10-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.115	-	-	-	-	-	-	-	-	-	-	-	-
		RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12%	-	-	-	-	-	-	-	-	-	-	-	-
M	MW96-3	11-10-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0175	-	-	-	-	-	-	-	-	-	-	-	-
D	MW96-3	11-10-21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0182	-	-	-	-	-	-	-	-	-	-	-	-
		RPD	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4%	-	-	-	-	-	-	-	-	-	-	-	-
M	W25	07-11-21	0.0055	0.00019	0.00054	0.0366	0.00002	0.00005	0.01	0.000011	38.8	0.0005	0.00015	0.0005	0.036	0.00005	0.0061	14.9	0.0466	0.000005	0.000062	0.00117	0.002	0.973	0.000145	4.04	0.00001	2.14	0.218	0.00001	0.0001	0.0003	0.000901	0.0005	0.003
D	W25	07-11-21	0.0055	0.0002	0.00056	0.0371	0.00002	0.00005	0.01	8.9E-06	38.9	0.0005	0.00015	0.0005	0.036	0.00005	0.0062	15.2	0.0452	0.000005	0.00007	0.00121	0.002	0.968	0.000163	4.06	0.00001	2.08	0.216	0.00001	0.0001	0.0003	0.000913	0.0005	0.0037
		RPD	0%	5%	4%	1%	0%	0%	0%	21%	0%	0%	0%	0%	0%	0%	2%	2%	3%	0%	12%	3%	0%	1%	12%	0%	0%	3%	1%	0%	0%	0%	1%	0%	21%
M	HLFUMV	08-11-21	0.0091	0.00285	0.0352	0.0233	0.00002	0.00005	0.01	3.72E-05	36.1	0.0005	0.0001	0.00057	0.085	0.000062	0.0777	16.5	0.00512	0.000005	0.000071	0.00349	0.0046	2.86	0.000161	8.58	0.00001	3.4	0.215	0.00001	0.0001	0.00046	0.000159	0.0005	0.0121
D	HLFUMV	08-11-21	0.0078	0.00291	0.0394	0.023	0.00002	0.00005	0.01	4.04E-05	36.4	0.0005	0.0001	0.00061	0.026	0.000054	0.0808	16.9	0.00291	0.000005	0.000078	0.00357	0.0056	2.87	0.000181	8.7	0.00001	3.39	0.218	0.00001	0.0001	0.0003	0.000166	0.0005	0.0132
		RPD	15%	2%	11%	1%	0%	0%	0%	8%	1%	0%	0%	7%	106%	14%	4%	2%	55%	0%	9%	2%	20%	0%	12%	1%	0%	0%	1%	0%	0%	42%	4%	0%	9%
M	W26	09-11-21	0.0088	0.00093	0.0239	0.0616	0.00002	0.00005	0.01	0.00001	36	0.0005	0.0001	0.0005	0.01	0.00005	0.005	17.5	0.0003	0.000005	0.00327	0.0005	0.0068	1.24	0.000343	5.76	0.00001	1.93	0.319	0.00001	0.0001	0.00042	0.00534	0.0005	0.003
D	W26	09-11-21	0.0078	0.00089	0.0235	0.0635	0.00002	0.00005	0.01	9.3E-06	36.3	0.0005	0.0001	0.0005	0.01	0.00005	0.0048	17.1	0.00027	0.000005	0.00316	0.0005	0.007	1.25	0.000385	5.69	0.00001	1.92	0.301	0.00001	0.0001	0.00034	0.00541	0.0005	0.003
		RPD	12%	4%	2%	3%	0%	0%	0%	7%	1%	0%	0%	0%	0%	0%	4%	2%	11%	0%	3%	0%	3%	1%	12%	1%	0%	1%	6%	0%	0%	21%	1%	0%	0%
M	W1	12-11-21	0.0388	0.00097	0.0364	0.0462	0.00002	0.00005	0.01	6.4E-06	16.6	0.0005	0.0001	0.0005	0.064	0.000082	0.0025	3.75	0.00172	0.000005	0.0019	0.0005	0.0079	0.837	0.000139	6.43	0.00001	1.78	0.0855	0.00001	0.0001	0.00209	0.000608	0.0005	0.003
D	W1	12-11-21	0.0369	0.00096	0.0364	0.0468	0.00002	0.00005	0.01	5.8E-06	16.6	0.0005	0.0001	0.0005	0.061	0.000095	0.0025	3.79	0.00216	0.000005	0.00191	0.0005	0.0076	0.836	0.000135	6.52	0.00001	1.79	0.0876	0.00001	0.0001	0.00195	0.000619	0.0005	0.003
		RPD	5%	1%	0%	1%	0%	0%	0%	10%	0%	0%	0%	0%	5%	15%	0%	1%	23%	0%	1%	0%	4%	0%	3%	1%	0%	1%	2%	0%	0%	7%	2%	0%	0%
M	W4-Mix	14-11-21	0.0736	0.00134	0.0159	0.0407	0.00002	0.00005	0.01	1.71E-05	43.6	0.0005	0.00034	0.00067	0.116	0.000348	0.0088	16.4	0.037	0.000005	0.000703	0.00118	0.0048	1.73	0.000312	4.48	0.00001	2.46	0.235	0.00001	0.0001	0.00312	0.00254	0.0005	0.0034
D	W4-Mix	14-11-21	0.116	0.0015	0.017	0.0405	0.00002	0.00005	0.01	1.72E-05	41.5	0.0005	0.00037	0.00076	0.224	0.000536	0.0088	17	0.0388	0.000005	0.000692	0.0013	0.005	1.66	0.000312	4.84	0.00001	2.46	0.24	0.00001	0.0001	0.00584	0.00269	0.0005	0.003
		RPD	45%	11%	7%	0%	0%	0%	0%	1%	5%	0%	8%	13%	64%	43%	0%	4%	5%	0%	2%	10%	4%	4%	0%	8%	0%	0%	2%	0%	0%	61%	6%	0%	13%
M	W21	03-12-21	0.0501	0.0012	0.0314	0.0592	0.00002	0.00005	0.01	1.17E-05	23.7	0.0005	0.0001	0.0005	0.118	0.000171	0.0066	7.77	0.0115	0.000005	0.00158	0.00069	0.0062	1.12	0.000164	6.74	0.00001	2.02	0.139	0.00001	0.0001	0.0029	0.000984	0.00052	0.003
D	W21	03-12-21	0.054	0.0012	0.0316	0.0582	0.00002	0.00005	0.01	1.34E-05	24.5	0.0005	0.0001	0.0005	0.131	0.000184	0.0067	7.84	0.0118	0.000005	0.00163	0.00065	0.0064	1.12	0.000186	6.52	0.00001	2.01	0.136	0.00001	0.0001	0.0032	0.000984	0.00056	0.003
		RPD	7%	0%	1%	2%	0%	0%	0%	14%	3%	0%	0%	0%	10%	7%	2%	1%	3%	0%	3%	6%	3%	0%	13%	3%	0%	0%	2%	0%	0%	10%	0%	7%	0%
M	HLFUMV	07-12-21	0.008	0.00263	0.0416	0.0239	0.00002	0.00005	0.01	3.48E-05	34.4	0.0005	0.00021	0.00052	0.023	0.000051	0.0762	16.1	0.00309	0.000005	0.000104	0.00328	0.0061	2.7	0.000185	8.71	0.00001	3.21	0.197	0.00001	0.0001	0.0003	0.000123	0.0005	0.0113
D	HLFUMV	07-12-21	0.0071	0.00267	0.0417	0.0236	0.00002	0.00005	0.01	3.41E-05	33.7	0.0005	0.00044	0.00053	0.036	0.000055	0.0749	15.7	0.00462	0.000005	0.000079	0.00318	0.0056	2.69	0.000223	8.51	0.00001	3.28	0.192	0.00001	0.0001	0.0003	0.000122	0.0005	0.0112
		RPD	12%	2%	0%	1%	0%	0%	0%	2%	2%	0%	71%	2%	44%	8%	2%	3%	40%	0%	27%	3%	9%	0%	19%	2%	0%	2%	3%	0%	0%	0%	1%	0%	1%
M	W99	11-12-21	0.032	0.00052	0.004	0.0443	0.00002	0.00005	0.01	0.000017	50.9	0.0005	0.00018	0.0005	0.111	0.000112	0.008	18.9	0.0694	0.000005	0.000201	0.00104	0.002	1.28	0.000201	4.6	0.00001	2.29	0.252	0.00001	0.0001	0.00148	0.00185	0.0005	0.003
D	W99	11-12-21	0.0326	0.00051	0.00386	0.0438	0.00002	0.00005	0.01	1.95E-05	49.6	0.0005	0.00018	0.0005	0.106	0.000114	0.0079	18.3	0.0684	0.000005	0.000217	0.00104	0.002	1.25	0.000216	4.61	0.00001	2.31	0.251	0.00001	0.0001	0.00133	0.00186	0.0005	0.003
		RPD	2%	2%	4%	1%	0%	0%	0%	14%	3%	0%	0%	0%	5%	2%	1%	3%	1%	0%	8%	0%	0%	2%	7%	0%	0%	1%	0%	0%	0%	11%	1%	0%	0%
M	W25	12-12-21	0.0095	0.00018	0.00053	0.0412	0.00002	0.00005	0.01	1.77E-05	39.6	0.0005	0.00026	0.0005	0.128	0.00005	0.0065	15	0.0765	0.000005	0.000067	0.00155	0.002	0.99	0.000212	4.21	0.00001	2.15	0.228	0.00001	0.0001	0.0003	0.00112	0.0005	0.0035
D	W25	12-12-21	0.0081	0.00018	0.00051	0.0412	0.00002	0.00005	0.01	1.78E-05	40.6	0.0005	0.00027	0.0005	0.13	0.00005	0.0066	15	0.0768	0.000005	0.000062	0.00157	0.002	0.994	0.000205	4.28	0.00001	2.16	0.226	0.00001	0.0001	0.0003	0.00114	0.0005	0.0035
		RPD	16%	0%	4%	0%	0%	0%	0%	1%	2%	0%	4%	0%	2%	0%	2%	0%	0%	0%	8%	1%	0%	0%	3%	2%	0%	0%	1%	0%	0%	0%	2%	0%	0%

Table 2-10:
Summary of Field Duplicate Results for Selected Dissolved Metal Parameters

Sample Type	Station ID	Sample Date	D-Al (mg/L)	D-Sb (mg/L)	D-As (mg/L)	D-Ba (mg/L)	D-Be (mg/L)	D-Bi (mg/L)	D-B (mg/L)	D-Cd (mg/L)	D-Ca (mg/L)	D-Cr (mg/L)	D-Co (mg/L)	D-Cu (mg/L)	D-Fe (mg/L)	D-Pb (mg/L)	D-Li (mg/L)	D-Mg (mg/L)	D-Mn (mg/L)	D-Hg (mg/L)	D-Mo (mg/L)	D-Ni (mg/L)	D-P (mg/L)	D-K (mg/L)	D-Se (mg/L)	D-Si (mg/L)	D-Ag (mg/L)	D-Na (mg/L)	D-Sr (mg/L)	D-Tl (mg/L)	D-Sn (mg/L)	D-Ti (mg/L)	D-U (mg/L)	D-V (mg/L)	D-Zn (mg/L)
-		MDL	0.001	0.0001	0.0001	0.0001	0.00002	0.00005	0.01	0.000005	0.05	0.0001	0.0001	0.0002	0.01	0.000074	0.001	0.1	0.0001	0.000005	0.00005	0.0005	0.05	0.1	0.00005	0.05	0.00001	0.05	0.0002	0.00001	0.0001	0.00001	0.00001	0.0005	0.001
M	W39 New	01-02-21	0.0021	0.00044	0.00276	0.0537	0.00002	0.00005	0.01	9.8E-06	61.1	0.0001	0.0001	0.00043	0.01	0.00005	0.0052	19.6	0.0152	0.000005	0.000403	0.00074	0.05	1.32	0.0004	4.55	0.00001	2.48	0.304	0.00001	0.0001	0.0003	0.0019	0.0005	0.0012
D	W39 New	01-02-21	0.0027	0.00044	0.00262	0.053	0.00002	0.00005	0.01	1.33E-05	58.6	0.0001	0.0001	0.00045	0.01	0.00005	0.0051	19	0.0139	0.000005	0.00041	0.00081	0.05	1.3	0.000437	4.45	0.00001	2.42	0.311	0.00001	0.0001	0.0003	0.00196	0.0005	0.0012
		RPD	25%	0%	5%	1%	0%	0%	0%	30%	4%	0%	0%	5%	0%	0%	2%	3%	9%	0%	2%	9%	0%	2%	9%	2%	0%	2%	2%	-	0%	0%	3%	0%	0%
M	HLF-UMV	05-02-21	0.0019	0.00276	0.0373	0.0232	0.00002	0.00005	0.01	3.72E-05	37.9	0.0001	0.0001	0.00049	0.011	0.00005	0.0786	16.7	0.00291	0.000005	0.000077	0.00353	0.05	2.54	0.000108	8.12	0.00001	3.11	0.206	0.00001	0.0001	0.0003	0.000085	0.0005	0.0121
D	HLF-UMV	05-02-21	0.0019	0.00278	0.0388	0.0234	0.00002	0.00005	0.01	3.44E-05	40	0.0001	0.0001	0.00062	0.015	0.00005	0.0798	17.1	0.00328	0.000005	0.000093	0.00352	0.05	2.6	0.000165	8.48	0.00001	3.34	0.213	0.00001	0.0001	0.0003	0.000092	0.0005	0.0119
		RPD	0%	1%	4%	1%	0%	0%	0%	8%	5%	0%	0%	23%	31%	0%	2%	2%	12%	0%	19%	0%	0%	2%	42%	4%	0%	7%	3%	-	0%	0%	8%	0%	2%
M	W23	05-03-21	0.0021	0.00043	0.00421	0.0568	0.00002	0.00005	0.01	0.000009	69.6	0.0001	0.0001	0.00038	0.01	0.00005	0.0052	18.9	0.0385	0.000005	0.000541	0.00083	0.05	1.52	0.000522	4.48	0.00001	2.49	0.316	0.00001	0.0001	0.0003	0.00184	0.0005	0.001
D	W23	05-03-21	0.0034	0.00044	0.00396	0.0593	0.00002	0.00005	0.01	1.63E-05	65.8	0.0001	0.0001	0.0004	0.012	0.00005	0.0052	17.5	0.0363	0.000005	0.000572	0.0008	0.05	1.49	0.00048	4.76	0.00001	2.39	0.295	0.00001	0.0001	0.0003	0.00183	0.0005	0.0019
		RPD	47%	2%	6%	4%	0%	0%	0%	58%	6%	0%	0%	5%	18%	0%	0%	8%	6%	0%	6%	4%	0%	2%	8%	6%	0%	4%	7%	-	0%	0%	1%	0%	62%
M	HLF-UMV	02-04-21	0.0018	0.00235	0.0334	0.0209	0.00002	0.00005	0.01	3.36E-05	33.6	0.0001	0.0001	0.00046	0.01	0.00005	0.0721	14.8	0.00171	0.000005	0.000122	0.00289	0.05	2.43	0.000224	8.02	0.00001	2.94	0.192	0.00001	0.0001	0.0003	0.000063	0.0005	0.011
D	HLF-UMV	02-04-21	0.0032	0.00239	0.0338	0.0213	0.00002	0.00005	0.01	3.08E-05	33.9	0.0001	0.0001	0.00048	0.01	0.00005	0.0749	14.9	0.00173	0.000005	0.000108	0.00297	0.05	2.53	0.000213	7.94	0.00001	3	0.197	0.00001	0.0001	0.0003	0.000064	0.0005	0.0114
		RPD	56%	2%	1%	2%	0%	0%	0%	9%	1%	0%	0%	4%	0%	0%	4%	1%	1%	0%	12%	3%	0%	4%	5%	1%	0%	2%	3%	-	0%	0%	2%	0%	4%
M	W99	01-05-21	0.0561	0.00075	0.00903	0.039	0.00002	0.000058	0.01	3.77E-05	36.8	0.0005	0.00041	0.00173	0.152	0.000266	0.006	14.2	0.0986	0.000005	0.000269	0.0024	0.05	1.6	0.000217	3.64	0.00001	1.88	0.176	0.00001	0.0001	0.00211	0.00128	0.0005	0.0035
D	W99	01-05-21	0.0487	0.00075	0.00892	0.039	0.00002	0.00005	0.01	4.12E-05	35.1	0.0005	0.00042	0.00176	0.148	0.000241	0.0057	14.8	0.102	0.000005	0.00028	0.00247	0.05	1.64	0.000203	3.57	0.00001	1.98	0.174	0.00001	0.0001	0.00132	0.00129	0.0005	0.0035
		RPD	14%	0%	1%	0%	0%	15%	0%	9%	5%	0%	2%	2%	3%	10%	5%	4%	3%	0%	4%	3%	0%	2%	7%	2%	0%	5%	1%	-	0%	46%	1%	0%	0%
M	W31	03-05-21	0.0553	0.00243	0.0224	0.0328	0.00002	0.00005	0.01	1.93E-05	14.8	0.0005	0.0001	0.00087	0.057	0.000074	0.0026	3.52	0.00173	0.000005	0.00204	0.00085	0.05	1.32	0.000229	4.82	0.00001	1.52	0.0737	0.00001	0.0001	0.00047	0.00048	0.0005	0.0019
D	W31	03-05-21	0.0547	0.00244	0.0218	0.0323	0.00002	0.00005	0.01	1.87E-05	14.6	0.0005	0.0001	0.00087	0.056	0.000079	0.0026	3.46	0.0015	0.000005	0.00201	0.00085	0.05	1.28	0.000234	4.77	0.00001	1.5	0.0726	0.00001	0.0001	0.0003	0.000494	0.0005	0.0019
		RPD	1%	0%	3%	2%	0%	0%	0%	3%	1%	0%	0%	0%	2%	7%	0%	2%	14%	0%	1%	0%	0%	3%	2%	1%	0%	1%	2%	-	0%	44%	3%	0%	0%
M	W23	08-05-21	0.172	0.00024	0.00342	0.0216	0.00002	0.00005	0.01	5.63E-05	12	0.0005	0.00027	0.00227	0.234	0.00014	0.0011	2.73	0.0393	8.8E-06	0.000212	0.00157	0.05	1.19	0.000124	1.57	0.00001	0.513	0.0523	0.00001	0.0001	0.0018	0.000199	0.0005	0.0054
D	W23	08-05-21	0.174	0.00024	0.00346	0.0212	0.000022	0.00005	0.01	4.66E-05	11.6	0.0005	0.00025	0.0022	0.237	0.000147	0.001	2.69	0.0386	0.000008	0.000202	0.00158	0.05	1.19	0.00011	1.59	0.00001	0.5	0.052	0.00001	0.0001	0.0018	0.000197	0.0005	0.0052
		RPD	1%	0%	1%	2%	10%	0%	0%	19%	3%	0%	8%	3%	1%	5%	10%	1%	2%	10%	5%	1%	0%	0%	12%	1%	0%	3%	1%	-	0%	0%	1%	0%	4%
M	LDSP-UND	10-05-21	0.167	0.00322	0.0244	0.0665	0.00002	0.00005	0.01	1.98E-05	51.1	0.0005	0.00012	0.00102	0.122	0.000591	0.0122	23.4	0.0103	0.000005	0.000887	0.00074	0.05	2.32	0.000586	5.03	0.00001	3.57	0.322	0.000014	0.0001	0.00545	0.00662	0.0005	0.0016
D	LDSP-UND	10-05-21	0.0034	0.00332	0.0191	0.0633	0.00002	0.00005	0.01	1.55E-05	51.3	0.0005	0.0001	0.00072	0.01	0.00005	0.0117	25.4	0.00599	0.000005	0.000994	0.00052	0.05	2.17	0.00054	4.7	0.00001	3.15	0.337	0.00001	0.0001	0.0003	0.00612	0.0005	0.0015
		RPD	192%	3%	24%	5%	0%	0%	0%	24%	0%	0%	18%	34%	170%	169%	4%	8%	53%	0%	11%	35%	0%	7%	8%	7%	0%	13%	5%	-	0%	179%	8%	0%	6%
M	W39 Old	19-06-21	0.0125	0.00055	0.0029	0.0482	0.00002	0.00005	0.01	1.19E-05	37	0.0005	0.0001	0.00089	0.034	0.000053	0.004	11.6	0.0106	0.000005	0.000404	0.00082	0.05	1.13	0.000241	3.73	0.00001	1.82	0.208	0.00001	0.0001	0.0003	0.00104	0.0005	0.001
D	W39 Old	19-06-21	0.0116	0.00053	0.00278	0.0491	0.00002	0.00005	0.01	9.9E-06	38.1	0.0005	0.0001	0.00092	0.033	0.00005	0.004	11.6	0.0107	0.000005	0.000389	0.00085	0.05	1.16	0.000282	3.68	0.00001	1.81	0.206	0.00001	0.0001	0.0003	0.00105	0.0005	0.001
		RPD	7%	4%	4%	2%	0%	0%	0%	18%	3%	0%	0%	3%	3%	6%	0%	0%	1%	0%	4%	4%	0%	3%	16%	1%	0%	1%	1%	-	0%	0%	1%	0%	0%
M	W49	10-07-21	0.0145	0.00052	0.0031	0.0532	0.00002	0.00005	0.01	8.1E-06	41.1	0.0005	0.0001	0.00081	0.04	0.00005	0.0041	13.4	0.0197	0.000005	0.000395	0.00051	0.05	1.15	0.000223	4.01	0.00001	1.92	0.217	0.00001	0.0001	0.0003	0.00116	0.0005	0.001
D	W49	10-07-21	0.0148	0.00054	0.00307	0.0528	0.00002	0.00005	0.01	1.27E-05	41	0.0005	0.0001	0.0008	0.038	0.00005	0.004	12.3	0.019	0.000005	0.000381	0.0005	0.05	1.09	0.0002	3.91	0.00001	1.82	0.222	0.00001	0.0001	0.0003	0.00122	0.0005	0.0011
		RPD	2%	4%	1%	1%	0%	0%	0%	44%	0%	0%	0%	1%	5%	0%	2%	9%	4%	0%	4%	2%	0%	5%	11%	3%	0%	5%	2%	-	0%	0%	5%	0%	10%
M	W1	12-07-21	0.0122	0.00095	0.0371	0.0377	0.00002	0.00005	0.01	0.000005	13.1	0.0005	0.0001	0.00029	0.01	0.00005	0.002	2.8	0.00032	0.000005	0.00188	0.0005	0.05	0.685	0.000143	5.94	0.00001	1.74	0.0728	0.00001	0.0001	0.0003	0.000426	0.0005	0.001
D	W1	12-07-21	0.0178	0.00098	0.038	0.0396	0.00002	0.00005	0.01	6.1E-06	12.8	0.0005	0.0001	0.0003	0.01	0.00005	0.002	2.85	0.0004	0.000005	0.00195	0.0005	0.05	0.733	0.000081	5.64	0.00001	1.82	0.0753	0.00001	0.0001	0.0003	0.000405	0.0005	0.0023
		RPD	37%	3%	2%	5%	0%	0%	0%	20%	2%	0%	0%	3%	0%	0%	0%	2%	22%	0%	4%	0%	0%	7%	55%	5%	0%	4%	3%	-	0%	0%	5%	0%	79%
M	LDSP	22-07-21	0.0147	0.00501	0.0248	0.0321	0.00002	0.00005	0.01	2.55E-05	38.7	0.0005	0.00021	0.00175	0.02	0.000062	0.015	13.5	0.00068	0.000005	0.00227	0.00156	0.05	3.23	0.000492	3.61	0.00001	3.14	0.232	0.00001	0.0001	0.0006	0.00355	0.0005	0.0013
M	W1	06-08-21	0.0113	0.00102	0.0397	0.0424	0.00002	0.00005	0.01	0.000005	14.5	0.0005	0.0001	0.00029	0.01	0.00005	0.0021	3.3	0.00036	0.000005	0.00197	0.0005	0.05	0.794	0.00012	5.98	0.00001	1.92	0.0816	0.00001	0.0001	0.0003	0.0005	0.0005	0.001
D	W1	06-08-21	0.0095	0.00101	0.039	0.0422	0.00002	0.00005	0.01	0.000005	13.9	0.0005	0.0001	0.00023	0.01	0.00005	0.0021	3.18	0.00034	0.000005	0.00194	0.0005	0.05	0.783	0.000098	5.98	0.00001	1.88	0.0816	0.00001	0.0001	0.0003	0.000508	0.0005	0.001
		RPD	17%	1%	2%	0%	0%	0%	0%	0%	4%	0%	0%	23%	0%	0%	0%	4%	6%	0%	2%	0%	0%	1%	20%	0%	0%	2%	0%	-	0%	0%	2%	0%	0%
M	PDI	11-08-21	0.0179	0.00471	0.121	0.0509	0.00002	0.00005	0.01	6.87E-05	82.9	0.0005	0.00046	0.00189	0.043	0.000083	0.009	21.6	0.174	0.000005	0.00302	0.00196	0.05	4.79	0.00127	5.08	0.00001	4.45	0.422	0.00001	0.0001	0.0003	0.00736	0.0005	0.001
D	PDI	11-08-21	0.0495	0.00482	0.114	0.0482	0.00002	0.00005	0.01	0.00006	82.9	0.0005	0.00045	0.00177	0.088	0.00013	0.009	20.3	0.164	0.000005	0.00307	0.00188	0.05	4.46	0.00128	5	0.00001	4.22	0.423	0.00001	0.0001	0.00415	0.00735	0.0005	0.0013
		RPD	94%	2%	6%	5%	0%	0%	0%	14%	0%	0%	2%	7%	69%	44%	0%	6%	6%	0%	2%	4%	0%	7%	1%	2%	0%	5%	0%	-	0%	173%	0%	0%	26%
M	W1	27-08-21	0.0147	0.00108	0.0407	0.0414	0.00002	0.00005	0.01	5.6E-06	14.3	0.0005	0.0001	0.00028	0.01	0.00005	0.002	2.92	0.00065	0.000005	0.00217	0.0005	0.05	0.773	0.000093	6.06	0.00001	1.81	0.0818	0.00001	0.0001	0.0003	0.000614	0.0005	0.001
D	W1	27-08-21	0.0146	0.00106	0.0412	0.0414	0.00002	0.00005	0.01	5.7E-06	14	0.0005	0.0001	0.00029	0.01	0.00005	0.002	2.94	0.00064	0.000005	0.00221	0.0005	0.05	0.77	0.000085	6.15	0.00001	1.82	0.0822	0.00001	0.0001	0.0003	0.000602	0.0005	0.001
		RPD	1%	2%	1%	0%	0%	0%	0%	2%	2%	0%	0%	4%	0%	0%	0%	1%	2%	0%	2%	0%	0%	0%	9%	1%	0%	1%	0%	-	0%	0%	2%	0%	0%
M	W8	01-09-21	0.0236	0.00102	0.0421	0.0411	0.00002	0.00005	0.01	6.4E-06	13.6	0.0005	0.0001	0.00028	0.032	0.000051	0.0018	2.73	0.00152	0.000005	0.00206	0.0005	0.05	0.753	0.000103	5.56	0.00001	1.84	0.0753	0.00001	0.0001	0.00161	0.000609	0.0005	0.001
D	W8	01-09-21	0.0096	0.001	0.042	0.0398	0.00002	0.00005	0.01	5.5E-06	13.4	0.0005	0.0001	0.00021	0.01	0.00005	0.0018	2.71	0.00067	0.000005	0.00212	0.0005	0.05	0.756	0.000087	5.57	0.00001	1.88	0.0771	0.00001	0.0001	0.0003	0.0006	0.0005	0.0011
		RPD	84%	2%	0%	3%	0%	0%	0%	15%	1%	0%	0%	29%	105%	2%	0%	1%	78%	0%	3%	0%	0%	0%	17%	0%	0%	2%	2%	-	0%	137%	1%	0%	10%
M	W23	01-09-21	0.0123	0.00044	0.00523	0.0431	0.00002	0.00005	0.01	9.5E-06	41.4	0.0005	0.0001	0.00074	0.054	0.00005	0.0034	10.9	0.031	0.000005	0.000522	0.00092	0.05	1.13	0.000218	4.01	0.00001	1.91	0.192	0.00001	0.0001	0.0003	0.000911	0.0005	0.001
D	W23	01-09-21	0.0131	0.00044	0.00526	0.0447	0.00002	0.00005	0.01	1.03E-05	41.6	0.0005	0.0001	0.00077	0.06	0.00005	0.0034	11	0.0315	0.000005	0.000514	0.00094	0.05	1.15	0.000272	4.16	0.00001	1.98	0.196	0.00001	0.0001	0.0003	0.000913	0.0005	0.0014
		RPD	6%	0%	1%	4%	0%	0%	0%	8%	0%	0%	0%	4%	11%	0%	0%	1%	2%	0%	2%	2%	0%	2%	22%	4%	0%	4%	2%	-	0%	0%	0%	0%	33%
M	W29	01-09-21	0.013	0.0004	0.00494	0.0358	0.00002	0.00005	0.01	1.14E-05	32.4	0.0005	0.00012	0.00053	0.05	0.00005	0.0046	11.5	0.0421	0.000005	0.000295	0.00098	0.05	0.926	0.000126	3.93	0.00001	1.71	0.168	0.00001	0.0001	0.0003	0.00089	0.0005	0.0014
D	W29	01-09-21	0.012	0.00041	0.00479	0.0354	0.00002	0.00005	0.01	1.25E-05	34	0.0005	0.00013	0.00052	0.045	0.00005	0.0046	11.7	0.0402	0.000005	0.000303	0.00098	0.05	0.916	0.000143	3.75	0.00001	1.6	0.17	0.00001	0.0001	0.0003	0.000873	0.0005	0.0014
		RPD	8%	2%	3%	1%	0%	0%	0%	9%	5%	0%	8%	2%	11%	0%	0%	2%	5%	0%	3%	0%	0%	1%	13%	5%	0%	7%	1%	-	0%	0%	2%	0%	0%

Table 2-11 (Con't):
Summary of Field Duplicate Results for Selected Dissolved Metal Parameters

Sample Type	Station ID	Sample Date	D-Al (mg/L)	D-Sb (mg/L)	D-As (mg/L)	D-Ba (mg/L)	D-Be (mg/L)	D-Bi (mg/L)	D-B (mg/L)	D-Cd (mg/L)	D-Ca (mg/L)	D-Cr (mg/L)	D-Co (mg/L)	D-Cu (mg/L)	D-Fe (mg/L)	D-Pb (mg/L)	D-Li (mg/L)	D-Mg (mg/L)	D-Mn (mg/L)	D-Hg (mg/L)	D-Mo (mg/L)	D-Ni (mg/L)	D-P (mg/L)	D-K (mg/L)	D-Se (mg/L)	D-Si (mg/L)	D-Ag (mg/L)	D-Na (mg/L)	D-Sr (mg/L)	D-Tl (mg/L)	D-Sn (mg/L)	D-Ti (mg/L)	D-U (mg/L)	D-V (mg/L)	D-Zn (mg/L)
-		MDL	0.001	0.0001	0.0001	0.0001	0.00002	0.00005	0.01	0.000005	0.05	0.0001	0.0001	0.0002	0.01	0.000074	0.001	0.1	0.0001	0.000005	0.00005	0.0005	0.05	0.1	0.00005	0.05	0.00001	0.05	0.0002	0.00001	0.0001	0.00001	0.00001	0.0005	0.001
M	W27	02-09-21	0.0022	0.00455	0.0323	0.0853	0.00002	0.00005	0.01	1.24E-05	48.6	0.0005	0.0001	0.0008	0.01	0.00005	0.0123	28.6	0.00397	0.000005	0.00112	0.00063	0.05	2.61	0.000441	5.43	0.00001	3.76	0.359	0.00001	0.0001	0.0003	0.0075	0.0005	0.0019
D	W27	02-09-21	0.0015	0.00454	0.0316	0.0837	0.00002	0.00005	0.01	0.00001	46.8	0.0005	0.0001	0.00078	0.01	0.00005	0.012	28.3	0.00376	0.000005	0.00112	0.00065	0.05	2.56	0.000357	5.31	0.00001	3.82	0.354	0.00001	0.0001	0.0003	0.00736	0.0005	0.0023
		RPD	38%	0%	2%	2%	0%	0%	0%	21%	4%	0%	0%	3%	0%	0%	2%	1%	5%	0%	0%	3%	0%	2%	21%	2%	0%	2%	1%	-	0%	0%	2%	0%	19%
M	W20	03-09-21	0.0095	0.00081	0.0703	0.0342	0.00002	0.00005	0.01	0.000005	11.1	0.0005	0.0001	0.0002	0.01	0.00005	0.0015	1.92	0.00196	0.000005	0.0012	0.0005	0.05	0.601	0.000051	5.92	0.00001	2.08	0.0658	0.00001	0.0001	0.0003	0.000658	0.0005	0.001
D	W20	03-09-21	0.0088	0.00068	0.0698	0.0315	0.00002	0.00005	0.01	0.000005	9.95	0.0005	0.0001	0.0002	0.01	0.00005	0.0015	1.7	0.00135	0.000005	0.00101	0.0005	0.05	0.559	0.00007	6.09	0.00001	1.96	0.06	0.00001	0.0001	0.0003	0.000487	0.0005	0.001
		RPD	8%	17%	1%	8%	0%	0%	0%	0%	11%	0%	0%	0%	0%	0%	0%	12%	37%	0%	17%	0%	0%	7%	31%	3%	0%	6%	9%	-	0%	0%	30%	0%	0%
M	W22	05-09-21	0.0128	0.0002	0.00062	0.0329	0.00002	0.00005	0.01	1.33E-05	32.2	0.0005	0.00014	0.00049	0.058	0.00005	0.0043	10.8	0.0417	0.000005	0.000082	0.00094	0.05	0.8	0.000153	3.31	0.00001	1.45	0.17	0.00001	0.0001	0.0003	0.000623	0.0005	0.0015
D	W22	05-09-21	0.0136	0.00021	0.00067	0.0368	0.00002	0.00005	0.01	0.000005	32.4	0.0005	0.00016	0.00051	0.054	0.00005	0.0044	11.8	0.0469	0.000005	0.000081	0.00108	0.05	0.9	0.000144	3.37	0.00001	1.6	0.175	0.00001	0.0001	0.0003	0.000622	0.0005	0.0016
		RPD	6%	5%	8%	11%	0%	0%	0%	91%	1%	0%	13%	4%	7%	0%	2%	9%	12%	0%	1%	14%	0%	12%	6%	2%	0%	10%	3%	-	0%	0%	0%	0%	6%
M	W25	05-09-21	0.0123	0.00021	0.00064	0.0334	0.00002	0.00005	0.01	9.5E-06	31.4	0.0005	0.00014	0.00046	0.057	0.00005	0.0043	10.8	0.0416	0.000005	0.00009	0.00099	0.05	0.826	0.000137	3.4	0.00001	1.47	0.173	0.00001	0.0001	0.0003	0.000629	0.0005	0.0014
D	W25	05-09-21	0.024	0.00021	0.00085	0.0357	0.00002	0.00005	0.01	7.2E-06	32.1	0.0005	0.00018	0.00054	0.078	0.000066	0.0044	11	0.0443	0.000005	0.00007	0.00104	0.05	0.859	0.000143	3.41	0.00001	1.52	0.173	0.00001	0.0001	0.001	0.000627	0.0005	0.0015
		RPD	64%	0%	28%	7%	0%	0%	0%	28%	2%	0%	25%	16%	31%	28%	2%	2%	6%	0%	25%	5%	0%	4%	4%	0%	0%	3%	0%	-	0%	108%	0%	0%	7%
M	W9	10-09-21	0.0036	0.00092	0.0172	0.0768	0.00002	0.00005	0.01	1.77E-05	43.4	0.0005	0.00021	0.00052	0.01	0.00005	0.0104	28.6	0.00074	0.000005	0.0008	0.0005	0.05	1.58	0.000776	4.33	0.00001	3.27	0.344	0.00001	0.0001	0.0003	0.00749	0.0005	0.001
D	W9	10-09-21	0.0022	0.00091	0.0181	0.0812	0.00002	0.00005	0.01	1.84E-05	41.8	0.0005	0.00021	0.00054	0.01	0.00005	0.0103	30.1	0.00074	0.000005	0.000813	0.0005	0.05	1.64	0.000774	4.32	0.00001	3.4	0.344	0.00001	0.0001	0.0003	0.00731	0.0005	0.001
		RPD	48%	1%	5%	6%	0%	0%	0%	4%	4%	0%	0%	4%	0%	0%	1%	5%	0%	0%	2%	0%	0%	4%	0%	0%	0%	4%	0%	-	0%	0%	2%	0%	0%
M	W45	02-10-21	0.0018	0.00108	0.0121	0.0422	0.00002	0.00005	0.01	1.38E-05	83.6	0.0005	0.0001	0.00034	0.01	0.00005	0.0087	19.7	0.0988	0.000005	0.000558	0.00056	0.05	2.32	0.00118	3.76	0.00001	4.51	0.466	0.00001	0.0001	0.0003	0.00342	0.0005	0.001
D	W45	02-10-21	0.0022	0.00107	0.0132	0.0461	0.00002	0.00005	0.01	1.59E-05	86.1	0.0005	0.00011	0.00038	0.011	0.00005	0.0089	21.2	0.105	0.000005	0.00058	0.00062	0.05	2.48	0.00116	3.99	0.00001	4.9	0.458	0.00001	0.0001	0.0003	0.00356	0.0005	0.001
		RPD	20%	1%	9%	9%	0%	0%	0%	14%	3%	0%	10%	11%	10%	0%	2%	7%	6%	0%	4%	10%	0%	7%	2%	6%	0%	8%	2%	-	0%	0%	4%	0%	0%
M	W5	03-10-21	0.0341	0.00049	0.004	0.0364	0.00002	0.00005	0.01	1.54E-05	41.8	0.0005	0.00022	0.00076	0.044	0.00005	0.0058	14.2	0.0759	0.000005	0.00023	0.00135	0.05	1.03	0.000168	4.18	0.00001	1.81	0.212	0.00001	0.0001	0.0003	0.0012	0.0005	0.001
D	W5	03-10-21	0.0134	0.00049	0.00379	0.0337	0.00002	0.00005	0.01	1.19E-05	38.8	0.0005	0.00019	0.00074	0.042	0.00005	0.0055	13.4	0.0732	0.000005	0.000242	0.00132	0.05	0.99	0.000146	4	0.00001	1.75	0.211	0.00001	0.0001	0.0003	0.00115	0.0005	0.0011
		RPD	87%	0%	5%	8%	0%	0%	0%	26%	7%	0%	15%	3%	5%	0%	5%	6%	4%	0%	5%	2%	0%	4%	14%	4%	0%	3%	0%	-	0%	0%	4%	0%	10%
M	W21	04-10-21	0.0044	0.00102	0.0335	0.0514	0.00002	0.00005	0.01	7.8E-06	21.2	0.0005	0.0001	0.00027	0.014	0.00005	0.0046	6.13	0.00634	0.000005	0.00184	0.0005	0.05	0.94	0.000133	5.9	0.00001	1.87	0.131	0.00001	0.0001	0.0003	0.00112	0.0005	0.001
D	W21	04-10-21	0.0057	0.00104	0.033	0.0528	0.00002	0.00005	0.01	8.7E-06	21.4	0.0005	0.0001	0.00028	0.015	0.00005	0.0046	6.15	0.00636	0.000005	0.00189	0.0005	0.05	0.952	0.000101	5.86	0.00001	1.87	0.131	0.00001	0.0001	0.0003	0.00112	0.0005	0.001
		RPD	26%	2%	2%	3%	0%	0%	0%	11%	1%	0%	0%	4%	7%	0%	0%	0%	0%	0%	3%	0%	0%	1%	27%	1%	0%	0%	0%	-	0%	0%	0%	0%	0%
M	ISH	05-10-21	0.0011	0.00555	0.0428	0.12	0.00002	0.00005	0.01	2.17E-05	52.4	0.0005	0.0001	0.00105	0.01	0.00005	0.0134	31.4	0.00051	0.000005	0.00101	0.00107	0.05	2.4	0.000439	5.92	0.00001	3.83	0.36	0.00001	0.0001	0.0003	0.00867	0.0005	0.0013
D	ISH	05-10-21	0.001	0.00558	0.0425	0.118	0.00002	0.00005	0.01	2.52E-05	52.7	0.0005	0.00011	0.00105	0.01	0.00005	0.0132	31.6	0.00054	0.000005	0.00103	0.00111	0.05	2.42	0.000512	5.88	0.00001	3.84	0.365	0.00001	0.0001	0.0003	0.00853	0.0005	0.0013
		RPD	10%	1%	1%	2%	0%	0%	0%	15%	1%	0%	10%	0%	0%	0%	2%	1%	6%	0%	2%	4%	0%	1%	15%	1%	0%	0%	1%	-	0%	0%	2%	0%	0%
M	W20	06-10-21	0.0067	0.00064	0.0686	0.0291	0.00002	0.00005	0.01	0.000005	9.85	0.0005	0.0001	0.0002	0.01	0.00005	0.0017	1.65	0.0007	0.000005	0.00104	0.0005	0.05	0.504	0.000117	6.22	0.00001	1.86	0.0604	0.00001	0.0001	0.0003	0.000429	0.0005	0.001
D	W20	06-10-21	0.0067	0.00067	0.0692	0.0303	0.00002	0.00005	0.01	0.000005	10.1	0.0005	0.0001	0.0002	0.01	0.00005	0.0016	1.72	0.00093	0.000005	0.00112	0.0005	0.05	0.511	0.000074	6.25	0.00001	1.89	0.0611	0.00001	0.0001	0.0003	0.00048	0.0005	0.001
		RPD	0%	5%	1%	4%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	6%	4%	28%	0%	7%	0%	0%	1%	45%	0%	0%	2%	1%	-	0%	0%	11%	0%	0%
M	MW96-10I	10-10-21	0.0037	0.00068	0.332	0.00128	0.00002	0.00005	0.01	0.000005	8.57	0.0005	0.0001	0.00314	0.01	0.000069	0.004	1.78	0.0179	0.000005	0.00177	0.00062	0.05	0.611	0.000355	8.2	0.00001	2.67	0.0344	0.00001	0.00021	0.0003	0.000374	0.0005	0.004
D	MW96-10I	10-10-21	0.0037	0.00071	0.341	0.00131	0.00002	0.00005	0.01	0.000005	8.8	0.0005	0.0001	0.00318	0.01	0.000071	0.0041	1.82	0.0183	0.000005	0.00186	0.00067	0.05	0.626	0.00033	8.51	0.00001	2.75	0.0353	0.00001	0.0001	0.0003	0.000383	0.0005	0.0041
		RPD	0%	4%	3%	2%	0%	0%	0%	0%	3%	0%	0%	1%	0%	3%	2%	2%	2%	0%	5%	8%	0%	2%	7%	4%	0%	3%	3%	-	71%	0%	2%	0%	2%
M	MW96-3	11-10-21	0.001	0.00171	0.0436	0.0248	0.00002	0.00005	0.01	0.000005	45.6	0.0005	0.0001	0.00293	0.01	0.000071	0.0046	6.67	0.00134	0.000005	0.00163	0.0005	0.05	1.31	0.000794	7.72	0.00001	3.28	0.169	0.00001	0.0001	0.0003	0.032	0.0005	0.0019
D	MW96-3	11-10-21	0.001	0.00183	0.0442	0.0258	0.00002	0.00005	0.01	0.000005	48.3	0.0005	0.0001	0.0002	0.01	0.00005	0.0047	6.75	0.00129	0.000005	0.00169	0.0005	0.05	1.34	0.000936	7.84	0.00001	3.34	0.179	0.00001	0.0001	0.0003	0.035	0.0005	0.001
		RPD	0%	7%	1%	4%	0%	0%	0%	0%	6%	0%	0%	174%	0%	35%	2%	1%	4%	0%	4%	0%	0%	2%	16%	2%	0%	2%	6%	-	0%	0%	9%	0%	62%
M	W25	07-11-21	0.0038	0.00018	0.00055	0.041	0.00002	0.00005	0.01	9.7E-06	40.6	0.0005	0.00015	0.00034	0.018	0.00005	0.0063	16.4	0.0475	0.000005	0.000057	0.00121	0.05	1.08	0.000167	3.95	0.00001	2.21	0.214	0.00001	0.0001	0.0003	0.000933	0.0005	0.0017
D	W25	07-11-21	0.0038	0.00018	0.00056	0.0407	0.00002	0.00005	0.01	1.08E-05	40.1	0.0005	0.00015	0.00035	0.018	0.00005	0.0062	15.8	0.0462	0.000005	0.000059	0.00122	0.05	1.06	0.000208	3.92	0.00001	2.11	0.217	0.00001	0.0001	0.0003	0.000906	0.0005	0.004
		RPD	0%	0%	2%	1%	0%	0%	0%	11%	1%	0%	0%	3%	0%	0%	2%	4%	3%	0%	3%	1%	0%	2%	22%	1%	0%	5%	1%	-	0%	0%	3%	0%	81%
M	HLFUMV	08-11-21	0.0039	0.00288	0.0391	0.0243	0.00002	0.00005	0.01	4.42E-05	36.9	0.0005	0.0001	0.00067	0.01	0.00005	0.0836	17.5	0.00265	0.000005	0.000074	0.00362	0.05	2.82	0.000227	8.93	0.00001	3.51	0.218	0.00001	0.0001	0.0003	0.000166	0.0005	0.0155
D	HLFUMV	08-11-21	0.0049	0.00294	0.0397	0.0237	0.00002	0.00005	0.01	4.13E-05	35.5	0.0005	0.0001	0.0006	0.01	0.00005	0.08	16.6	0.00259	0.000005	0.000085	0.00354	0.05	2.72	0.000226	8.64	0.00001	3.36	0.217	0.00001	0.0001	0.0003	0.000166	0.0005	0.0141
		RPD	23%	2%	2%	3%	0%	0%	0%	7%	4%	0%	0%	11%	0%	0%	4%	5%	2%	0%	14%	2%	0%	4%	0%	3%	0%	4%	0%	-	0%	0%	0%	0%	9%
M	W26	09-11-21	0.0039	0.00089	0.0235	0.0608	0.00002	0.00005	0.01	8.1E-06	36.3	0.0005	0.0001	0.00038	0.01	0.00005	0.0053	16	0.00012	0.000005	0.00309	0.0005	0.05	1.13	0.000432	5.71	0.00001	1.88	0.287	0.00001	0.0001	0.0003	0.00514	0.0005	0.001
D	W26	09-11-21	0.0042	0.00099	0.0258	0.0647	0.00002	0.00005	0.01	9.9E-06	39	0.0005	0.0001	0.0004	0.01	0.00005	0.0057	17.4	0.00013	0.000005	0.00344	0.0005	0.05	1.24	0.000356	6.02	0.00001	2.38	0.314	0.00001	0.0001	0.0003	0.00558	0.0005	0.001
		RPD	7%	11%	9%	6%	0%	0%	0%	20%	7%	0%	0%	5%	0%	0%	7%	8%	8%	0%	11%	0%	0%	9%	19%	5%	0%	23%	9%	-	0%	0%	8%	0%	0%
M	W1	12-11-21	0.004	0.00099	0.0341	0.0438	0.00002	0.00005	0.01	0.000005	16.5	0.0005	0.0001	0.0002	0.01	0.00005	0.0025	3.6	0.00013	0.000005	0.00194	0.0005	0.05	0.768	0.00014	5.94	0.00001	1.74	0.089	0.00001	0.0001	0.0003	0.000566	0.0005	0.001
D	W1	12-11-21	0.0058	0.00099	0.0344	0.0437	0.00002	0.00005	0.01	5.8E-06	16.5	0.0005	0.0001	0.00023	0.01	0.00005	0.0025	3.62	0.00042	0.000005	0.00187	0.0005	0.05	0.775	0.000142	6.05	0.00001	1.74	0.0915	0.00001	0.0001	0.0003	0.000558	0.0005	0.001
		RPD	37%	0%	1%	0%	0%	0%	0%	15%	0%	0%	0%	14%	0%	0%	0%	1%	105%	0%	4%	0%	0%	1%	1%	2%	0%	0%	3%	-	0%	0%	1%	0%	0%
M	W4-Mix	14-11-21	0.0038	0.00125	0.0136	0.0382	0.00002	0.00005	0.01	0.000011	39.5	0.0005	0.00025	0.00046	0.01	0.00005	0.0081	16.1	0.0277	0.000005	0.000688	0.00104	0.05	1.58	0.000311	4.27	0.00001	2.36	0.222	0.00001	0.0001	0.0003	0.00248	0.0005	0.0013
D	W4-Mix	14-11-21	0.0039	0.00129	0.0138	0.0376	0.00002	0.00005	0.01	1.11E-05	39.7	0.0005	0.00025	0.00046	0.01	0.00005	0.008	16	0.0273	0.000005	0.000685	0.00104	0.05	1.56	0.000329	4.26	0.00001	2.33	0.226	0.00001	0.0001	0.0003	0.00243	0.0005	0.0024
		RPD	3%	3%	1%	2%	0%	0%	0%	1%	1%	0%	0%	0%	0%	0%	1%	1%	1%	0%	0%	0%	0%	1%	6%	0%	0%	1%	2%	-	0%	0%	2%	0%	59%
M	W21	03-12-21	0.0028	0.00111	0.0291	0.0544	0.00002	0.00005	0.01	8.8E-06	24.2	0.0005	0.0001	0.00025	0.021	0.00005	0.0068	8.07	0.00966	0.000005	0.00153	0.0006	0.05	1.16	0.000216	6.54	0.00001	2.21	0.147	0.00001	0.0001	0.0003	0.000902	0.0005	0.0012
D	W21	03-12-21	0.003	0.00109	0.0271	0.0523	0.00002	0.00005	0.01	8.2E-06	23.6	0.0005	0.0001	0.00024	0.02	0.00005	0.0063	7.29	0.00882	0.000005	0.00148	0.00053	0.05	1.03	0.000184	6.2	0.00001	1.82	0.128	0.00001	0.0001	0.0003	0.000913	0.0005	0.001
		RPD	7%	2%	7%	4%	0%	0%	0%	7%	3%	0%	0%	4%	5%	0%	8%	10%	9%	0%	3%	12%	0%	12%	16%	5%	0%	19%	14%	-	0%	0%	1%	0%	18%
M	HLFUMV	07-12-21	0.0021	0.00252	0.0357	0.0204	0.00002	0.00005	0.01	3.17E-05	32.6	0.0005	0.00031	0.00044	0.01	0.00005	0.0731	13.6	0.00255	0.000005	0.000076	0.00282	0.05	2.35	0.000208	7.89	0.00001	2.88	0.185	0.00001	0.0001	0.0003	0.000119	0.0005	0.0102
D	HLFUMV	07-12-21	0.0018	0.00257	0.036	0.0208	0.00002	0.00005	0.01	3.22E-05	32.3	0.0005	0.00039	0.00046	0.01	0.00005	0.0722	13.8	0.00301	0.000005	0.00007	0.00288	0.05	2.38	0.000231	7.93	0.00001	2.96	0.188	0.00001	0.0001	0.0003	0.000109	0.0005	0.0099
		RPD	15%	2%	1%	2%	0%	0%	0%	2%	1%	0%	23%	4%	0%	0%	1%	1%	17%	0%	8%	2%	0%	1%	10%	1%	0%	3%	2%	-	0%	0%	9%	0%	3%
M	W99	11-12-21	0.0027	0.00048	0.00312	0.0439	0.00002	0.00005	0.01	1.66E-05	49	0.0005	0.00014	0.00032	0.018	0.00005	0.0073	20.8	0.066	0.000005	0.000197	0.00106	0.05	1.3	0.000196	4.35	0.00001	2.38	0.253	0.00001	0.0001	0.0003	0.00171	0.0005	0.0022
D	W99	11-12-21	0.0029	0.00047	0.00299	0.0445	0.00002	0.00005	0.01	1.54E-05	49.3	0.0005	0.00015	0.00035	0.019	0.00005	0.0074	20.2	0.0663	0.000005	0.000192	0.00107	0.05	1.3	0.00016	4.41	0.00001	2.41	0.251	0.00001	0.0001	0.0003	0.00174	0.0005	0.002
		RPD	7%	2%	4%	1%	0%	0%	0%	7%	1%	0%	7%	9%	5%	0%	1%	3%	0%	0%	3%	1%	0%	0%	20%	1%	0%	1%	1%	-	0%	0%	2%	0%	10%
M	W25	12-12-21	0.0028	0.00017	0.00043	0.0405	0.00002	0.00005	0.01	1.75E-05	41.9	0.0005	0.00024	0.00024	0.024	0.00005	0.007	16	0.0741	0.000005	0.000065	0.00151	0.05	0.997	0.000163	3.84	0.00001	2.08	0.228	0.00001	0.0001	0.0003	0.001	0.0005	0.003
D	W25	12-12-21	0.0033	0.00017	0.00046	0.04	0.00002	0.00005	0.01	1.43E-05	43.2	0.0005	0.00024	0.00022	0.023	0.00005	0.0071	16	0.0738	0.000005	0.000078	0.00152	0.05	0.981	0.000181	3.93	0.00001	2.16	0.227	0.00001	0.0001	0.0003	0.00101	0.0005	0.0031
		RPD	16%	0%	7%	1%	0%	0%	0%	20%	3%	0%	0%	9%	4%	0%	1%	0%	0%	0%	18%	1%	0%	2%	10%	2%	0%	4%	0%	-	0%	0%	1%	0%	3%

3. Water Quality Results

The following sections focus on surface water quality monitoring results for key mine site stations associated with the Lower Dublin South Pond, mine-site internal water transfers, compliance monitoring sites as well as receiving environment locations in Haggart Creek where QZ14-041-1 water quality objectives (WQO) are established at W4, W29, W99 and W23. Where relevant to the interpretation of monitoring results, background Haggart Creek data at W22 and Dublin Gulch at stations W1 and W21 are discussed to provide to context to observed results in Haggart Creek at those stations with WQO.

3.1 Mine Site Monitoring Results

Results of water quality monitoring in 2021 at mine site stations associated with the Lower Dublin South Pond, compliance monitoring of the HLFUMV and LDSP-UND, and discharge water quality at the LDSP weir are provided below.

3.1.1 Lower Dublin South Pond

In addition to the discharge compliance locations, routine surface water quality monitoring of the Lower Dublin South Pond (LDSP) occurred in 2021 to inform on-site water management as well as ensure project discharges to the receiving environment, when necessary, remain in compliance with effluent quality standards (EQS) specified in QZ14-041-1. Water management at the Project also includes intermittent pumping of Lower Dublin South Pond water to the Events Pond or directly to the heap pad for make-up water requirements, and to increase available storage within the Lower Dublin South Pond. Pumping of Lower Dublin South Pond water to the Events Pond also provides for additional settling of suspended solids within the Events Pond to improve water quality prior to discharge when necessary.

Monitoring points within the Lower Dublin South Pond are sampled and analyzed on a regular internal sampling schedule to inform operational water management and discharge decisions. Monitoring stations sampled in 2021 within the Lower Dublin South Pond are illustrated in Figure 3-1 and include:

- LDSPI – Inflow to Lower Dublin South Pond (listed as a WUL internal water transfer site); and
- LDSPs – Along shore of Lower Dublin South Pond (a VGC internal site sampled to inform water management decisions).



Figure 3-1: Lower Dublin South Pond Sampling Locations

Water quality entering, and within the Lower Dublin South Pond was measured monthly in 2021 for station LDSPI and periodically at LDSPs for full suite analyses. LDSPI represents a combined sample of all ditch inflows into the Lower Dublin South Pond forebay prior to settling within the pond. LDSPs is representative of Lower Dublin South Pond water after major settling has occurred; the sample is collected along the western shore of the pond adjacent to pumping or outlet structures (Figure 3-1). The figure also shows the two other important sampling locations associated with the LDSP, which are discussed below in Sections 3.1.2 and 3.1.3. LDSP-UND represents groundwater seepage collected from the pond underdrains, and LDSP represents a sample collected from the weir outflow during a discharge.

Table 3-1 summarizes the number of full analytical suite sampling events for LDSPI and LDSPs, by month, for 2021. In 2021, a total of 15 LDSPI and 4 LDSPs full suite sampling events occurred.

Table 3-1:
Number of Full Suite Analytical Sampling Events for LDSPI and LDSPs by Month in 2021

Month	LDSPI	LDSPs
January	1	0
February	1	0
March	1	0
April	2	0
May	2	1
June	1	1
July	2	0
August	1	0
September	1	0
October	1	1
November	1	1
December	1	0
Total	***15***	***4***

Table 3-2 and Table 3-3 provide results of water quality sampling for LDSPI and LDSPs for key parameters for 2021. As indicated above, LDSPI and LDSPs sampling locations characterize water chemistry in the Lower Dublin South Pond; however, these are pre-discharge sampling locations and direct comparison to EQS in the tables is only for the purposes of providing context to the results. In 2021, all parameters analyzed for LDSPI and LDSPs were present at concentrations well below QZ14-041-1 EQS with the exceptions of TSS, total As and total Fe (Table 3-2 and Table 3-3).

Table 3-2:
Mean Monthly Water Quality Measured at LDSPI 2021

Parameter	QZ14-041-1 EQS	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec
pH	***6.5 - 8***	8.22	8.3	8.22	8.37	7.83	8.44	8.395	8.29	8.43	8.09	8.13	8.25
TSS	***15***	<3	<3	<2	17	238	12	53	11	7	16	11	<3
SO_4	***1850***	163	178	194	166.5	40.7	101	117	97.1	77.2	67.8	88.1	91.2
Cl	***250***	3.97	3.53	3.92	9.285	2.085	2.8	29.9	34.2	6.99	8.97	3.1	2.77
NO_3-N	***19.5***	0.453	0.506	0.534	0.696	0.199	0.052	0.192	0.4	0.794	0.977	0.918	0.798
NO_2-N	***0.12***	0.0054	0.0024	<0.005	0.02025	0.0039	0.0016	0.00395	0.0106	0.0077	0.0252	0.0101	0.0047
NH_3-N	***7.5***	0.0532	0.103	0.0713	0.081	0.03365	0.0058	0.0064	0.0231	0.005	0.0056	0.005	0.0223
CN_{WAD}	***0.03***	<0.005	<0.005	<0.005	<0.005	<0.005	-	<0.005	-	-	-	<0.005	-
Diss- Al	***0.4***	0.0062	0.0057	0.0049	0.0117	0.04445	0.0112	0.0148	0.0165	0.0317	0.0089	0.0036	0.0026
T-Sb	***0.13***	0.00645	0.00646	0.00678	0.008105	0.01395	0.00681	0.00764	0.00763	0.00482	0.00548	0.00415	0.00511
T-As	***0.053***	0.0565	0.0541	0.0583	0.066	0.5345	0.0507	0.1055	0.0799	0.0765	0.0821	0.0863	0.0959
T-Cd	***0.00125***	0.000058	0.000060	0.000069	0.000082	0.000757	0.000054	0.000153	0.000069	0.000053	0.000066	0.000059	0.000031
T-Co	***0.026***	0.00064	0.00049	0.00038	0.000945	0.01196	0.00079	0.00161	0.00075	0.00102	0.00124	0.00085	0.00048
T-Cu	***0.026***	0.0037	0.00391	0.0027	0.003645	0.04325	0.0035	0.008925	0.00269	0.00226	0.0039	0.00216	0.00118
T-Fe	***6.4***	0.089	0.072	0.113	0.9745	22.69	0.709	2.12	0.659	0.589	1.6	0.546	0.156
T-Pb	***0.05***	0.000188	0.000153	0.000562	0.003940	0.086450	0.002290	0.007275	0.002900	0.002320	0.003920	0.002240	0.000607
T-Mn	***7.7***	0.221	0.182	0.194	0.175	0.453	0.137	0.122	0.065	0.181	0.114	0.122	0.0725
T-Hg	***0.00008***	<0.000005	<0.000005	<0.000005	<0.000005	0.000096	0.0000054	0.000011	0.0000056	<0.000005	0.0000055	<0.000005	<0.000005
T-Mo	***0.45***	0.0028	0.00293	0.00295	0.00429	0.00193	0.00324	0.00308	0.00419	0.00237	0.00216	0.0015	0.00144
T-Ni	***0.5***	0.00221	0.00187	0.00264	0.003305	0.0271	0.00237	0.004475	0.00181	0.00169	0.00287	0.00245	0.00124
T-Se	***0.025***	0.000792	0.000848	0.000888	0.00086	0.000595	0.000679	0.000741	0.000802	0.000826	0.000878	0.000742	0.000804
T-Ag	***0.01***	<0.00001	<0.00001	<0.00001	0.000038	0.000526	0.000016	0.000194	0.000016	0.000015	0.000033	<0.00002	<0.00001
T-U	***0.09***	0.00962	0.0106	0.0116	0.01135	0.00569	0.00695	0.00926	0.00884	0.00858	0.00732	0.0083	0.00884
T-Zn	***0.23***	0.0033	0.0034	0.0047	0.00955	0.11915	0.0035	0.0135	0.0051	0.004	0.0074	<0.006	<0.003

Table 3-3:
Monthly Water Quality Measured at LDSPs 2021

Parameter	QZ14-041-1 EQS	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec
pH	***6.5 - 8***					7.37	8.15				8.29	8.29	
TSS	***15***					89	70				9	4	
SO_4	***1850***					28	74.2				73.5	89.2	
Cl	***250***					1.58	3.3				5	3.06	
NO_3-N	***19.5***					0.191	0.251				1.05	0.857	
NO_2-N	***0.12***					0.0036	0.0053				0.017	0.0065	
NH_3-N	***7.5***					0.0137	0.0063				<0.005	0.032	
CN_{WAD}	***0.03***					-	-				<0.005	<0.005	
Diss- Al	***0.4***					0.07	0.0085				0.0073	0.0043	
T-Sb	***0.13***					0.00698	0.00815				0.00357	0.00487	
T-As	***0.053***					0.198	0.111				0.0622	0.0929	
T-Cd	***0.00125***					0.000205	0.000152				0.000041	0.000055	
T-Co	***0.026***					0.00373	0.00283				0.00067	0.00062	
T-Cu	***0.026***					0.0136	0.0128				0.00266	0.00252	
T-Fe	***6.4***					7.79	5.32				0.266	0.182	
T-Pb	***0.05***					0.0210	0.0142				0.000988	0.00135	
T-Mn	***7.7***					0.186	0.188				0.0832	0.0948	
T-Hg	***0.00008***					<0.00005	0.000021				0.000006	<0.000005	
T-Mo	***0.45***					0.00141	0.00255				0.00165	0.00137	
T-Ni	***0.5***					0.00958	0.00744				0.00158	0.00165	
T-Se	***0.025***					0.000378	0.000552				0.000983	0.00086	
T-Ag	***0.01***					0.00016	0.000105				0.000027	<0.00001	
T-U	***0.09***					0.00312	0.0055				0.00849	0.00936	
T-Zn	***0.23***					0.0327	0.0223				<0.003	0.0064	

TSS concentrations at LDSPI were elevated above 15 mg/L primarily during the freshet period of 2021 (April and May), July and slightly in October. The highest total As concentrations measured at LDSPI coincided with these elevated TSS values; dissolved As concentrations were typically lower and ranged more narrowly between 0.03 mg/L and 0.086 mg/L with most values observed between 0.045 mg/L and 0.055 mg/L (Figure 3-2; Appendix A). Total Fe values above EQS at LDSPI only occurred in May 2021 (22.7 mg/L) and coincided with elevated TSS (Table 3-2); dissolved Fe concentrations during this same period was much lower (0.13 mg/L) and indicates most of the measured Fe was associated with the solid phase.

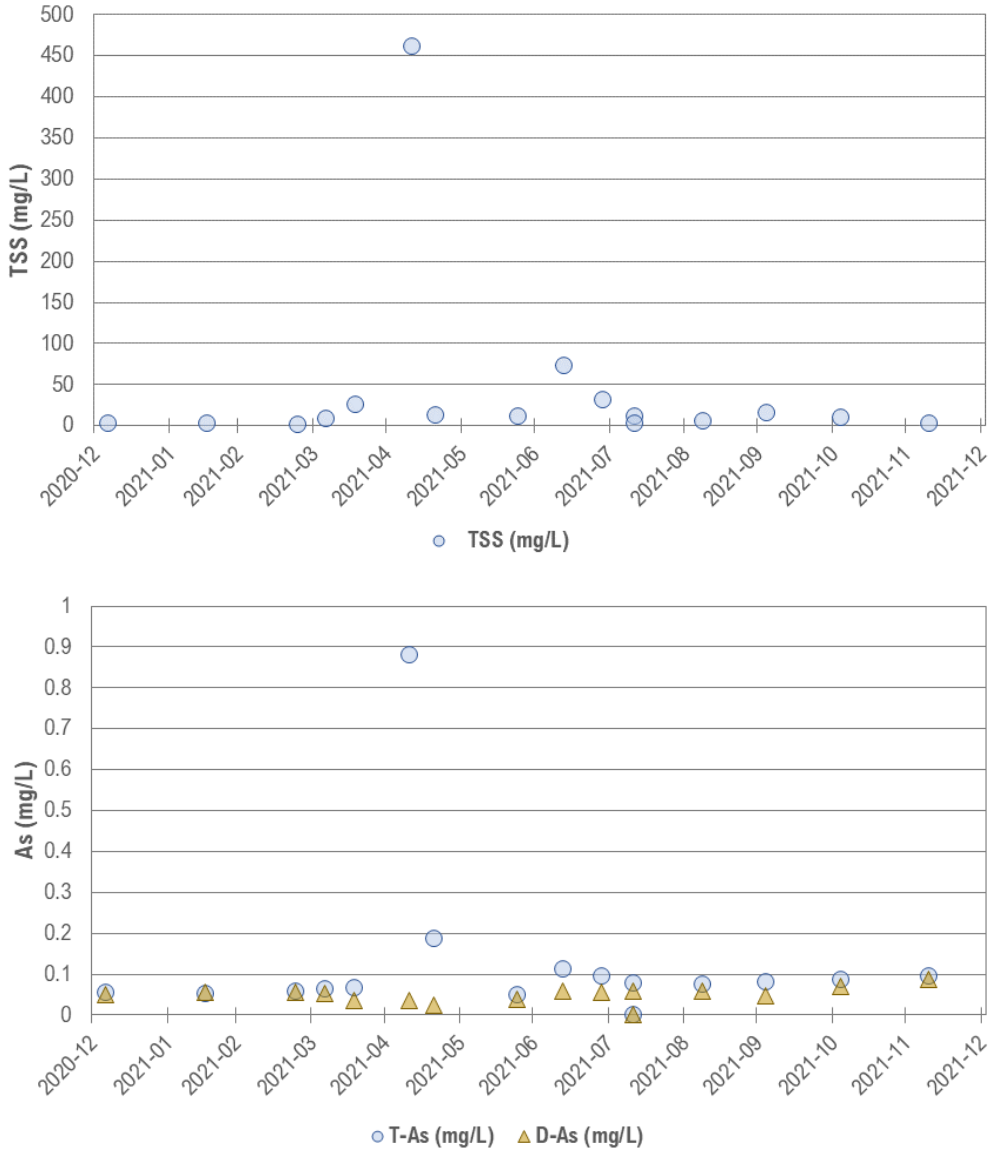


Figure 3-2: 2021 Time-series of TSS and Total and Dissolved As at LDSPI Sampling Location

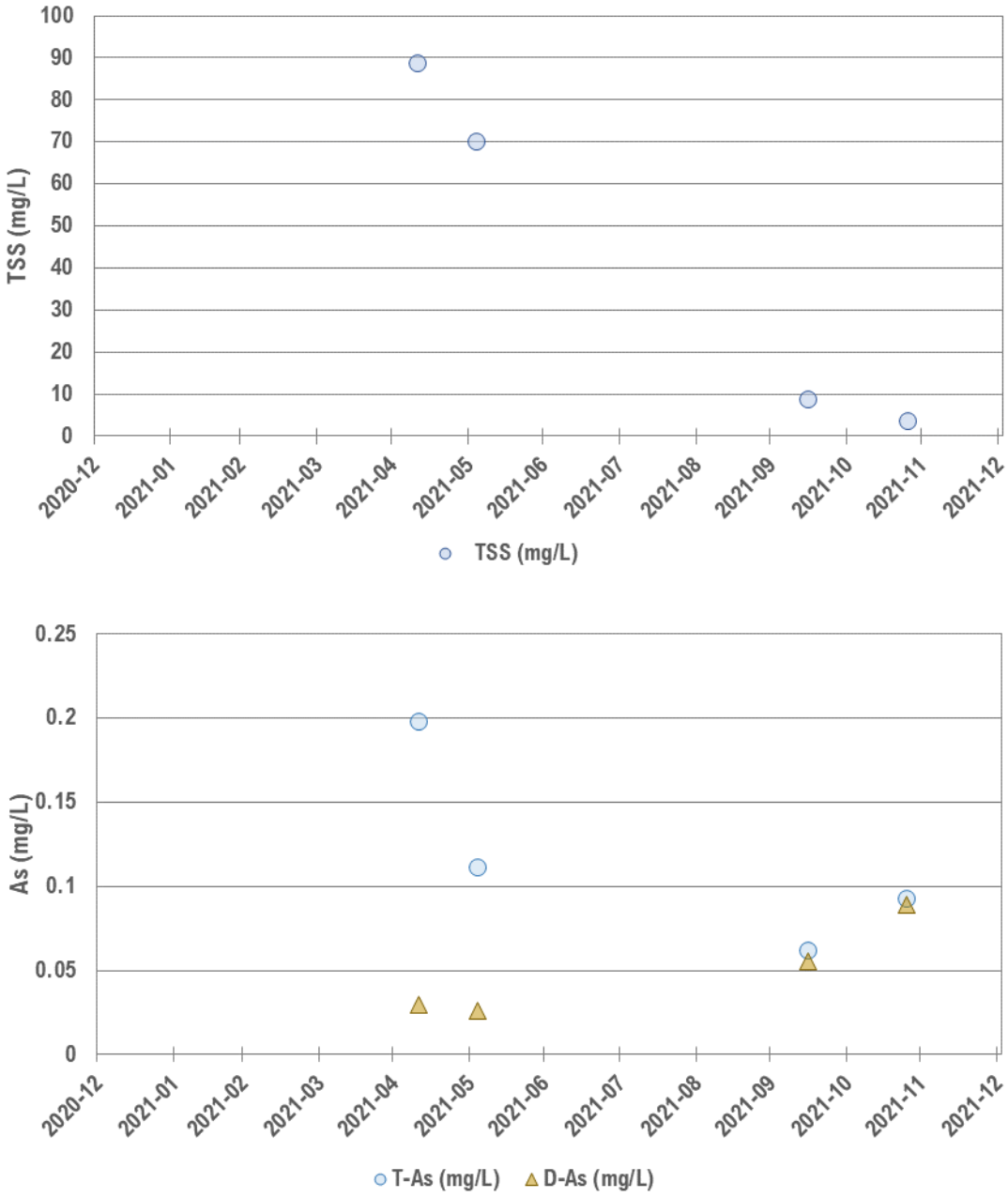


Figure 3-3: 2021 Time-series of TSS and Total and Dissolved As at LDSPs Sampling Location

TSS concentrations at LDSPs were elevated in May and June sampling events (Figure 3-3). Total As and total Fe concentrations measured at LDSPs were highest during the May and June samplings and are associated with the elevated TSS concentrations (Table 3-3). All other parameters measured at LDSPs were present at concentrations much lower than corresponding EQS values. These data underscore the potential water quality benefits, primarily for As and Fe, of having the ability to limit TSS concentrations, either through

additional settling (e.g., pumping to Events Pond) or potentially through flocculant usage to promote settling of suspended solids.

3.1.2 LDSP-UND and HLFUMV Water Quality

3.1.2.1 LDSP-UND

The LDSP-UND passes natural groundwater flow underneath the Lower Dublin South Pond to lower Eagle Creek as was monitored monthly and twice monthly in February 2021. Table 3-4 summarizes the measured water quality results for LDSP-UND and compares the results to QZ14-041-1 EQS. LDSP-UND is a compliance monitoring location.

Water quality monitoring of the LDSP-UND showed that all parameters were present at concentrations well below the respective EQS. TSS concentrations remained consistently below 5 mg/L and total As concentrations narrowly ranged between roughly 0.019 mg/L to 0.023 mg/L for all months with the exception of December where total As concentration was measured at 0.046 mg/L (Table 3-4). These observed results are consistent with background shallow groundwater quality in this area.

3.1.2.2 HLFUMV

The HLFUMV is a discharge compliance monitoring point that captures natural groundwater flow passing underneath the HLF. Currently and throughout 2021, all flow from the HLFUMV was captured and recirculated back to the Events Pond and no discharge to the receiving environment occurred. Water quality monitoring occurred monthly in 2021. Water quality of the HLFUMV throughout 2021 exhibited concentrations for all parameters well below their corresponding EQS (Table 3-5).

Table 3-4:
Monthly Water Quality Measured at LDSP-UND 2021

Parameter	QZ14-041-1 EQS	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec
pH	***6.5 - 8***	8.05	7.72	7.77	8.21	7.86	7.44	7.32	7.52	7.7	7.98	7.7	8.17
TSS	***15***	<3.0	<3.0	<3.0	<3.0	5	<3.0	3	<3.0	<2.0	<3.0	<3.0	<3.0
SO_4	***1850***	79.3	75.65	80.7	83.2	75.9	68.5	67.5	71.8	73	74.2	82.2	81.5
Cl	***250***	1.54	1.07	0.91	0.84	3.73	2.16	2.2	2.85	2.97	3.29	3.02	2.76
NO_3-N	***19.5***	0.272	0.2905	0.272	0.27	0.332	0.29	0.284	0.306	0.372	0.387	0.417	0.618
NO_2-N	***0.12***	<0.001	<0.001	<0.001	<0.001	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
NH_3-N	***7.5***	<0.005	0.0054	<0.005	<0.005	0.0083	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
CN_{WAD}	***0.03***	-	-	-	-	-	-	-	-	-	-	-	-
Diss- Al	***0.4***	0.001	0.001	0.001	0.0015	0.167	0.0012	0.0014	0.0026	0.0018	0.0016	0.0011	0.001
T-Sb	***0.13***	0.00263	0.00288	0.00292	0.00305	0.0029	0.00335	0.00321	0.00337	0.00327	0.00328	0.00326	0.00425
T-As	***0.053***	0.0209	0.01975	0.0222	0.0232	0.0201	0.0196	0.0213	0.0232	0.0235	0.0231	0.0218	0.0464
T-Cd	***0.00125***	0.000009	0.000011	0.000008	0.000006	0.000013	0.000008	0.000009	0.000007	0.000009	0.000008	0.000010	0.000019
T-Co	***0.026***	<0.0001	<0.0001	<0.0001	<0.0001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00017
T-Cu	***0.026***	0.00079	0.000705	0.00067	0.00062	0.00077	0.00084	0.0008	0.00085	0.00081	0.00085	0.00073	0.00102
T-Fe	***6.4***	0.016	0.019	<0.01	<0.01	0.01	0.044	0.023	0.023	0.016	0.014	0.011	0.063
T-Pb	***0.05***	0.000054	0.000075	<0.00005	<0.00005	0.000073	0.000158	0.000141	0.000099	0.000079	0.000085	0.000064	0.000179
T-Mn	***7.7***	0.00287	0.002555	0.00358	0.00257	0.00633	0.00308	0.00223	0.00202	0.00219	0.00158	0.00193	0.0074
T-Hg	***0.00008***	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
T-Mo	***0.45***	0.000871	0.000886	0.00092	0.000982	0.000942	0.000934	0.000926	0.0013	0.00108	0.00107	0.000934	0.00114
T-Ni	***0.5***	0.0006	0.00055	<0.0005	0.00053	0.0006	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.002
T-Se	***0.025***	0.000462	0.000537	0.000539	0.000563	0.000508	0.0005	0.000408	0.000427	0.000413	0.00041	0.00039	0.000658
T-Ag	***0.01***	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
T-U	***0.09***	0.00647	0.006765	0.0078	0.00771	0.00626	0.0039	0.00418	0.00524	0.00654	0.00736	0.00566	0.00919
T-Zn	***0.23***	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003	<0.003

Table 3-5:
Monthly Water Quality Measured at HLFUMV 2021

Parameter	QZ14-041-1 EQS	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sept	Oct	Nov	Dec
pH	***6.5 - 8***		7.3	7.42	7.8	6.84	6.8	7.06	6.77	6.84	7.52	7.25	7.45
TSS	***15***		<3.0	<3.0	<3.0	4	<3.0	<3.0	<3.0	<2.0	7	<3.0	<3.0
SO_4	***1850***		101	103	105	100	99.5	96.2	98.3	98.4	69.8	100	101
Cl	***250***		0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.91	0.5	0.5
NO_3-N	***19.5***		0.0599	0.0434	0.0476	0.0417	0.0441	0.0463	0.0537	0.0679	0.116	0.06665	0.0631
NO_2-N	***0.12***		<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
NH_3-N	***7.5***		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
CN_{WAD}	***0.03***		<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Diss- Al	***0.4***		0.0019	0.0027	0.0018	0.0035	0.0064	0.0068	0.0063	0.0109	0.015	0.0052	0.0021
T-Sb	***0.13***		0.00267	0.00255	0.00269	0.0029	0.00283	0.00292	0.00295	0.00273	0.00379	0.0028	0.00263
T-As	***0.053***		0.0339	0.04	0.0359	0.0376	0.0366	0.0376	0.0394	0.0387	0.0412	0.03795	0.0416
T-Cd	***0.00125***		0.000030	0.000046	0.000035	0.000041	0.000047	0.000045	0.000039	0.000041	0.000040	0.000039	0.000035
T-Co	***0.026***		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.00054	0.000125	0.00021
T-Cu	***0.026***		0.0005	0.0006	0.00055	0.00065	0.00066	0.00066	0.00074	0.00072	0.00272	0.00057	0.00052
T-Fe	***6.4***		0.042	0.06	0.043	0.033	0.036	0.032	0.032	0.027	1.31	0.0475	0.023
T-Pb	***0.05***		0.000090	0.000126	0.000075	0.000220	0.000098	0.000082	0.000082	0.000080	0.001700	0.000056	0.000051
T-Mn	***7.7***		0.00289	0.00308	0.00258	0.00323	0.00338	0.00346	0.0041	0.00364	0.0163	0.00364	0.00309
T-Hg	***0.00008***		<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005	<0.000005
T-Mo	***0.45***		0.000081	0.000089	0.000102	0.000052	0.000064	0.000054	0.000052	0.000065	0.000449	7.25E-05	0.000104
T-Ni	***0.5***		0.00291	0.00342	0.00313	0.00334	0.0035	0.00382	0.00369	0.00366	0.0034	0.0035	0.00328
T-Se	***0.025***		0.00018	0.00022	0.000267	0.000208	0.000181	0.000176	0.000219	0.000205	0.000137	0.000182	0.000185
T-Ag	***0.01***		<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001
T-U	***0.09***		0.000085	0.000071	0.000074	0.000083	0.000068	0.000068	0.000057	0.000069	0.00116	0.000153	0.000123
T-Zn	***0.23***		0.01	0.0128	0.0119	0.0136	0.0138	0.016	0.0151	0.0155	0.0114	0.0119	0.0113

Total As concentrations were consistent throughout the year and narrowly ranged between approximately 0.034 mg/L to 0.042 mg/L and again is consistent with As concentrations naturally occurring in background shallow groundwater. The low concentrations of all remaining parameters confirm no measurable leakage is associated with the HLF.

3.1.3 Controlled Discharge Water Quality - LDSP Weir

All discharges from the Eagle Mine to the receiving environment are required to meet EQS stipulated in QZ14-041-1. In 2021, two (2) controlled discharge events to Haggart Creek occurred as indicated in Table 3-6. The first controlled discharge into Haggart Creek from the LDSP weir and Ditch C occurred over a roughly 12-day period between July 12 and July 23, 2021. The second controlled event occurred over 9 days between November 12 and November 20, 2021. Daily field parameters (pH, specific conductance, temperature and dissolved oxygen) were collected in conjunction with full suite water quality samples to ensure compliance with QZ14-041-1 EQS. A summary the results are presented in Table 3-8 and full analysis for all parameters are provided in Appendix A and graphically in Appendix B.

Table 3-6:
Discharge Events in 2021 and Discharge Duration

Month	Duration of Event
July	12 days (July 12 to July 23)
November	9 days (November 12 to November 20)

3.1.3.1 July Discharge Water Quality

A planned discharge was initiated on July 12 and continued to July 23, 2021 from the Events Pond through the LDSP weir outlet to reduce water volumes in the Events Pond to within HLF Phase 1 DAS volumes. Daily cyanide samples were collected during the discharge and weekly samples for full suite analysis were collected at the discharge outlet as required by the QZ14-041-1. All parameters were well below the EQS limits throughout the discharge (Table 3-7) and well below MDMER Schedule 4 Authorized Limits. TSS concentrations remained low throughout the discharge period ranging from approximately 3.0 to 6.0 mg/L. Total As concentrations were well below the EQS of 0.053 mg/L with concentrations measured consistently between 0.027 mg/L and 0.028 mg/L. All nitrogen species were present at low concentrations and total Se values were present at concentrations below 0.0005 mg/L (Table 3-7).

Table 3-7:
Water Quality at LDSP Weir – July and November Discharge

Parameter	QZ14-041-1 EQS	Jul-12	Jul-19	Jul-22		Nov-12	Nov-15
pH	***6.5 - 8***	8.16	8.25	8.21		8.33	8.24
TSS	***15***	5.5	3.5	5.1		13	3.8
SO_4	***1850***	64.7	63.9	62.3		76	74
Cl	***250***	4.16	4.2	3.92		8.64	8.49
NO_3-N	***19.5***	0.29	0.265	0.248		0.666	0.648
NO_2-N	***0.12***	0.0081	0.0071	0.007		0.0089	0.0088
NH_3-N	***7.5***	0.0155	0.02	0.0191		0.0162	0.0194
CN_{WAD}	***0.03***	<0.005	<0.005	<0.005		<0.005	<0.005
Diss- Al	***0.4***	0.0146	0.0129	0.0147		0.0068	0.006
T-Sb	***0.13***	0.00524	0.00514	0.00522		0.00438	0.00459
T-As	***0.053***	0.027	0.0283	0.0276		0.0526	0.0514
T-Cd	***0.00125***	0.000030	0.000038	0.000033		0.000036	0.000032
T-Co	***0.026***	0.00026	0.00029	0.0003		0.00092	0.00085
T-Cu	***0.026***	0.00196	0.00218	0.00238		0.00168	0.00142
T-Fe	***6.4***	0.167	0.134	0.15		0.378	0.161
T-Pb	***0.05***	0.000331	0.000576	0.000669		0.001580	0.000687
T-Mn	***7.7***	0.0145	0.00541	0.00597		0.0353	0.0307
T-Hg	***0.00008***	<0.000005	<0.000005	<0.000005		<0.000005	<0.000005
T-Mo	***0.45***	0.00239	0.0022	0.00219		0.00193	0.00201
T-Ni	***0.5***	0.00142	0.0018	0.0018		0.00159	0.0014
T-Se	***0.025***	0.000411	0.000478	0.000406		0.00066	0.000727
T-Ag	***0.01***	<0.00001	<0.00001	<0.00001		<0.00001	<0.00001
T-U	***0.09***	0.0038	0.0035	0.0036		0.0067	0.00735
T-Zn	***0.23***	<0.003	<0.003	<0.003		<0.003	<0.003

3.1.3.2 November Discharge Water Quality

A second planned discharge to the receiving environment was undertaken between November 12 and November 20, 2021 via the LDSP weir and Ditch C to Haggart Creek. Surface water quality samples were collected on November 12 and November 15 and results confirmed that all parameters were present at concentrations below their respect EQS (Table 3-8) and well below MDMER limits. Total As concentrations were higher during the November event as compared to the July discharge, with concentrations just below the EQS at approximately 0.0526 and 0.0514 mg/L. Results for all parameters are provided in Appendix A and graphically in Appendix B.

3.2 Receiving Environment Surface Water Quality Monitoring Program

The 2021 surface water quality monitoring program included continuing the surveillance sampling of watercourses monitored as part of the EMSAMP with particular focus on those stations within Haggart Creek that have WQOs and associated adaptive management plan (AMP) water quality tiers at stations W4, W29, W99 and W23 (see Figure 2-1 for station locations).

Table 3-8 provides a summary of the total number of sampling events where concentrations for any given parameter were greater than Tier 3 water quality objectives for stations W4, W29, W99 and W23. Table 3-9 and Table 3-10 compares the Tier 1, Tier 2 and Tier 3 threshold concentrations to sampling results for the July and November 2021 discharge events, respectively.

All other parameters were measured at concentrations below their respective WQO at all locations and at all sampling periods in Haggart Creek (Table 3-8; Appendix B). A more detailed discussion of the 2021 monitoring results for W4, W29, W99 and W23, including AMP trend analysis, is provided below. Specifically, monthly water quality data collected for the Eagle Gold project is compared to each station's baseline water quality condition. For stations W4 and W23, the baseline water quality is represented by monitoring results for the period 2007 to 2017. For station W29, the baseline period spans 2009 to 2017 and for station W99, there does not exist a true baseline as water quality sampling was initiated at this station in April 2019 during early operations. In the case of W99, monthly data for 2021 is compared only to 2019. Concentrations of parameters of interest in Haggart Creek exhibit strong flow-based variability and therefore monthly data were compared between years as the most appropriate approach rather than assessing water quality changes observed over consecutive months.

Table 3-8:
Number of Sampling Occasions where Measured Values were Greater than Tier 3 WQOs at EMSAMP Monitoring Locations in Haggart Creek (2021)

Parameter List	Tier 3 WQOs W4, W29, W99, W23	W4	W29	W99	W23
TSS	15	**6**	**3**	**3**	**1**
SO_4	309	0	0	0	0
Cl	150	0	0	0	0
Nitrate-N	3	0	0	0	0
Nitrite-N	0.02	0	0	0	0
NH_3-N	1.13	0	0	0	0
CN_{WAD}	0.005	0	0	0	0
Diss-Al	0.1	**1**	**1**	**1**	**1**
Sb	0.02	0	0	0	0
As	0.0085	**24**	**2**	**3**	**3**
Cd	0.000197	0	0	0	0
Cu	0.005	**1**	0	**1**	0
Co	0.004	0	0	0	0
Fe	1.0	**4**	**2**	**3**	**1**
Pb	0.0077	**1**	0	**1**	0
Hg	0.00002	0	0	0	0
Mn	1.17	0	0	0	0
Mo	0.073	0	0	0	0
Ni	0.116	0	0	0	0
Se	0.002	0	0	0	0
Ag	0.0015	0	0	0	0
U	0.015	0	0	0	0
Zn	0.038	0	0	0	0

Tier 3 values in mg/L

Determination as to whether parameters measured in 2021 are exhibiting an increasing trend has been based on consideration of the natural variability in the baseline. Specifically, monthly mean 2021 observations for AMP key parameters are compared to baseline monthly mean +1 and +2 standard deviations (e.g. 68th and 95th percentile). Monthly mean 2021 values within +1 standard deviation of baseline values are considered to be unchanged; values measured within +2 standard deviations are considered to be within the natural observed variability. Monthly mean 2021 values measured above +2 standard deviations of the baseline and above the Tier 3 WQO are considered to be an increase over the baseline condition. In some instances and for some parameters, monthly mean 2021 values were measured above the Tier 3 WQO but below +2 standard deviations of baseline conditions. In these cases, no specific action is required and observed values are attributable to naturally high background conditions.

3.2.1 W4

Station W4 is located downstream of the confluence of both Dublin Gulch (Figure 2-1) and downstream of where the discharge via Ditch C enters Haggart Creek. As discussed previously, discharge via Ditch C to Haggart Creek occurred during the period July 12 to July 23 and November 12 to November 20. Water quality results during both discharge periods are provided in Table 3-9 and Table 3-10.

For the July discharge period TSS, total As and total Fe were elevated above their respective Tier 3 adaptive management threshold. For TSS and total Fe, concentrations above Tier 3 were observed only early in the discharge period, whereas total As was consistently above Tier 3 throughout the discharge period (Table 3-9). All other parameters were measured at concentrations well below any adaptive management threshold.

Table 3-9:
W4 Daily Water Quality During Controlled Discharge of July 12 to July 23, 2021

Parameter	T1	T2	T3	Jul-12	Jul-13	Jul-14	Jul-15	Jul-16	Jul-17
TSS			**15**	57.1	16.4	10.8	5.2	3.5	3
SO_4	**231.8**	**262.7**	**309**	64.5	64.9	65.3	64.9	64.8	65.2
Cl	**112.5**	**127.5**	**150**	4.28	4.34	3.14	3.85	2.88	1.27
NO_3-N	**2.3**	**2.6**	**3**	0.261	0.269	0.209	0.249	0.204	0.121
NO_2-N	**0.015**	**0.017**	**0.02**	0.007	0.008	0.0056	0.0067	0.0055	0.0018
NH_3-N	**0.848**	**0.961**	**1.13**	0.0136	0.0124	0.0097	0.0115	0.0128	0.0062
CN_{WAD}	**0.005**	**0.005**	**0.005**	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	**0.075**	**0.085**	**0.1**	0.012	0.0134	0.0125	0.0132	0.01	0.0099
T-Sb	**0.015**	**0.017**	**0.02**	0.00556	0.00525	0.00392	0.00419	0.00407	0.00207
T-As	**0.0064**	**0.0072**	**0.0085**	0.0429	0.0292	0.0234	0.0223	0.0221	0.0126
T-Cd	**0.00015**	**0.00017**	**0.0002**	0.000050	0.000037	0.000032	0.000024	0.000023	0.000013
T-Co	**0.003**	**0.0034**	**0.004**	0.0008	0.00041	0.00039	0.00024	0.00026	0.00018
T-Cu	**0.00375**	**0.00425**	**0.005**	0.00335	0.00229	0.00194	0.00181	0.00182	0.00097
T-Fe	**0.75**	**0.85**	**1**	1.33	0.453	0.297	0.118	0.156	0.112
T-Pb	**0.00578**	**0.00655**	**0.0077**	0.003150	0.001160	0.000938	0.000347	0.000420	0.000188
T-Mn	**0.878**	**0.995**	**1.17**	0.0423	0.0171	0.0215	0.0118	0.014	0.024
T-Hg	**0.000015**	**0.000017**	**0.00002**	0.000005	0.000005	0.000005	0.000005	0.000005	#N/A
T-Mo	**0.0548**	**0.0621**	**0.073**	0.00205	0.00222	0.00169	0.00198	0.0018	0.000989
T-Ni	**0.087**	**0.099**	**0.116**	0.00285	0.00202	0.00177	0.00156	0.00163	0.00126
T-Se	**0.0015**	**0.0017**	**0.002**	0.000445	0.000417	0.000384	0.000385	0.000442	0.00025
T-Ag	**0.00113**	**0.00128**	**0.0015**	0.000022	0.000011	0.00001	0.00001	0.00001	0.00001
T-U	**0.0113**	**0.0128**	**0.015**	0.00358	0.00375	0.00306	0.0033	0.00316	0.00184
T-Zn	**0.0285**	**0.0323**	**0.038**	0.003	0.003	0.003	0.003	0.003	0.003
		Shaded cells exceed Tier 3							

All values in mg/L

Table 3-9 (Con't):
W4 Daily Water Quality During Controlled Discharge of July 12 to July 23, 2021
Compared to Adaptive Management Thresholds

Parameter	T1	T2	T3	Jul-18	Jul-19	Jul-20	Jul-21	Jul-22	Jul-23
TSS			**15**	3	3	4.6	3.7	3.8	8
SO_4	**231.8**	**262.7**	**309**	64.9	64.3	64.7	63.7	65.1	63.4
Cl	**112.5**	**127.5**	**150**	1.62	1.94	3.13	2.42	2.04	2.07
NO_3-N	**2.3**	**2.6**	**3**	0.127	0.147	0.208	0.167	0.154	0.15
NO_2-N	**0.015**	**0.017**	**0.02**	0.0014	0.003	0.0059	0.0043	0.0039	0.0028
NH_3-N	**0.848**	**0.961**	**1.13**	0.0058	0.0097	0.0122	0.0174	0.0162	0.0124
CN_{WAD}	**0.005**	**0.005**	**0.005**	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	**0.075**	**0.085**	**0.1**	0.0092	0.0113	0.0097	0.0102	0.0097	0.0668
T-Sb	**0.015**	**0.017**	**0.02**	0.00182	0.003	0.00363	0.0044	0.0028	0.00374
T-As	**0.0064**	**0.0072**	**0.0085**	0.0122	0.0177	0.0189	0.0248	0.0162	0.0246
T-Cd	**0.00015**	**0.00017**	**0.0002**	0.000011	0.000019	0.000032	0.000030	0.000019	0.000026
T-Co	**0.003**	**0.0034**	**0.004**	0.00016	0.00026	0.00023	0.0003	0.00019	0.00037
T-Cu	**0.00375**	**0.00425**	**0.005**	0.00124	0.00144	0.00143	0.0019	0.00129	0.00198
T-Fe	**0.75**	**0.85**	**1**	0.119	0.205	0.145	0.164	0.091	0.396
T-Pb	**0.00578**	**0.00655**	**0.0077**	0.000214	0.000425	0.000577	0.000554	0.000271	0.001120
T-Mn	**0.878**	**0.995**	**1.17**	0.0222	0.0213	0.0164	0.0108	0.0196	0.0218
T-Hg	**0.000015**	**0.000017**	**0.00002**	#N/A	#N/A	0.000005	0.000005	0.000005	0.000006
T-Mo	**0.0548**	**0.0621**	**0.073**	0.000926	0.00136	0.00146	0.00194	0.00132	0.00148
T-Ni	**0.087**	**0.099**	**0.116**	0.00111	0.00149	0.00148	0.00163	0.00137	0.00172
T-Se	**0.0015**	**0.0017**	**0.002**	0.00024	0.000261	0.000361	0.000413	0.00033	0.000355
T-Ag	**0.00113**	**0.00128**	**0.0015**	0.00001	0.00001	0.00001	0.00001	0.00001	0.000019
T-U	**0.0113**	**0.0128**	**0.015**	0.0017	0.00233	0.00243	0.0032	0.00228	0.00266
T-Zn	**0.0285**	**0.0323**	**0.038**	0.003	0.003	0.003	0.003	0.003	0.003
		Shaded cells exceed Tier 3							

All values in mg/L

Water quality samples at W4 were collected on 14 occasions in July 2021 (e.g., July 4 no discharge; July 12 to 23 inclusive during discharge; and July 30 no discharge). Outside of the discharge period, total As concentrations ranged between 0.004 mg/L and 0.005 mg/L (Figure 3-4) and below the Tier 1 As threshold of 0.0064 mg/L. Possible explanations are explored below as to why total As concentrations were above Tier 3 thresholds during the discharge period at W4 recognizing that the discharge concentrations were approximately 0.027 mg/L and well below the EQS of 0.053 mg/L.



Figure 3-4: Time-series of Total As at W4 During July 2021

It is known that Dublin Gulch has a strong influence on As water quality in Haggart Creek below its confluence and at W4 in particular. However, loadings from Dublin Gulch in July 2021 do not, on their own, explain the elevated total As concentrations at W4 during the period of July 12 to July 23.

Figure 3-5 presents total As concentrations in lower Dublin Gulch at W21 for sampling events on July 4, July 12 and July 19 (i.e., during discharge) and July 30; all W21 sampling events coincide with samples collected at W4. As illustrated in Figure 3-5 total As concentrations at W21 were relatively consistent throughout the July both before, during and after the discharge period and therefore do not appear to be a major factor in the elevated total As concentrations observed at W4 during the discharge period.

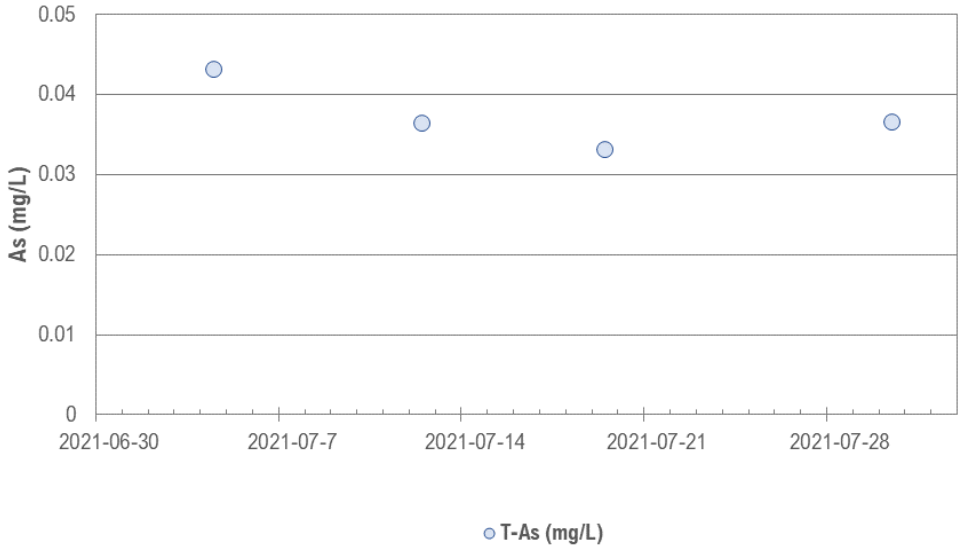


Figure 3-5: Time-series of Total As at W21 During July 2021

Collectively it would appear that the most likely reason for the observed elevated total As concentrations at W4 is due to incomplete mixing occurring at the W4 sampling location downstream of the Ditch C discharge inflows. It is worthy to note that similar observations occurred in 2020 and was documented in the 2020 Annual Report. Specifically, elevated total As concentrations above the AMP T3 threshold of 0.0085 mg/L were observed at station W4 during the July 29 to August 18, 2020 and the September 14 to September 27, 2020 discharge events. The results could not be solely considered to be attributed to the Project given that all LDSP discharges during these events were compliant with all QZ14-041-1 EQS and total As concentrations during the July/August and September discharges ranged between 0.027 mg/L and 0.033 mg/L, well below the EQS of 0.053 mg/L. The results prompted further investigation as per EMSAMP requirements and it was postulated that complete mixing of Dublin Gulch and Ditch C discharges with Haggart Creek may not occur by the time water reaches station W4. Exploratory transect sampling from the east bank to west bank at W4 and a visual dye test in Haggart Creek in September 2020 confirmed that Dublin Gulch and Ditch C discharges are poorly mixed at W4.

For the November 2021 discharge period TSS, total As and total Fe were elevated above their respective Tier 3 adaptive management threshold. Similar to July, TSS and total Fe, concentrations above Tier 3 were only observed early in the discharge period, whereas total As was consistently above Tier 3 throughout the discharge period (Table 3-10). All other parameters were measured at concentrations well below any adaptive management threshold.

Table 3-10:
W4 Daily Water Quality During Controlled Discharge of November 12 to November 20, 2021 Compared to Adaptive Management Thresholds

Parameter	T1	T2	T3	Nov-12	Nov-13	Nov-14	Nov-15	Nov-16	Nov-17	Nov-18	Nov-19	Nov-20
TSS			**15**	60.5	12	5	10	12.8	9.1	7.9	3.9	3.4
SO_4	**231.8**	**262.7**	**309**	74.4	73.4	71.6	74.1	74.4	74.8	75.4	68.7	76.2
Cl	**112.5**	**127.5**	**150**	2.12	1.79	3.29	3.84	3.82	3.49	0.85	2.39	4.02
NO_3-N	**2.3**	**2.6**	**3**	0.247	0.225	0.315	0.356	0.352	0.335	0.175	0.259	0.377
NO_2-N	**0.015**	**0.017**	**0.02**	0.0016	0.0015	0.0036	0.004	0.0032	0.003	0.0022	0.002	0.0038
NH_3-N	**0.848**	**0.961**	**1.13**	0.0051	0.0056	0.0098	0.0105	0.0092	0.008	0.005	0.0108	0.0072
CN_{WAD}	**0.005**	**0.005**	**0.005**	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	**0.075**	**0.085**	**0.1**	0.0049	0.0039	0.005	0.0041	0.0042	0.0039	0.0032	0.0037	0.0044
T-Sb	**0.015**	**0.017**	**0.02**	0.00221	0.00165	0.00212	0.00207	0.00202	0.00222	0.00079	0.00137	0.00232
T-As	**0.0064**	**0.0072**	**0.0085**	0.0348	0.0225	0.0233	0.0235	0.0228	0.0242	0.00906	0.0163	0.0274
T-Cd	**0.00015**	**0.00017**	**0.0002**	0.000054	0.000032	0.000020	0.000020	0.000019	0.000019	0.000015	0.000017	0.000016
T-Co	**0.003**	**0.0034**	**0.004**	0.00103	0.00067	0.00047	0.00047	0.00048	0.00048	0.00026	0.00035	0.00053
T-Cu	**0.00375**	**0.00425**	**0.005**	0.00263	0.00159	0.0009	0.00097	0.00095	0.00081	0.0005	0.00062	0.00092
T-Fe	**0.75**	**0.85**	**1**	1.85	0.936	0.226	0.156	0.3	0.11	0.155	0.112	0.115
T-Pb	**0.00578**	**0.00655**	**0.0077**	0.004240	0.002100	0.000602	0.000524	0.000618	0.000373	0.000190	0.000256	0.000368
T-Mn	**0.878**	**0.995**	**1.17**	0.0685	0.0539	0.0347	0.034	0.0358	0.0321	0.0383	0.0336	0.036
T-Hg	**0.000015**	**0.000017**	**0.00002**	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
T-Mo	**0.0548**	**0.0621**	**0.073**	0.000642	0.000558	0.000982	0.001	0.000932	0.00105	0.000442	0.000678	0.00107
T-Ni	**0.087**	**0.099**	**0.116**	0.00279	0.00197	0.00136	0.00126	0.00139	0.00127	0.00122	0.00114	0.00128
T-Se	**0.0015**	**0.0017**	**0.002**	0.00031	0.000321	0.000399	0.000365	0.000405	0.000551	0.00027	0.000383	0.00043
T-Ag	**0.00113**	**0.00128**	**0.0015**	0.000021	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001	0.00001
T-U	**0.0113**	**0.0128**	**0.015**	0.00242	0.00234	0.00348	0.00352	0.00331	0.00396	0.00177	0.00268	0.00382
T-Zn	**0.0285**	**0.0323**	**0.038**	0.0087	0.0052	0.003	0.003	0.003	0.003	0.003	0.003	0.003
		Shaded cells exceed Tier 3										

All values in mg/L

Water quality samples at W4 were collected on 10 occasions in November 2021 (e.g., November 2 no discharge; and November 12 to 20 inclusive during discharge). Prior to the discharge period on November 2, total As concentrations were 0.0037 mg/L and well below AMP T3 threshold of 0.0085 mg/L. During the discharge period of November 12 to 20, total As concentrations at W4 ranged between approximately 0.009 mg/L to 0.035 mg/L (Table 3-10 and Figure 3-6). While concentrations of total As in the Ditch C discharge were below the EQS, lower flow conditions in Haggart Creek during November relative to discharge volumes likely contributed, at least in part, to the observed elevated concentrations. Poor mixing at W4 remained a contributing factor as the total As concentration measured at W99, ~3km further downstream, on November 19 was only 0.0038 mg/L (as compared to 0.016 mg/L at W4) and well below AMP Tier 1 threshold of 0.0064 mg/L. The minor additional flow contributions (15% additional catchment area) and dilution between W4 and W99 cannot account for the fourfold measured differences in total As concentrations. Thus, it is more likely that complete mixing of the Ditch C discharge did not occur until somewhere between W4 and W99.

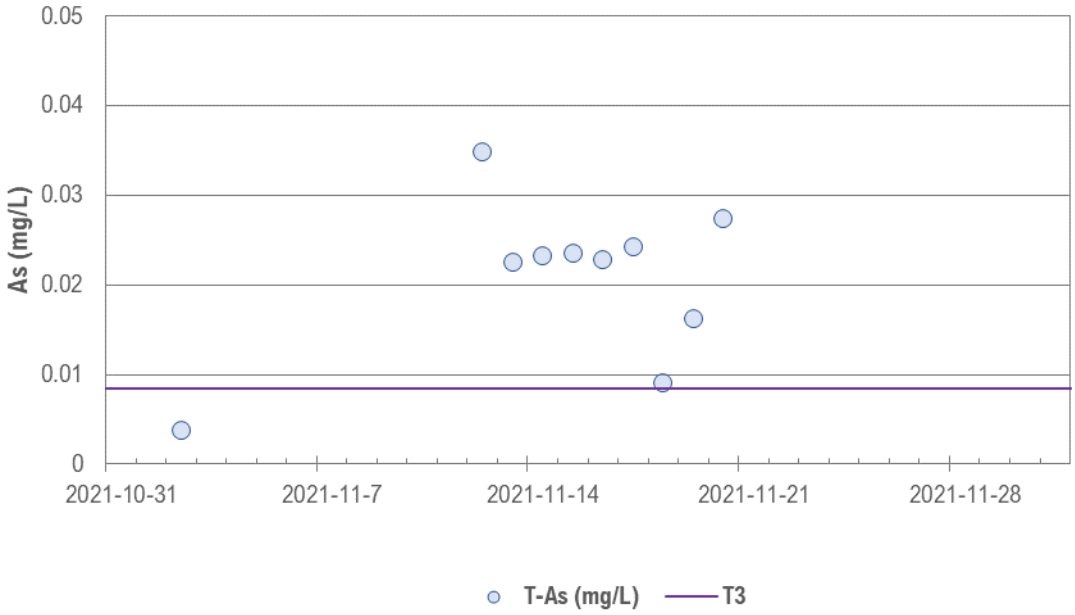


Figure 3-6: Time-series of Total As at W4 During November 2021

Trend analysis summary of W4 baseline water quality, for the period 2007 to 2017, compared to monthly mean 2021 water quality data for the open water period of April to November is presented in Table 3-12. Full graphical results for all parameters in 2021 are also presented in Appendix B. As illustrated, most parameters were measured at W4 during 2021 at concentrations very similar to baseline values (*e.g.*, ≤ +2 std. dev.); only TSS, total As and total Fe were measured at concentrations greater than the baseline variability and greater than the respective Tier 3 WQO (Table 3-11).

The elevated total As monthly mean for July has been described previously and is attributable to poor mixing at W4 during discharge via Ditch C. The elevated TSS and total As measured in August at W4 appears to be related to elevated TSS in Haggart Creek and Dublin Gulch. Water quality samples at W22, W21 and W4 were collected on three (3) sampling events on August 5, 15 and 27. Haggart Creek upstream of Dublin Gulch at W22 measured TSS concentrations of 3 mg/L, 98 mg/L and 31 mg/L, respectively. Similarly, TSS at W21 in lower Dublin Gulch measured values of 23 mg/L, 13 mg/L and 49 mg/L, respectively.

The elevated total As monthly mean for November has been discussed above and is attributable to the lower assimilative capacity and poor mixing at W4 during discharge via Ditch C.

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Table 3-11:
Summary Comparison of Key Water Quality Parameters at W4 for Baseline Period (2007 – 2017) to 2021 Monthly Mean Values and Relative to AMP Threshold Values

Parameter	T1	T2	T3	W4 - Haggart Creek																						
				April			May			June			July			August			September			October			November		
				Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean
TSS			***15***	6	7	3	70	102	53	31	48	4	4	5	9	9	13	44	4	4	6	4	4	5	4	5	13
SO_4	***231.8***	***262.7***	***309***	100	107	94	28	38	46	50	56	52	68	77	65	64	72	51	70	92	54	70	76	55	77	82	74
Cl	***112.5***	***127.5***	***150***	0.5	0.5	0.5	2.3	3.3	0.5	0.5	0.5	0.5	0.5	0.5	2.4	0.5	0.5	0.5	0.6	0.7	0.5	0.6	0.8	0.5	0.5	0.5	2.6
NO_3-N	***2.3***	***2.6***	***3***	0.144	0.156	0.159	0.046	0.065	0.066	0.794	1.253	0.079	0.058	0.067	0.170	0.061	0.071	0.058	0.102	0.126	0.070	0.169	0.204	0.092	0.160	0.175	0.274
NO_2-N	***0.015***	***0.017***	***0.02***	0.001	0.001	0.0010	0.0047	0.0067	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0041	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0099	0.0164	0.0010	0.0010	0.0010	0.0026
NH_3-N	***0.848***	***0.961***	***1.13***	0.005	0.005	0.005	0.009	0.012	0.006	0.008	0.010	0.005	0.005	0.005	0.011	0.015	0.022	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.005	0.005	0.008
CN_{WAD}	***0.005***	***0.005***	***0.005***	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	***0.075***	***0.085***	***0.1***	0.007	0.010	0.002	0.221	0.286	0.082	0.050	0.070	0.018	0.013	0.017	0.015	0.023	0.033	0.025	0.015	0.019	0.012	0.008	0.010	0.015	0.004	0.005	0.005
T-Sb	***0.015***	***0.017***	***0.02***	0.0006	0.0008	0.0003	0.0007	0.0009	0.0018	0.0009	0.0011	0.0004	0.0005	0.0005	0.0032	0.0005	0.0005	0.0006	0.0005	0.0005	0.0004	0.0005	0.0006	0.0004	0.0004	0.0005	0.0017
T-As	***0.0064***	***0.0072***	***0.0085***	0.0093	0.0141	0.0025	0.0255	0.0377	0.0343	0.0151	0.0228	0.0051	0.0059	0.0079	0.0198	0.0057	0.0070	0.0095	0.0072	0.0092	0.0059	0.0067	0.0084	0.0068	0.0050	0.0064	0.0208
T-Cd	***0.00015***	***0.00017***	***0.0002***	0.00003	0.00004	0.00002	0.00010	0.00014	0.00008	0.0000	0.0000	0.00001	0.00002	0.00002	0.00002	0.00003	0.00004	0.00002	0.00003	0.00005	0.00001	0.00001	0.00002	0.00001	0.00002	0.00002	0.00002
T-Co	***0.003***	***0.0034***	***0.004***	0.00047	0.00065	0.00027	0.00192	0.00275	0.00148	0.00064	0.00097	0.00016	0.00012	0.00013	0.00029	0.00022	0.00030	0.00050	0.00016	0.00018	0.00016	0.00015	0.00017	0.00019	0.00016	0.00018	0.00048
T-Cu	***0.00375***	***0.00425***	***0.005***	0.00074	0.00096	0.00050	0.00511	0.00678	0.00427	0.00258	0.00378	0.00073	0.00065	0.00074	0.00160	0.00104	0.00140	0.00164	0.00073	0.00084	0.00054	0.00098	0.00131	0.00074	0.00097	0.00129	0.00104
T-Fe	***0.75***	***0.85***	***1***	0.47	0.69	0.17	3.09	4.50	2.66	1.42	2.25	0.19	0.11	0.14	0.27	0.31	0.48	0.87	0.11	0.14	0.17	0.10	0.12	0.18	0.09	0.11	0.40
T-Pb	***0.00578***	***0.00655***	***0.0077***	0.00065	0.00099	0.00005	0.00275	0.00407	0.0050	0.00178	0.00286	0.00012	0.00006	0.00006	0.00068	0.00017	0.00025	0.00093	0.00010	0.00013	0.00013	0.00007	0.00008	0.00013	0.00006	0.00007	0.00093
T-Mn	***0.878***	***0.995***	***1.17***	0.104	0.140	0.080	0.208	0.302	0.122	0.046	0.063	0.030	0.030	0.037	0.022	0.033	0.039	0.054	0.034	0.038	0.033	0.033	0.037	0.044	0.041	0.048	0.040
T-Hg	***0.000015***	***0.000017***	***0.00002***	0.000011	0.000013	0.000005	0.000032	0.000047	0.000029	0.000037	0.000055	0.000005	0.000011	0.000013	0.000005	0.000011	0.000013	0.000005	0.000011	0.000013	0.000005	0.000010	0.000013	0.000005	0.000010	0.000013	0.000005
T-Mo	***0.0548***	***0.0621***	***0.073***	0.00018	0.00023	0.00016	0.00042	0.00062	0.00024	0.00080	0.00109	0.00029	0.00032	0.00041	0.00141	0.00031	0.00038	0.00034	0.00066	0.00092	0.00033	0.00061	0.00086	0.00037	0.00069	0.00101	0.00076
T-Ni	***0.087***	***0.099***	***0.116***	0.0024	0.0030	0.0021	0.0057	0.0075	0.0047	0.0025	0.0035	0.0011	0.0010	0.0012	0.0016	0.0012	0.0015	0.0019	0.0010	0.0011	0.0010	0.0010	0.0011	0.0013	0.0013	0.0015	0.0015
T-Se	***0.0015***	***0.0017***	***0.002***	0.00026	0.00031	0.00025	0.00021	0.00025	0.00017	0.00022	0.00025	0.00017	0.00020	0.00024	0.00033	0.00021	0.00025	0.00014	0.00021	0.00025	0.00013	0.00019	0.00022	0.00013	0.00023	0.00025	0.00036
T-Ag	***0.00113***	***0.00128***	***0.0015***	0.000010	0.000010	0.000010	0.000033	0.000046	0.000037	0.000021	0.000028	0.000010	0.000010	0.000010	0.000012	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000011	0.000012	0.000010	0.000010	0.000010	0.000011
T-U	***0.0113***	***0.0128***	***0.015***	0.0016	0.0017	0.0015	0.0005	0.0006	0.0008	0.0007	0.0008	0.0007	0.0010	0.0011	0.0025	0.0009	0.0011	0.0007	0.0010	0.0011	0.0008	0.0012	0.0014	0.0009	0.0013	0.0014	0.0028
T-Zn	***0.0285***	***0.0323***	***0.038***	0.0058	0.0072	0.0044	0.0148	0.0201	0.0138	0.0069	0.0098	0.0030	0.0034	0.0041	0.0033	0.0033	0.0041	0.0043	0.0034	0.0044	0.0030	0.0032	0.0033	0.0030	0.0042	0.0049	0.0038

All units in mg/L

Baseline period for W4 2007 – 2017

Colour Coding Legend for Trend Assessment	
Monthly 2021 mean is ≤ any Tier and≤ Baseline 2 stdev	no action
Monthly 2021 mean is ≥ any Tier but≤ Baseline 2 stdev	high background
Monthly 2021 mean is ≥ Tier 2 < Tier 3≥ Baseline 2 stdev	monitor
Monthly 2021 mean is ≥ Tier 3 > Baseline 2 stdev	Upward trend

3.2.2 W29

Water quality parameters at W29 in 2021 were present at concentrations very similar to the observed baseline values (e.g. ≤ +2 std. dev.) during the baseline period of 2009 to 2017 (Table 3-12). Exceptions to these observations occurred in May 2021, where elevated TSS, and total As were present in concentrations greater than AMP T3 and baseline values for the same period. The elevated TSS above +2 standard deviations is, in part, a result of modifications to the 2009 to 2017 baseline dataset. Specifically, during the WUL process in 2015 for the Eagle Gold Project, regulators requested that water quality data associated with samples measuring greater than 50 mg/L TSS be ignored in developing site specific water quality objectives. As such, values exceeding 50 mg/L have been eliminated and the data is biased to the lower TSS concentrations as well as total As and total Fe as these parameters are closely correlated to TSS.

3.2.3 W99

Station W99 was added in 2019 and therefore does not have a "baseline" record of measurements to which trend analysis is applicable. In 2021, May and October observed mean monthly total As concentrations were greater than the AMP T3 threshold of 0.0085 mg/L (Table 3-13). Elevated concentrations of total Hg above the WQO were also observed in May 2021.

The elevated As concentrations measured appear to be associated with elevated TSS at W99 on those sampling occasions. However, it should be noted that without historical baseline data it is not possible to determine whether these concentrations would have fallen within observed baseline values (e.g. ≤ +2 std. dev.). The reason for the observed elevated TSS and total As on October 3 is not clear as upstream monitoring locations in Haggart Creek (e.g., W4 and W29) did not record elevated values for TSS or total As on that sampling date.

Table 3-12:
Summary Comparison of Key Water Quality Parameters at W29 for Baseline Period (2009 – 2017) to 2021 Monthly Mean Values and Relative to AMP Threshold Values

Parameter	T1	T2	T3	W29 - Haggart Creek																						
				April			May			June			July			August			September			October			November		
				Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean
TSS			***15***	10	14	3	41	55	68	3	3	3	3	3	4	10	15	55	4	5	5	5	7	5	3	3	3
SO_4	***231.8***	***262.7***	***309***	100	107	100	36	40	44	55	63	57	70	79	72	73	84	55	65	67	58	71	78	60	85	91	82
Cl	***112.5***	***127.5***	***150***	0.9	1.1	0.5	2.8	3.7	0.7	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.6	0.7	0.5	0.6	0.7	0.9	1.2	1.6	0.6
NO_3-N	***2.3***	***2.6***	***3***	0.139	0.148	0.152	0.046	0.055	0.065	0.083	0.094	0.080	0.059	0.069	0.064	0.065	0.081	0.058	0.098	0.116	0.074	0.124	0.136	0.096	0.154	0.162	0.104
NO_2-N	***0.015***	***0.017***	***0.02***	0.0010	0.0010	0.0010	0.0056	0.0074	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
NH_3-N	***0.848***	***0.961***	***1.13***	0.0050	0.0050	0.005	0.0069	0.0079	0.005	0.0096	0.0119	0.013	0.0050	0.0050	0.006	0.0124	0.0173	0.006	0.0140	0.0200	0.006	0.0124	0.0177	0.005	0.0050	0.0050	0.005
CN_{WAD}	***0.005***	***0.005***	***0.005***	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	***0.075***	***0.085***	***0.1***	0.003	0.004	0.002	0.130	0.165	0.086	0.022	0.027	0.018	0.013	0.016	0.008	0.021	0.031	0.025	0.010	0.011	0.013	0.007	0.009	0.014	0.003	0.004	0.003
T-Sb	***0.015***	***0.017***	***0.02***	0.0007	0.0008	0.0005	0.0009	0.0010	0.0013	0.0006	0.0006	0.0004	0.0008	0.0008	0.0005	0.0011	0.0014	0.0006	0.0007	0.0007	0.0004	0.0007	0.0008	0.0005	0.0006	0.0007	0.0005
T-As	***0.0064***	***0.0072***	***0.0085***	0.007	0.0093	0.0032	0.014	0.0176	0.0255	0.005	0.0061	0.0045	0.007	0.0091	0.0050	0.008	0.0108	0.0068	0.0074	0.0090	0.0057	0.0075	0.0095	0.0074	0.0047	0.0055	0.0036
T-Cd	***0.00015***	***0.00017***	***0.0002***	0.00002	0.00002	0.00002	0.00008	0.00011	0.00007	0.00002	0.00002	0.00001	0.00002	0.00002	0.00001	0.00002	0.00002	0.00002	0.00002	0.00002	0.00001	0.00003	0.00004	0.00002	0.00002	0.00002	0.00001
T-Co	***0.003***	***0.0034***	***0.004***	0.00033	0.00045	0.00020	0.00110	0.00141	0.00100	0.00011	0.00012	0.00015	0.00012	0.00012	0.00012	0.00022	0.00031	0.00040	0.00012	0.00013	0.00018	0.00029	0.00041	0.00021	0.00011	0.00011	0.00011
T-Cu	***0.00375***	***0.00425***	***0.005***	0.00126	0.00169	0.00050	0.00430	0.00497	0.00349	0.00094	0.00113	0.00075	0.00077	0.00090	0.00057	0.00111	0.00154	0.00156	0.00085	0.00100	0.00057	0.00092	0.00116	0.00082	0.00050	0.00050	0.00053
T-Fe	***0.75***	***0.85***	***1***	0.62	0.92	0.12	2.00	2.60	1.66	0.14	0.19	0.16	0.12	0.15	0.11	0.36	0.57	0.72	0.10	0.13	0.16	0.51	0.79	0.18	0.04	0.05	0.04
T-Pb	***0.00578***	***0.00655***	***0.0077***	0.0009	0.0013	0.00006	0.0022	0.0029	0.00305	0.0002	0.0002	0.00012	0.0001	0.0002	0.00011	0.0005	0.0008	0.00066	0.0003	0.0004	0.00022	0.0005	0.0007	0.00018	0.0001	0.0001	0.00005
T-Mn	***0.878***	***0.995***	***1.17***	0.068	0.081	0.097	0.108	0.135	0.103	0.018	0.021	0.034	0.039	0.049	0.043	0.037	0.044	0.054	0.040	0.044	0.044	0.051	0.064	0.061	0.057	0.070	0.055
T-Hg	***0.000015***	***0.000017***	***0.00002***	0.000010	0.000010	0.000005	0.000010	0.000010	0.000057	0.000010	0.000010	0.000005	0.000011	0.000013	0.000005	0.000011	0.000013	0.000006	0.000010	0.000013	0.000005	0.000011	0.000013	0.000005	0.000010	0.000013	0.000005
T-Mo	***0.0548***	***0.0621***	***0.073***	0.00020	0.00023	0.00017	0.00018	0.00020	0.00027	0.00025	0.00026	0.00024	0.00037	0.00046	0.00027	0.00035	0.00042	0.00029	0.00042	0.00050	0.00030	0.00036	0.00043	0.00030	0.00026	0.00029	0.00023
T-Ni	***0.087***	***0.099***	***0.116***	0.0028	0.0034	0.0020	0.0044	0.0050	0.0038	0.0010	0.0011	0.0011	0.0011	0.0012	0.0012	0.0013	0.0016	0.0018	0.0011	0.0012	0.0011	0.0012	0.0015	0.0014	0.0012	0.0014	0.0011
T-Se	***0.0015***	***0.0017***	***0.002***	0.00023	0.00025	0.00025	0.00022	0.00027	0.00020	0.00024	0.00024	0.00017	0.00021	0.00025	0.00018	0.00024	0.00029	0.00016	0.00023	0.00026	0.00014	0.00023	0.00027	0.00016	0.00023	0.00025	0.00019
T-Ag	***0.00113***	***0.00128***	***0.0015***	0.000010	0.000010	0.000010	0.000027	0.000035	0.000024	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000011	0.000010	0.000010	0.000010	0.000010
T-U	***0.0113***	***0.0128***	***0.015***	0.0021	0.0023	0.0020	0.0007	0.0008	0.0009	0.0009	0.0009	0.0008	0.0012	0.0014	0.0011	0.0014	0.0017	0.0009	0.0013	0.0014	0.0009	0.0014	0.0016	0.0012	0.0017	0.0018	0.0015
T-Zn	***0.0285***	***0.0323***	***0.038***	0.007	0.008	0.0035	0.012	0.015	0.0098	0.003	0.004	0.0030	0.005	0.006	0.0030	0.003	0.004	0.0038	0.003	0.004	0.0030	0.004	0.005	0.0030	0.003	0.003	0.0030

All units in mg/L
Baseline period for W4 2007-2017, samples with TSS<50 mg/L excluded

Colour Coding Legend for Trend Assessment	
Monthly 2021 mean is ≤ any Tier and ≤ Baseline 2 stdev	no action
Monthly 2021 mean is ≥ any Tier but ≤ Baseline 2 stdev	high background
Monthly 2021 mean is ≥ Tier 2 < Tier 3 ≥ Baseline 2 stdev	monitor
Monthly 2021 mean is ≥ Tier 3 > Baseline 2 stdev	Upward trend

Table 3-13:
Summary Comparison of Key Water Quality Parameters at W99 for 2019 to 2021 Monthly Mean Values and Relative to AMP Threshold Values

Parameter	T1	T2	T3	W99 - Haggart Creek																				
				April			May			June			July			August			September			October			November		
				Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean
TSS			*15*	19	25	3	45	62	39	17	26	3	3	4	3	5	6	31	3	3	2	3	3	15	3	3	5
SO_4	*231.8*	*262.7*	*309*	98	102	107	58	82	45	72	90	52	82	83	76	86	86	56	92	92	61	82	82	64	90	90	72
Cl	*112.5*	*127.5*	*150*	3.4	4.3	0.5	0.7	0.8	0.7	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.5	0.5	0.9
NO_3-N	*2.3*	*2.6*	*3*	0.104	0.113	0.152	0.204	0.312	0.060	0.068	0.075	0.082	0.063	0.066	0.066	0.058	0.058	0.065	0.060	0.060	0.079	0.118	0.118	0.102	0.141	0.141	0.124
NO_2-N	*0.015*	*0.017*	*0.02*	0.0011	0.0012	0.0010	0.0017	0.0021	0.0010	0.0016	0.0019	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
NH_3-N	*0.848*	*0.961*	*1.13*	0.0158	0.0209	0.006	0.0067	0.0067	0.006	0.0056	0.0056	0.005	0.0122	0.0158	0.006	0.0050	0.0050	0.005	0.0201	0.0201	0.005	0.0050	0.0050	0.005	0.008	0.008	0.006
CN_{WAD}	*0.005*	*0.005*	*0.005*	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	-	-	0.005	-	-	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	*0.075*	*0.085*	*0.1*	0.013	0.015	0.002	0.191	0.269	0.085	0.066	0.095	0.023	0.008	0.010	0.009	0.004	0.004	0.031	0.004	0.004	0.013	0.006	0.006	0.014	0.002	0.002	0.004
T-Sb	*0.015*	*0.017*	*0.02*	0.0015	0.0018	0.0005	0.0010	0.0011	0.0016	0.0006	0.0007	0.0004	0.0007	0.0007	0.0005	0.0006	0.0006	0.0006	0.0006	0.0006	0.0004	0.0005	0.0005	0.0011	0.0006	0.0006	0.0005
T-As	*0.0064*	*0.0072*	*0.0085*	0.0197	0.0231	0.0034	0.0178	0.0228	0.0333	0.0042	0.0045	0.0046	0.0038	0.0040	0.0052	0.0037	0.0037	0.0074	0.0030	0.0030	0.0053	0.0029	0.0029	0.0192	0.0030	0.0030	0.0040
T-Cd	*0.00015*	*0.00017*	*0.0002*	0.00004	0.00005	0.00002	0.00006	0.00008	0.00008	0.00003	0.00004	0.00001	0.00001	0.00002	0.00001	0.00001	0.00001	0.00003	0.00001	0.00001	0.00001	0.00001	0.00001	0.00003	0.00002	0.00002	0.00001
T-Co	*0.003*	*0.0034*	*0.004*	0.00065	0.00072	0.00018	0.00108	0.00140	0.00108	0.00038	0.00050	0.00017	0.00011	0.00012	0.00013	0.00013	0.00013	0.00056	0.00011	0.00011	0.00016	0.00010	0.00010	0.00060	0.00012	0.00012	0.00013
T-Cu	*0.00375*	*0.00425*	*0.005*	0.00222	0.00260	0.00050	0.00373	0.00479	0.00390	0.00231	0.00310	0.00098	0.00063	0.00065	0.00060	0.00057	0.00057	0.00215	0.00058	0.00058	0.00059	0.00063	0.00063	0.00205	0.00081	0.00081	0.00062
T-Fe	*0.75*	*0.85*	*1*	0.99	1.19	0.09	1.89	2.49	1.61	0.70	1.00	0.23	0.09	0.11	0.11	0.11	0.11	1.09	0.04	0.04	0.12	0.05	0.05	1.07	0.04	0.04	0.07
T-Pb	*0.00578*	*0.00655*	*0.0077*	0.0019	0.0024	0.00005	0.0023	0.0030	0.00451	0.0008	0.0011	0.00018	0.0001	0.0001	0.00013	0.0002	0.0002	0.00084	0.0001	0.0001	0.00009	0.0001	0.0001	0.00189	0.00006	0.00006	0.00010
T-Mn	*0.878*	*0.995*	*1.17*	0.132	0.148	0.090	0.108	0.132	0.105	0.053	0.058	0.038	0.049	0.049	0.052	0.063	0.063	0.065	0.067	0.067	0.046	0.056	0.056	0.080	0.067	0.067	0.047
T-Hg	*0.000015*	*0.000017*	*0.00002*	0.000005	0.000005	0.000005	0.000050	0.000068	0.000030	0.000007	0.000007	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000006	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005	0.000005
T-Mo	*0.0548*	*0.0621*	*0.073*	0.00034	0.00040	0.00018	0.00025	0.00030	0.00027	0.00019	0.00019	0.00024	0.00019	0.00019	0.00028	0.00019	0.00019	0.00029	0.00029	0.00029	0.00031	0.00021	0.00021	0.00030	0.00025	0.00025	0.00021
T-Ni	*0.087*	*0.099*	*0.116*	0.0027	0.0029	0.0017	0.0039	0.0048	0.0038	0.0025	0.0032	0.0013	0.0010	0.0010	0.0011	0.0010	0.0010	0.0022	0.0010	0.0010	0.0011	0.0010	0.0010	0.0023	0.0009	0.0009	0.0008
T-Se	*0.0015*	*0.0017*	*0.002*	0.00024	0.00026	0.00025	0.00018	0.00022	0.00016	0.00014	0.00015	0.00018	0.00015	0.00016	0.00013	0.00012	0.00012	0.00014	0.00012	0.00012	0.00013	0.00020	0.00020	0.00015	0.00014	0.00014	0.00013
T-Ag	*0.00113*	*0.00128*	*0.0015*	0.000019	0.000023	0.000010	0.000033	0.000044	0.000027	0.000013	0.000015	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000017	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010
T-U	*0.0113*	*0.0128*	*0.015*	0.0027	0.0031	0.0022	0.0011	0.0015	0.0010	0.0011	0.0014	0.0007	0.0013	0.0014	0.0011	0.0014	0.0014	0.0009	0.0017	0.0017	0.0010	0.0014	0.0014	0.0012	0.0018	0.0018	0.0013
T-Zn	*0.0285*	*0.0323*	*0.038*	0.006	0.007	0.0032	0.010	0.013	0.0105	0.004	0.004	0.0030	0.003	0.003	0.0030	0.003	0.003	0.0044	0.003	0.003	0.0030	0.003	0.003	0.0048	0.0030	0.0030	0.0030

All units in mg/L
No baseline available for W99 – sampling commenced in April 2019

Colour Coding Legend for Trend Assessment	
Monthly 2021 mean is ≤ any Tier and ≤ Baseline 2 stdev	no action
Monthly 2021 mean is ≥ any Tier but ≤ Baseline 2 stdev	high background
Monthly 2021 mean is ≥ Tier 2 < Tier 3 ≥ Baseline 2 stdev	monitor
Monthly 2021 mean is ≥ Tier 3 > Baseline 2 stdev	Upward trend

3.2.4 W23

Water quality at W23 reflects loadings from all upstream tributaries, including Dublin Gulch and all mine related inputs as well as additional loadings from Lynx Creek. Water quality observed in 2021 at W23 relative to the baseline period of 2007 to 2017 indicated that most parameters measured in 2021 were at concentrations very similar to those observed during baseline monitoring. Indeed, most parameters were present at a concentration within +1 standard deviation of the baseline monthly mean concentration with the exception of As in July and October (Table 3-14).

The measured concentration of total As on July 10, 2021 at W23 (0.0093 mg/L) is anomalous as no discharge was occurring into Haggart Creek at that time. Sampling on July 10 at W23 did not coincide with sampling at W99, W29 or W4 at upstream locations in Haggart Creek so the extent of the elevated levels in Haggart Creek or the potential source cannot be ascertained. However, water quality data collected on July 10 at station W5, located immediately upstream of W23 and upstream of the confluence with Lynx Creek (Figure 2-1) also indicated a relatively high total As concentration of 0.0087 mg/L (Appendix A).

The elevated total As value at W23 for October coincides with the observed value at upstream station W99 (0.019 mg/L) and W5 (0.019 mg/L; Appendix A); as above, without any clear connection to Project or other activities, the contributing factors for the elevated concentrations are unknown.

Table 3-14:
Summary Comparison of Key Water Quality Parameters at W23 for Baseline Period (2007 – 2017) to 2021 Monthly Mean Values and Relative to AMP Threshold Values

Parameter	T1	T2	T3	W23 - Haggart Creek																				
				April			May			June			July			August			September			October			November		
				Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean	Baseline 1 stdev	Baseline 2 stdev	2021 mean
TSS			***15***	15	22	3	91	135	29	45	67	3	4	4	13	3	3	4	9	13	2	3	3	10	3	3	3
SO_4	***231.8***	***262.7***	***309***	89	89	106	24	30	19	53	60	63	74	82	66	72	79	59	68	75	63	74	82	65	91	99	87
Cl	***112.5***	***127.5***	***150***	0.5	0.5	0.5	1.5	2.2	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.7	0.5	0.6	0.7	0.5	0.6	0.7	0.5
NO_3-N	***2.3***	***2.6***	***3***	0.179	0.191	0.221	0.035	0.042	0.034	0.071	0.084	0.077	0.055	0.065	0.064	0.068	0.082	0.060	0.099	0.118	0.081	0.160	0.179	0.113	0.205	0.222	0.144
NO_2-N	***0.015***	***0.017***	***0.02***	0.0010	0.0010	0.0010	0.0030	0.0044	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0011	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010	0.0010
NH_3-N	***0.848***	***0.961***	***1.13***	0.0071	0.0083	0.005	0.0100	0.0124	0.007	0.0299	0.0427	0.005	0.0050	0.0050	0.005	0.0158	0.0225	0.006	0.0118	0.0168	0.005	0.0133	0.0187	0.005	0.006	0.006	0.005
CN_{WAD}	***0.005***	***0.005***	***0.005***	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
Diss- Al	***0.075***	***0.085***	***0.1***	0.006	0.008	0.002	0.167	0.215	0.132	0.038	0.052	0.011	0.019	0.027	0.019	0.010	0.013	0.022	0.017	0.022	0.012	0.008	0.010	0.016	0.004	0.005	0.004
T-Sb	***0.015***	***0.017***	***0.02***	0.0015	0.0021	0.0005	0.0010	0.0012	0.0007	0.0014	0.0019	0.0005	0.0006	0.0007	0.0007	0.0006	0.0006	0.0005	0.0007	0.0008	0.0005	0.0005	0.0006	0.0008	0.0005	0.0005	0.0005
T-As	***0.0064***	***0.0072***	***0.0085***	0.0291	0.0436	0.0044	0.0178	0.0238	0.0116	0.0271	0.0398	0.0048	0.0055	0.0061	0.0093	0.0059	0.0063	0.0060	0.0072	0.0084	0.0056	0.0056	0.0061	0.0135	0.0046	0.0047	0.0043
T-Cd	***0.00015***	***0.00017***	***0.0002***	0.00006	0.00008	0.00001	0.00011	0.00015	0.00007	0.00016	0.00024	0.00001	0.00003	0.00004	0.00002	0.00003	0.00004	0.00002	0.00003	0.00004	0.00001	0.00003	0.00004	0.00002	0.00002	0.00002	0.00001
T-Co	***0.003***	***0.0034***	***0.004***	0.00086	0.00130	0.00010	0.00149	0.00213	0.00071	0.00267	0.00414	0.00010	0.00010	0.00010	0.00025	0.00010	0.00010	0.00017	0.00020	0.00026	0.00010	0.00019	0.00026	0.00037	0.00024	0.00032	0.00010
T-Cu	***0.00375***	***0.00425***	***0.005***	0.00325	0.00492	0.00050	0.00554	0.00719	0.00336	0.00612	0.00882	0.00074	0.00087	0.00097	0.00128	0.00085	0.00096	0.00120	0.00172	0.00225	0.00076	0.00097	0.00114	0.00160	0.00087	0.00106	0.00052
T-Fe	***0.75***	***0.85***	***1***	1.77	2.78	0.04	2.63	3.79	1.20	0.75	1.04	0.08	0.07	0.10	0.45	0.09	0.12	0.23	0.14	0.19	0.10	0.09	0.13	0.66	0.04	0.05	0.03
T-Pb	***0.00578***	***0.00655***	***0.0077***	0.0032	0.0051	0.00005	0.0037	0.0055	0.00141	0.0078	0.0123	0.00006	0.0001	0.0001	0.00065	0.0001	0.0001	0.00021	0.0005	0.0007	0.00006	0.0003	0.0004	0.00102	0.00036	0.00055	0.00005
T-Mn	***0.878***	***0.995***	***1.17***	0.092	0.123	0.035	0.154	0.217	0.083	0.305	0.472	0.019	0.021	0.023	0.037	0.025	0.029	0.032	0.035	0.043	0.032	0.032	0.037	0.052	0.033	0.037	0.032
T-Hg	***0.000015***	***0.000017***	***0.00002***	0.000009	0.000009	0.000005	0.000042	0.000061	0.000016	0.000044	0.000061	0.000005	0.000042	0.000062	0.000005	0.000040	0.000059	0.000005	0.000038	0.000056	0.000005	0.000047	0.000068	0.000005	0.000016	0.000022	0.000005
T-Mo	***0.0548***	***0.0621***	***0.073***	0.00050	0.00057	0.00054	0.00035	0.00041	0.00032	0.00089	0.00116	0.00051	0.00056	0.00058	0.00051	0.00060	0.00064	0.00049	0.00076	0.00093	0.00054	0.00077	0.00091	0.00051	0.00087	0.00106	0.00058
T-Ni	***0.087***	***0.099***	***0.116***	0.0026	0.0039	0.0007	0.0047	0.0062	0.0028	0.0052	0.0076	0.0008	0.0007	0.0008	0.0010	0.0008	0.0009	0.0012	0.0011	0.0013	0.0010	0.0009	0.0011	0.0016	0.0009	0.0011	0.0007
T-Se	***0.0015***	***0.0017***	***0.002***	0.00109	0.00138	0.00043	0.00094	0.00133	0.00022	0.00111	0.00147	0.00027	0.00100	0.00138	0.00028	0.00104	0.00141	0.00024	0.00104	0.00143	0.00026	0.00090	0.00124	0.00027	0.00081	0.00108	0.00028
T-Ag	***0.00113***	***0.00128***	***0.0015***	0.000029	0.000039	0.000010	0.000049	0.000072	0.000022	0.000033	0.000046	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000010	0.000015	0.000018	0.000010	0.000015	0.000018	0.000010	0.000017	0.000021	0.000010
T-U	***0.0113***	***0.0128***	***0.015***	0.0017	0.0017	0.0020	0.0004	0.0005	0.0003	0.0011	0.0013	0.0009	0.0011	0.0011	0.0010	0.0010	0.0011	0.0008	0.0011	0.0012	0.0009	0.0013	0.0015	0.0011	0.0016	0.0017	0.0014
T-Zn	***0.0285***	***0.0323***	***0.038***	0.011	0.016	0.0030	0.014	0.019	0.0081	0.023	0.035	0.0030	0.003	0.004	0.0037	0.003	0.004	0.0030	0.005	0.006	0.0030	0.004	0.005	0.0034	0.0044	0.0052	0.0030

All units in mg/L
Baseline period for W23 2007-2017

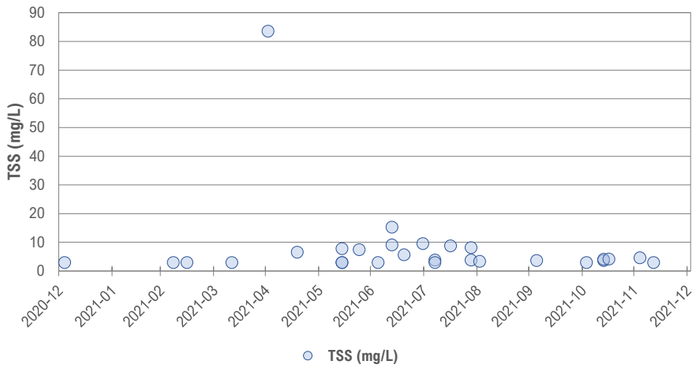
Colour Coding Legend for Trend Assessment	
Monthly 2021 mean is ≤ any Tier and ≤ Baseline 2 stdev	no action
Monthly 2021 mean is ≥ any Tier but ≤ Baseline 2 stdev	high background
Monthly 2021 mean is ≥ Tier 2 < Tier 3 ≥ Baseline 2 stdev	monitor
Monthly 2021 mean is ≥ Tier 3 > Baseline 2 stdev	Upward trend

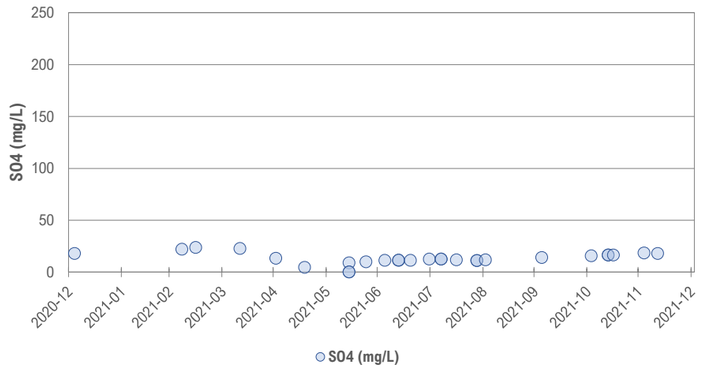
Appendix A:
Water Quality Database Dashboard -Electronic

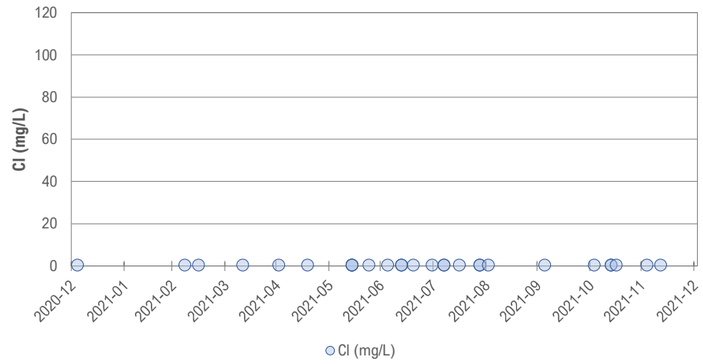
Eagle Gold Project Water Quality Database Dashboard
(provided electronically)

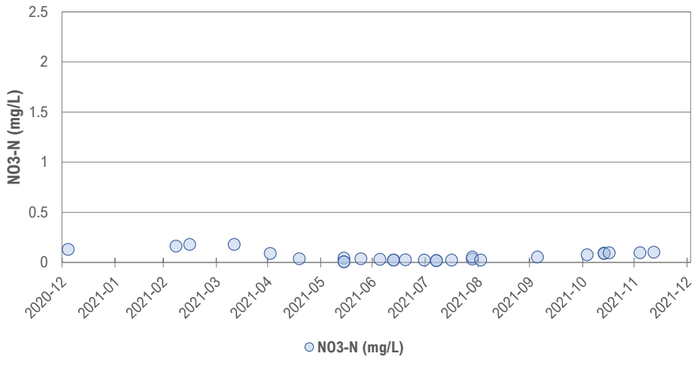
Appendix B:
Graphical Results of 2021 Monitoring Data

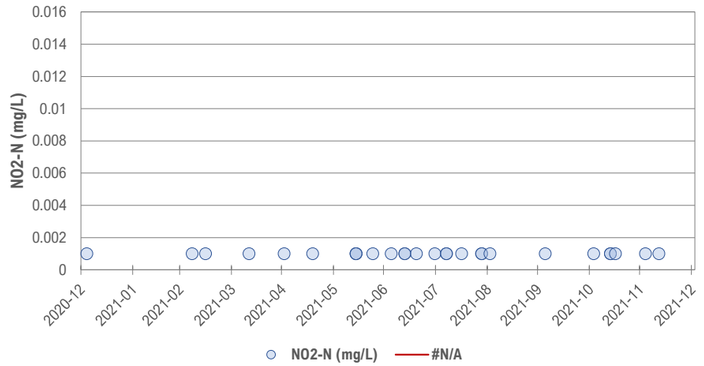
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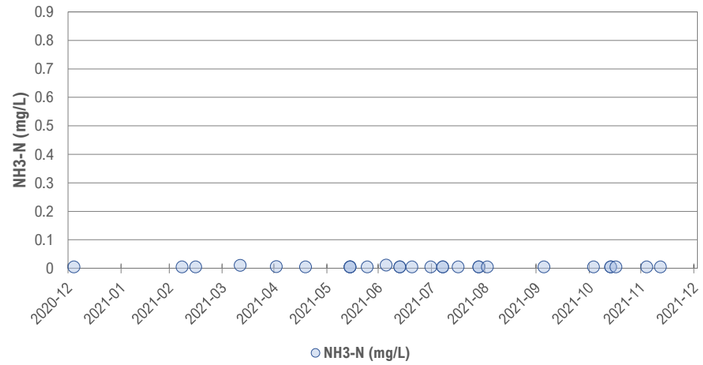




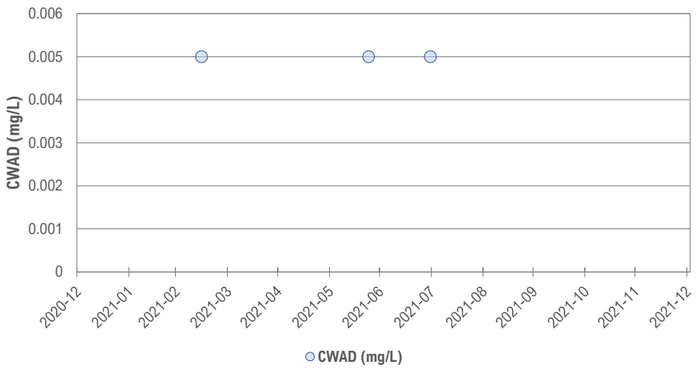


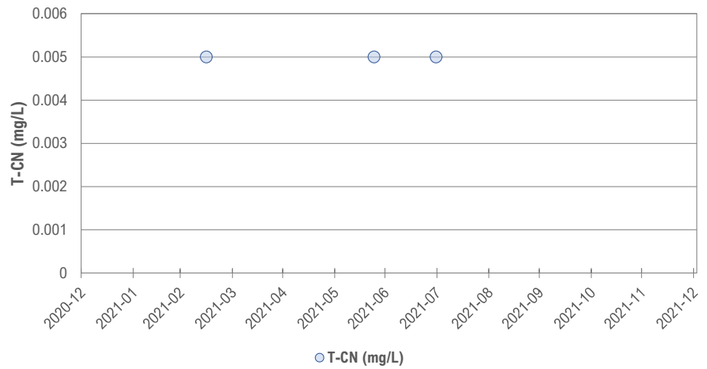


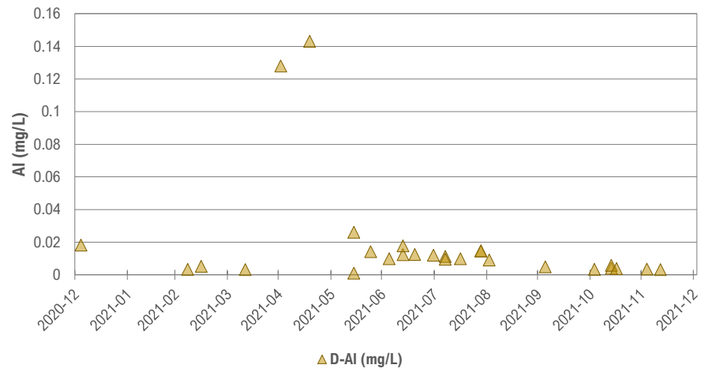


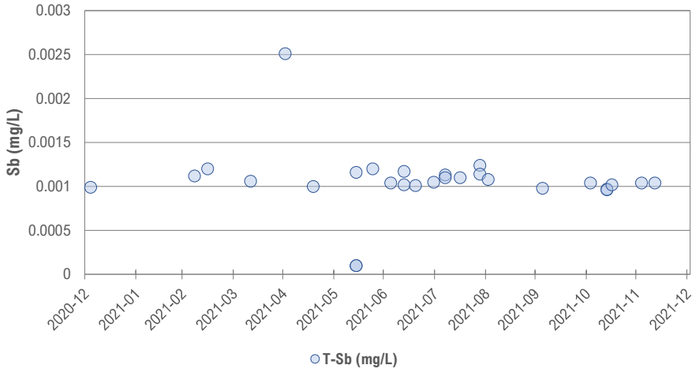


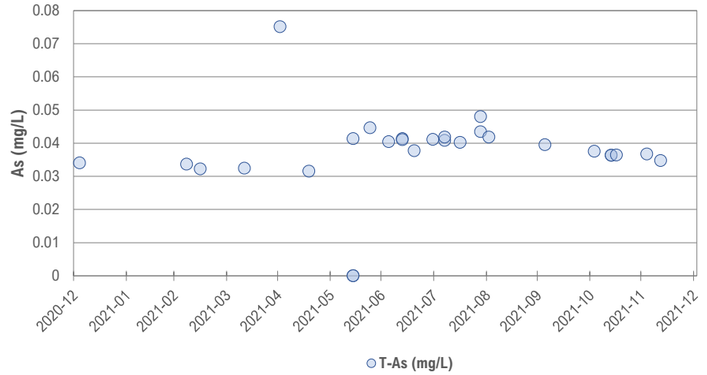
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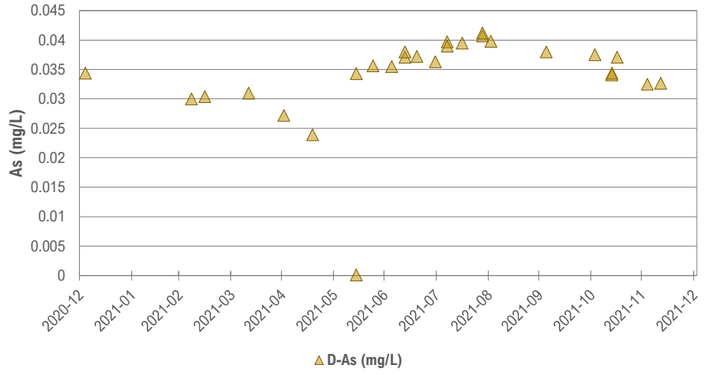




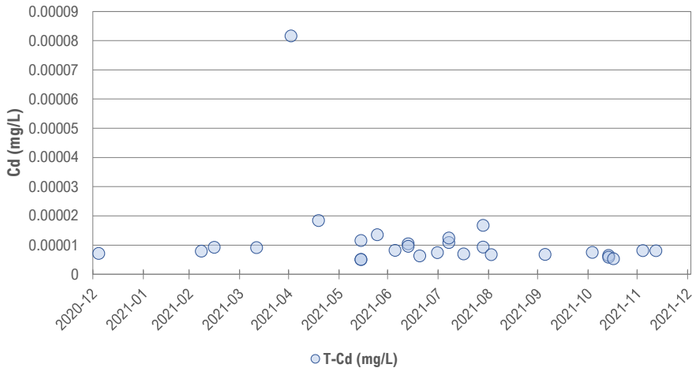


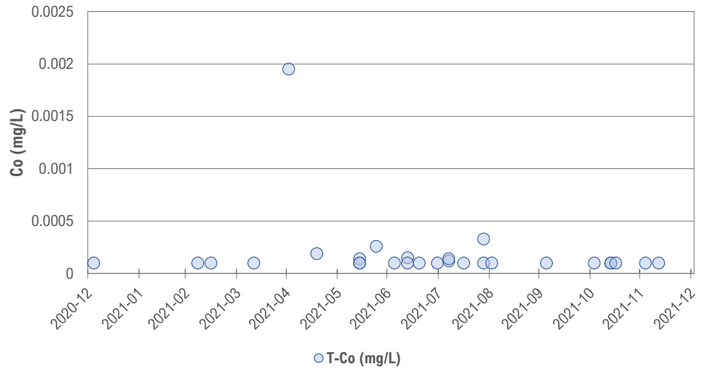


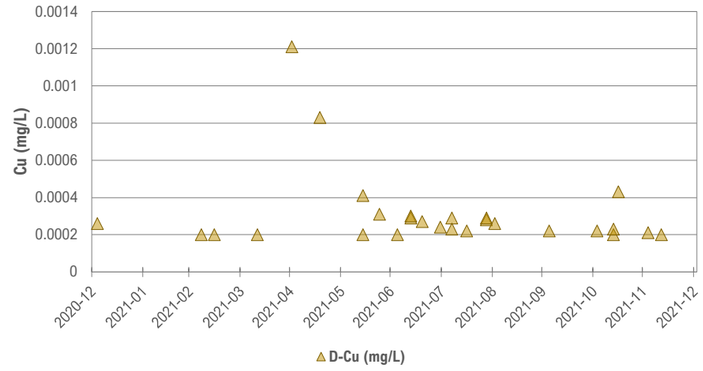


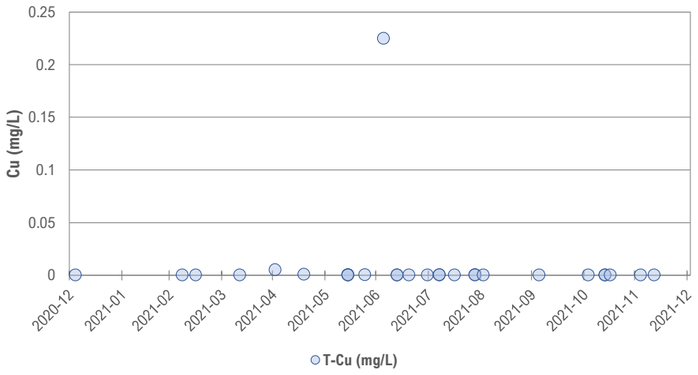


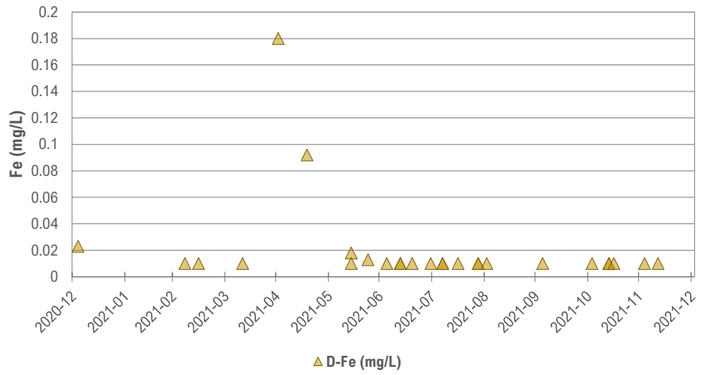
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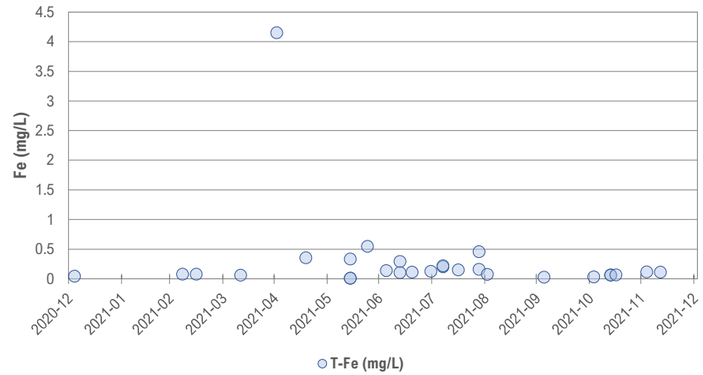




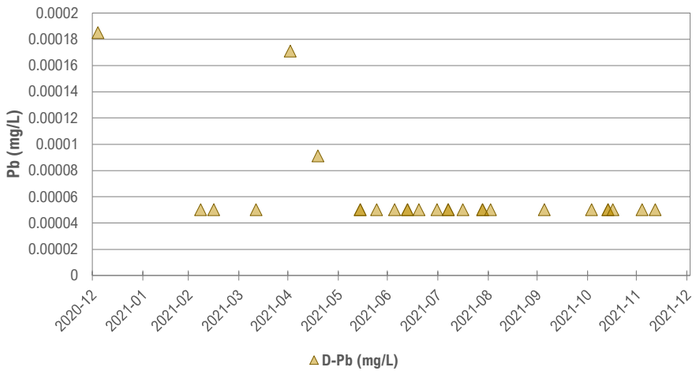


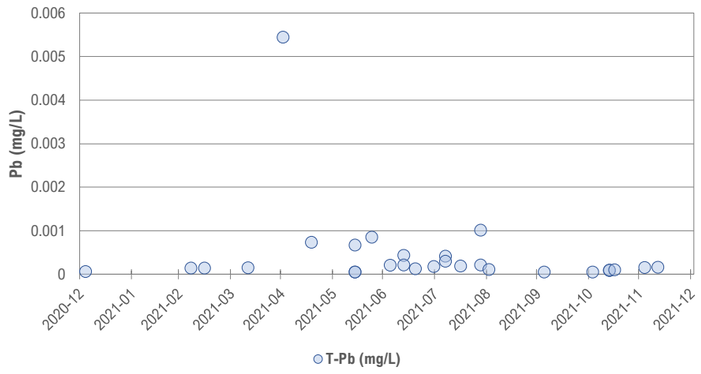


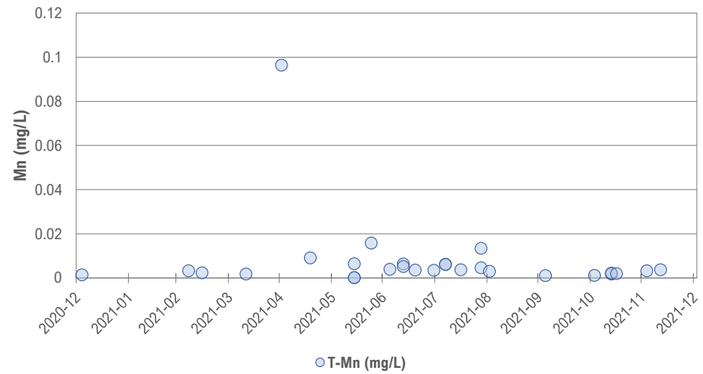


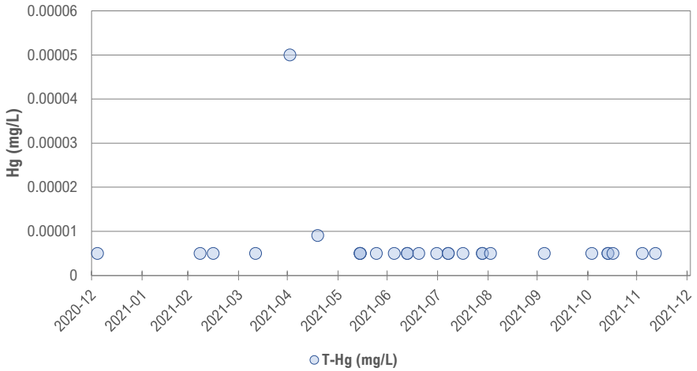


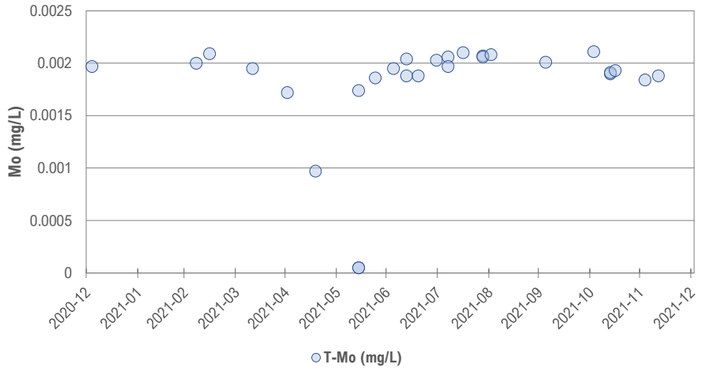
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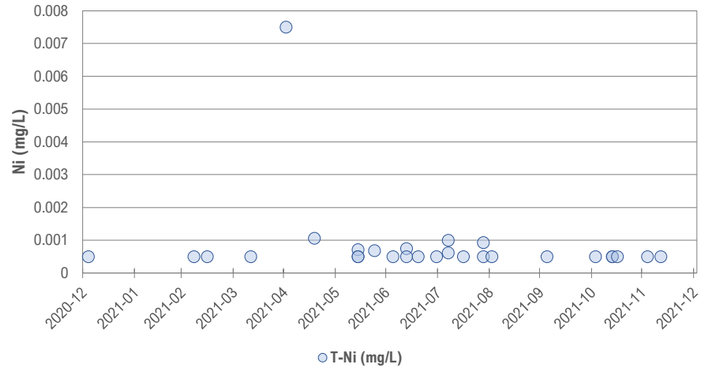




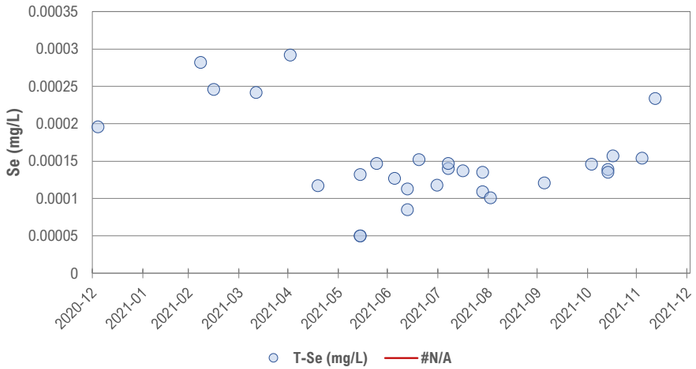


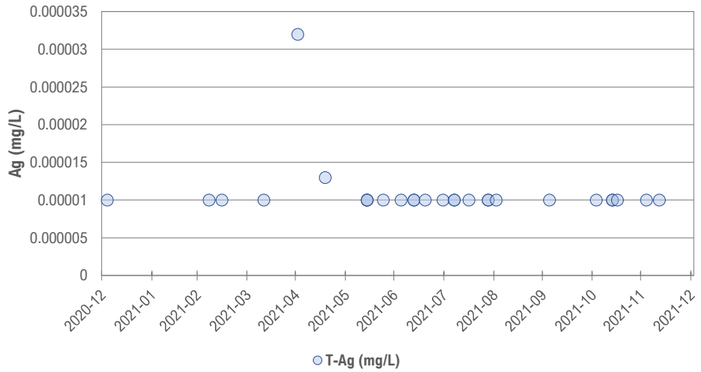


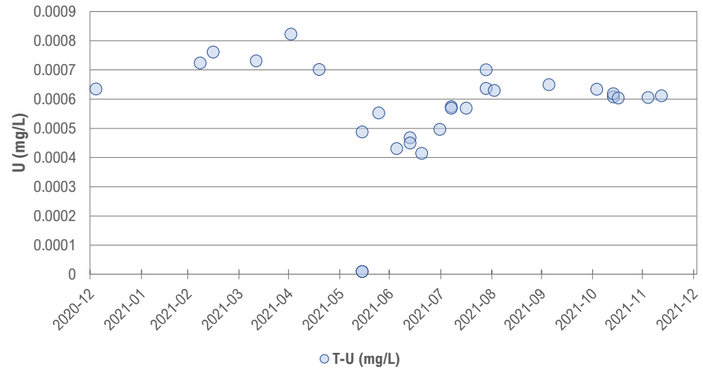


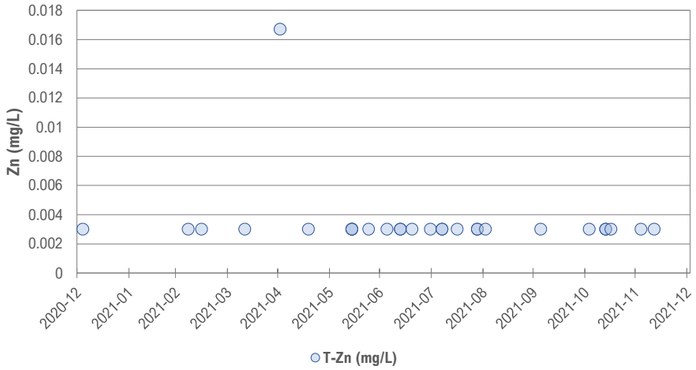


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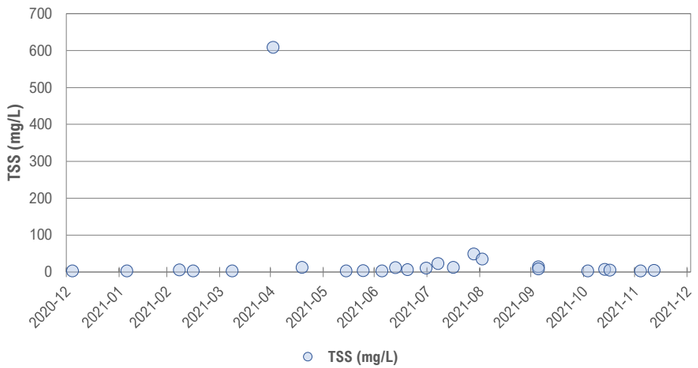


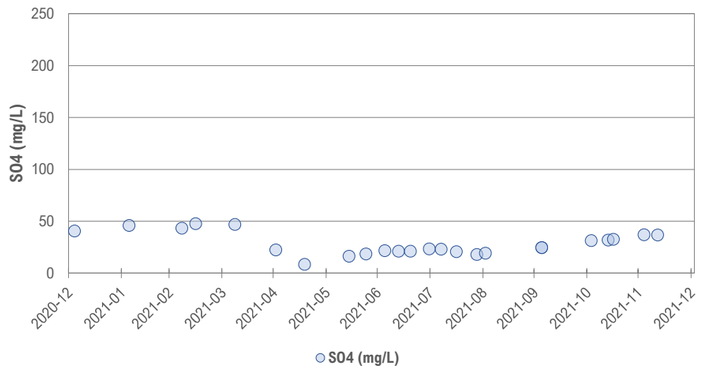


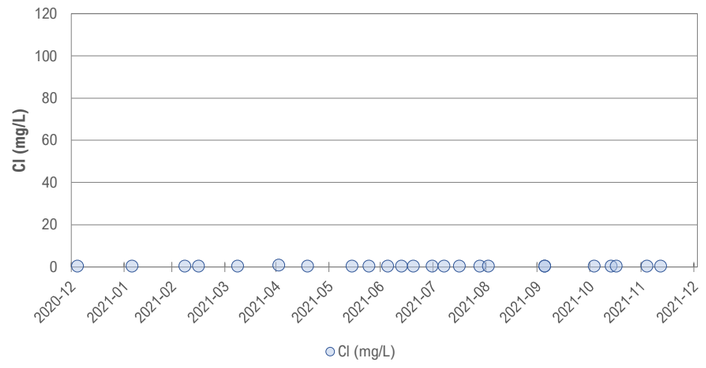


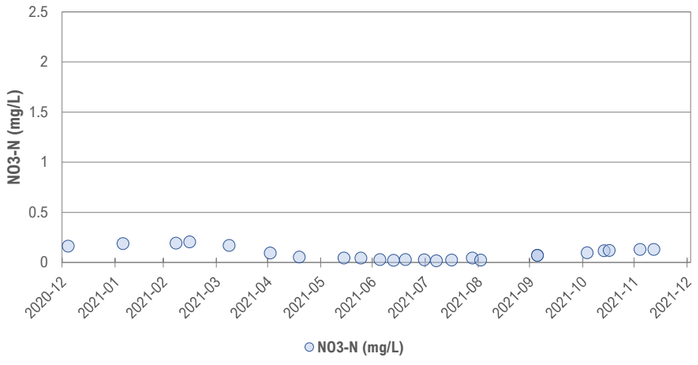


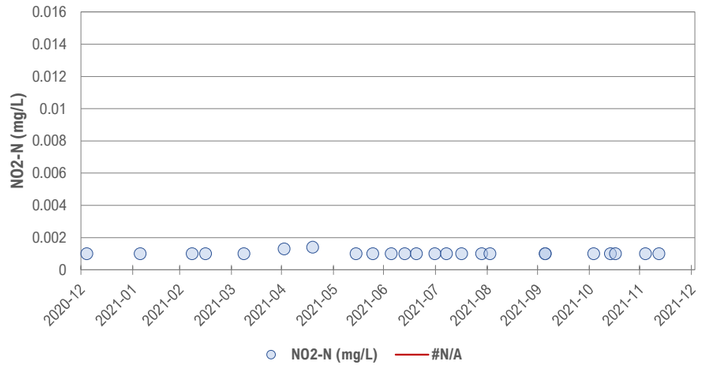
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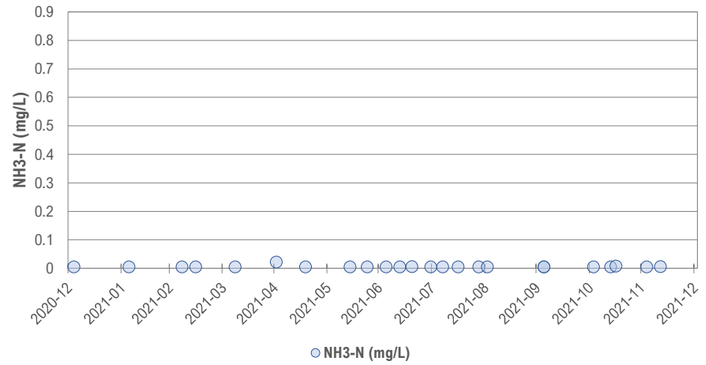




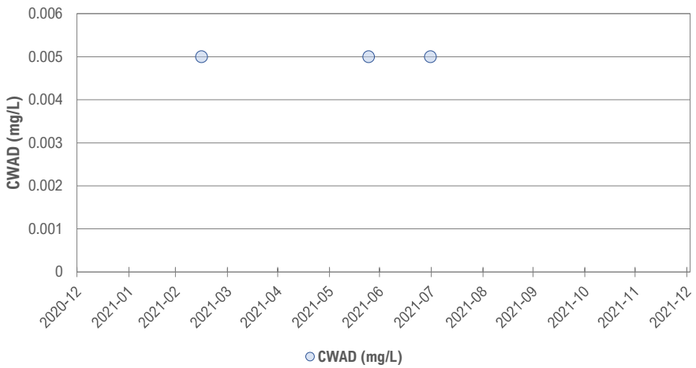


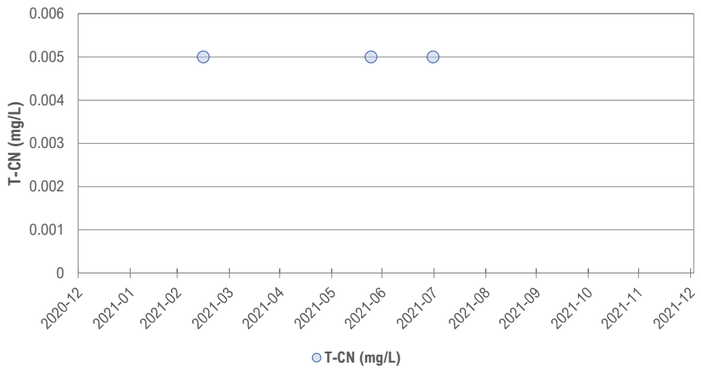


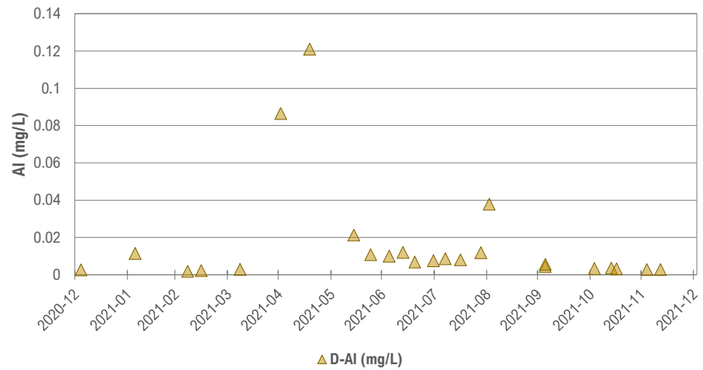


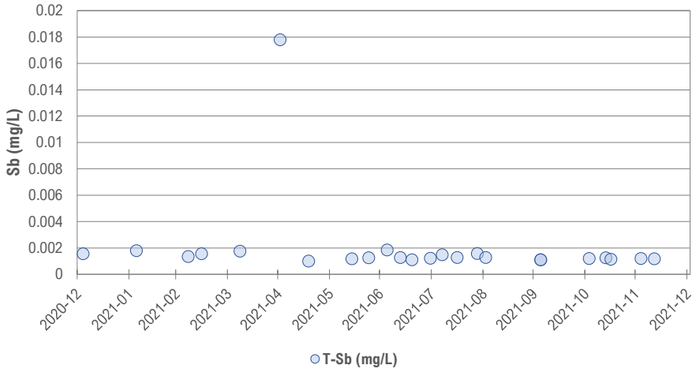


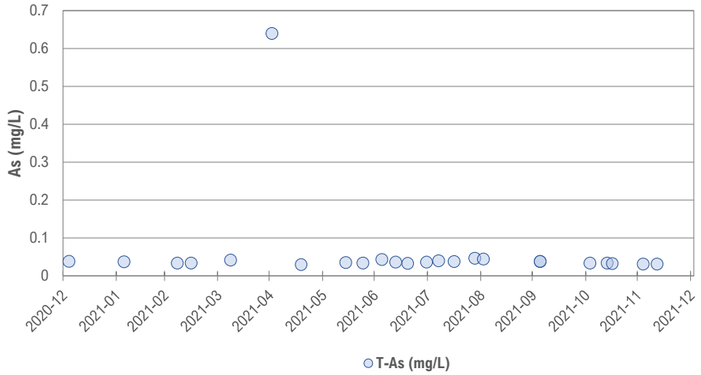
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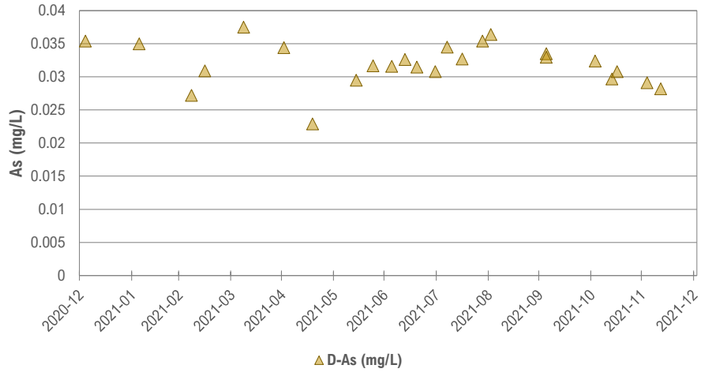




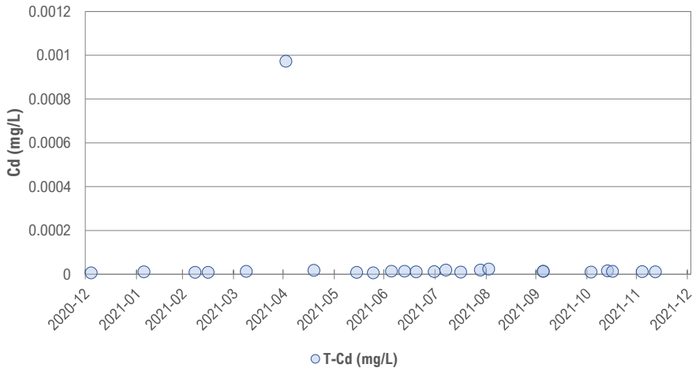


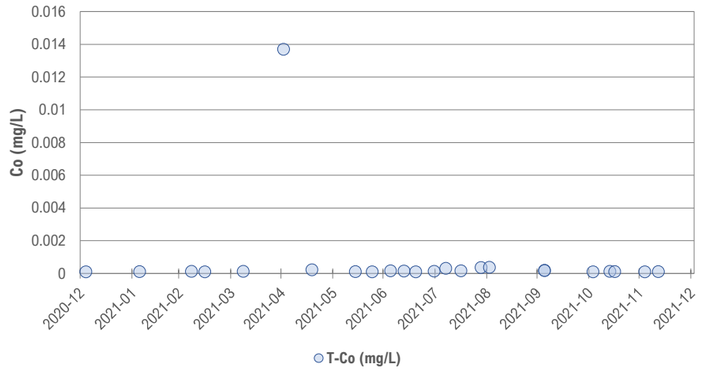


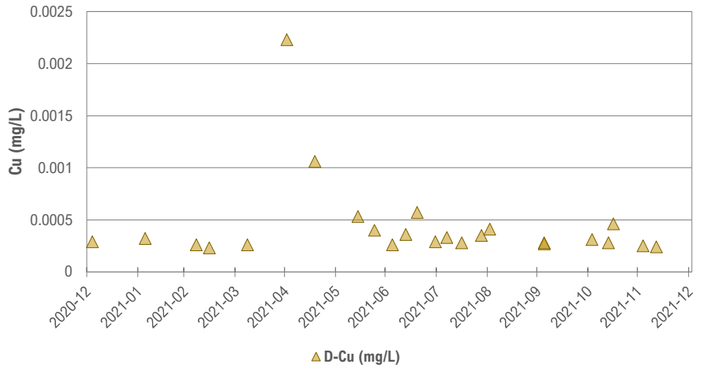


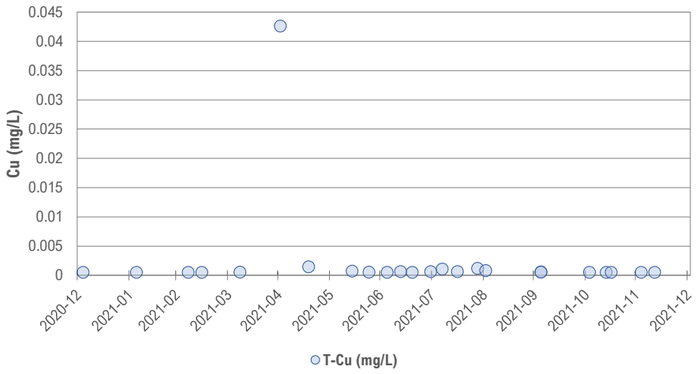


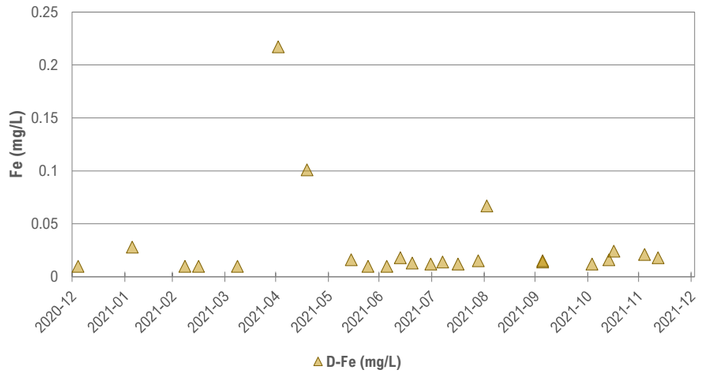
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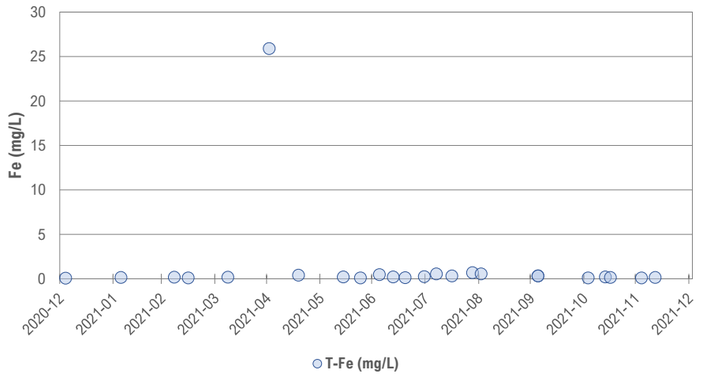




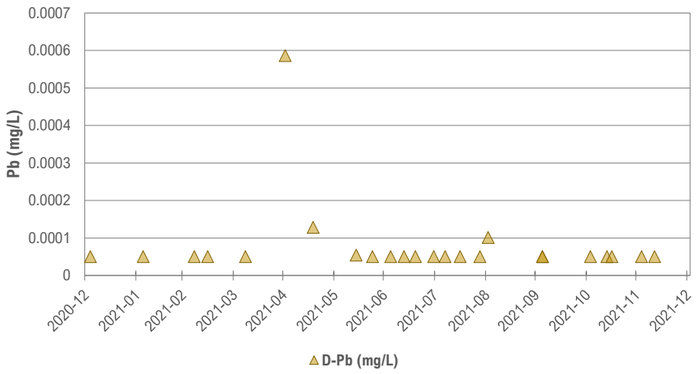


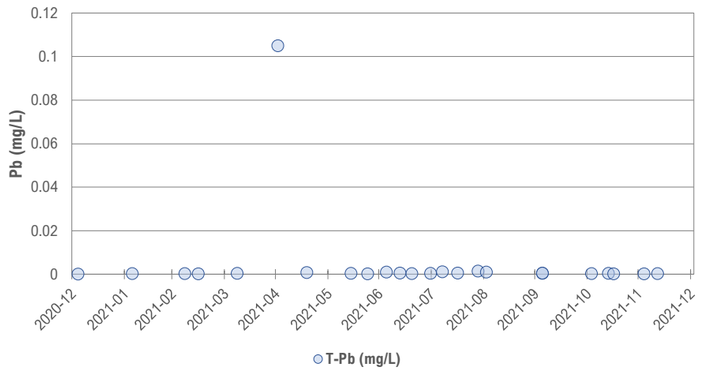


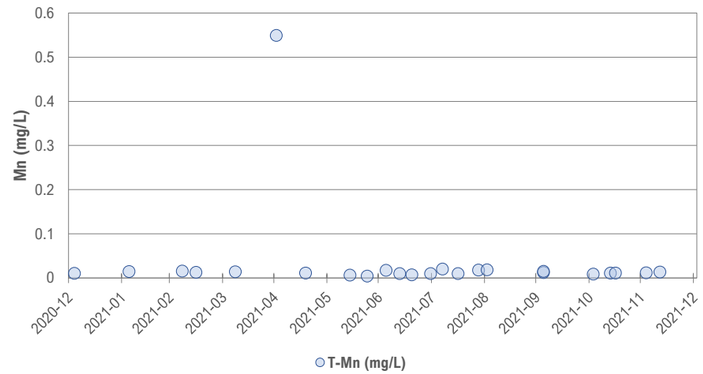


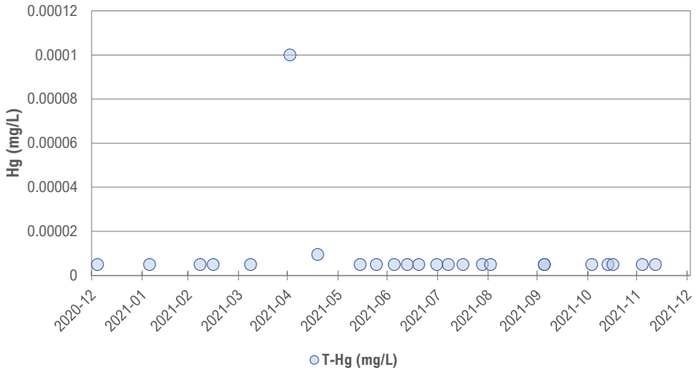


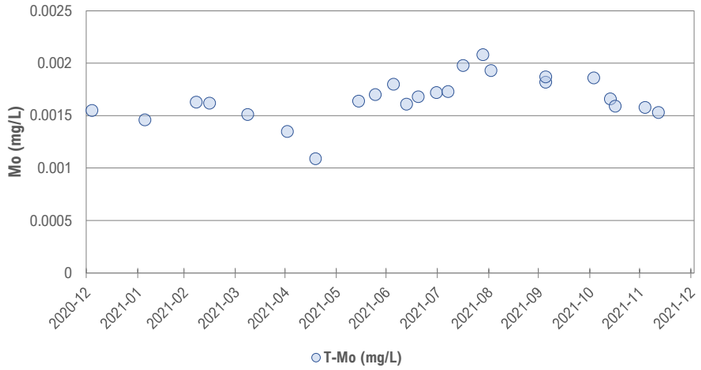
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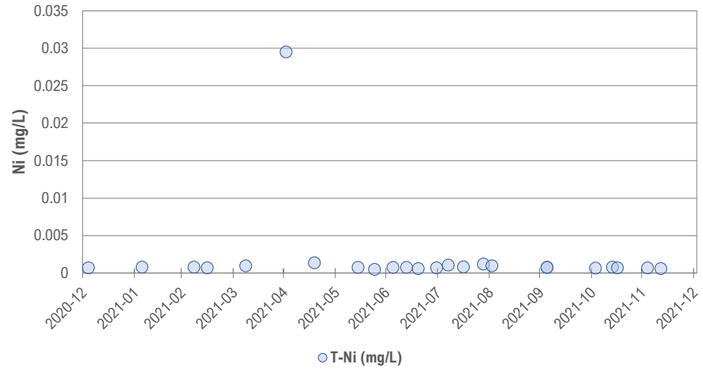




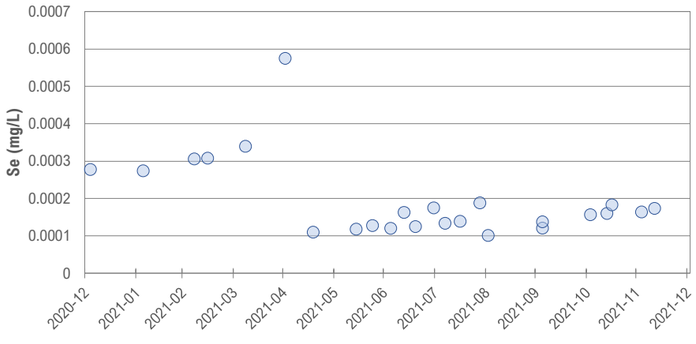


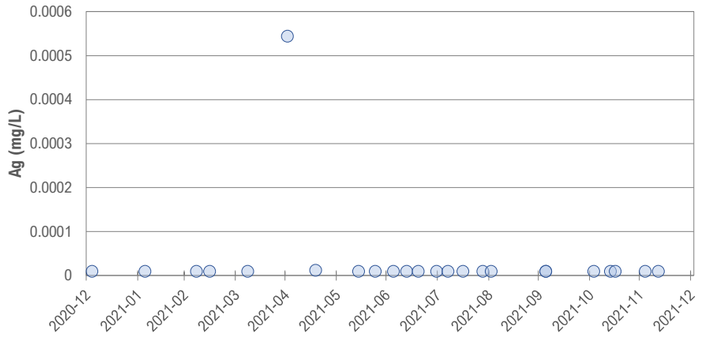


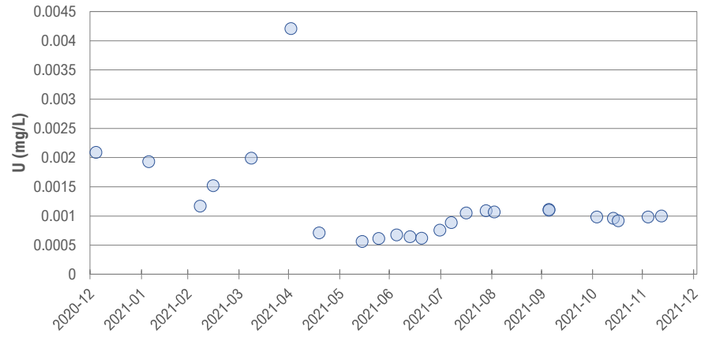


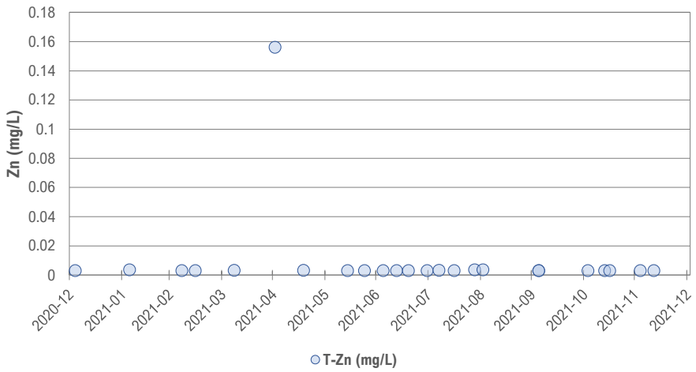


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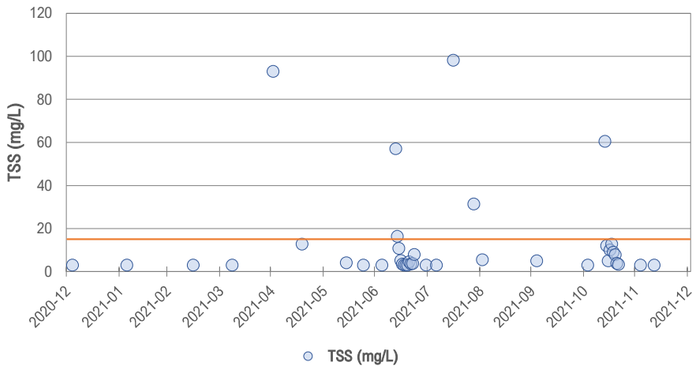


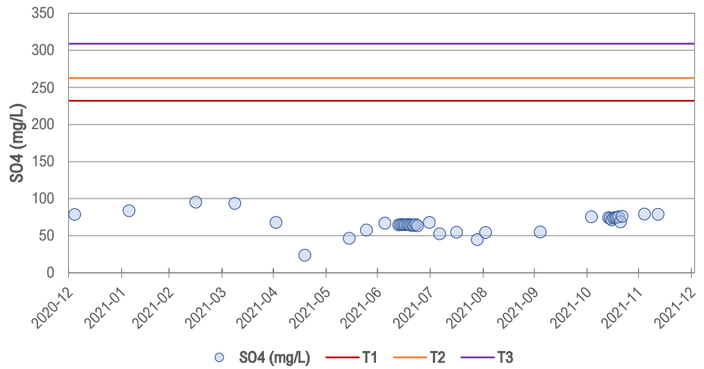


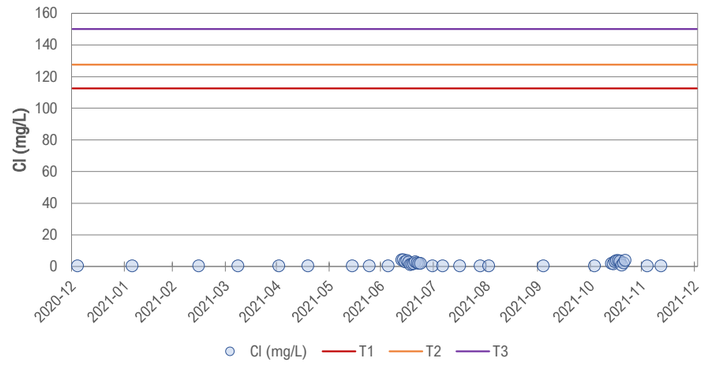


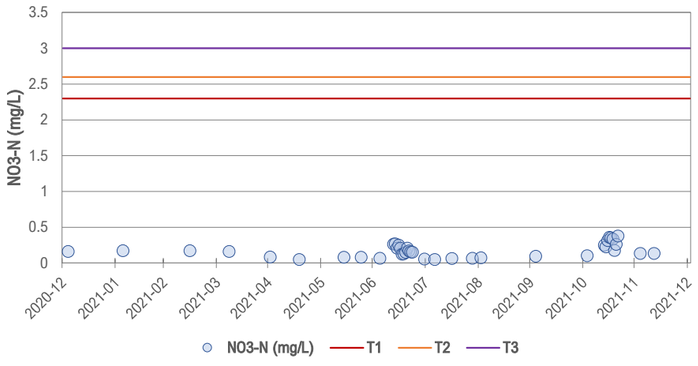


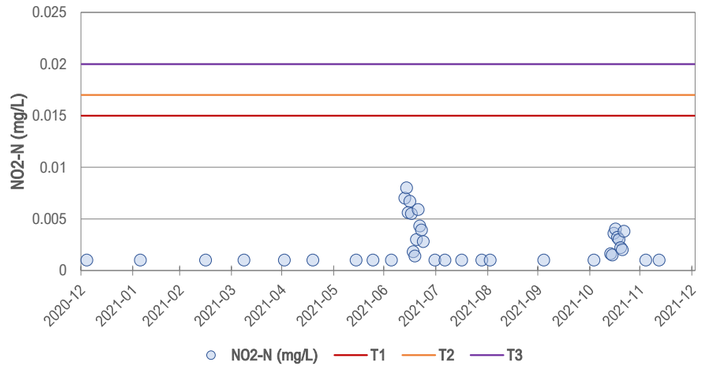
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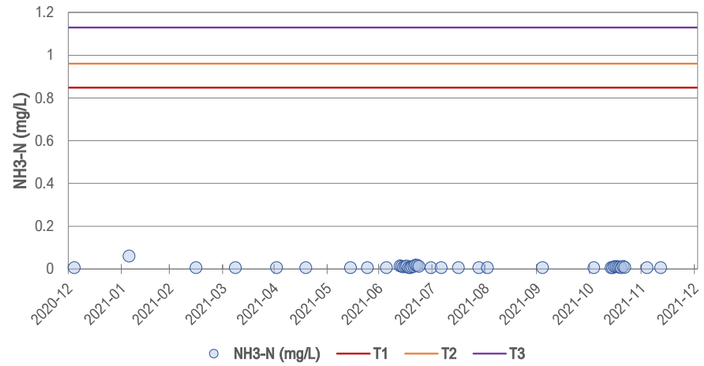




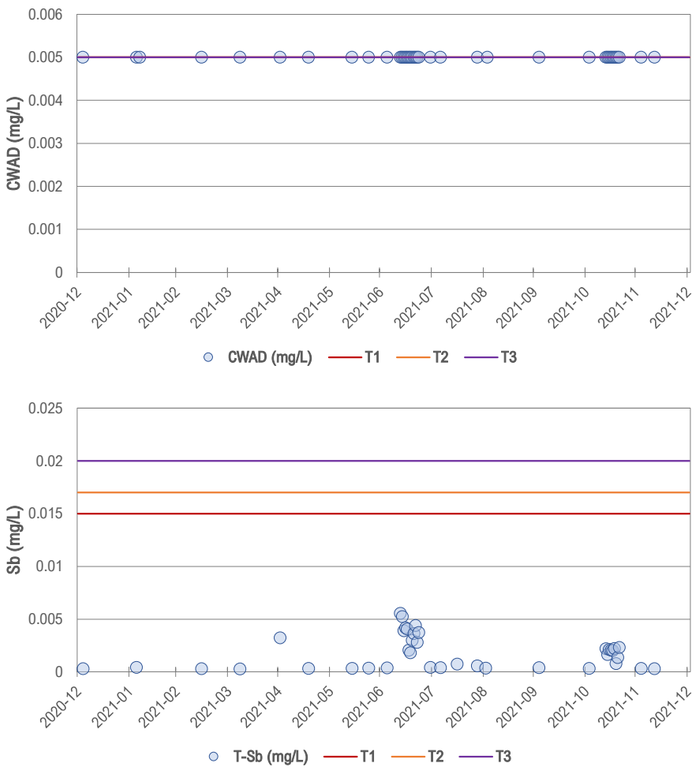


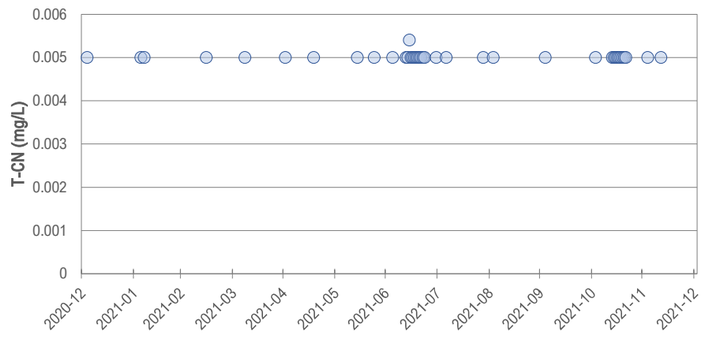


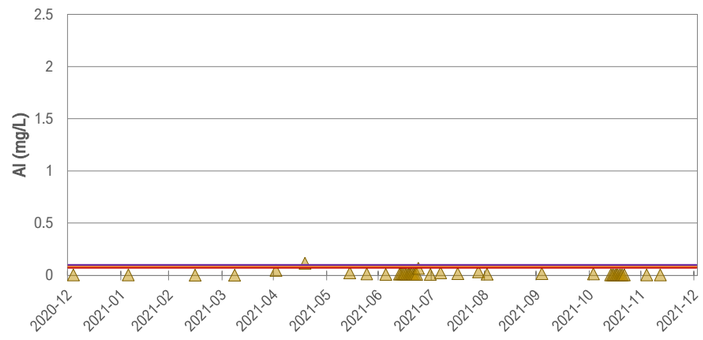


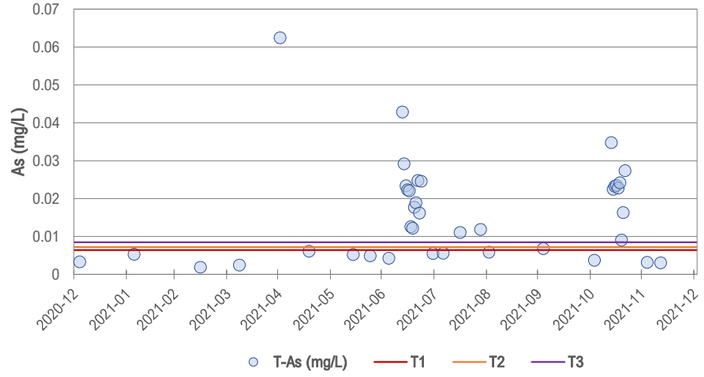


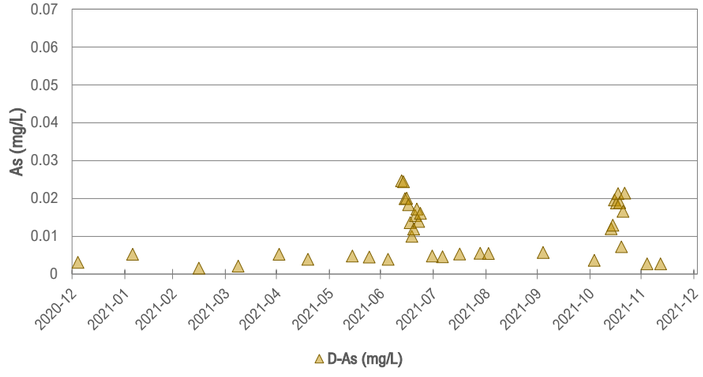
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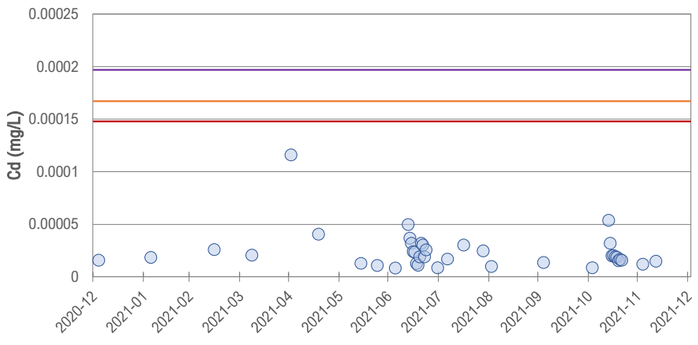


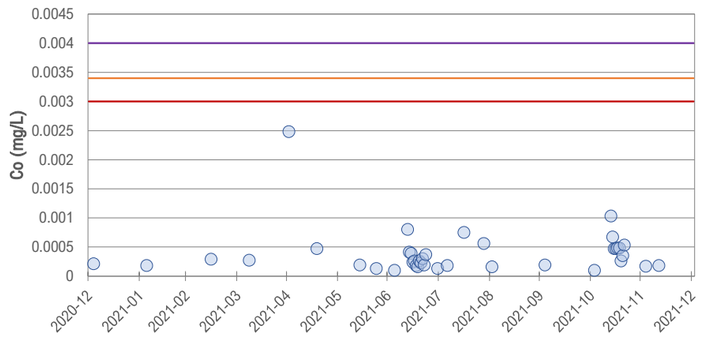


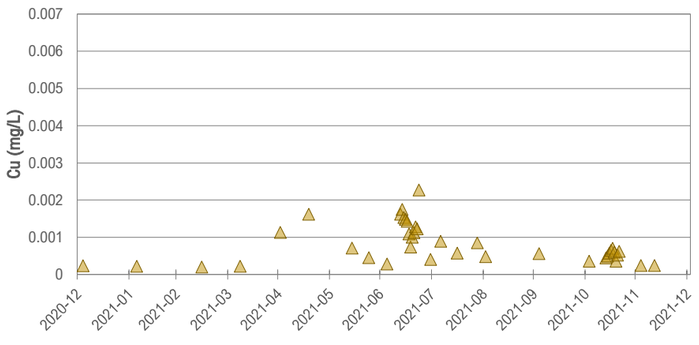


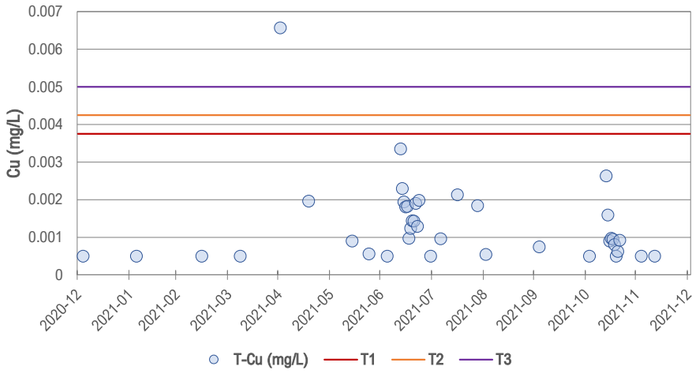


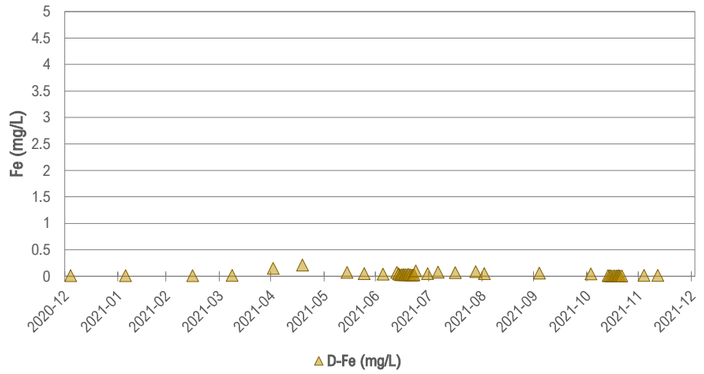
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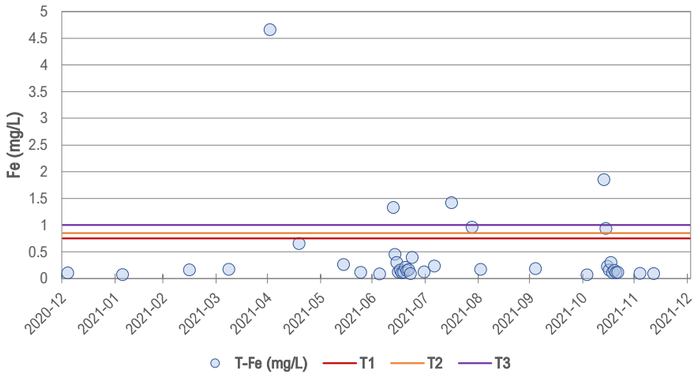




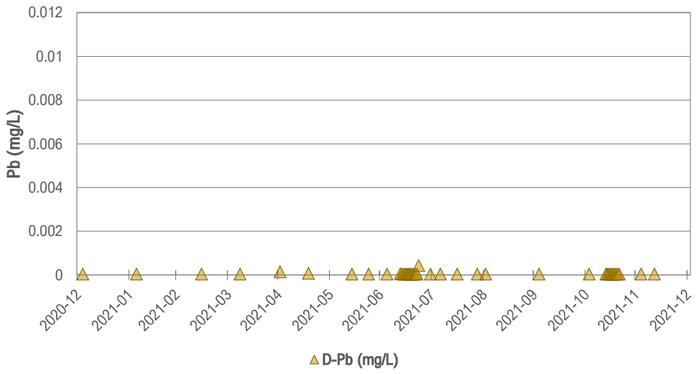


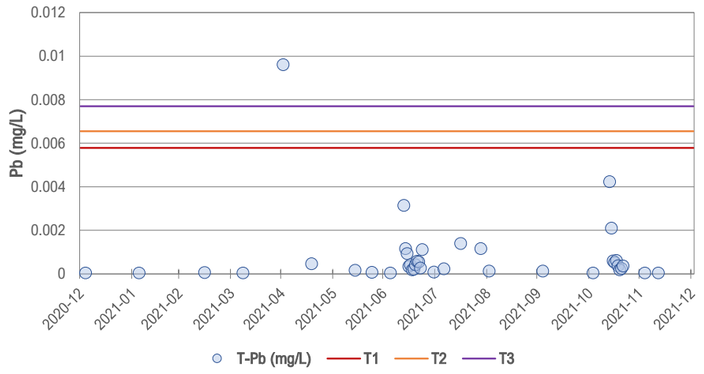


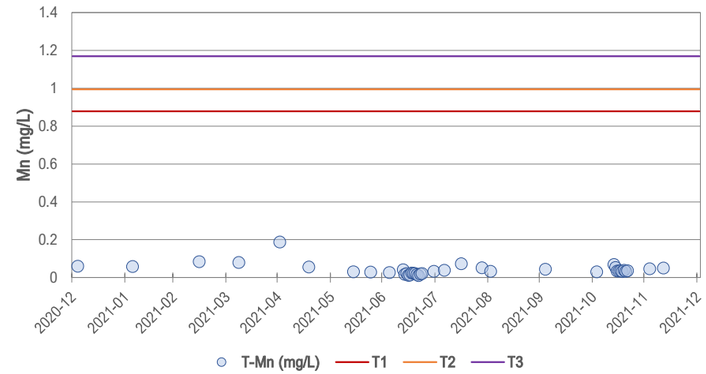


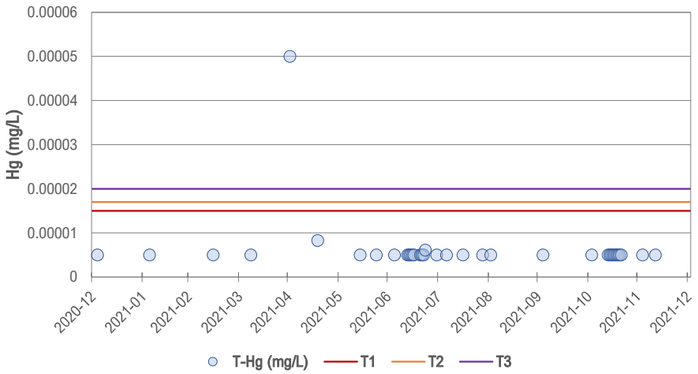


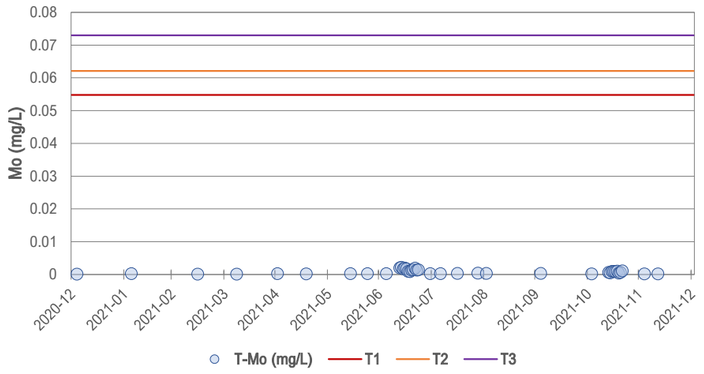
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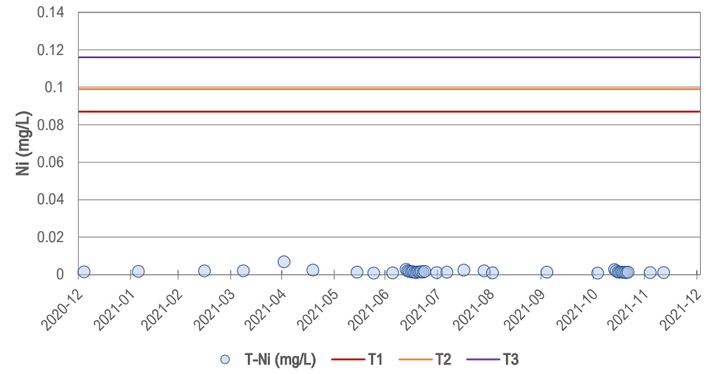




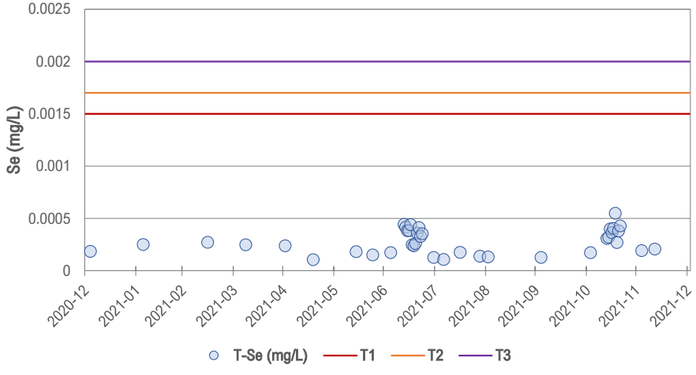


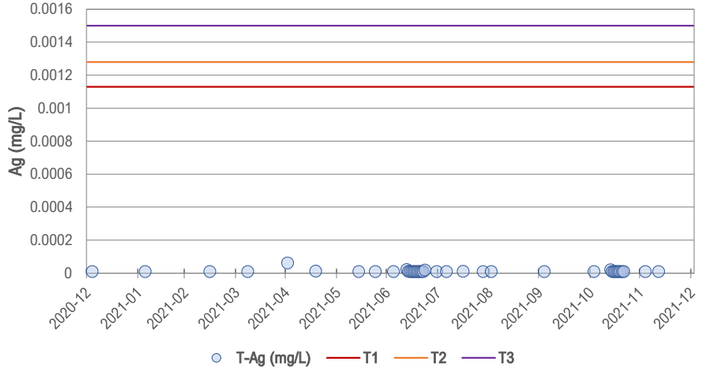


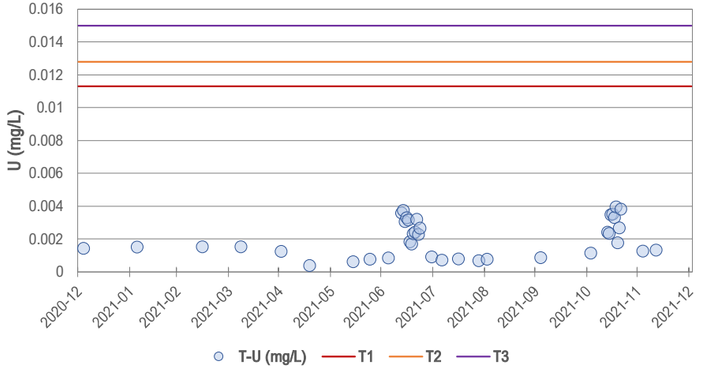


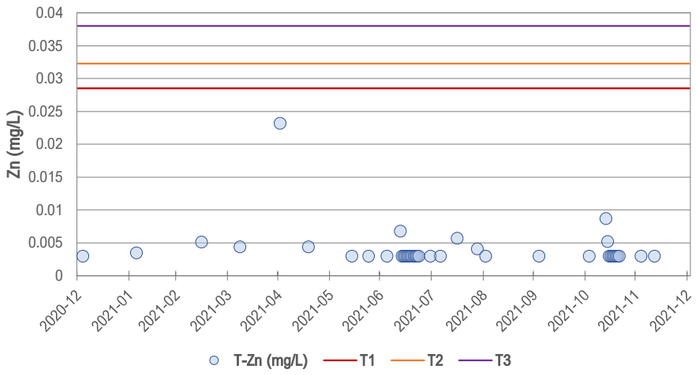


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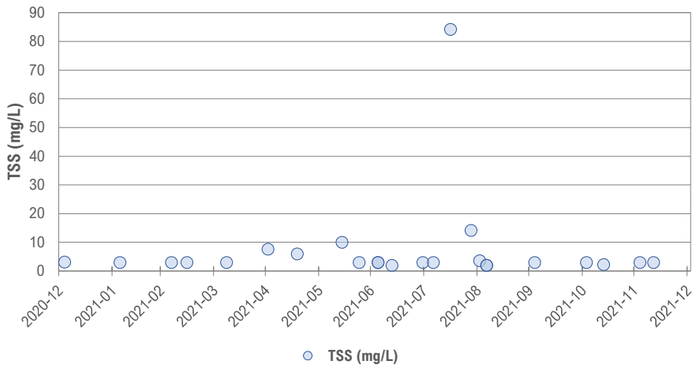


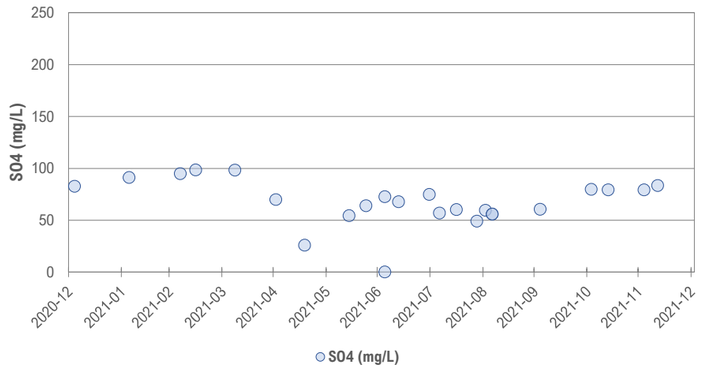


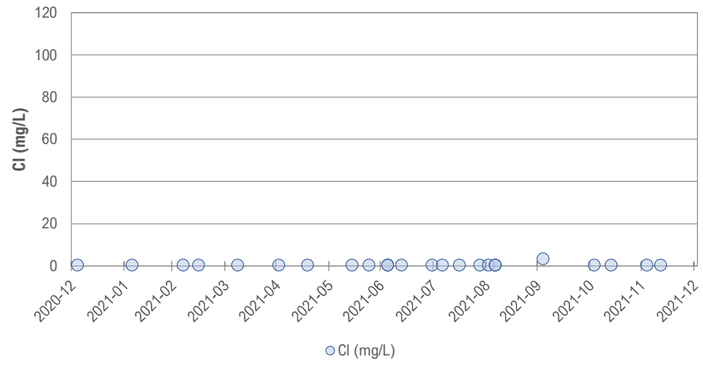


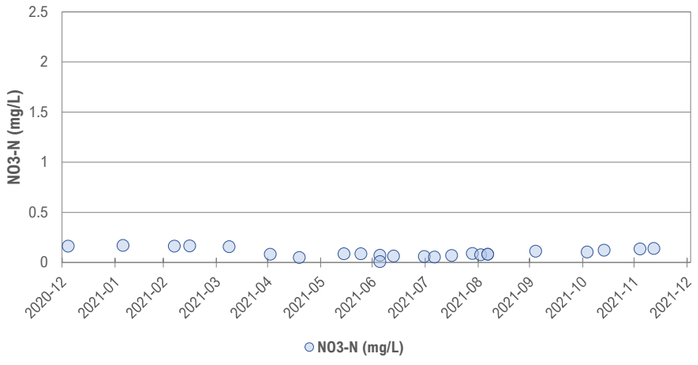


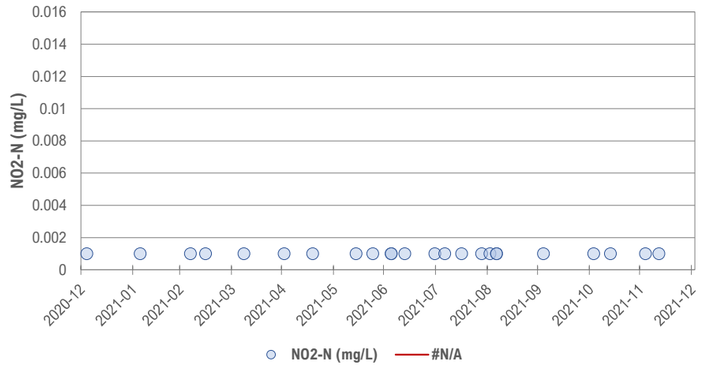
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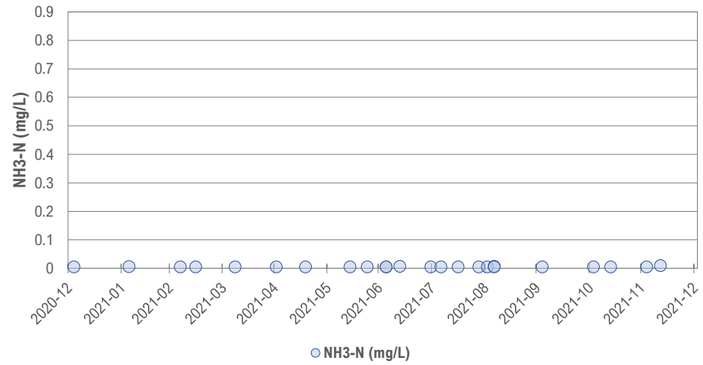




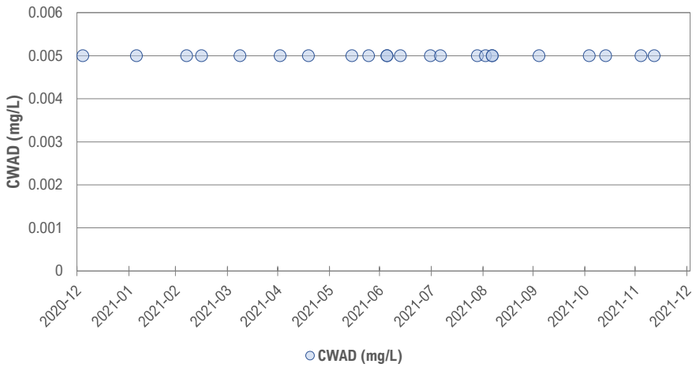


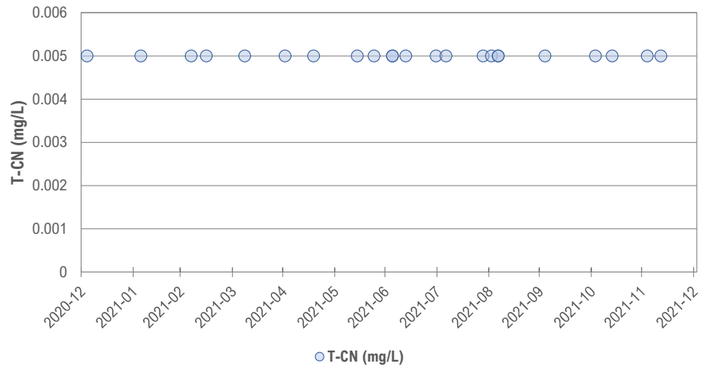


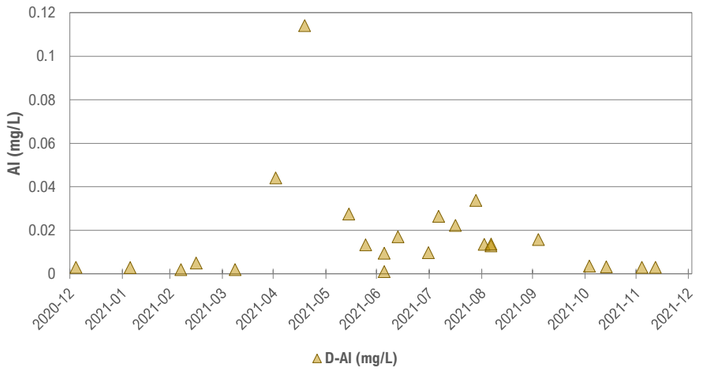


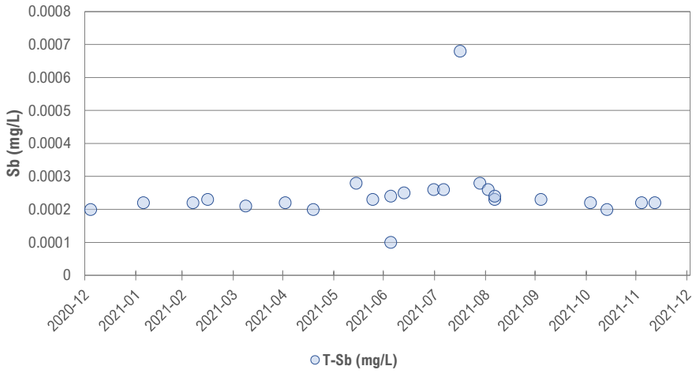


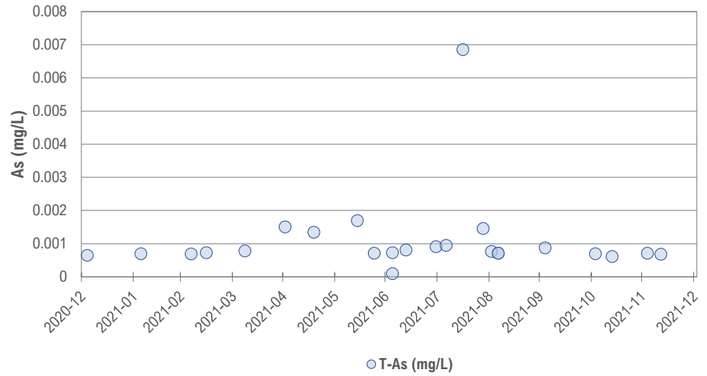
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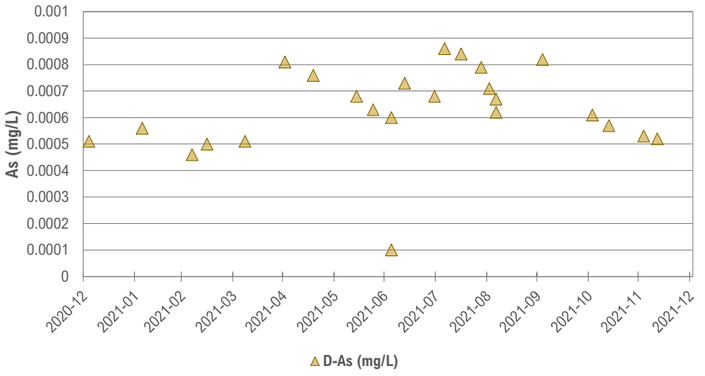




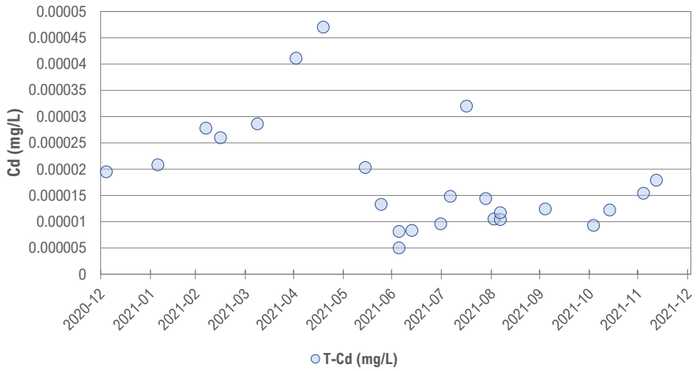


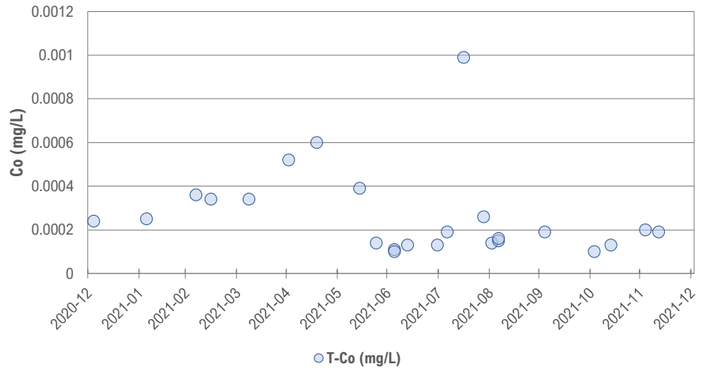


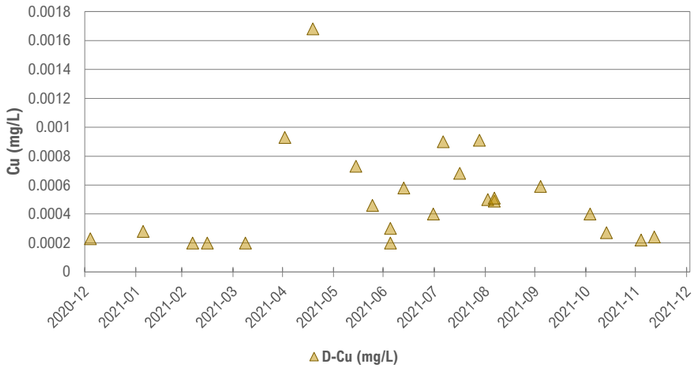


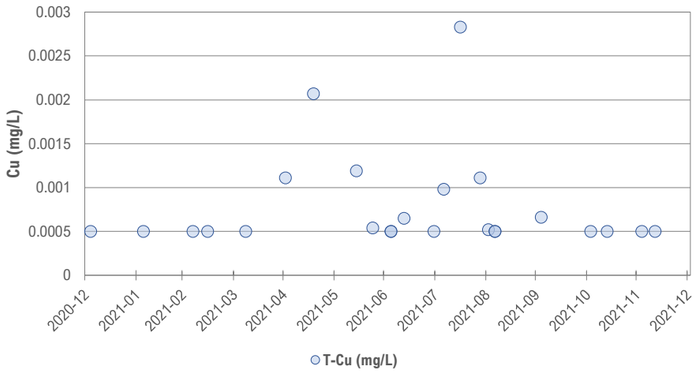


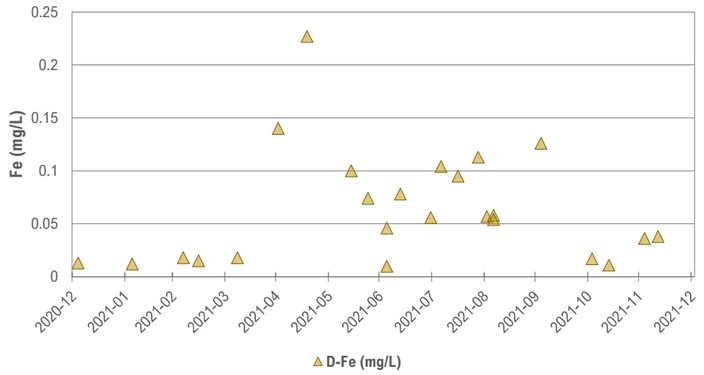
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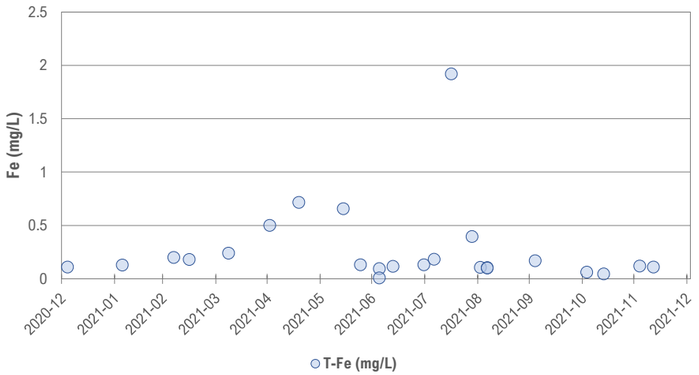




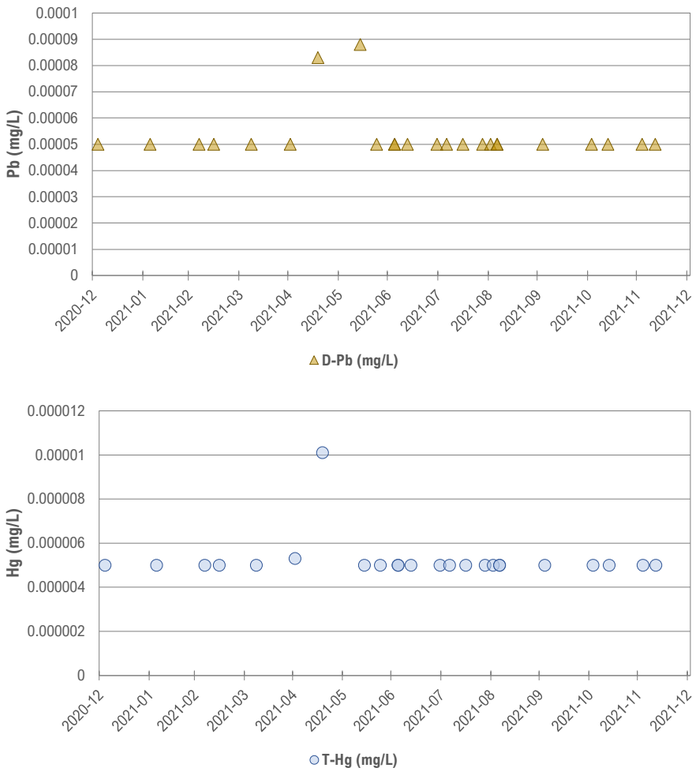


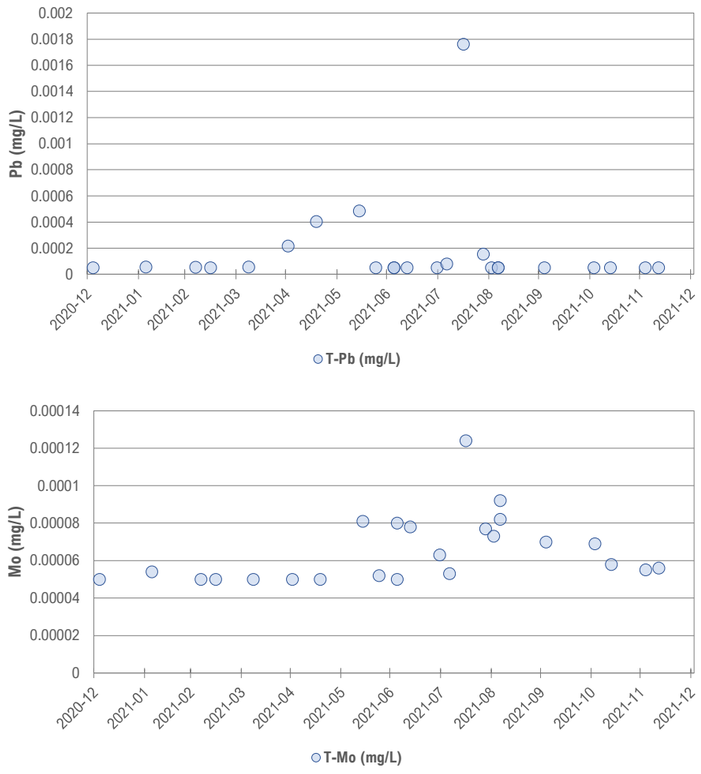


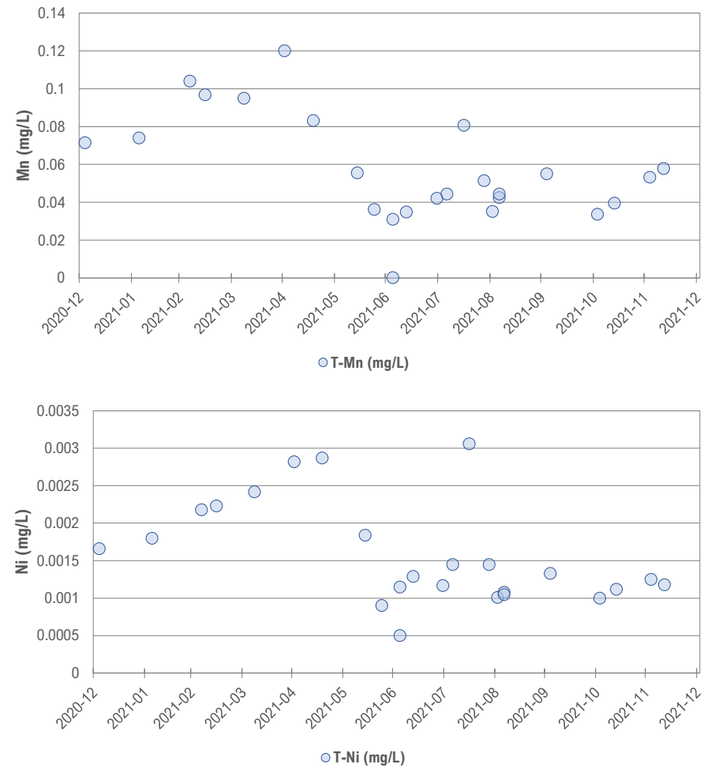




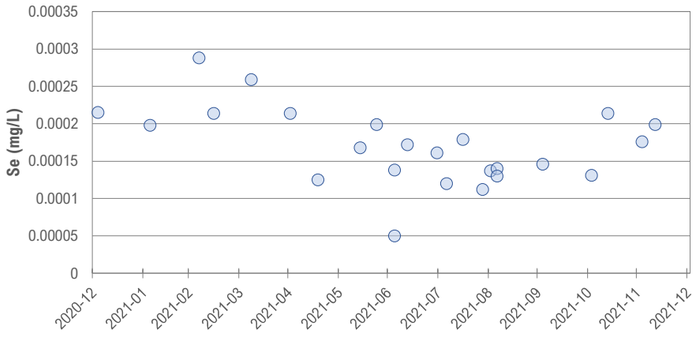
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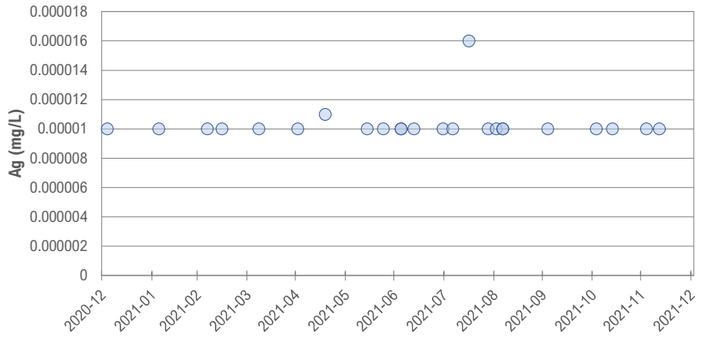


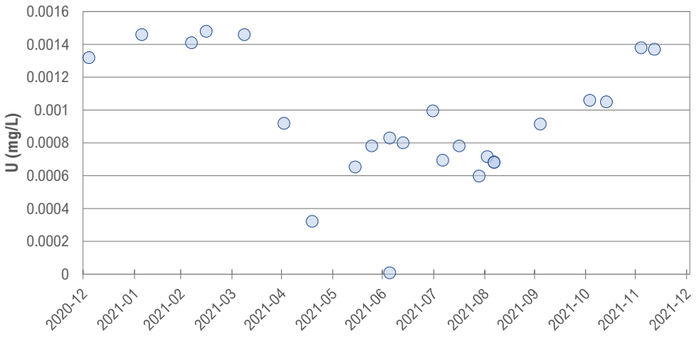


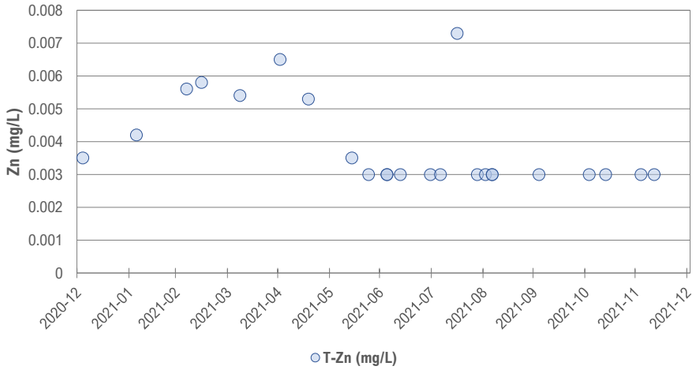


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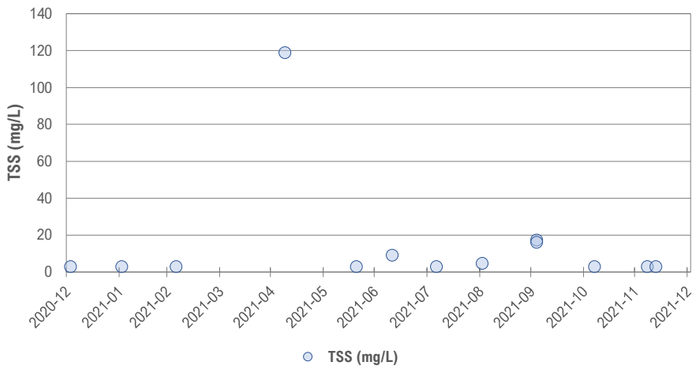


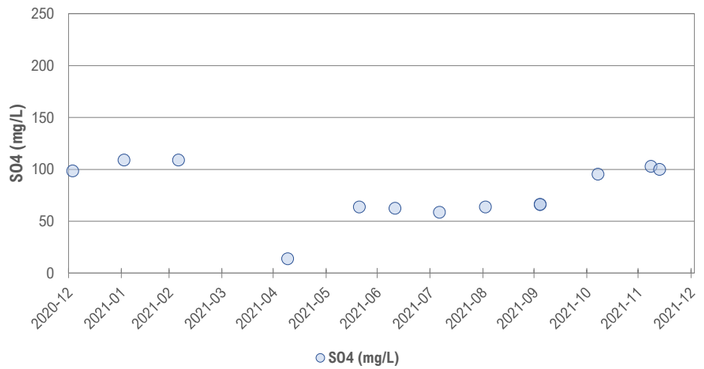


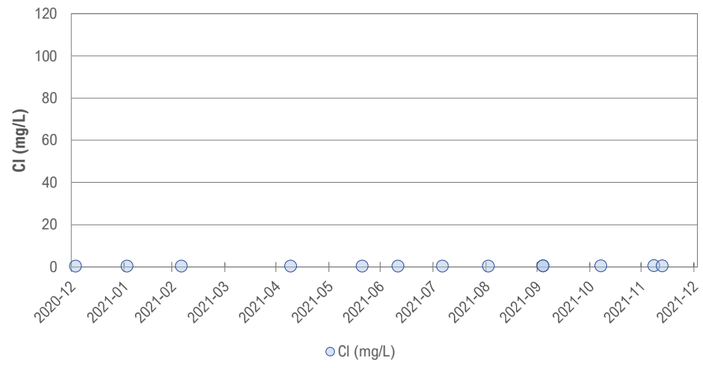


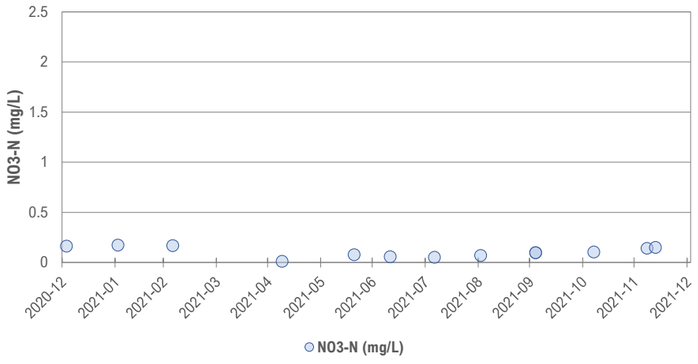


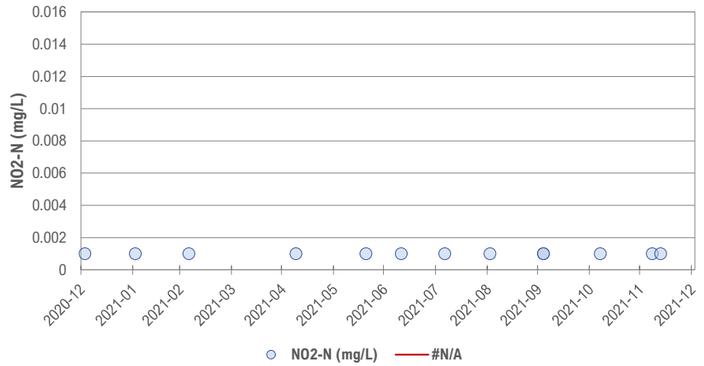
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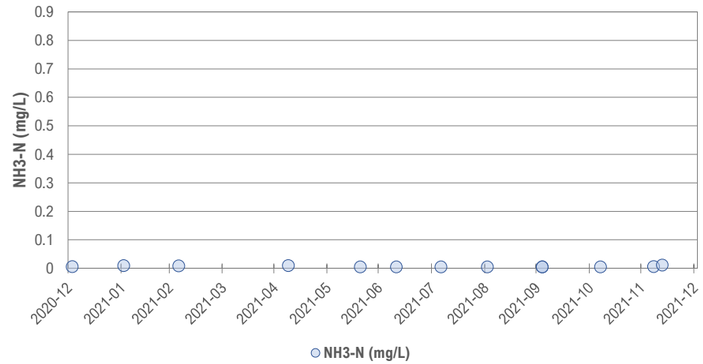




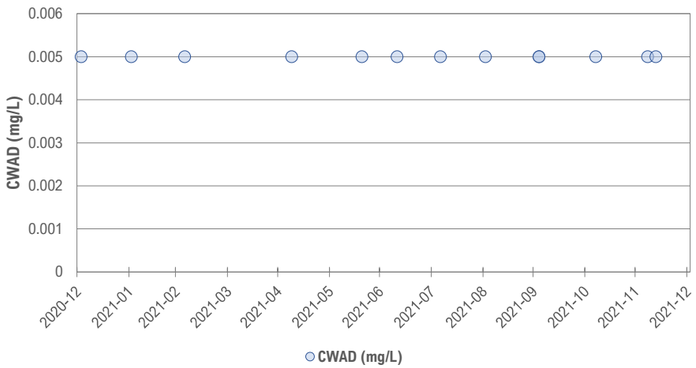


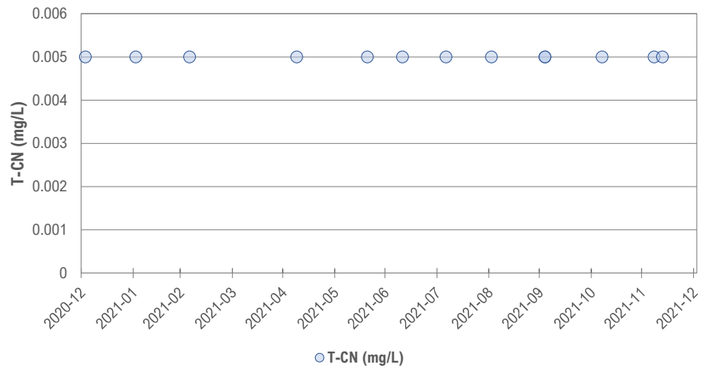


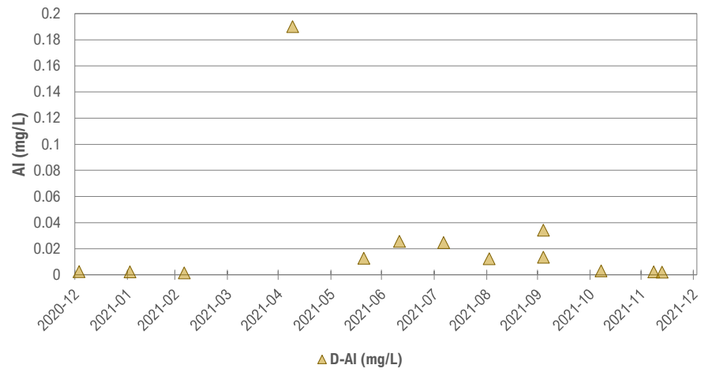


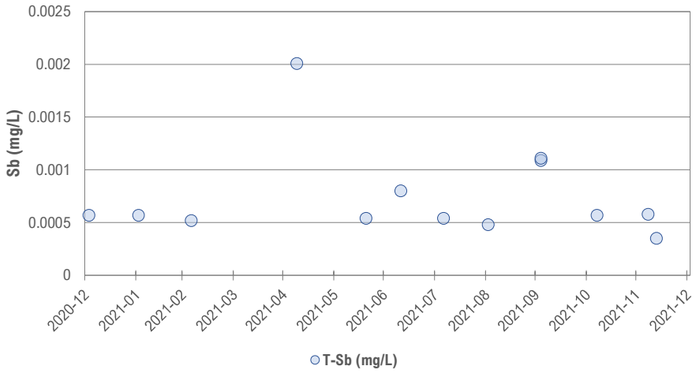


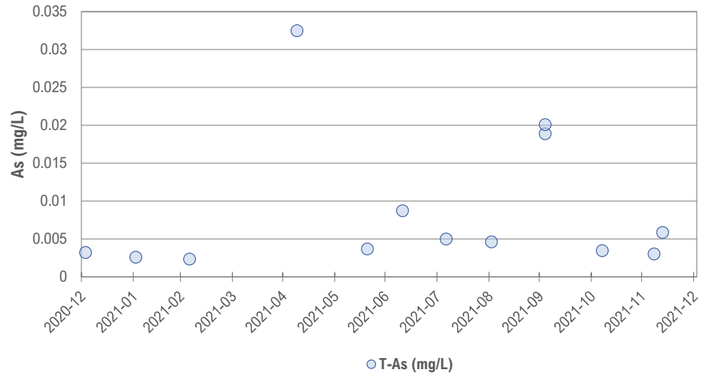
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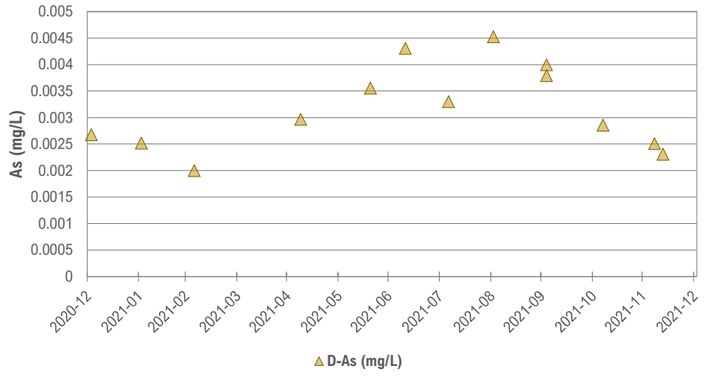




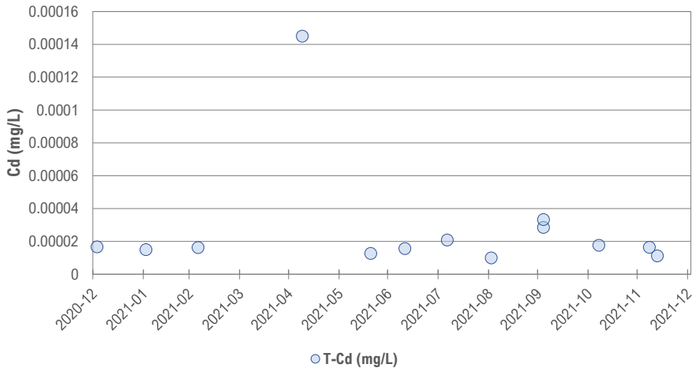


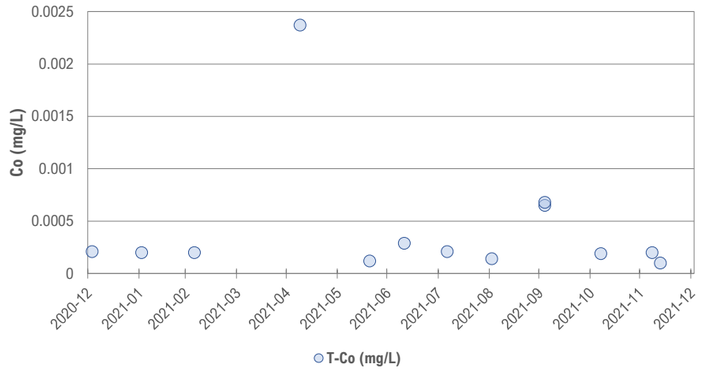


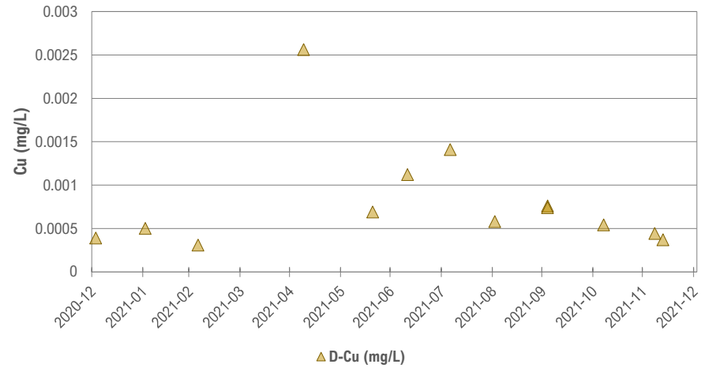


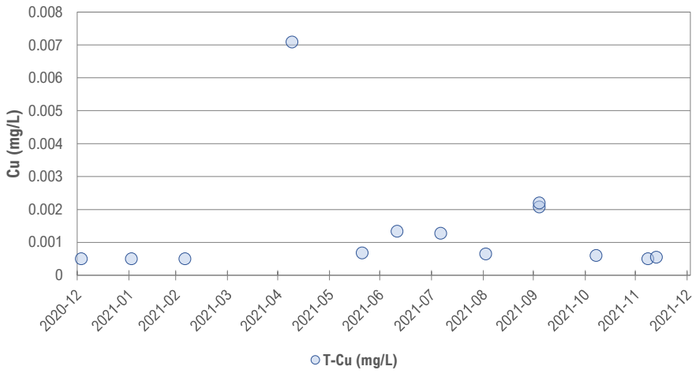


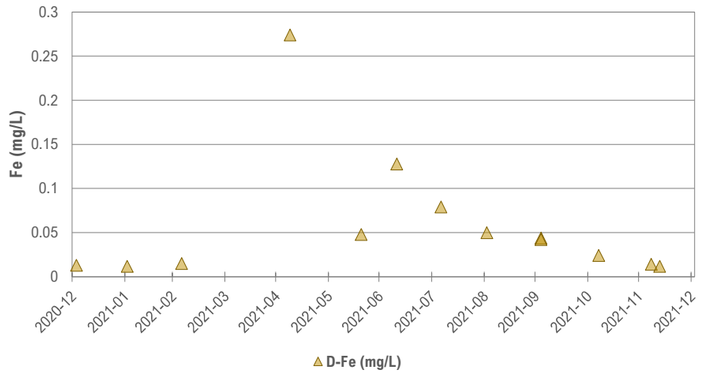
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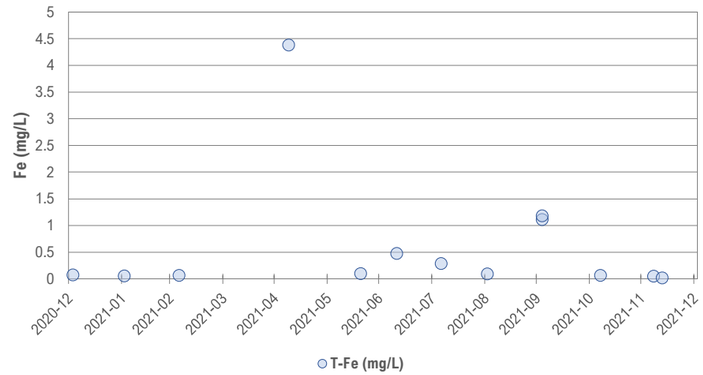




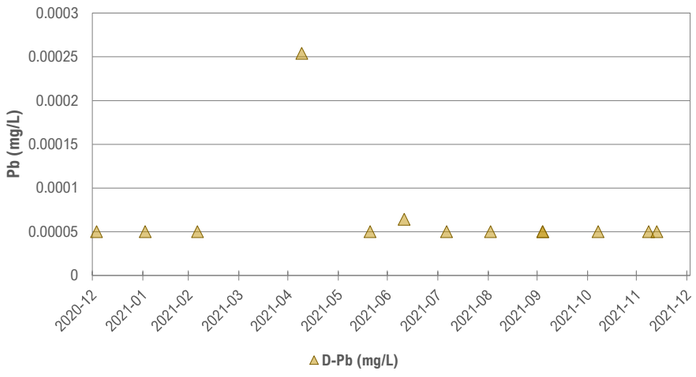


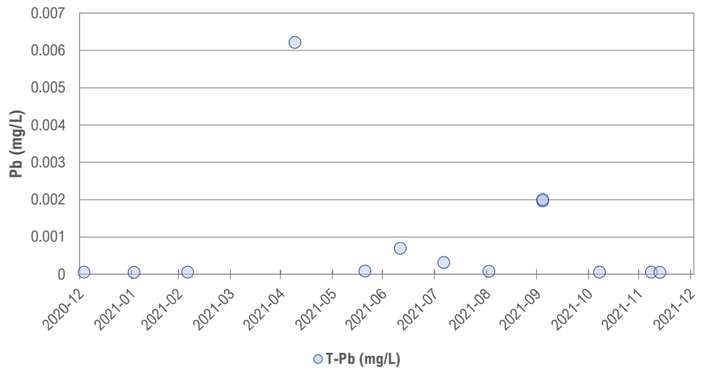


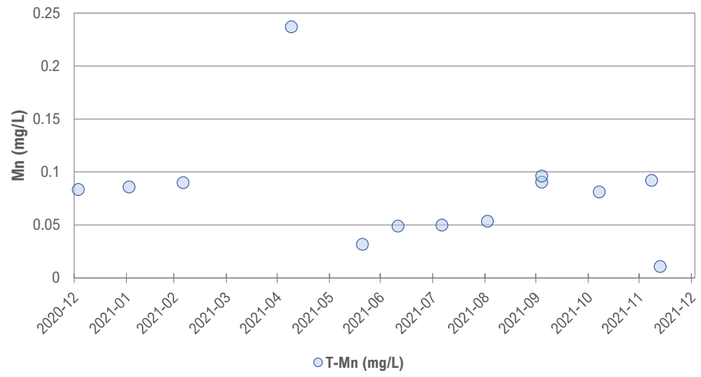


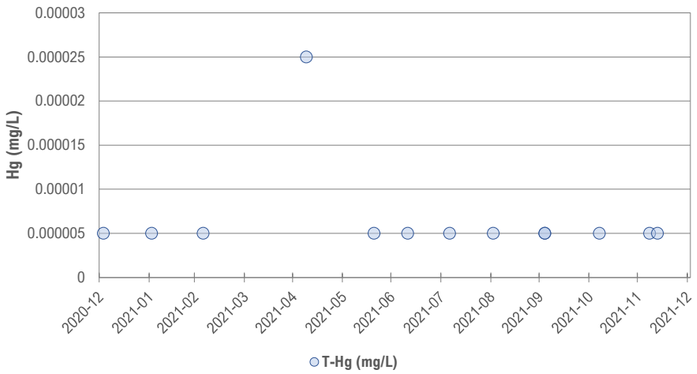


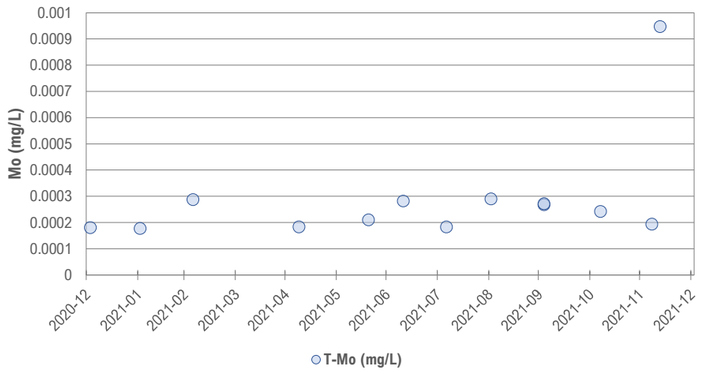
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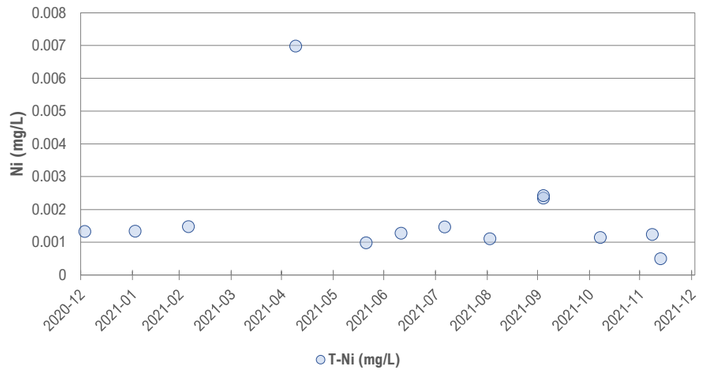




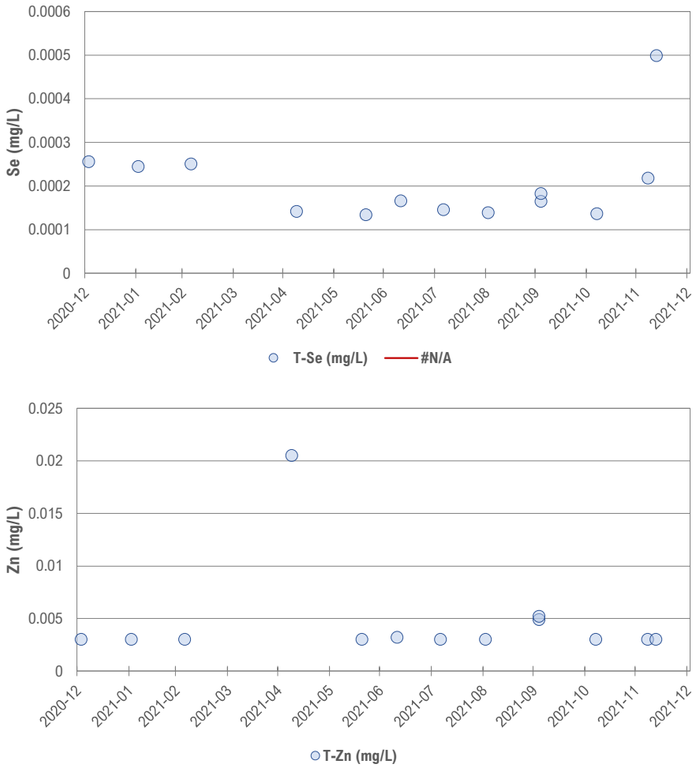


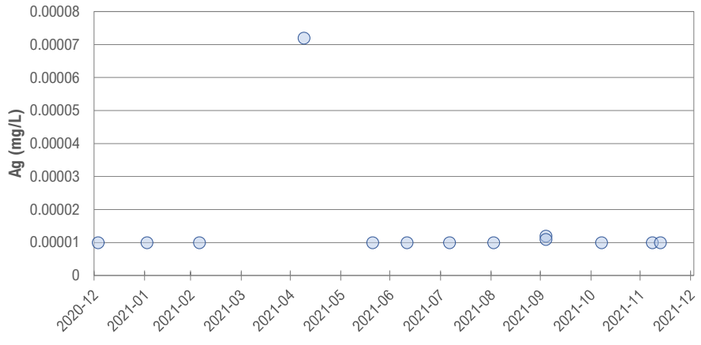


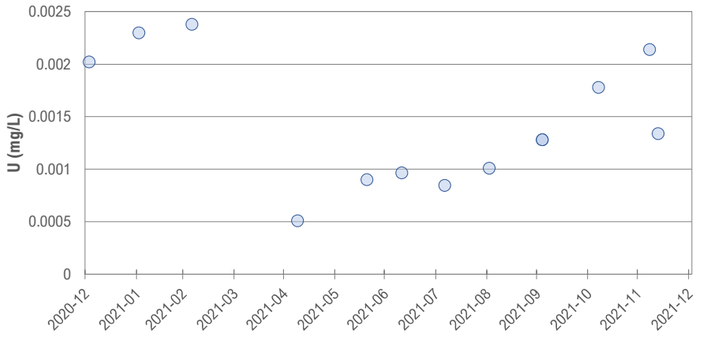




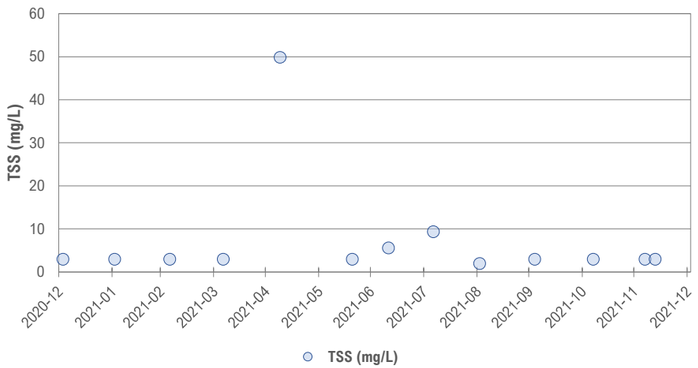
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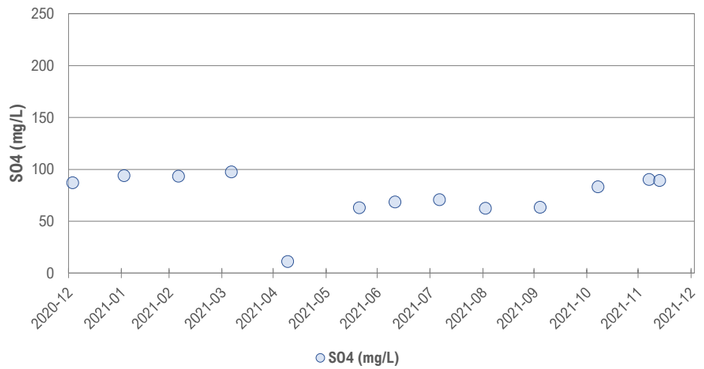


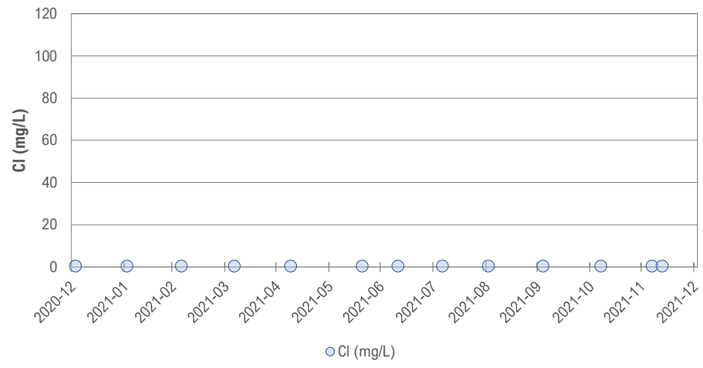


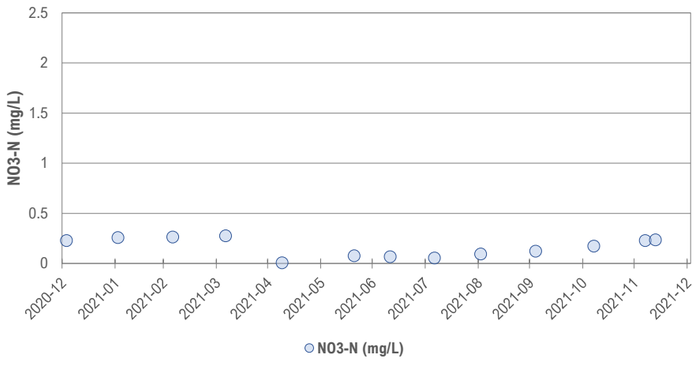


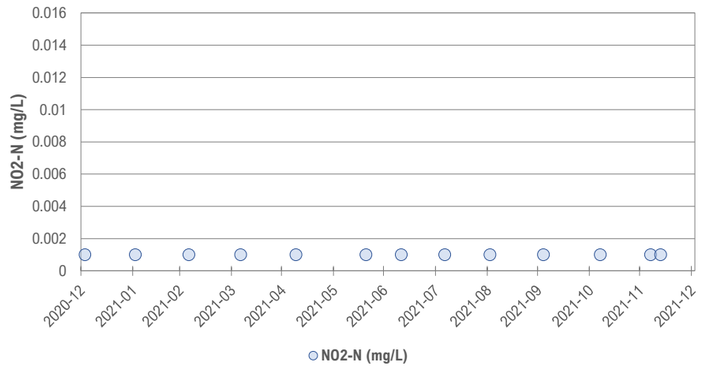
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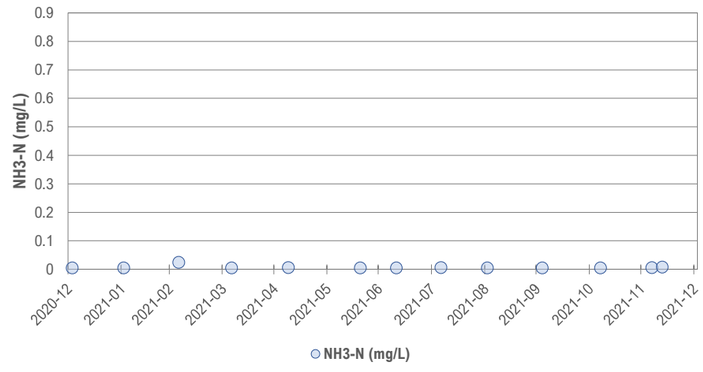




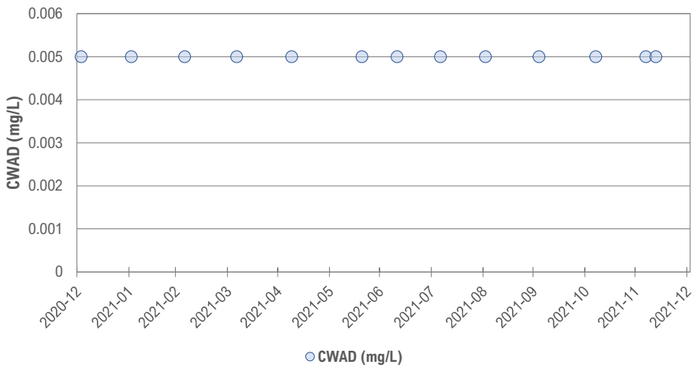


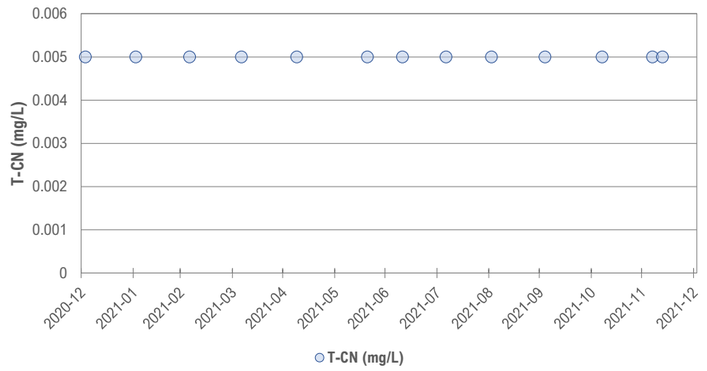


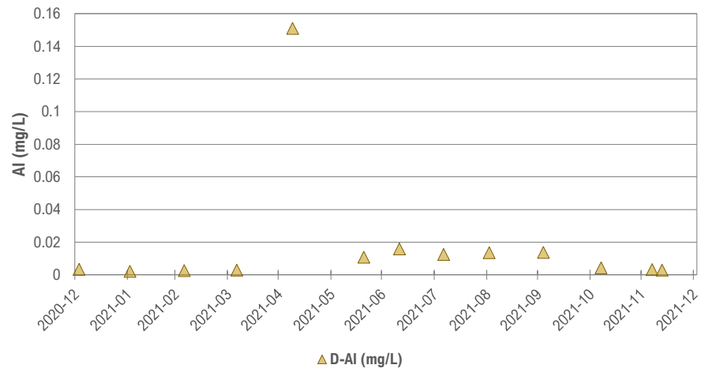


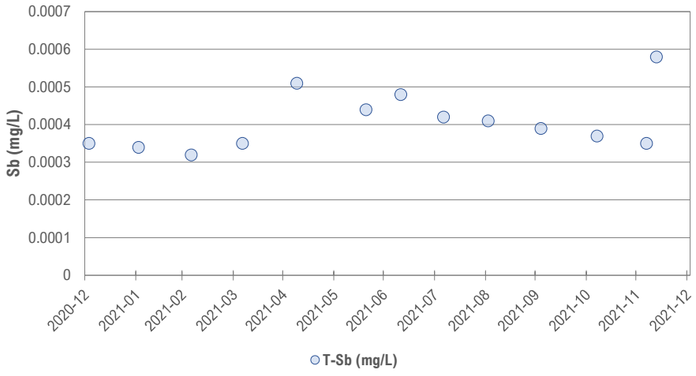


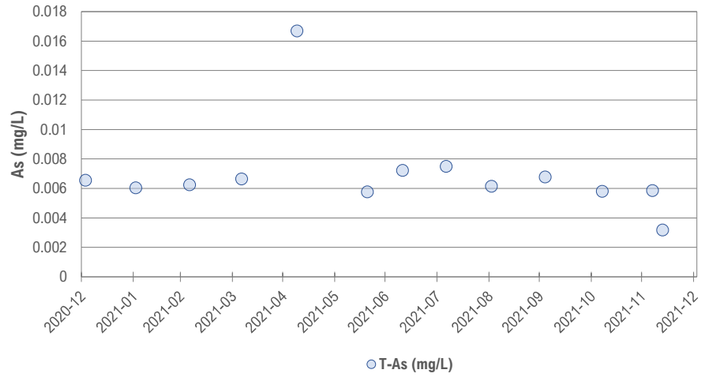
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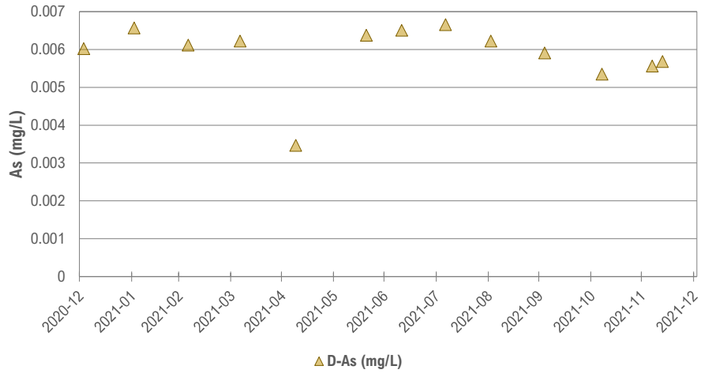




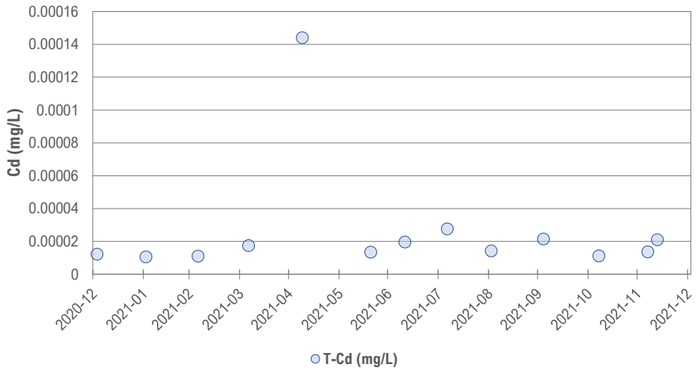


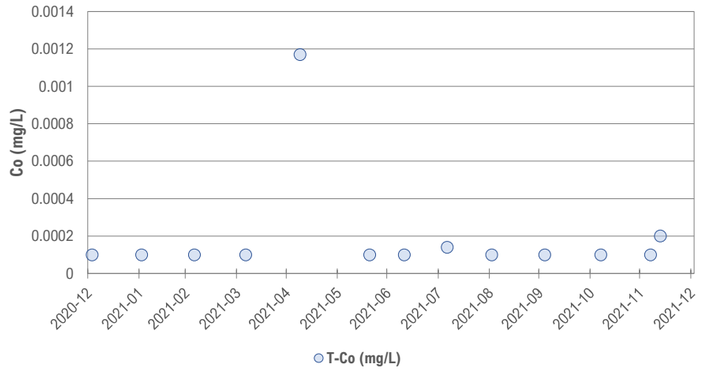


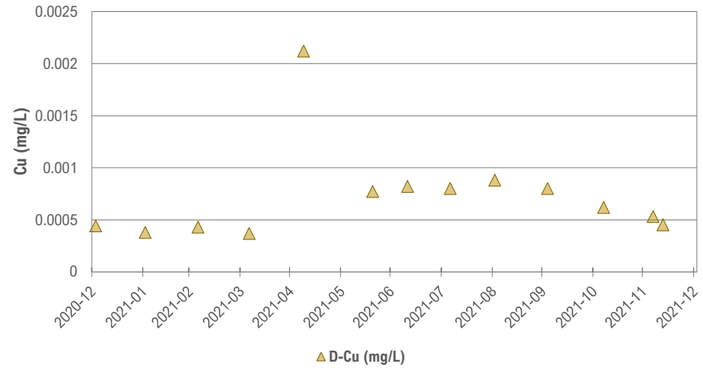


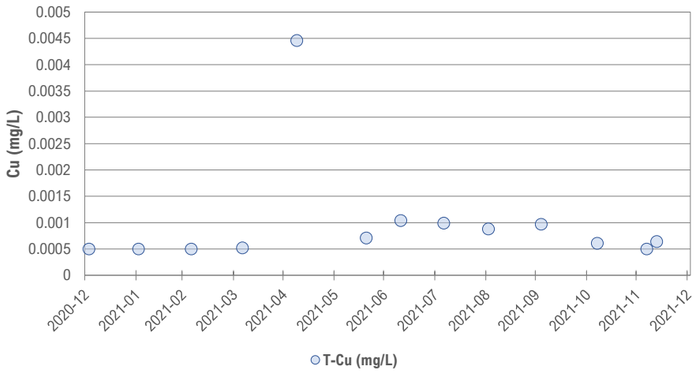


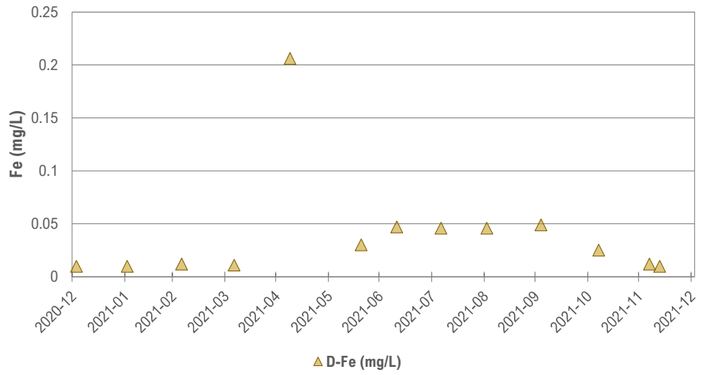
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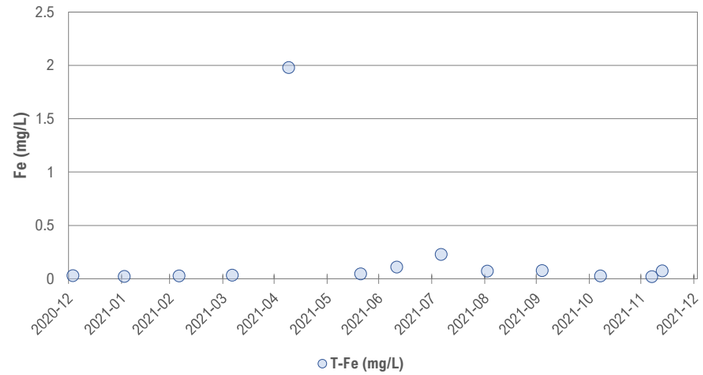




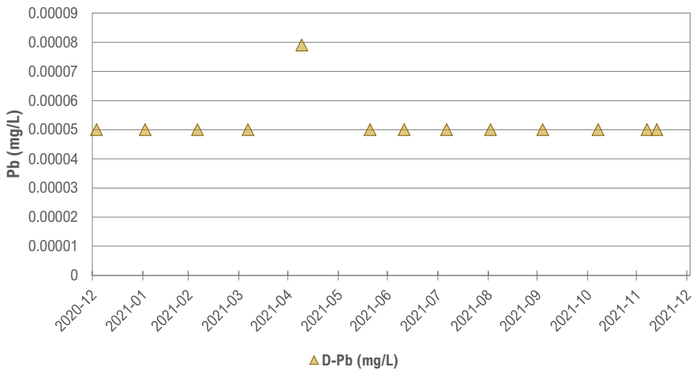


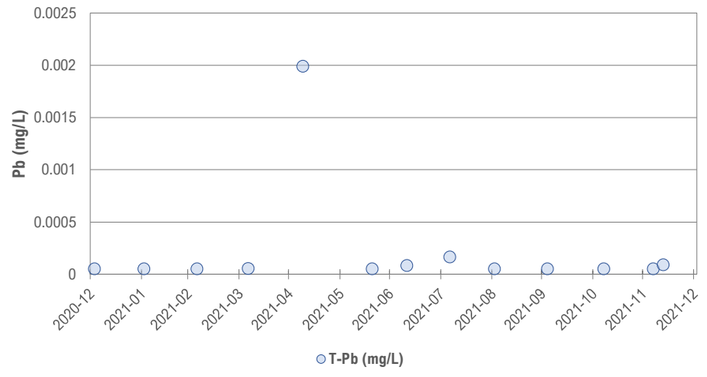


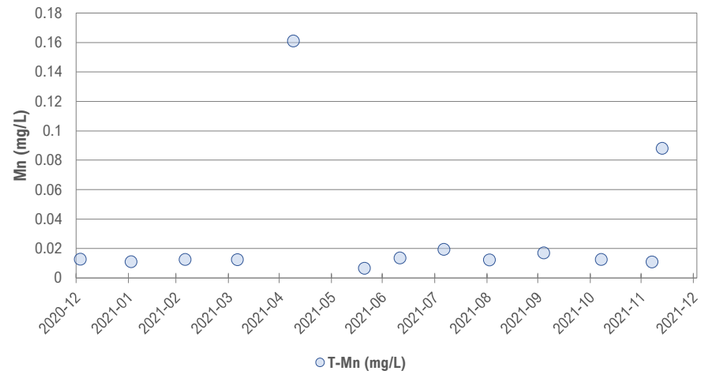


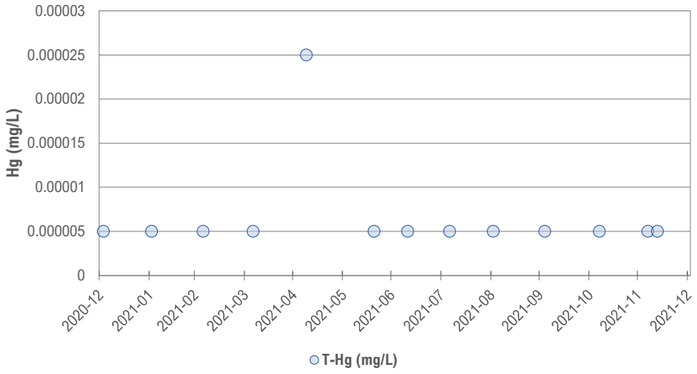


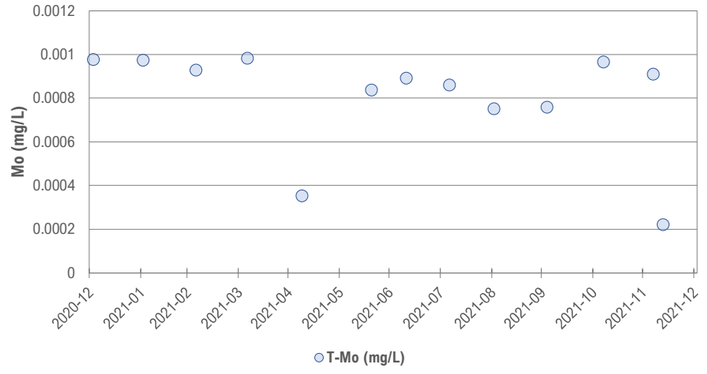
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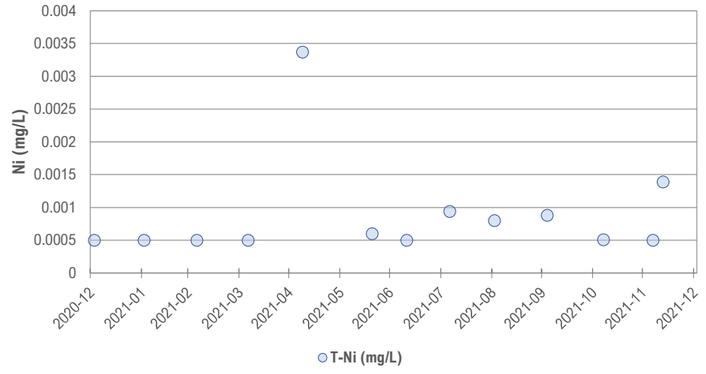




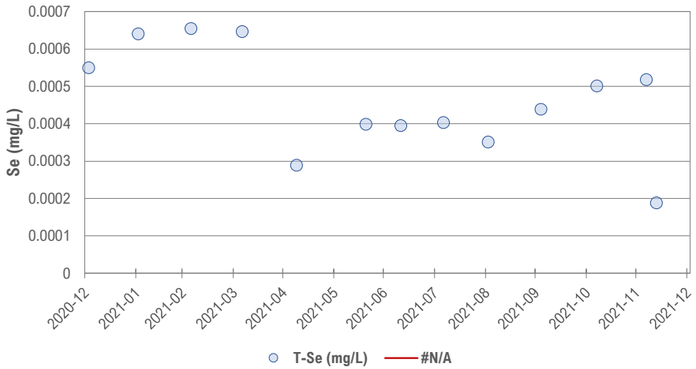


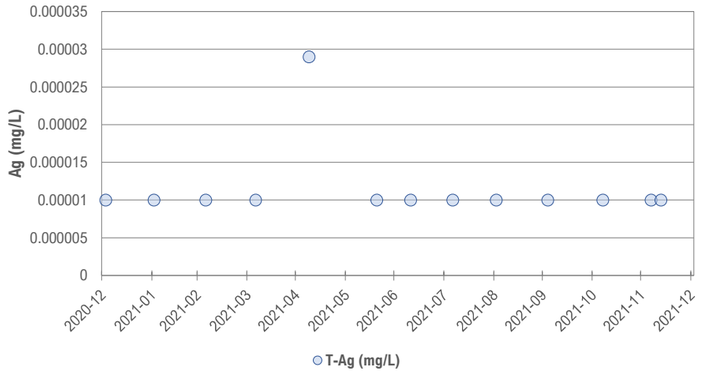


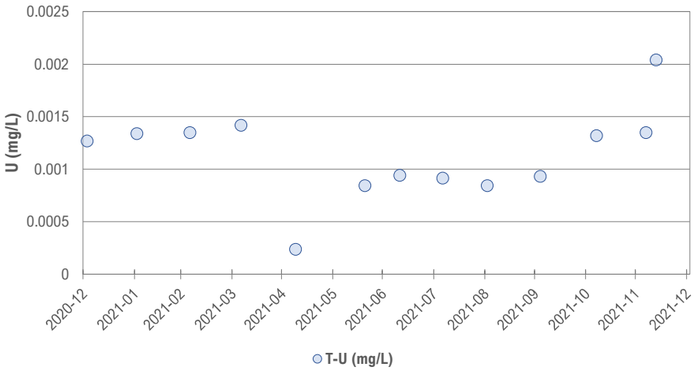


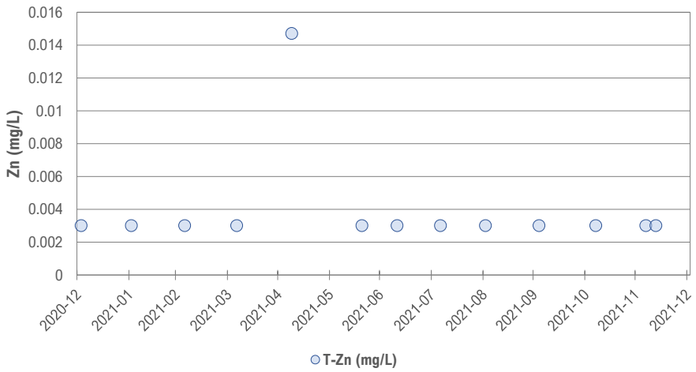


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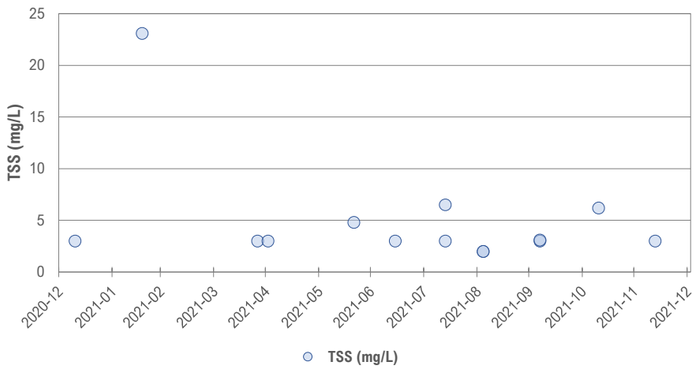


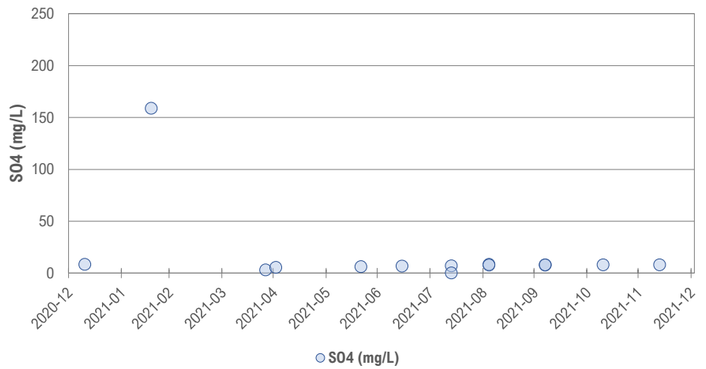


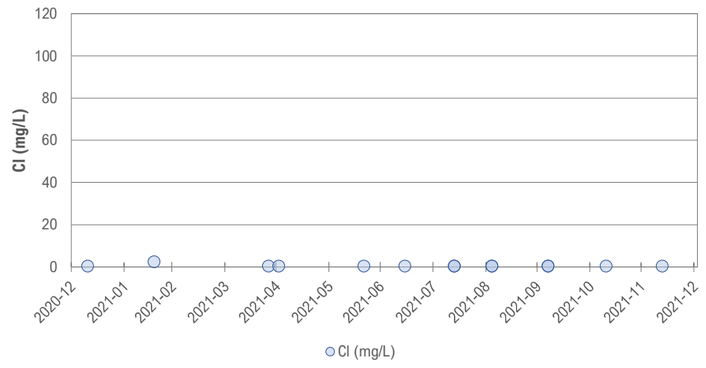


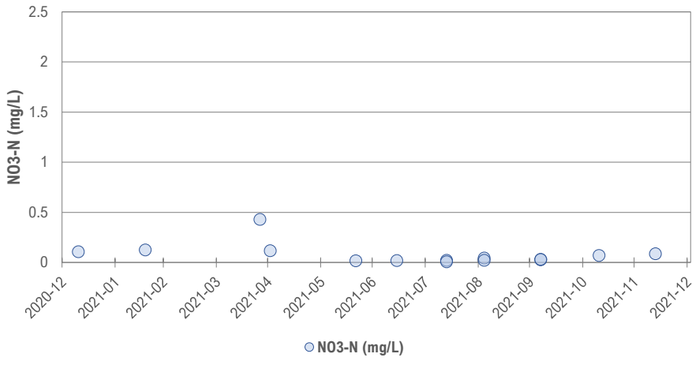


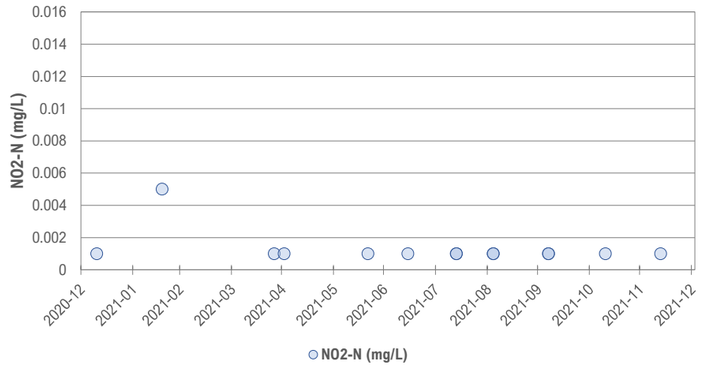
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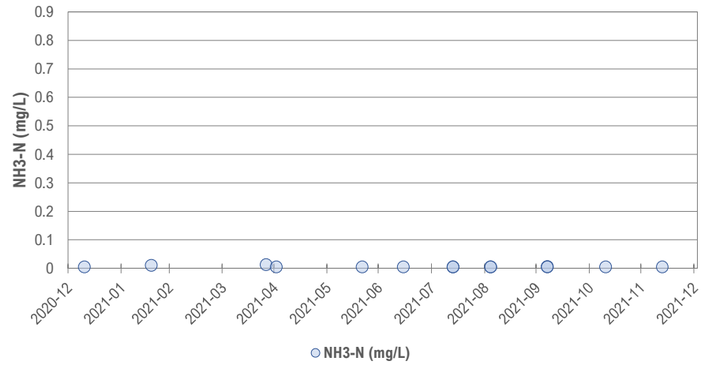




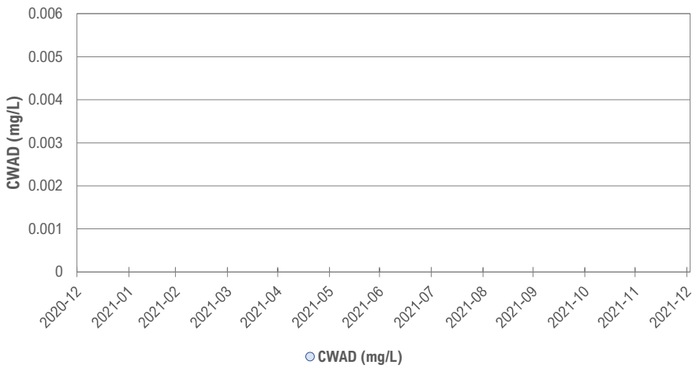


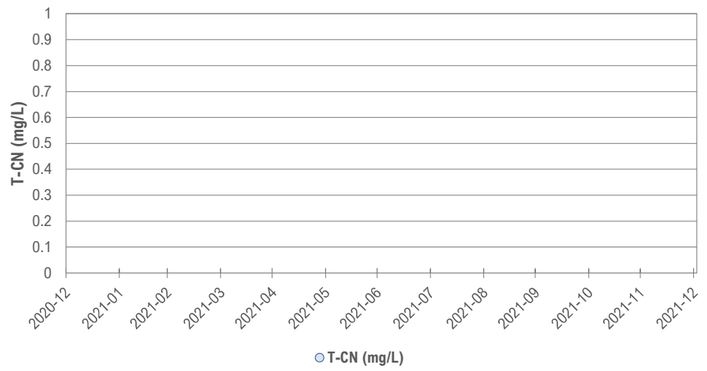


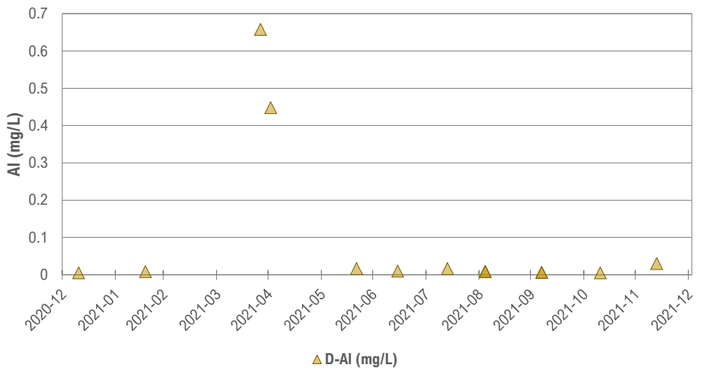


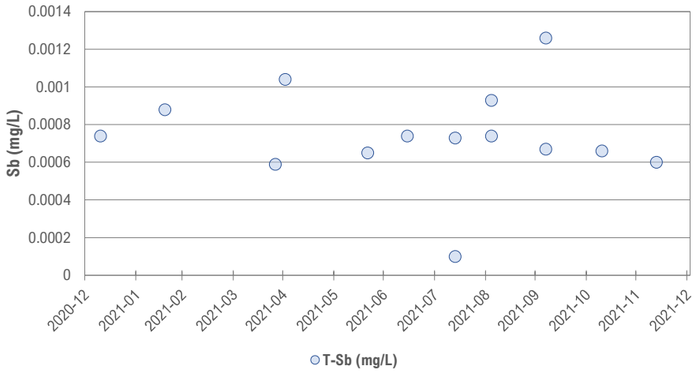


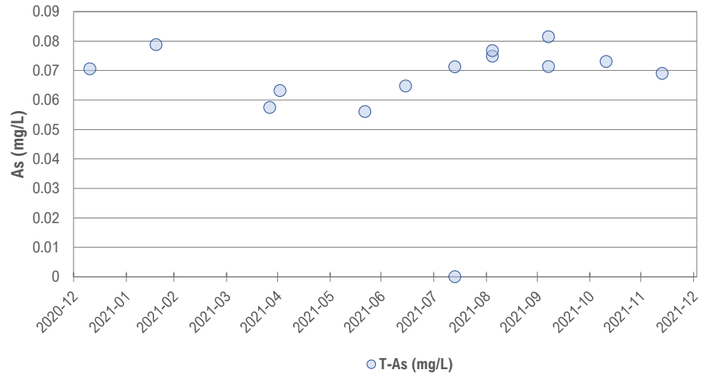
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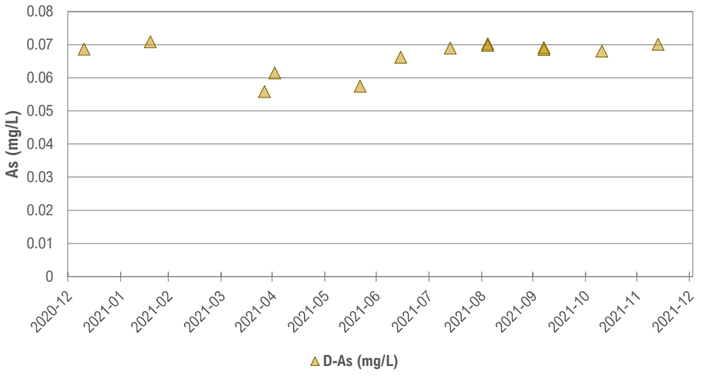




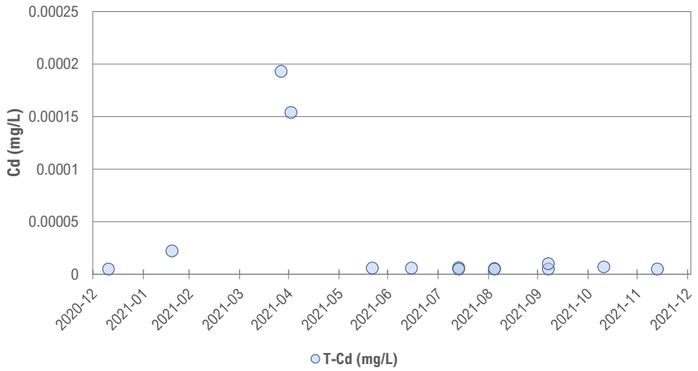


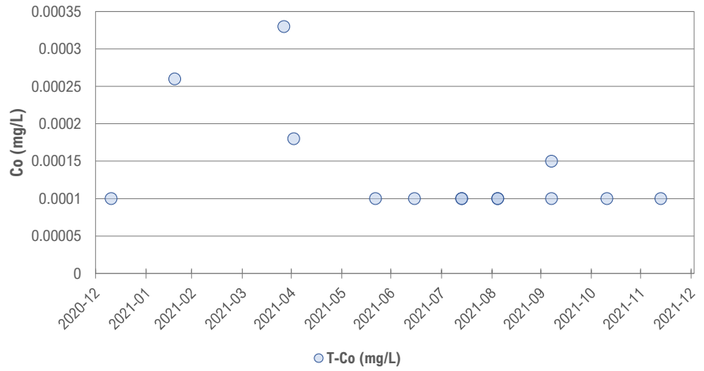


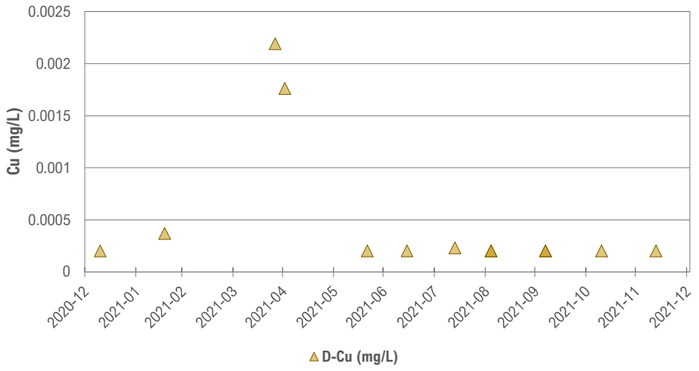


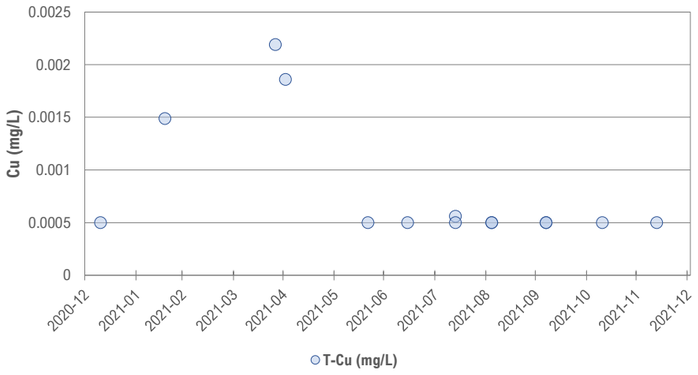


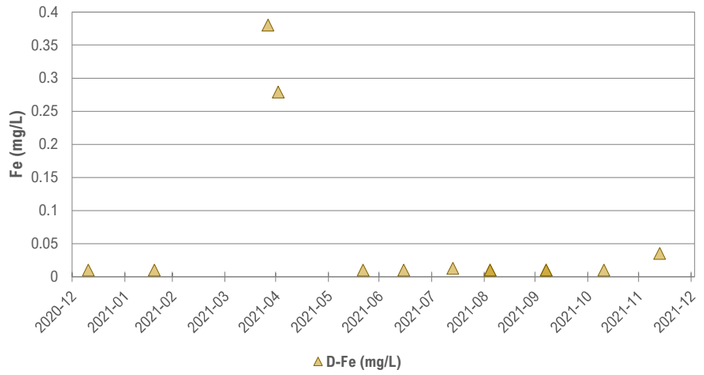
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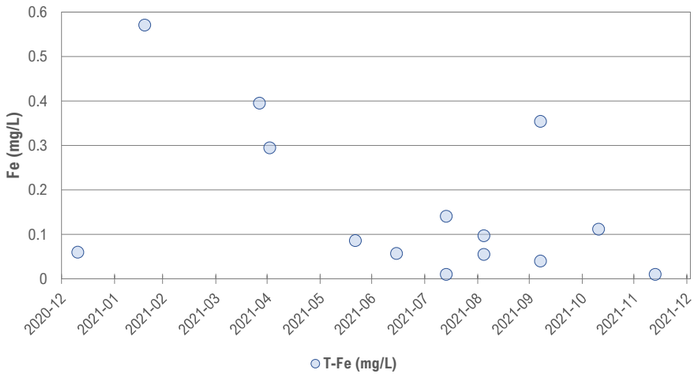




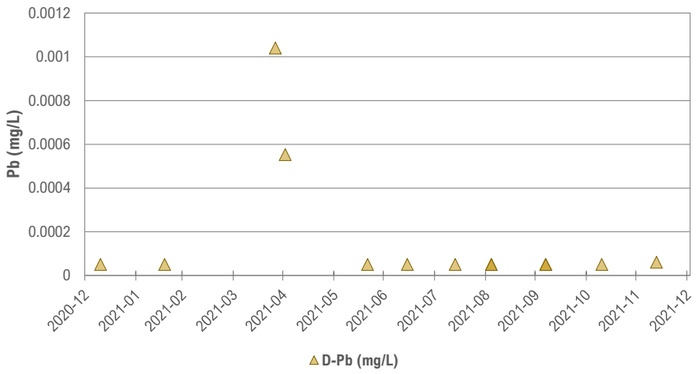


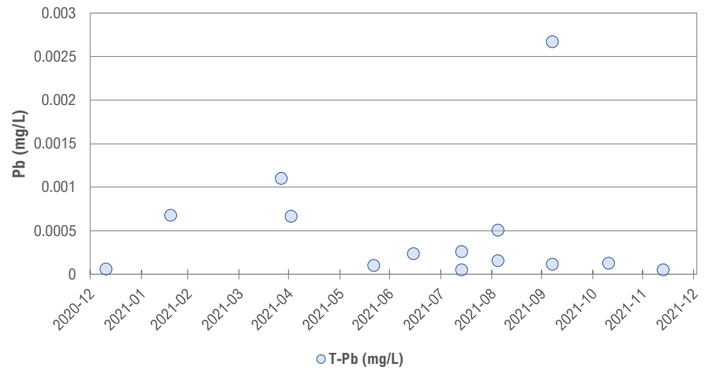


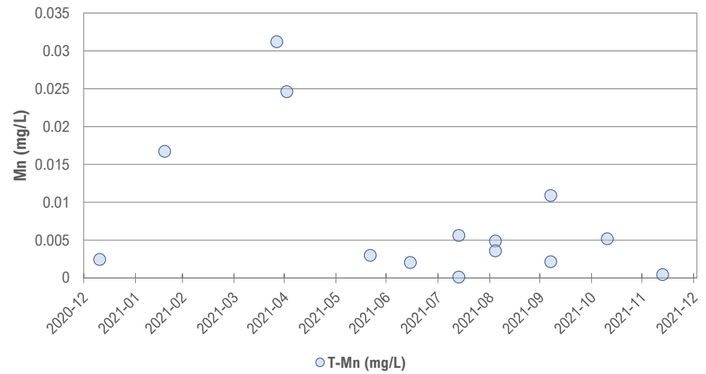


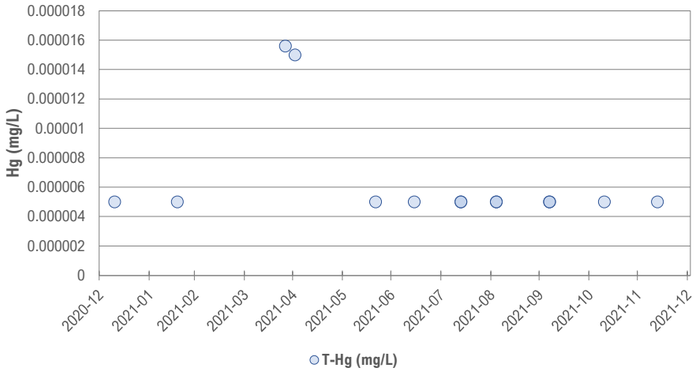


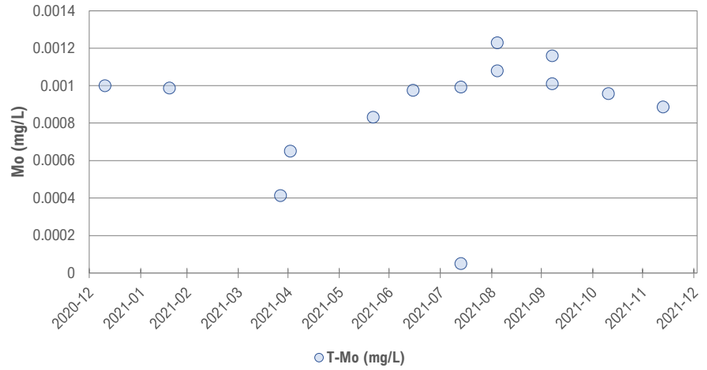
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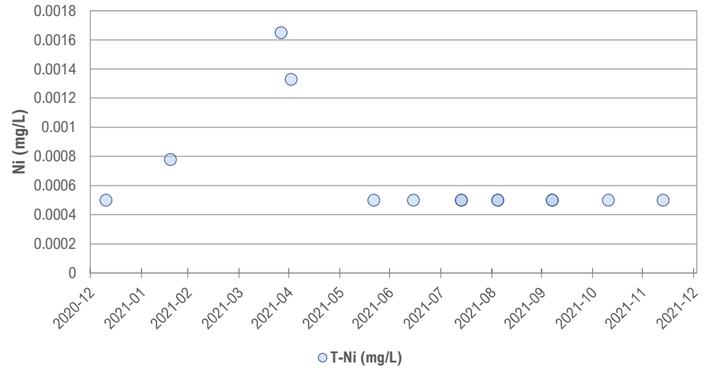




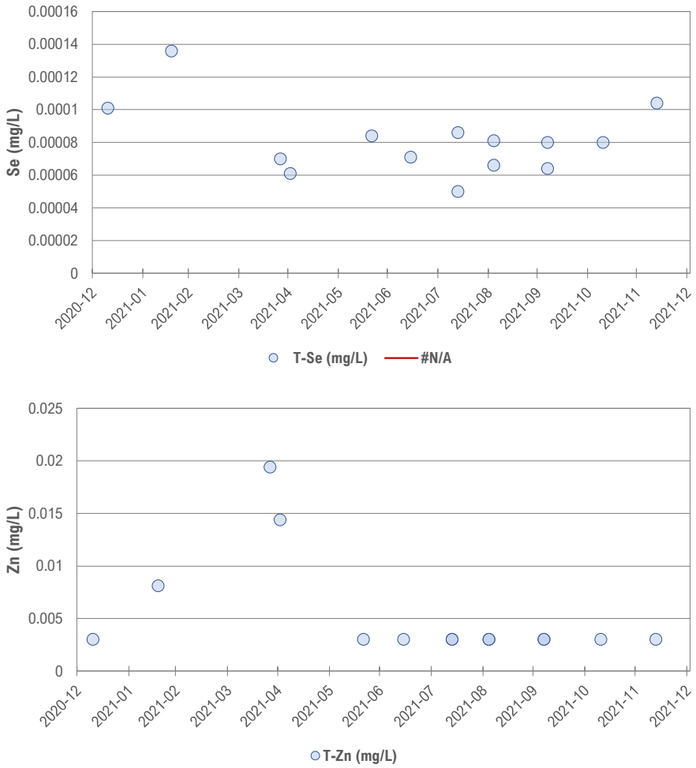


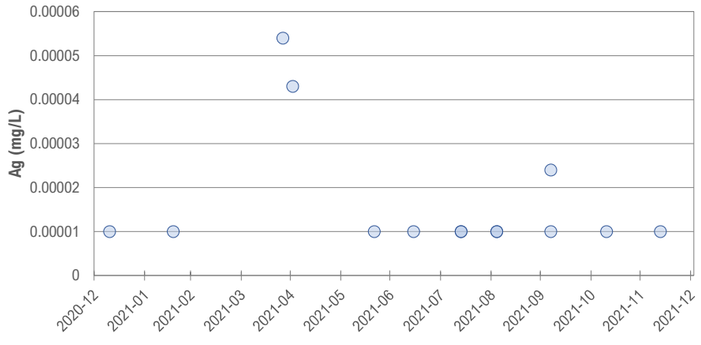


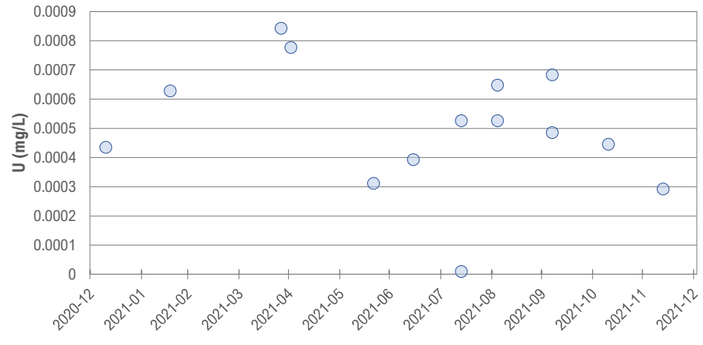




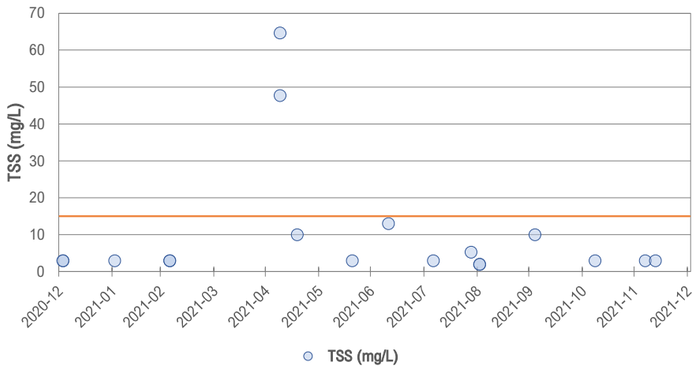
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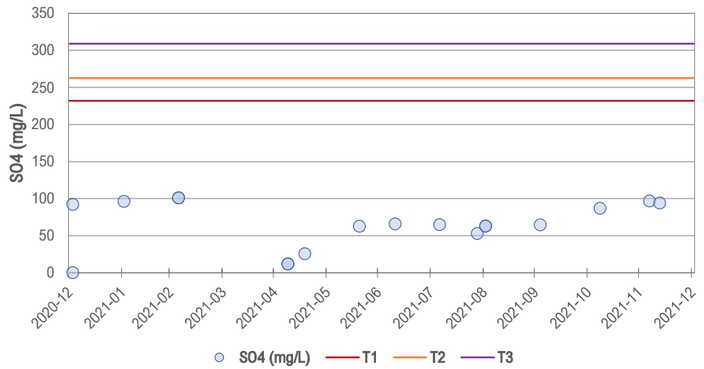


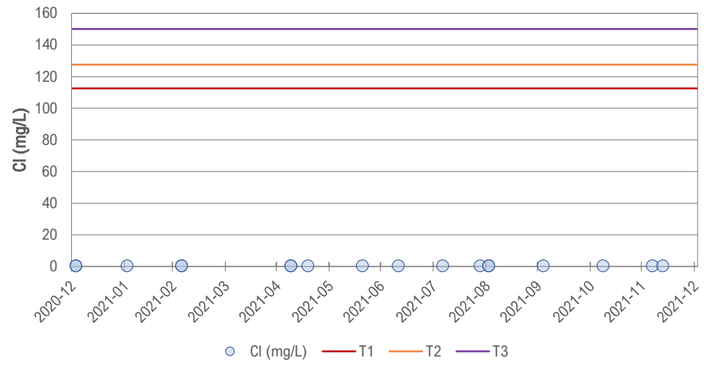


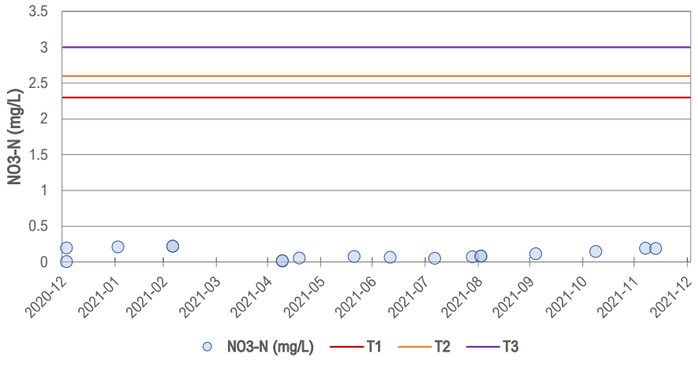


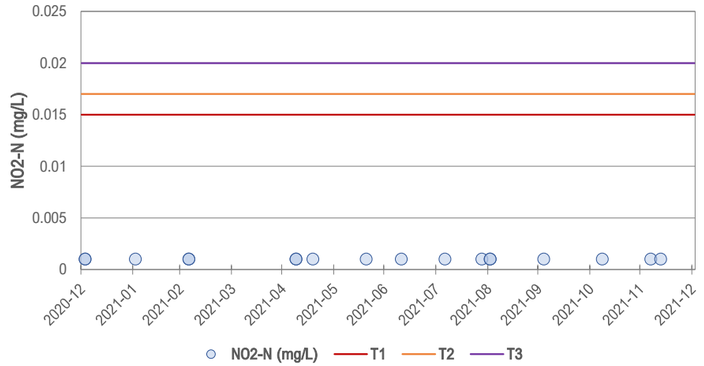
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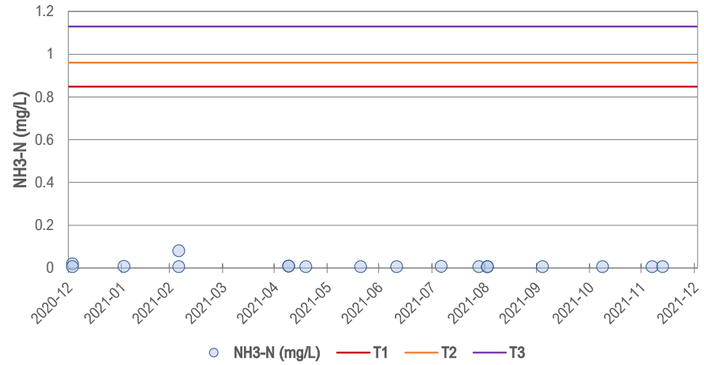




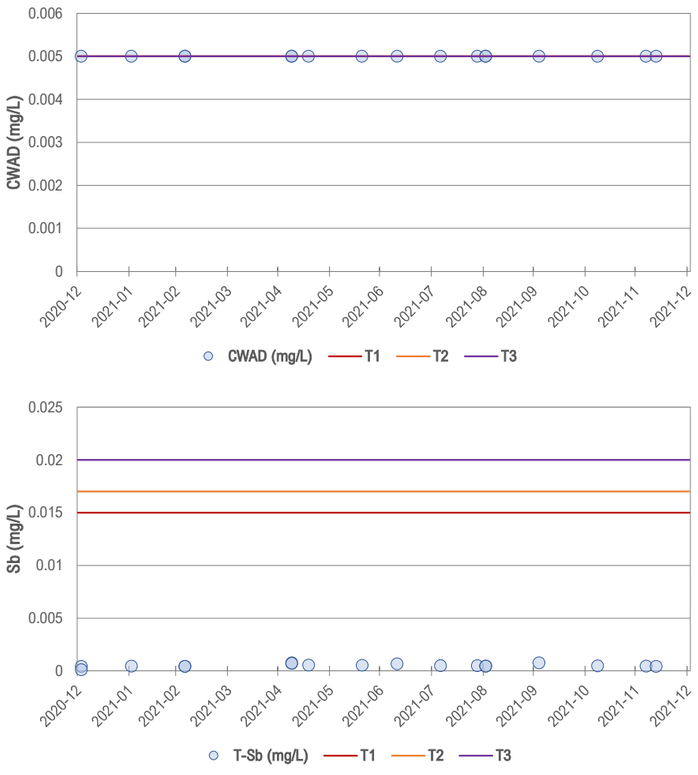


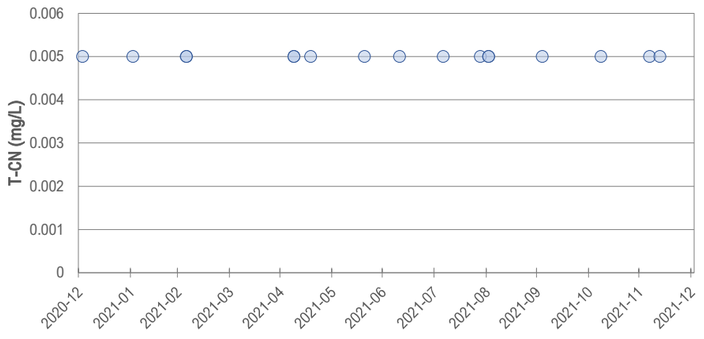


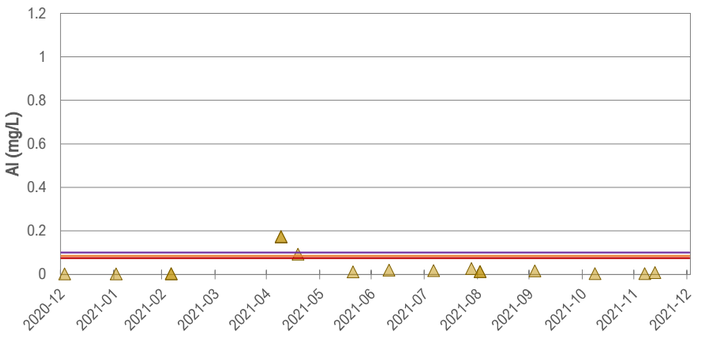


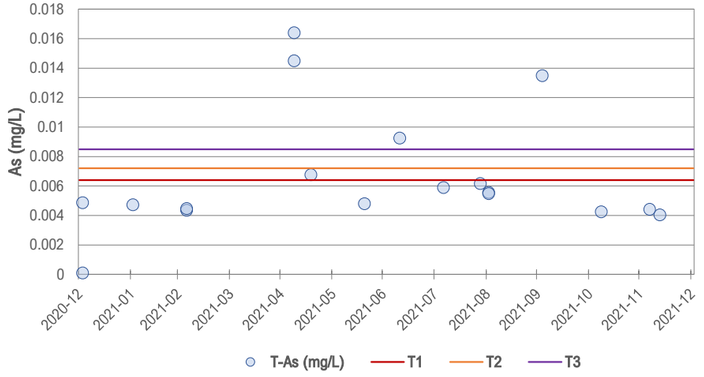


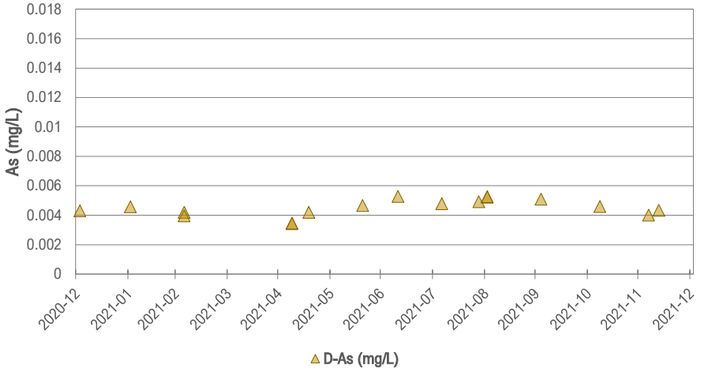
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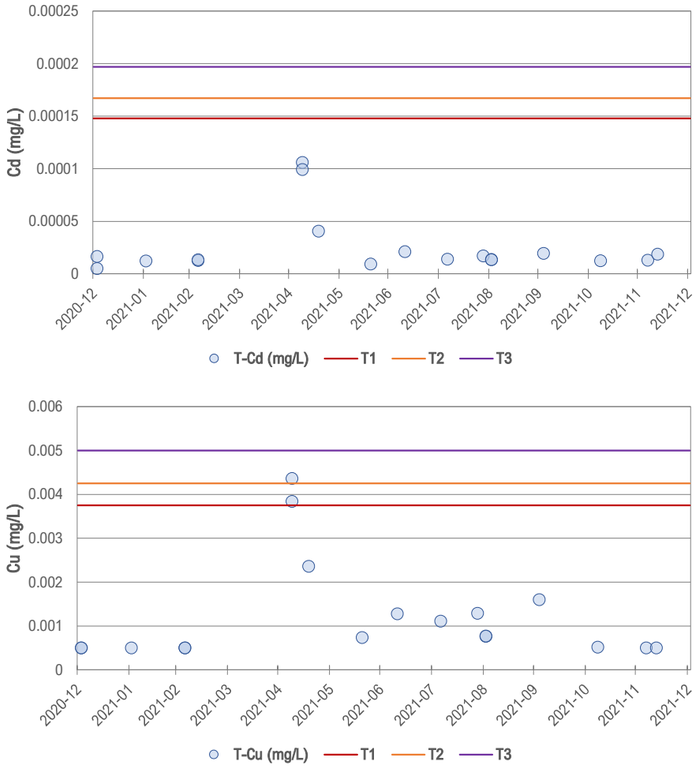


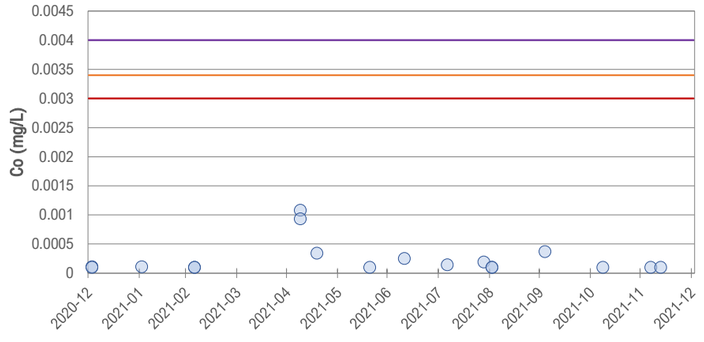


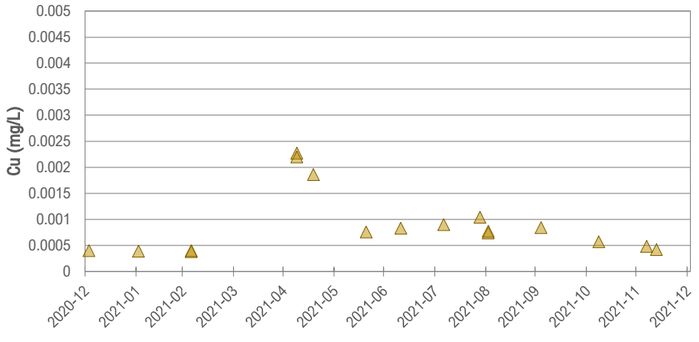


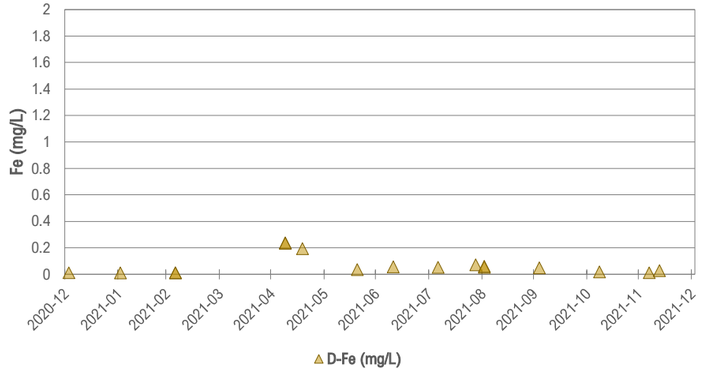


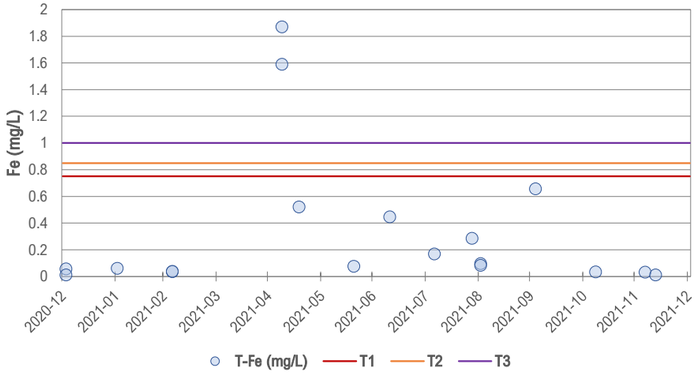
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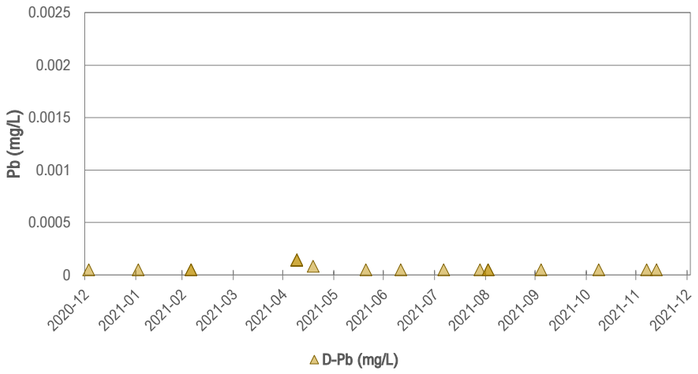


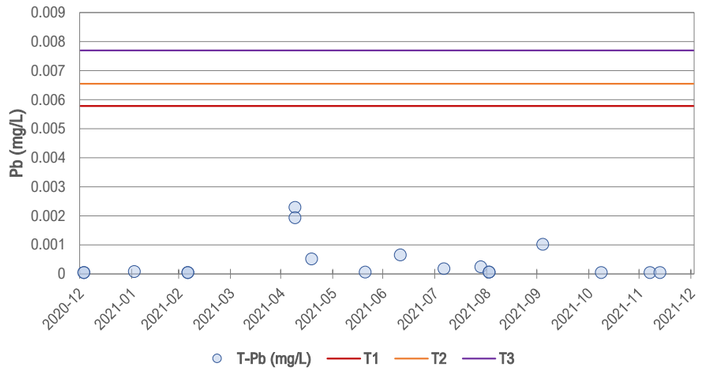


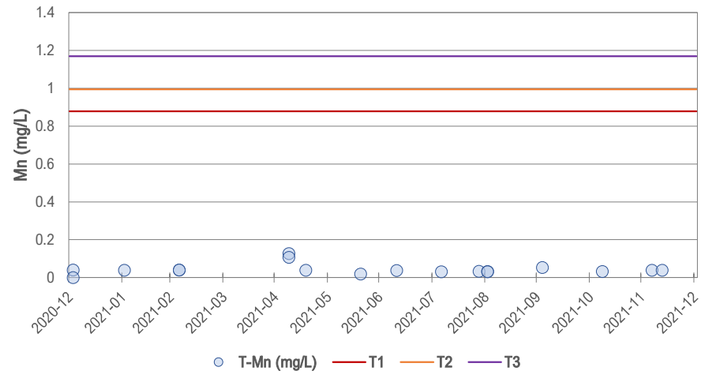


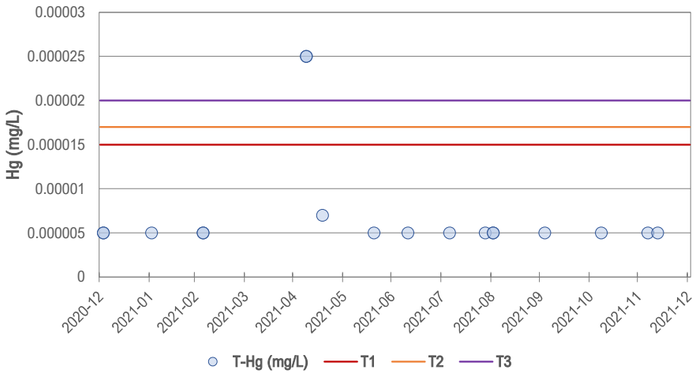


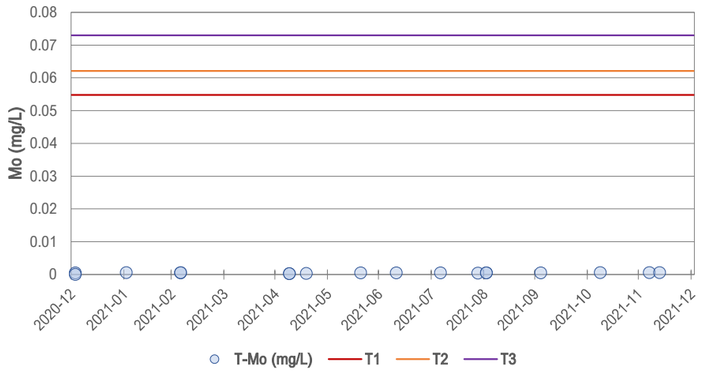
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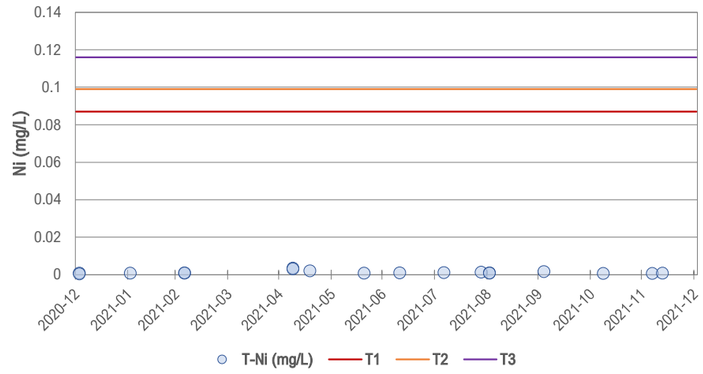




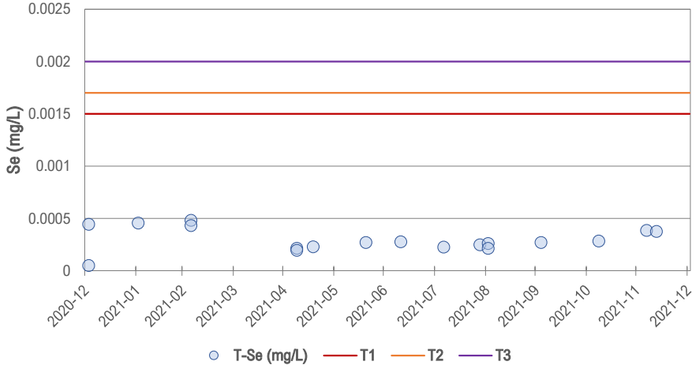


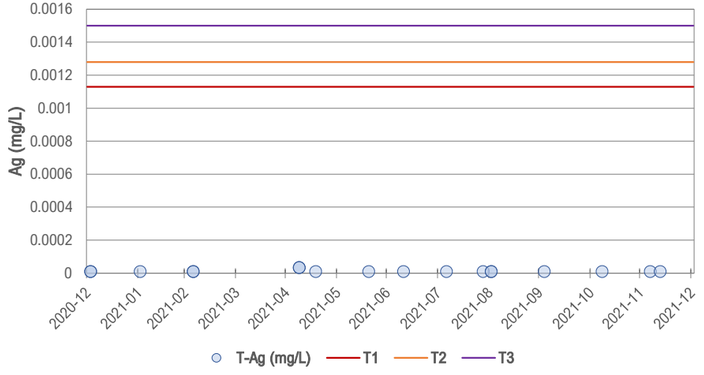


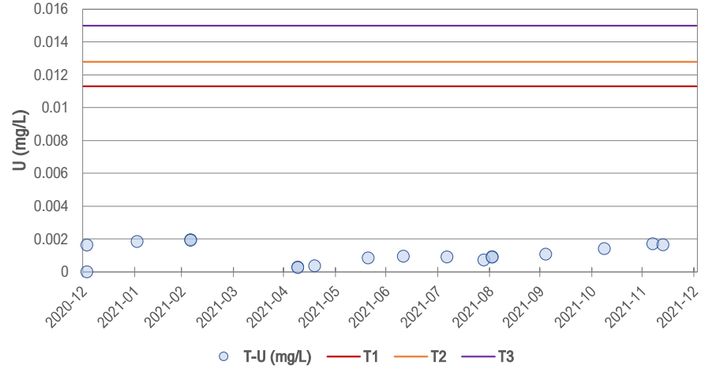


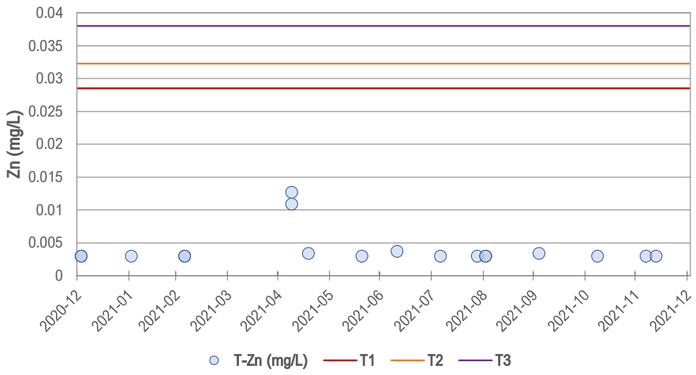


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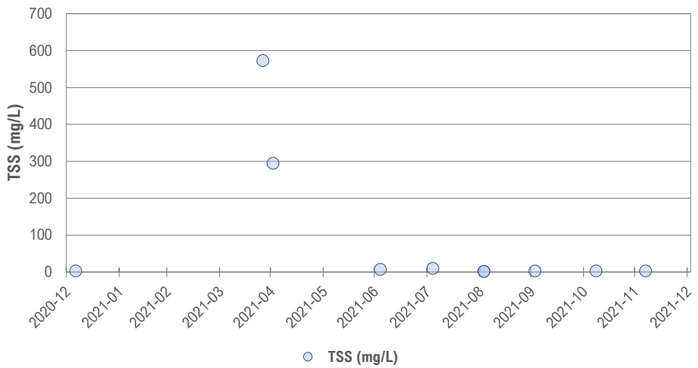


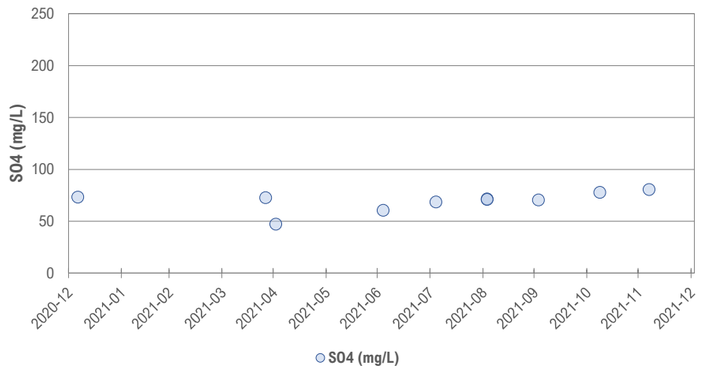


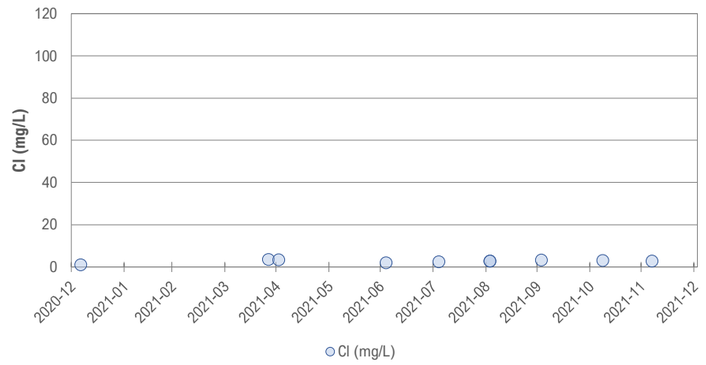


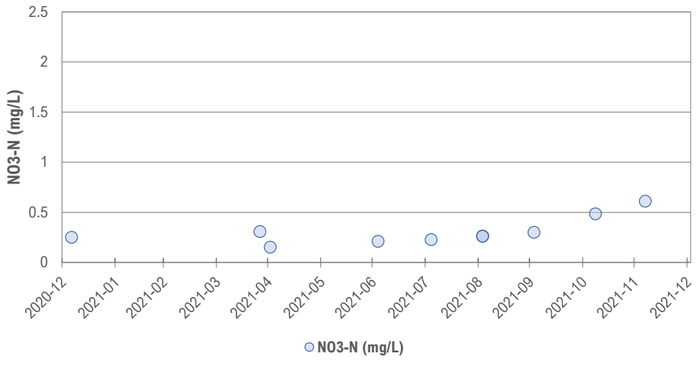


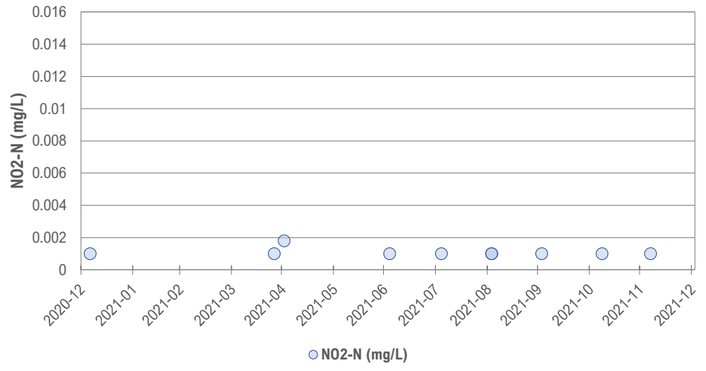
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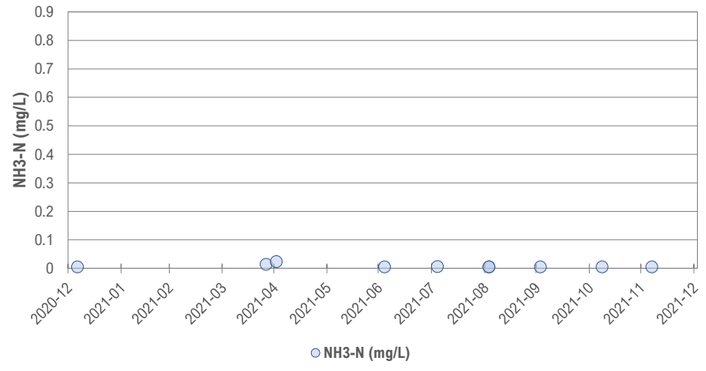




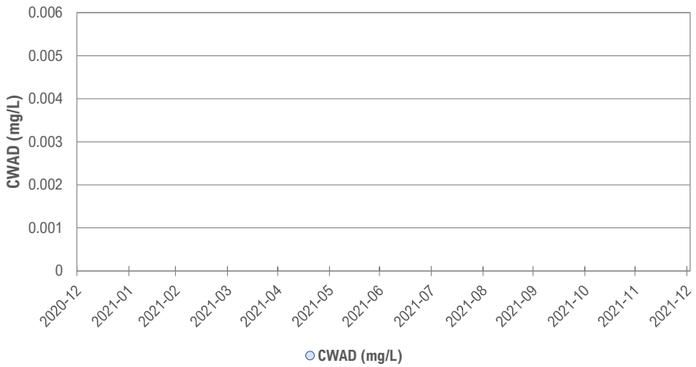


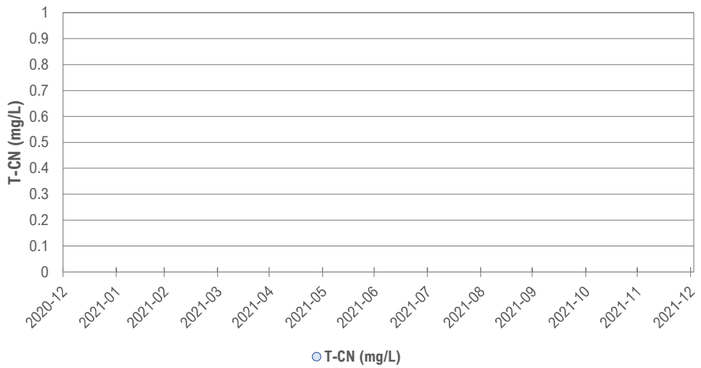


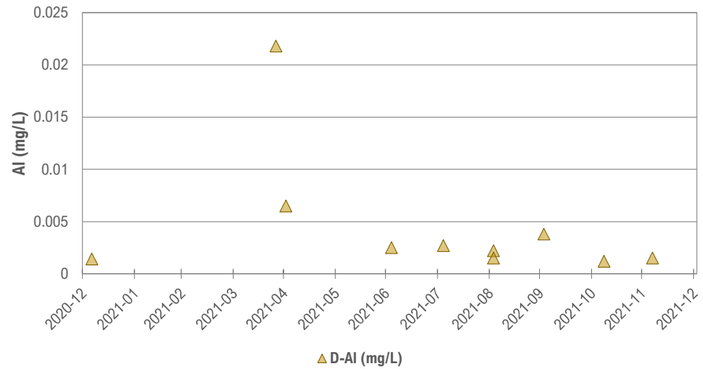


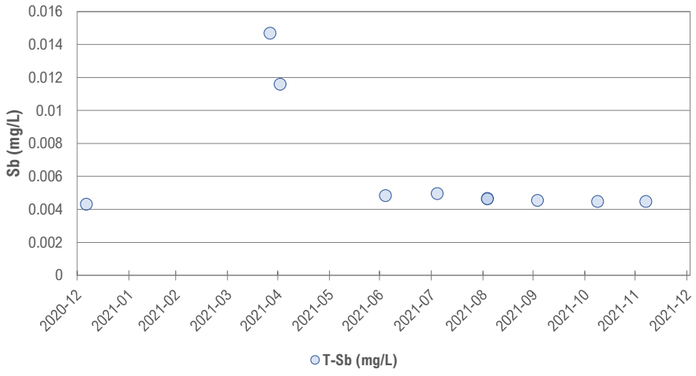


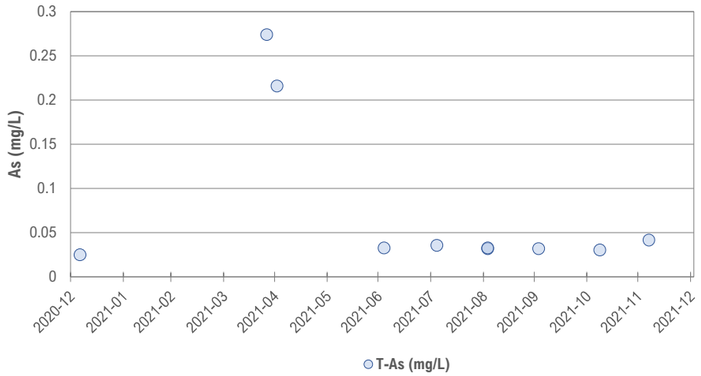
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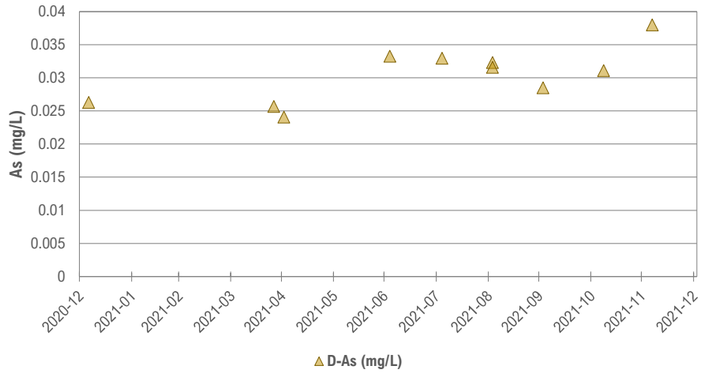




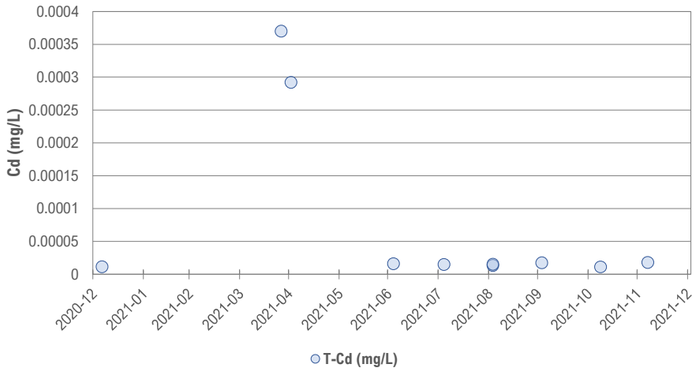


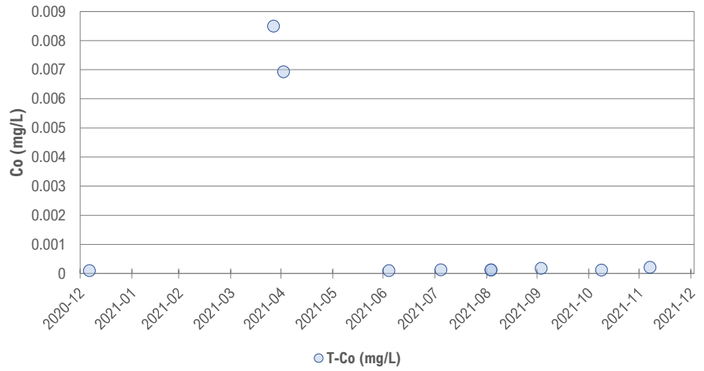


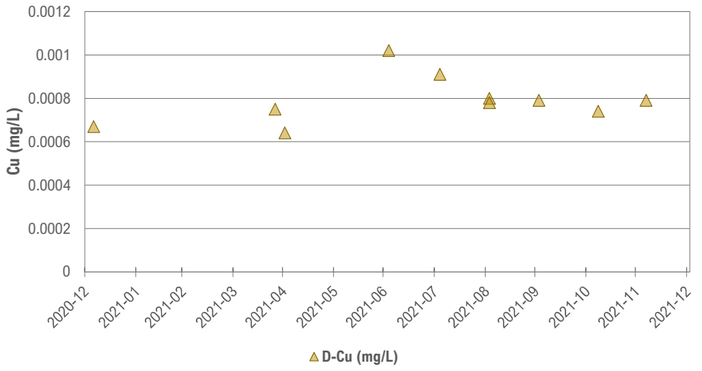


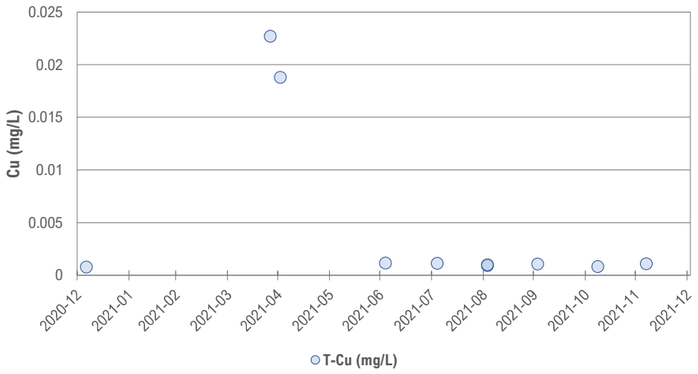


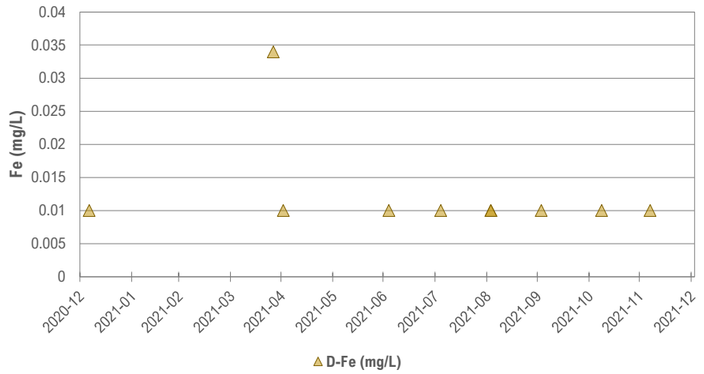
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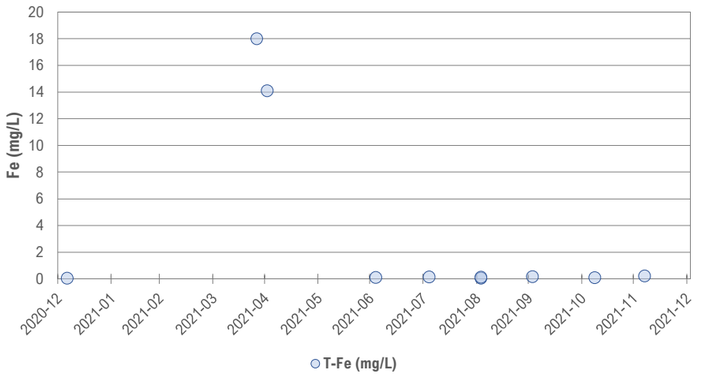




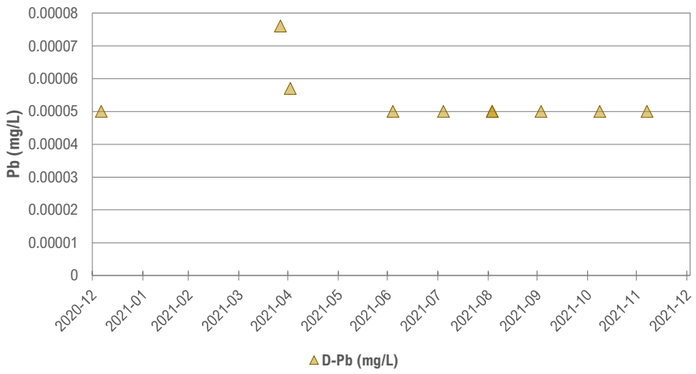


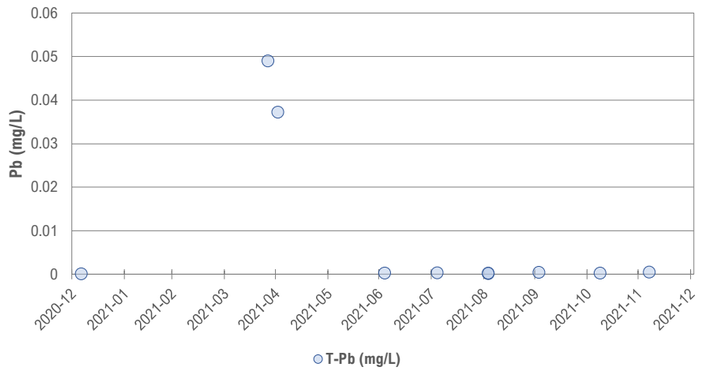


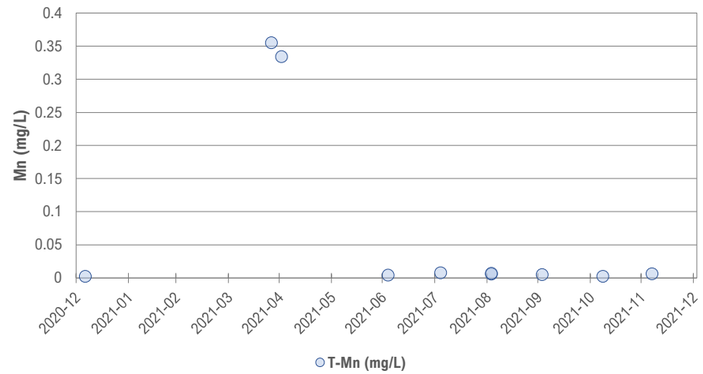


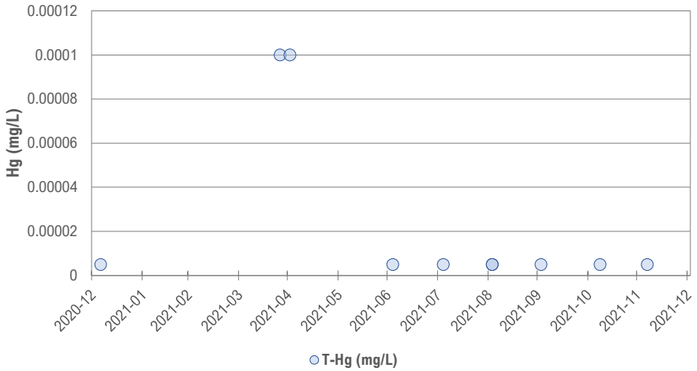


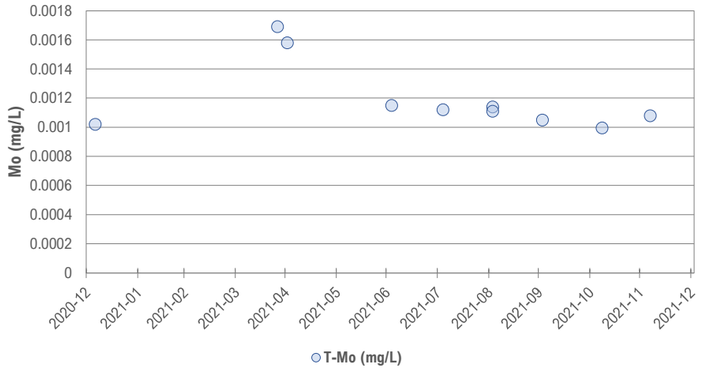
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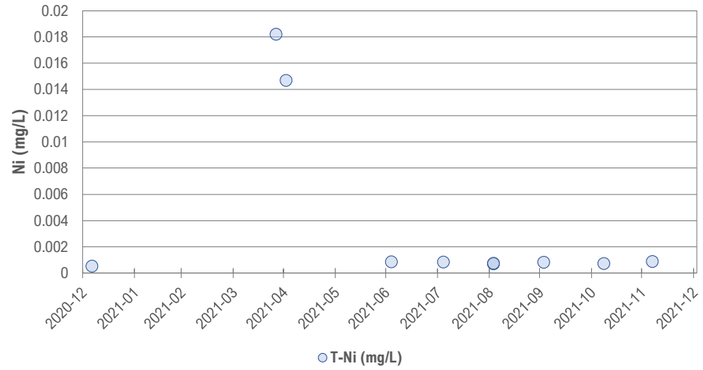




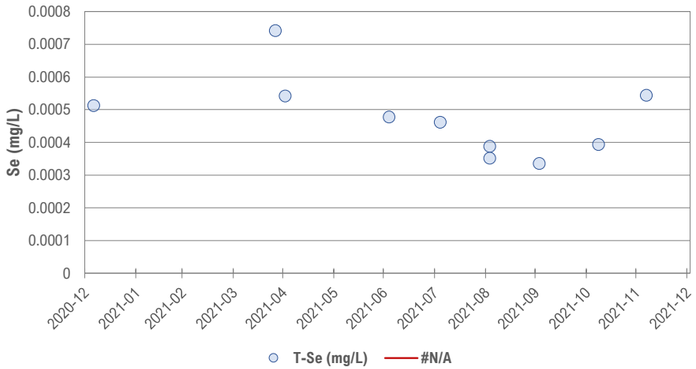


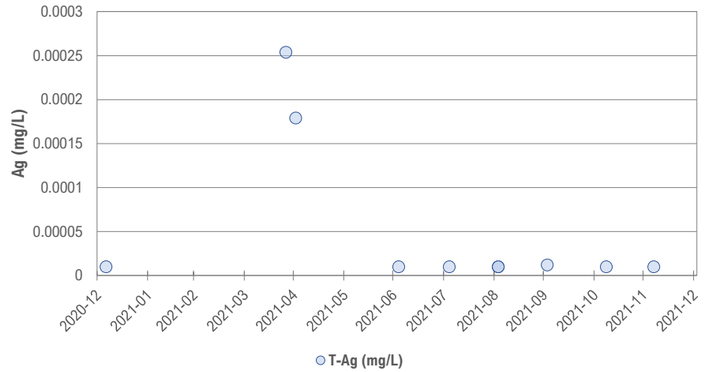


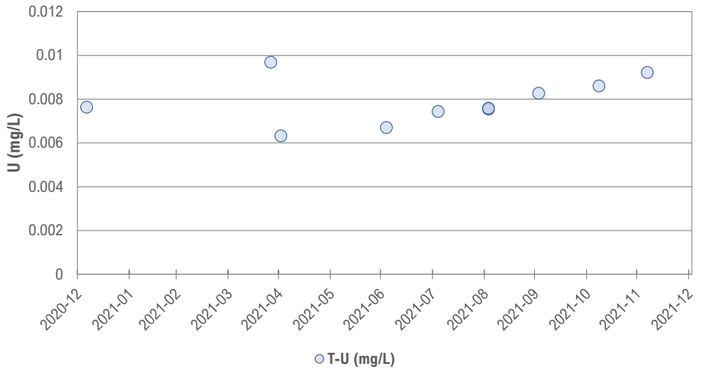


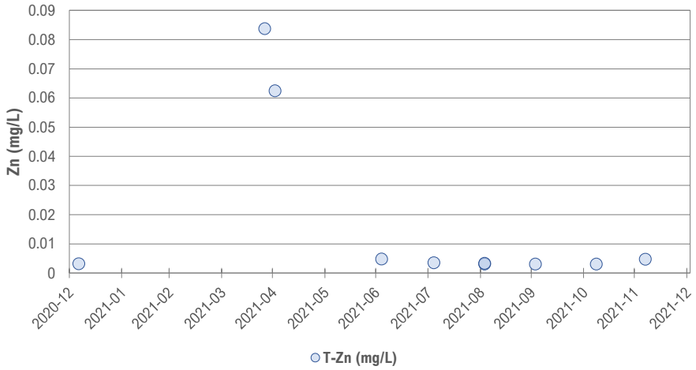


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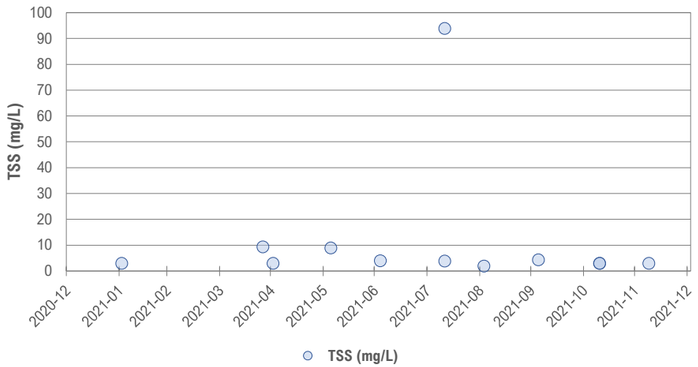


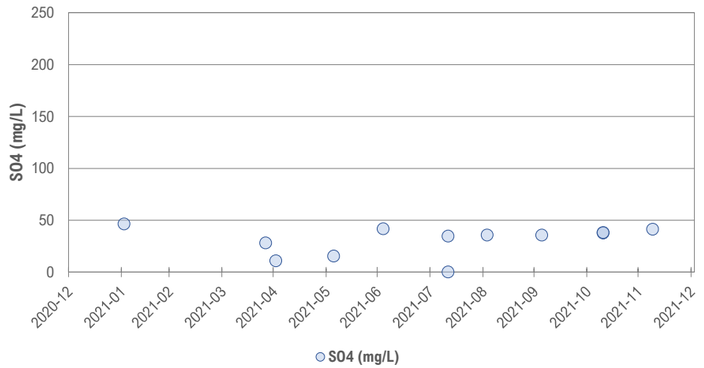


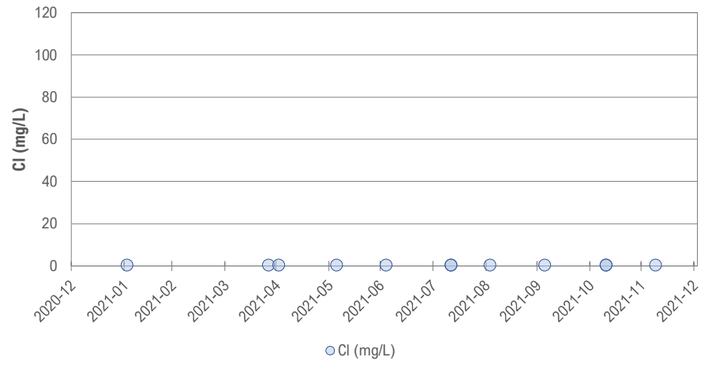


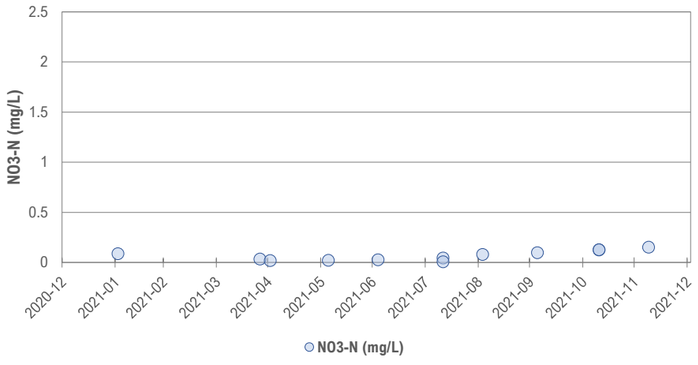


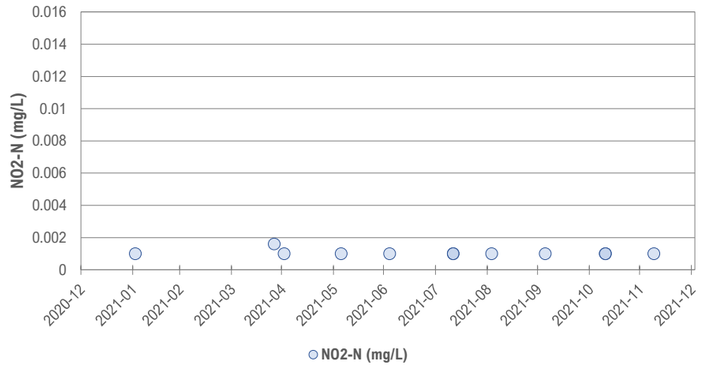
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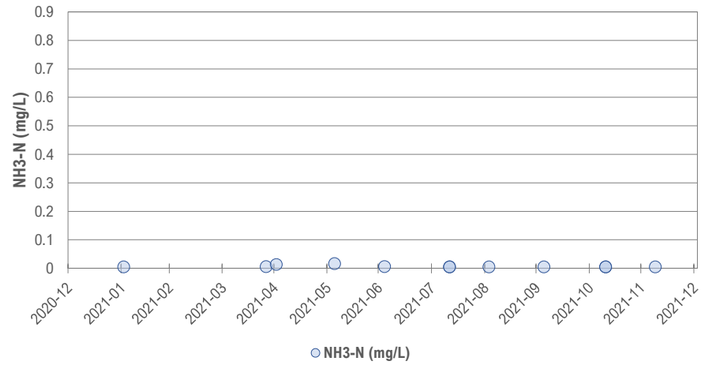




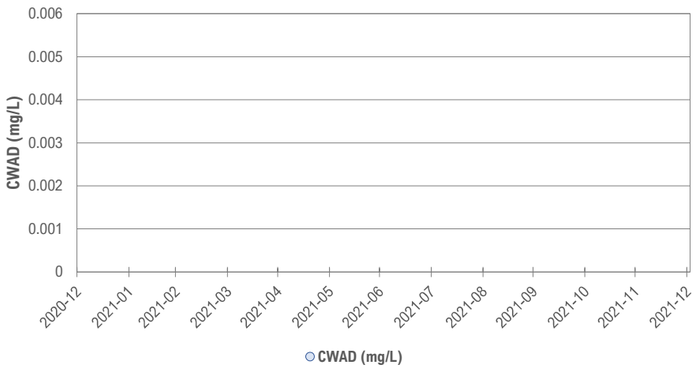


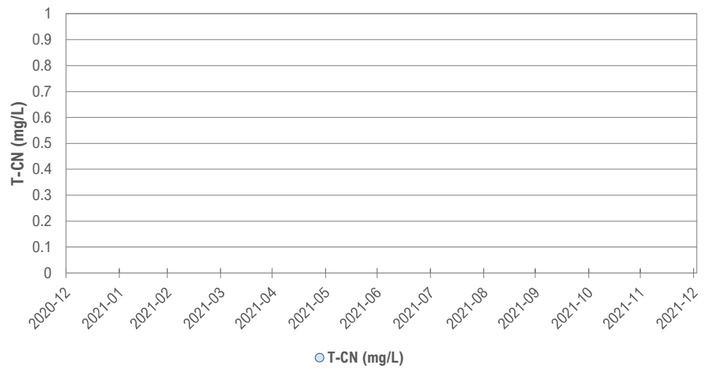


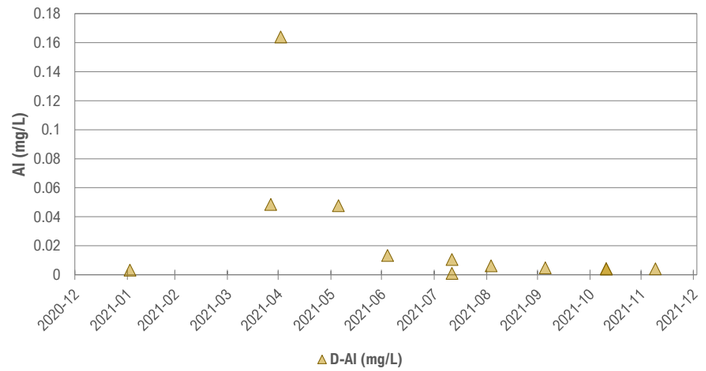


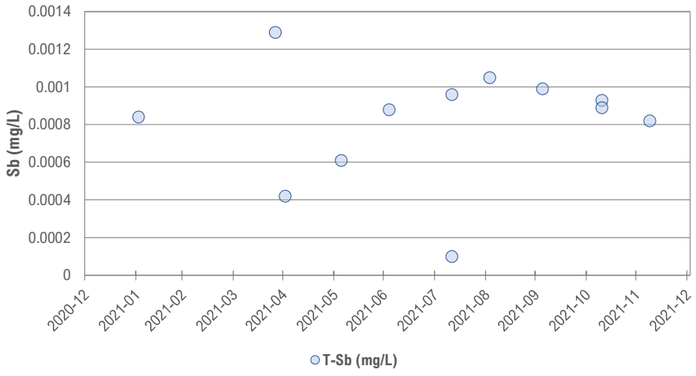


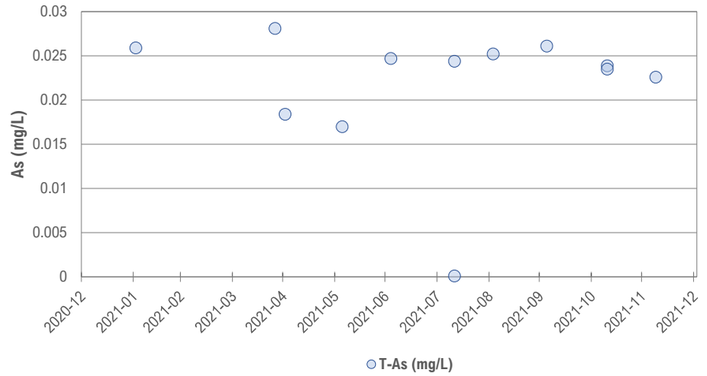
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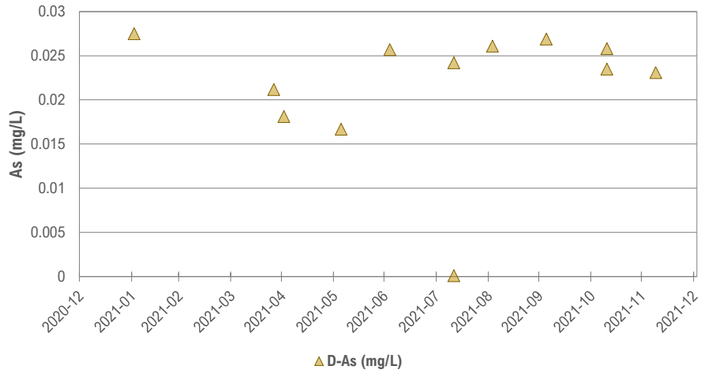




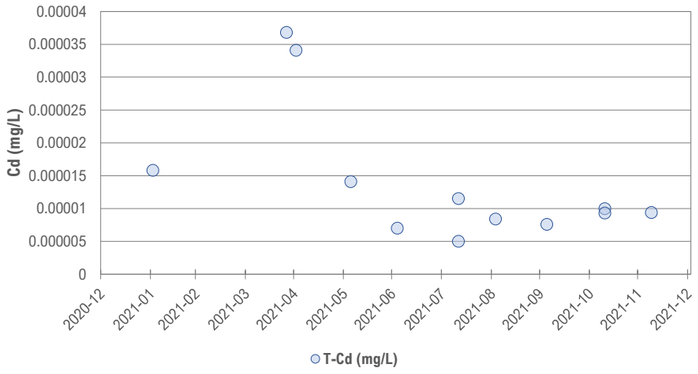


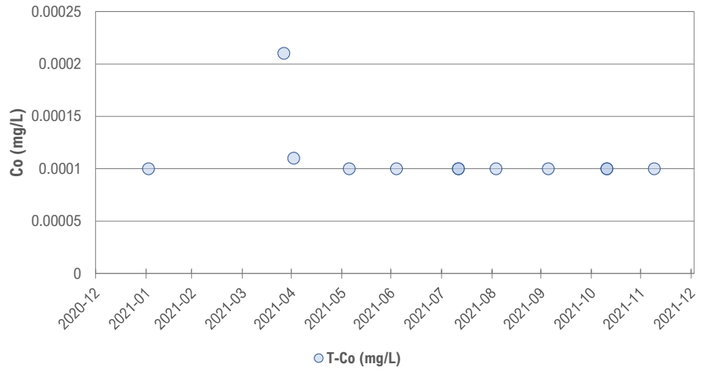


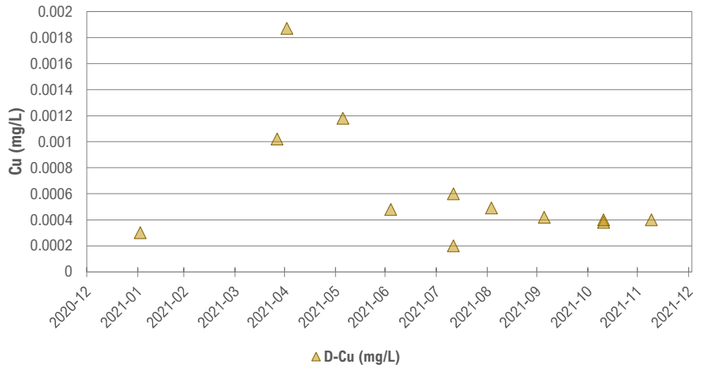


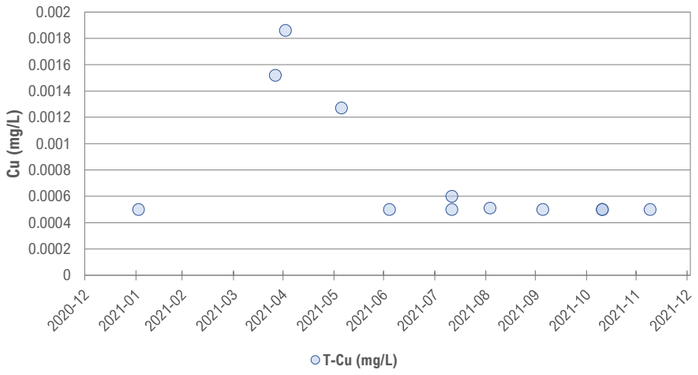


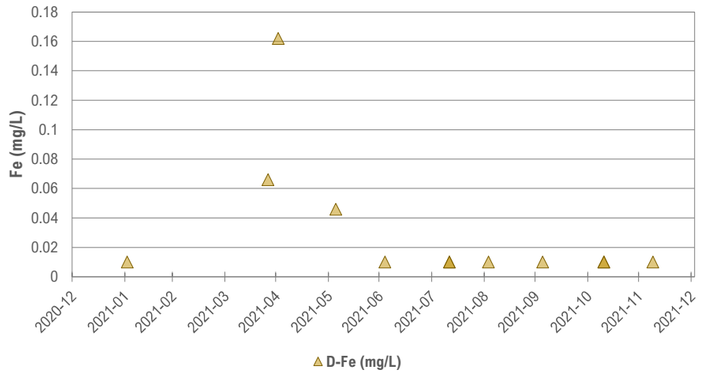
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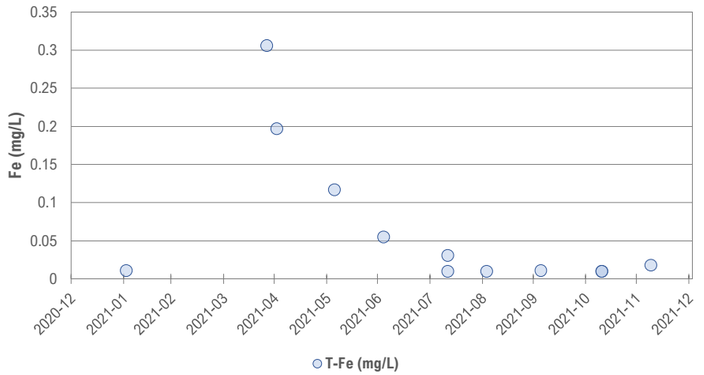




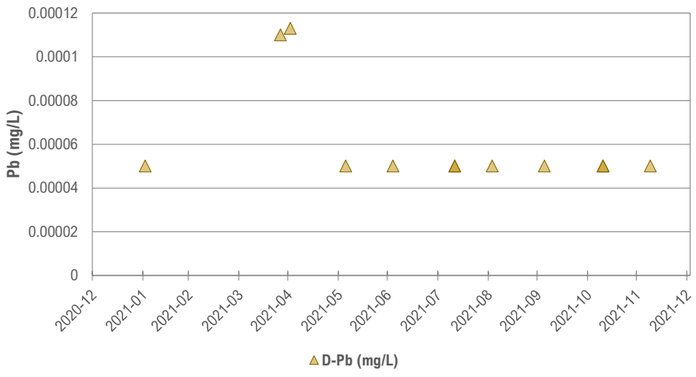


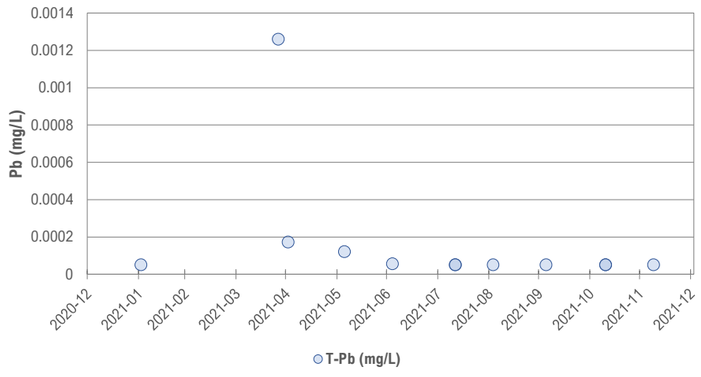


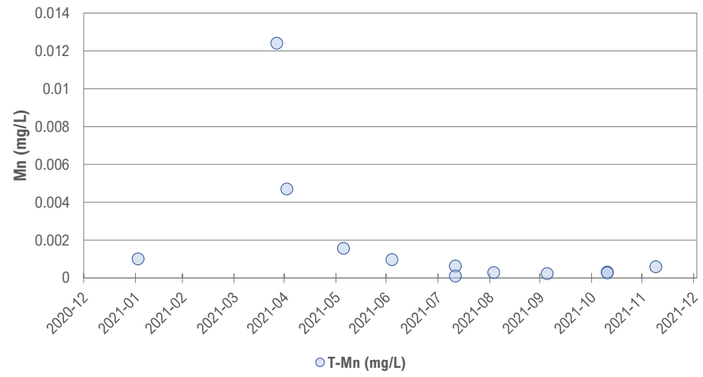


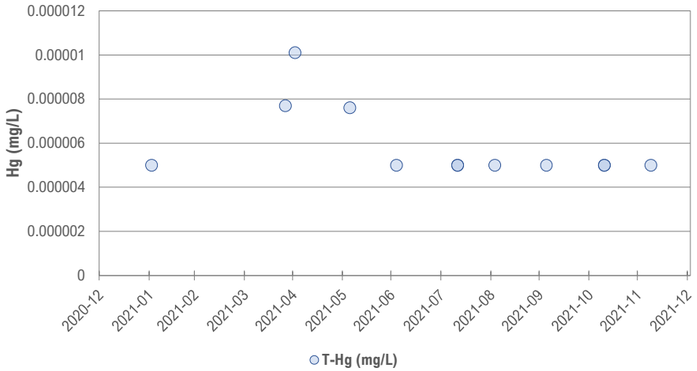


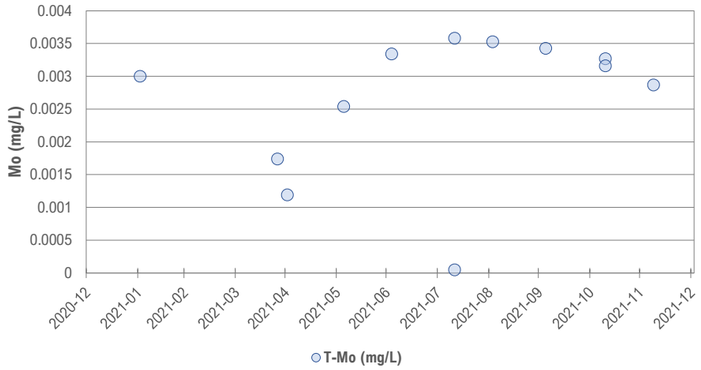
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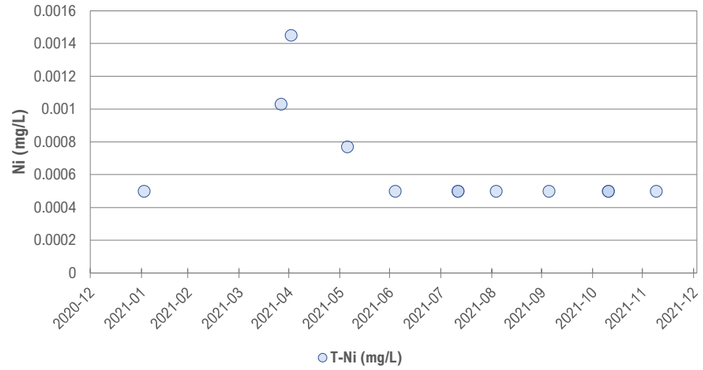




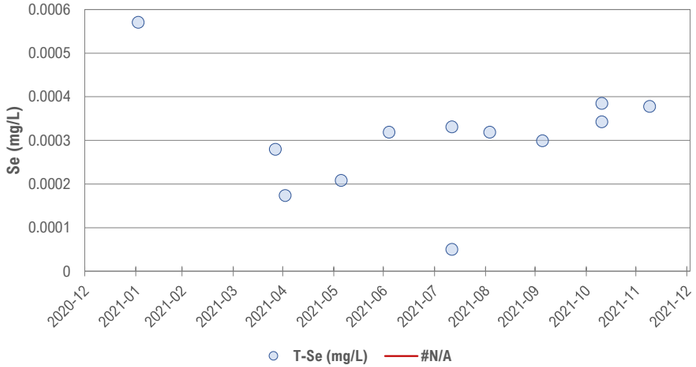


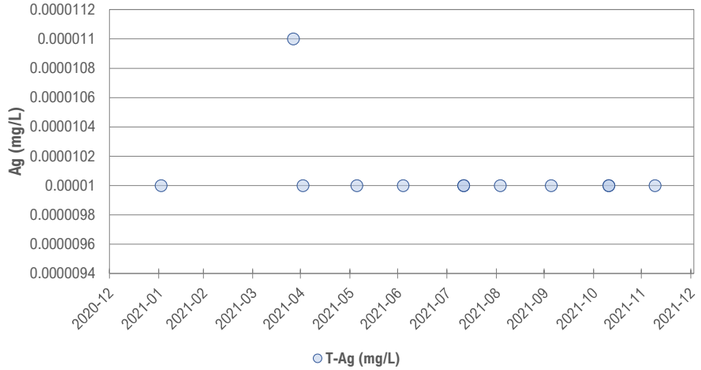


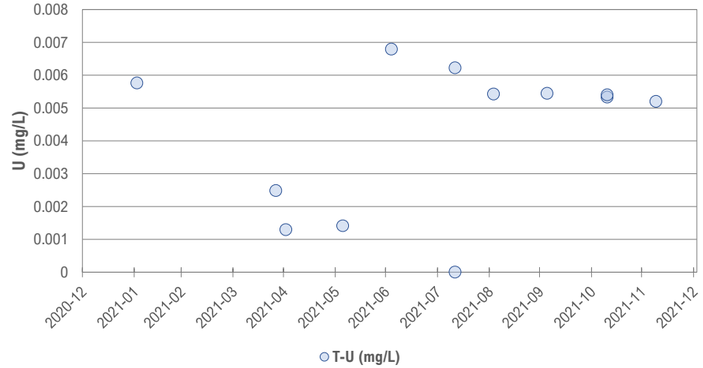


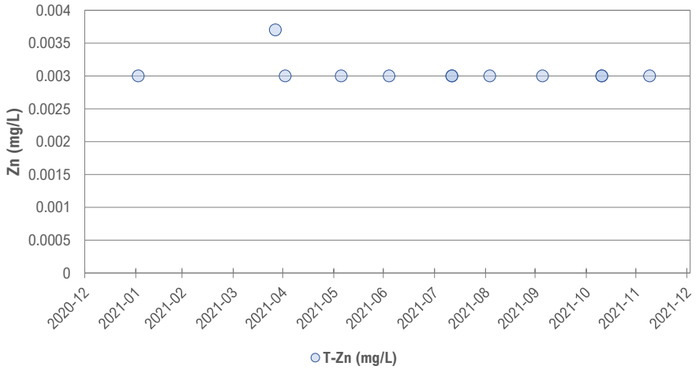


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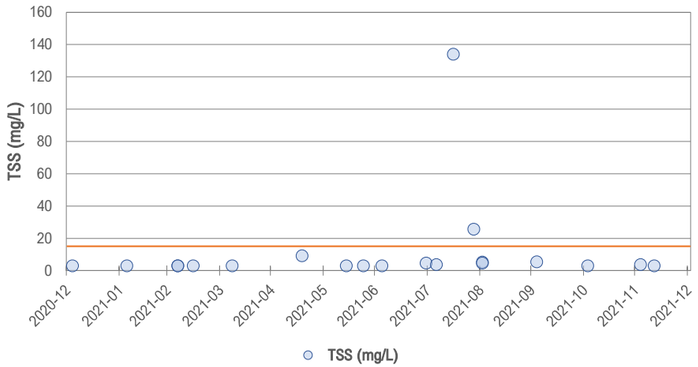


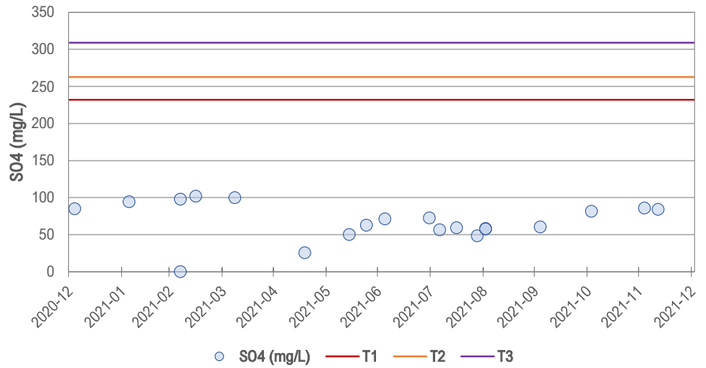


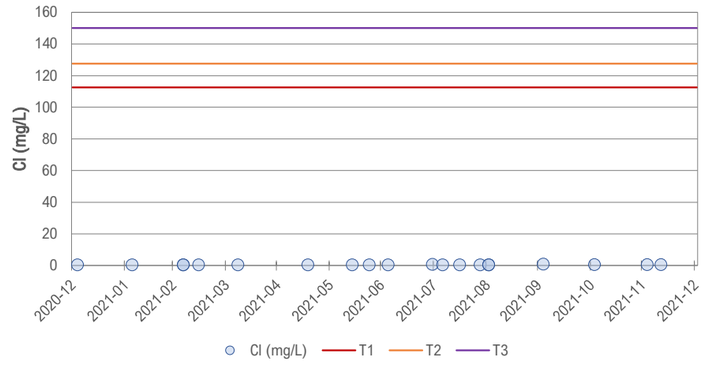


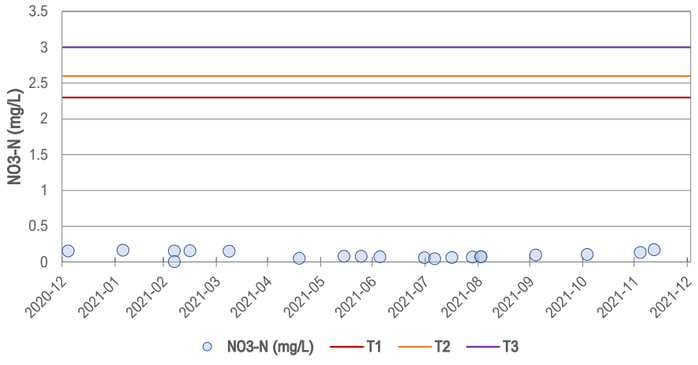


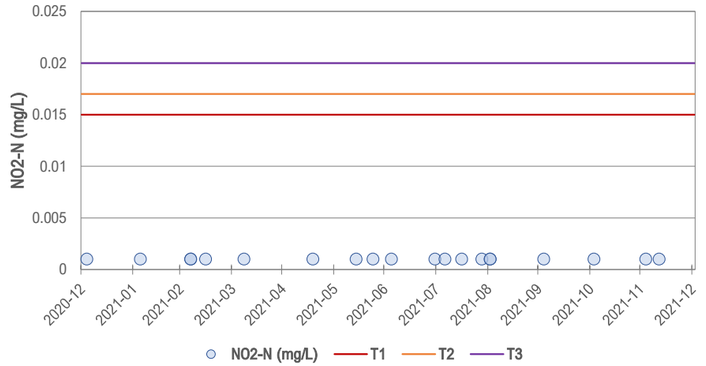
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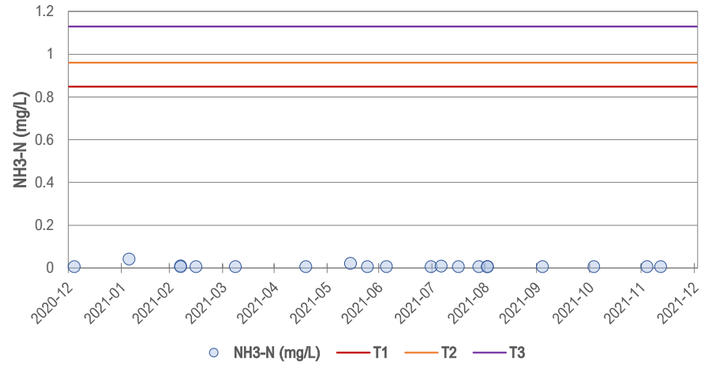




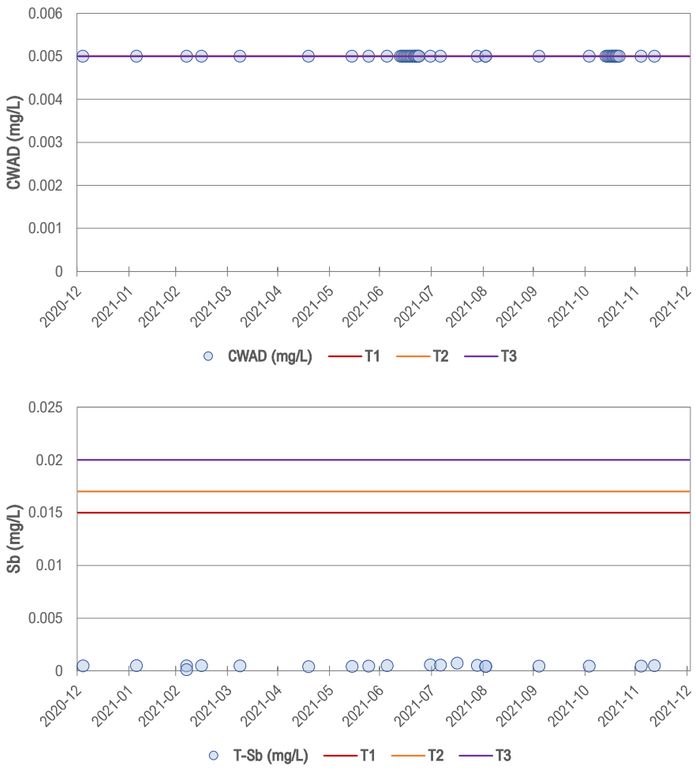


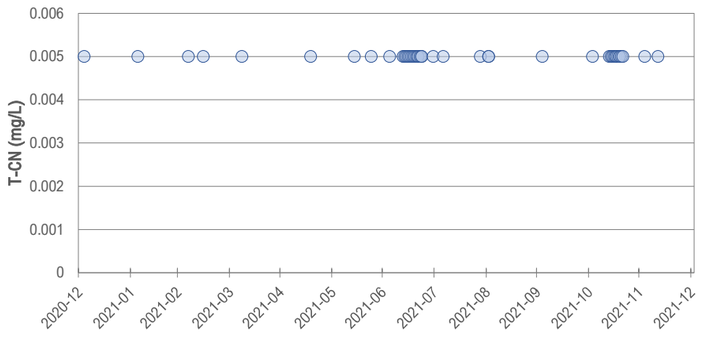


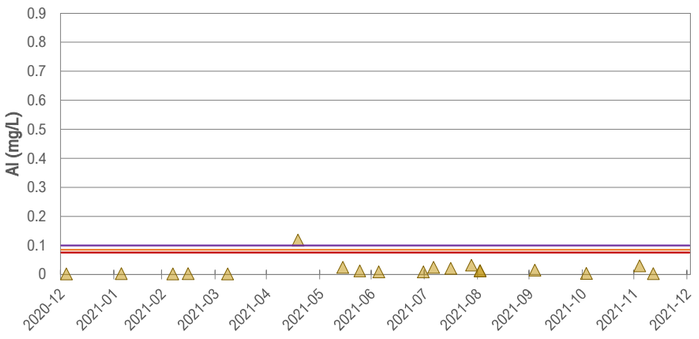


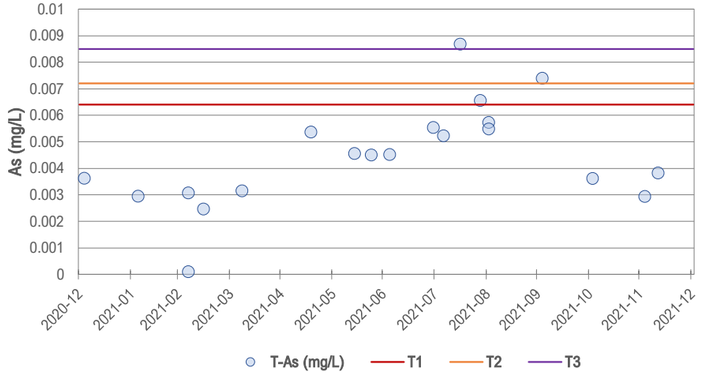


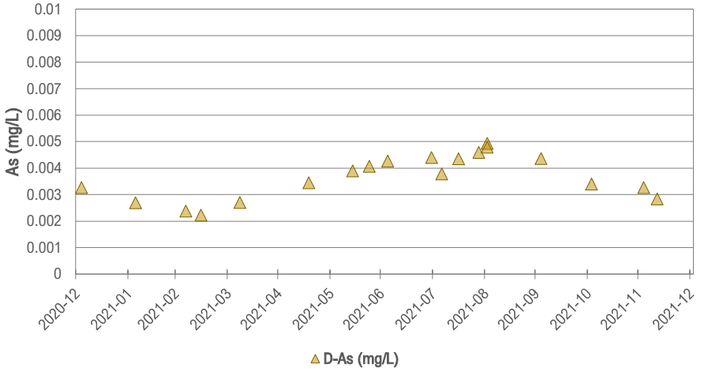
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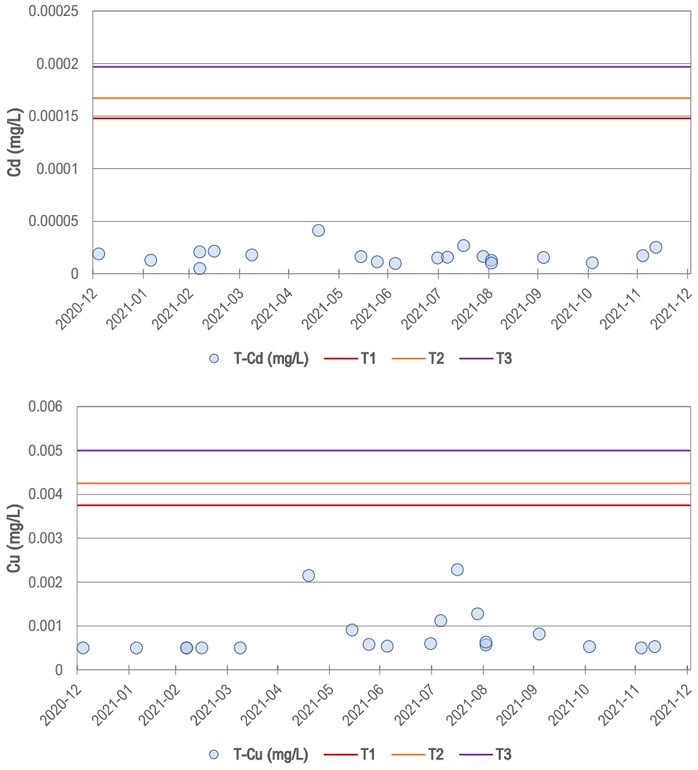


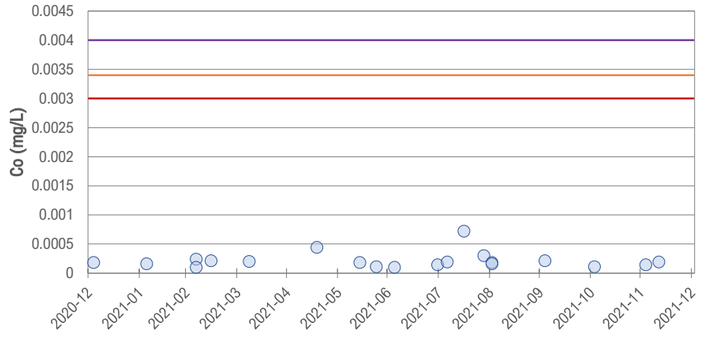


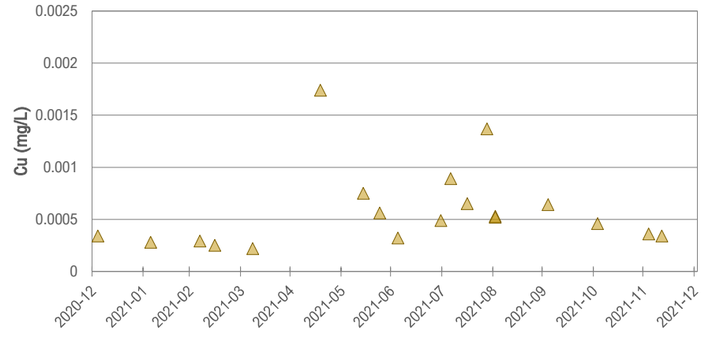


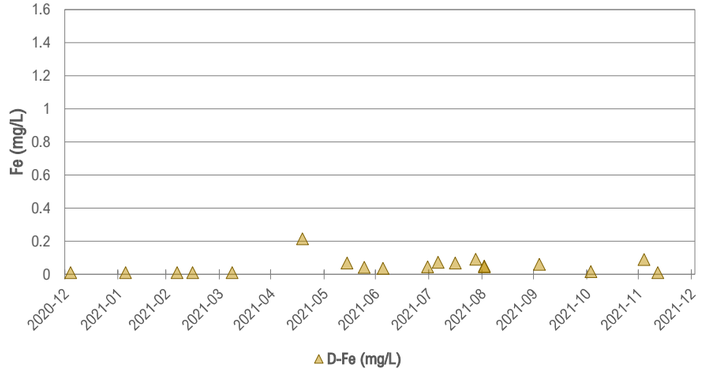


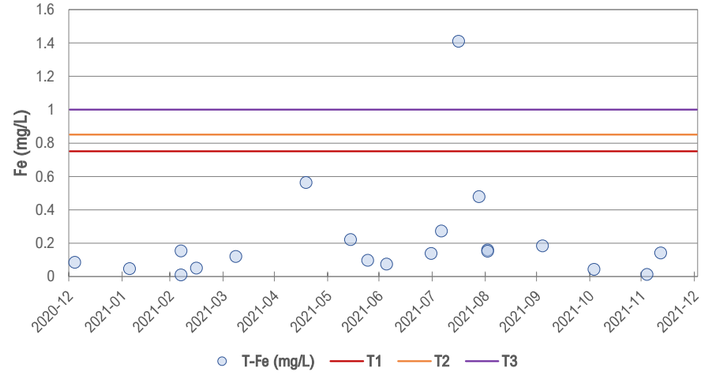
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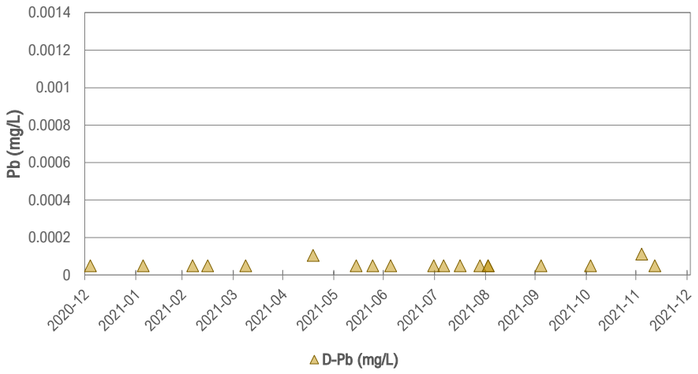


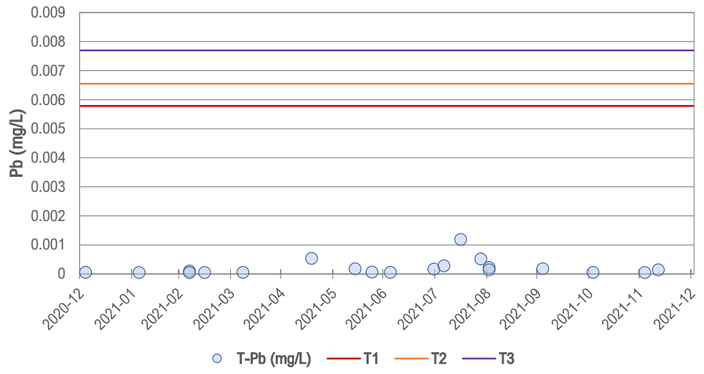


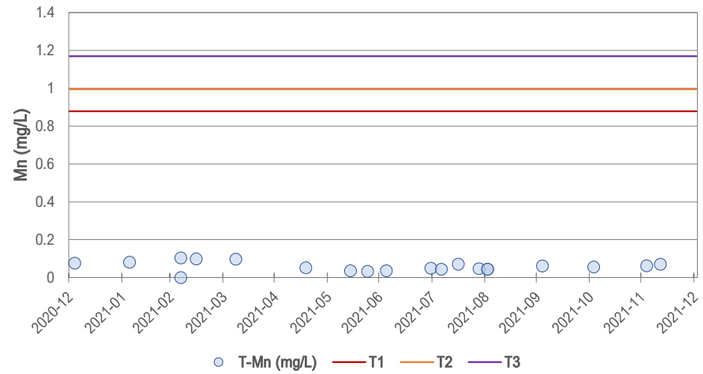


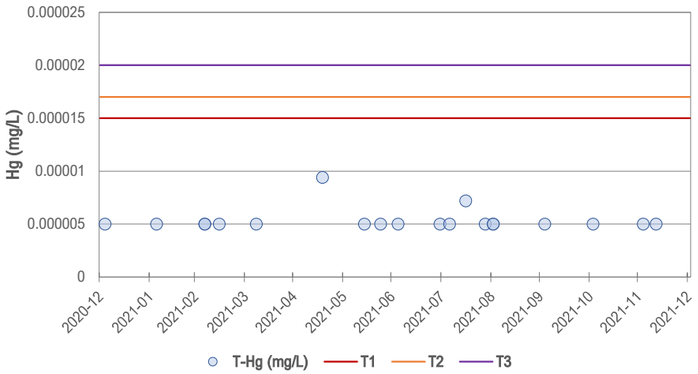


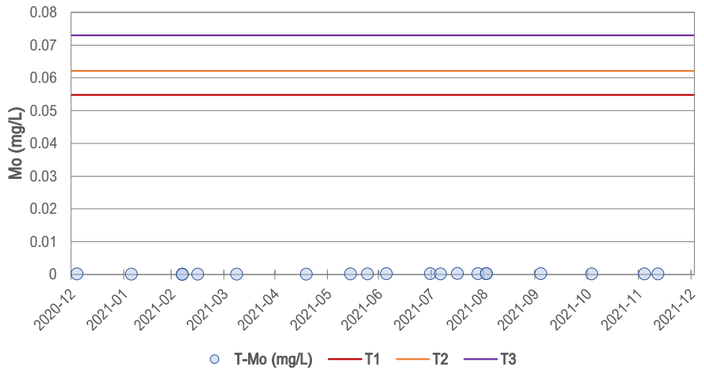
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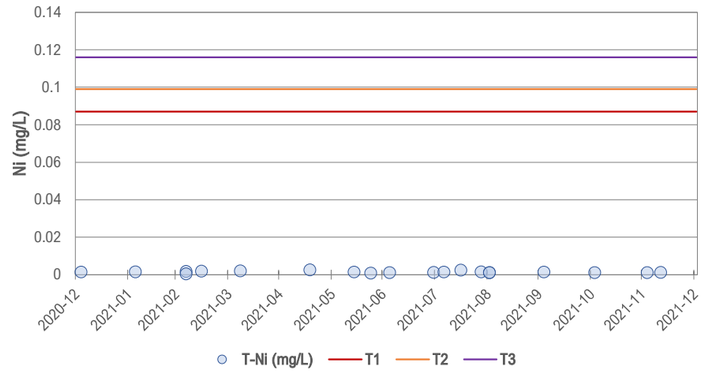




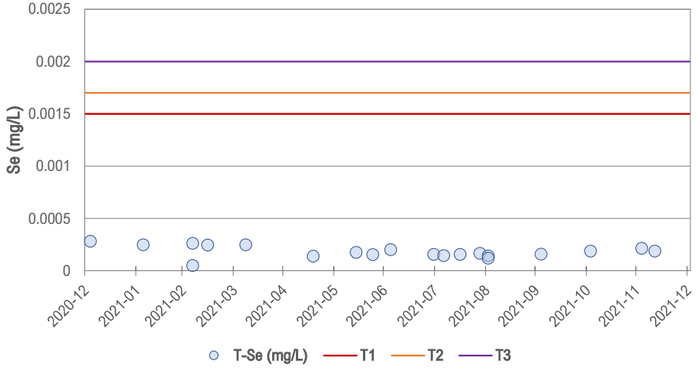


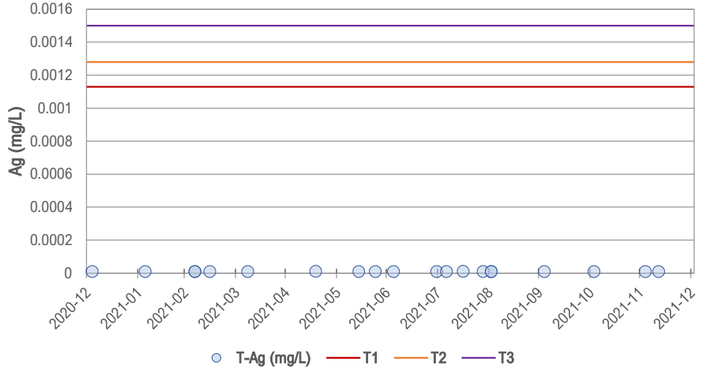


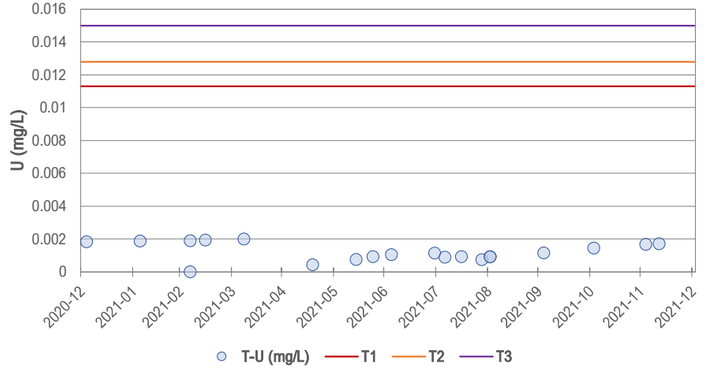


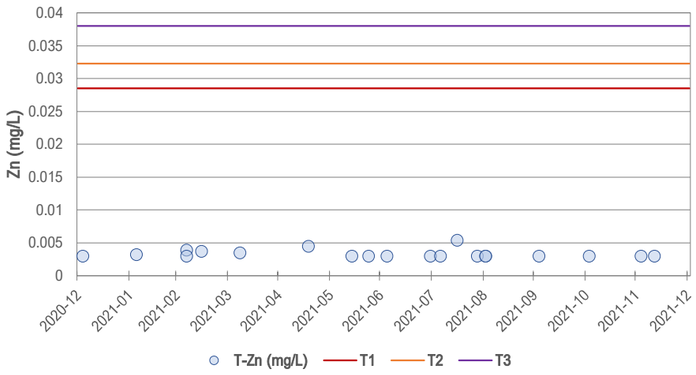


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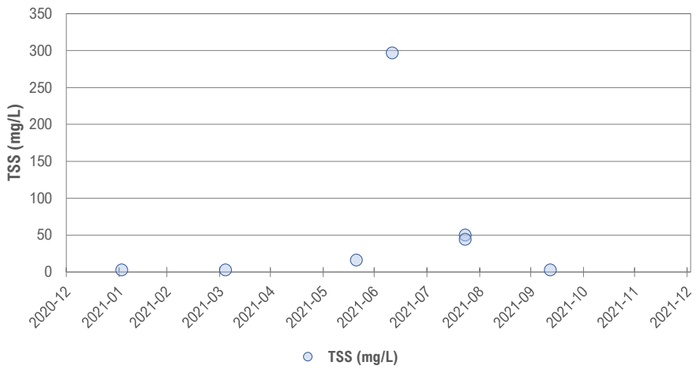


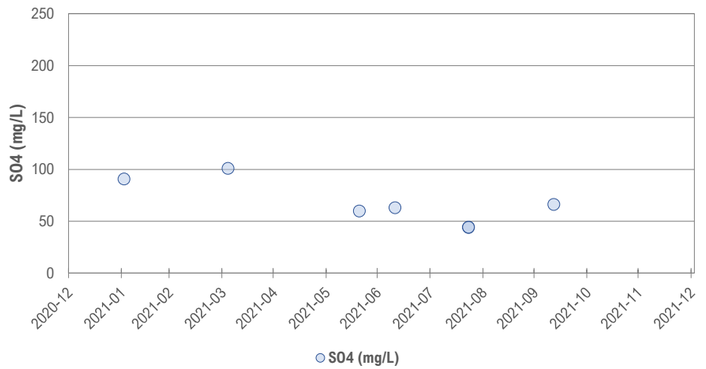


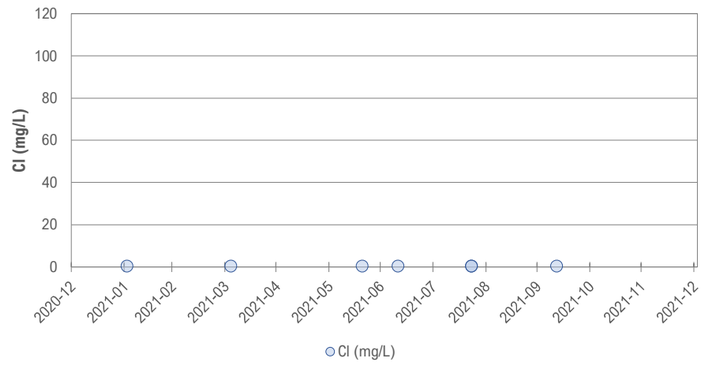


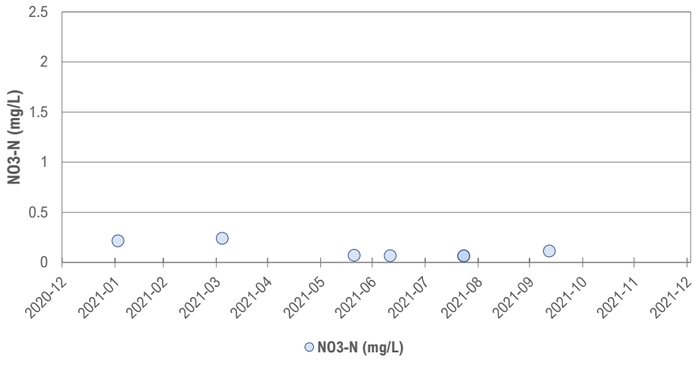


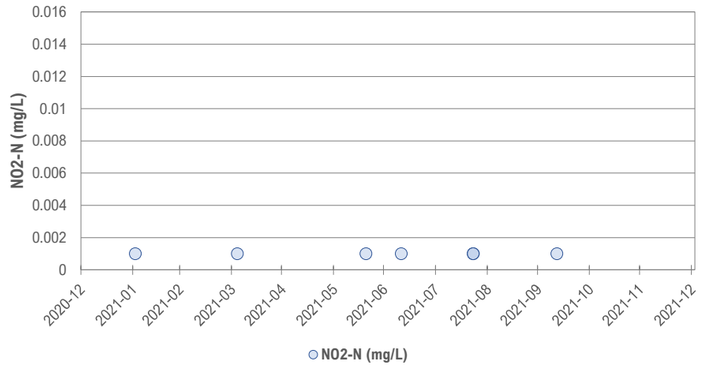
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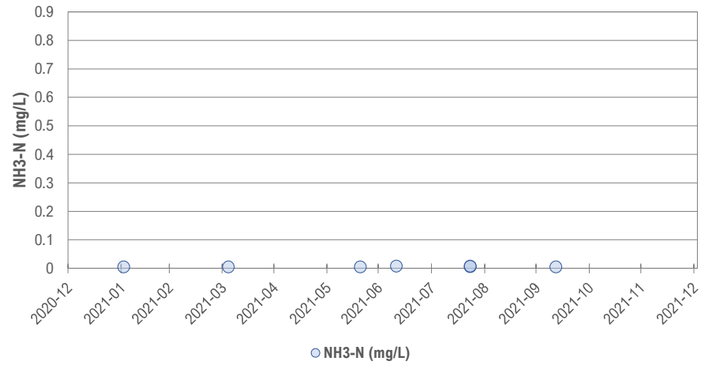




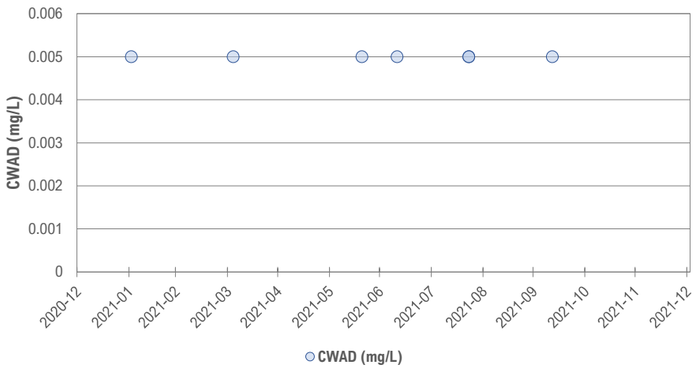


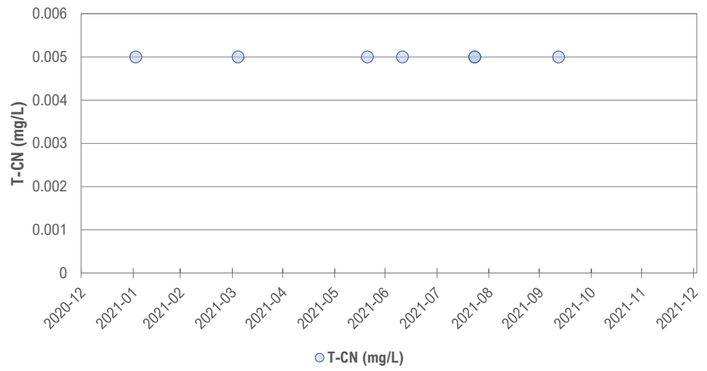


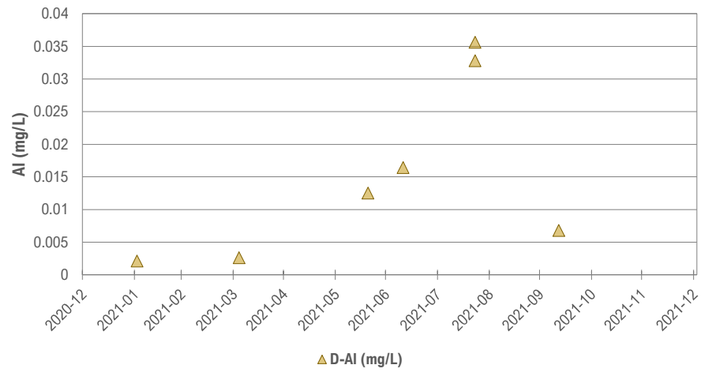


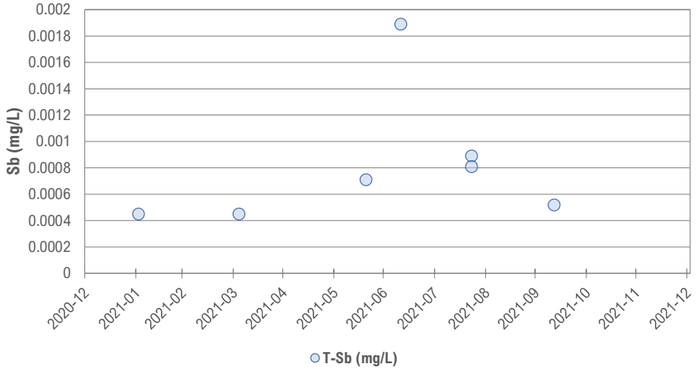


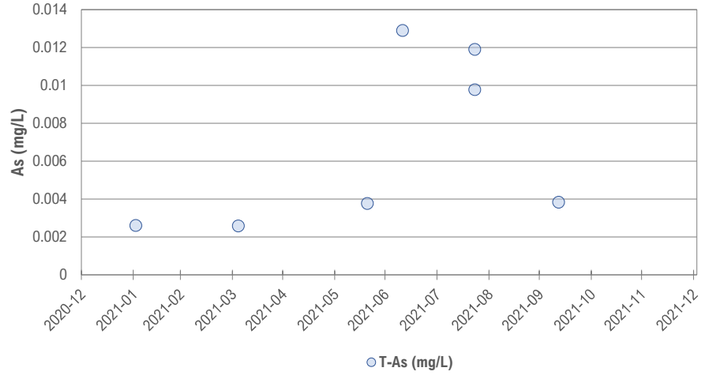
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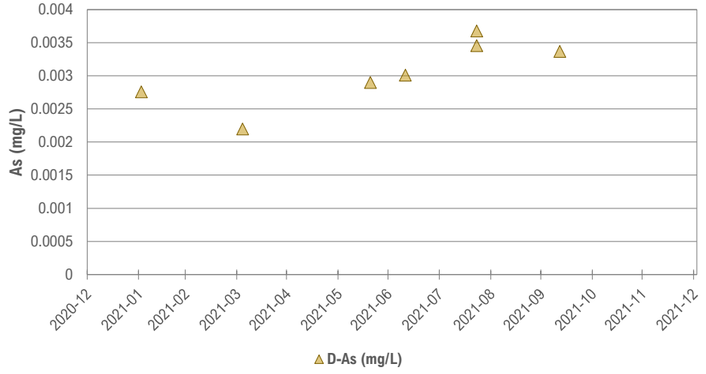




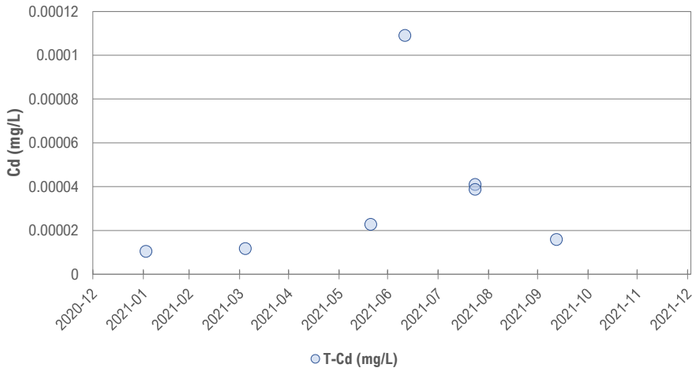


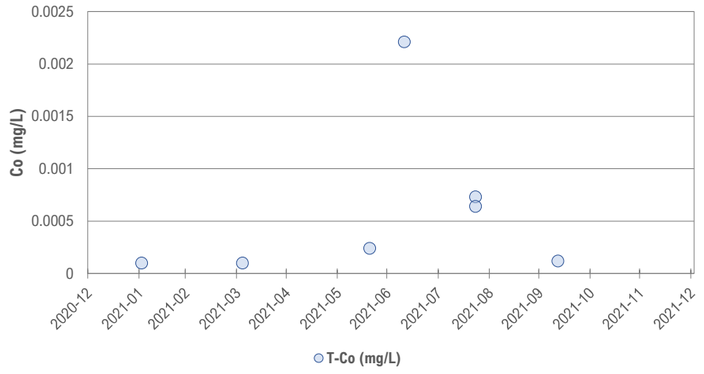


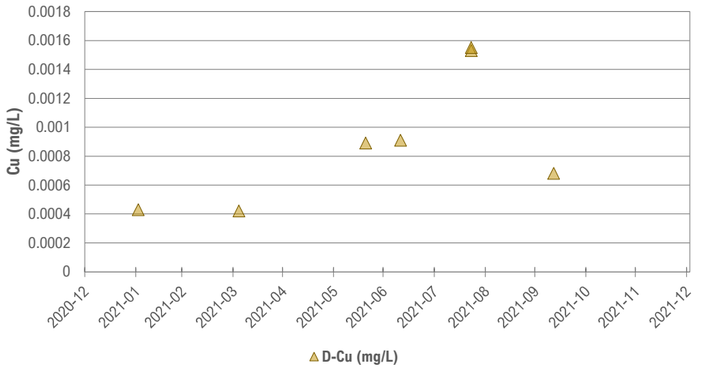


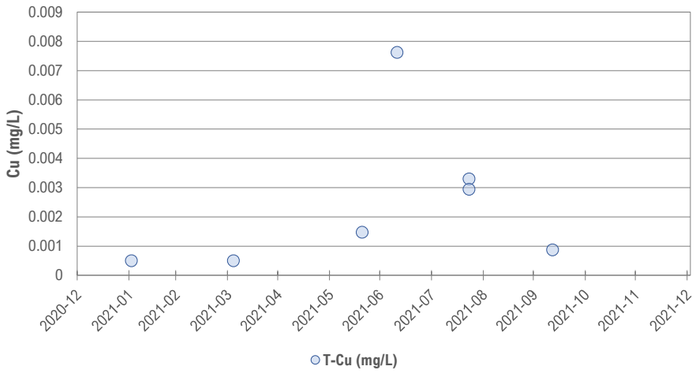


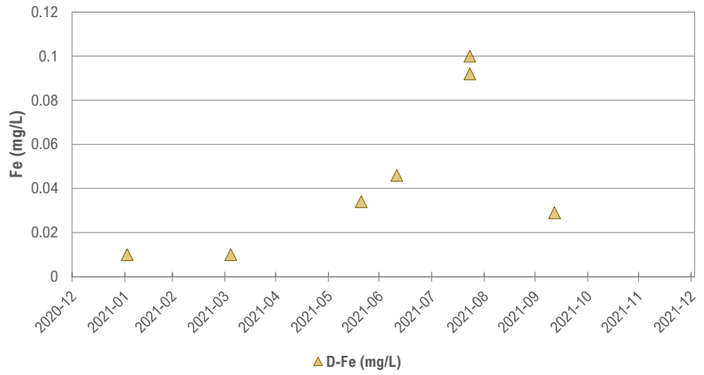
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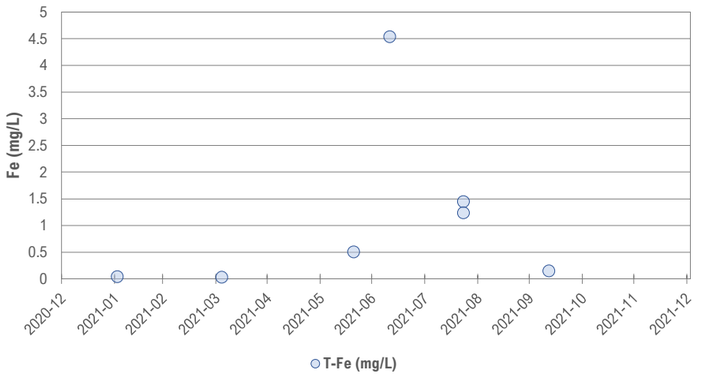




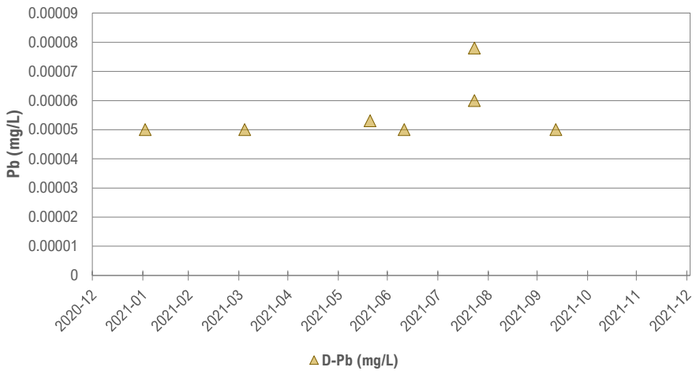


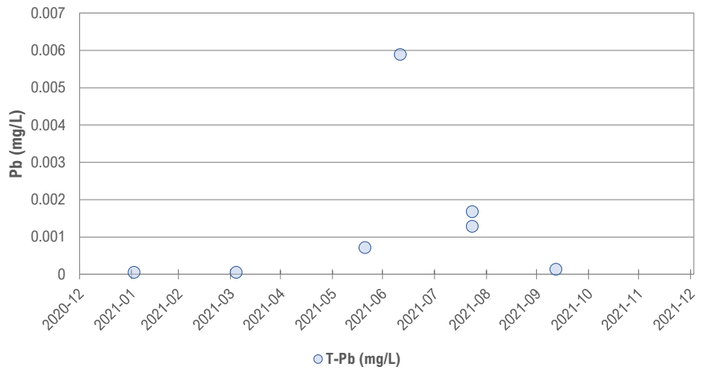


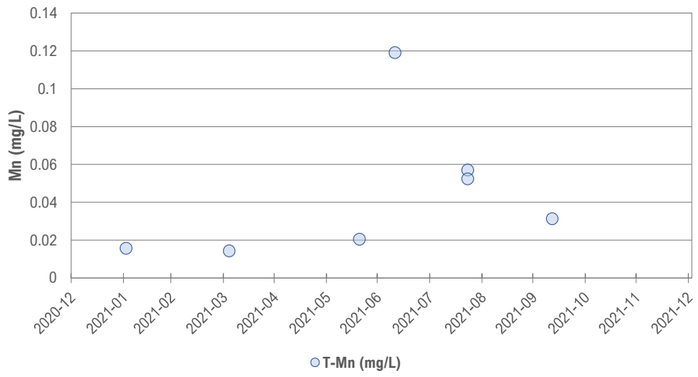


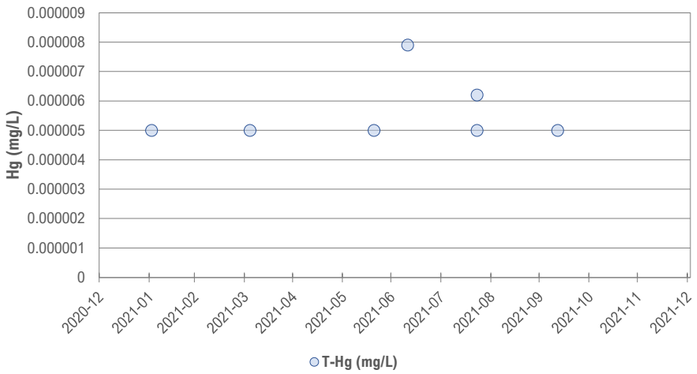


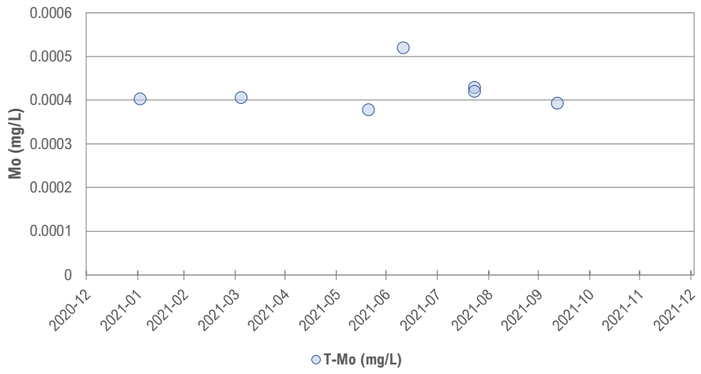
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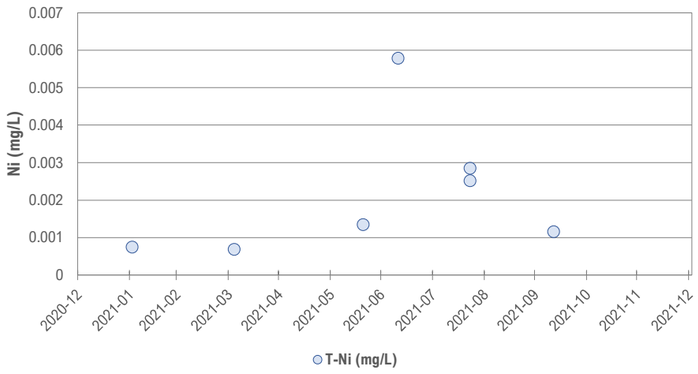




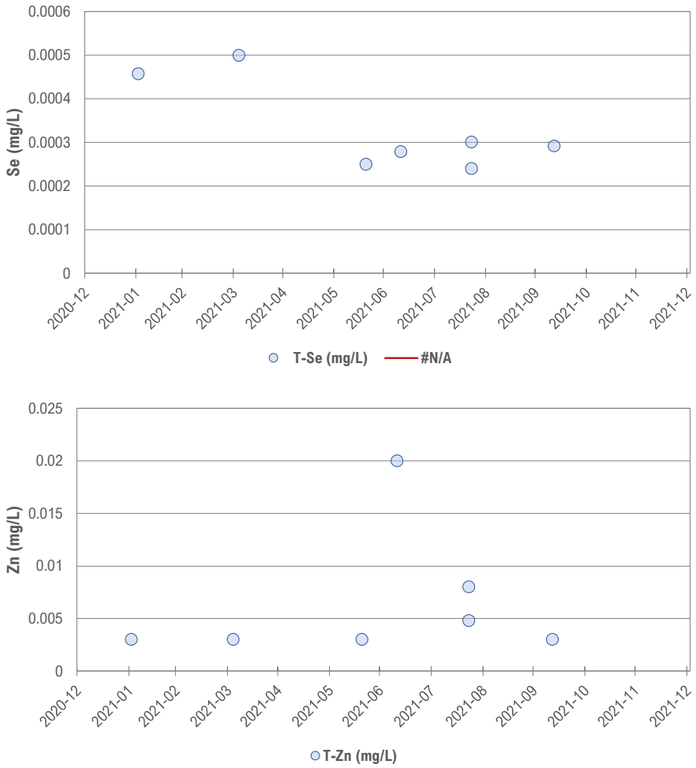


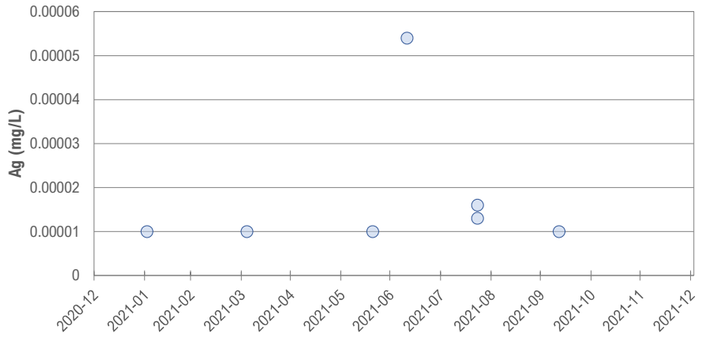


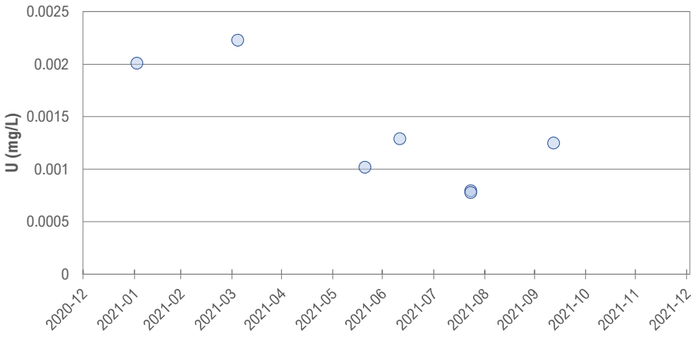




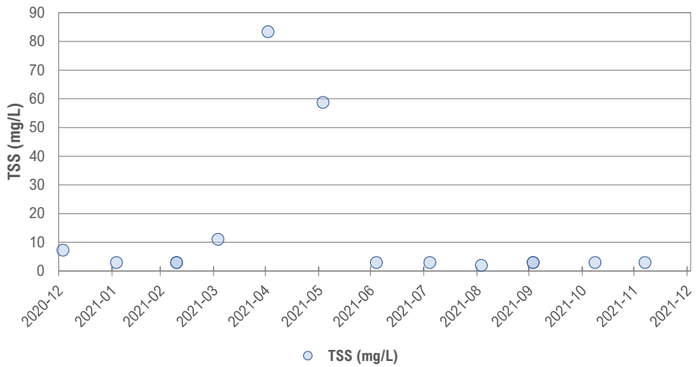
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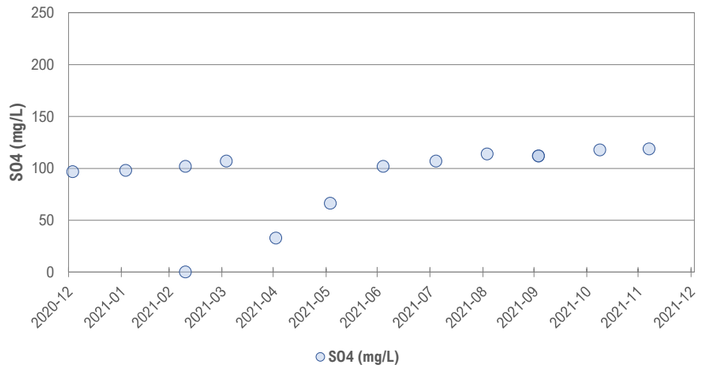


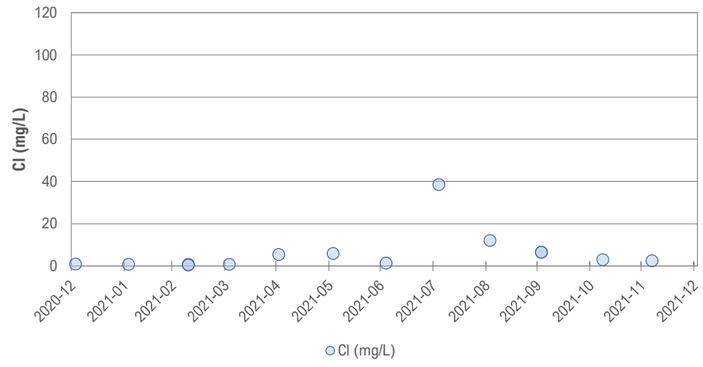


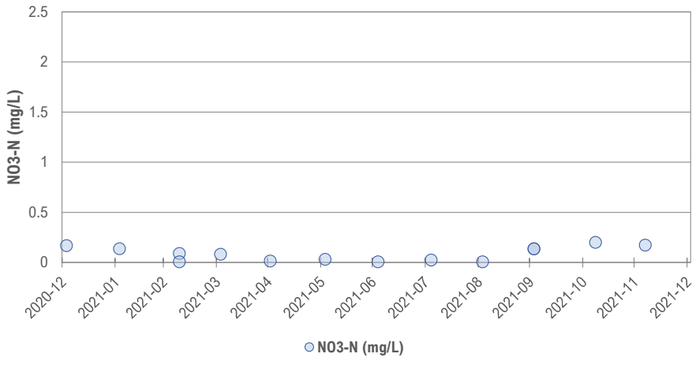


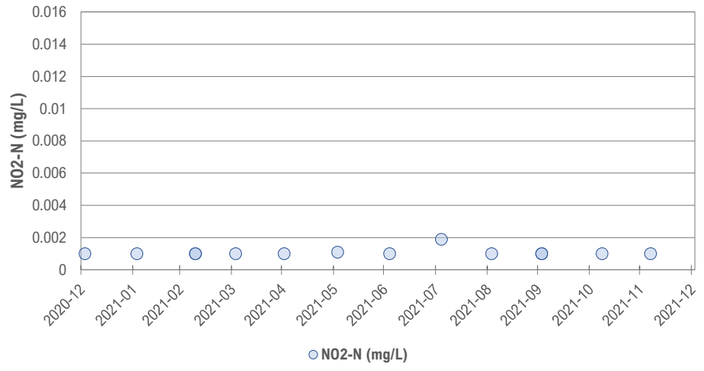
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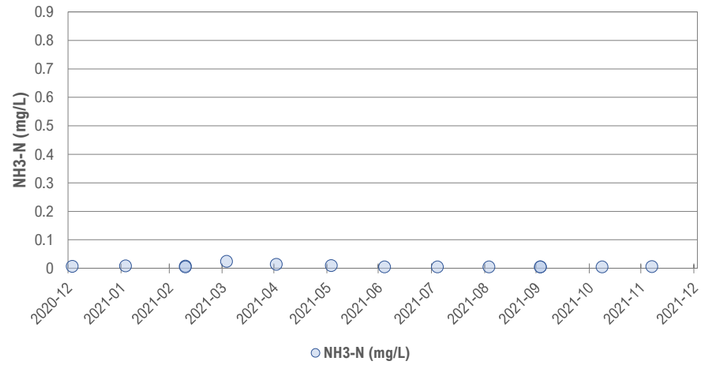




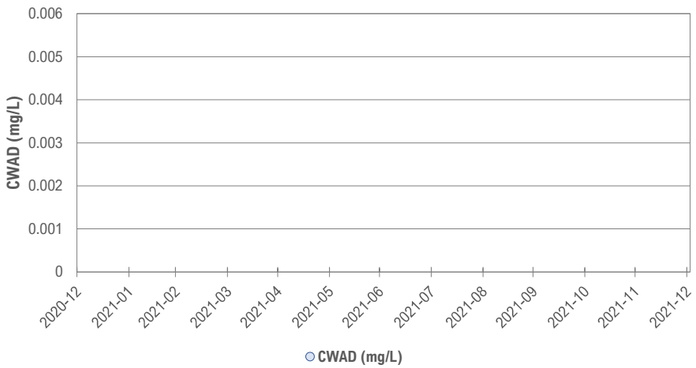


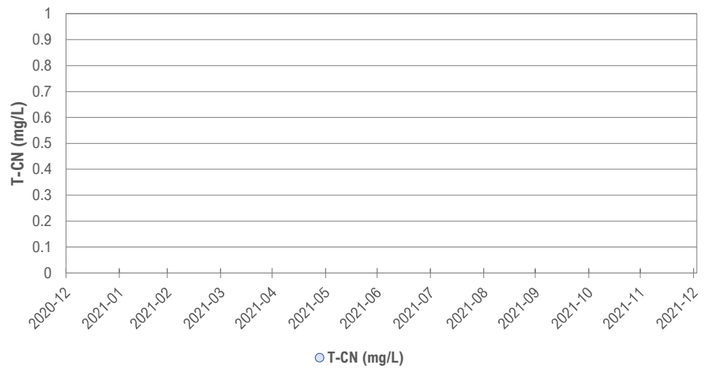


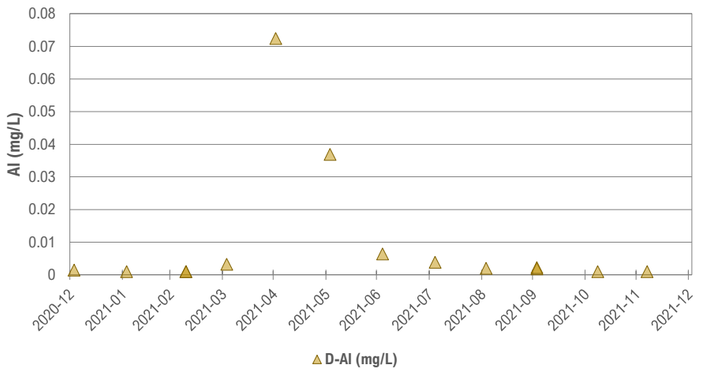


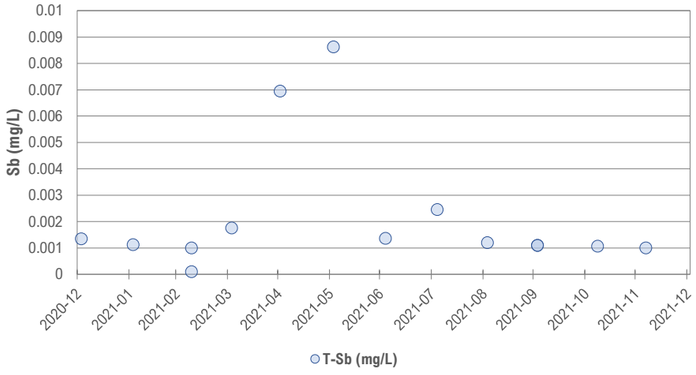


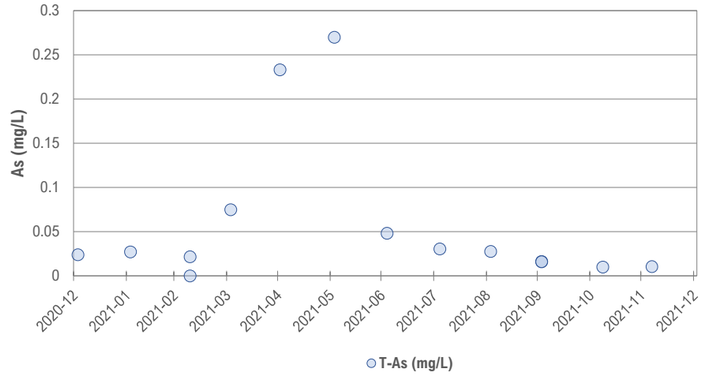
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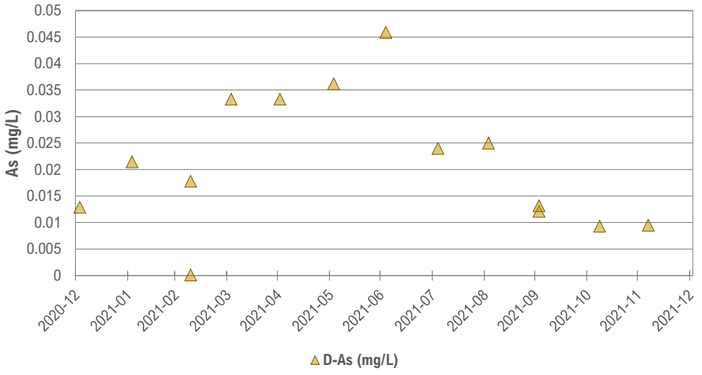




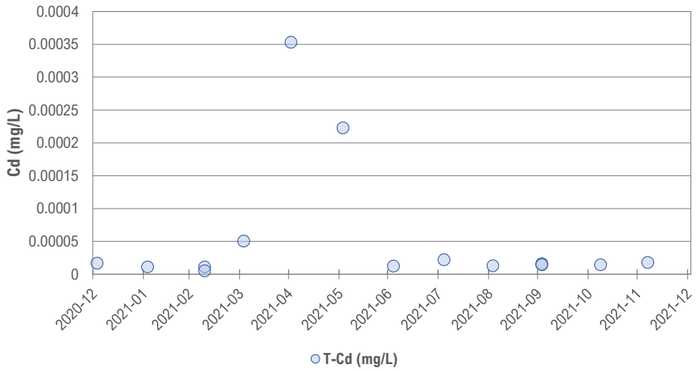


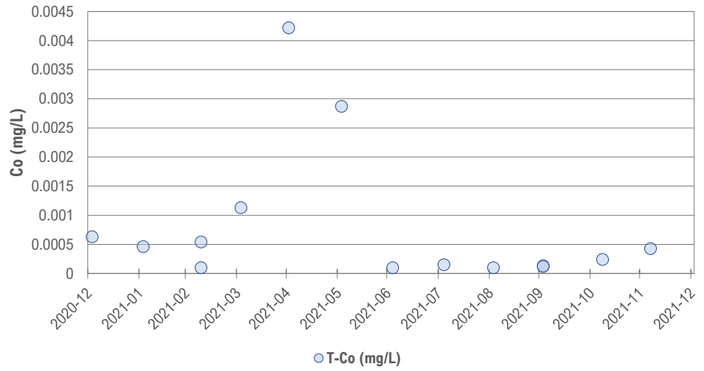


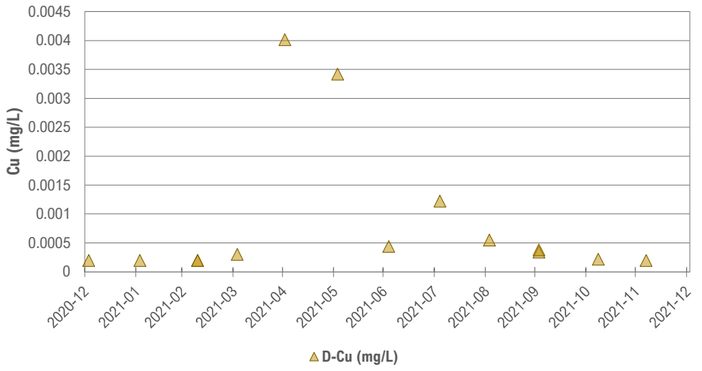


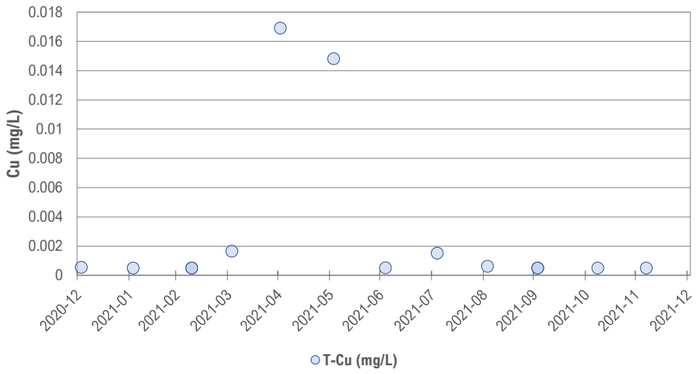


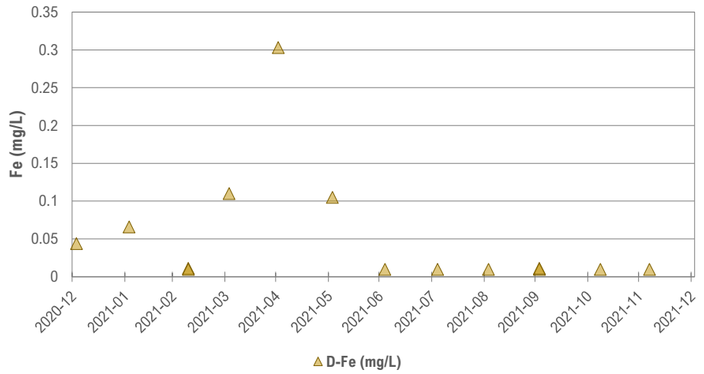
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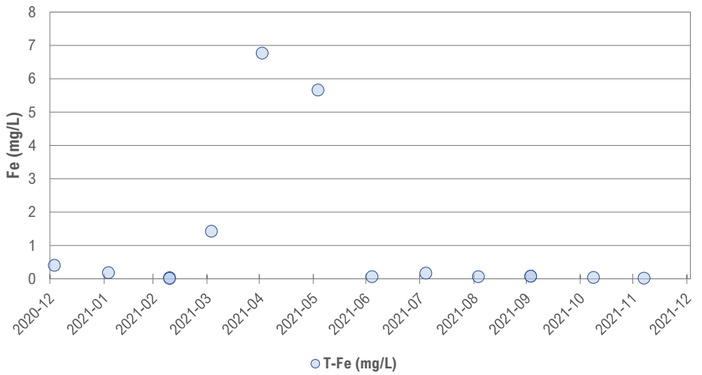




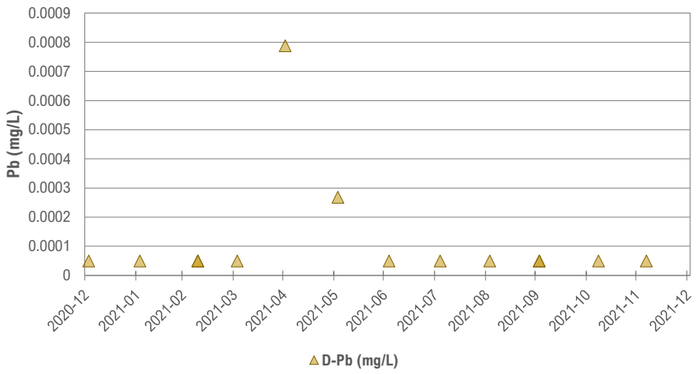


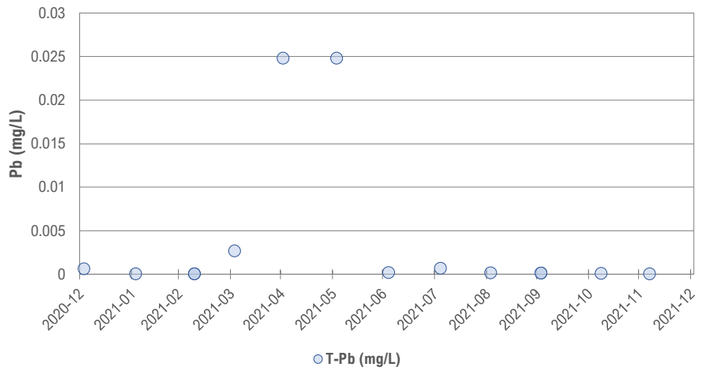


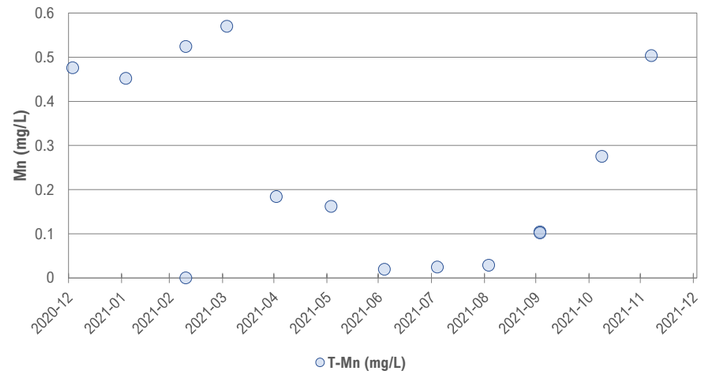


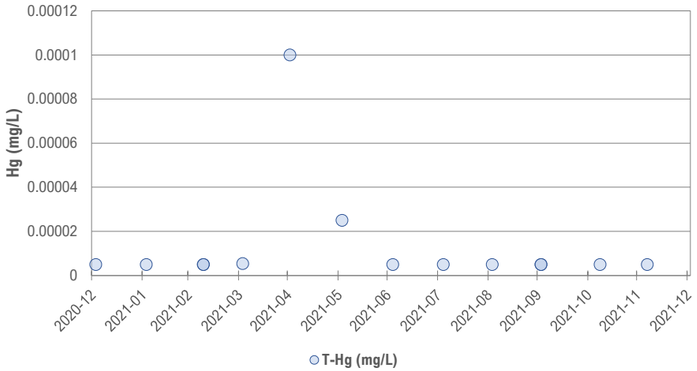


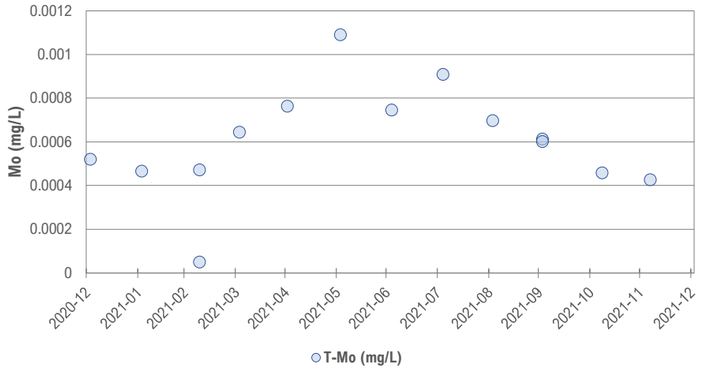
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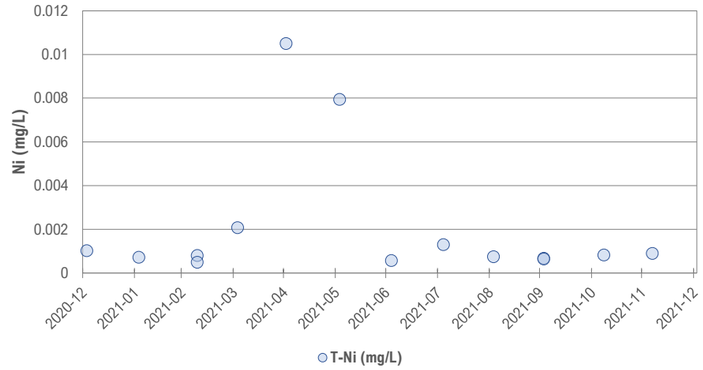




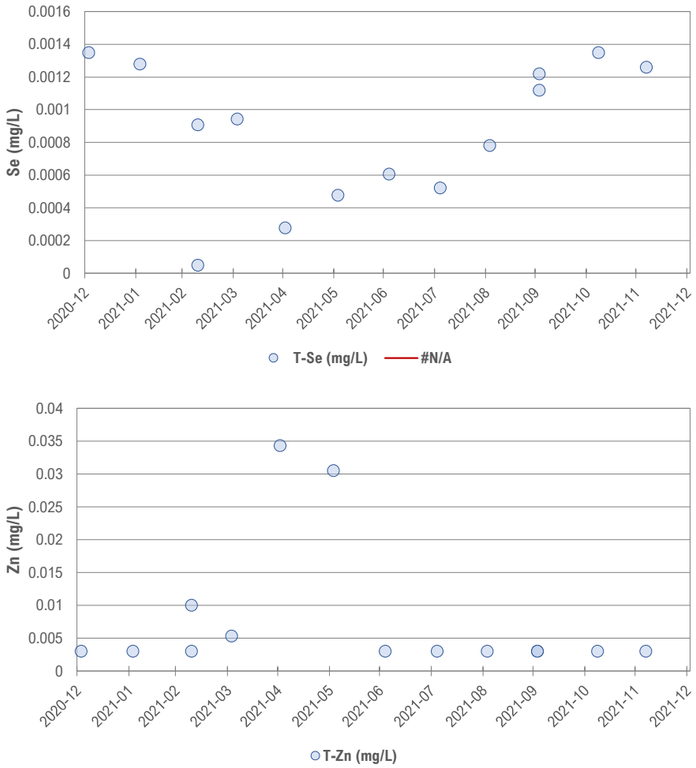


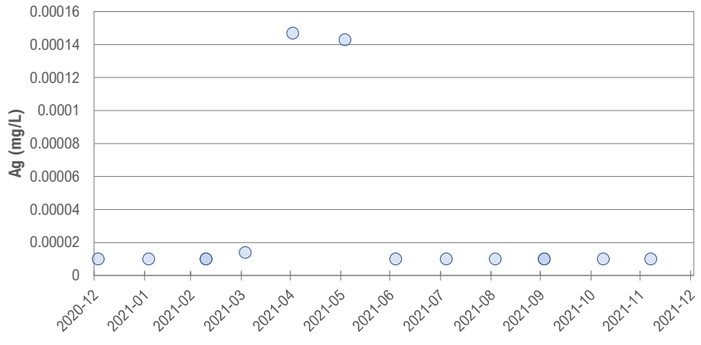


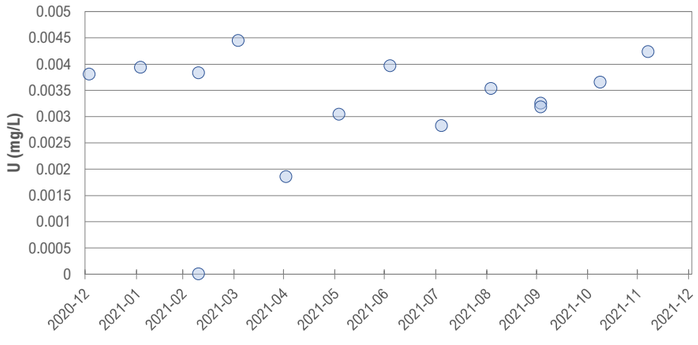




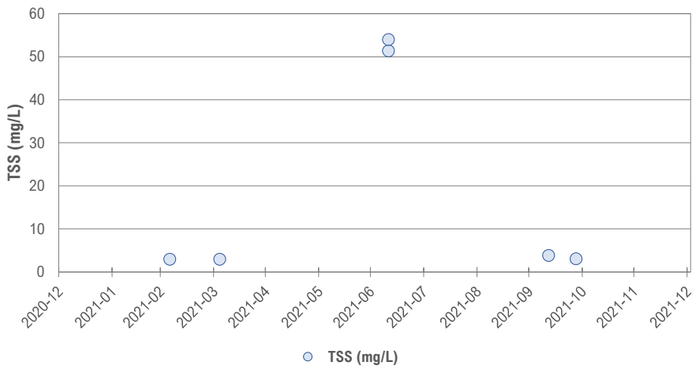
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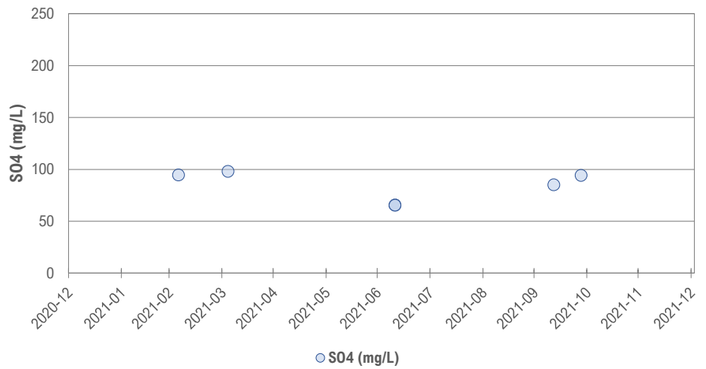


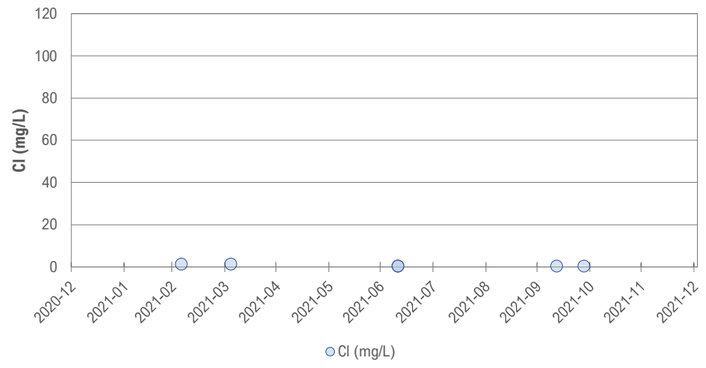


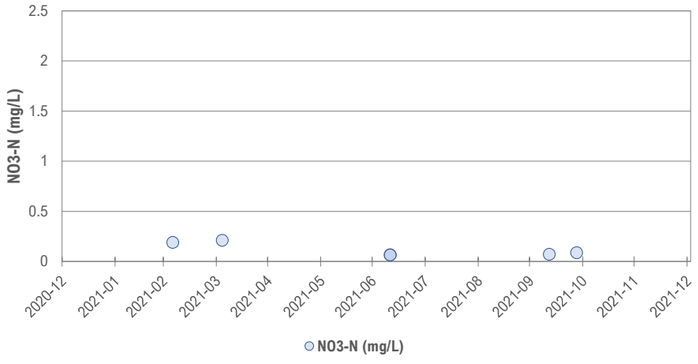


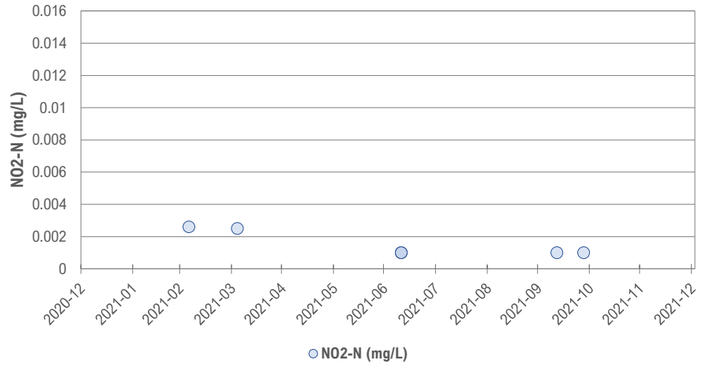
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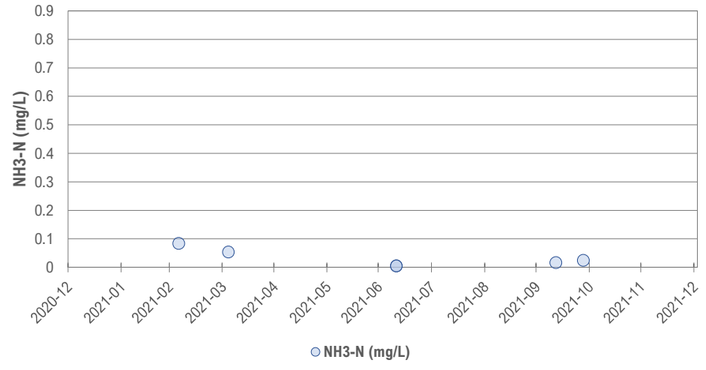




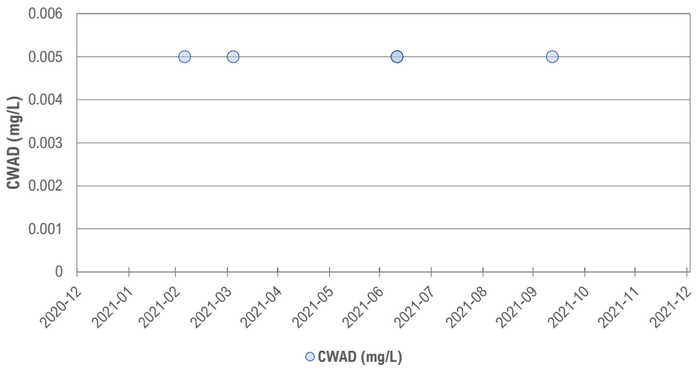


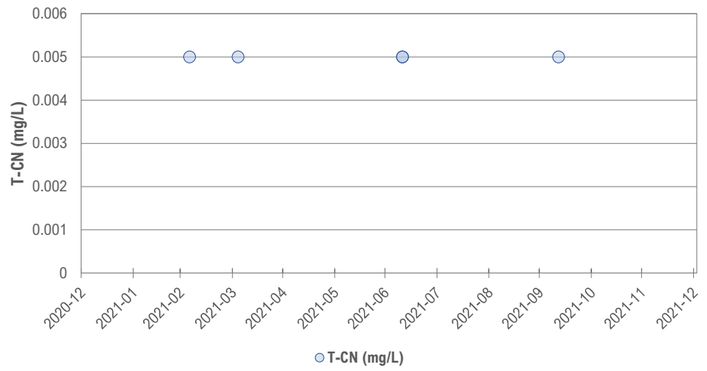


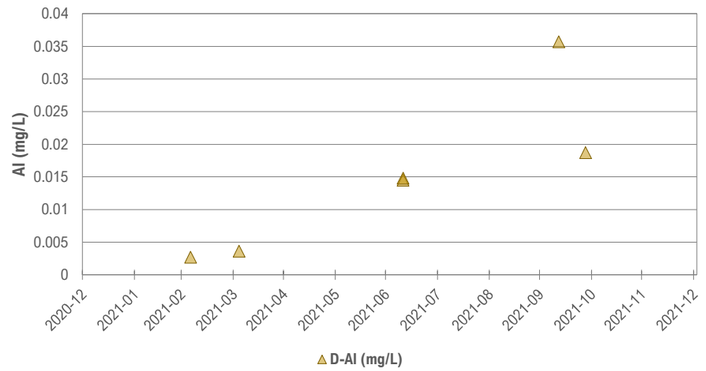


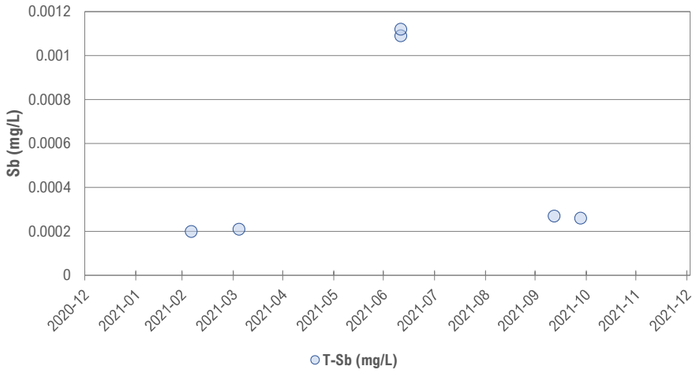


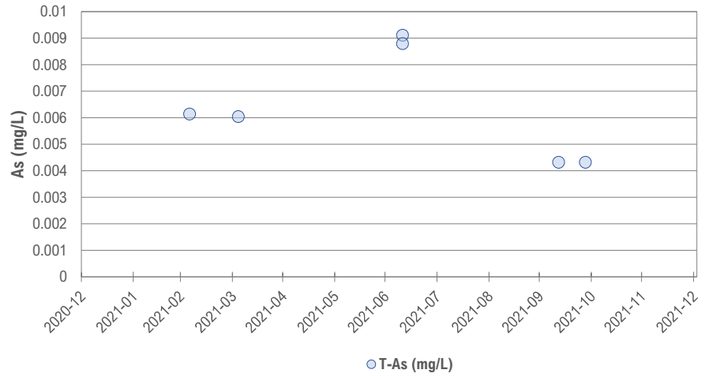
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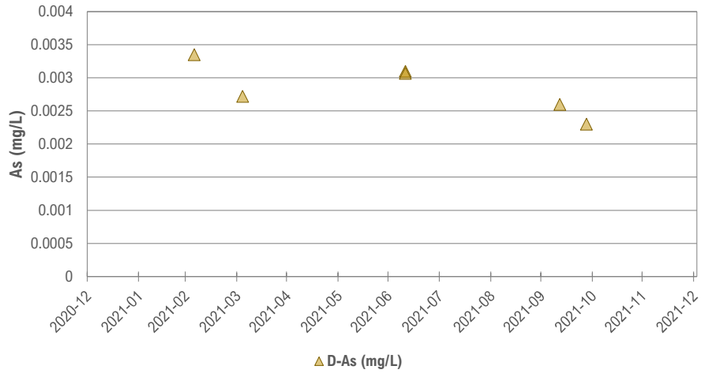




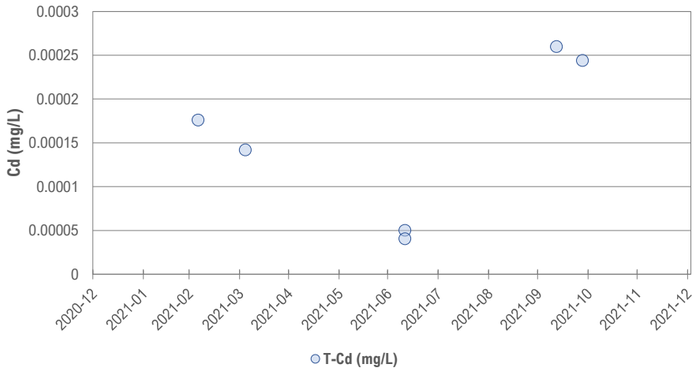


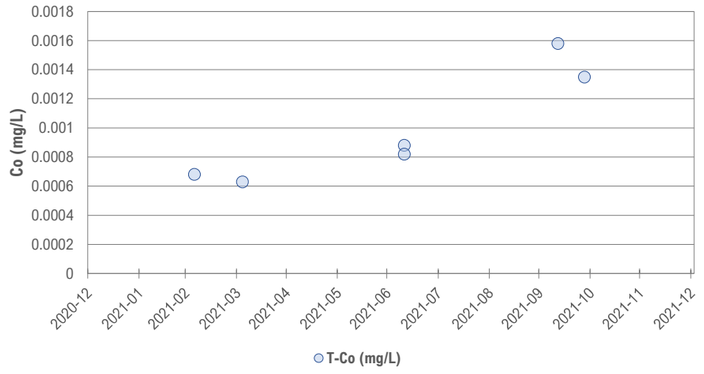


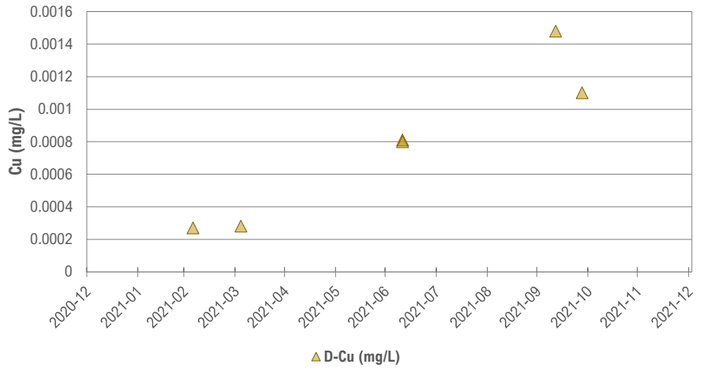


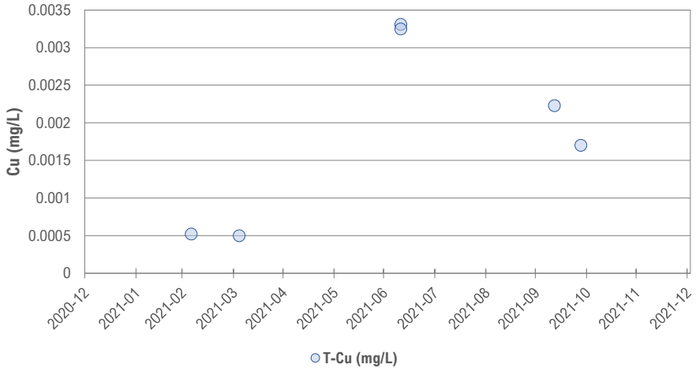


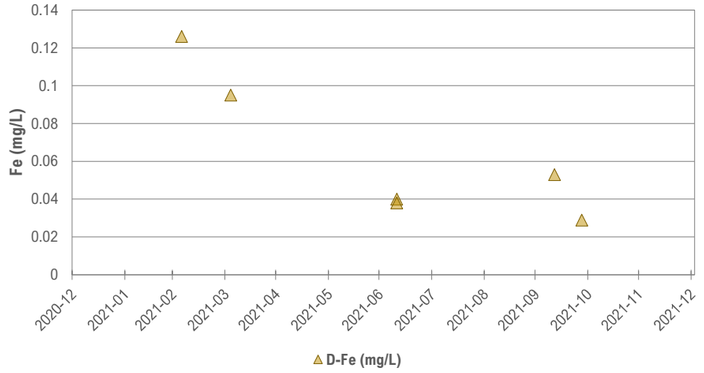
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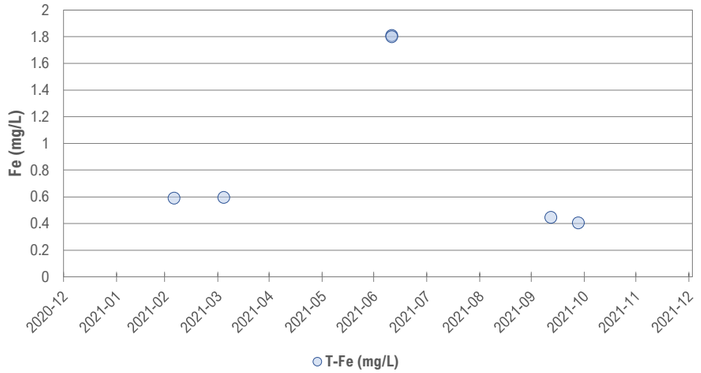




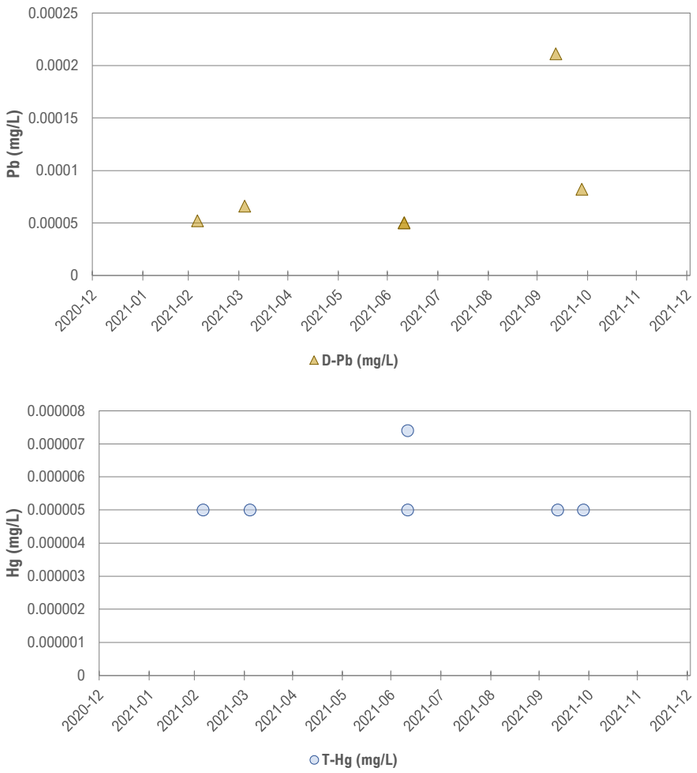


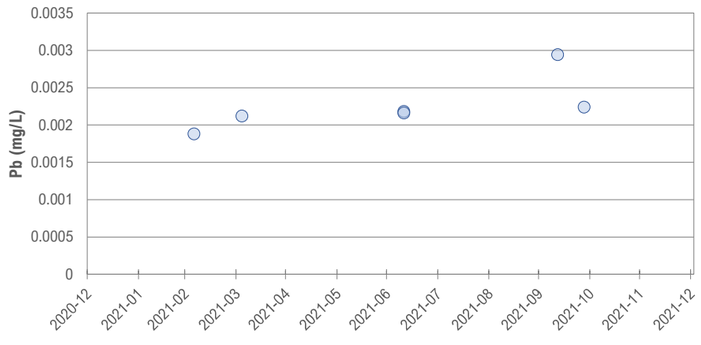


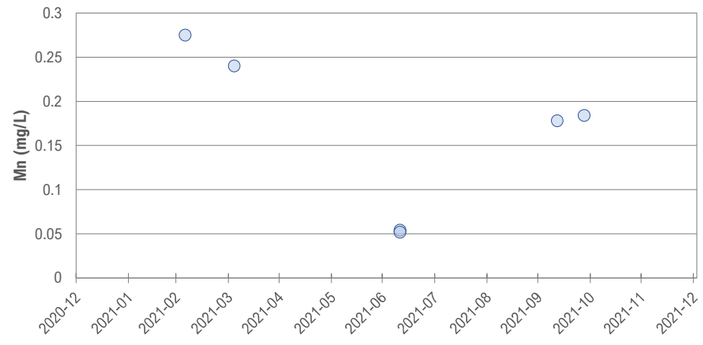


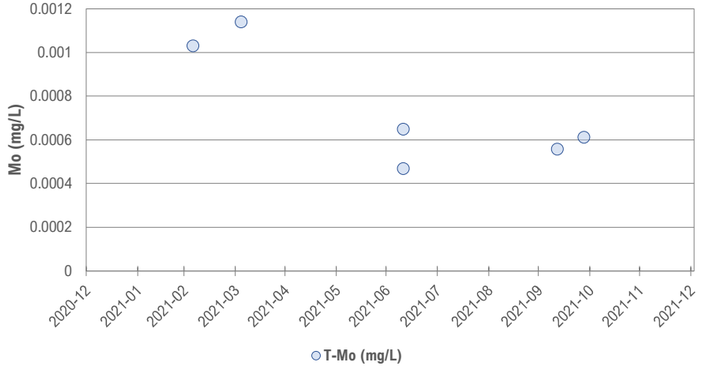


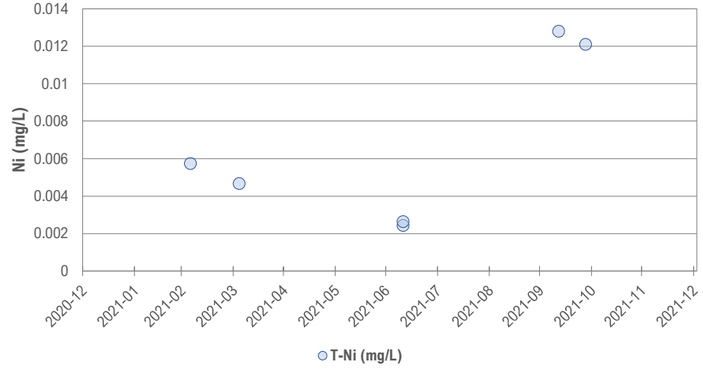
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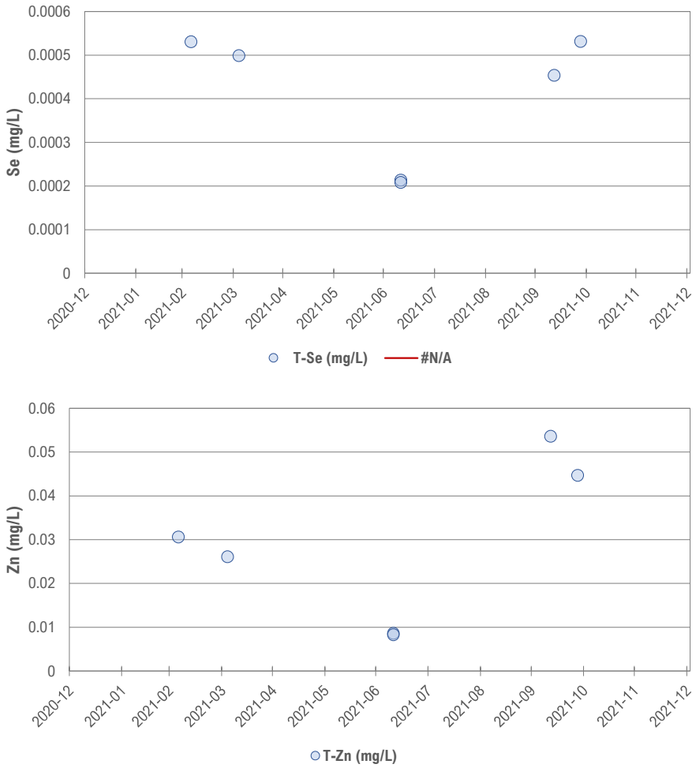


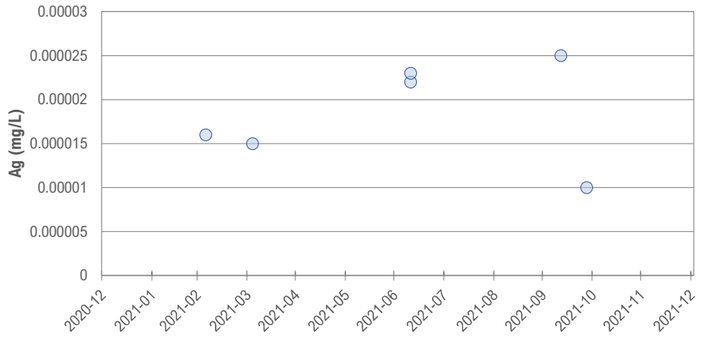


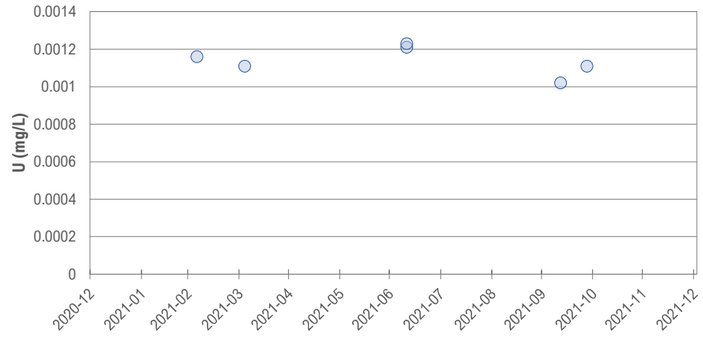




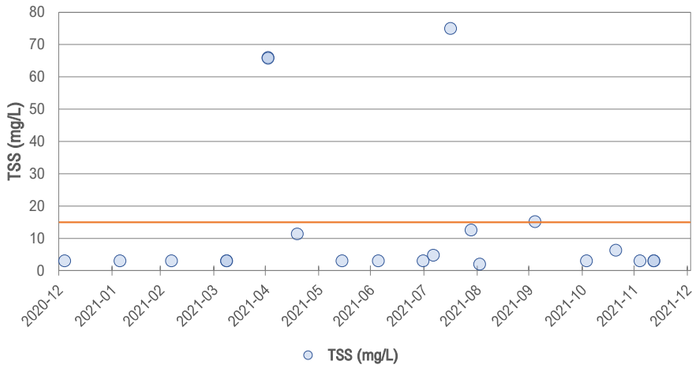
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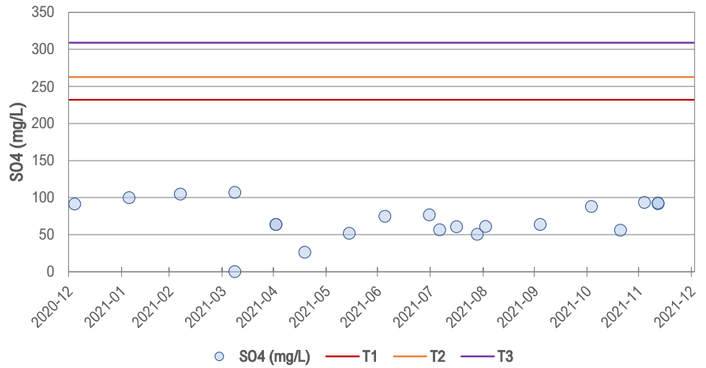


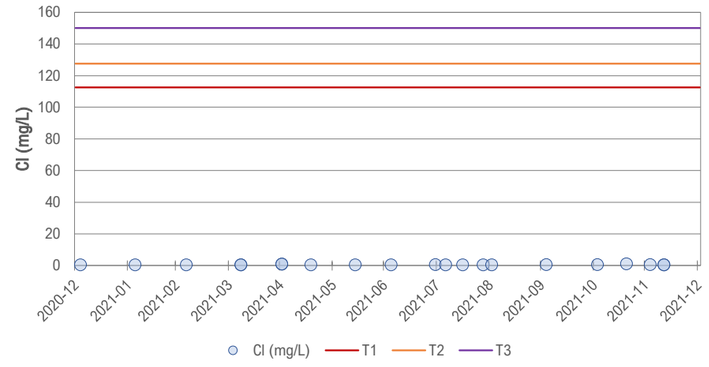


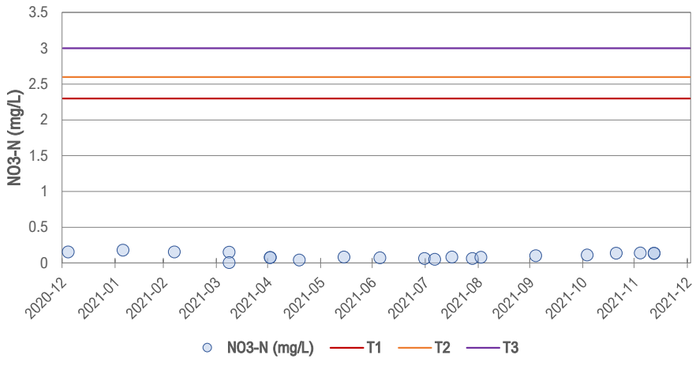


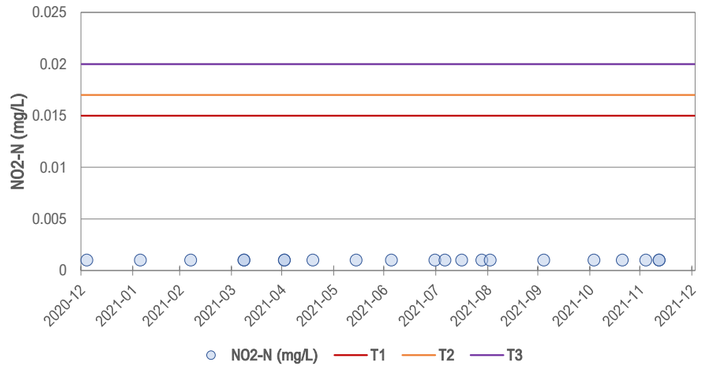
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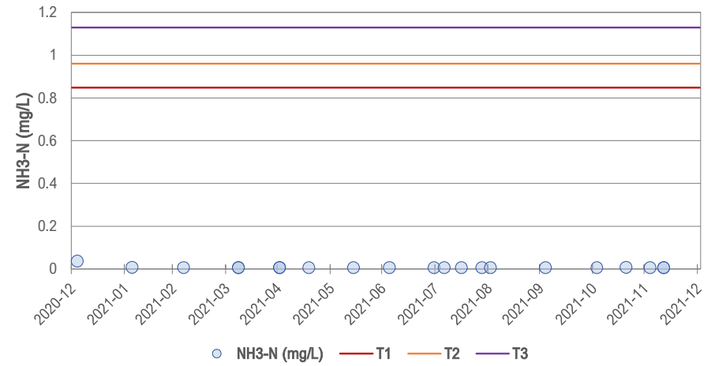




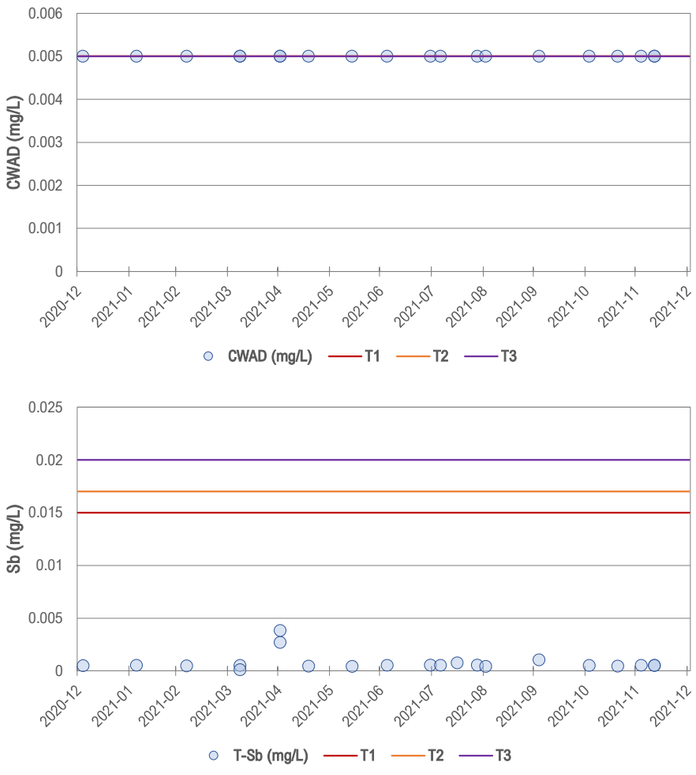


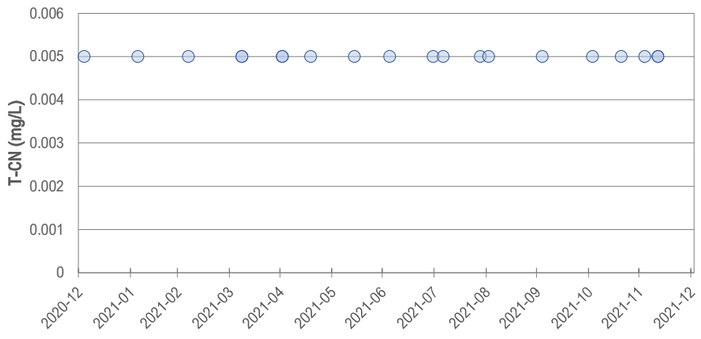


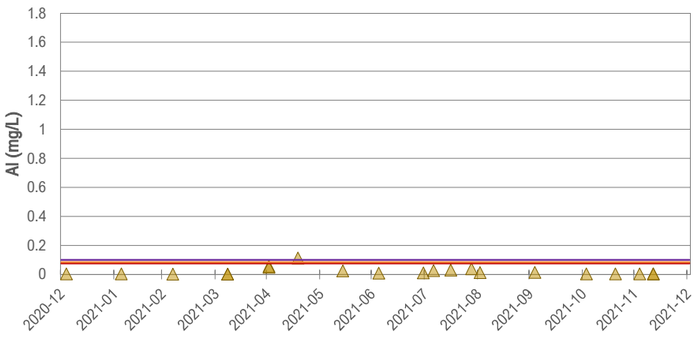


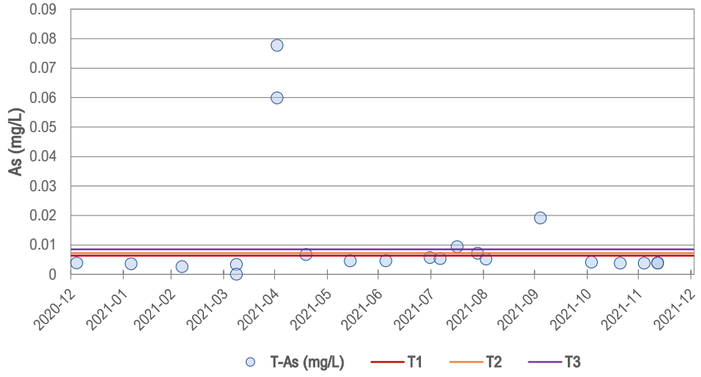


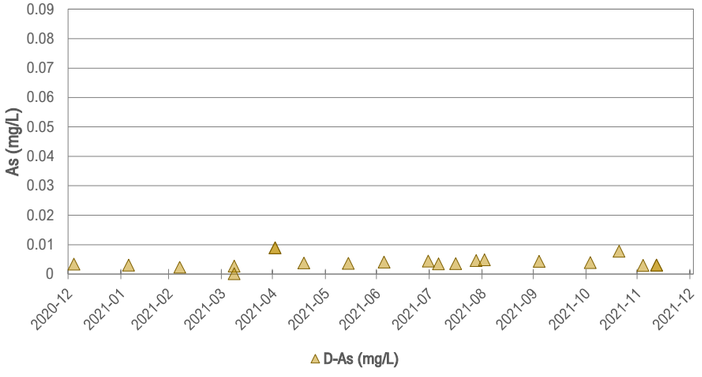
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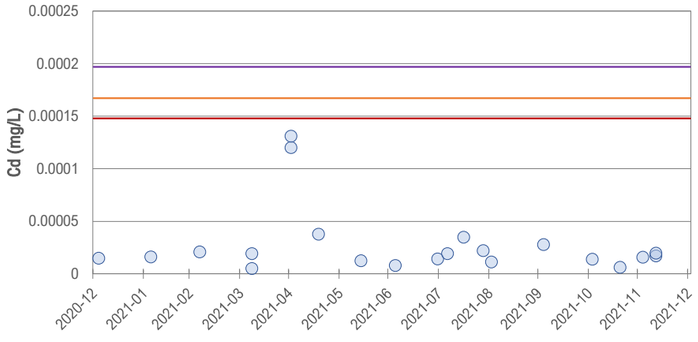


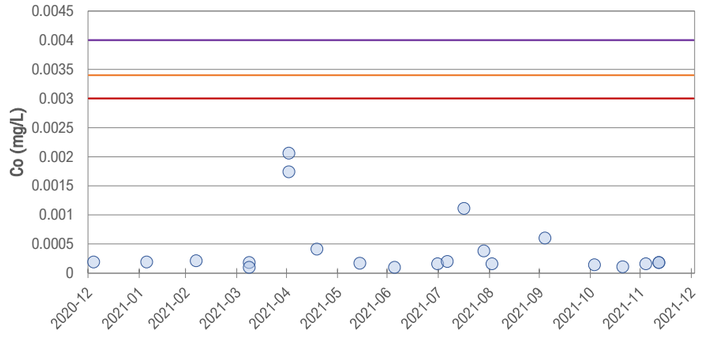


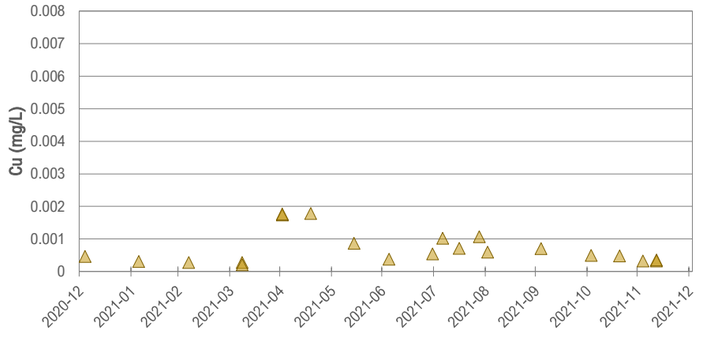


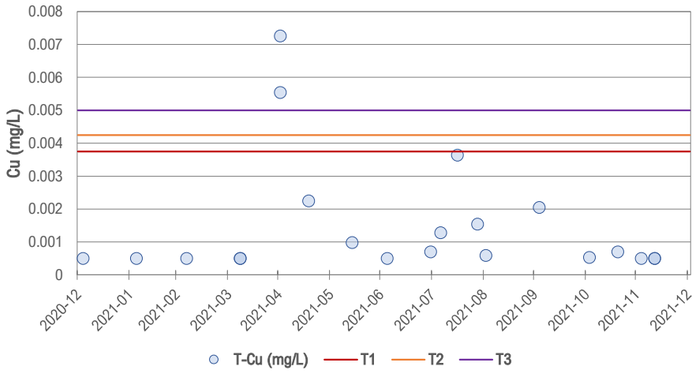


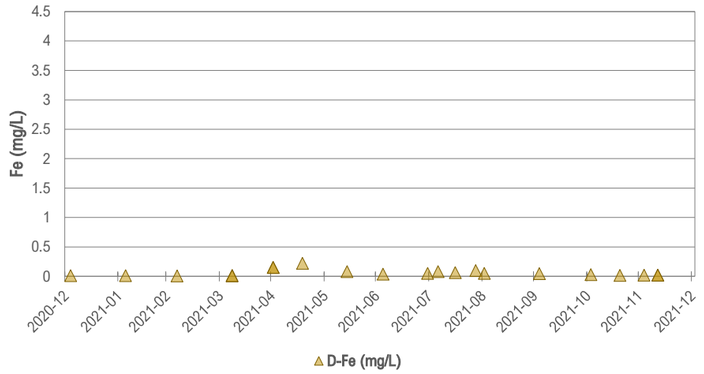
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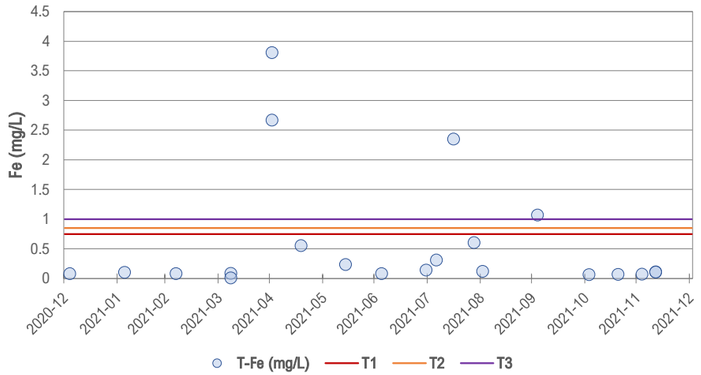




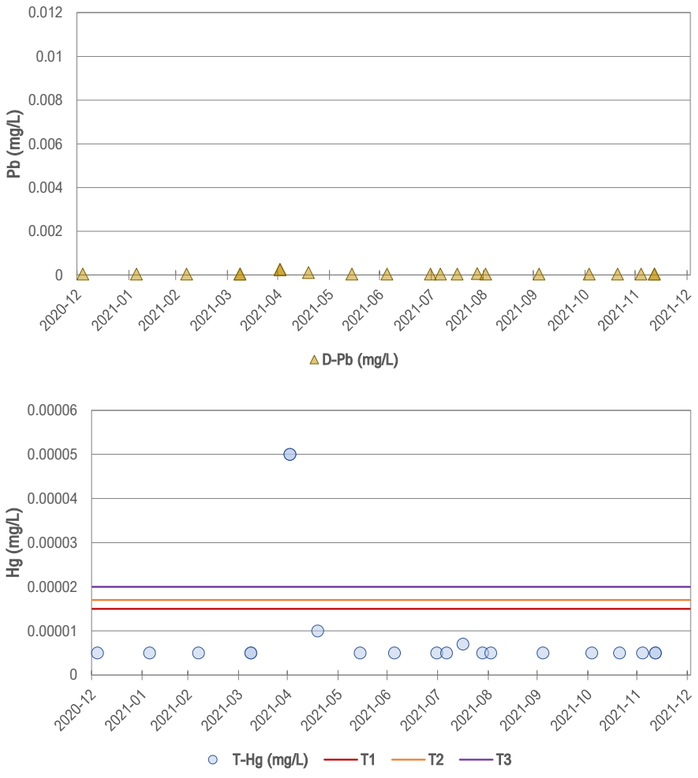


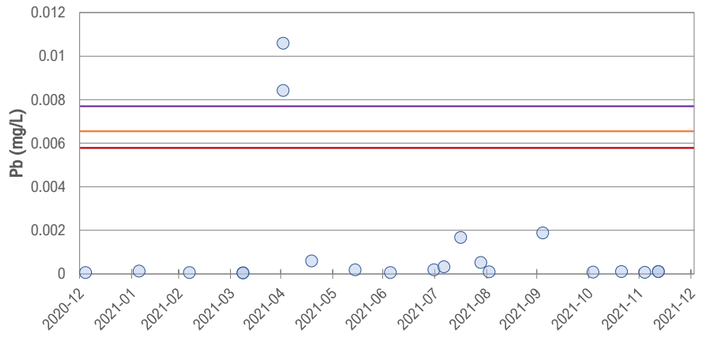


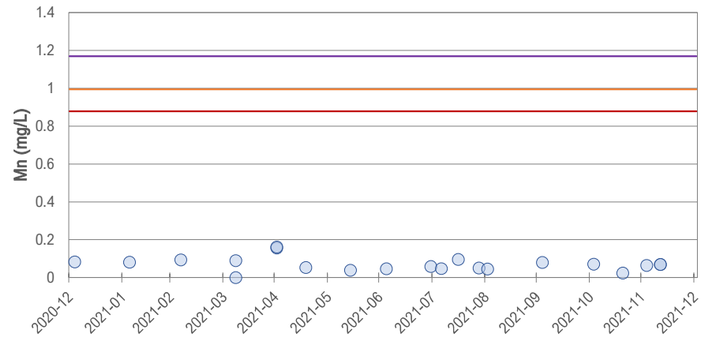


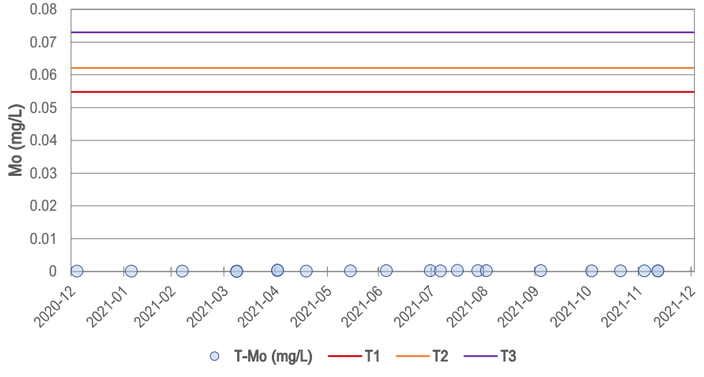


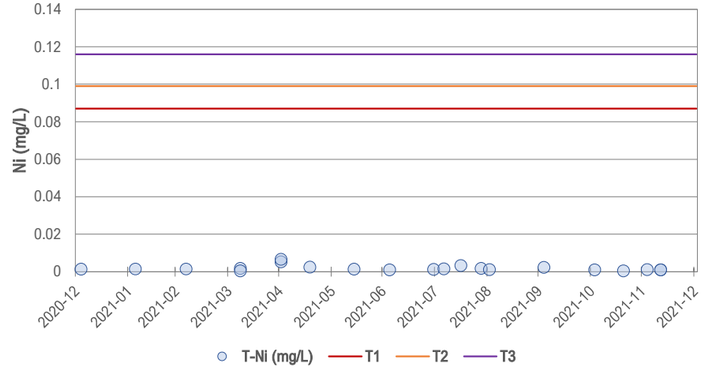
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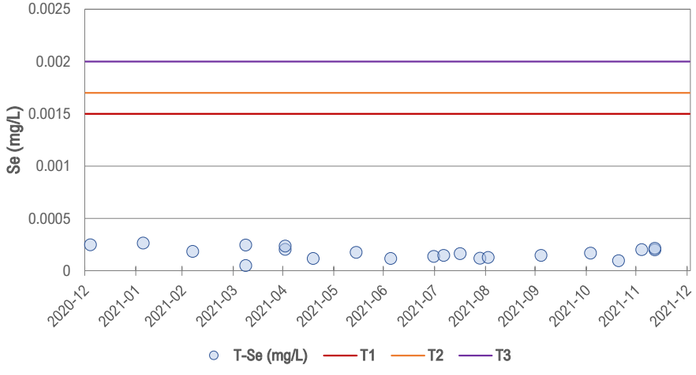


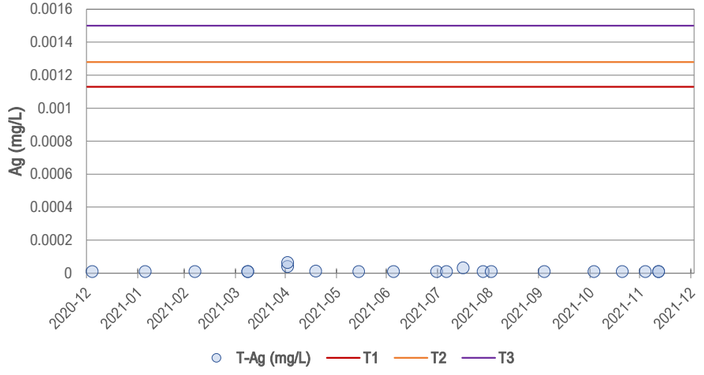


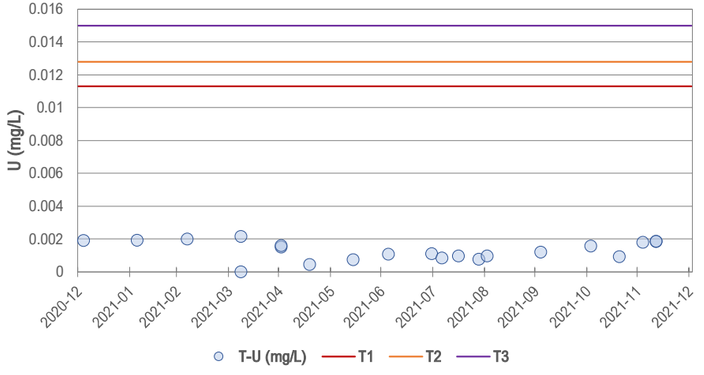


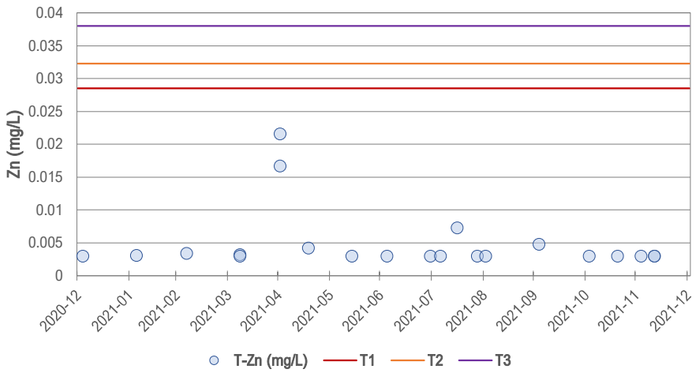


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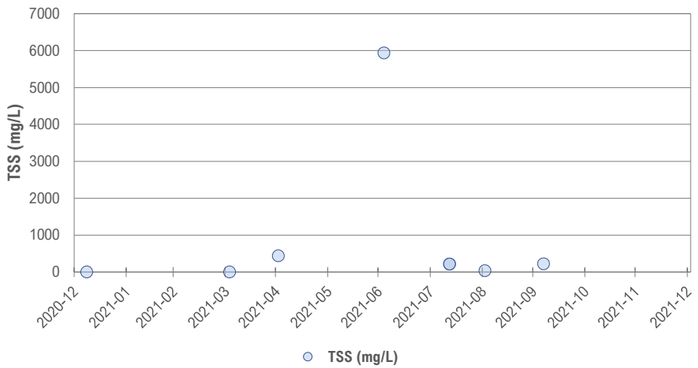


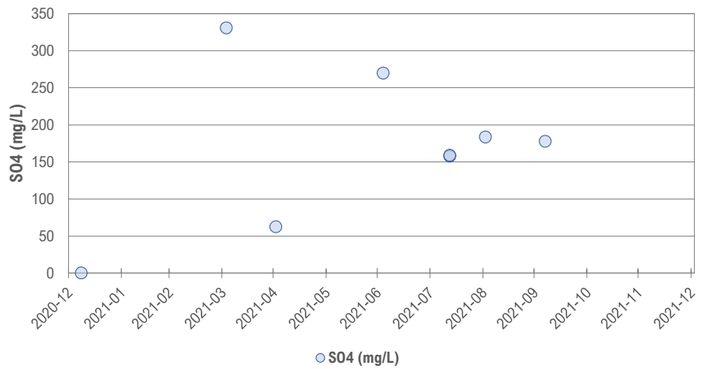


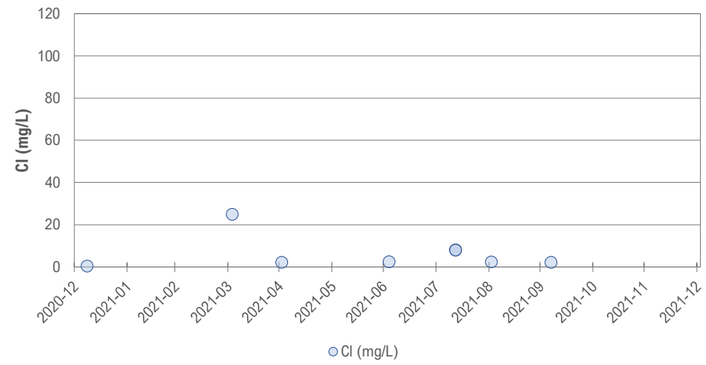


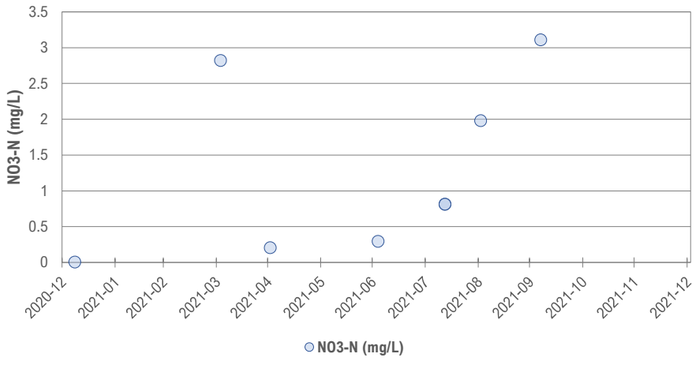


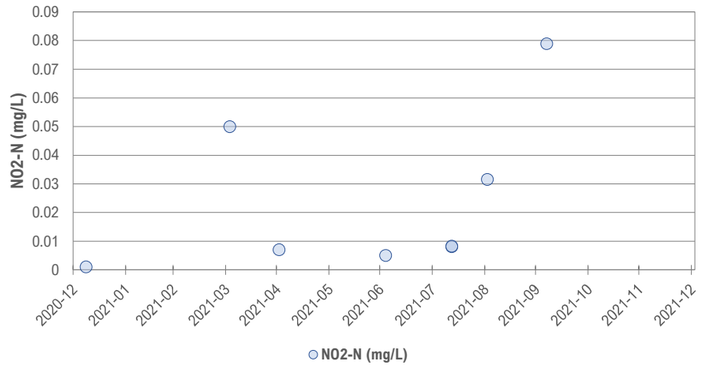
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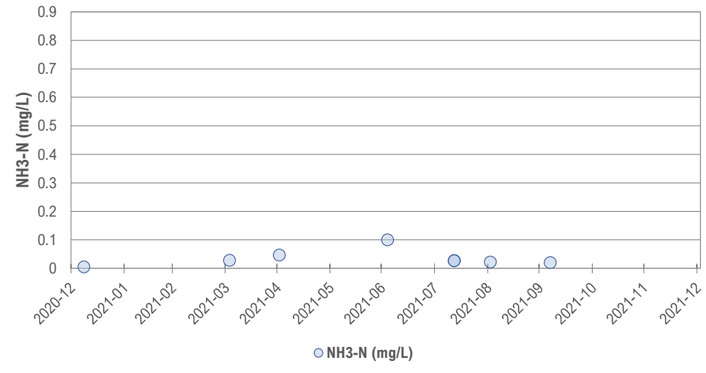




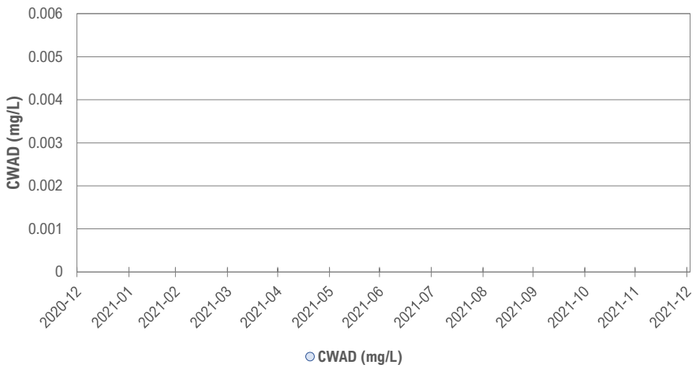


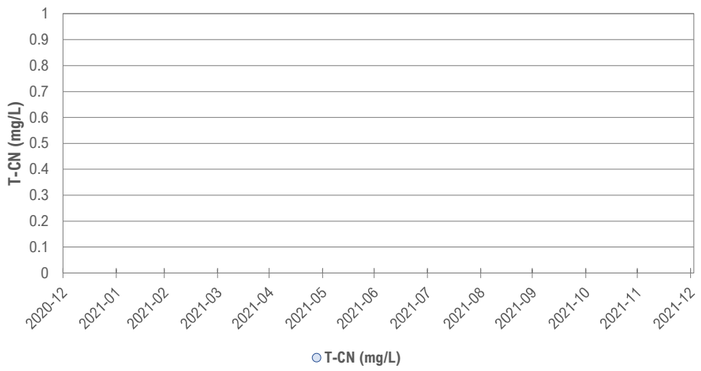


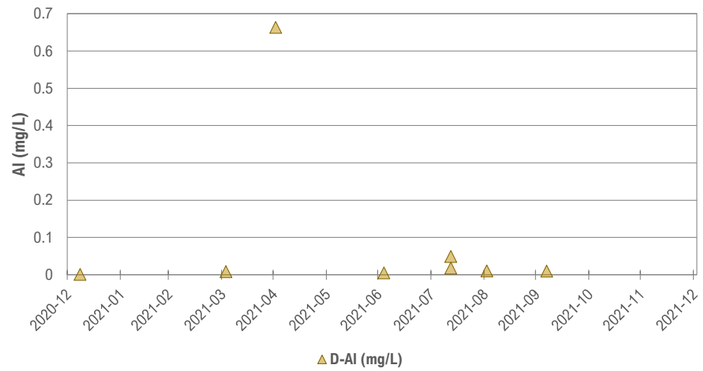


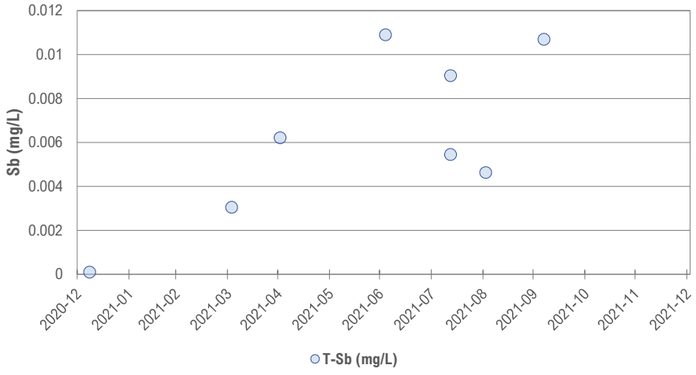


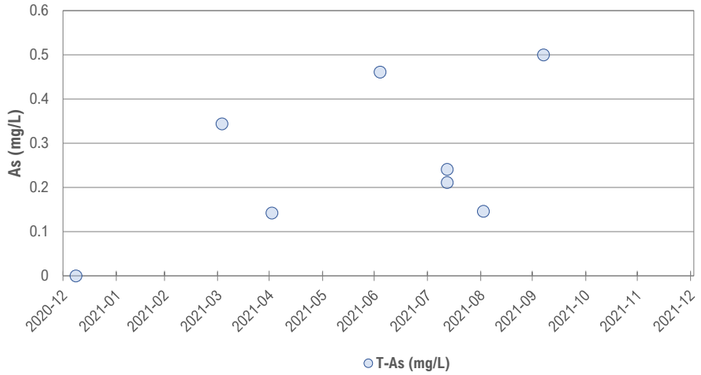
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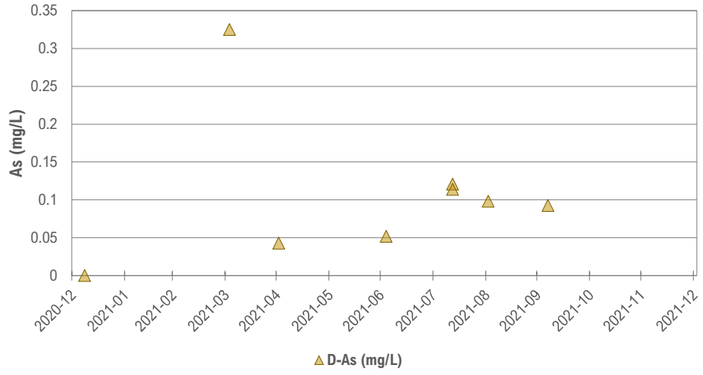




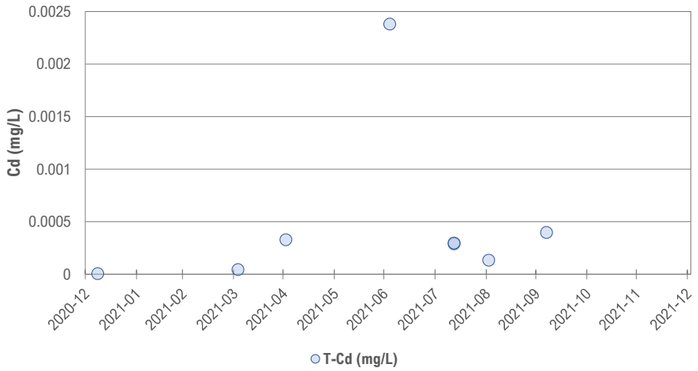


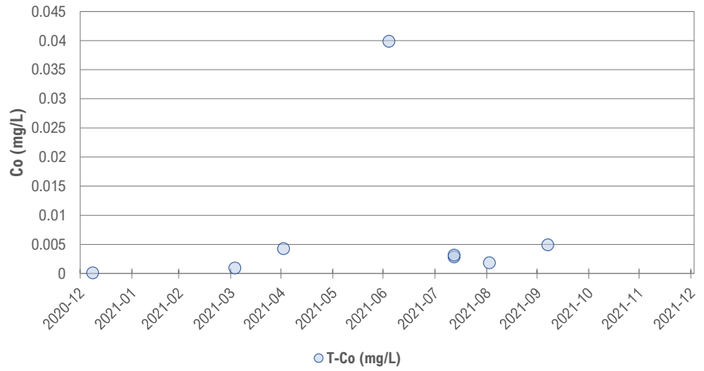


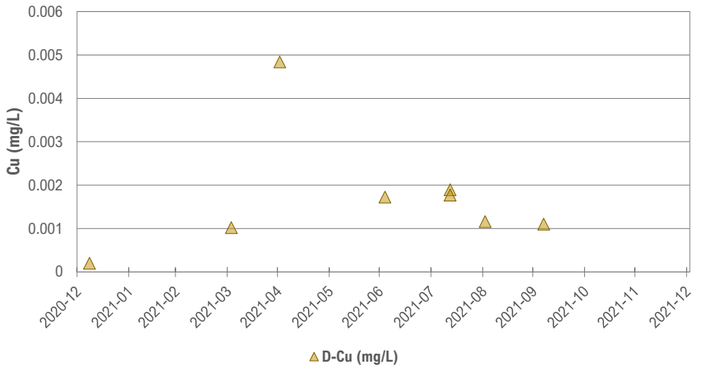


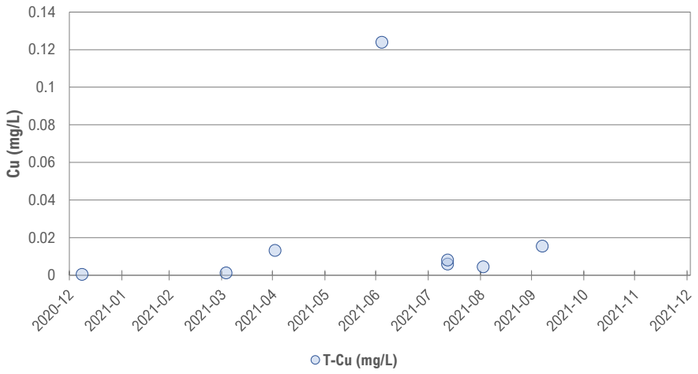


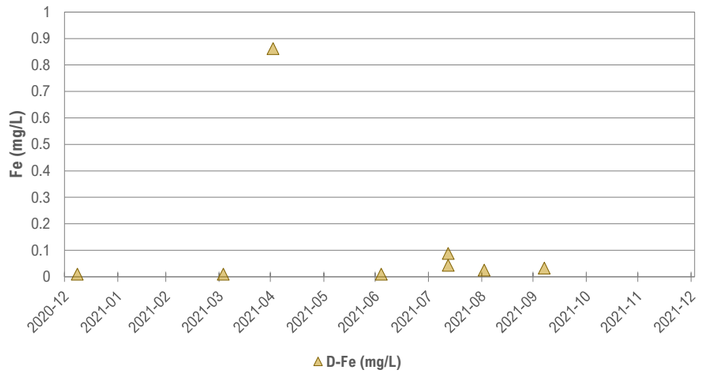
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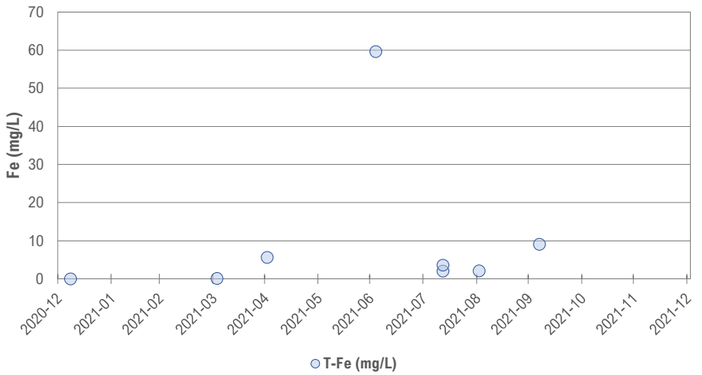




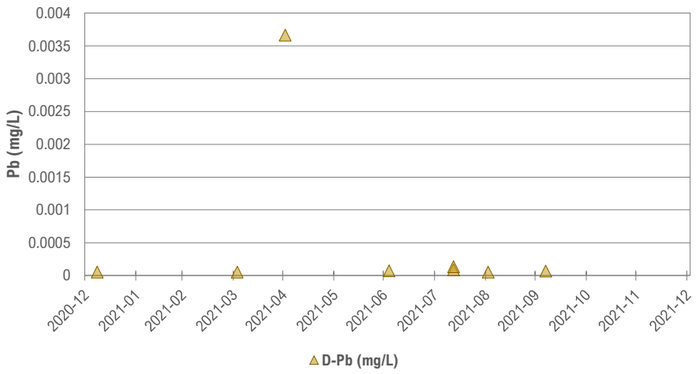


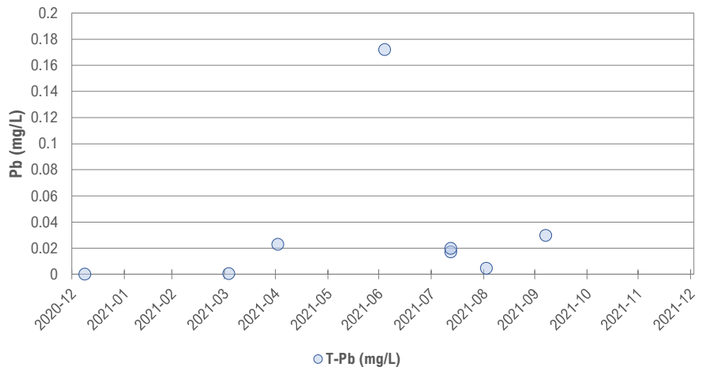


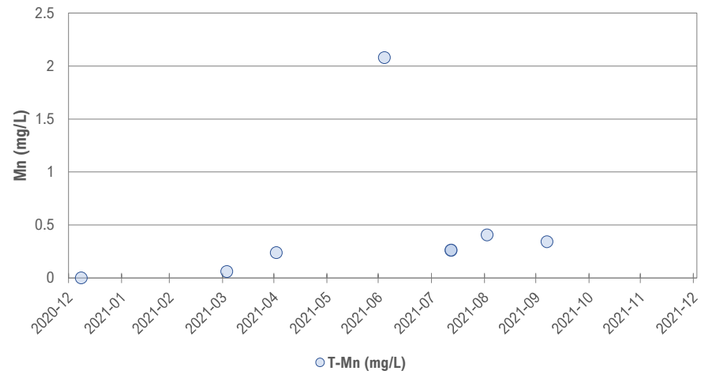


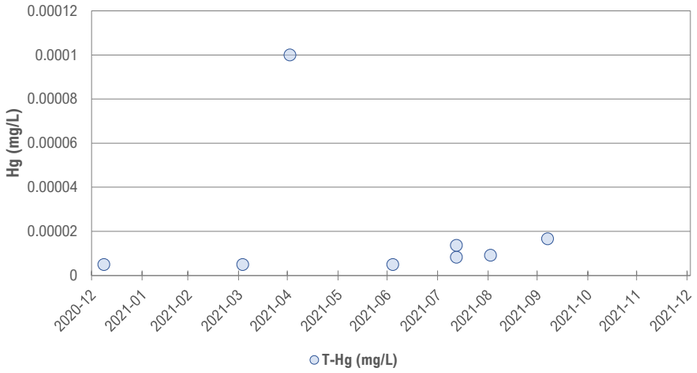


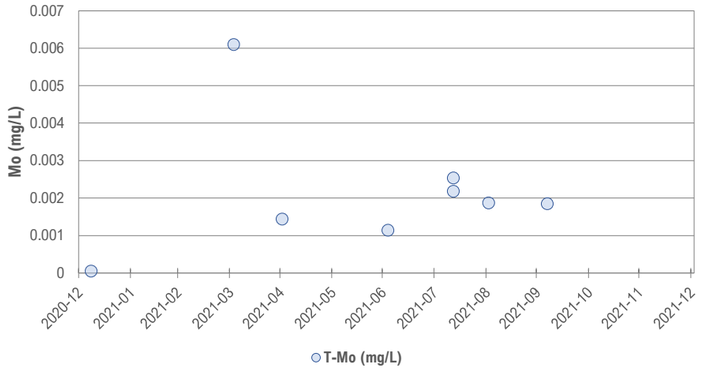
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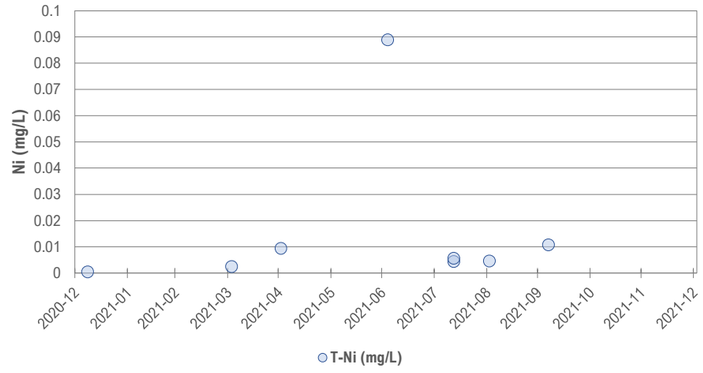




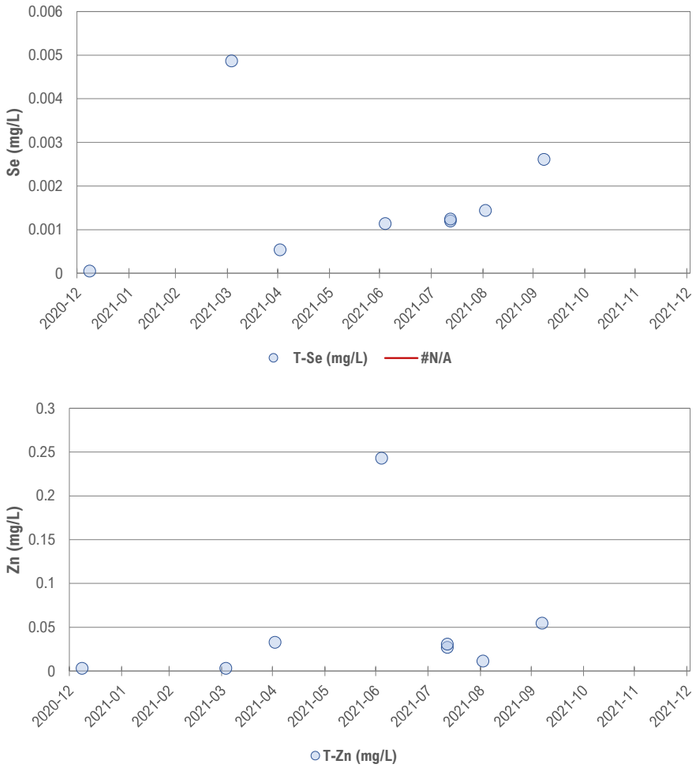


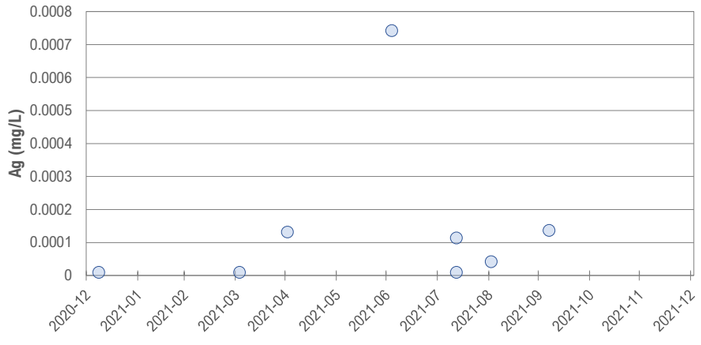


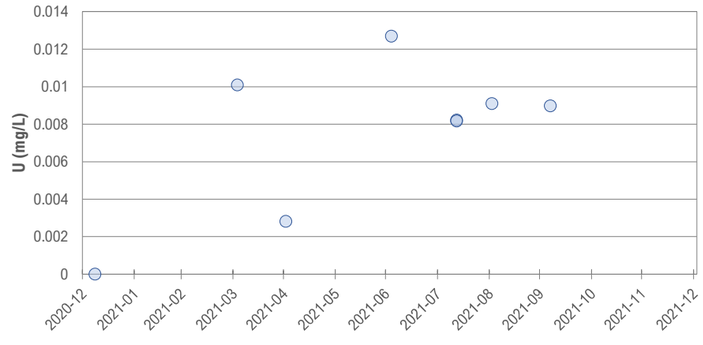




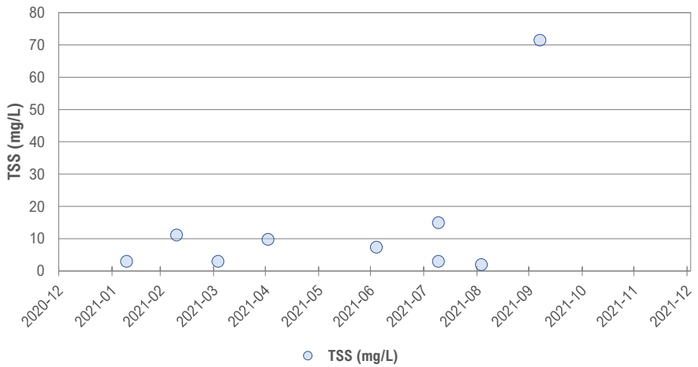
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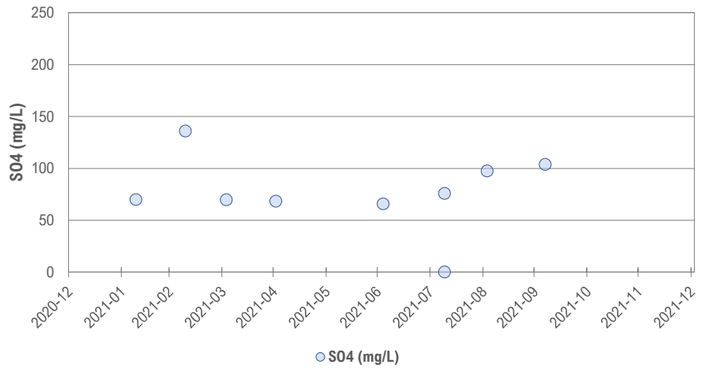


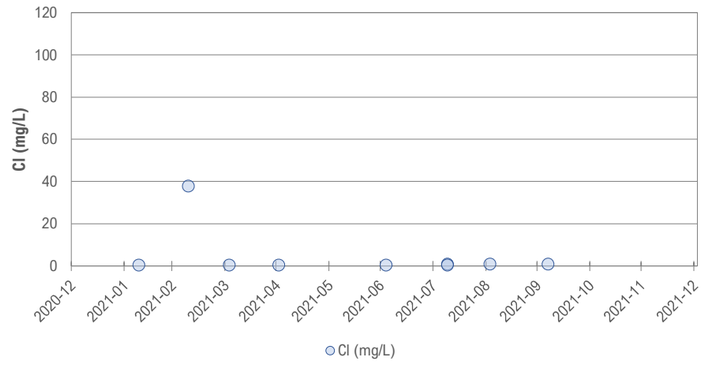


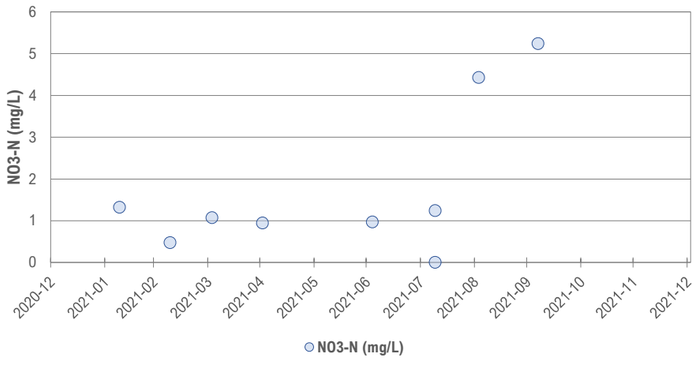


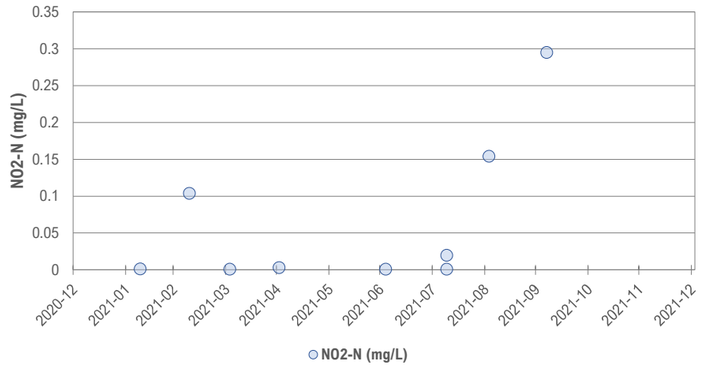
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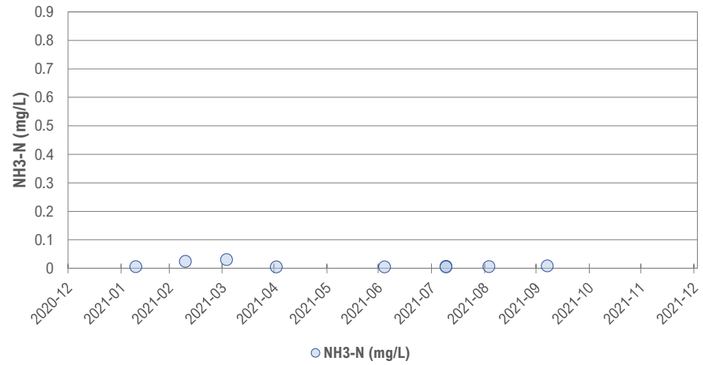




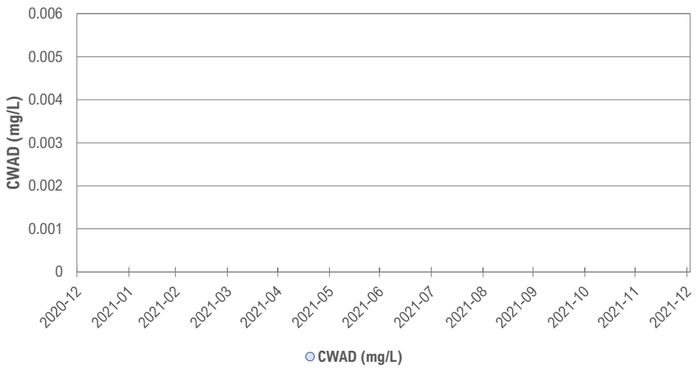


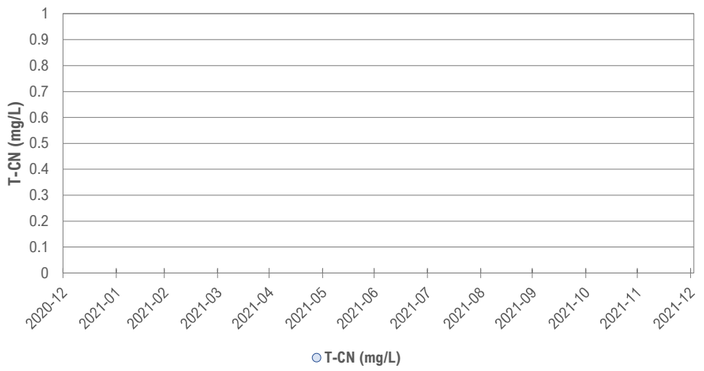


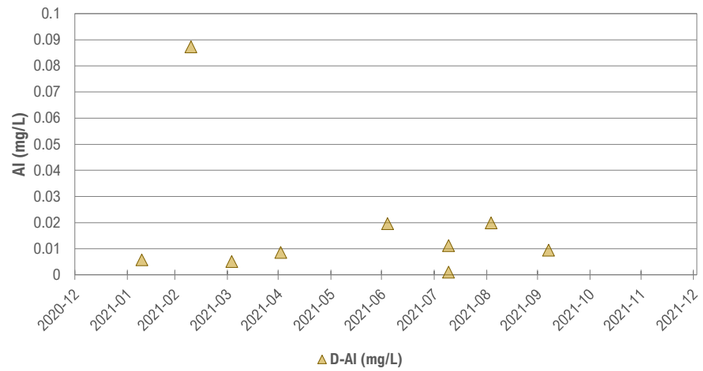


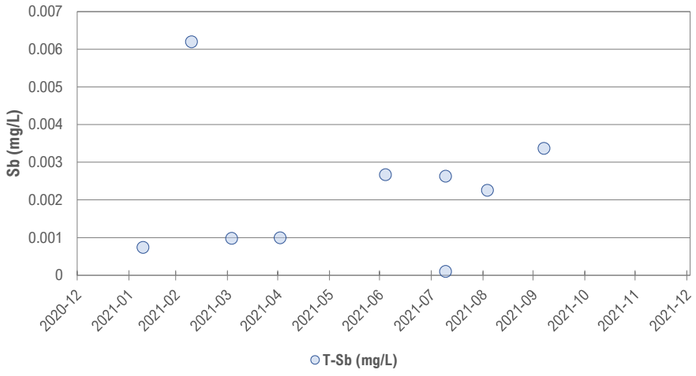


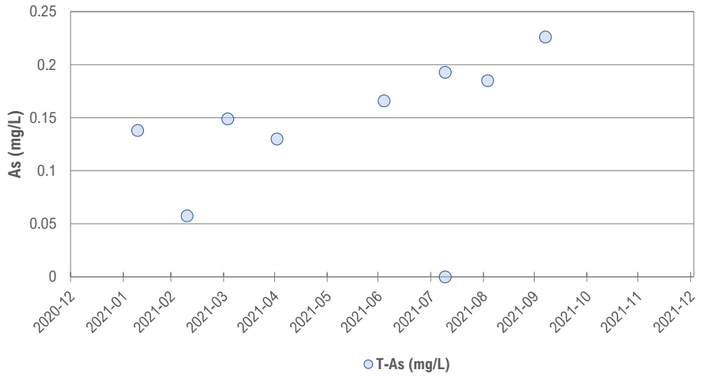
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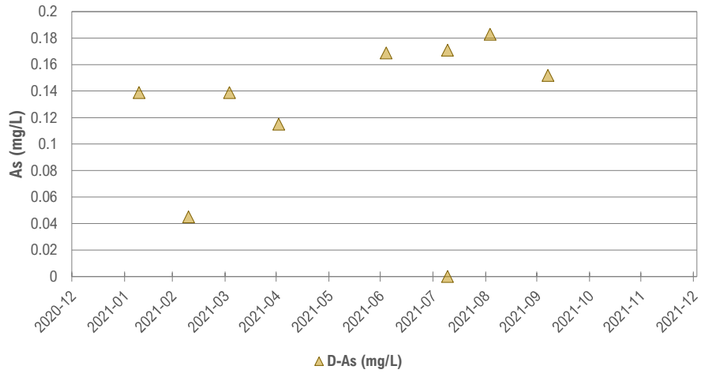




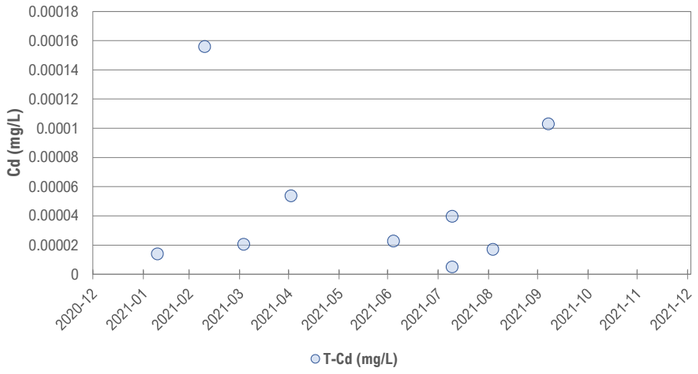


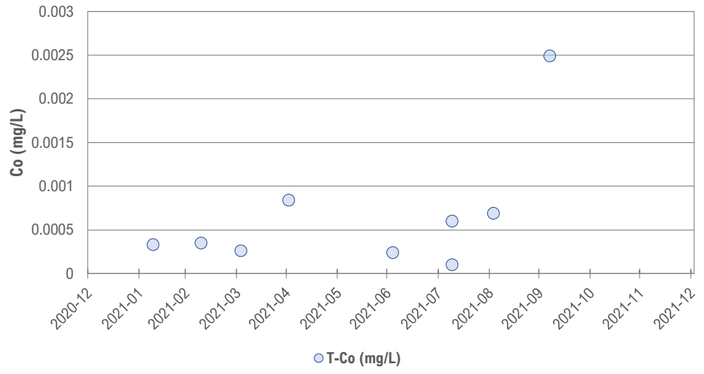


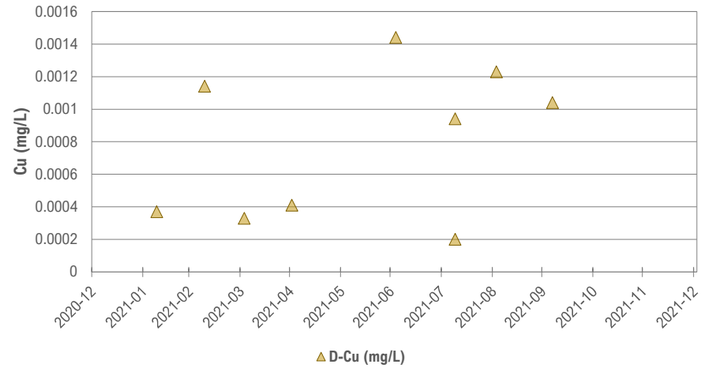


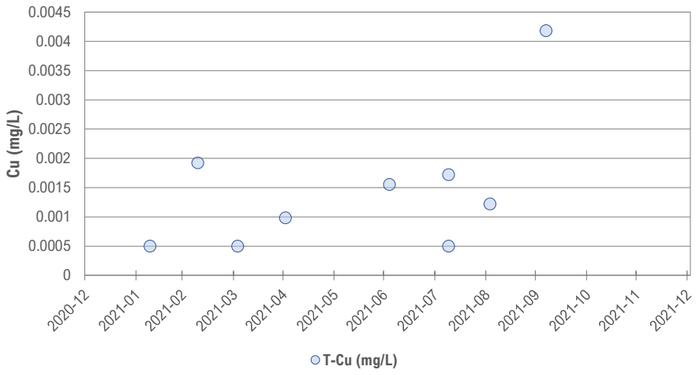


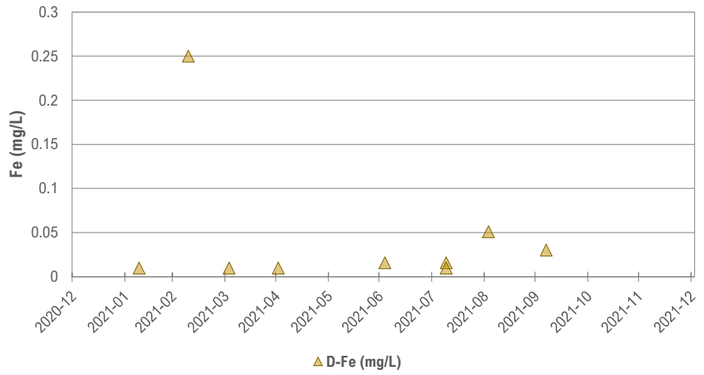
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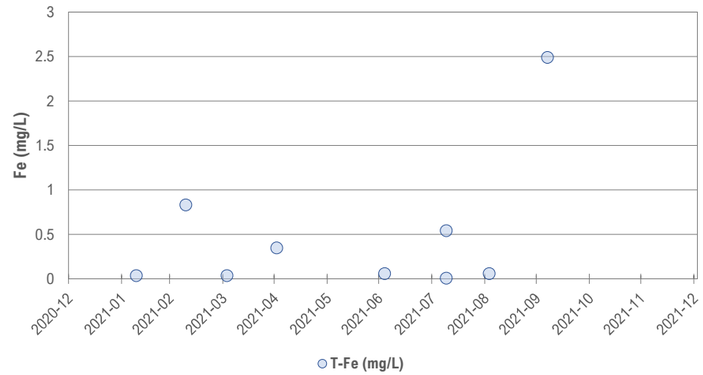




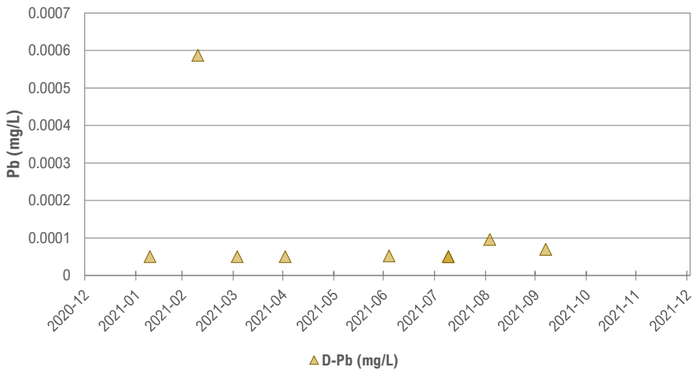


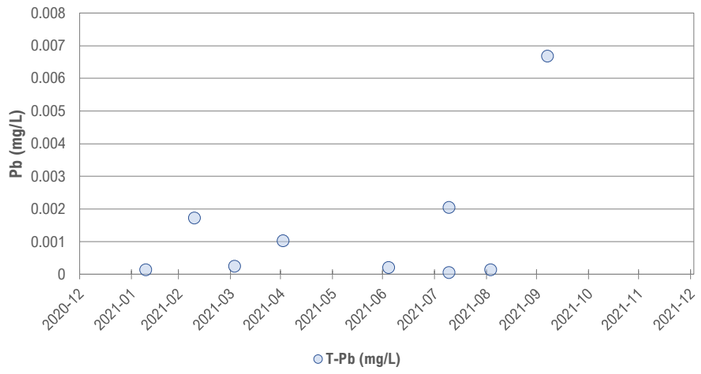


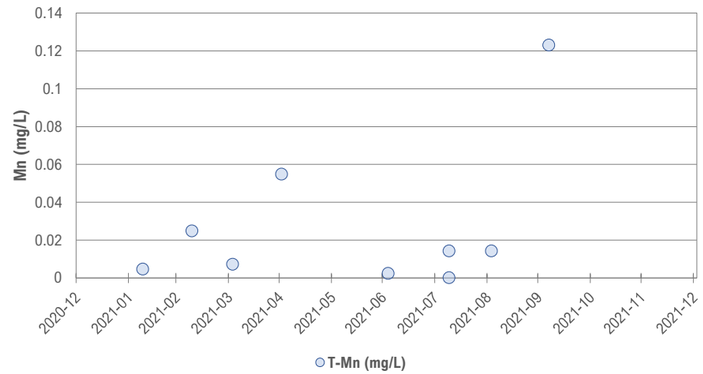


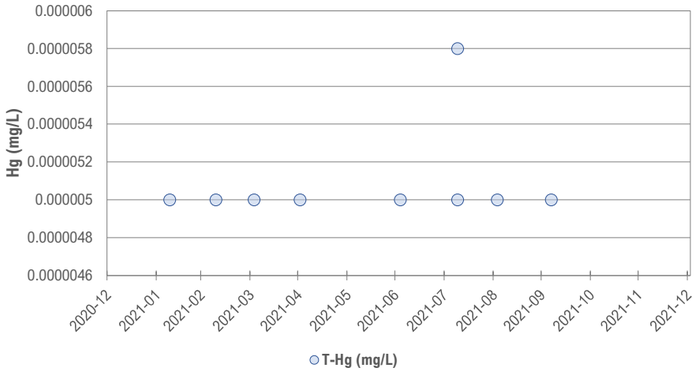


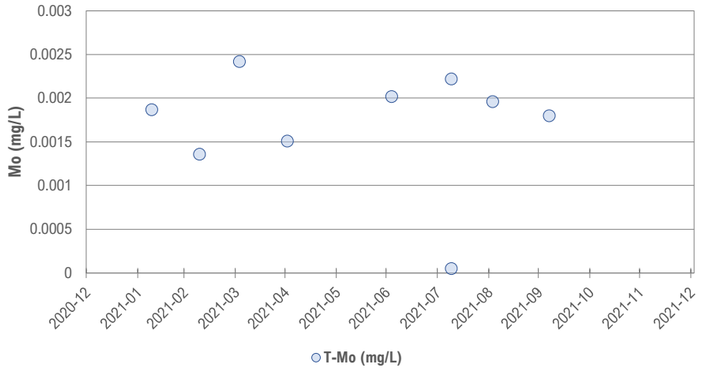
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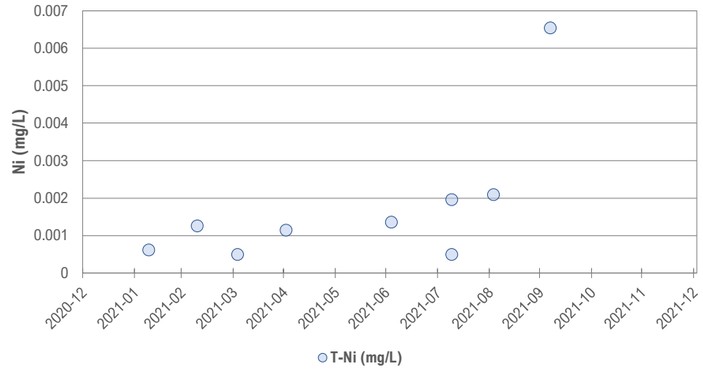




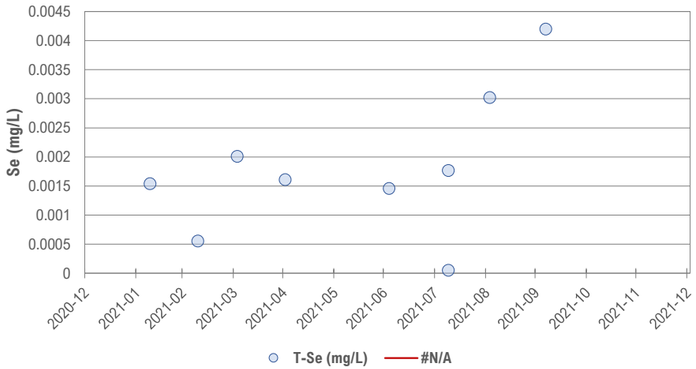


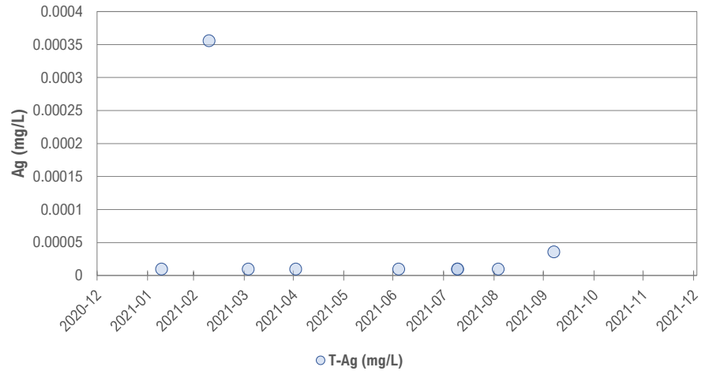


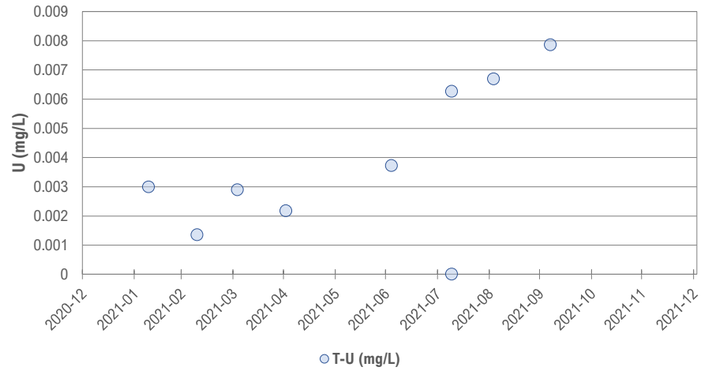


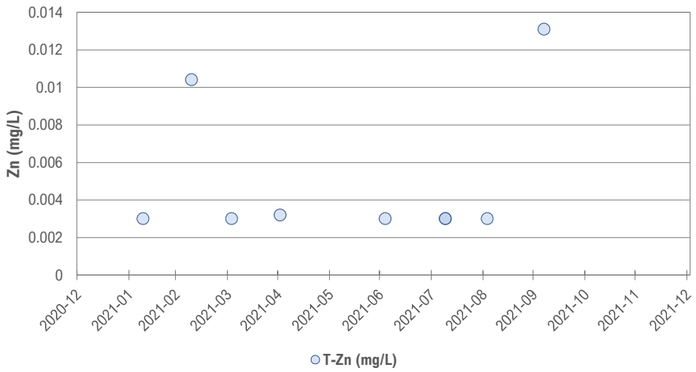


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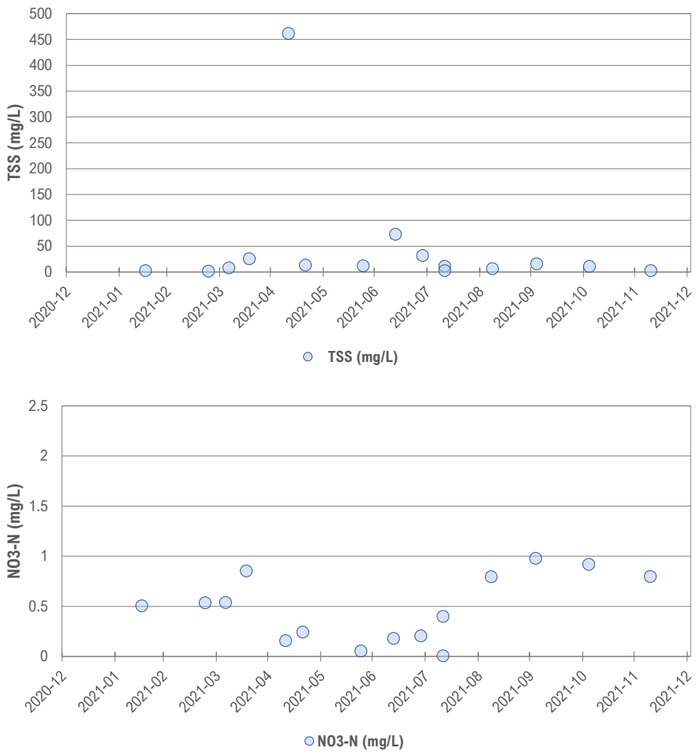


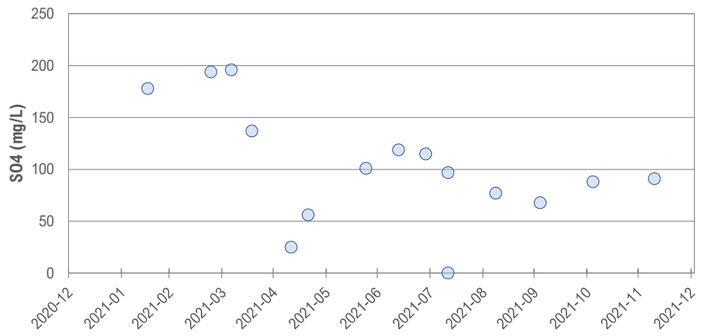


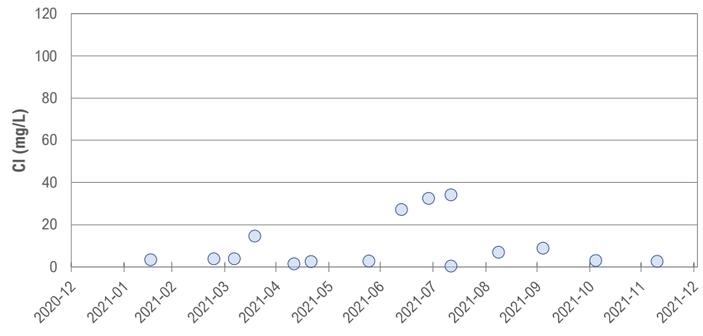


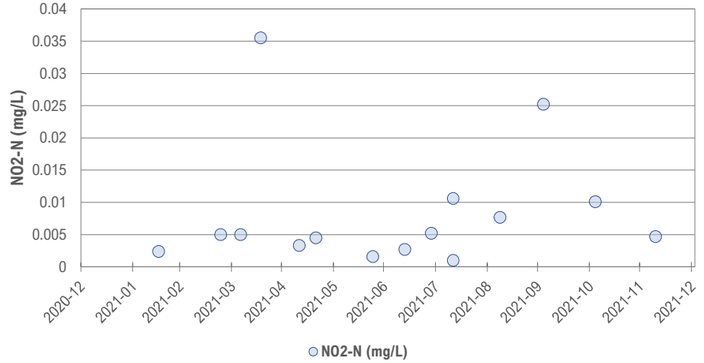


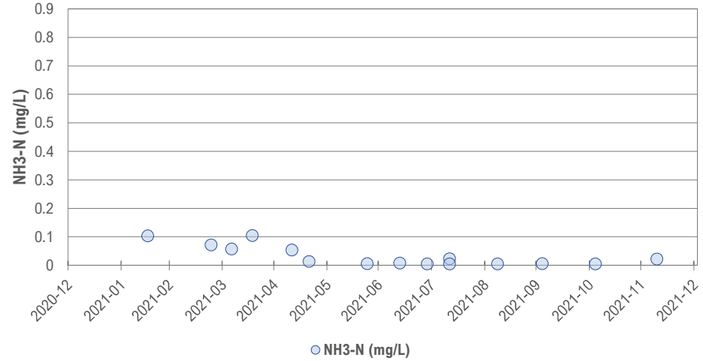
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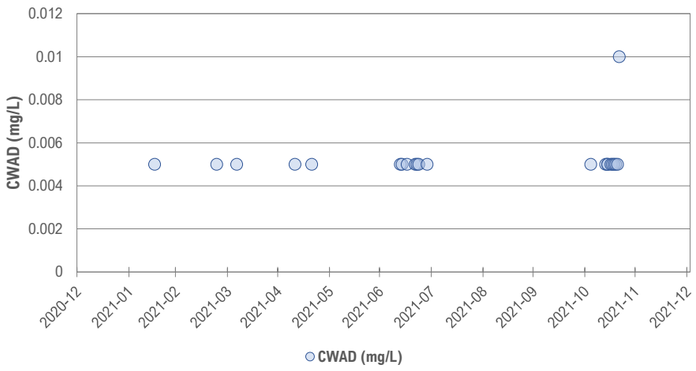


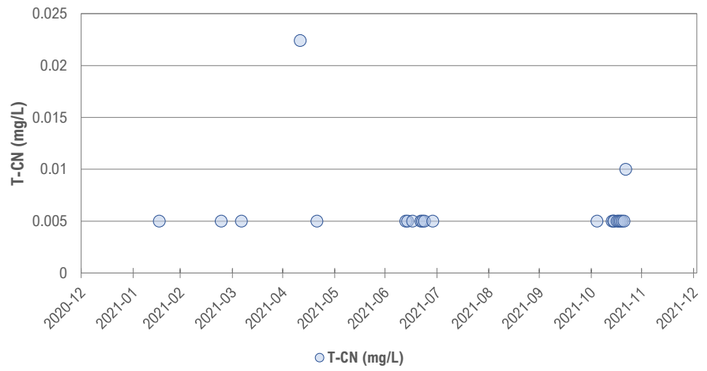


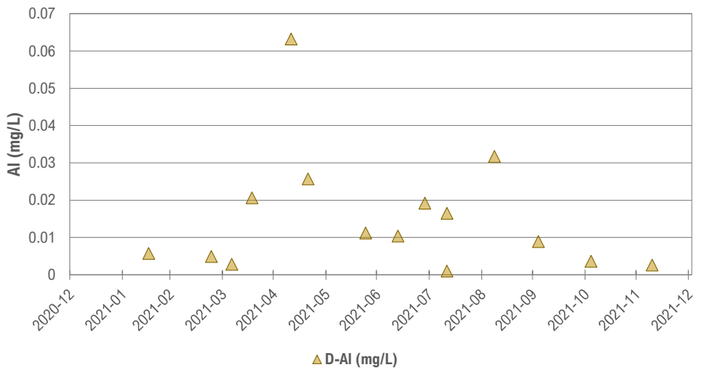


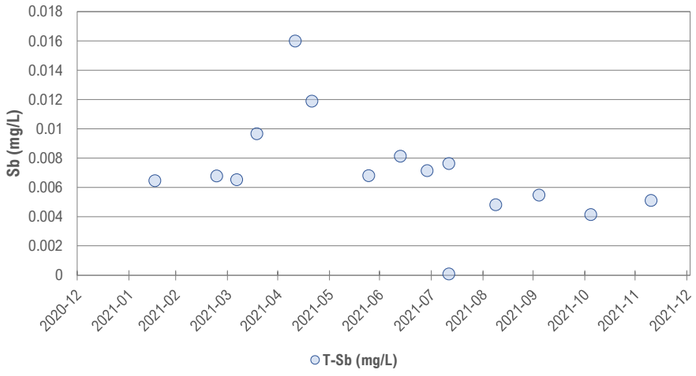


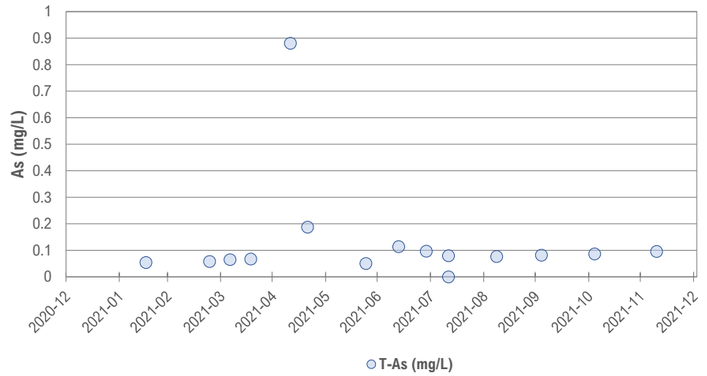
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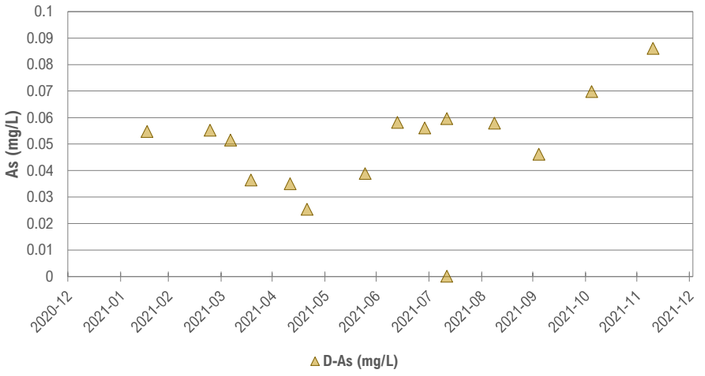




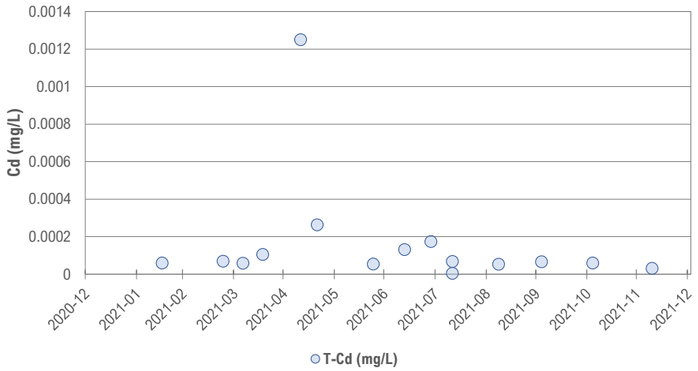


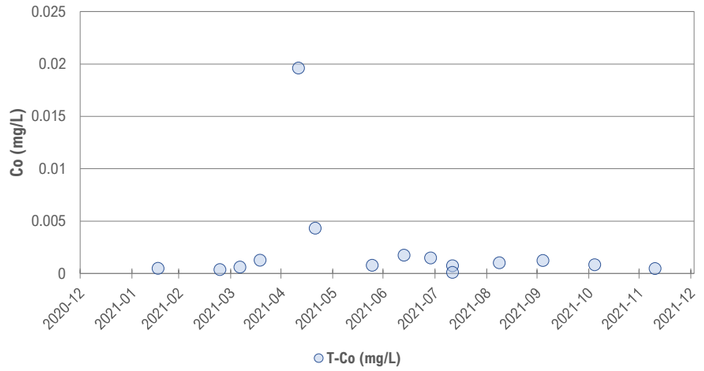


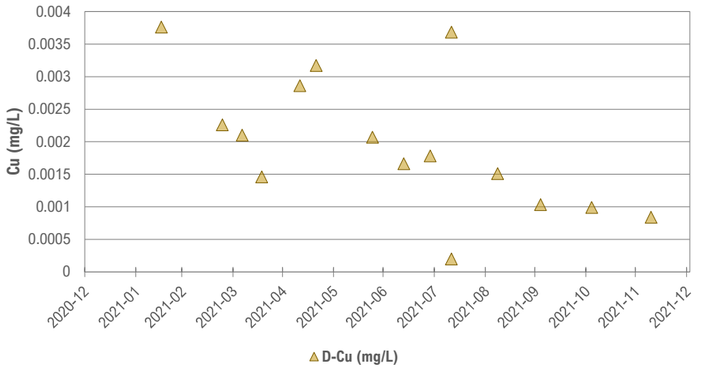


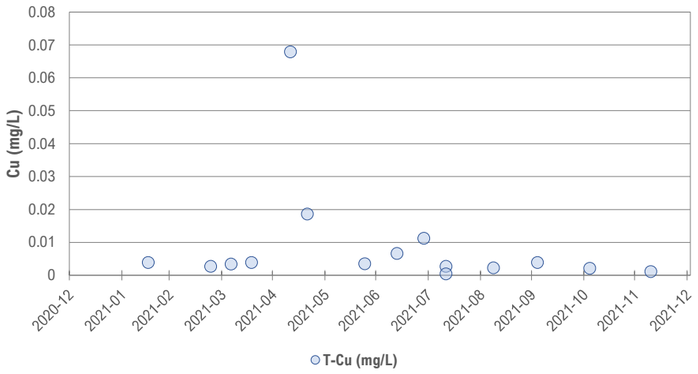


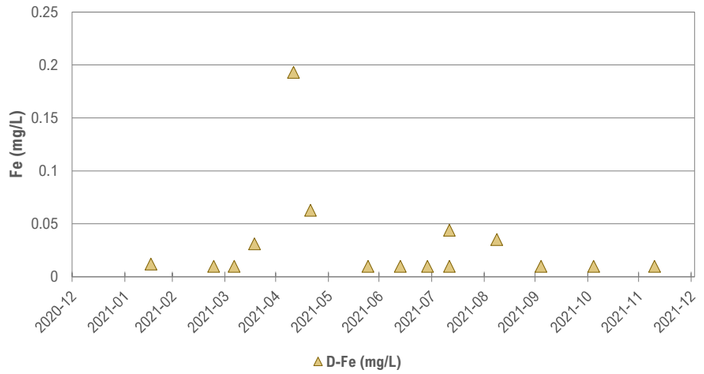
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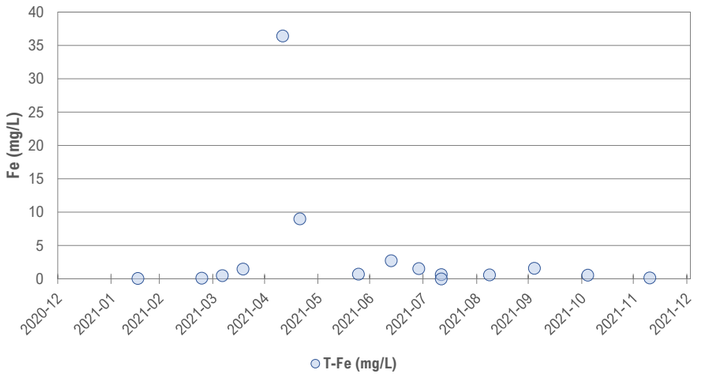




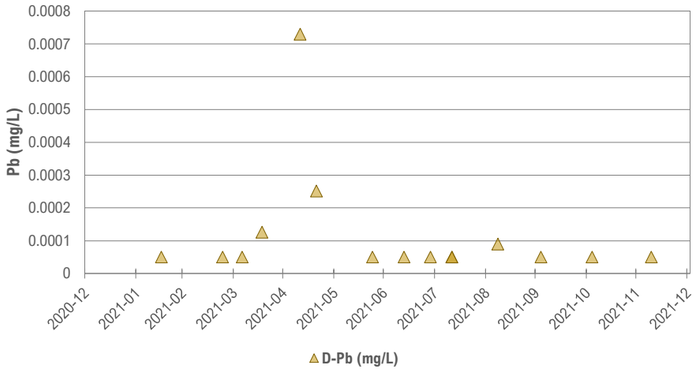


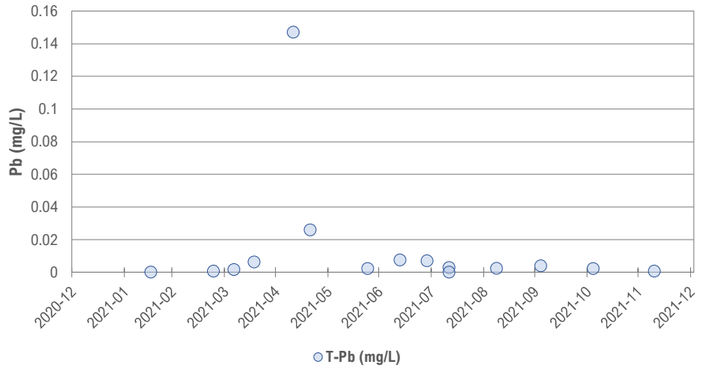


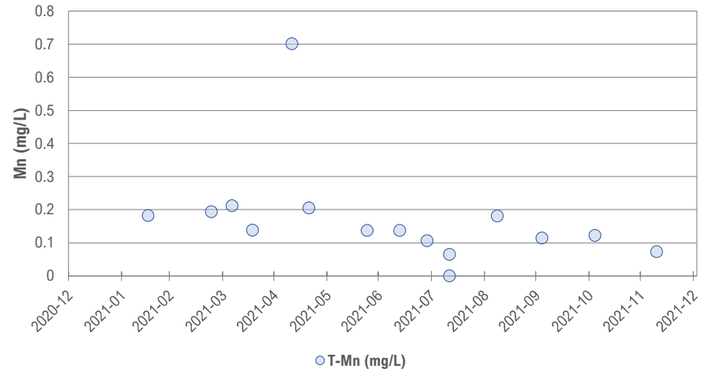


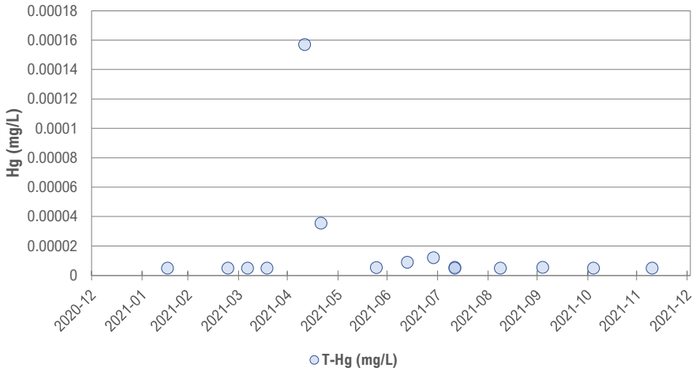


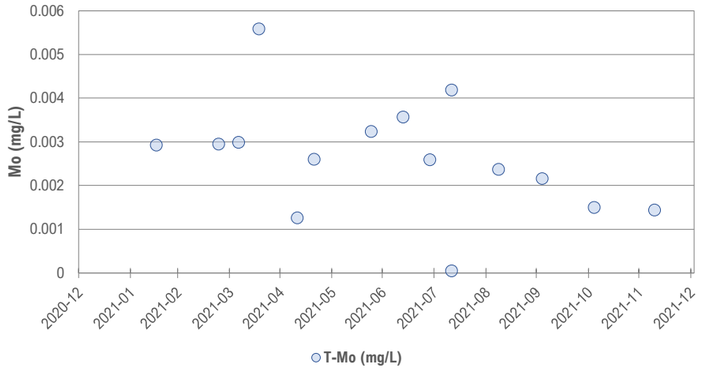
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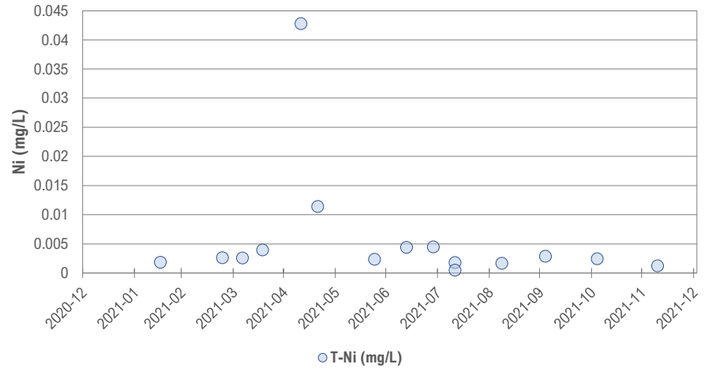




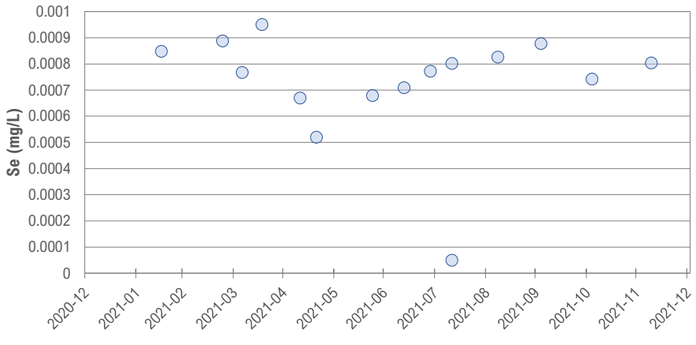


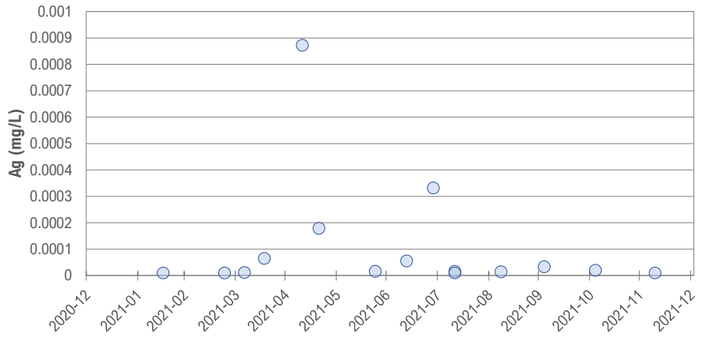


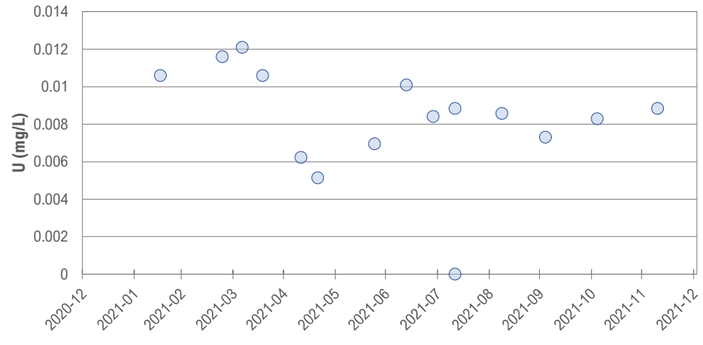


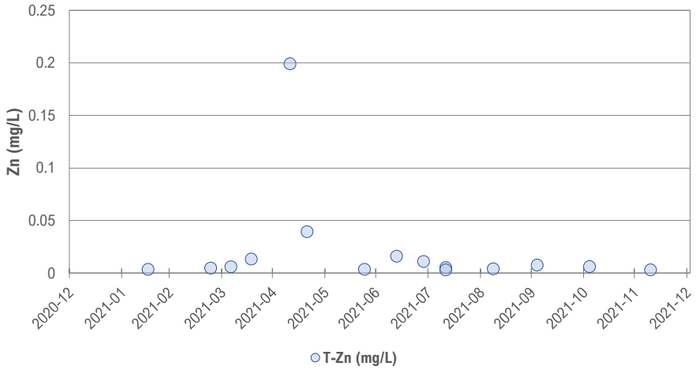


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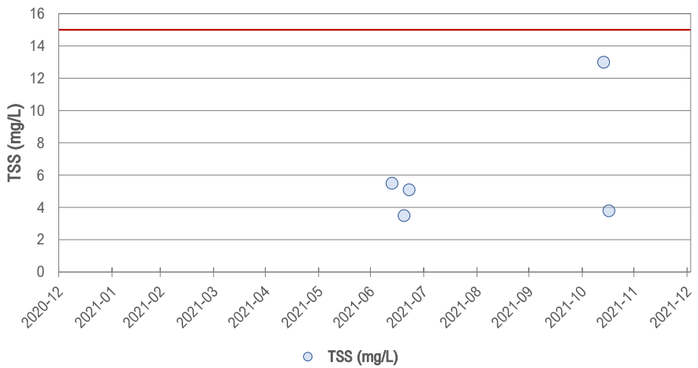


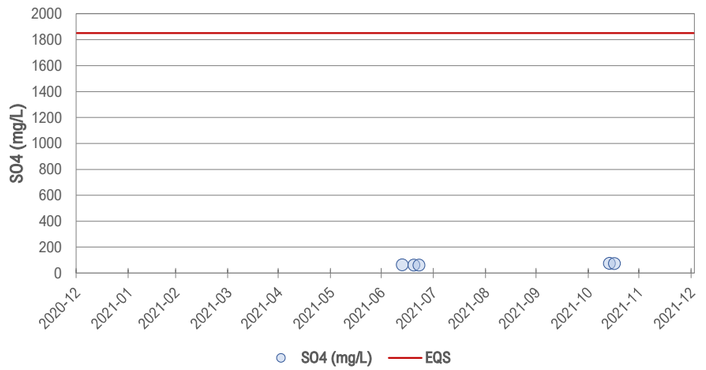


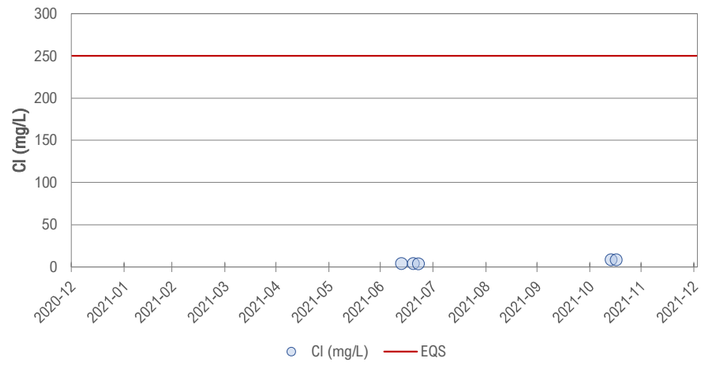


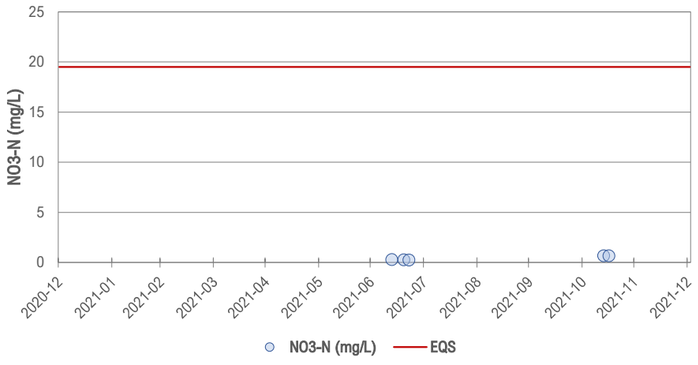


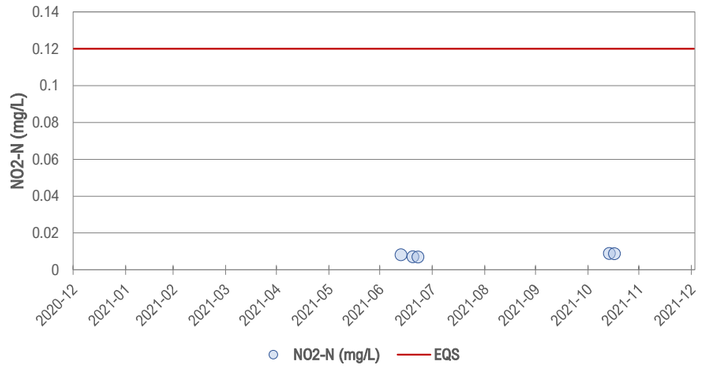
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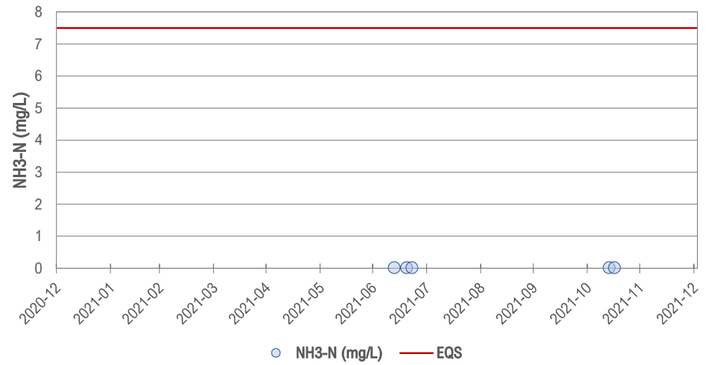




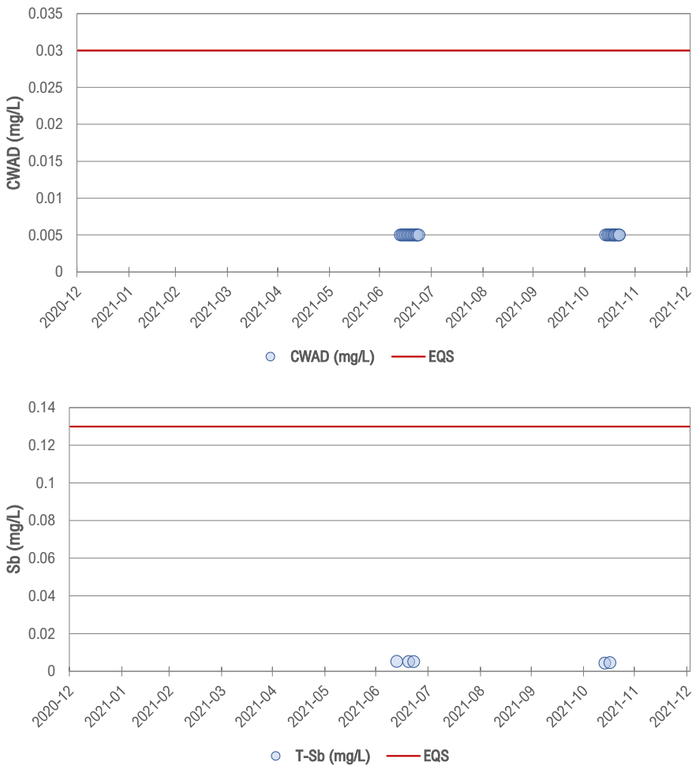


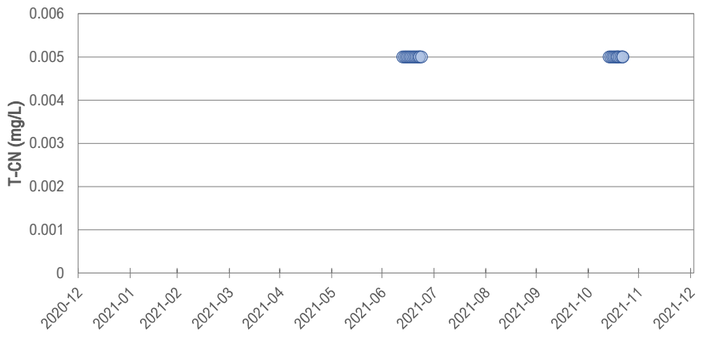


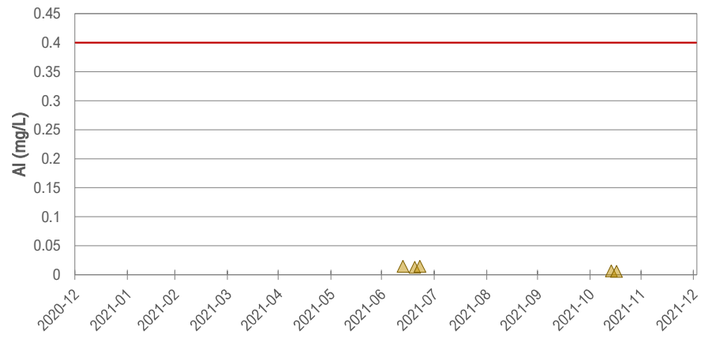


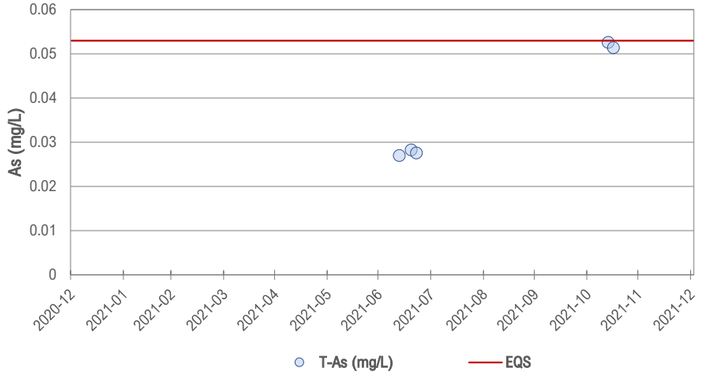


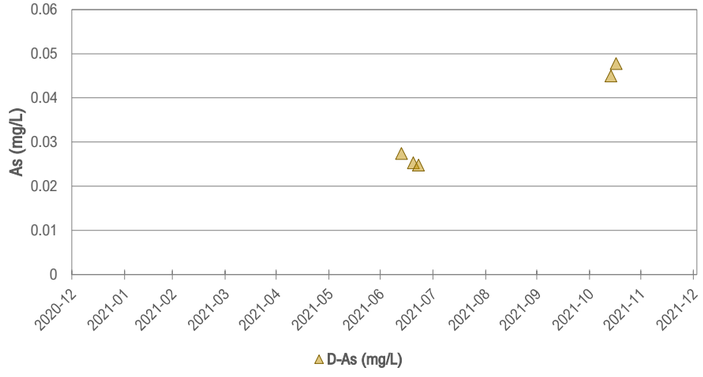
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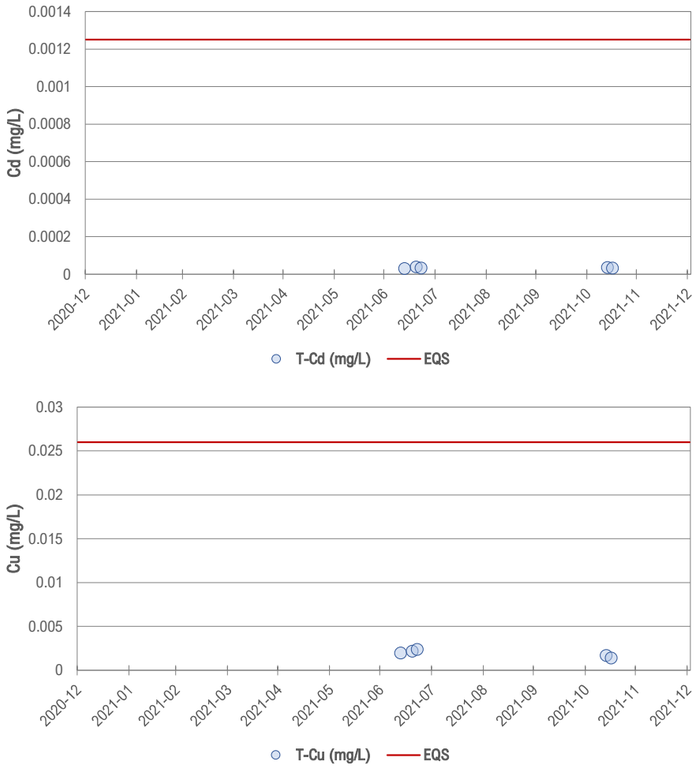


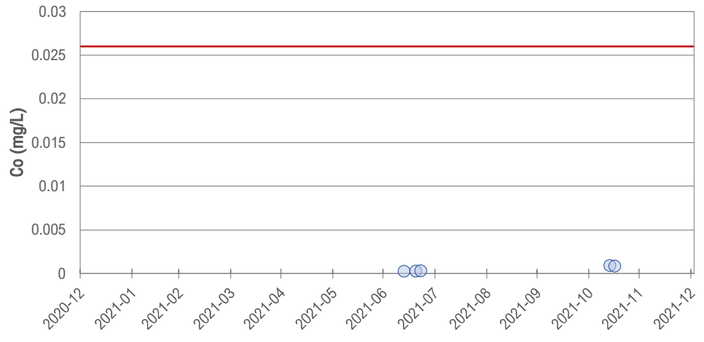


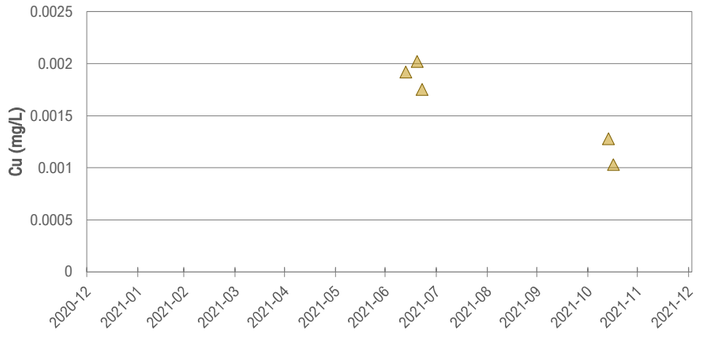


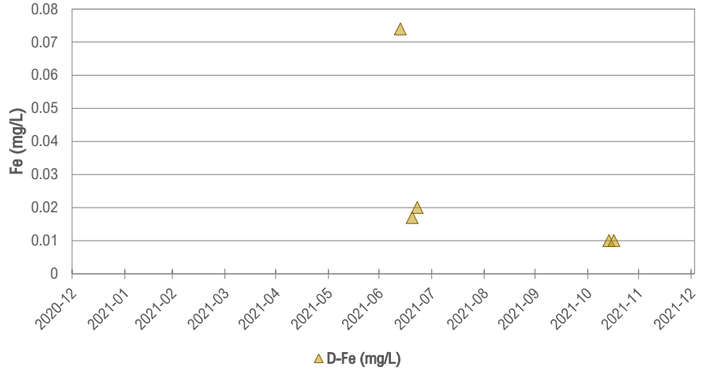


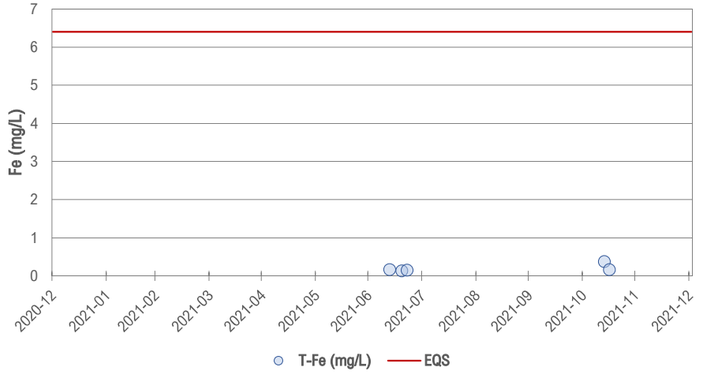
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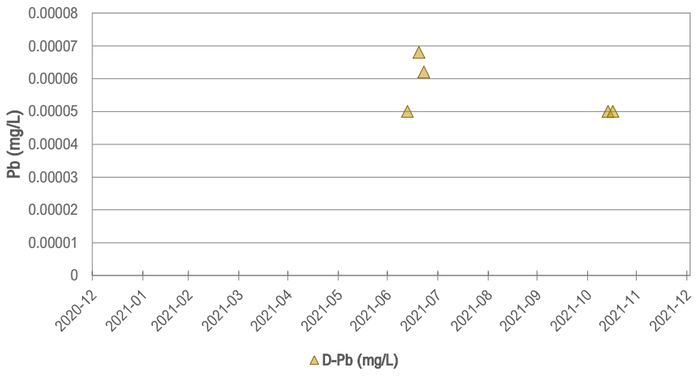


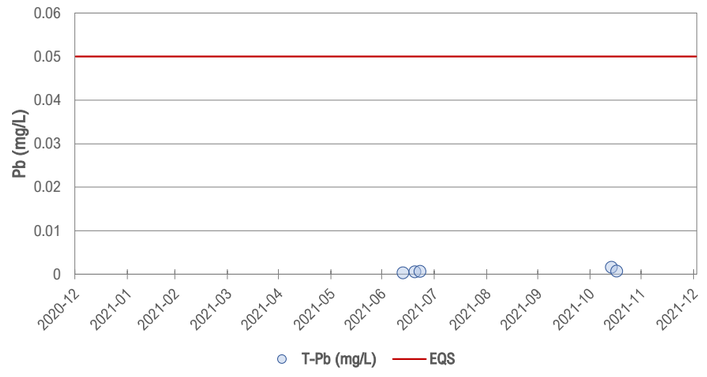


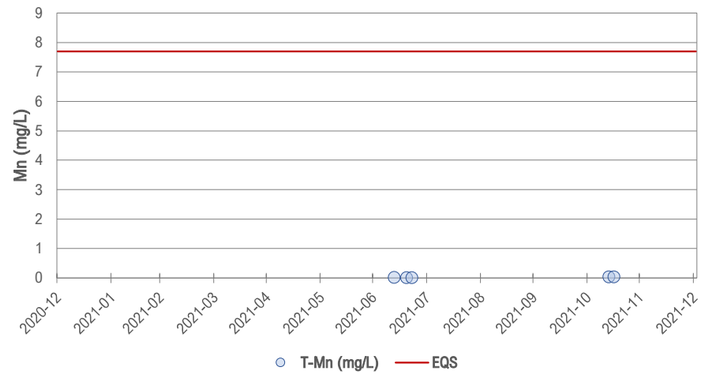


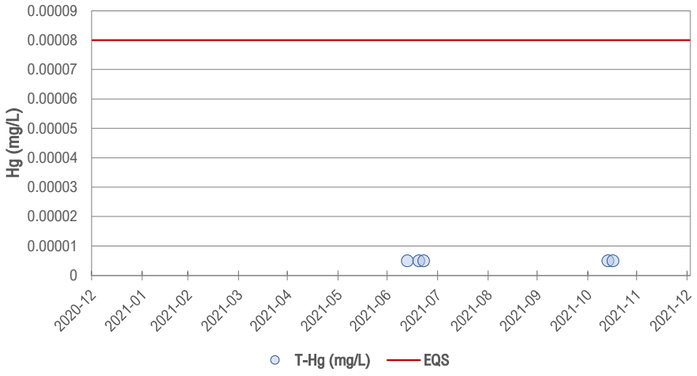


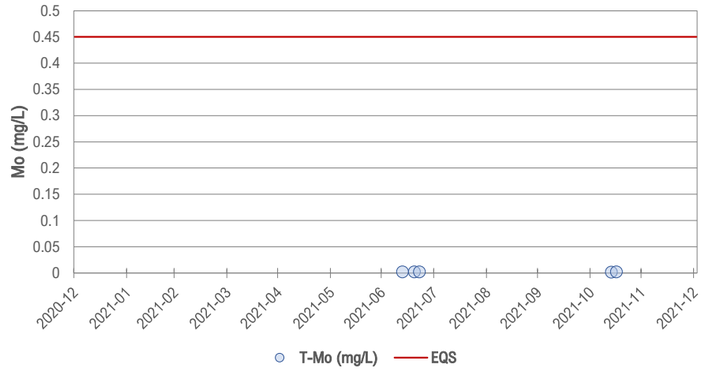
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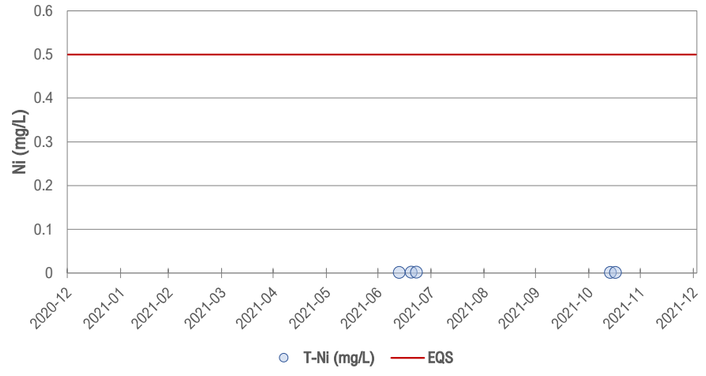




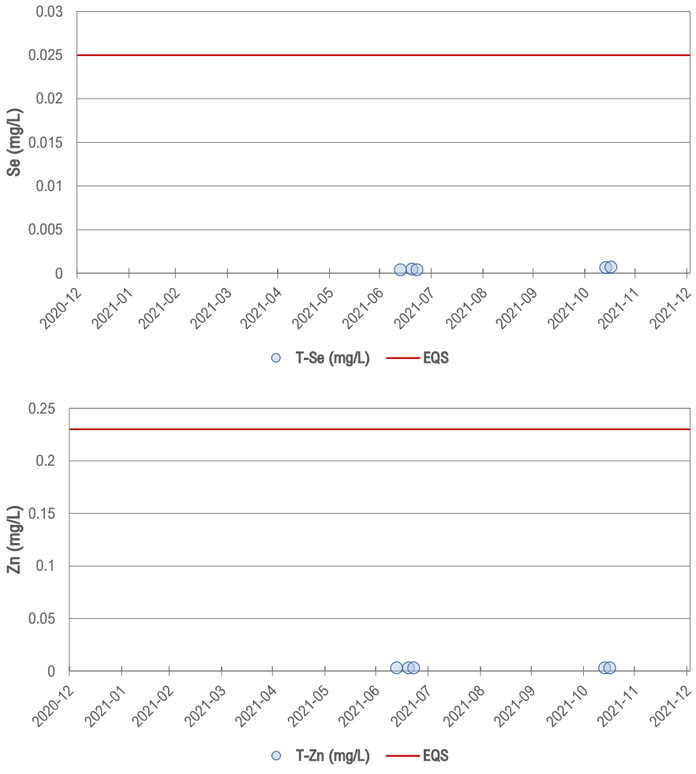


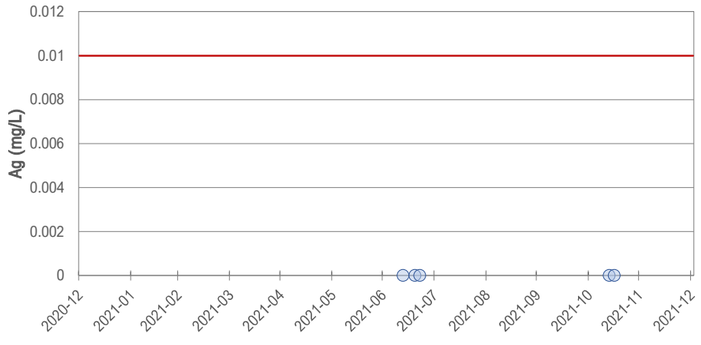


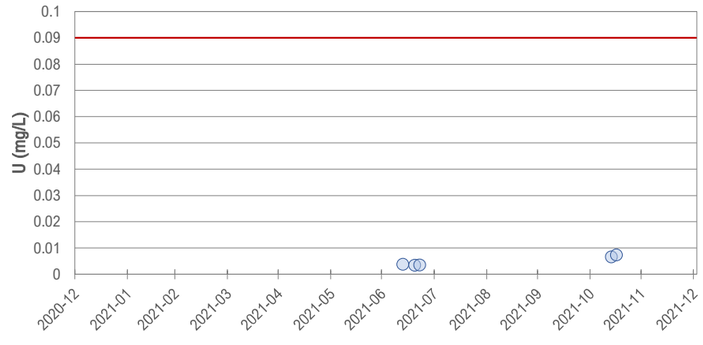




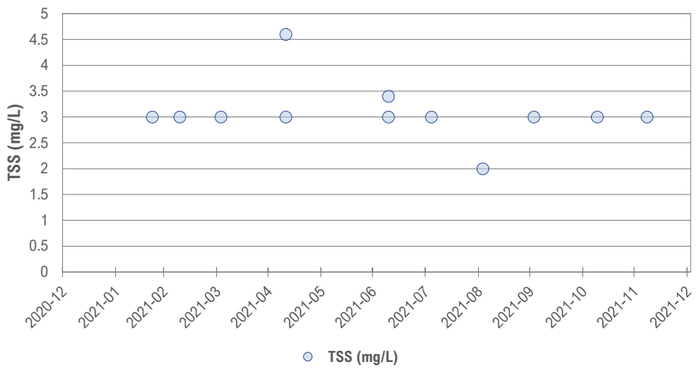
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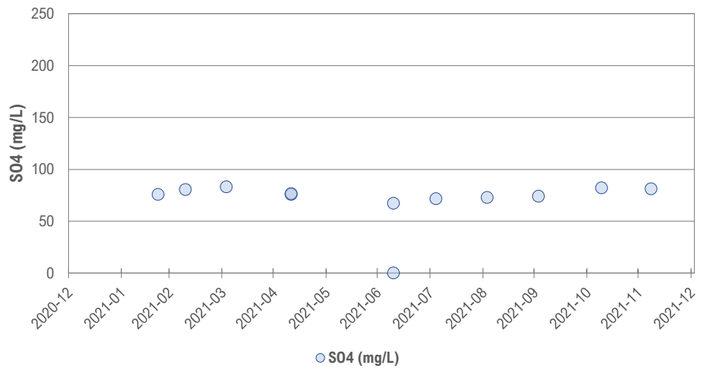


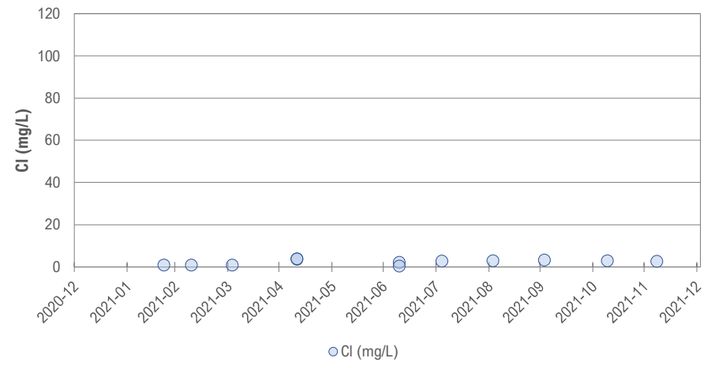


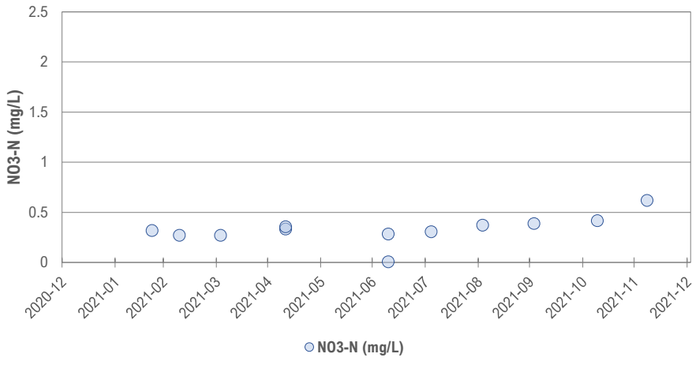


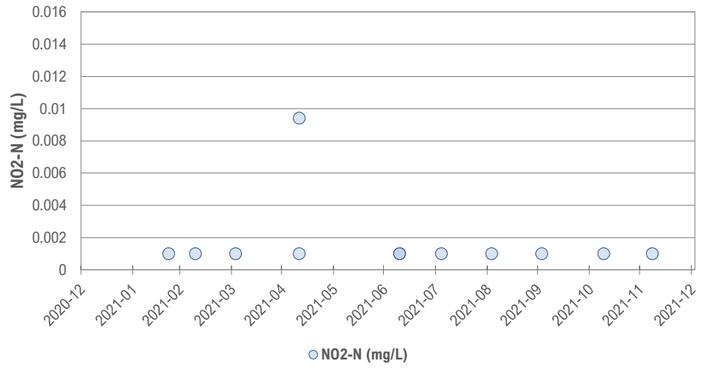
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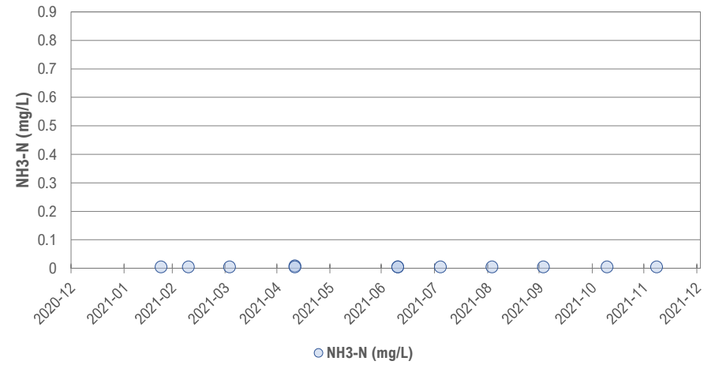




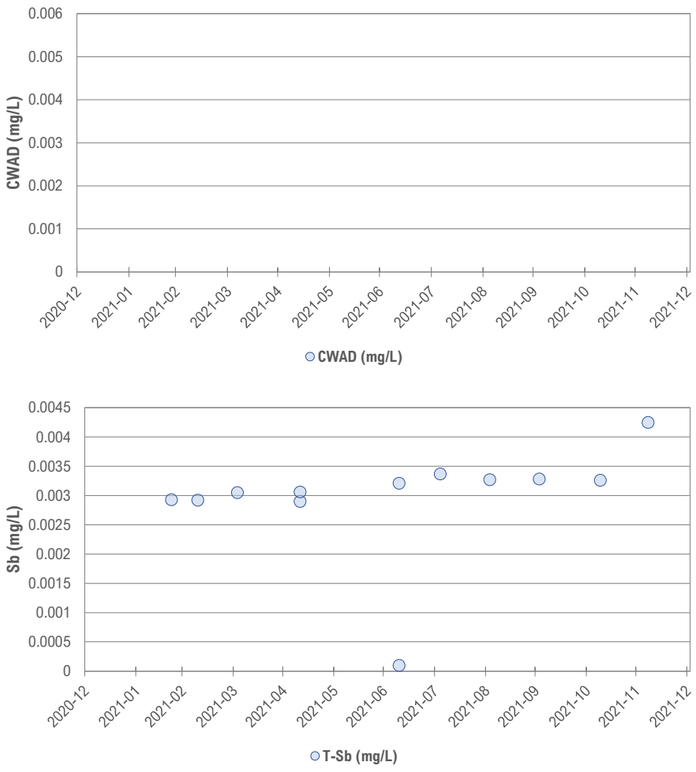


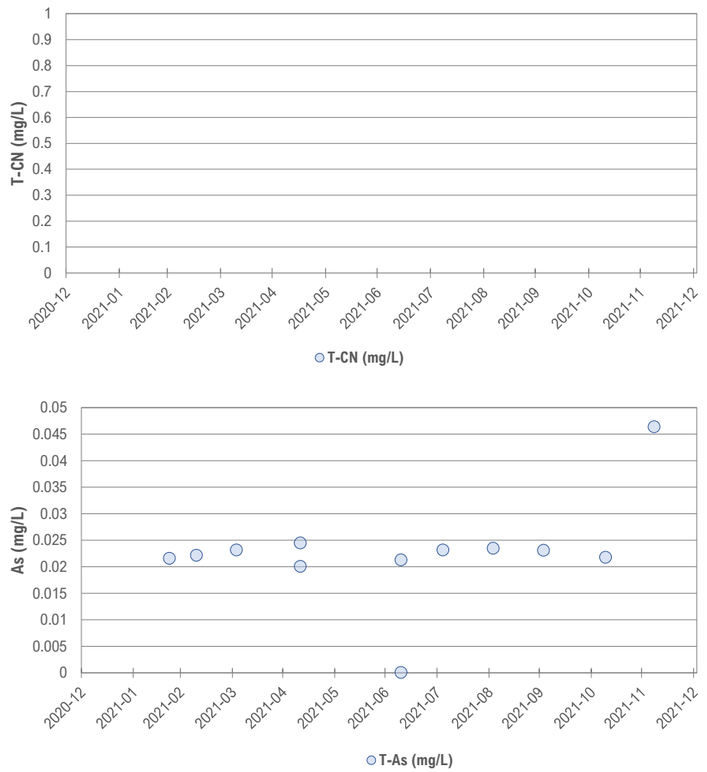


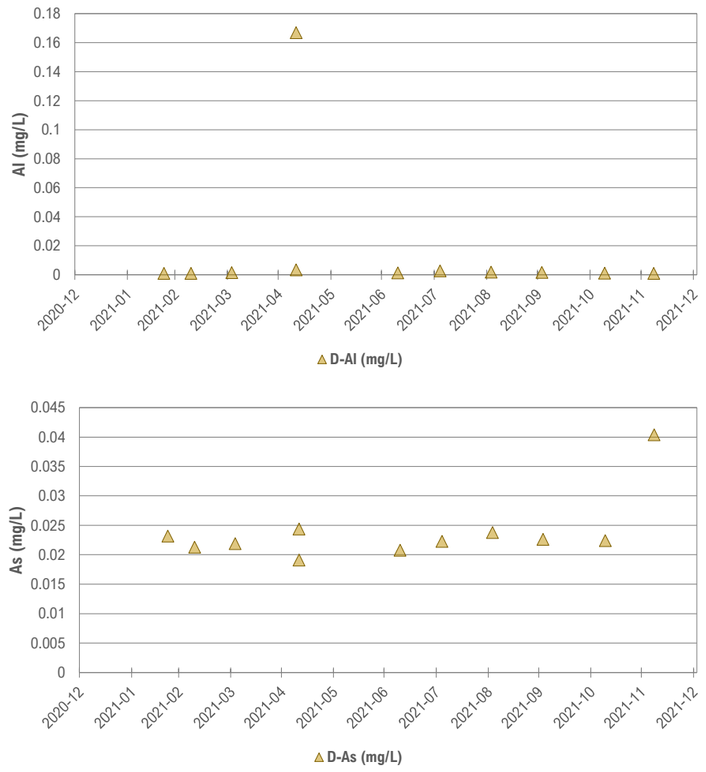




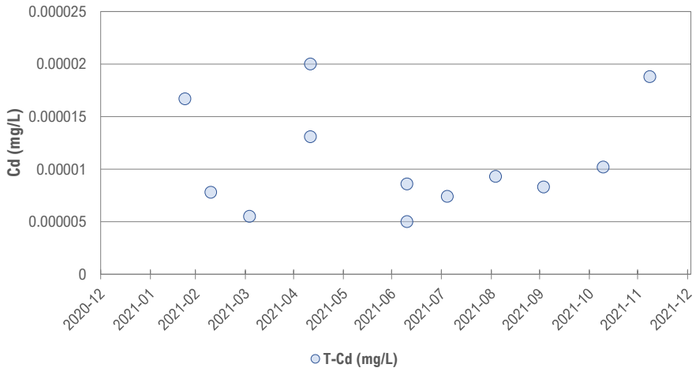
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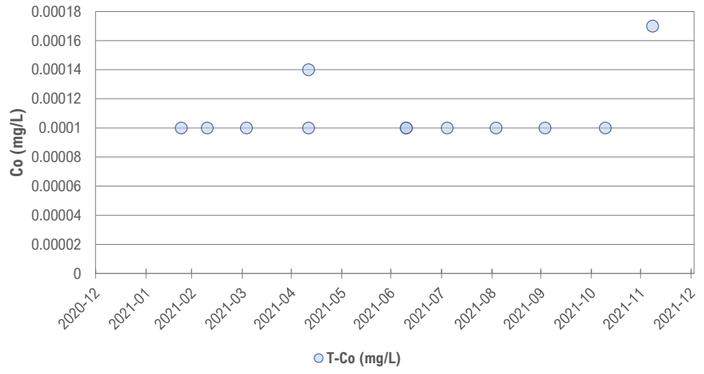


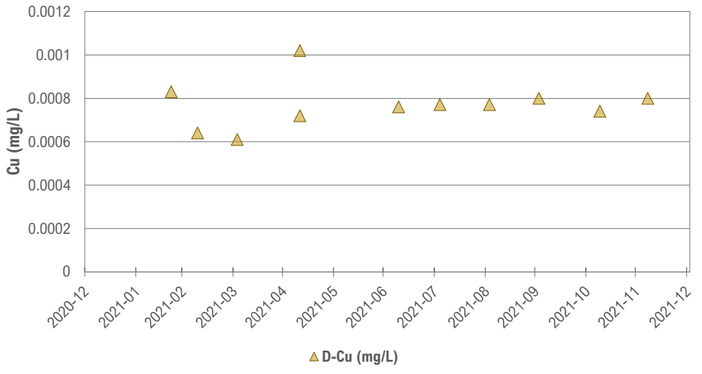


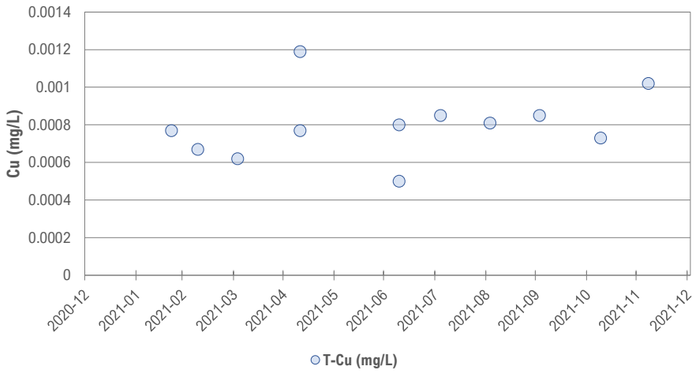


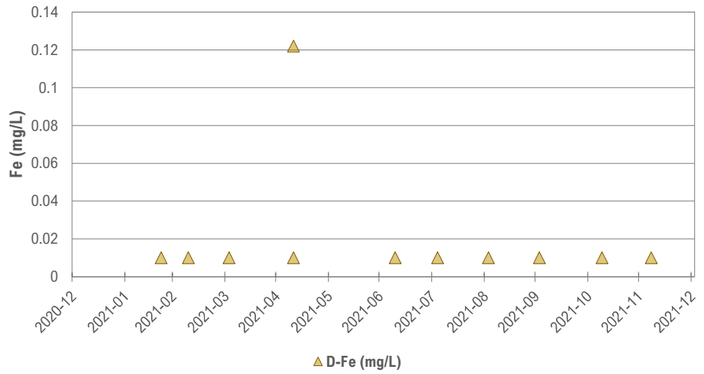
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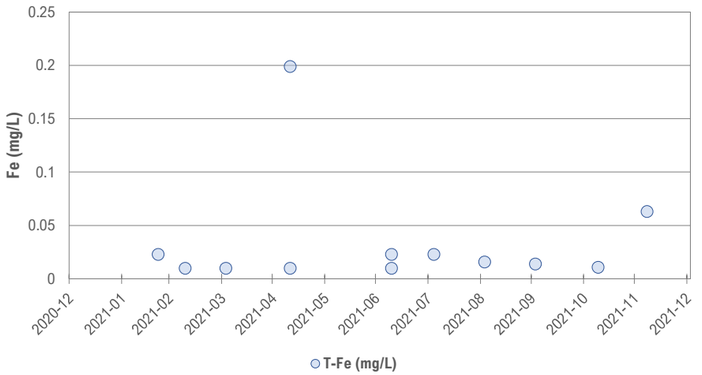




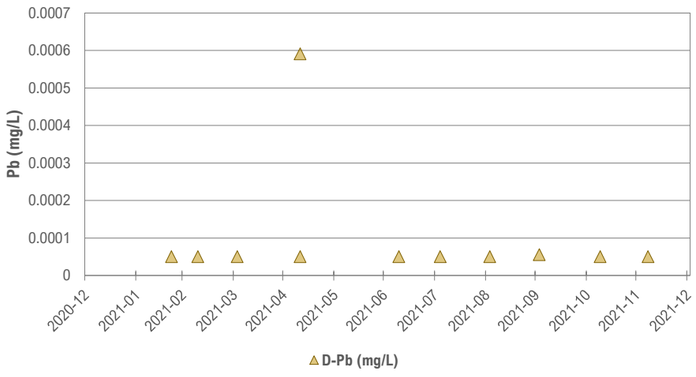


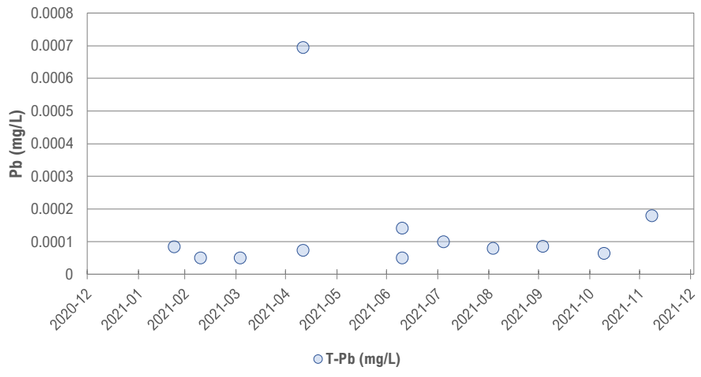


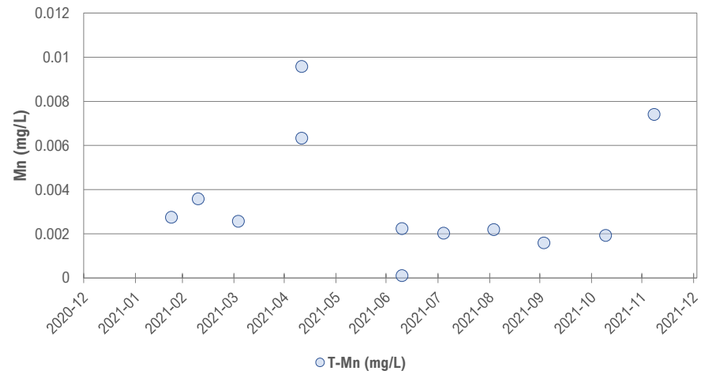


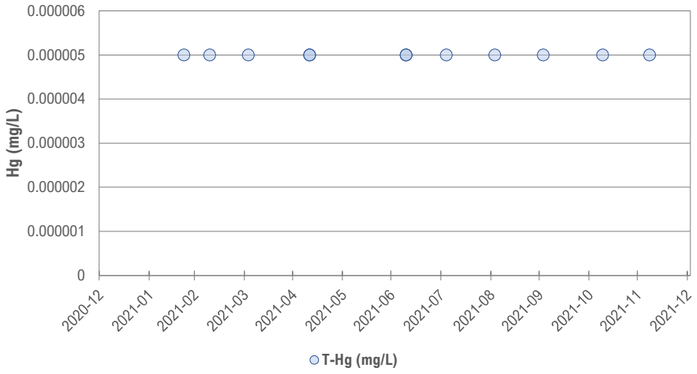


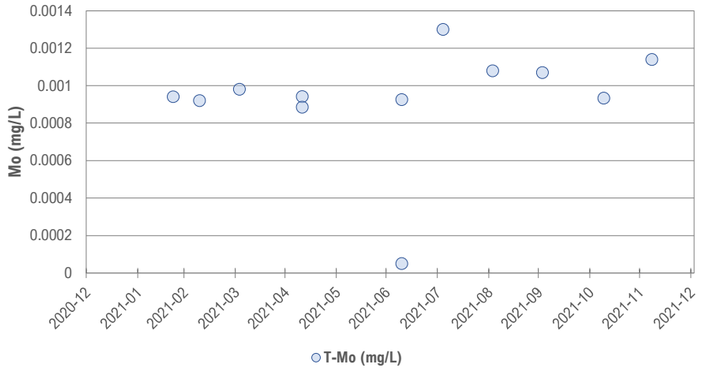
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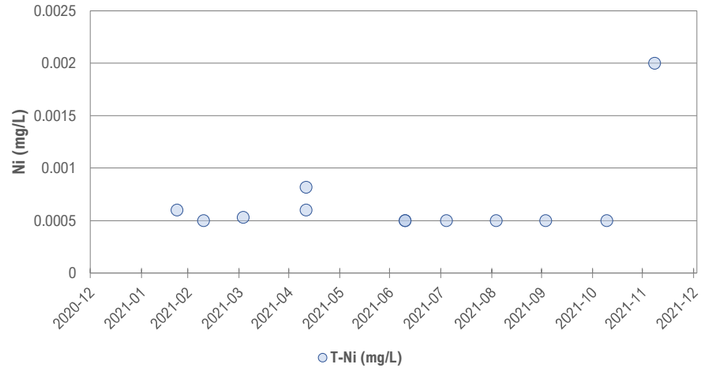




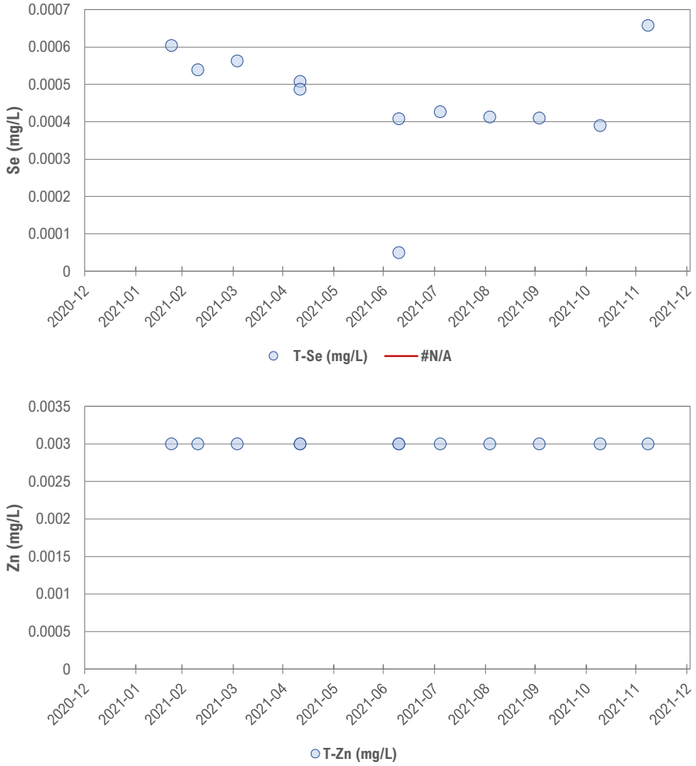


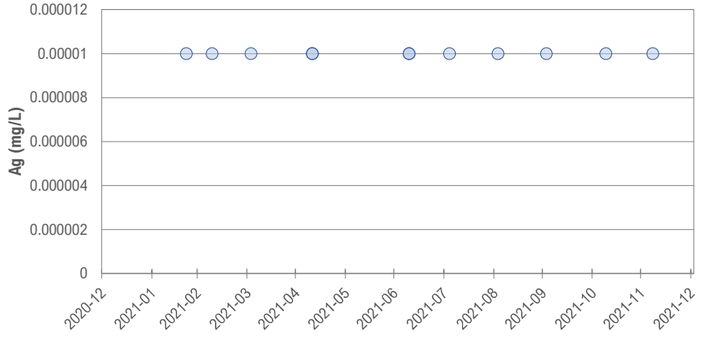


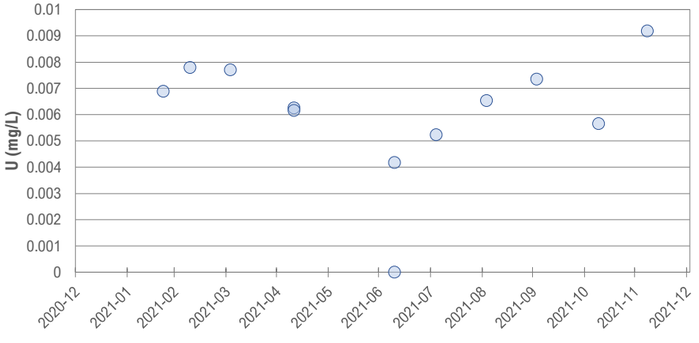




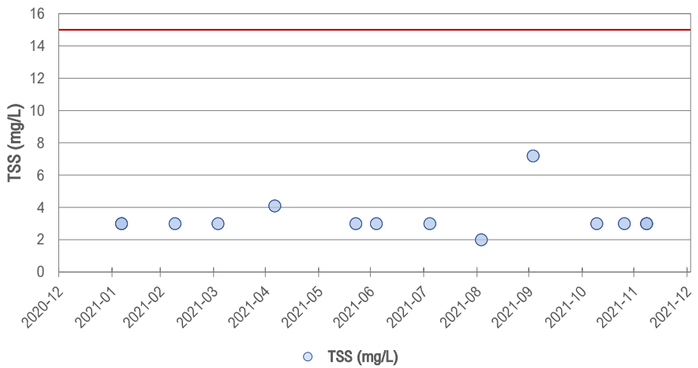
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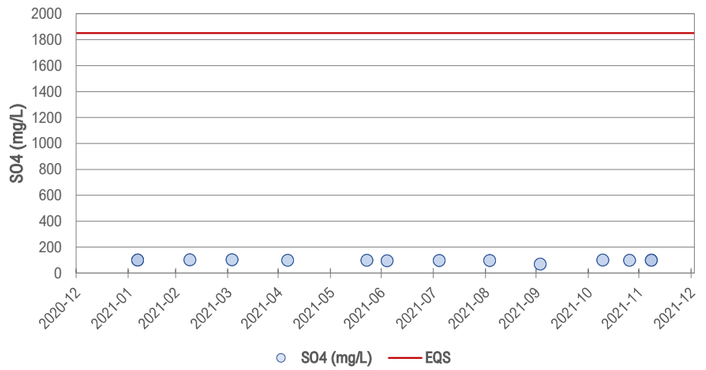


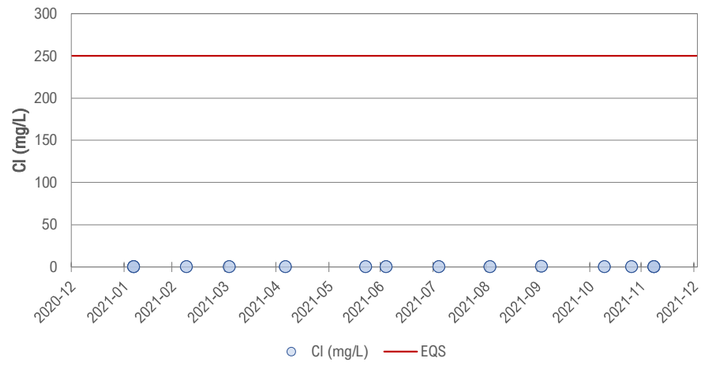


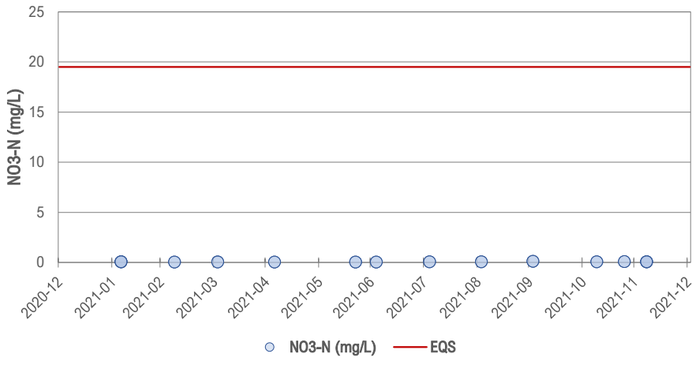


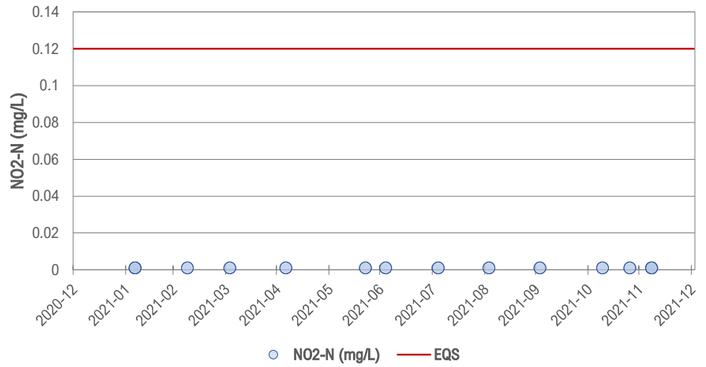
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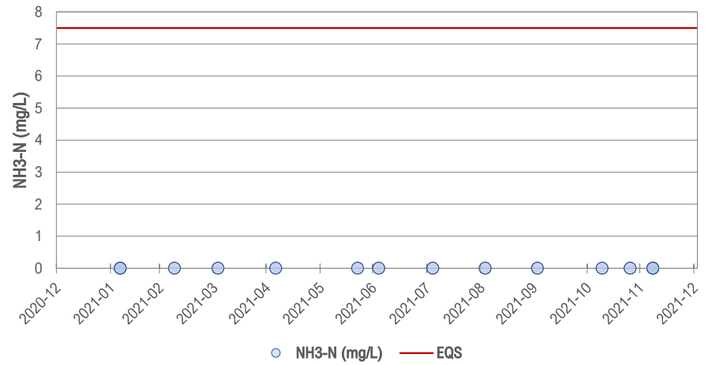




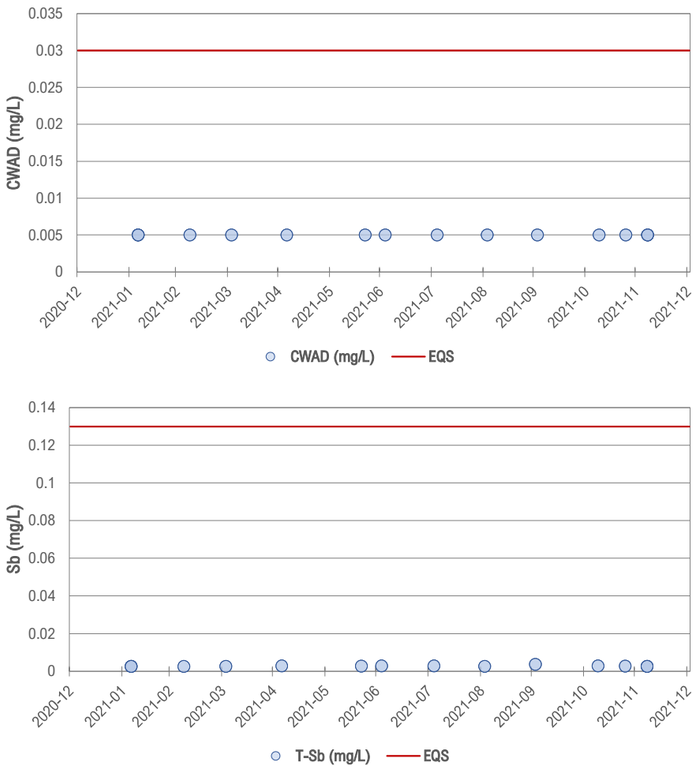


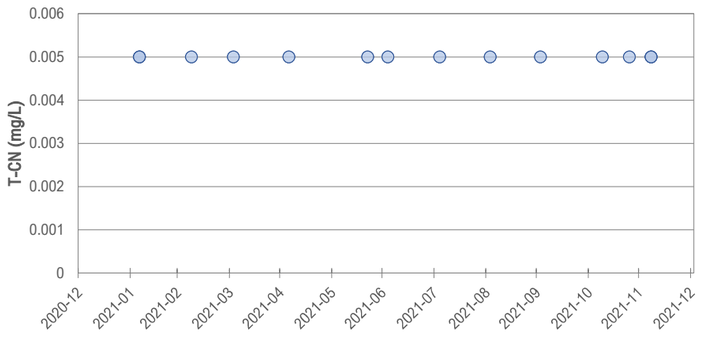


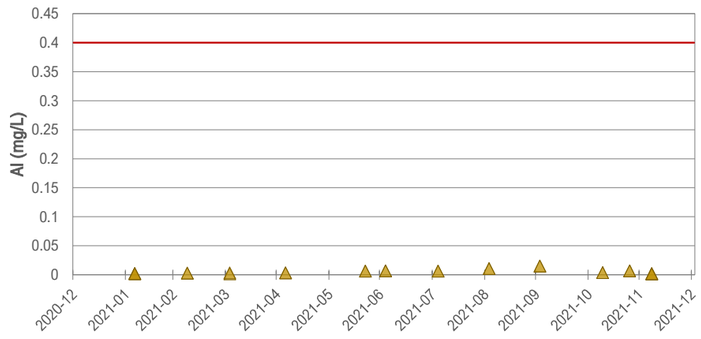


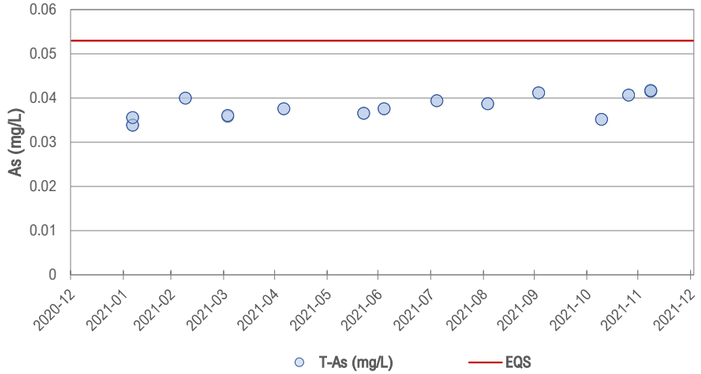


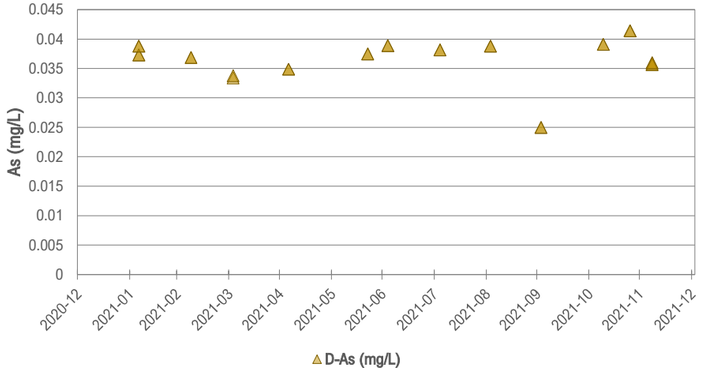
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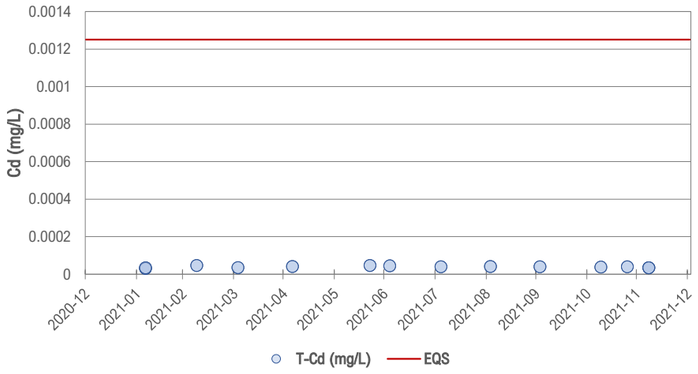


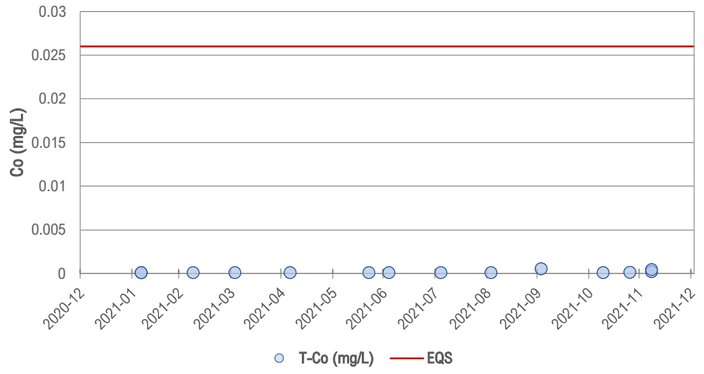


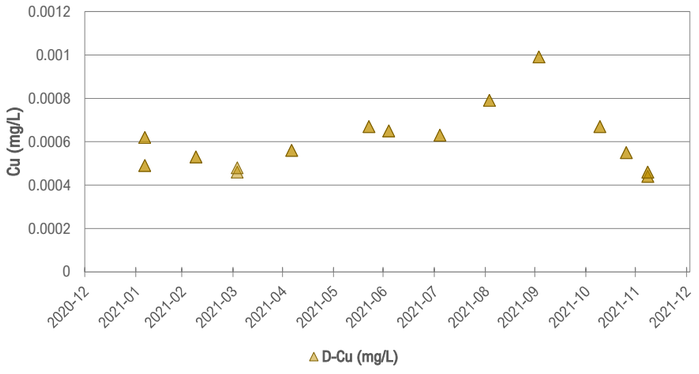


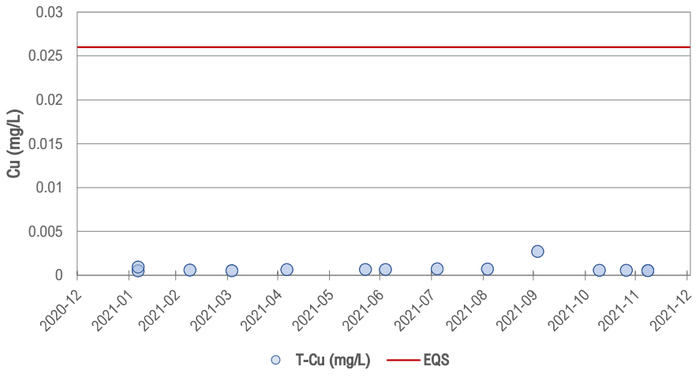


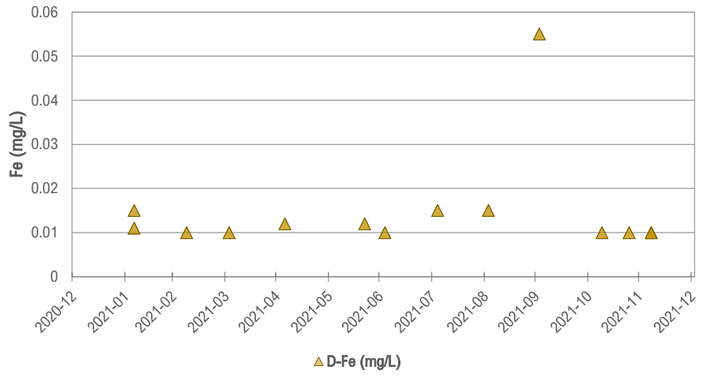
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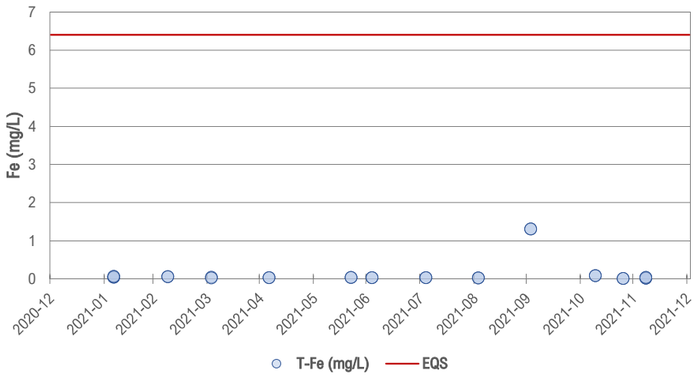




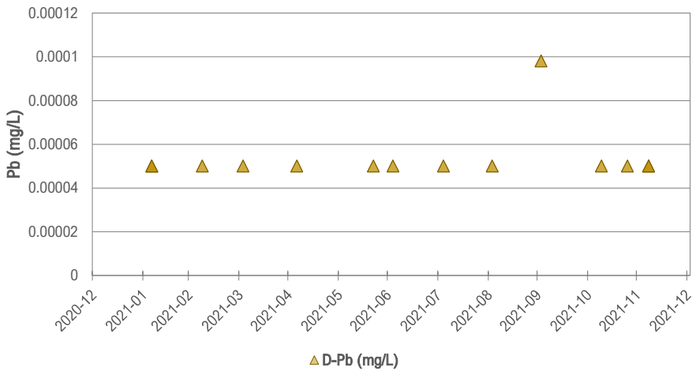


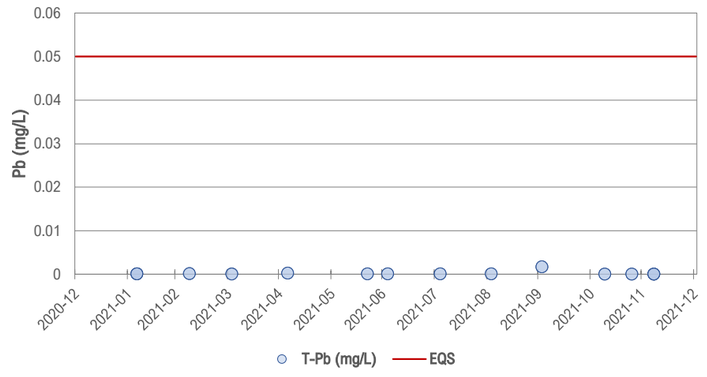


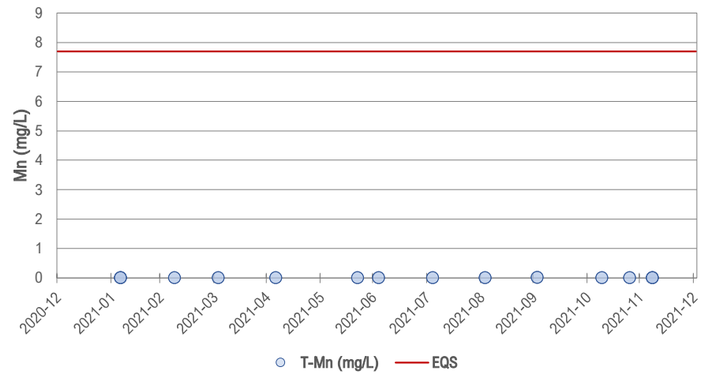


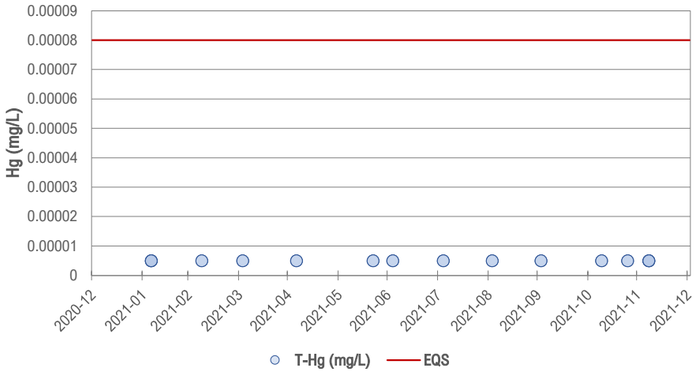


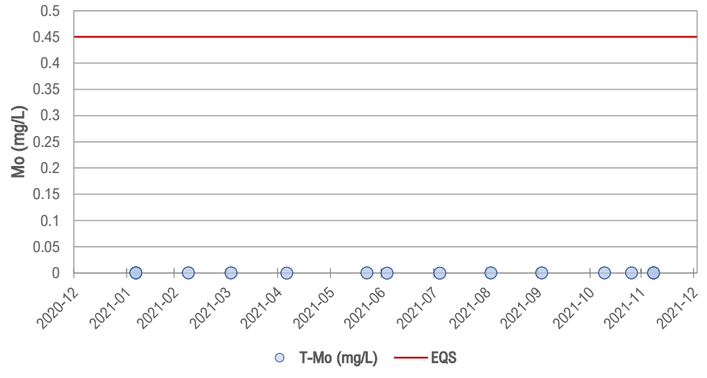
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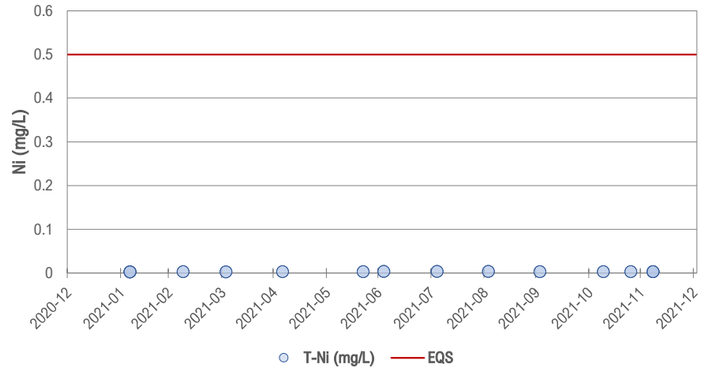




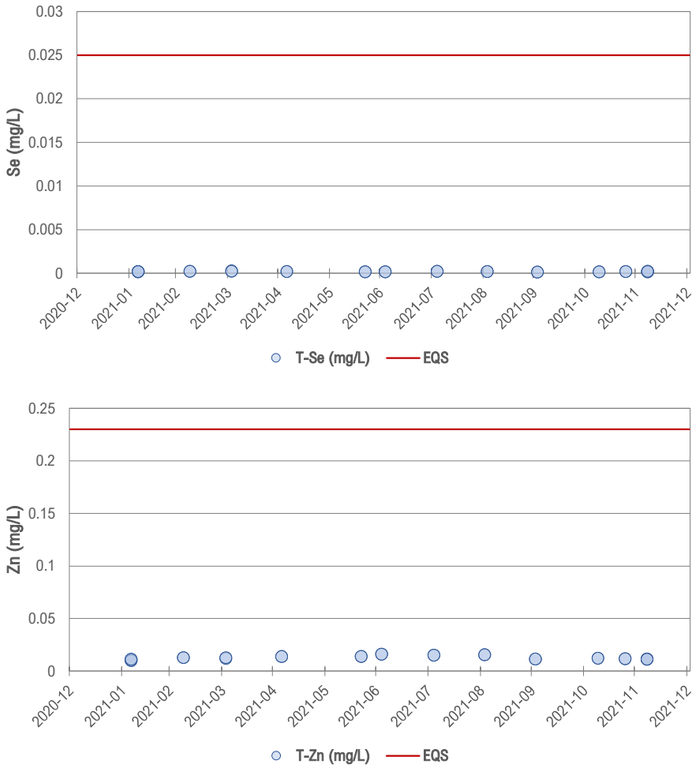


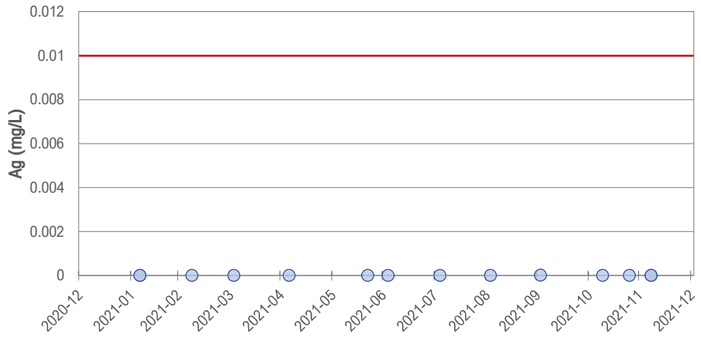


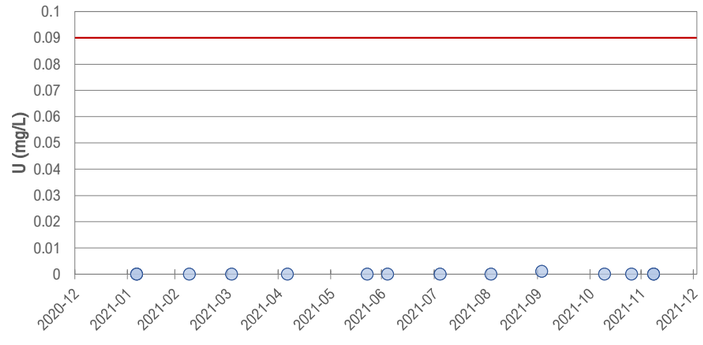




Station ID: HLFUMV







Appendix C:
Dissolved versus Total Metals QA/QC Results

Appendix C: Dissolved *versus* Total Metal concentration analysis for water samples collected in 2021 - Eagle Gold Project.

Stations	W1							W10							W20							W21						
Trace Element	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**
Aluminum	23	0	0	0	0	0	23	7	0	0	0	0	0	7	9	*2*	*1*	*1*	*1*	*1*	11	23	0	0	0	0	0	23
Antimony	19	*4*	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	20	*3*	0	0	0	0	23
Arsenic	21	*2*	0	0	0	0	23	7	0	0	0	0	0	7	8	*3*	0	0	0	0	11	23	0	0	0	0	0	23
Barium	19	*4*	0	0	0	0	23	5	*2*	0	0	0	0	7	8	*3*	0	0	0	0	11	20	*3*	0	0	0	0	23
Beryllium	23	0	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	23	0	0	0	0	0	23
Bismuth	23	0	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	23	0	0	0	0	0	23
Boron	23	0	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	23	0	0	0	0	0	23
Cadmium	20	*3*	*2*	*2*	*1*	0	23	6	*1*	0	0	0	0	7	11	0	0	0	0	0	11	21	*2*	*2*	0	0	0	23
Calcium	13	*10*	0	0	0	0	23	5	*2*	0	0	0	0	7	4	*7*	0	0	0	0	11	11	*12*	0	0	0	0	23
Chromium	23	0	0	0	0	0	23	7	0	0	0	0	0	7	10	*1*	0	0	0	0	11	23	0	0	0	0	0	23
Cobalt	23	0	0	0	0	0	23	7	0	0	0	0	0	7	10	*1*	0	0	0	0	11	23	0	0	0	0	0	23
Copper	23	0	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	22	*1*	0	0	0	0	23
Iron	23	0	0	0	0	0	23	7	0	0	0	0	0	7	10	*1*	*1*	*1*	*1*	0	11	23	0	0	0	0	0	23
Lead	22	*1*	*1*	*1*	*1*	0	23	7	0	0	0	0	0	7	10	*1*	0	0	0	0	11	23	0	0	0	0	0	23
Lithium	21	*2*	0	0	0	0	23	4	*3*	0	0	0	0	7	8	*3*	0	0	0	0	11	15	*8*	0	0	0	0	23
Magnesium	12	*11*	0	0	0	0	23	3	*4*	0	0	0	0	7	8	*3*	0	0	0	0	11	15	*8*	0	0	0	0	23
Manganese	23	0	0	0	0	0	23	7	0	0	0	0	0	7	9	*2*	*1*	*1*	*1*	0	11	23	0	0	0	0	0	23
Mercury	23	0	0	0	0	0	23	7	0	0	0	0	0	7	10	*1*	*1*	0	0	0	11	23	0	0	0	0	0	23
Molybdenum	17	*6*	0	0	0	0	23	5	*2*	0	0	0	0	7	7	*4*	0	0	0	0	11	14	*9*	0	0	0	0	23
Nickel	23	0	0	0	0	0	23	5	*2*	0	0	0	0	7	10	*1*	0	0	0	0	11	22	*1*	0	0	0	0	23
Phosphorus	1	*22*	*22*	*21*	*21*	*15*	23	1	*6*	*6*	*6*	*6*	*4*	7	1	*10*	*9*	*9*	*9*	*4*	11	1	*22*	*22*	*22*	*22*	*16*	23
Potassium	16	*7*	0	0	0	0	23	4	*3*	0	0	0	0	7	7	*4*	0	0	0	0	11	16	*7*	0	0	0	0	23
Selenium	17	*6*	*3*	*1*	0	0	23	1	*6*	*2*	0	0	0	7	6	*5*	*3*	*1*	0	0	11	12	*11*	*5*	*2*	0	0	23
Silicon	19	*4*	0	0	0	0	23	5	*2*	0	0	0	0	7	7	*4*	0	0	0	0	11	20	*3*	0	0	0	0	23
Silver	23	0	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	23	0	0	0	0	0	23
Sodium	11	*12*	0	0	0	0	23	5	*2*	0	0	0	0	7	6	*5*	0	0	0	0	11	12	*11*	0	0	0	0	23
Strontium	12	*11*	0	0	0	0	23	5	*2*	0	0	0	0	7	8	*3*	0	0	0	0	11	10	*13*	0	0	0	0	23
Thallium	23	0	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	23	0	0	0	0	0	23
Tin	23	0	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	23	0	0	0	0	0	23
Titanium	23	0	0	0	0	0	23	7	0	0	0	0	0	7	10	*1*	*1*	*1*	*1*	*1*	11	23	0	0	0	0	0	23
Uranium	21	*2*	0	0	0	0	23	4	*3*	0	0	0	0	7	9	*2*	0	0	0	0	11	18	*5*	0	0	0	0	23
Vanadium	23	0	0	0	0	0	23	7	0	0	0	0	0	7	11	0	0	0	0	0	11	23	0	0	0	0	0	23
Zinc	23	0	0	0	0	0	23	7	0	0	0	0	0	7	10	*1*	0	0	0	0	11	23	0	0	0	0	0	23

Note: Highlighetd cells represent exceedances to applicable percentage thresholds

Appendix C: Dissolved *versus* Total Metal concentration analysis for water samples collected in 2021 - Eagle Gold Project.

Stations	W22							W22D							W23							W24						
Trace Element	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**
Aluminum	22	0	0	0	0	0	22	0	0	0	0	0	0	0	14	*1*	*1*	*1*	*1*	0	15	0	0	0	0	0	0	0
Antimony	21	*1*	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Arsenic	22	0	0	0	0	0	22	0	0	0	0	0	0	0	13	*2*	0	0	0	0	15	0	0	0	0	0	0	0
Barium	20	*2*	0	0	0	0	22	0	0	0	0	0	0	0	12	*3*	0	0	0	0	15	0	0	0	0	0	0	0
Beryllium	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Bismuth	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Boron	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Cadmium	18	*4*	*2*	0	0	0	22	0	0	0	0	0	0	0	13	*2*	0	0	0	0	15	0	0	0	0	0	0	0
Calcium	11	*11*	0	0	0	0	22	0	0	0	0	0	0	0	9	*6*	0	0	0	0	15	0	0	0	0	0	0	0
Chromium	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Cobalt	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Copper	22	0	0	0	0	0	22	0	0	0	0	0	0	0	13	*2*	0	0	0	0	15	0	0	0	0	0	0	0
Iron	22	0	0	0	0	0	22	0	0	0	0	0	0	0	14	*1*	*1*	*1*	*1*	0	15	0	0	0	0	0	0	0
Lead	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Lithium	14	*8*	0	0	0	0	22	0	0	0	0	0	0	0	11	*4*	0	0	0	0	15	0	0	0	0	0	0	0
Magnesium	13	*9*	0	0	0	0	22	0	0	0	0	0	0	0	8	*7*	*1*	0	0	0	15	0	0	0	0	0	0	0
Manganese	19	*3*	0	0	0	0	22	0	0	0	0	0	0	0	13	*2*	0	0	0	0	15	0	0	0	0	0	0	0
Mercury	22	0	0	0	0	0	22	0	0	0	0	0	0	0	14	*1*	0	0	0	0	15	0	0	0	0	0	0	0
Molybdenum	17	*5*	*1*	0	0	0	22	0	0	0	0	0	0	0	12	*3*	0	0	0	0	15	0	0	0	0	0	0	0
Nickel	19	*3*	*1*	0	0	0	22	0	0	0	0	0	0	0	12	*3*	0	0	0	0	15	0	0	0	0	0	0	0
Phosphorus	0	*22*	*22*	*22*	*22*	*18*	22	0	0	0	0	0	0	0	1	*14*	*14*	*14*	*14*	*13*	15	0	0	0	0	0	0	0
Potassium	12	*10*	0	0	0	0	22	0	0	0	0	0	0	0	7	*8*	*1*	0	0	0	15	0	0	0	0	0	0	0
Selenium	12	*10*	*4*	*1*	0	0	22	0	0	0	0	0	0	0	9	*6*	*1*	0	0	0	15	0	0	0	0	0	0	0
Silicon	16	*6*	0	0	0	0	22	0	0	0	0	0	0	0	14	*1*	0	0	0	0	15	0	0	0	0	0	0	0
Silver	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Sodium	14	*8*	0	0	0	0	22	0	0	0	0	0	0	0	8	*7*	*1*	0	0	0	15	0	0	0	0	0	0	0
Strontium	10	*12*	0	0	0	0	22	0	0	0	0	0	0	0	8	*7*	0	0	0	0	15	0	0	0	0	0	0	0
Thallium	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Tin	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Titanium	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Uranium	18	*4*	0	0	0	0	22	0	0	0	0	0	0	0	10	*5*	0	0	0	0	15	0	0	0	0	0	0	0
Vanadium	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0
Zinc	22	0	0	0	0	0	22	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0

Note: Highlighetd cells represent exceedances to applicable percentage thresholds

Appendix C: Dissolved *versus* Total Metal concentration analysis for water samples collected in 2021 - Eagle Gold Project.

Stations	W25							W26							W27							W27D						
Trace Element	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**
Aluminum	4	*1*	*1*	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Antimony	5	0	0	0	0	0	5	8	*2*	0	0	0	0	10	8	*2*	0	0	0	0	10	0	0	0	0	0	0	0
Arsenic	3	*2*	0	0	0	0	5	5	*5*	0	0	0	0	10	6	*4*	0	0	0	0	10	0	0	0	0	0	0	0
Barium	3	*2*	0	0	0	0	5	5	*5*	0	0	0	0	10	7	*3*	0	0	0	0	10	0	0	0	0	0	0	0
Beryllium	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Bismuth	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Boron	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Cadmium	3	*2*	0	0	0	0	5	7	*3*	*1*	0	0	0	10	9	*1*	0	0	0	0	10	0	0	0	0	0	0	0
Calcium	2	*3*	0	0	0	0	5	4	*6*	0	0	0	0	10	2	*8*	0	0	0	0	10	0	0	0	0	0	0	0
Chromium	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Cobalt	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Copper	5	0	0	0	0	0	5	9	*1*	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Iron	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Lead	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Lithium	3	*2*	0	0	0	0	5	5	*5*	0	0	0	0	10	5	*5*	0	0	0	0	10	0	0	0	0	0	0	0
Magnesium	2	*3*	0	0	0	0	5	6	*4*	0	0	0	0	10	5	*5*	0	0	0	0	10	0	0	0	0	0	0	0
Manganese	3	*2*	0	0	0	0	5	9	*1*	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Mercury	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Molybdenum	4	*1*	0	0	0	0	5	8	*2*	0	0	0	0	10	7	*3*	0	0	0	0	10	0	0	0	0	0	0	0
Nickel	2	*3*	*1*	0	0	0	5	10	0	0	0	0	0	10	9	*1*	0	0	0	0	10	0	0	0	0	0	0	0
Phosphorus	0	*5*	*5*	*5*	*5*	*5*	5	0	*10*	*10*	*10*	*8*	*6*	10	2	*8*	*8*	*8*	*8*	*8*	10	0	0	0	0	0	0	0
Potassium	1	*4*	0	0	0	0	5	5	*5*	0	0	0	0	10	6	*4*	*1*	0	0	0	10	0	0	0	0	0	0	0
Selenium	2	*3*	0	0	0	0	5	5	*5*	*3*	0	0	0	10	5	*5*	*1*	0	0	0	10	0	0	0	0	0	0	0
Silicon	5	0	0	0	0	0	5	9	*1*	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Silver	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Sodium	4	*1*	0	0	0	0	5	4	*6*	0	0	0	0	10	6	*4*	0	0	0	0	10	0	0	0	0	0	0	0
Strontium	4	*1*	0	0	0	0	5	5	*5*	0	0	0	0	10	4	*6*	0	0	0	0	10	0	0	0	0	0	0	0
Thallium	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Tin	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Titanium	4	*1*	*1*	*1*	*1*	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Uranium	3	*2*	0	0	0	0	5	8	*2*	0	0	0	0	10	7	*3*	0	0	0	0	10	0	0	0	0	0	0	0
Vanadium	5	0	0	0	0	0	5	10	0	0	0	0	0	10	10	0	0	0	0	0	10	0	0	0	0	0	0	0
Zinc	5	0	0	0	0	0	5	10	0	0	0	0	0	10	9	*1*	0	0	0	0	10	0	0	0	0	0	0	0

Note: Highlighetd cells represent exceedances to applicable percentage thresholds

Appendix C: Dissolved *versus* Total Metal concentration analysis for water samples collected in 2021 - Eagle Gold Project.

Stations	W29							W29D							W30							W31						
Trace Element	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**
Aluminum	18	*1*	*1*	*1*	*1*	*1*	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Antimony	17	*2*	0	0	0	0	19	0	0	0	0	0	0	0	4	*4*	0	0	0	0	8	6	*5*	*1*	0	0	0	11
Arsenic	18	*1*	0	0	0	0	19	0	0	0	0	0	0	0	5	*3*	0	0	0	0	8	11	0	0	0	0	0	11
Barium	15	*4*	0	0	0	0	19	0	0	0	0	0	0	0	3	*5*	0	0	0	0	8	7	*4*	*1*	0	0	0	11
Beryllium	19	0	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Bismuth	19	0	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Boron	19	0	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Cadmium	16	*3*	*1*	0	0	0	19	0	0	0	0	0	0	0	7	*1*	0	0	0	0	8	8	*3*	*2*	*1*	0	0	11
Calcium	10	*9*	0	0	0	0	19	0	0	0	0	0	0	0	2	*6*	0	0	0	0	8	3	*8*	*1*	0	0	0	11
Chromium	19	0	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Cobalt	18	*1*	*1*	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Copper	18	*1*	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Iron	18	*1*	*1*	*1*	*1*	*1*	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Lead	18	*1*	*1*	*1*	*1*	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Lithium	14	*5*	0	0	0	0	19	0	0	0	0	0	0	0	6	*2*	0	0	0	0	8	8	*3*	0	0	0	0	11
Magnesium	11	*8*	0	0	0	0	19	0	0	0	0	0	0	0	3	*5*	0	0	0	0	8	5	*6*	*1*	*1*	0	0	11
Manganese	17	*2*	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Mercury	19	0	0	0	0	0	19	0	0	0	0	0	0	0	7	*1*	0	0	0	0	8	11	0	0	0	0	0	11
Molybdenum	18	*1*	0	0	0	0	19	0	0	0	0	0	0	0	4	*4*	0	0	0	0	8	5	*6*	0	0	0	0	11
Nickel	16	*3*	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Phosphorus	1	*18*	*18*	*18*	*18*	*16*	19	0	0	0	0	0	0	0	0	*8*	*8*	*8*	*7*	*7*	8	0	*11*	*10*	*10*	*10*	*5*	11
Potassium	12	*7*	0	0	0	0	19	0	0	0	0	0	0	0	3	*5*	*1*	0	0	0	8	6	*5*	0	0	0	0	11
Selenium	11	*8*	*1*	0	0	0	19	0	0	0	0	0	0	0	2	*6*	*4*	*1*	0	0	8	3	*8*	*3*	0	0	0	11
Silicon	15	*4*	0	0	0	0	19	0	0	0	0	0	0	0	4	*4*	0	0	0	0	8	6	*5*	0	0	0	0	11
Silver	19	0	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Sodium	14	*5*	0	0	0	0	19	0	0	0	0	0	0	0	4	*4*	0	0	0	0	8	4	*7*	0	0	0	0	11
Strontium	11	*8*	0	0	0	0	19	0	0	0	0	0	0	0	3	*5*	0	0	0	0	8	3	*8*	*1*	0	0	0	11
Thallium	19	0	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Tin	19	0	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Titanium	18	*1*	*1*	*1*	*1*	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11
Uranium	16	*3*	0	0	0	0	19	0	0	0	0	0	0	0	4	*4*	0	0	0	0	8	9	*2*	0	0	0	0	11
Vanadium	19	0	0	0	0	0	19	0	0	0	0	0	0	0	7	*1*	0	0	0	0	8	11	0	0	0	0	0	11
Zinc	18	*1*	0	0	0	0	19	0	0	0	0	0	0	0	8	0	0	0	0	0	8	11	0	0	0	0	0	11

Note: Highlighetd cells represent exceedances to applicable percentage thresholds

Appendix C: Dissolved *versus* Total Metal concentration analysis for water samples collected in 2021 - Eagle Gold Project.

Stations	W39							W39 New							W39 Old							W4						
Trace Element	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**
Aluminum	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Antimony	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	37	*3*	*1*	0	0	0	40
Arsenic	0	0	0	0	0	0	0	3	*1*	0	0	0	0	4	3	0	0	0	0	0	3	38	*2*	0	0	0	0	40
Barium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	2	*1*	0	0	0	0	3	35	*5*	0	0	0	0	40
Beryllium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Bismuth	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Boron	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Cadmium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	36	*4*	0	0	0	0	40
Calcium	0	0	0	0	0	0	0	3	*1*	0	0	0	0	4	2	*1*	0	0	0	0	3	21	*19*	0	0	0	0	40
Chromium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Cobalt	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Copper	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	38	*2*	0	0	0	0	40
Iron	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Lead	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Lithium	0	0	0	0	0	0	0	3	*1*	0	0	0	0	4	2	*1*	0	0	0	0	3	31	*9*	*1*	0	0	0	40
Magnesium	0	0	0	0	0	0	0	3	*1*	0	0	0	0	4	2	*1*	0	0	0	0	3	21	*19*	0	0	0	0	40
Manganese	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	38	*2*	0	0	0	0	40
Mercury	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	37	0	0	0	0	0	37
Molybdenum	0	0	0	0	0	0	0	4	0	0	0	0	0	4	1	*2*	0	0	0	0	3	29	*11*	*1*	0	0	0	40
Nickel	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	38	*2*	0	0	0	0	40
Phosphorus	0	0	0	0	0	0	0	1	*3*	*3*	*2*	*2*	*2*	4	0	*3*	*3*	*3*	*3*	*1*	3	1	*39*	*39*	*39*	*37*	*32*	40
Potassium	0	0	0	0	0	0	0	3	*1*	0	0	0	0	4	1	*2*	0	0	0	0	3	30	*10*	0	0	0	0	40
Selenium	0	0	0	0	0	0	0	3	*1*	0	0	0	0	4	2	*1*	*1*	0	0	0	3	22	*18*	*7*	*1*	0	0	40
Silicon	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	31	*9*	0	0	0	0	40
Silver	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Sodium	0	0	0	0	0	0	0	3	*1*	0	0	0	0	4	1	*2*	0	0	0	0	3	27	*13*	0	0	0	0	40
Strontium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	1	*2*	0	0	0	0	3	26	*14*	0	0	0	0	40
Thallium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Tin	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Titanium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Uranium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	1	*2*	0	0	0	0	3	33	*7*	*1*	0	0	0	40
Vanadium	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	40	0	0	0	0	0	40
Zinc	0	0	0	0	0	0	0	4	0	0	0	0	0	4	3	0	0	0	0	0	3	39	*1*	0	0	0	0	40

Note: Highlighetd cells represent exceedances to applicable percentage thresholds

Appendix C: Dissolved *versus* Total Metal concentration analysis for water samples collected in 2021 - Eagle Gold Project.

Stations	W45							W49							W4-Mix							W5						
Trace Element	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**
Aluminum	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Antimony	12	0	0	0	0	0	12	5	0	0	0	0	0	5	25	*4*	*1*	0	0	0	29	10	*3*	*1*	0	0	0	13
Arsenic	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Barium	9	*3*	0	0	0	0	12	5	0	0	0	0	0	5	22	*7*	0	0	0	0	29	9	*4*	0	0	0	0	13
Beryllium	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Bismuth	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Boron	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Cadmium	9	*3*	*1*	0	0	0	12	5	0	0	0	0	0	5	26	*3*	0	0	0	0	29	8	*5*	*1*	0	0	0	13
Calcium	5	*7*	0	0	0	0	12	3	*2*	0	0	0	0	5	16	*13*	*1*	0	0	0	29	7	*6*	0	0	0	0	13
Chromium	12	0	0	0	0	0	12	5	0	0	0	0	0	5	28	*1*	*1*	*1*	*1*	0	29	13	0	0	0	0	0	13
Cobalt	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	12	*1*	*1*	*1*	0	0	13
Copper	12	0	0	0	0	0	12	5	0	0	0	0	0	5	27	*2*	*1*	0	0	0	29	11	*2*	0	0	0	0	13
Iron	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Lead	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Lithium	7	*5*	0	0	0	0	12	4	*1*	0	0	0	0	5	23	*6*	*1*	0	0	0	29	9	*4*	*1*	*1*	*1*	0	13
Magnesium	7	*5*	*1*	0	0	0	12	1	*4*	0	0	0	0	5	15	*14*	0	0	0	0	29	8	*5*	*1*	*1*	0	0	13
Manganese	11	*1*	0	0	0	0	12	5	0	0	0	0	0	5	28	*1*	0	0	0	0	29	11	*2*	*1*	*1*	*1*	*1*	13
Mercury	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Molybdenum	10	*2*	0	0	0	0	12	4	*1*	0	0	0	0	5	13	*16*	*1*	0	0	0	29	10	*3*	0	0	0	0	13
Nickel	11	*1*	0	0	0	0	12	5	0	0	0	0	0	5	25	*4*	*1*	0	0	0	29	11	*2*	*1*	*1*	*1*	0	13
Phosphorus	2	*10*	*10*	*10*	*10*	*9*	12	0	*5*	*5*	*4*	*4*	*3*	5	2	*27*	*27*	*26*	*26*	*22*	29	1	*12*	*12*	*12*	*12*	*11*	13
Potassium	8	*4*	*1*	0	0	0	12	3	*2*	0	0	0	0	5	16	*13*	0	0	0	0	29	8	*5*	0	0	0	0	13
Selenium	8	*4*	0	0	0	0	12	3	*2*	0	0	0	0	5	13	*16*	*3*	*1*	0	0	29	7	*6*	*3*	0	0	0	13
Silicon	11	*1*	0	0	0	0	12	5	0	0	0	0	0	5	21	*8*	0	0	0	0	29	12	*1*	0	0	0	0	13
Silver	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Sodium	4	*8*	0	0	0	0	12	2	*3*	0	0	0	0	5	18	*11*	*1*	0	0	0	29	9	*4*	0	0	0	0	13
Strontium	7	*5*	0	0	0	0	12	3	*2*	0	0	0	0	5	19	*10*	*1*	0	0	0	29	8	*5*	0	0	0	0	13
Thallium	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Tin	12	0	0	0	0	0	12	4	*1*	*1*	*1*	*1*	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Titanium	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Uranium	8	*4*	0	0	0	0	12	5	0	0	0	0	0	5	21	*8*	*1*	0	0	0	29	9	*4*	*1*	0	0	0	13
Vanadium	12	0	0	0	0	0	12	5	0	0	0	0	0	5	29	0	0	0	0	0	29	13	0	0	0	0	0	13
Zinc	12	0	0	0	0	0	12	5	0	0	0	0	0	5	28	*1*	0	0	0	0	29	12	*1*	*1*	*1*	*1*	0	13

Note: Highlighetd cells represent exceedances to applicable percentage thresholds

Appendix C: Dissolved *versus* Total Metal concentration analysis for water samples collected in 2021 - Eagle Gold Project.

Stations	W51							W6							W61							W9							W99						
Trace Element	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**	**< 100 %**	**> 100 %**	**> 120 %**	**> 150 %**	**> 200 %**	**> 500 %**	**N**
Aluminum	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Antimony	9	*2*	0	0	0	0	11	12	*1*	0	0	0	0	13	9	*1*	0	0	0	0	10	11	*1*	0	0	0	0	12	13	*5*	*1*	*1*	*1*	0	18
Arsenic	8	*3*	0	0	0	0	11	9	*4*	*1*	*1*	0	0	13	9	*1*	0	0	0	0	10	12	0	0	0	0	0	12	17	*1*	*1*	*1*	*1*	0	18
Barium	5	*6*	0	0	0	0	11	6	*7*	*1*	0	0	0	13	9	*1*	0	0	0	0	10	9	*3*	0	0	0	0	12	14	*4*	*1*	*1*	*1*	0	18
Beryllium	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Bismuth	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Boron	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Cadmium	10	*1*	0	0	0	0	11	9	*4*	*4*	*1*	0	0	13	10	0	0	0	0	0	10	11	*1*	*1*	0	0	0	12	14	*4*	*3*	*1*	*1*	0	18
Calcium	3	*8*	0	0	0	0	11	5	*8*	0	0	0	0	13	6	*4*	0	0	0	0	10	7	*5*	0	0	0	0	12	10	*8*	*1*	*1*	*1*	0	18
Chromium	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Cobalt	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	17	*1*	*1*	*1*	0	0	18
Copper	11	0	0	0	0	0	11	10	*3*	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Iron	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Lead	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Lithium	8	*3*	0	0	0	0	11	10	*3*	0	0	0	0	13	8	*2*	0	0	0	0	10	8	*4*	0	0	0	0	12	10	*8*	*1*	*1*	*1*	0	18
Magnesium	5	*6*	0	0	0	0	11	7	*6*	0	0	0	0	13	5	*5*	0	0	0	0	10	6	*6*	0	0	0	0	12	9	*9*	*1*	*1*	*1*	0	18
Manganese	11	0	0	0	0	0	11	12	*1*	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	15	*3*	*1*	*1*	*1*	0	18
Mercury	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Molybdenum	5	*6*	0	0	0	0	11	7	*6*	*1*	*1*	*1*	0	13	6	*4*	0	0	0	0	10	7	*5*	0	0	0	0	12	16	*2*	*2*	*2*	*1*	0	18
Nickel	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	13	*5*	*1*	*1*	0	0	18
Phosphorus	0	*11*	*11*	*11*	*11*	*9*	11	1	*12*	*12*	*12*	*12*	*11*	13	4	*6*	*5*	*4*	*3*	*1*	10	3	*9*	*9*	*9*	*9*	*6*	12	1	*17*	*17*	*17*	*16*	*14*	18
Potassium	4	*7*	0	0	0	0	11	4	*9*	0	0	0	0	13	8	*2*	0	0	0	0	10	9	*3*	0	0	0	0	12	8	*10*	*1*	*1*	*1*	0	18
Selenium	4	*7*	*1*	0	0	0	11	7	*6*	*1*	*1*	*1*	0	13	6	*4*	0	0	0	0	10	3	*9*	*2*	0	0	0	12	9	*9*	*5*	*2*	*1*	0	18
Silicon	7	*4*	0	0	0	0	11	12	*1*	0	0	0	0	13	9	*1*	0	0	0	0	10	11	*1*	0	0	0	0	12	13	*5*	*1*	*1*	*1*	0	18
Silver	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Sodium	2	*9*	0	0	0	0	11	7	*6*	*1*	0	0	0	13	6	*4*	0	0	0	0	10	5	*7*	0	0	0	0	12	10	*8*	*1*	*1*	*1*	0	18
Strontium	4	*7*	0	0	0	0	11	3	*10*	0	0	0	0	13	5	*5*	0	0	0	0	10	6	*6*	0	0	0	0	12	6	*12*	*1*	*1*	*1*	0	18
Thallium	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Tin	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Titanium	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Uranium	10	*1*	0	0	0	0	11	9	*4*	0	0	0	0	13	8	*2*	0	0	0	0	10	8	*4*	0	0	0	0	12	11	*7*	*1*	*1*	*1*	0	18
Vanadium	11	0	0	0	0	0	11	13	0	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	18	0	0	0	0	0	18
Zinc	11	0	0	0	0	0	11	12	*1*	0	0	0	0	13	10	0	0	0	0	0	10	12	0	0	0	0	0	12	16	*2*	*1*	0	0	0	18

Note: Highlighetd cells represent exceedances to applicable percentage thresholds

APPENDIX E

Eagle Gold Project - 2021 Water Balance and Water Quality Model Update Report

VICTORIA GOLD CORP



Eagle Gold Project

2021 Water Balance and Water Quality Model Update Report

WBM v.7.0.3

Project No. A610-1
31 March 2022

Prepared by:
Lorax Environmental Services Ltd.
Vancouver, BC

LORAX ENVIRONMENTAL

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VICTORIA
GOLD CORP

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1. Introduction

VICTORIA
GOLD CORP

1. Introduction

1.1 Project Description

Victoria Gold Corp's (VGC) Eagle Gold Mine is located in the Central Yukon Territory, approximately 350 km north of Whitehorse and approximately 45 km north of Mayo. Much of the mine site lies within the Dublin Gulch watershed, a tributary that reports to Haggart Creek, and which then flows to the South McQuesten River. The South McQuesten River joins the Stewart River, which flows west to its eventual confluence with the Yukon River.

A Type A Water Use License (QZ14-041) was issued for the Eagle Gold Project on December 3rd, 2015, to allow the construction, operation, and closure of the open pit heap leach gold mine in central Yukon. Following several updates to key water management features, heap leach facility construction and waste rock storage facility design an amended Water Use License (QZ14-041-1) was issued to VGC on August 22, 2019.

The Eagle Gold Mine water balance and water quality model (WBWQM) has been updated to reflect the most recent baseline information, on-site hydrological and water quality monitoring, heap leach water balance modeling and updated geochemical source term modeling.

1.2 Scope of Report

The Eagle Gold WBWQM is a GoldSim-based integrated water balance and quality model. This report presents the most recent update of the Eagle Gold water balance model and water quality model (WBWQM) that fully integrates the following:

- Description of the water management plan as described in: *Eagle Gold Project Water Management Plan*. Version 2020-01. January 2020;
- Revisions to the heap leach facility water balance modeling as prepared by Forte Dynamics;
- Baseline climate and hydrology data collected since 2007 and inclusive of data collected in 2021;
- Baseline surface water quality monitoring data collected from 2007 to 2017 prior to initiation of construction in August 2017;
- Surface water quality monitoring data collected in 2018 through 2021 reflective of construction and early Operations phases;
- Site hydrological monitoring data for ditches and collection ponds through 2021; and,

- Updated geochemical source term data collected from re-designed and revised field bins of waste rock and unsaturated laboratory-based kinetic leach columns. Data from the updated kinetic testing have been used to update geochemical source terms employed in the WBWQM as well as site monitoring data from waste rock seepage.

Following this introduction, Section 2 presents the updated input parameters and assumptions used to update the water balance and water quality models. Section 3 presents a summary of the water quality model results and Section 4 provides a summary of the results for water quantity.

2. Model Inputs and Assumptions

VICTORIA
GOLD CORP

2. Model Inputs and Assumptions

2.1 Water Balance Model Inputs and Assumptions

2.1.1 Hydro-meteorological Updates

Collection of climate and streamflow data at the Project site has been continuous since 2007. This update report includes additional hydrometric data collected in 2021 since the previous annual report, the results for which are presented in the climate and hydrology data summary reports (Lorax 2022a and 2022b), along with additional analysis in the updated hydrometeorology report (Lorax 2021c). In previous iterations of the WBM, the annual runoff at the W4 hydrometric station was assumed to represent the effective precipitation at the Project site and formed the primary driver of the WBM. The model inputs were updated in 2018 to reflect slight changes in estimated runoff values that resulted from additional streamflow and climate data collected since the initial WBM (Knight Piésold, 2014) was submitted in support of a Water Use Licence application in 2014.

The changes made in 2018 from the initial estimates made by Knight Piesold in 2014 relevant to the WBM parameterization were as follows:

- Mean annual precipitation (MAP) at the 1,125 m elevation decreased by 4%, from 500 mm to 480 mm;
- Mean annual runoff (MAR) for the W4 hydrometric station increased by 9% from 230 mm to 253 mm; and
- The monthly distribution of annual runoff used to distribute the MAR value for W4 changed slightly, as outlined in Table 2.1-2.

For the 2021 WBM update, all assumptions and methods related to the derivation of the synthetic climate dataset were consistent with those described in Lorax (2017a), with two exceptions:

- The synthetic record was updated to include 2021 based on the Mayo A climate record; and
- The precipitation gradients were updated to reflect the additional climate and snow survey data collected at the Project site. The daily time-series of climate parameters is scaled by elevation for temperature on a monthly basis (Table 2.1-1), and for precipitation on a seasonal basis, as follows:
    - Winter – 11%/100 m

- October to March < 1,000 m
- October to April > 1,000 m

- Summer – 4%/100 m
  - April to September < 1,000 m
  - May to October > 1,000 m

Since the 2018 WBM updates, given that monitoring data is now available with which to characterize the Projects' water management regime, and potential changes to streamflows in Haggart Creek, the WBM shifted from a runoff-based WBM to a watershed model architecture, driven by a climate time-series input. The WBM is configured to include all relevant Project infrastructure, including the HLF, open pit, WRSAs, 90-day ore stockpiles, and water management infrastructure (*e.g.*, sediment ponds, collection ditches, event pond, *etc*.). Within the Base Case module of the WBM, each mine component is spatially defined by year of the Project life, which allows the footprints (sub-catchments) and /or volumes of each component to expand as the mine development progresses. Each sub-catchment represents a single land cover type (*e.g.*, WRSA, open pit, natural ground, *etc*.)

Table 2.1-1:
Air temperature lapse rates by month estimated from Camp and Potato Hills station records

Lapse Rate (°C/100 m)			
Month	**Max_T**	**Min_T**	**Avg_T**
Jan	0.5	1.2	0.9
Feb	-0.2	0.9	0.4
Mar	-0.7	0.6	-0.1
Apr	-0.7	0	-0.5
May	-0.8	0.5	-0.2
Jun	-0.1	0.2	-0.2
Jul	-0.3	0.2	-0.2
Aug	-0.3	0.1	0
Sep	0.7	-0.4	-0.2
Oct	-0.6	0	-0.3
Nov	0.2	0.8	0.5
Dec	0.5	0.9	0.6

The climate inputs are comprised of daily temperature and precipitation data which are used to drive the WBM, with meteoric water being converted to runoff using assumptions

and coefficients specific to the land surface type represented in each sub-catchment. All sub-catchments are assembled in hierarchical order, with runoff tracked and aggregated across the Project site and downstream into the receiving environment. The climate input series is based on the Mayo A record, adjusted according to relationships developed between the Mayo A and site climate records as measured at the Camp and Potato Hills stations (Lorax 2017).

The previous average runoff inputs were replaced with the daily climate series from a representative average year (2016) to drive the WBM. Mean annual precipitation (MAP) at the Camp station elevation (782 m) is 360 mm, and total annual precipitation in 2016 was 364 mm (Figure 2.1-1). There is a total of 10 years within the 72-year synthetic climate record that fall within 2% of the MAP value, however 2016 was chosen as it falls within the site baseline monitoring period, and extensive climate, snowpack and streamflow data are available for 2016 with which to benchmark the model performance.

Monthly summaries of the synthetic climate series parameters are presented for the three representative elevations that bound the Project site in Table 2.1-2.

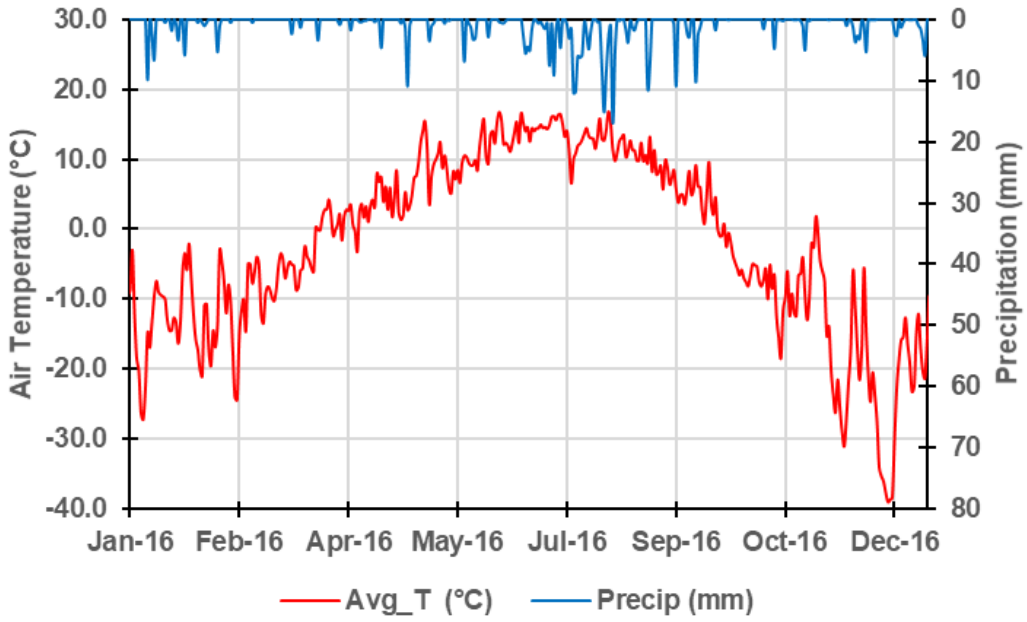


Figure 2.1-1: Daily temperature and precipitation from the Camp Station elevation (782 m) for the representative average year (2016) used as WBM input.

Table 2.1-2:
Monthly climate parameters input to the WBM by representative elevation

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
	Camp Station (782 m)												
Max_T (°C)	-19.4	-13.9	-6.0	4.1	12.2	17.9	18.7	16.1	9.3	-0.8	-12.6	-17.0	18.7
Min_T (°C)	-27.2	-22.9	-18.0	-8.6	-2.1	4.5	7.4	4.1	-1.1	-7.7	-20.0	-25.2	-27.2
Avg_T (°C)	-23.3	-18.4	-12.0	-2.2	5.1	11.2	13.0	10.1	4.1	-4.2	-16.3	-21.1	-4.5
Precipitation (mm)	25.4	18.7	12.6	8.9	23.5	45.7	59.5	50.7	39.8	35.1	31.3	28.0	379.2
PE (mm)	0.1	0.1	7.8	42.3	104.5	113.4	105.2	79.6	37.9	10.1	0.4	0.1	501.4
	HLF Elevation (1,125 m)												
Max_T (°C)	-17.7	-14.4	-8.4	1.5	9.4	17.7	17.7	15.1	11.6	-2.8	-12.0	-15.5	17.7
Min_T (°C)	-23.0	-19.6	-15.9	-8.7	-0.6	5.1	8.0	4.2	-2.5	-7.5	-17.1	-22.2	-23.0
Avg_T (°C)	-20.3	-16.8	-12.3	-3.9	4.3	10.3	12.3	10.0	3.4	-5.3	-14.6	-19.0	-4.3
Precipitation (mm)	36.3	26.7	18.0	12.8	26.9	52.2	68.0	58.0	45.5	50.2	44.8	40.1	479.6
PE (mm)	0.0	0.8	8.3	36.8	84.8	108.8	102.3	78.9	44.9	9.4	0.7	0.0	475.6
	Potato Hills (1,420 m)												
Max_T (°C)	-15.6	-14.2	-9.6	-0.6	7.2	17.6	17.0	14.2	13.6	-4.2	-11.1	-13.8	17.6
Min_T (°C)	-19.8	-18.5	-15.8	-8.8	0.6	5.7	8.3	4.4	-3.7	-8.2	-15.4	-19.7	-19.8
Avg_T (°C)	-17.7	-16.3	-12.7	-4.7	3.9	11.6	12.6	9.3	5.0	-6.2	-13.2	-16.8	-3.8
Precipitation (mm)	49.4	36.4	24.5	17.4	30.2	58.6	76.4	65.1	51.1	68.3	60.9	54.5	592.9
PE (mm)	0.4	1.3	7.4	29.6	70.2	102.9	98.2	69.1	63.9	7.1	0.8	0.1	451.1

2.1.1.1 2021 Climate and Streamflow Conditions

2021 was representative of a slightly above average water year (*i.e.*, 20% higher than average) based upon measured runoff at the W4 hydrometric station in Haggart Creek, and the Potato Hills precipitation record for the April to September period. This is reflected in both the mine water management practices as well as the model validation exercise described in Sections 2.1.5 and 2.2.4. This section summarizes the climate and streamflow conditions measured at the Project site for the 2021 water year. Data from the Camp climate station (782 m), and the Potato Hills climate station (1,420 m) are presented alongside data from a nearby climate station in Mayo (504 m) for reference, and site snow course data are compared to nearby regional snow course data. All comparisons to regional climate records are made to the 1991-2019 average, to better represent the dominant climatic conditions of the past 30-years. The full historical climate and streamflow records for the Project site are presented in Lorax (2022a and 2022b). Streamflow data from Project site hydrometric stations are presented and compared to the baseline reference period (2007-2017). Overall, the 2021 water year (October 2020 to September 2021) was characterized by slightly cooler

winter and spring air temperatures than normal and slightly higher summer air temperatures. A slightly lower than average peak spring snowpack (~10-15% lower than normal) was followed by higher-than-average summer rainfall in May through September, leading to elevated streamflows across the Project site throughout the open water season.

At the regional scale, annual average air temperature at the Mayo A climate station (-3.2 °C) was slightly cooler than the 1991-2019 annual average (-2.2 °C; Table 2.1-3). In general, the late-winter and early-spring months were cooler than average, and the summer months were warmer than average (Table 2.1-3).

Table 2.1-3:
Monthly air temperature comparison for Mayo A station – normal vs. 2019-2020 water year. Warmer and colder values relative to normal are highlighted in orange and blue, respectively.

Year	Month	Mayo A (2020-2021)			Mayo A - Averages		
		Min_T (°C)	Avg_T (°C)	Max_T (°C)	Min_T (°C)	Avg_T (°C)	Max_T (°C)
2020	Oct	-9.0	-5.1	-1.3	-6.2	-2.2	1.7
2020	Nov	-24.8	-19.5	-14.3	-19.5	-15.2	-10.9
2020	Dec	-22.0	-17.7	-13.3	-24.9	-19.7	-14.5
2021	Jan	-20.6	-15.6	-10.4	-27.8	-22.8	-17.8
2021	Feb	-32.0	-25.6	-19.1	-23.7	-17.5	-11.4
2021	Mar	-21.1	-13.8	-6.4	-16.9	-10.0	-3.0
2021	Apr	-10.6	-3.2	4.3	-5.0	1.1	7.5
2021	May	2.7	8.3	14.0	2.4	9.2	15.9
2021	Jun	9.8	16.3	22.8	7.9	14.8	21.6
2021	Jul	9.9	16.8	23.7	9.6	16.1	22.6
2021	Aug	8.3	13.8	19.1	7.1	13.3	19.4
2021	Sep	1.8	6.6	11.3	1.3	6.9	12.5
	Annual	**-9.0**	**-3.2**	**2.5**	**-8.0**	**-2.2**	**3.6**

The 2021 water year was characterized by lower than the 1991-2019 average maximum snow water equivalents (SWE) at snow courses located near the Project site:

- Mayo A - 2021 was 6% lower (98 mm) than the 1991-2019 average of 100 mm.
- Calumet – 2021 was 10% lower (184 mm) than the 1991-2019 average of 205 mm.

A similar pattern was evident at the Project site snow courses, with the maximum annual measured SWE slightly lower than the historical average for the Camp and Potato Hills snow courses (Table 2.1-4). The synthetic precipitation data for these stations that was scaled from the Mayo A winter precipitation data was slightly higher than the historical average for the Camp station, and lower for the Potato Hills station. These comparisons

confirm that the scalars used to estimate winter precipitation at the Project site can accurately represent unusually high precipitation years and do not require updating.

Table 2.1-4:
Comparison of annual maximum snow water equivalent values for the Camp and Potato Hills stations.

Year	Camp (782 m)			Potato Hills (1,420 m)		
	Measured	Measured + 20% Sublimation	Synthetic	Measured	Measured + 20% Sublimation	Synthetic
	Annual Maximum SWE (mm)					
2010	99	119	122	405	486	325
2011	93	112	166	251	301	238
2012	161	193	217	262	314	217
2013	108	130	179	190	228	383
2014	100	120	158	275	330	325
2015	110	132	145	N/A	N/A	161
2016	140	168	180	257	308	361
2017	117	140	110	244	293	280
2018	109	131	127	219	263	385
2019	72	86	68	200	240	446
2020	199	239	222	431	517	451
2021	113	136	166	237	284	322
Average	**126**	**151**	**155**	**285**	**343**	**325**

The lower-than-normal snowpack was followed by a wet summer in 2021, with the sixth highest May-September total precipitation on record at the Mayo climate station, placing it in the 90th percentile. Overall, the 2021 water year received 4% less precipitation than the 1991-2019 average (Table 2.1-5).

The maximum 24-hour rainfall totals recorded at the Project site in 2021 were 66.9 mm on July 25, 2021 at the Camp station and 30.5 mm on August 10, 2021 at the Potato Hills station. The maximum 24-hour rainfall totals recorded at the Project site in 2021 were 66.9 mm on July 25, 2021, at the Camp station and 30.5 mm on August 10, 2021, at the Potato Hills station. While Potato Hills is located at a much higher elevation (1,420 m) than the Camp climate station (782 m), and typically, rainfall is enhanced due to orographic gradients, the relatively low value at the higher elevation suggests that the rainfall event was highly localized and/or that some of the high-magnitude rainfall events result in the distribution of rainfall depths that don't correspond to the long-term pattern.

The precipitation received by the Project site over the course of the 2021 water year resulted in slightly below average to slightly higher than average observed streamflows across the monitored stations (Figure 2.1-2). While the Camp climate station recorded much higher-than-average rainfall in late-July through mid-September (Lorax, 2022), the Potato Hills

rainfall amounts were lower over the same period. While periodic peak flow events were recorded during this period (Figure 2.1-2), these events did not reflect the high-magnitude rainfall measured at the Camp station, suggesting that these were highly localized convective events that did not appreciably contribute to elevated streamflows. Modelled annual runoff was -18% to -39% lower than that modelled for 2020, which was an unusually wet year (Table 2.1-6; Lorax 2022b).

Table 2.1-5:
Monthly precipitation comparison for
Mayo A station – normal vs. 2020-2021 water year.

Year	Month	Mayo A (2020-2021)	Mayo A - Average	Mayo A - Percent of Average
		Precipitation (mm)		
2020	Oct	35.9	24.9	44%
2020	Nov	25.9	22.6	15%
2020	Dec	18.7	20.1	-7%
2021	Jan	11.1	18.2	-39%
2021	Feb	11.4	11.9	-4%
2021	Mar	14.6	10.5	39%
2021	Apr	7.8	8.7	-10%
2021	May	28.9	21.9	32%
2021	Jun	14.2	42.2	-66%
2021	Jul	34.1	54.7	-38%
2021	Aug	63.7	52.6	21%
2021	Sep	47	39.3	20%
Annual		**313.3**	**327.6**	**-4%**

The precipitation received by the Project site over the course of the 2021 water year resulted in slightly below average to slightly higher than average observed streamflows across the monitored stations (Figure 2.1-2). While the Camp climate station recorded much higher-than-average rainfall in late-July through mid-September (Lorax, 2022), the Potato Hills rainfall amounts were lower over the same period. While periodic peak flow events were recorded during this period (Figure 2.1-2), these events did not reflect the high-magnitude rainfall measured at the Camp station, suggesting that these were highly localized convective events that did not appreciably contribute to elevated streamflows. Modelled annual runoff was -18% to -39% lower than that modelled for 2020, which was an unusually wet year (Table 2.1-6; Lorax 2022b).

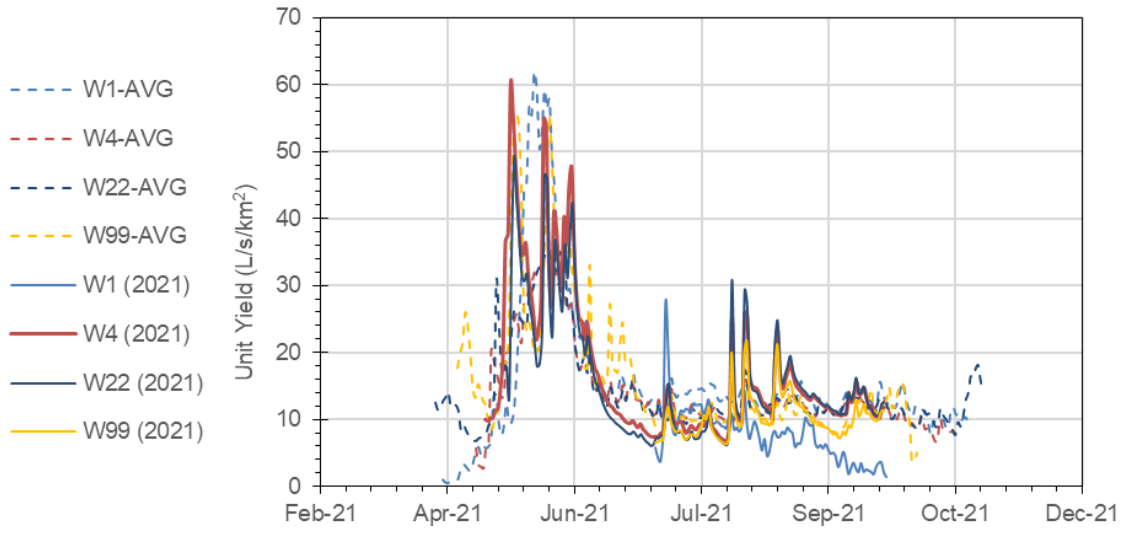


Figure 2.1-2: Period of record daily average yields for key hydrometric stations compared to 2021 data.

Table 2.1-6:
Comparison of 2020 and 2021 modelled runoff for Project site catchments.

Basin	Median Basin Elevation (m)	Area (km^2)	2020 Annual Runoff (mm)	2021 Annual Runoff (mm)	% Change MAR From 2020 WBM
Upper Dublin Gulch (W1)	1,303	6.8	415	341	-18%
Haggart Ck u/s Dublin Gulch (W22)	1,113	66.8	409	282	-31%
Haggart Ck d/s Dublin Gulch (W4)	1,125	76.9	405	285	-30%
Lynx Ck u/s Haggart Ck (W6)	1,049	100.9	383	234	-39%

2.1.2 Site-wide WBM Approach and Assumptions

This section presents the inputs and assumptions employed in the assembly, calibration and running of the site wide WBM. At a high-level, the WBM produces outputs of daily discharge values for Project site stations based on the currently licensed mine plan and water management activities associated with the Project. To capture the highly dynamic nature of streamflows and water management activities at the Project site, the WBM is run on a daily time-step and flow outputs from the WBM are output at a monthly time-step.

The watershed model architecture is driven by a daily climate time-series input. The WBM is configured to include all relevant Project infrastructure, including the HLF, open pit, WRSAs, 90-day ore stockpiles, and water management infrastructure (*e.g.*, sediment ponds, collection ditches, events pond, *etc*.). Within the Base Case module of the WBM, each mine component is spatially defined by year of the Project life, which allows the footprints (sub-catchments) and /or volumes of each component to expand as the mine

development progresses. Each sub-catchment represents a single land cover type (*e.g.*, WRSA, open pit, natural ground, *etc*.). The natural catchment runoff module of the WBM generates estimates of streamflow from climate data using a watershed modeling approach. The architecture of the watershed model is predicated on the concept that streamflow is comprised of three components: quickflow, interflow and baseflow (Maidment, 1993). The natural catchment WBM was assembled using three reservoirs to represent these components (Section 2.1.4), and the factors governing the rates at which these reservoirs fill via precipitation and snowmelt were varied by basin and/or mine component type (*e.g.*, natural ground, WRSAs, open pit). This foundational WBM architecture is used consistently within each natural watershed of mine sub-watershed to convert meteoric water into runoff based on sub-watersheds characteristics (*e.g.*, elevation, surface type, water management infrastructure). The delineation of mine area sub-catchments is covered in detail in Section 2.1.4.

Modelled flows for each sub-catchment are routed to the next downstream node depending on water management practices or natural catchment topography, as applicable. This allows the predicted flows to be derived for any sub-watershed in the WBM or aggregated and reported for a collection point of interest (*e.g.*, sediment collection pond discharge, or receiving environment node). This approach also allows concentrations and loads of water quality parameter to be tracked for each sub-catchment and mine component and balanced at each successive downstream node.

All mine facilities are assumed to be developed according to the development schedules and timelines set out in Sections 2.1.3 and 2.1.8. The HLF water balance model described in Forte (2021) forms a sub-component of the site-wide water balance model, and the climate data inputs and assumptions are consistent between the two models to ensure discrepancies are not introduced by differing architecture or inputs. Integration of the HLF WBM outputs is described in further detail in Section 2.1.6.

2.1.3 Mine Area Catchment Delineation

To generate predictions of water volume from a climate driven watershed model, effective precipitation and evapotranspiration depths must be multiplied by drainage area at each time-step. This required the delineation of all mine affected and adjacent natural catchment areas, for each year of mine life.

Annual areas for all sub-catchments are presented for natural areas (Table 2.1-7), open pits (Table 2.1-8), WRSAs (Table 2.1-9), other mine infrastructure (Table 2.1-10), and the HLF (Table 2.1-11). Hypsometric curves were calculated for each catchment and used to determine the median elevation within each basin/sub-catchment, which formed the elevation target for orographic scaling of the climate inputs.

Table 2.1-7:
Non-contact catchment areas by year (all areas in hectares)

Catchment	N1 Ann Gulch	N2 Camp	N3 Above Camp	N4 Suttles Gulch	N5 Eagle Pup	N6 Stewart Gulch	N7 Lynx Creek	N8 Platinum Gulch	Platinum Gulch N9 above Road	N10 (W22)	N11 Gil Gulch +	N12 W5 Incremental	N13 Upper Dublin W1
Comment	W1	Eagle Creek D/S camp and U/S W45. Diverted by road ditch and culvert	Runoff to LDSP	W10	W9 Eagle Creek	W26	W6	Platinum Gulch, Toe of Max WR dump	Platinum Gulch D/S of Ditch A to Haggart Ck.	W22	West runoff, D/S W21/22 conf., U/SW29	W5	W1
Baseline	128.7	53.4	70.2	71.3	154.4	141.6	10,156.2	102.0	35.8	6,644.3	423.5	1,150.9	684.7
2019	111.8	53.4	70.2	58.2	154.4	141.6	10,156.2	88.8	35.8	6,644.3	423.5	1,150.9	684.7
2020	107.6	53.4	70.2	50.3	147.4	141.6	10,156.2	60.4	35.8	6,644.3	423.5	1,150.9	684.7
2021	94.6	53.4	70.2	47.3	144.6	141.6	10,156.2	48.3	35.8	6,644.3	423.5	1,150.9	684.7
2022	94.6	53.4	69.9	44.0	124.1	141.6	10,156.2	45.3	35.8	6,644.3	423.5	1,150.9	684.7
2023	94.6	53.4	68.5	40.5	103.0	141.6	10,156.2	39.5	35.8	6,644.3	423.5	1,150.9	684.7
2024	94.6	53.4	68.5	39.4	92.8	141.6	10,156.2	36.8	35.8	6,644.3	423.5	1,150.9	683.4
2025	74.1	53.4	68.5	38.0	81.3	141.6	10,156.2	36.8	35.8	6,644.3	423.5	1,150.9	683.4
2026	74.1	53.4	67.7	37.1	74.1	140.0	10,156.2	36.7	35.8	6,644.3	423.5	1,150.9	683.4
2027	74.1	53.4	67.7	37.1	74.1	140.0	10,156.2	36.7	35.8	6,644.3	423.5	1,150.9	683.4

Table 2.1-8:
Open pit catchment areas by year (all areas in hectares)

Catchment	N3 Pit	N4 Pit	N5 Pit	N8 Pit	Pit Total
Baseline	0.0	0.0	0.0	0.0	0.0
2019	0.0	8.0	0.0	5.2	13.2
2020	0.0	16.0	7.0	11.1	34.1
2021	0.0	19.0	9.9	15.6	44.4
2022	0.3	21.7	11.5	18.6	52.1
2023	1.7	22.1	13.3	24.4	61.5
2024	1.7	22.1	13.3	27.1	64.2
2025	1.7	22.1	13.3	27.1	64.2
2026	2.5	22.1	13.3	27.2	65.2
2027	2.5	22.1	13.3	27.2	65.2

Table 2.1-9:
WRSA catchment areas by year (all areas in hectares)

Catchment	N5 Eagle Pup WR
Baseline	0.0
2019	0.0
2020	0.0
2021	0.0
2022	19.5
2023	41.9
2024	53.1
2025	65.9
2026	77.2
2027	77.2

Table 2.1-10:
Mine infrastructure catchment areas by year (all areas in hectares)

Catchment	N1 HLF Infrastructure	N4 Crusher	N4 ROM	Camp (In N2)	LDSP (In N3)	LFT and Substation (In N3)
Baseline	16.9	13.9	0.0	9.8	3.7	4.3
2019	16.9	13.9	5.1	9.8	3.7	4.3
2020	16.9	13.9	5.1	9.8	3.7	4.3
2021	16.9	13.9	5.1	9.8	3.7	4.3
2022	16.9	13.9	5.1	9.8	3.7	4.3
2023	16.9	13.9	5.1	9.8	3.7	4.3
2024	16.9	13.9	5.1	9.8	3.7	4.3
2025	16.9	13.9	5.1	9.8	3.7	4.3
2026	16.9	13.9	5.1	9.8	3.7	4.3
2027	16.9	13.9	5.1	9.8	3.7	4.3

Table 2.1-11:
HLF catchment areas by year (all areas in hectares)

Catchment	HLF Total
Baseline	0.0
2019	0.0
2020	20.5
2021	20.5
2022	20.5
2023	20.5
2024	51.6
2025	51.6
2026	51.6
2027	51.6

Figure 2.1-3 illustrates the catchment delineation for mine Y3 (2021) and Figure 2.1-4 illustrates the catchment delineation for end of mine period Y9 (2027).

460000

7100000

N

N10
N1
N13
N6
N4
N11
N2
N3
N5
N8
N9
N12
N7

HLF
LDSP
Camp
Truckshop
ROM
Crusher
Pit
Platinum WRSA

Dublin Gulch
Eagle Pup
Platinum Gulch
Haggart Creek

460000

LEGEND

- Waste Rock Storage Area
- Pit
- Heap Leach Facility
- Site Facility
- Model Catchment
- Water Course
- Contour (100m)
- Contour (50m)

NOTES
Base data source:

STATUS
FOR INTERNAL USE ONLY

EAGLE GOLD PROJECT
YUKON TERRITORY

2021 (Year 3) Site Layout

PROJECTION	DATUM	CLIENT
Transverse Mercator UTM Zone 8	NAD83	VICTORIA GOLD CORP TSX | VGCX

Scale: 1:25,000
200 100 0 200
Metres

FILE NO.

LORAX ENVIRONMENTAL

PROJECT	DWN	CKD	APVD	REV
Eagle Gold	AL	SJ	DHF	1

OFFICE

DATE
March 15, 2022

Figure 2.1-3

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460000

7100000

N

N10

N1

HLF

N13

Dublin Gulch

Eagle Pup

N5

N6

LDSP

Camp

N4

Eagle
WRSA

N11

N2

Truckshop

ROM

Crusher

N3

Platinum Gulch

N8

Pit

N9

Haggart Creek

Platinum
WRSA

N12

N7

460000

LEGEND

- Waste Rock Storage Area
- Pit
- Heap Leach Facility
- Site Facility
- Model Catchment
- Water Course
- Contour (100m)
- Contour (50m)

NOTES
Base data source:

STATUS
FOR INTERNAL USE ONLY

EAGLE GOLD PROJECT
YUKON TERRITORY

2027 (Year 9) Site Layout

PROJECTION	DATUM	CLIENT
Transverse Mercator UTM Zone 8	NAD83	Victoria Gold Corp

Scale: 1:25,000
400 200 0
Metres

FILE NO.

PROJECT	DWN	CKD	APVD	REV
Eagle Gold	AL	SJ	DHF	1

OFFICE	DATE
	March 31, 2022

Lorax Environmental

Figure 2.1-4

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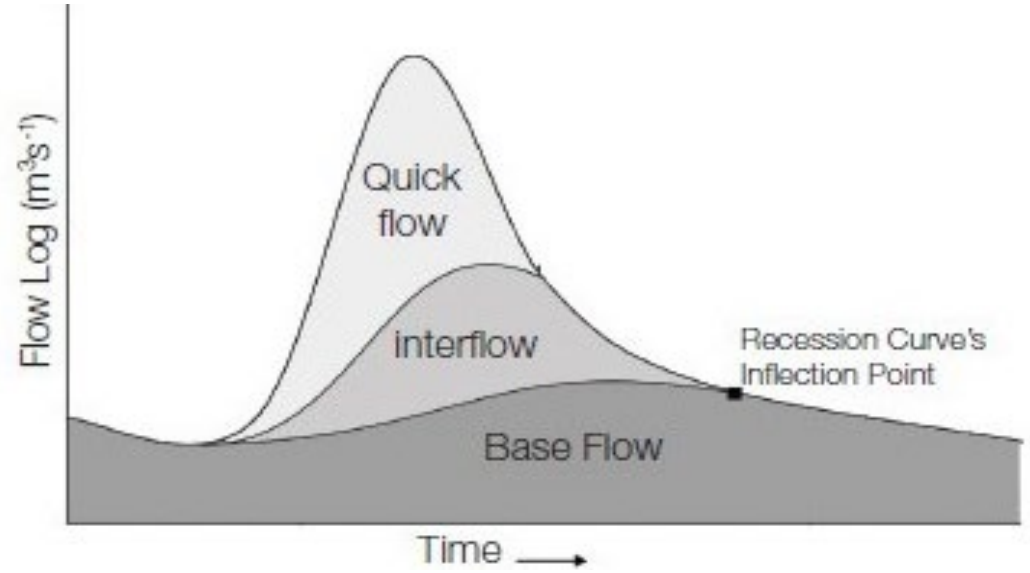
2.1.4 Natural Catchment Watershed Model

A customized site-wide water balance model was constructed in the GoldSim modeling environment to allow the Project site streamflow regime to be accurately replicated. The streamflow regime at the Project site is highly variable, with multiple peak flow events common place throughout the year, driven by an initial freshet and following convective rainfall events in the summer. Significant volumes of water can report to local tributaries in the span of 2 days yet may subsequently be followed by prolonged dry periods where surface flows diminish to the point where groundwater discharge is the main driver of streamflow.

As the open water season progresses, active layer melt above the permafrost contributes increasing amounts of discharge to local creeks, which is expressed as an increasing low flow signature throughout the summer. Finally, during winter, when average winter temperatures fall well below zero, surface flow in small catchments is reduced to zero as the stream channels freeze-up. In winter, the only moving water is sub-ice or from active springs generated by discharging groundwater, which will freeze in laminae (aufeis) as cold conditions progress. This icing phenomenon continues throughout the winter, and results in ice sheets that exceed the existing channel width.

Figure 2.1-11 shows the commonly accepted components of streamflow with surface volumes of water reporting from with one of three signatures:

- Quick (or Fast) flow – generated by storm or snowmelt events and often resulting in peak flow events. For the Project site tributaries, water contributed via this mechanism may report to creeks in less than 2 days time;
- Interflow – a component of Slow Flow, this refers to the lateral movement of infiltrated meteoric water through the shallow organics and colluvial layer to the stream channel. Flow reporting to creeks along this pathway is often referred to as vadose or unsaturated zone flow, and comprises a significant component of the total flow reporting to Dublin Gulch and its tributaries; and
- Baseflow – a component of Slow flow, it is the portion of surface flow derived from groundwater discharge. At the Project site, this composes the majority of streamflow during summer low flow periods and all the flow through the winter season.



Source: http://turmalina.igc.usp.br/img/revistas/guspsc/v13n1/a01fig07.jpg

Figure 2.1-5: Conceptual hydrograph showing runoff partitioning.

The watershed model assembled to replicate the streamflow regime at the Project site incorporates this understanding of streamflow composition and response directly into the model architecture. Accordingly, streamflow (as quick flow, interflow and baseflow), are all represented in the site wide WBM, using an extensively modified version of the Birkenes model (Christophersen and Seip, 1982) to account for variability in catchment areas at the Project site. This includes specific representation of snowfall/melt processes during freshet and aufeis production during winter. The Birkenes model was developed as part of a research program to understand linkages between stream chemistry and flow in a small (< 1 km^2) catchment in southern Norway (*e.g.,* Christophersen and Seip, 1982; Seip *et al*., 1985; Stone and Seip, 1989). Note that while the catchments of interest at the Project are up to two orders of magnitude larger, the model structure allows the discharge signature to be tuned for each reservoir to reflect the response in each catchment, regardless of size. The modelling approach is depicted as a conceptual diagram in Figure 2.1-12.

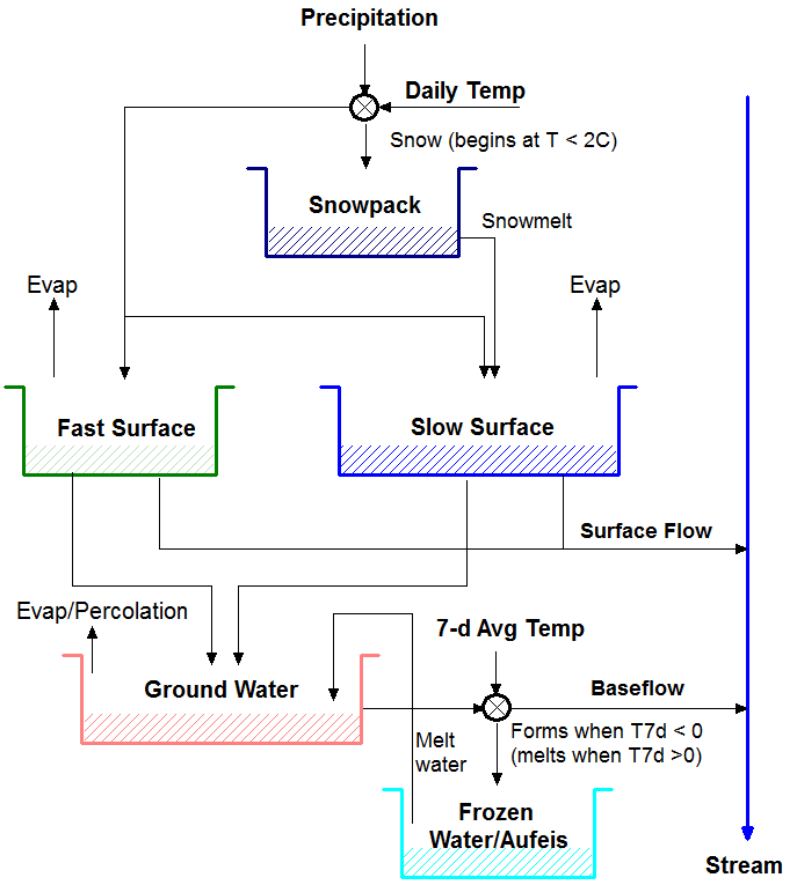


Figure 2.1-6: Schematic presenting an overview of the three-reservoir water balance model in conceptual format.

Conceptually, incoming precipitation is partitioned in the WBM to rain, or a snow reservoir based on air temperature thresholds. As shown in Figure 2.1-12, all precipitation falls as snow at -2°C and rain at +2°C, with the proportions of each changing linearly between these thresholds. Rainfall is then directed into Fast and Slow Surface reservoirs, which represent areas of fast (or quick) runoff response, and interflow (or slower-draining soil areas) respectively. In both cases, the runoff volume at each time-step is calculated as a set proportion of the reservoir water volume at that time-step. If no precipitation is introduced in the following time-step, a proportionately smaller volume is released. In this way, the draindown response follows a negative exponential decay function.

Fast and slow surface recession flow from the surface storage reservoirs goes first to runoff at a rate specific to each reservoir, and the remainder at each time-step percolates to Groundwater. Figure 2.1-12 shows that when the Groundwater reservoir fills, slow recession flow from the reservoir reports to baseflow (and fractionally to aufeis in winter). Where aufeis has been modelled (based on air temperature) to freeze completely during the winter months, streamflow is zero. In the model, evaporation is withdrawn preferentially from the Fast reservoir, and then at a much slower rate from the Slow reservoir.

Groundwater is protected from evaporation and provides a source for winter baseflow. Finally, snowmelt and melting of aufeis are indexed to the rolling 7-day average air temperature. Aufeis is assumed to melt at 10% of the snowmelt rate, due to its higher density and location in the shaded valley bottoms.

2.1.5 Validation of Watershed Model with Monitoring Data

Following the update of the measured streamflow time-series to include data collected in 2021, a verification exercise was conducted to ensure that the water balance model inputs were still adequately representing site conditions. As outlined in Section 2.1.1, the model was updated to a watershed model that has been calibrated to measured flow data collected at site monitoring locations that span a wide variety of catchment types and sizes. These catchments include those that are reflective of the receiving environment in Haggart Creek and are therefore largely unimpacted by mining activities (*e.g.*, W4), and catchments that are located within the mine site (*e.g.*, Ditch A and Ditch B).

In most cases, the measured streamflow records cover the open water season from May to October, with May showing incomplete data due to extensive channel icing conditions in the first part of the month. Therefore, depending on the availability of data for May at each station, it is expected that the measured runoff will be less than the model runoff. The winter flow data for November to April, where available, are based on monthly averages of manual measurements that are made concurrent with the water quality sampling trips.

Figure 2.1-14 to Figure 2.1-18 present the results of the verification exercise and compare measured and model runoff from key locations within the Haggart Creek, Dublin Gulch and Lynx Creek catchments. Overall, the model outputs replicate the monthly distribution of runoff well, with winter flows underestimated and open water season (May to October) flows slightly higher at W1 and W26, and slightly lower at W4, W6 and W22. On a monthly basis, May flows tend to be underestimated, while June flows are overestimated by the model. This freshet distribution will be refined in future model iterations. The comparison to winter flows is complicated by the limited manual flow measurements made under ice, and the lack of complete data for the month of October (often limited to the first 7-10 days of the month prior to freeze-up). Given that the measured record spans from 9 to 15 years, and that many of the monthly averages calculated from this record are based on incomplete records (*e.g.*, May, when average monthly measured runoff underestimates actual runoff), the updated watershed model is thought to best represent the long-term average runoff conditions at site. It is likely that the measured runoff is underestimated relative to actual values due to gauge bypass through alluvial sediments, for example, for Haggart Creek at the confluence with Dublin Gulch. Model calibration continues to improve over time as

additional monitoring data become available and understanding of the relevant processes evolves.

Table 2.1-12:
Average monthly modelled streamflows as percentage of average monthly measured values at key nodes.

Month	W1	W4	W5	W6	W22	W26[1]
Jan	-53%	-88%	-15%	-14%	-26%	N/A
Feb	-64%	-89%	-8%	-16%	-12%	N/A
Mar	-3%	-91%	-19%	-22%	-2%	N/A
Apr	-12%	-88%	-46%	24%	-52%	N/A
May	-23%	-88%	-11%	-8%	-25%	3%
Jun	79%	-92%	28%	-38%	27%	32%
Jul	23%	-91%	16%	-32%	16%	2%
Aug	14%	-91%	6%	-27%	13%	-3%
Sep	-6%	-89%	-14%	-10%	-8%	15%
Oct	-59%	-77%	-44%	8%	-26%	17%
Nov	-62%	-78%	-44%	16%	-10%	-18%
Dec	-42%	-86%	-25%	-11%	-36%	N/A

Note:
[1]No flow data available for months marked N/A - channel is iced over
Shaded months are represented by limited manual streamflow measurements during the winter (ice covered) season

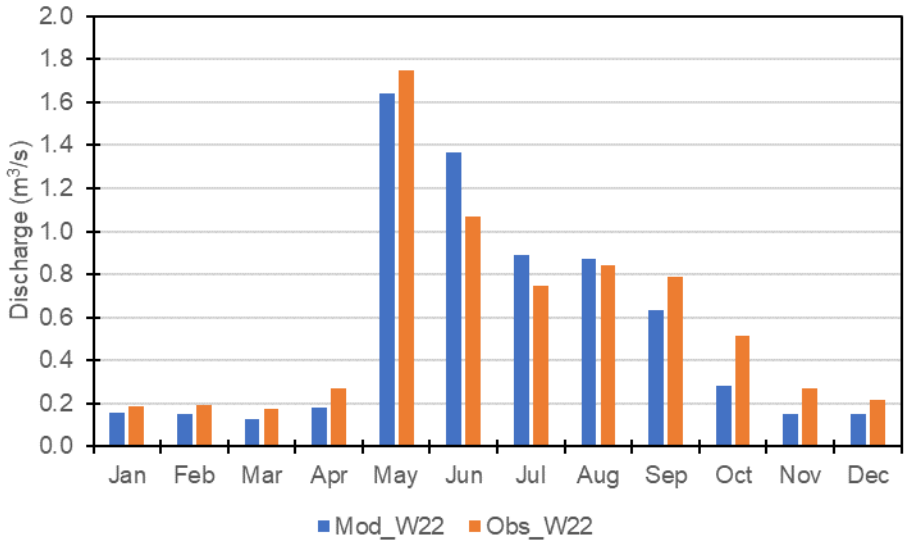


Figure 2.1-7: Mean monthly measured and modelled runoff for the W22 station (Haggart Creek upstream of Dublin Gulch).

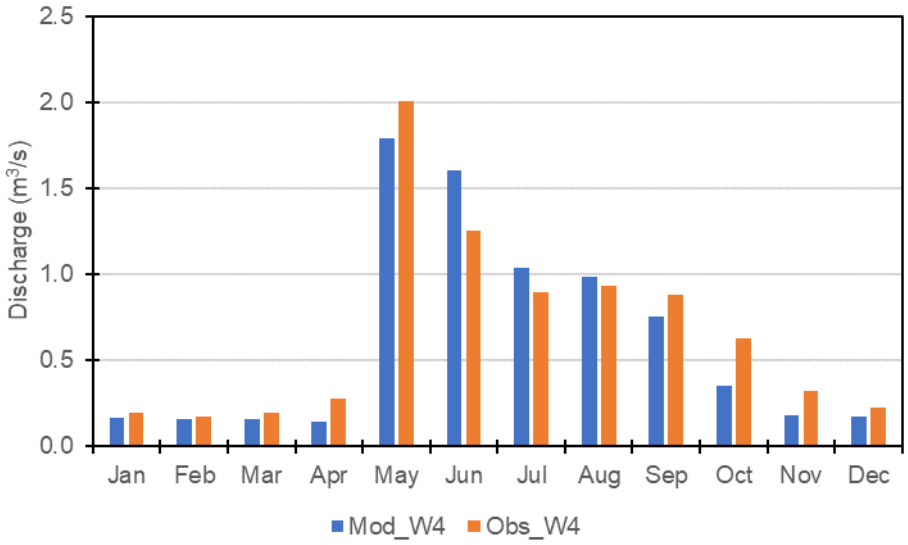


Figure 2.1-8: Mean monthly measured and modelled runoff for the W4 station (Haggart Creek downstream of Dublin Gulch).

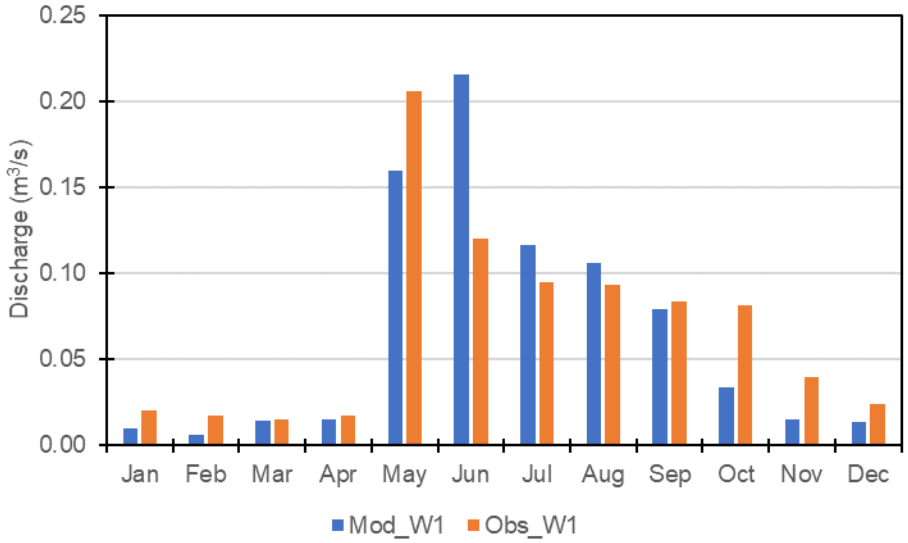


Figure 2.1-9: Mean monthly measured and modelled runoff for the W1 station (Upper Dublin Gulch).

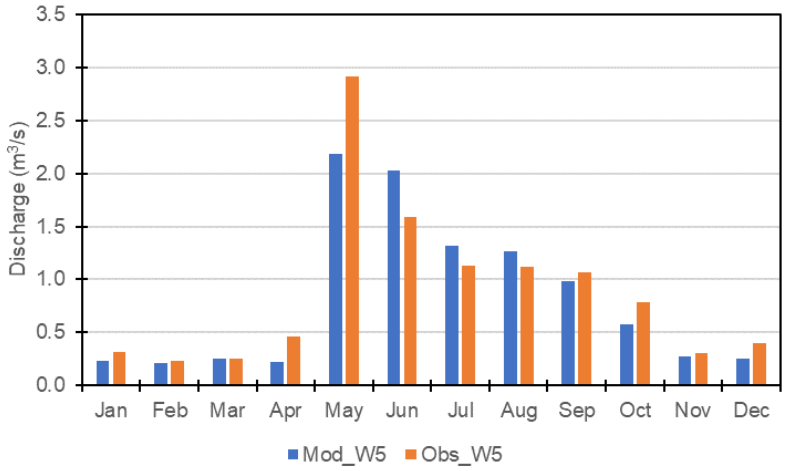


Figure 2.1-10: Mean monthly measured and modelled runoff for the W5 station (Haggart Creek (immediately upstream of confluence with Lynx Creek).

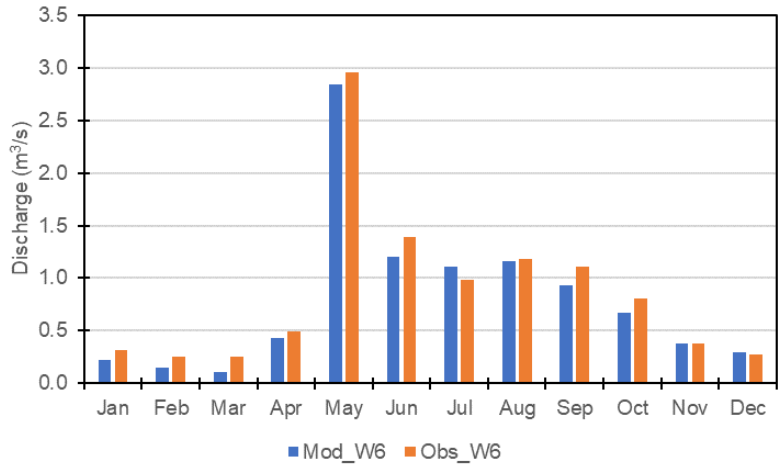


Figure 2.1-11: Mean monthly measured and modelled runoff for the W6 station (Lynx Creek upstream of Haggart Creek).

2.1.6 Heap Leach Facility Water Balance Model Updates

The GoldSim HLF model has been revised by Forte Dynamics to include new ore water content estimates and to employ an up-to-date ore placement schedule consistent with the current mine plan in the site wide water balance model. The Forte Dynamics HLF model uses the same climate inputs as described in Section 2.1.1 to match the Lorax site-wide GoldSim model. Forte GoldSim model outputs, including makeup water demand, integrated drain-down volume and post-closure seepage rates were directly input into the site-wide GoldSim model. Drain down was refined to reflect the assumed practice for recycling water back to the heap pad during treatment to manage discharge loading;

additionally, post-closure seepage from the Forte model was scaled assuming a cover is placed on the HLF after final rinse.

2.1.7 Groundwater Model Inputs

The site-wide groundwater model includes the following flows:

- Pit wall depressurization (updated values from 2019)
- Platinum Gulch WRSA underdrain (new)
- Eagle Pup WRSA underdrain (new)
- Vault flow under the HLF (new)

Pit wall depressurization was adjusted to match observed flows in 2020 and the underdrain and vault flows were added.

2.1.8 Mine Infrastructure

In addition to the specific mine infrastructure described below, the WB/WQM includes assumptions for camp potable water requirements and measured dust suppression water usage that remain consistent with updates described in the 2020 WB/WQM update (Lorax 2021).

2.1.8.1 Waste Rock Storage Area Progression and Assumptions

Waste rock storage facility placement phasing for Eagle Pup and Platinum Gulch are presented by year in Table 2.1-12. The WB/WQM assumes that the Platinum Gulch WRSA is covered at the end of 2023. Prior to cover placement, basal seepage from this facility is predicted to range from 47% to 54% of annual precipitation, dropping to 34% after the cover is in place. Similarly, the Eagle Pup WRSA is scheduled to be covered at the end of 2029 (Yr-11), with a comparable decrease in the proportion of MAP reporting as basal seepage. Water that infiltrates the WRSAs experiences a slower recession flow which results in a 1-month lag time (on average) before that water reports to the collection pond (LDSP). This attenuated hydrograph mimics the influence of water retention within the pore spaces of the WRSA, and the slower release of water than would be seen in a natural catchment with thinner overburden cover.

The proportion of runoff versus infiltration for the WRSAs during operations was determined by individual water balance models applied to each facility. This proportion is characterized as the percent of net precipitation minus AET losses:

- Operations (until closure covers are assumed to be effective):

- WRSAs – small runoff fraction during freshet; otherwise, infiltration is 100% of net precipitation (*e.g.*, total precipitation minus evaporation, which ranges from 47% to 54% of annual precipitation)
- HLF – 100% of net precipitation assumed to infiltrate.

- Closure (once closure covers are assumed to be effective):
  - WRSAs – A 40% reduction was targeted for infiltration to the WRSAs, with approximately 10% of annual precipitation modelled as surface runoff from the cover.
    - Platinum Gulch WRSA – closure cover effective as of in the end of Year 5;
    - Eagle Pup WRSA – closure cover effective as of in the end of Yr-11, and;
    - HLF –fully reclaimed (960,000 m^2) as of in the end of Yr-13; the cover is assumed to reduce net infiltration by 60% (*i.e.*, net infiltration will be approximately 20% of annual precipitation).

Table 2.1-13:
Waste Rock Storage Areas Tonnages and Surface Area by Year

Facility	Waste Type	2019 Yr-1	2020 Yr-2	2021 Yr-3	2022 Yr-4	2023 Yr-5	2024 Yr-6	2025 Yr-7	2026 Yr-8	2027 Yr-9
Eagle Pup WRSA	Mass incremental (Mt)	0	0	8.8	18	20	11	7.7	9.6	13
	Mass cumulative (Mt)	0	0	8.8	26	46	58	65	75	88
	Area (ha)	0.0	0.0	8.4	19.5	41.8	53.1	65.9	77.3	77.3
Platinum Gulch WRSA	Mass incremental (Mt)	2.3	13	7.4						
	Mass cumulative (Mt)	2.3	15	22	22	22	22	22	22	22
	Area (ha)	8	30.5	38.1	38.1	38.1	38.1	38.1	38.1	38.1

2.1.8.2 Sediment Control Ponds

The LDSP serves as the primary contact water management pond for the Project throughout Operations, and all contact water from the Eagle Pup WRSA, 90-day ore stockpile, Open Pit and Platinum Gulch WRSA is directed to this pond. The Platinum Gulch PTS will be constructed during the operations phase (2023) of the Project to serve as a trial passive treatment system (PTS). This PTS will continue in operation during the closure and post closure phases.

Using 2020 and 2021 records from site the inflows from Ditch A and Ditch B to the LDSP were adjusted to match LDSP calculated inflows (after considering transfers out of the LDSP to the Events Pond, In-heap Pond, dust suppression and evaporation). The model predicted flows in Ditches A and B still overestimates the net inflow to the LDSP when all outflows.

2.1.8.3 Event Pond

Event Pond volumes were calibrated in 2020 and 2021 using reported water management and observed pond inflows and makeup water pumped to the HLF where available. Ditch inflows were calibrated to flow measurements made in 2020 and 2021. Water treatment was not online in 2021 for the removal of water from the LDSP or Event Pond, and the WTP is expected to be operational in Q4 2022. There may be periods (freshet in particular) when storage in the Event Pond encroaches on the desired available storage for short periods of time, but this should be manageable using Event Pond water as make up water to the HLF.

2.1.8.4 Contact Water Ditches

A detailed description of contact water ditches and design parameters are presented in Victoria Gold (2020); a summary of ditch locations, and the specific water sources reporting to the contact water ditches is presented below.

Ditch A

Ditch A collects contact water from the Platinum Gulch WRSA, 90-day stockpile and the Eagle pit, as well as non-contact water from the upper Platinum Gulch catchment, and routes it northwards to the LDSP.

Ditch B/Eagle Creek

Ditch B collects contact water from the Eagle Pup WRSA, as well as non-contact water from the Eagle Pup and Suttles Gulch drainage. Non-contact and contact runoff in Upper Eagle Creek drains into Ditch B, which is aligned with the natural Eagle Creek drainage and flows west to the LDSP.

Ditch C

When discharging from the LDSP weir, Ditch C routes the outflow westward to Haggart Creek where it discharges just downstream of the confluence of Dublin Gulch and upstream of the W4 monitoring station. At closure, the mine plan routes HLF draindown water to the MWTP and after treatment is then discharged directly to Ditch C. At post-closure, HLF seepage water is directed to a PTS, which discharges directly to Haggart Creek immediately upstream of the confluence with Dublin Gulch.

Passive Treatment Systems

The Platinum Gulch PTS will be constructed during the operations phase (2023) of the Project to serve as a trial passive treatment system (PTS). Initially, PTS drainage is still routed to the MWTP until it can be proven that it can meet discharge criteria. This is

assumed to occur five years after installation, after which outflow is routed to Haggart Creek. This PTS will continue in operation during the closure and post-closure phases.

A PTS will be constructed upstream of the LDSP and handle all inflow from Ditch B. Outflow from the PTS will still be routed to the MWTP until it can be proven to meet discharge criteria. This is assumed to occur five years after installation, after which overflow is routed to Ditch C and then to Haggart Creek. This PTS will continue in operation during the closure and post-closure phases.

At post-closure, HLF seepage water is directed to a PTS (*i.e.*, the Events Ponds is converted to a PTS), which discharges directly to Haggart Creek immediately upstream of the confluence with Dublin Gulch.

2.2 Water Quality Model Inputs and Assumptions

The Eagle Gold Project water quality model (WQM) is a mass-conserving mixing model that predicts water quality for 38 parameters at key monitoring and compliance points in the receiving waters affected by mine activity. The model was designed on the GoldSim® platform and utilizes a GoldSim® water balance model (WBM). Both the WBM and the WQM use a daily time-step for 50 years, spanning operations, closure and several years into post-closure. Below is a brief description of water quality model inputs including seepage contact water source terms, Mine Water Treatment Plant (MWTP) and Passive Treatment Systems (PTS) effluent discharge requirements and background water quality for non-contact flows.

2.2.1 Seepage Contact Water – Geochemical Source Terms

The drainage chemistry from the various Eagle Gold mine facilities discussed herein is influenced by a variety of geochemical and physical aspects. Overarching controls that will govern the water quality associated with any facility that contains exposed waste rock and ore, include:

- Mineralogy and geochemistry of the exposed material;
- Grain size distribution;
- Water/rock ratio;
- Depositional environment (*e.g.*, saturated versus unsaturated conditions); and
- Temperature.

The rate at which minerals weather chemically in laboratory kinetic tests is typically observed to be many times faster than rates inferred from field observations of drainage from the toe of waste rock piles (Malmström, 2000). This discrepancy is in part due to the

formation of distinct flow channels within the waste rock pile that results in the incomplete flushing of weathering products from the waste rock dump (Nichol *et al.*, 2005). An overview of the source term approach and results is presented in the following sections. A more detailed description of model inputs and assumptions that have remained unchanged (*e.g.*, humidity cell loading rates) are not discussed in detail herein. The reader is referred to Appendix A of Lorax (2021) for an in-depth description of the source term model.

2.2.1.1 Waste Rock

The prediction of both the major and trace elemental geochemistry of waters in contact with the WRSAs was conducted by upscaling of loading rates derived from kinetic tests (humidity cells). A flow chart of the adjusted work stages involved in the 2021 source term model exercise is given in Figure 2.2-1. Assumptions around the temporary (90 day) ore stockpile were not changed since the 2019 model update and as a result, this facility was not re-modelled within the scope of this work. Refer to Lorax (2020) for an overview of the operational source term predictions relating to stockpiled ore.

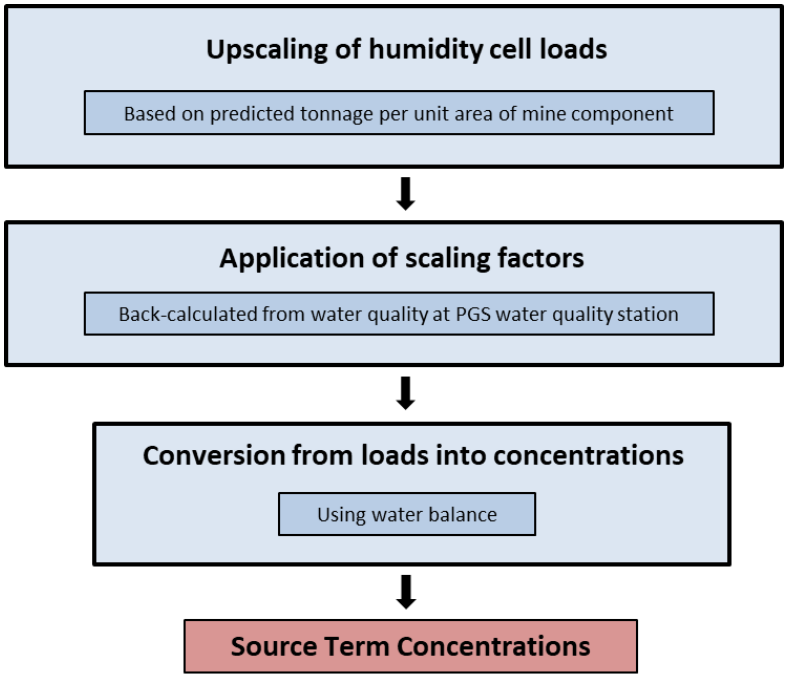


Figure 2.2-1: Work stages involved in the scaling of geochemical source terms

As a first step in the development of geochemical source terms, input solution chemistry needed to be defined. For this purpose, Eagle humidity cell leaching rates were derived from the data presented in SRK (2014) and were grouped to represent the various waste rock types expected to be disturbed during mining. Humidity cells used to produce these contact water model input solutions are listed in Table 2.2-1.

Table 2.2-1:
Summary of kinetic test cells used for the individual rock units modelled

Lithology/Material	Eagle Pit HC
Oxide GND	HC 5, HC 10
Fresh GND	HC 3, HC 9
Altered GND	HC 4, HC 6, HC 11
Oxide MSED	HC 8
Fresh MSED	HC 1, HC 2, HC 8, HC 13
Overburden (OB)	HC 10

Two different scenarios are presented for the WRSA and pit wall source terms: an operational and a post-closure scenario. More specifically, for the operational scenario, the 75th percentile of all available humidity cell leachates for a given species were used as the model input solution. In contrast, to model longer term ("stable") geochemical loading rates, the 75th percentile loading rates of the last three humidity cell cycles (weeks) with metal analysis were utilized to produce a solution input, assuming geochemical reaction rates reach a steady-steady state after soluble minerals have been flushed from the system. Table 2.2-2 provides an overview of the input solution chemistries used for all Eagle Gold waste rock facilities.

After the definition of the input parameters, the geochemical loads are upscaled to match the tonnage of the mine facility in question. Annualized estimates of mine rock tonnage stored in WRSAs as well as lithological proportions within the pit walls were provided by VGC and are summarized in Table 2.2-3 and Table 2.2-4, respectively.

While the reactive rock mass in the two WRSAs is easily adopted from the waste production schedule, the derivation of this metric within the exposed pit walls is less straightforward. The final pit walls are expected to be fractured as a result of blasting operations. Controlled blasting of rock does not completely eliminate fracturing of underlying rock but results in a blast-damaged transition zone extending into the pit walls. This blast-damaged transition zone comprises a blast-fractured zone and a blast-influenced zone that would be subject to oxidative weathering. The penetration depth of the blast-damaged zones into the wall rock is dependent on a variety of parameters. Hustrulid (1999) estimated ranges of 0.85 to 1.05 m and 2.65 to 3.15 m for the blast-fractured and the blast-influenced zones, respectively. For modelling purposes thicknesses of 1.0 and 3.0 m were chosen for the blast-fractured and the blast-influenced zones, respectively. Using a bulk density of 2.5 t/m^3 as well as an average inter-ramp angle of 42.2º, a waste rock tonnage of 7,424 kg per m^2 (plan) of pit wall was calculated. This mass was then split into the lithological proportions indicated in Table 2.2-4.

Table 2.2-2:
Composite input loads (mg/kg/wk) used for the different model scenarios in Eagle Gold WRSAs

Scenario	**Operational (75th percentile)**						**Post-Closure (75th percentile)**					
Lithology	OGD	AGD	FGD	OMS	FMS	OB	OGD	FGD	AGD	OMS	FMS	OB
Sulfate	12	9.1	12	1.7	24	1.7	8.2	6.7	6.6	1.5	15	1.5
Chloride	0.19	0.26	0.18	0.12	0.26	0.12	0.18	0.16	0.12	0.12	0.16	0.12
Fluoride	0.081	0.10	0.15	0.030	0.088	0.030	0.028	0.027	0.11	0.019	0.052	0.019
Al	0.025	0.032	0.049	0.021	0.033	0.021	0.019	0.026	0.038	0.016	0.025	0.016
As	0.0040	0.031	0.0012	0.016	0.012	0.016	0.0028	0.020	0.00048	0.014	0.0091	0.014
Ba	0.0049	0.0028	0.0036	0.00022	0.0028	0.00022	0.0044	0.0019	0.0022	0.00029	0.0015	0.00029
Ca	7.7	7.7	7.9	1.6	12	1.6	5.6	5.9	5.8	1.4	6.9	1.4
Cd	0.0000041	0.0000084	0.0000049	0.0000012	0.0000046	0.0000012	0.0000025	0.0000043	0.0000025	0.0000012	0.0000028	0.0000012
Co	0.000026	0.000040	0.000025	0.000018	0.000065	0.000018	0.000014	0.000024	0.000014	0.000014	0.000039	0.000014
Cr	0.000024	0.000024	0.000059	0.000042	0.000029	0.000042	0.000060	0.000035	0.000057	0.000076	0.000037	0.000076
Cu	0.00036	0.00051	0.00040	0.00023	0.00042	0.00023	0.00032	0.00023	0.00032	0.00021	0.00023	0.00021
Fe	0.0045	0.0033	0.0022	0.0038	0.0035	0.0038	0.0026	0.0036	0.0017	0.0031	0.0029	0.0031
Hg	0.0000024	0.0000024	0.0000025	0.0000024	0.0000024	0.0000024	0.0000024	0.0000024	0.0000024	0.0000024	0.0000024	0.0000024
K	2.2	1.2	1.2	0.41	2.1	0.41	1.6	0.48	0.54	0.35	0.96	0.35
Mg	0.90	1.1	0.86	0.099	1.1	0.099	0.74	1.0	0.61	0.082	0.66	0.082
Mn	0.0048	0.0038	0.0040	0.00097	0.0094	0.00097	0.0030	0.0019	0.0032	0.00053	0.0065	0.00053
Mo	0.0060	0.0037	0.0013	0.00048	0.00034	0.00048	0.0024	0.0014	0.00043	0.00029	0.00013	0.00029
Na	0.71	0.53	1.6	0.18	0.34	0.18	0.14	0.10	0.16	0.081	0.10	0.081
Ni	0.00013	0.00015	0.00014	0.00013	0.00030	0.00013	0.000088	0.000074	0.00010	0.00018	0.00016	0.00018
P	0.00062	0.0026	0.0010	0.00048	0.00049	0.00048	0.00048	0.0015	0.00048	0.00048	0.00048	0.00048
Pb	0.000028	0.000068	0.000027	0.000019	0.000036	0.000019	0.000015	0.000042	0.000022	0.0000047	0.00015	0.0000047
Sb	0.000099	0.021	0.017	0.00037	0.0027	0.00037	0.000073	0.012	0.0089	0.00023	0.0010	0.00023
Se	0.00028	0.0020	0.00056	0.00012	0.00077	0.00012	0.00018	0.0011	0.00035	0.000093	0.00028	0.000093
Si	0.68	0.70	0.65	0.45	0.97	0.45	0.56	0.38	0.53	0.40	0.63	0.40
Sn	0.000012	0.000015	0.000019	0.000015	0.00010	0.000015	0.0000089	0.000071	0.0000097	0.0000024	0.000097	0.0000024
U	0.0017	0.012	0.023	0.00091	0.00053	0.00091	0.0013	0.0051	0.0096	0.00067	0.00034	0.00067
Zn	0.00027	0.00044	0.00036	0.00019	0.00044	0.00019	0.00016	0.00032	0.00030	0.00013	0.00035	0.00013

Notes: All species given in mg/kg/wk;
OGD = Oxidized granodiorite; FGD = fresh granodiorite; AGD = altered granodiorite; OMS = oxidized metasediment; FMS= fresh metasediment; OB = overburden

Table 2.2-3:
Cumulative waste rock schedule (in Mt) by mine-year for the modelled Eagle Gold WRSAs

WRSA	Waste Type	2021*	2022	2023	2024	2025	2026	2027	2028
Platinum Gulch	Oxide GND	3.6	3.6						
	Altered GND	1.1	1.2						
	Fresh GND	0.38	0.41						
	Oxide MSED	16	16						
	Fresh MSED	5.4	5.7						
	Overburden	0.23	0.56						
	Total WRSA	***27***	***28***						
Eagle Pup	Oxide GND	0.53	0.21	4.8	6.0	6.2	6.7	9.7	10.0
	Altered GND	0.096	2.0	2.1	2.5	2.7	2.9	3.3	3.5
	Fresh GND	0.010	1.0	3.5	6.5	8.7	11	15	17
	Oxide MSED	1.5	4.9	9.2	13	15	19	23	23
	Fresh MSED	0.60	7.2	15	17	19	20	22	22
	Overburden	0.033	1.9	2.8	3.3	4.0	5.3	6.5	6.5
	Total WRSA	***3***	***17***	***37***	***48***	***56***	***66***	***79***	***82***

Notes: * 2021Platinum Gulch WRSA tonnages were used for the development of calibrated, parameter-specific scaling factors described.
GND = Granodiorite; MSED = Metasediment.

Table 2.2-4:
Waste rock exposure proportions by mine year for the Eagle Gold open pit

Waste Type	2021	2022	2023	2024	2025	2026	2027	2028	2029
Oxide GND	49%	36%	18%	15%	11%	10%	8%	6%	6%
Altered GND	1%	3%	4%	4%	3%	3%	4%	3%	3%
Fresh GND	11%	19%	25%	31%	32%	35%	40%	45%	48%
Oxide MSED	28%	20%	16%	14%	17%	17%	16%	14%	13%
Fresh MSED	10%	20%	29%	30%	29%	27%	26%	25%	24%
Overburden	1%	1%	8%	7%	8%	8%	6%	6%	6%

Notes: GND = Granodiorite; MSED = Metasediment.

Owing to several lab-to-field comparison studies it has been recognized that drainage chemistry predictions based on direct mass upscaling often strongly overestimate the quantities of dissolved solids that are in fact leached from the mine rock (Malmström et al., 2000; Sapsford *et al*., 2009; Plante *et al.,* 2014; Kirchner & Mattson, 2015). This is due to a variety of differences between lab and field conditions such as climate, water/rock ratios, hydrogeological pathways, grain size distribution and secondary mineral controls, most of which act to reduce geochemical loads per mass contacted in the field. In the original source term model (Lorax, 2014a) and subsequent model updates, theoretical scaling factors (temperature, grain size, water/rock ratio) were employed equally across the different modelled species to account for these discrepancies. In this year's model update, the integration of mine plan information and operational water quality data from the Platinum Gulch Seepage (PGS) monitoring station allowed for the derivation of empirical, site specific, and parameter-specific scaling factors. This approach increases the confidence in the model output as it inherently accounts for the various physical and geochemical mechanisms occurring in mine waste rock and how they affect the leaching behaviour of each individual species (*e.g.,* Kirchner & Mattson, 2015).

The derivation of empirical scaling factors was conducted according to the following calculation steps:

- All water quality data at PGS was reviewed and processed. This exercise demonstrated that dissolved concentrations for most species show an increasing trend, indicative of the ongoing wetting of the Platinum Gulch WRSA and the increasing contribution of this facility to water quality at PGS.
- To account for the possibility of concentrations increasing further and the WRSA not being fully wetted, the maximum observed concentration for the various dissolved parameters was multiplied by two (2). Further, a dilution factor of 30% was implemented to account for other, non-contact flow contributions between the toe of the Platinum Gluch WRSA and PGS. The resulting back-calculated concentrations were assumed to represent the equilibrated pore water chemistry within the Platinum Gluch WRSA.
- The above concentrations were multiplied with the seepage volume modelled for the WRSA in 2021 (126,278 m^3) to obtain measured annual geochemical loading rates for each species i (ML_i).
- Eagle Gold humidity cell loading rates (Table 2.2-2) were then scaled to the Platinum Gluch WRSA tonnage and lithological proportions by using material schedule information for 2021 provided by site. These loading rates were then extrapolated over 52 weeks yielding the theoretical loading rate for species i (TL_i) without the application of a scaling correction.
- Empirical scaling factors for species i (SF_i) were then simply calculated as follows:

$$SF_i = ML_i / TL_i$$

Back-calculated Platinum Gulch WRSA drainage concentrations and associated empirical scaling factors are presented in Table 2.2-5 in comparison with annual, theoretical scaling factors used for Platinum Gulch WRSA in the previous model.

Table 2.2-5:
Estimated 2021 Platinum Gulch WRSA drainage concentrations, calculated empirical scaling factors (current), and previous theoretical scaling factors used in the source term model.

	PG WRSA Drainage*	Scaling Factor (2022)	Scaling Factor (2021)
	mg/L	*unitless*	*unitless*
Sulphate	354	0.0040	0.0061
Cl	99	0.054	0.0061
F	0.81	0.0014	0.0020
Ag	0.000033	0.0025	0.0020
Al	0.23	0.00083	0.0020
As	0.48	0.0030	0.0020
B	0.023	0.00017	0.0020
Ba	0.020	0.0012	0.0020
Be	0.00010	0.0019	0.0020
Ca	167	0.0031	0.0061
Cd	0.00028	0.0096	0.0020
Co	0.0022	0.0067	0.0020
Cr	0.0013	0.0032	0.0020
Cu	0.0037	0.0011	0.0020
Fe	0.65	0.016	0.0020
Hg	0.0000065	0.00025	0.0020
K	22	0.0019	0.0061
Li	0.017	0.0012	0.0020
Mg	36	0.0070	0.0061
Mn	0.20	0.0054	0.0020
Mo	0.0058	0.00039	0.0020
Na	82	0.023	0.0061
Ni	0.0094	0.0053	0.0020
P	0.30	0.045	0.0020
Pb	0.0015	0.0054	0.0020
Sb	0.015	0.00073	0.0020
Se	0.011	0.0029	0.0020
Si	4.7	0.00071	0.0020
Sn	0.00010	0.00028	0.0020
Sr	1.2	0.0026	0.0020
Tl	0.000018	0.00036	0.0020
U	0.019	0.0010	0.0020
V	0.0010	0.0012	0.0020
Zn	0.011	0.0039	0.0020

Notes: PG = Platinum Gulch.
* PG WRSA Drainage was conservatively back calculated from PGS water quality data.

Given the lack of seasonal geochemical trends at PGS to date, the source term model was built on an annual basis rather than producing a monthly model output as was the case with previous iterations. The use of calibrated scaling factors is expected to more than offset the reduced temporal resolution in the 2021 source term model.

Since the revised model approach revolves around the conservative use of real, field-scale drainage chemistry, post-processing of the model output using geochemical speciation and capping, which was done in previous years, was not conducted. This adjustment is considered justifiable as attenuating kinetic controls, such as the precipitation of Al- and Fe-hydroxides, is expected to occur within the WRSA flow paths and certainly by the time WRSA drainage reaches the PGS station. Moreover, a comparison of the final source term output with the field barrel leachate database demonstrated good agreement.

2.2.1.2 Nitrogen Source Term Derivation

Nitrogen based blasting reagents have been identified by Pommen (1983) as a source of nitrogen compounds from surface mining operations. The nitrogen compounds ammonia (NH_3) and nitrate (NO_3) are constituents of the explosives, while nitrite (NO_2) is typically an intermediate oxidation product of ammonia. The release of nitrogen compounds from blasting reagents can occur within the pit during mining operations and from residual reagents stored within blasted rock. The release of nitrogen from explosives loaded in boreholes and from explosive residue on blasted rock surfaces occurs by dissolution of nitrogen compounds into water and subsequent aqueous transport to the downstream receiving environment.

A detailed discussion of the Eagle Gold nitrogen-specific source term assumptions and results was presented in Lorax (2014a). For this year's source term model update, no changes to this approach were made and the nitrogen source terms are unchanged; the reader is referred to Lorax (2014a) for an overview of these results.

2.2.1.3 Heap Leach Facility

Prediction of the HLF drainage chemistry during operations and in post-closure (draindown phase and in the long-term) relied heavily on metallurgical column experiments as well as existing full-scale site-specific and site analogue data from the Brewery Creek Mine. It is anticipated that the operational and early post-closure HLF drainage chemistry will be governed by the effects of residual cyanide and its degradation products.

A barren solution source term was generated in support of the water quality model and treatment considerations during operations. Early-stage, full-scale barren solution data for the operating Eagle Gold mine was provided by VGC (Wilbur, 2020) and was reviewed by

Lorax. Barren solution data from February 7, 2020, was used as the basis for the calculation of the geochemical source term however, due to these data representing an early-stage barren solution chemistry that will likely evolve over time as this water is being re-circulated, the following adjustments were made:

- A re-circulation factor was incorporated to account for the accumulation and attenuation of geochemical loads as the barren solution is recycled. This factor was derived based on observations from the metallurgical column testing over time. It was calculated as follows:

$$\text{Recirculation Factor} = \frac{\text{Median column concentration (cycles 2–4)}}{\text{Median column concentration (last 3 cycles)}}$$

- Several species that are required for the site-wide water quality model were not determined as part of the operational barren solution analysis. Predictions for these species were quantified either based on site analogue data (Brewery Creek), from the leach phase of the Eagle Gold metallurgical columns or based on expected operational concentrations provided by VGC.

Two periods were modelled for the post-closure HLF drainage chemistry, namely an early draindown and a long-term period. For each of these temporal predictions, a base and an upper case were modelled, such that a total of four source terms were generated. The HLF source term model relied predominantly on data from metallurgical columns as well as Brewery Creek water quality monitoring (Viceroy Minerals, 2003; Alexco, 2012; SRK, 2014, Harrington, pers. comm., 2014). Specifically, for most species back-calculated scaling factors derived from the Brewery Creek HLF water quality monitoring with Brewery Creek metallurgical columns were applied to the metallurgical column data (post Au-leach and detox phase) available for Eagle Pit ore.

For the two temporal scenarios, base case scaling factors were calculated using Brewery Creek data as follows:

- Early draindown: $\text{Scaling Factor} = \frac{\text{Median HLF concentration (draindown)}}{\text{Median column concentration}}$

- Long-term: $\text{Scaling Factor} = \frac{\text{Median HLF concentration (long–term)}}{\text{Median column concentration}}$

For the upper case, the same general approach was employed, however instead of the median HLF monitoring data, the maximum observed concentrations were considered. The Brewery Creek HLF drainage databases used for this exercise include the following:

- Early draindown: Monitoring data from station BC-28a in in year 2002 (draindown)
- Long-Term: Monitoring data from station BC-28a in in years 2006-2012.

Note that no geochemical data was available for a number of solutes in the Brewery Creek metallurgical column dataset. Therefore, a subset of element-specific scaling factors were adopted from solutes where data were available based on the type of solute (major ions, minor/trace element, oxyanions). These scaling factors were then multiplied with the median concentrations produced by the Eagle Pit metallurgical columns after detoxification.

For CN and other N species (NH_3, NO_2, NO_3), scaling factors were not extrapolated, but rather median and maximum concentrations of these species from the Brewery Creek HLF monitoring database were used directly for the base and upper cases, respectively.

Lastly, in order to not produce unrealistically high source term predictions through uncertainties in scaling of metallurgical columns, concentrations caps were imposed. To maintain conservatism, these caps were calculated as 3 x the maximum water quality monitoring result from the Brewery Creek site (BC-28a) for a given species.

2.2.1.4 Results

One of the key underlying assumptions with respect to WRSA and pit wall drainage chemistry is that PAG material is sufficiently sparse, evenly distributed and/or adequately managed to prevent the onset of acidic conditions. Therefore, all geochemical source terms generated as part of this document are assumed to remain circum-neutral in the long-term with pH values expected to fall around 8.0 based on observations from the field barrel program.

Model results are shown as time-series plots for the parameters of concern (SO_4, Se, As, Sb) in Figure 2.2-2. Full source term predictions for waste rock, pit walls and HLF is provided in Appendix A. The relatively large range in the values within a scenario and mine component presented can be explained by the proportion of surfaces rinsed in response to seasonally variable flow rates and the consideration of temperature effects. Where seasonal variability is minor (*e.g.,* As in Eagle open pit), predictions are dominated by calibration with field barrel results. The last year of the plotted drainage quality predictions represent post-closure conditions and are imported in the water quality model on an annual basis after 5 years of exposure.

Source term concentrations predicted for the HLF are summarized in Table 2.2-6.

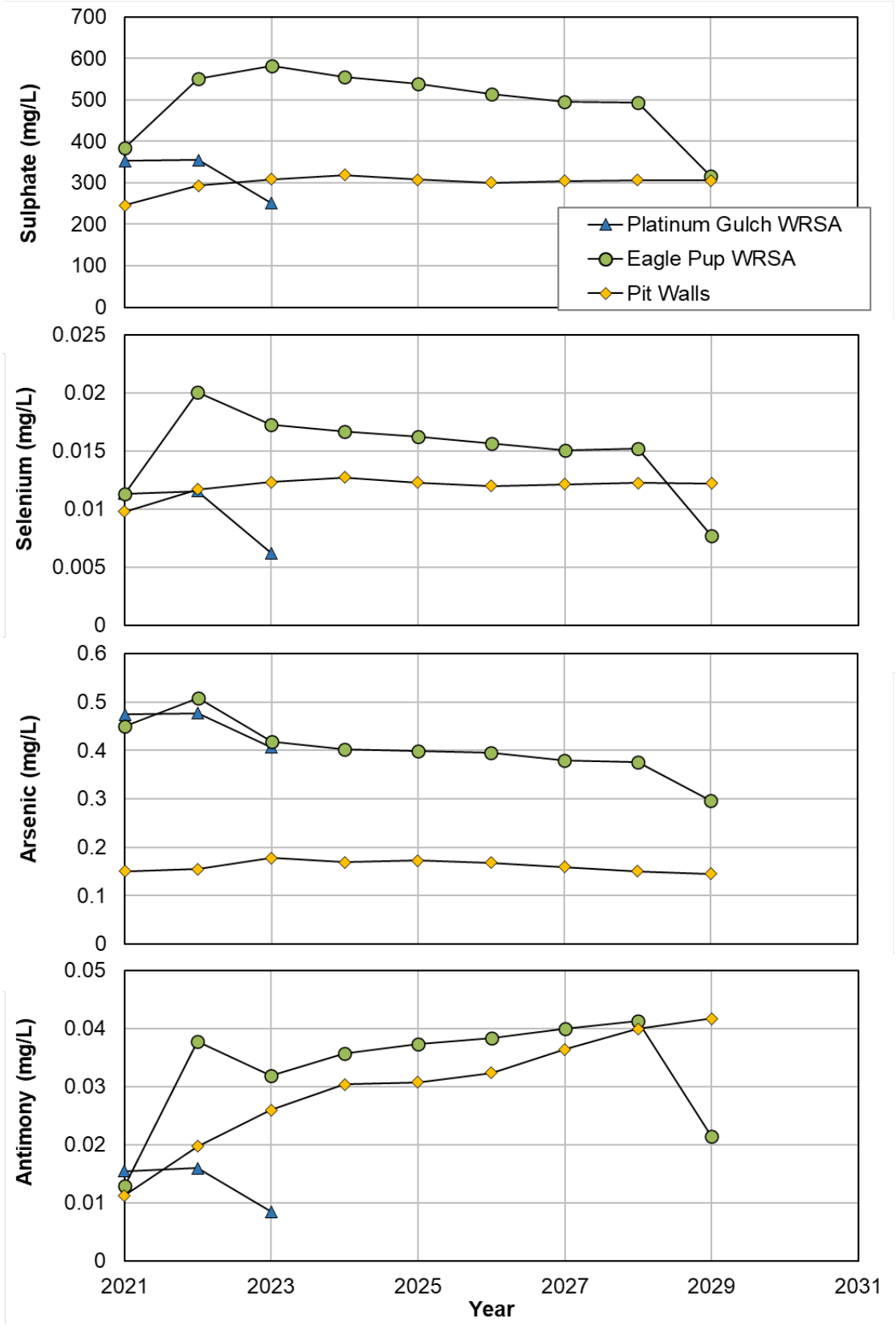


Figure 2.2-2: Selected source term predictions for Eagle Gold mine components

Table 2.2-6:
Source term concentrations (in mg/L) predicted for Eagle Gold HLF drainage

Parameter	Barren Solution	Post-Closure			
		Base Case		Upper Case	
		Early Draindown	Long-term	Early Draindown	Long-term
pH	11	9.1	8.4	9.4	8.7
SO4	540	1183	1232	1450	2287
Cl	28	41	30	43	37
F	3.9	0.51	0.51	0.51	0.51
NH3 (as N)	18	7.6	0.022	14	0.13
NO3 (as N)	250	317	325	465	402
NO2 (as N)	13	5.8	6.0	7.2	7.4
Cyanate	57	0.75	0.59	1.6	1.1
Total CN	250	0.90	0.84	1.9	1.6
WAD CN	246	0.31	0.088	1.4	0.61
Ag	0.042	0.030	0.00017	0.030	0.00031
Al	0.15	0.14	0.017	1.0	0.36
As	3.4	0.56	0.34	0.77	0.39
Ca	99	183	288	269	355
Cd	1.1	0.025	0.00018	0.025	0.00031
Co	0.90	1.2	0.73	1.2	0.97
Cr	0.0012	0.030	0.0010	0.030	0.0025
Cu	7.5	0.060	0.0021	0.14	0.0042
Fe	4.4	3.0	1.7	4.3	2.2
Hg	0.016	0.0089	0.00017	0.037	0.0021
K	4.5	58	20	71	20
Li	0.010	0.030	0.030	0.030	0.030
Mg	1.0	9.5	57	21	79
Mn	3.6	0.076	0.028	0.47	0.044
Mo	0.24	0.050	0.027	0.070	0.035
Na	820	1347	1689	1347	1689
Ni	9.7	0.13	0.0080	0.16	0.011
P	0.50	1.3	0.90	1.3	0.90
Pb	0.0029	0.081	0.031	0.16	0.055
Sb	0.040	1.0	2.4	1.3	3.2
Se	0.36	0.18	0.16	0.20	0.19
Si	4.9	4.2	3.6	7.2	4.5
Sn	0.0010	0.0030	0.0011	0.030	0.0021
Sr	0.22	0.98	1.3	1.5	1.6
Tl	0.0020	0.0010	0.00031	0.025	0.00050
U	0.00025	0.0030	0.074	0.0030	0.074
V	0.0085	0.030	0.030	0.030	0.030
Zn	51	0.020	0.0080	0.039	0.014

2.2.2 MWTP and PTS Effluent Quality Standards

Effluent quality standards (EQS) were set during the Water Use License process for the MWTP during operations and PTS for the closure phase (Table 2.2-7). The EQS values are specified in QZ14-041-1 (Part F; clause 108). The effluent quality standards for each component are utilized in the model representing treatment flows and chemistry.

During the Water Use License application process, it was agreed upon by all parties that the Project would be required to go through additional evaluation to support establishment of final effluent quality standards for the closure phase. As a conservative approach to closure and post closure water quality modeling, it has been assumed that the higher discharge criteria initially proposed by VGC would represent the effluent quality discharge. It is understood that continued modeling and eventual field trials of passive treatment systems for the Project will be undertaken by VGC to support the planned final reclamation and licencing for the closure plan of the Project.

Table 2.2-7:
MWTP and PTS Effluent Water Quality Used in Model

Parameter	*Effluent Quality Standards (mg/L)*
pH	6.5 to 8
TSS	15
Cl	250
SO_4	1850
Nitrate-N	19.5
Nitrite-N	0.12
NH_3-N	7.5
CN_{WAD}	0.03
Al (diss)	0.4
Sb	0.13
As	0.053
Cd	0.00125
Cu	0.026
Co	0.026
Fe	6.4
Pb	0.05
Hg	0.00008
Mn	7.7
Mo	0.45
Ni	0.5
Se	0.025
Ag	0.01
U	0.09
Zn	0.23

The MWTP is assumed to discharge at or below the effluent quality standard (EQS) that defines dischargeable water in the WUL. The expectation is that actual treatment performance will exceed (be better than) the EQS. Maximum treatment flow rates are assumed to be:

- 2022-2027: 8,500 m^3/day
- 2027-draindown completion: 13,900 m^3/day

Daily discharge rates may be at or below the prescribed maximum rates depending on flow conditions in the receiver (assimilative capacity considerations) or the need to remove water from the system to maintain desired storage in the LDSP and the Event Pond.

2.2.3 Background Water Quality Inputs

Background flows and water quality from runoff (*e.g.*, non-contact water) and background receiving environment water chemistry were fully characterized and included in the model. Water quality data collected from project area streams from 2007 to August 2017, prior to construction, were incorporated into the water quality baseline dataset. In addition, water quality results at sites currently unaffected by mine activity, including upper Dublin Gulch stations W1 and W26 and upper Haggart Creek at W22, are used in validation and calibration of the model.

2.2.4 Modeling Approach

Flows from background sources and mine facilities were taken directly from the daily flows generated by the WBM. Watershed model parameters that control runoff and infiltration rates were adjusted depending on catchment type; for flow through waste rock facilities the infiltration rates were adjusted to attenuate the flow within the waste rock pile in a manner consistent with waste rock seepage hydrographs measured at other mine sites.

Water quality parameters tracked by the model are listed in Table 2.2-8. Each parameter is treated as a conservative tracer which is mixed at model nodes (confluences) by the following equation:

$$C_r = \frac{\sum_i Q_i C_i}{\sum_i Q_i}$$

where C_r is the resultant concentration, $Q_i$are the source flows into the mixing point and $C_i$are the concentrations associated with the source flows. The only exceptions to this flow-weighted instantaneous mixing scheme are for the Lower Dublin South Pond (LDSP) and for the HLF event pond which are represented by constituent transport flow cells in GoldSim.

Table 2.2-8:
Eagle Gold Project Water Quality Model Parameters

	Parameters	
NH_4	Al	Mn
Cl	Sb	Hg
F	As	Mo
NO_3	Ba	Ni
NO_2	B	K
N	Cd	Se
P	Ca	Si
SO_4	Cr	Ag
WADCN	Co	Na
	Cu	Tl
	Fe	U
	Pb	V
	Mg	Zn

As previously indicated, the WQM simulates 50 years of mine life, beginning in operations and ending several years into post-closure. The model time step is daily, with concentrations reported as monthly averages. The three principal mine periods for reporting are:

1. Operations (Corresponds to mine years 1 to 10 and Phases 1 through 4) with LDSP treated in the MWTP; in Phase 5 (mine years 11 and 12) the heap is rinsed during cyanide destruction and excess water is treated through the MWTP;
2. Early Closure (Corresponds to mine–years 13 to 33): LDSP is converted to a passive treatment system, and the heap drain-down is controlled with the MTWP operating to treat heap seepage. Eagle Pup WRSA and Platinum Gulch WRSA seepage waters are passively treated (or actively, if required) before discharge to receiving waters;
3. Late Closure (Years 33+): Waste rock, pit overflow contact water and heap seepages are passively treated before discharge to receiving waters.

Source terms were developed for the median and 75th percentile case. To remain conservative, the discussion is based on the results of the 75th percentile source terms coupled with the median WBM flow scenario.

Water quality from mine discharge during operations is driven by the contact water reporting to the Lower Dublin South Pond. Contact water from the Eagle Pup and Platinum Gulch WRSAs, the temporary ore stockpile, and the sump water from the open pit all report to the LDSP at some point during operations. Excess water from the LDSP is treated through the MWTP to meet the effluent quality standards in Table 2.2-7 and discharged to Haggart Creek upstream of W4 via Ditch C. Figure 2.2-3 and Figure 2.2-4 are schematic illustrations of the water balance and water quality model for mine year 3 and 10, respectively.

Beginning in years 9 and 33 respectively, the Platinum Gulch and Eagle Pup waste rock seeps are assumed to be treated exclusively (the WTP is not longer required) by the Platinum Gulch and LDSP passive treatment systems to meet the EQS Table 2.2-7. During this time period (Phase 6), HLF drain-down water reports to the MWTP and is treated to meet discharge criteria as indicated in Table 2.2-7. Figure 2.2-5 illustrates the water balance conditions for mine year 15.

The late closure period begins with the decommissioning of the MWTP and the full application of passive treatment for all contact mine waters including pit overflow waters (year 33+). At this time, the HLF has little excess water to drain, and post-closure monthly discharge is driven largely by infiltration. After year 33, the HLF seep is treated solely through a PTS to values indicated in Table 2.2-7 (Figure 2.2-6).

The WQM provides monthly predictions of water quality at key locations in Haggart Creek, namely:

- W4 in Haggart Creek just downstream of the chief compliance point (*i.e.*, MWTP discharge);
- W29 in Haggart Creek downstream of all project influences;
- W99 in Haggart Creek downstream of all project influences; and
- W23 in Haggart Creek, immediately downstream of the confluence with Lynx Creek.

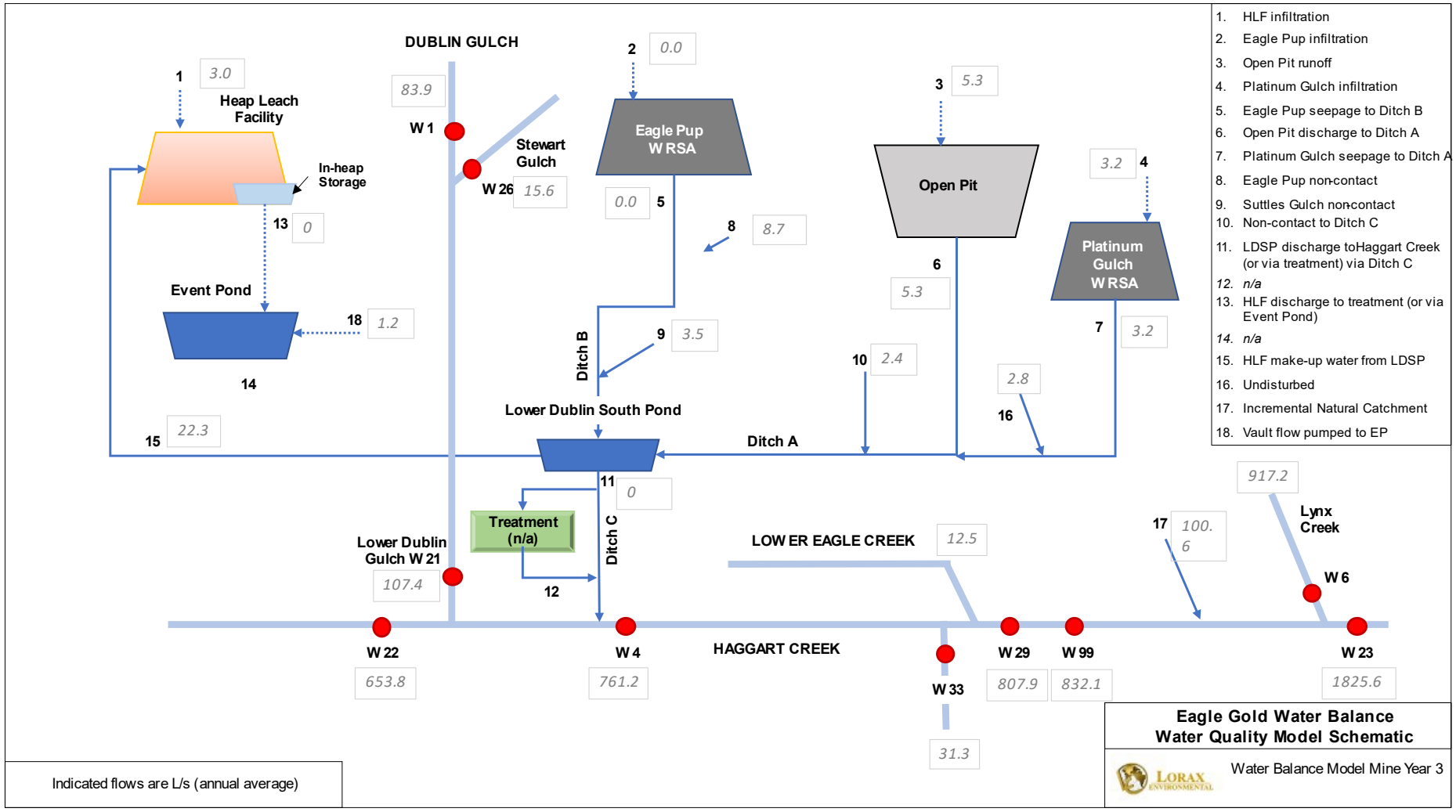


Figure 2.2-3: Eagle Gold Water Balance and Water Quality Model Schematic for 2021 (Year 3) of Operations.

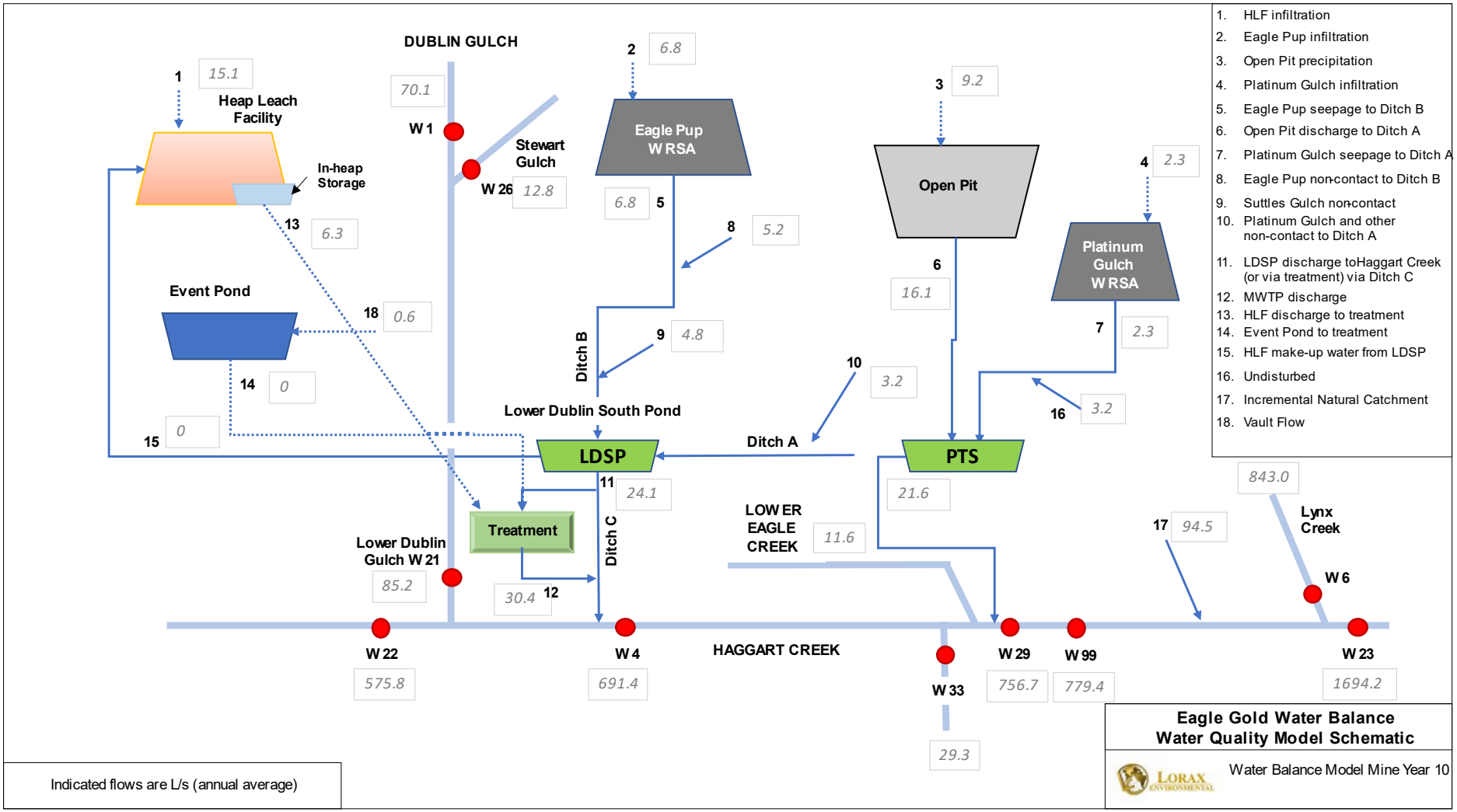


Figure 2.2-4: Eagle Gold Water Balance and Water Quality Model Schematic for 2028 (Year 10)

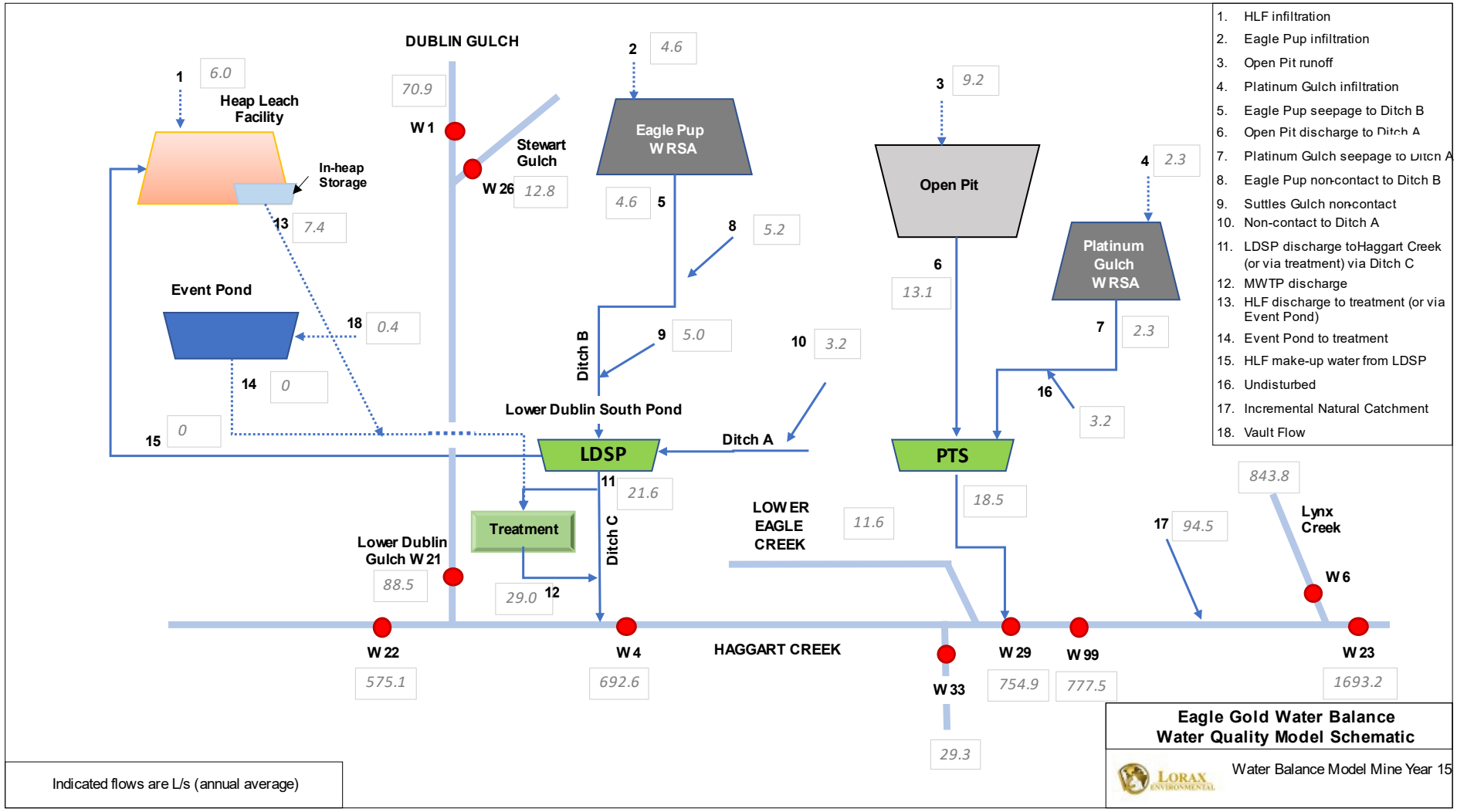


Figure 2.2-5: Eagle Gold Water Balance and Water Quality Model Schematic for 2031 (Year 15)

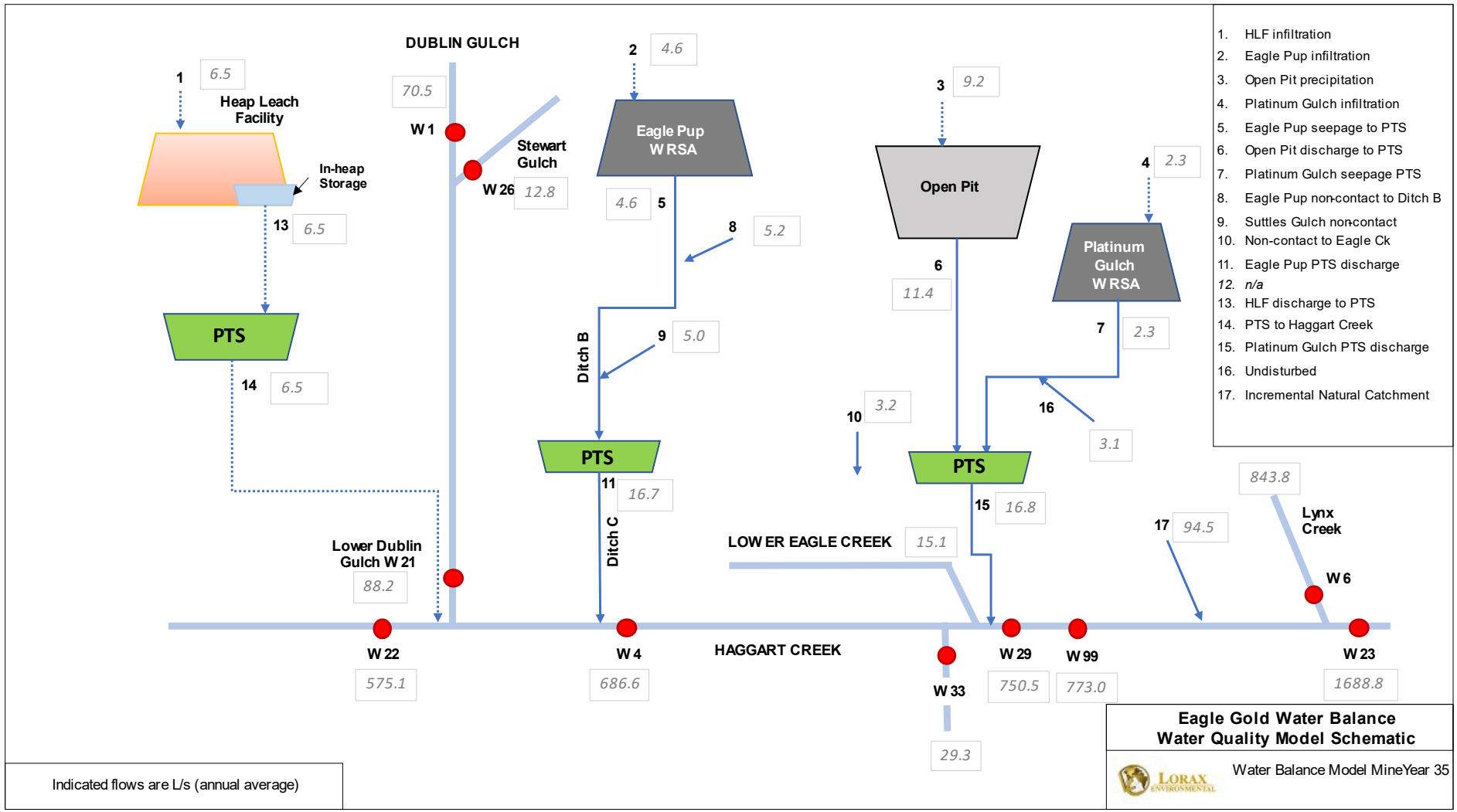


Figure 2.2-6: Eagle Gold Water Balance and Water Quality Model Schematic for 2053 (Year 35) (end of active closure).

3. Water Quality Predictions

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3. Water Quality Predictions

The results of the updated Water Balance Water Quality Model (WBM v7.0.3) are presented in this section. Results are presented in downstream order for four Haggart Creek EMSAMP monitoring stations W4, W29, W99 and W23 (Figure 3.1-1), for the main parameters of interest, namely As and Se. Time-series of all predicted parameters are provided in Appendix B of this report and all raw output data is provided in Appendix C (electronically).

3.1 Station W4 – Haggart Creek

Station W4 in Haggart Creek (Figure 3.1-1) is located just downstream of the primary effluent discharge location for the Eagle Gold Mine (*i.e.*, Ditch C discharge originating from LDSP Weir or MWTP). Water quality objectives for W4 were developed during the licensing process (Table 3.1-1) and were developed using the effluent quality standards specified in QZ14-041-1.

Table 3.1-1:
Water Quality Objectives for Haggart Creek at W4 (QZ14-041-1)

Parameter List		WQ Objectives at W4
Dissolved Parameters	SO_4	309
	Cl	150
	Nitrate-N	3
	Nitrite-N	0.02
	NH_3-N	1.13
	CN_{WAD}	0.005
	Al (diss)	0.1
Total Metalloids and Metals	Sb	0.02
	As	0.0085
	Cd	0.000197
	Cu	0.005
	Co	0.004
	Fe	1.0
	Pb	0.0077
	Hg	0.00002
	Mn	1.17
	Mo	0.073
	Ni	0.116
	Se	0.002
	Ag	0.0015
	U	0.015
	Zn	0.038

All values as mg/L

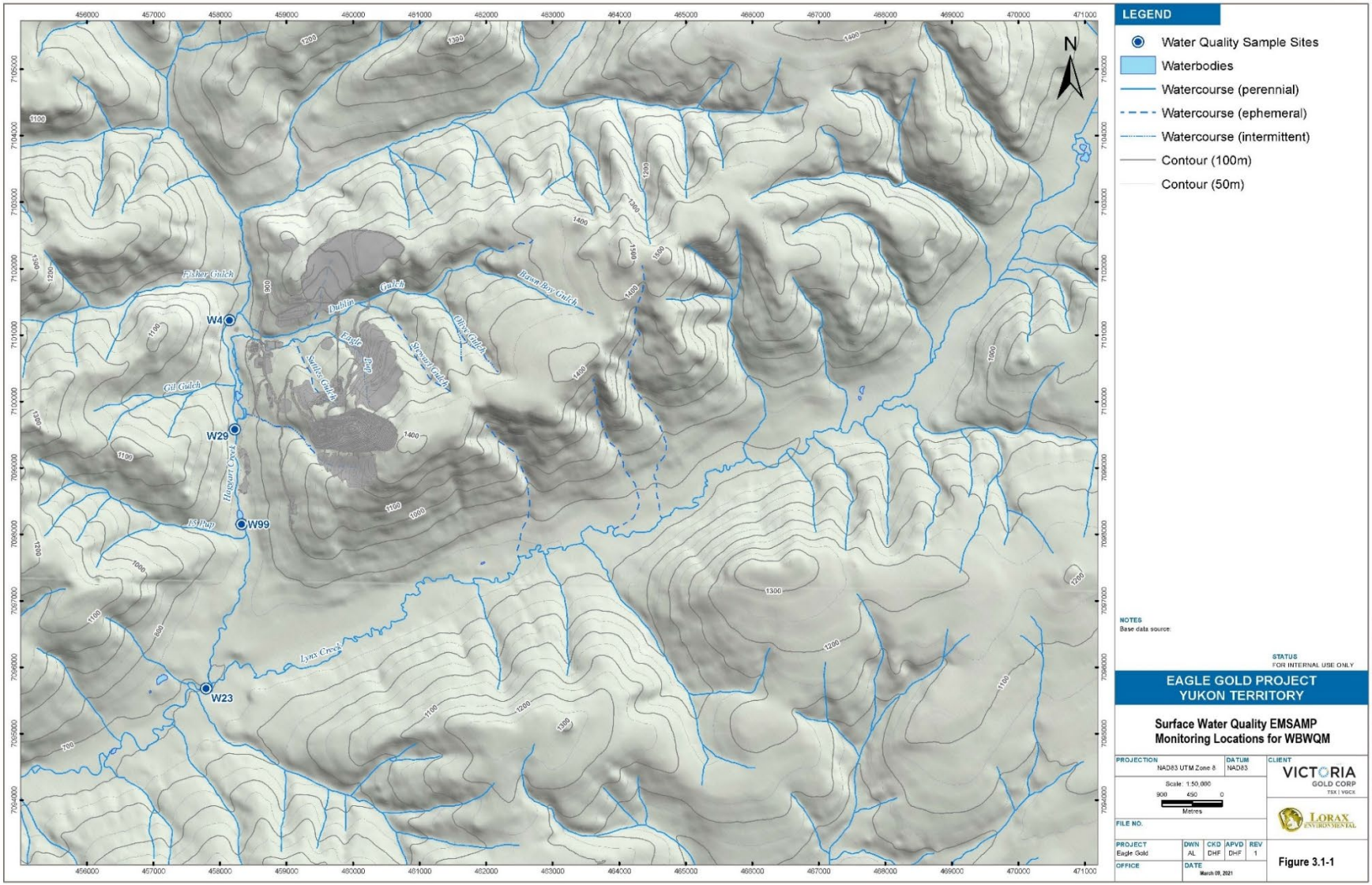


Figure 3.1-1: Key Surface Water Quality EMSAMP Stations for WBWQM

Figure 3.1-2 summarizes the updated water quality model predictions for As at W4 in Haggart Creek. The modeling period of Y -1 (2017) to Y3 (2021) includes actual site water management data and pumping records within the model and shows As concentrations ranging from 0.001 mg/L to a November 2021 peak of roughly 0.012 mg/L. The November 2021 peak coincides with site discharge to Haggart Creek of contact water that was compliant with EQS for As but occurred during a lower flow period.

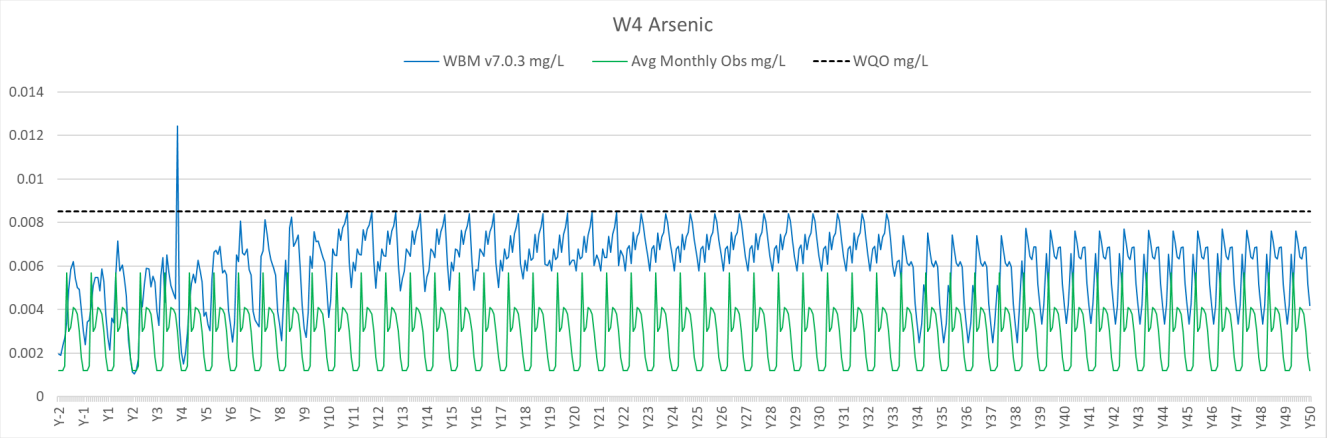


Figure 3.1-2: Predictions for Monthly Mean Total As at W4 in Haggart Creek for WBWQM v7.0.3. Baseline mean monthly concentration denoted by green line; Water Quality Objective denoted by dashed line.

For forward modeling throughout the operations phase (Y4 to Y9), the model predicts seasonal monthly mean As concentrations at W4 ranging between approximately 0.0015 mg/L to 0.0084 mg/L, with a monthly median total As of approximately 0.0058 mg/L over that period. The highest monthly mean As concentrations are predicted to occur in June and the lower flow month of October. During HLF draindown (Y13 to Y33), monthly mean As concentrations ranging between approximately 0.0043 mg/L to 0.0084 mg/L are predicted (see Appendix C).

During the post closure period (Y34 onwards), when all contact water is being treated through a PTS, monthly mean peak As concentrations are predicted to be on the order of 0.0077 mg/L. Peak concentrations are predicted to appear during higher flow periods (*e.g.*, June) with lower monthly mean concentrations predicted for the lower flow months of December to March (Appendix C and Figure 3.1-2).

Predicted monthly mean concentrations for total Se at W4 in Haggart Creek are presented in Figure 3.1-3. The primary source of Se in contact water is associated with the HLF. Source term Se concentrations predicted in HLF draindown waters range from approximately 0.16 mg/L to 0.2 mg/L (Table 2.2-6) and are roughly an order of magnitude greater than source term Se concentrations (*e.g.*, 0.015 mg/L) in WRSA seepages. As such,

monthly mean total Se concentrations predicted during operations (*e.g.*, Y-1 to Y9) are predicted to be low with total Se concentrations ranging between 0.00015 mg/L to 0.0005 mg/L as no high Se HLF draindown waters are treated. Updated predictions indicate that Se concentrations are highest during the period of rinsing and draindown (Y10 to Y33) when HLF waters are elevated in Se. While HLF draindown waters are treated in the MWTP and/or PTS to 0.025 mg/L, the higher concentrations predicted in Haggart Creek are a result of discharge water always containing 0.025 mg/L. During the operations period, no HLF waters are treated and water accumulating in the LDSP is at Se concentrations well below the treatment level of 0.025 mg/L.

During the period of HLF rinse and draindown, peak Se concentrations during this period are predicted to be roughly 0.0019 mg/L and occur during the lower flow months of late winter (*e.g.*, January to March; Appendix C). It should be noted that these predicted values may be an overestimate given that actual flows out the PTS facilities will likely not occur to any significant extent due to sub-zero ambient temperatures during these months. Conversely, during most of the open water period (May to September), monthly mean Se concentrations are predicted to range between less than 0.0003 mg/L to roughly 0.0013 mg/L (Appendix C).

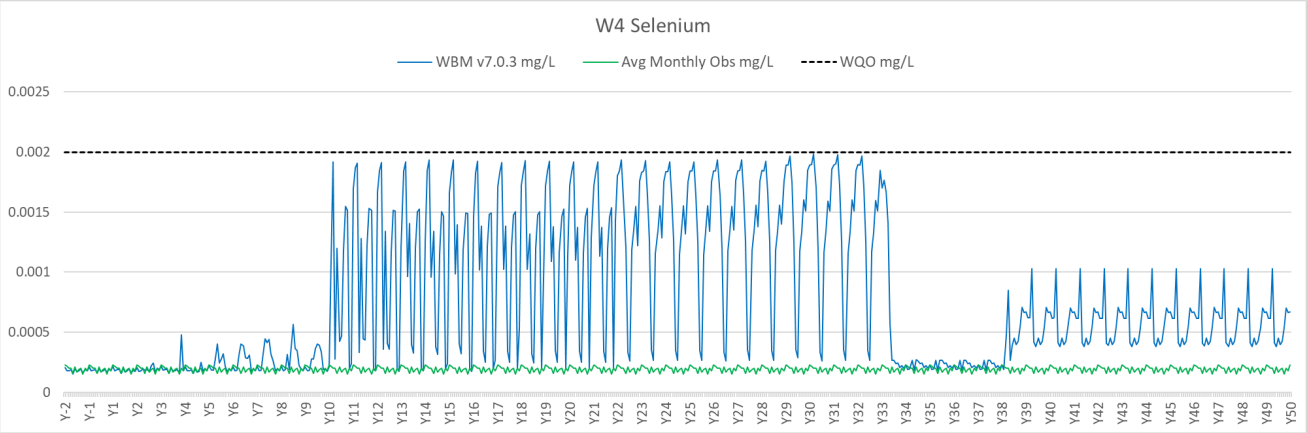


Figure 3.1-3: Predictions for Monthly Mean Total Se at W4 in Haggart Creek for WBWQM v7.0.3. Baseline mean monthly concentration denoted by green line; Water Quality Objective denoted by dashed line.

Table 3.1-2 summarizes the maximum WQM v7.0.3 predicted concentrations for all parameters at W4 in Haggart Creek. As illustrated, all parameters are predicted to be below their respective water quality objective. WQM v7.0.3 output for all parameters for station W4 can be found in Appendix B and Appendix C.

Table 3.1-2:
Maximum WBM v7.0.3 Predicted Concentrations (mg/L)
Compared to Water Quality Objectives at W4 for Haggart Creek

Parameter List		Maximum Mean Predicted Concentration at W4	WQ Objectives at W4
Dissolved Parameters	SO_4	158	309
	Cl	3	150
	Nitrate-N	1.5	3
	Nitrite-N	0.011	0.02
	NH_3-N	0.42	1.13
	CN_{WAD}	0.0026	0.005
	Al (diss)	0.14	0.1
Total Metalloids and Metals	Sb	0.009	0.02
	As[1]	0.012 (0.0085)	0.0085
	Cd	0.00012	0.000197
	Cu	0.0038	0.005
	Co	0.0021	0.004
	Fe	0.39	1.0
	Pb	0.0027	0.0077
	Hg	0.000015	0.00002
	Mn	0.146	1.17
	Mo	0.006	0.073
	Ni	0.036	0.116
	Se	0.0019	0.002
	Ag	0.0007	0.0015
	U	0.006	0.015
	Zn	0.02	0.038

All values as mg/L
1: 0.012 value is max observed for Nov. 2021. (0.0085) reflects Y4 through post-closure predicted max.

3.2 Station W29 – Haggart Creek

WBWQM v7.0.3 output is graphically presented in Figure 3.2-1 for As at station W29 in Haggart Creek. Model predicted As concentrations during actual construction and early operations (Y-2 to Y3) similarly illustrate a peak As value of roughly 0.011 mg/L during the November discharge period. Peak monthly mean As concentrations at W29 are predicted to be slightly lower as compared to station W4 during the draindown period (*e.g.*, Y13 to Y33) and generally narrowly range between 0.008 mg/L to 0.0082 mg/L with few exceptions (Figure 3.2-1) and occurs during the open water period of June through October (Appendix C). During post closure, As loadings occur to Haggart Creek upstream of W29 from Platinum Gulch PTS, which treats water from waste rock seepage and pit overflow water. Post closure predicted As concentrations are highly flow dependent during this period of passive discharge with values ranging from approximately 0.0025 mg/L in February to monthly mean maximum values of roughly 0.0081 mg/L in June/July (Appendix C and Figure 3.2-1). As expected, the higher monthly As concentrations are experienced during the open water period (April to September) when the EP PTS and PG PTS are discharging.

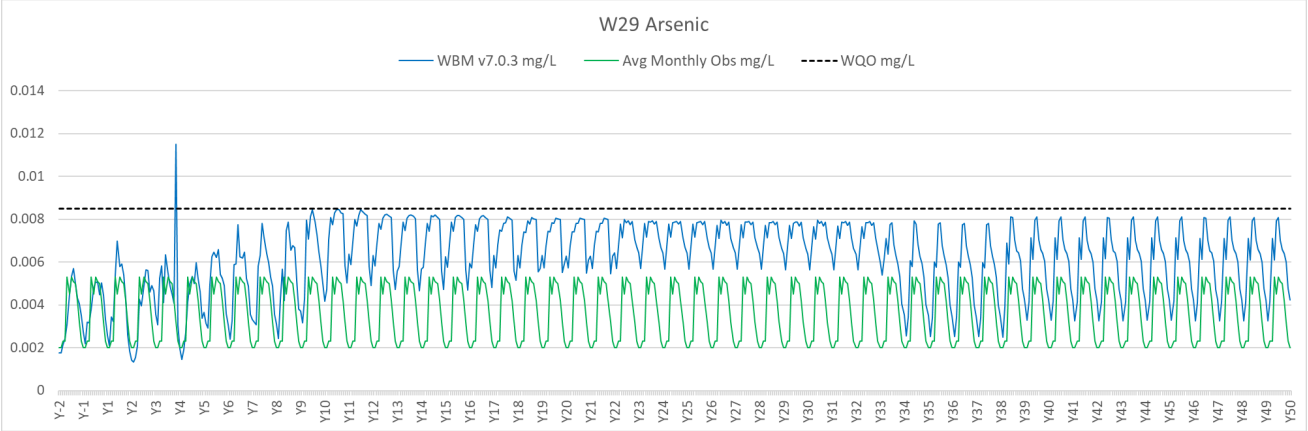


Figure 3.2-1: Predictions for Monthly Mean Total As at W29 in Haggart Creek for WBM v7.0.3. Baseline mean monthly concentration denoted by green line; Water Quality Objective denoted by dashed line.

The modeled peak monthly mean Se concentrations at W29 are predicted to occur during late operations and into the draindown period (*e.g.*, Y10 to Y33; Figure 3.2-2). Total monthly mean Se concentrations during this period are predicted to range from approximately 0.00017 mg/L, during higher flow months of May to July, to approximately 0.0018 mg/L, during winter low flow months (*e.g.*, February and March). During closure, mean monthly total Se concentrations at W29 are predicted to range between approximately 0.00019 mg/L to 0.001 mg/L. The complete excel output data for all parameters modelled at station W29 is presented in Appendix C.

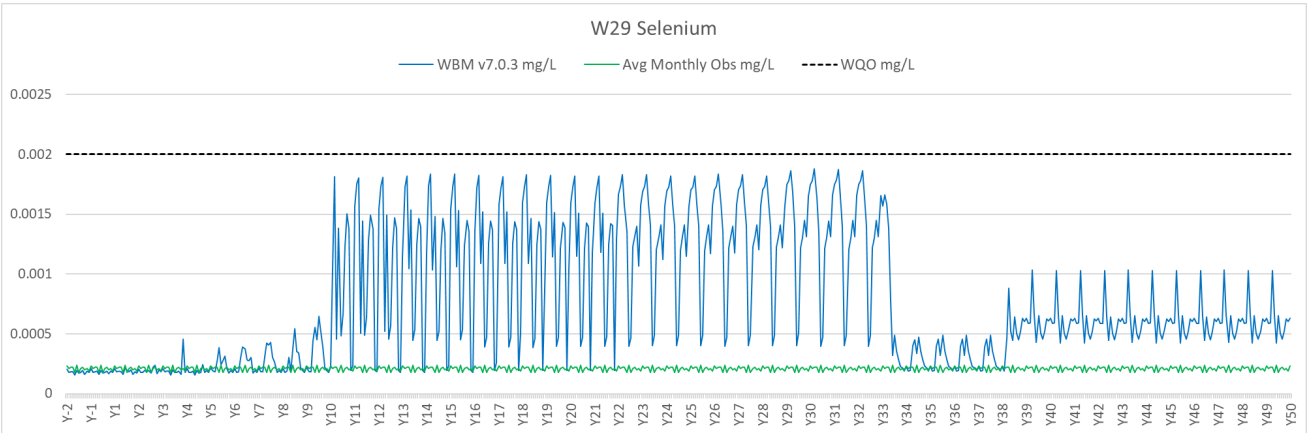


Figure 3.2-2: Predictions for Monthly Mean Total Se at W29 in Haggart Creek for WBM v7.0.3. Baseline mean monthly concentration denoted by green line; Water Quality Objective denoted by dashed line.

3.3 Station W99 –Haggart Creek

WBM v7.0.3 predictions for mean monthly total As and total Se at W99 in Haggart Creek are graphically presented in Figure 3.3-1 and Figure 3.3-2, respectively. Modeled prediction concentrations for both parameters are very similar to those values presented for station W29 although very slightly lower. These minor changes reflect the fact that the additional catchment at W99 is only 1.03 times (3%) greater than at W29. As such, modeled predicted concentrations are not materially different between the two stations.

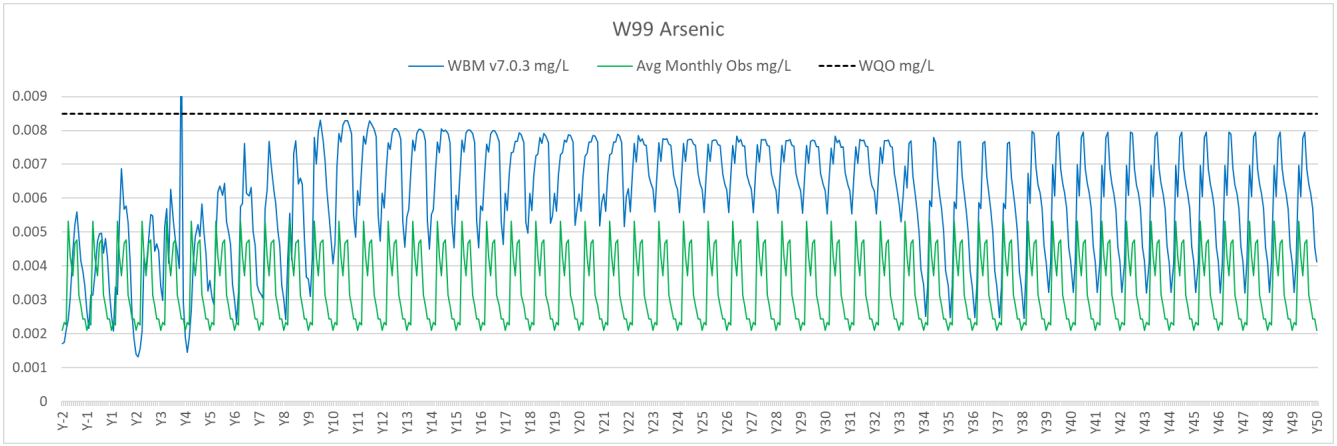


Figure 3.3-1: Predictions for Monthly Mean Total As at W99 in Haggart Creek for WBM v7.0.3. Baseline mean monthly concentration denoted by green line; Water Quality Objective denoted by dashed line.

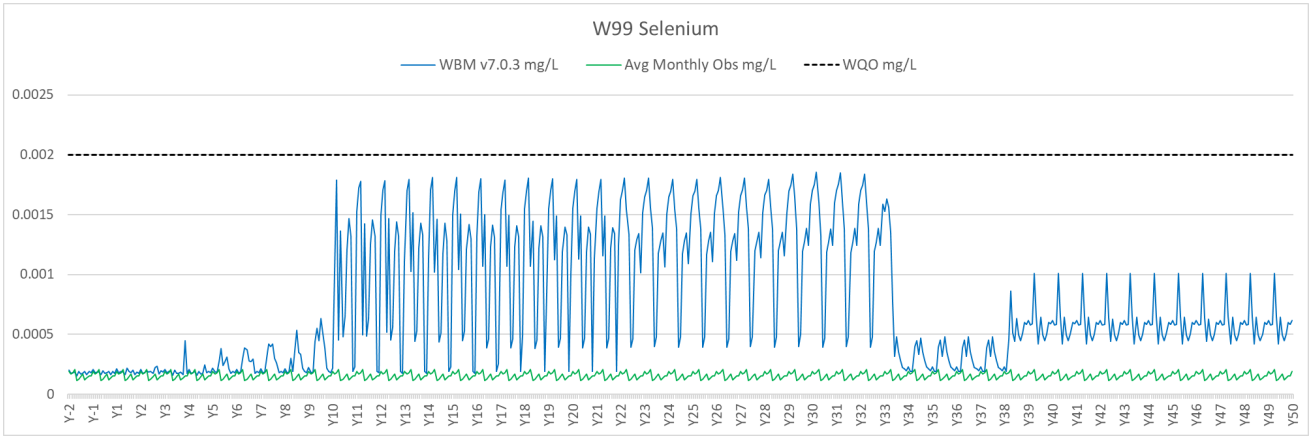


Figure 3.3-2: Predictions for Monthly Mean Total Se at W99 in Haggart Creek for WBM v7.0.3. Baseline mean monthly concentration denoted by green line; Water Quality Objective denoted by dashed line.

3.4 Station W23 – Far-Field Haggart Creek

WBM v7.0.3 predictions for total As at W23 in Haggart Creek are graphically presented in Figure 3.4-1. Unlike stations more proximal to the Eagle Mine in Haggart Creek (*e.g.*, W4 and W29), predicted peak As concentrations at W23 are less variable throughout the life of mine period. For example, peak As concentrations during the entire life of mine period (Y4 onwards) are not modeled to exceed 0.0072 mg/L. Most notably, the maximum predicted incremental increase in As concentrations at W23, over baseline values, is roughly 0.0026 mg/L and occurs during March (Y10). During the open water period of April to September, predicted incremental increases in As over background range from less than 0.0005 mg/L to approximately 0.002 mg/L. Predicted maximum concentrations of As at W23 throughout the mine life are all well below the water quality objective (Figure 3.4-1).

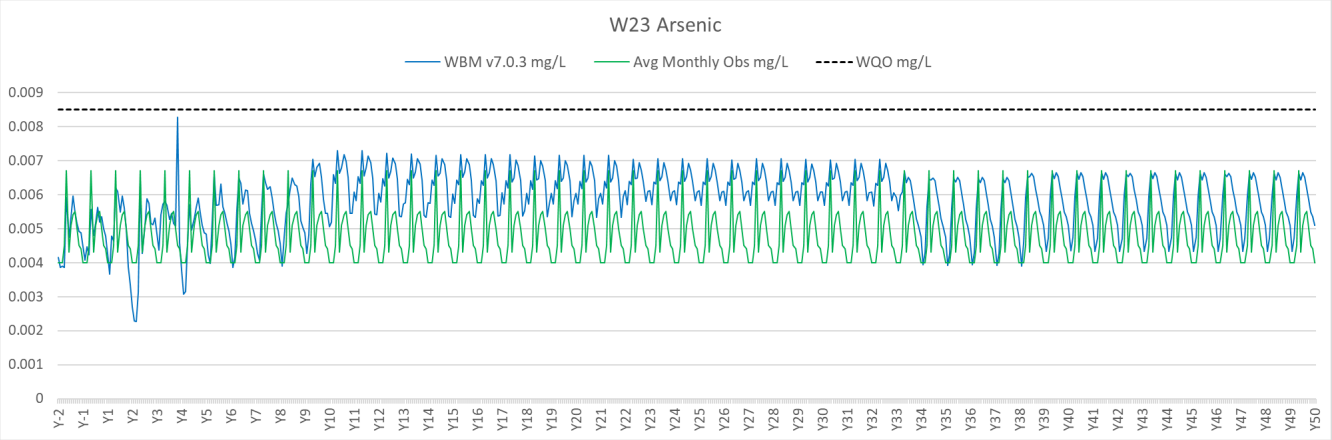


Figure 3.4-1: Predictions for Monthly Mean Total As at W23 in Haggart Creek for WBM v7.0.3. Baseline mean monthly concentration denoted by green line; Water Quality Objective denoted by dashed line.

Water quality predictions for total Se at W23 are presented in Figure 3.4-2. Maximum predicted total Se concentrations in WBM v7.0.3 are approximately 0.00135 mg/L and, like upstream locations in Haggart Creek, occur during the late operations and draindown period.

Closure (Y33+) monthly mean Se concentration predictions are between approximately 0.00027 mg/L and 0.00062 mg/L (Appendix C). All predicted concentrations are well below the water quality objective for Se of 0.002 mg/L.

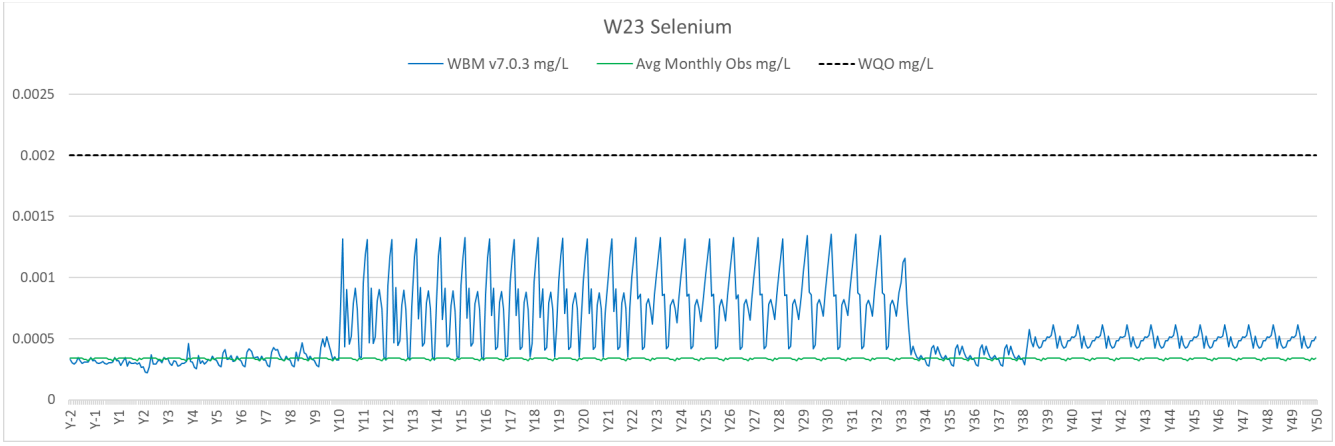


Figure 3.4-2: Predictions for Monthly Mean Total Se at W23 in Haggart Creek for WBM v7.0.3. Baseline mean monthly concentration denoted by green line; Water Quality Objective denoted by dashed line.

4. Water Quantity Predictions

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4. Water Quantity Predictions

4.1 Predicted Streamflow Changes

The results of the WBM v7.0.3 are presented in this section. There have been no substantive changes from the 2014 WBM outputs as a result of the changes in the mine plan since 2014. The predicted changes to the baseline streamflow regime (2010-2017 average) as a result of mine development and operation are presented for the average monthly discharge for four distinct years of the mine life – representative of key changes to the management of site water. These correspond to the WBM/WQM schematics presented in Figure 2.2-3 through Figure 2.2-6.

- Modelled Year 2021 = Year 3 (Phase 1 of the HLF)
    - 2021 climate series used as input, see discussion on wet conditions experienced in 2021 (Section 2.1.1.1)
- Modelled Year 2028 = Year 10 (first year of rinse/gold recovery)
- Modelled Year 2031 = Year 13 (first year of HLF draindown)
- Modelled Year 2051 = Year 33 (end of active closure)

The average monthly baseline and mine affected streamflows are presented for two key receiving environment nodes W4 (Haggart Creek downstream of Dublin Gulch) and W29 (Haggart Creek downstream of Platinum Gulch) in tabular (Table 4.1-1) and figure formats (Figure 4.1-1 through Figure 4.1-8).

Table 4.1-1:
Predicted percent change in flows at W4 and W29 nodes for Project years.

Mine Phase	Operations (Year 3)		First Year of HLF Rinsing		First Year of HLF Draindown		End of Active Closure	
Month	**W4**	**W29**	**W4**	**W29**	**W4**	**W29**	**W4**	**W29**
Jan	9%	5%	6%	0%	7%	0%	6%	0%
Feb	9%	6%	6%	1%	7%	2%	6%	1%
Mar	17%	14%	7%	4%	7%	4%	5%	2%
Apr	-57%	-59%	4%	1%	3%	0%	1%	-1%
May	8%	5%	3%	2%	0%	-1%	-1%	-1%
Jun	80%	72%	-11%	-12%	-9%	-10%	-9%	-9%
Jul	-13%	-16%	2%	2%	2%	2%	2%	2%
Aug	-39%	-41%	4%	2%	4%	2%	2%	0%
Sep	-38%	-41%	5%	2%	7%	4%	4%	1%
Oct	19%	9%	41%	32%	42%	33%	37%	30%
Nov	0%	-8%	-7%	-10%	-7%	-9%	-10%	-12%
Dec	-2%	-9%	8%	3%	8%	3%	2%	-1%
Average	**-1%**	**-5%**	**5%**	**2%**	**6%**	**3%**	**4%**	**1%**
May-Sept	**0%**	**-4%**	**1%**	**-1%**	**1%**	**-1%**	**0%**	**-2%**

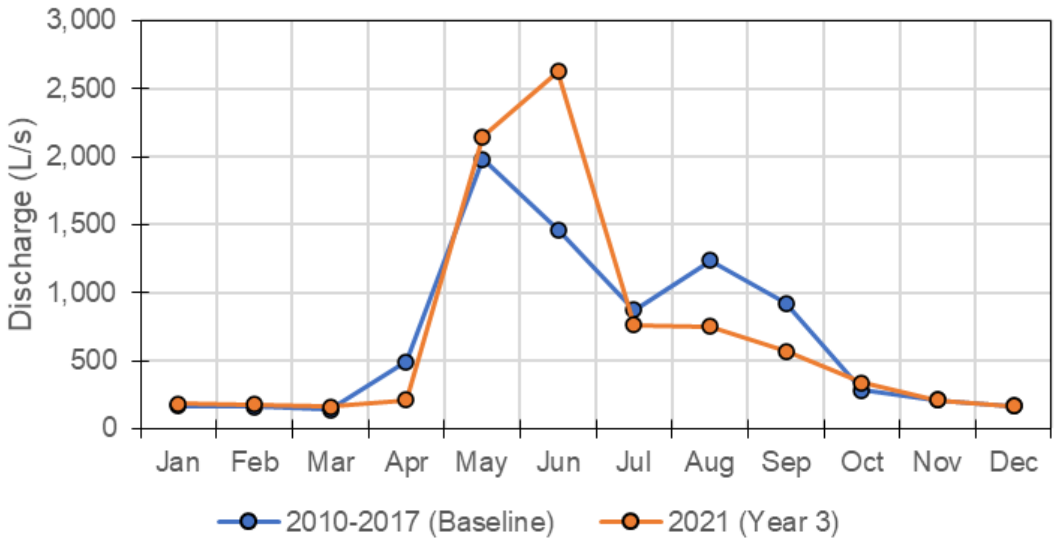


Figure 4.1-1: Average monthly and predicted mine affected streamflows for the W4 node (Year 3; WBM v7.0.3).

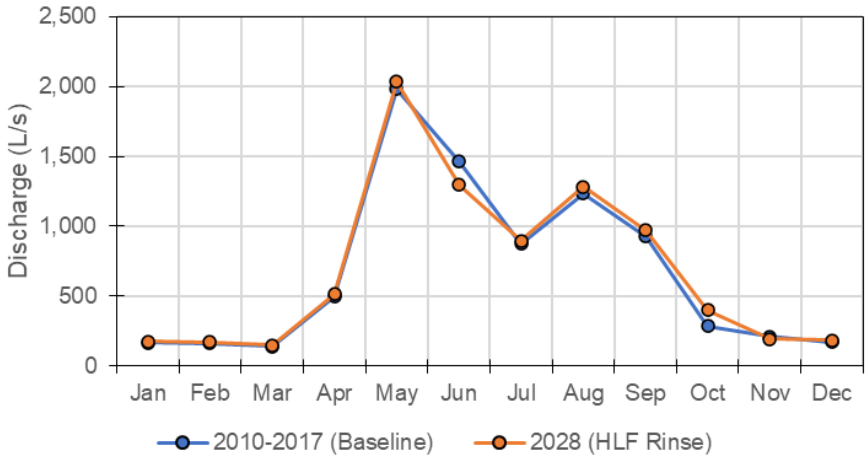


Figure 4.1-2: Average monthly and predicted mine affected streamflows for the W4 node (Year 10; WBM v7.0.3).

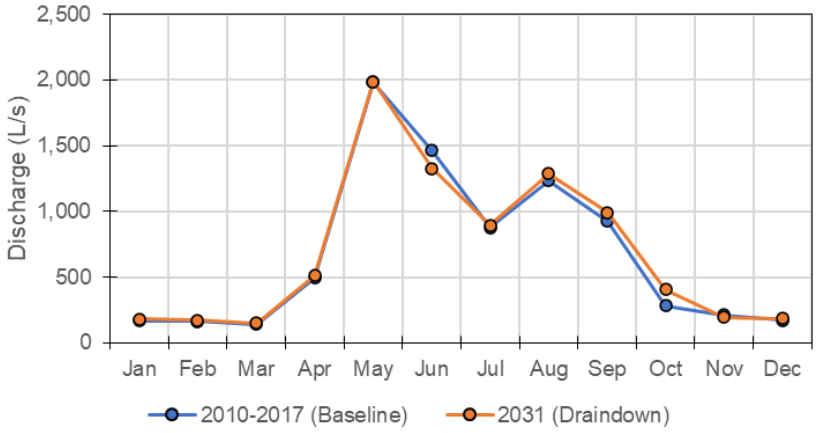


Figure 4.1-3: Average monthly and predicted mine affected streamflows for the W4 node (Year 13; WBM v7.0.3).

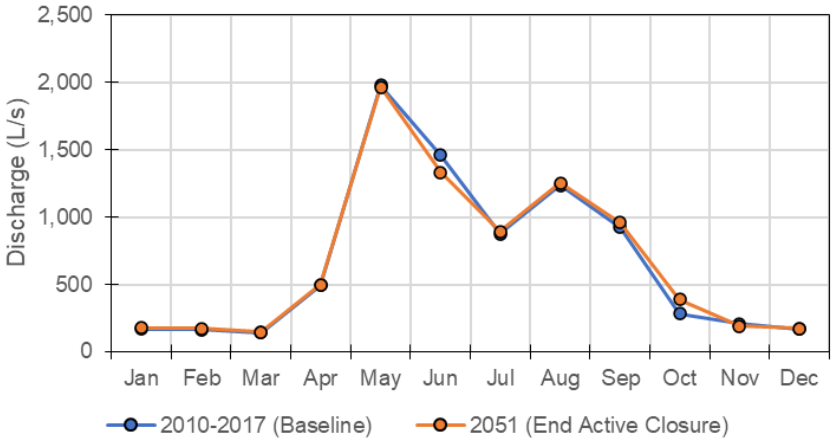


Figure 4.1-4: Average monthly and predicted mine affected streamflows for the W4 node (Year 33; WBM v7.0.3).

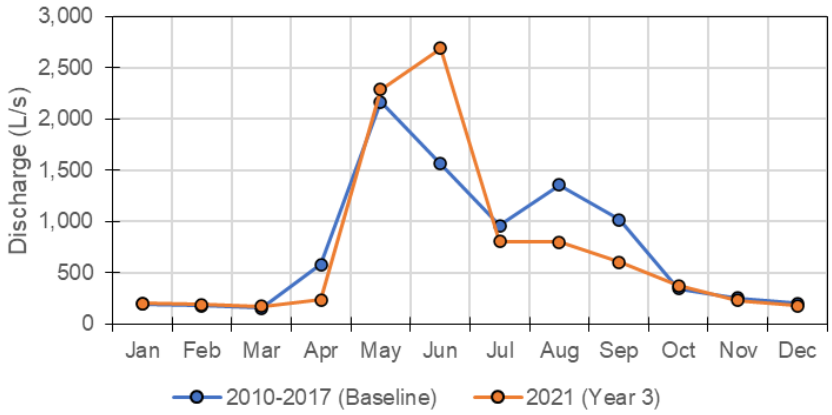


Figure 4.1-5: Average monthly and predicted mine affected streamflows for the W29 node (Year 3; WBM v7.0.3).

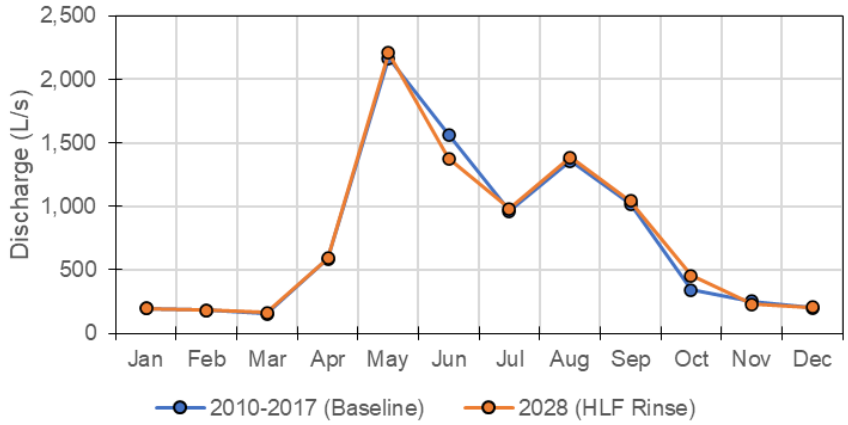


Figure 4.1-6: Average monthly and predicted mine affected streamflows for the W29 node (Year 13; WBM v7.0.3).

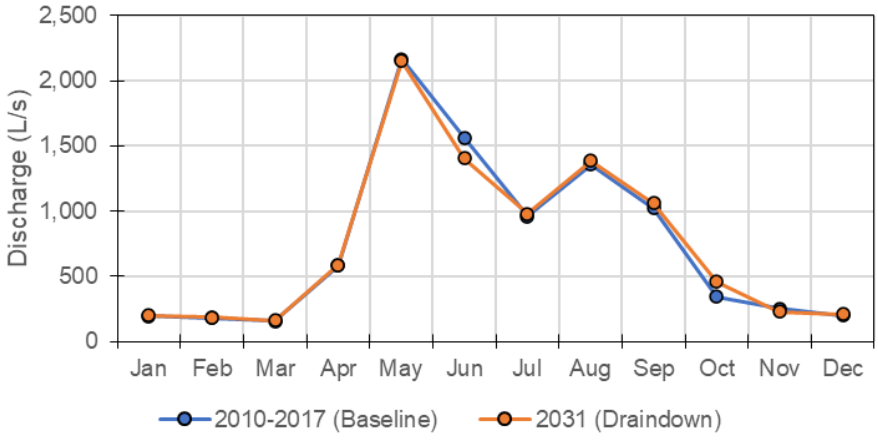


Figure 4.1-7: Average monthly and predicted mine affected streamflows for the W29 node (Year 13; WBM v7.0.3).

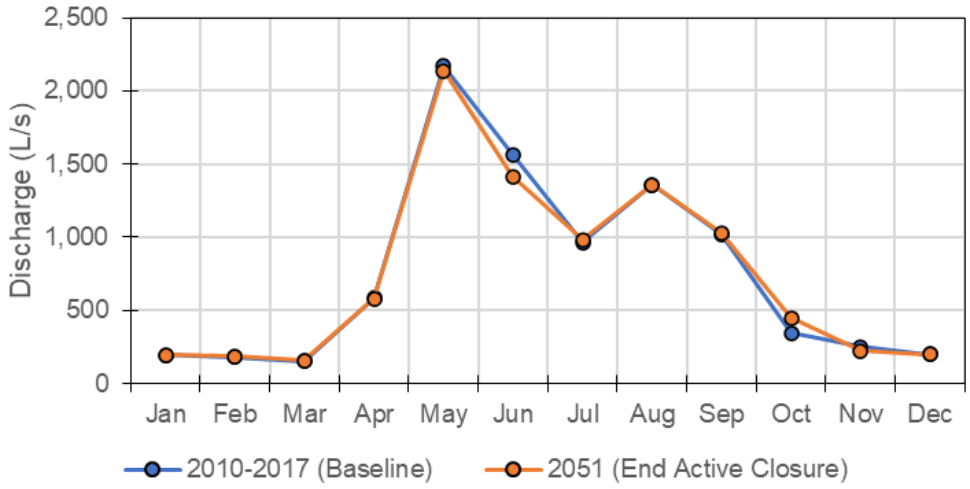


Figure 4.1-8: Average monthly and predicted mine affected streamflows for the W29 node (Year 33; WBM v7.0.3).

Differences in streamflows in 2021 relative to the baseline condition are reflective of the precipitation conditions at the Project site (Section 2.1.1.1), and not mine operations. Maximum expected decreases in the baseline open water streamflow volumes occur in June (-9% to -12%), and the minimum predicted changes occur in November through April (-11% to 8%; Table 4.1-1). The average open water season (May-September) flow changes are predicted to be 1% at W4 during Operations and the Active Closure (draindown) phase. On an average annual basis, flows in Haggart Creek at W4 are predicted to change from baseline by 5%, and by 2% at W29. The reductions in June flows (-11%) are due to staging of treated discharge to the receiving environment to maintain water quality within the prescribed limits. The substantial relative increases in predicted October flows are due to the MWTP continuing to discharge treated water at a higher rate than experienced under baseline conditions during this month. Note that due to the low flows experienced in Haggart Creek during the winter and shoulder seasons (October to April), small changes in predicted flows due to mine operations result in larger relative predicted changes to the baseline streamflow regime. This is also the period for which continuous flow data are not available due to extensive channel icing, and thus characterization of the baseline flow regime is based largely on infrequent spot flow measurements. For these reasons, relatively less weight is placed on the predicted changes to the winter streamflow regime in Haggart Creek.

5. Closure

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5. Closure

We trust that this report meets your expectations. Please contact the undersigned with any questions or comments.

Sincerely,

LORAX ENVIRONMENTAL SERVICES LTD.

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Appendix A: Geochemical Source Terms

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Appendix A: Geochemical Source Term Model Output

Facility	Year	pH	Alkalinity	Sulphate	Cl	F	Ag	Al	As	B
Eagle Pup WRSA	2021	8.4	98	384	101	0.83	0.000032	0.0047	0.45	0.022
	2022	8.4	98	551	118	1.1	0.000033	0.0047	0.51	0.023
	2023	8.4	98	581	118	1.1	0.000033	0.0047	0.42	0.023
	2024	8.4	98	556	116	1.2	0.000033	0.0047	0.40	0.023
	2025	8.4	98	538	114	1.2	0.000033	0.0047	0.40	0.023
	2026	8.4	98	514	112	1.2	0.000033	0.0047	0.40	0.023
	2027	8.4	98	495	110	1.2	0.000033	0.0047	0.38	0.023
	2028	8.4	98	494	110	1.2	0.000033	0.0047	0.38	0.023
	Post-Closure	8.3	78	317	84	0.71	0.000040	0.0041	0.30	0.022
Platinum Gulch WRSA	2021	8.4	98	352	98	0.80	0.000032	0.0048	0.47	0.022
	2022	8.3	78	355	99	0.81	0.000032	0.0041	0.48	0.022
	Post-Closure	8.3	78	251	86	0.45	0.000041	0.0041	0.41	0.023
Eagle Pit Walls	2021	8.2	59	245	58	0.63	0.000018	0.0034	0.15	0.012
	2022	8.2	59	293	63	0.72	0.000018	0.0034	0.16	0.012
	2023	8.2	59	309	64	0.74	0.000018	0.0034	0.18	0.012
	2024	8.2	59	318	64	0.79	0.000018	0.0034	0.17	0.012
	2025	8.2	59	307	63	0.79	0.000018	0.0034	0.17	0.012
	2026	8.2	59	300	62	0.80	0.000018	0.0034	0.17	0.012
	2027	8.2	59	304	63	0.84	0.000018	0.0034	0.16	0.012
	2028	8.2	59	306	63	0.88	0.000018	0.0034	0.15	0.012
	Post-Closure	8.2	59	305	63	0.90	0.000018	0.0034	0.15	0.012

Notes:

All concentrations are in mg/L

Alkalinity is in CaCO3 equivalents

Appendix A: Geochemical Source Term Model Output

Facility	Year	Ba	Be	Ca	Cd	Co	Cr	Cu	Fe	Hg	K
Eagle Pup WRSA	2021	0.023	0.00010	179	0.00029	0.0022	0.0013	0.0038	0.00090	0.0000060	24
	2022	0.024	0.00010	244	0.00039	0.0030	0.0013	0.0044	0.00092	0.0000060	27
	2023	0.029	0.00010	256	0.00039	0.0029	0.0012	0.0044	0.00092	0.0000070	30
	2024	0.030	0.00010	249	0.00038	0.0028	0.0013	0.0044	0.00092	0.0000070	29
	2025	0.029	0.00010	242	0.00038	0.0027	0.0013	0.0044	0.00092	0.0000070	28
	2026	0.028	0.00010	234	0.00037	0.0026	0.0014	0.0043	0.00092	0.0000070	27
	2027	0.029	0.00010	228	0.00037	0.0025	0.0014	0.0043	0.00092	0.0000070	27
	2028	0.029	0.00010	228	0.00037	0.0025	0.0014	0.0043	0.00092	0.0000070	27
	Post-Closure	0.020	0.00010	152	0.00023	0.0016	0.0021	0.0032	0.00095	0.0000060	15
Platinum Gulch WRSA	2021	0.019	0.00010	166	0.00028	0.0022	0.0013	0.0037	0.00090	0.0000060	22
	2022	0.019	0.00010	168	0.00028	0.0022	0.0013	0.0037	0.00096	0.0000060	22
	Post-Closure	0.015	0.00011	118	0.00021	0.0015	0.0024	0.0030	0.00093	0.0000070	14
Eagle Pit Walls	2021	0.022	0.000056	120	0.00020	0.0011	0.00066	0.0023	0.0011	0.0000040	18
	2022	0.022	0.000056	138	0.00022	0.0013	0.00070	0.0024	0.0011	0.0000040	18
	2023	0.019	0.000056	142	0.00023	0.0014	0.00075	0.0025	0.0011	0.0000040	17
	2024	0.020	0.000056	146	0.00024	0.0015	0.00078	0.0025	0.0011	0.0000040	17
	2025	0.019	0.000056	142	0.00023	0.0014	0.00080	0.0025	0.0011	0.0000040	16
	2026	0.018	0.000056	139	0.00023	0.0014	0.00082	0.0025	0.0011	0.0000040	16
	2027	0.019	0.000056	142	0.00024	0.0014	0.00084	0.0025	0.0011	0.0000040	16
	2028	0.019	0.000056	144	0.00024	0.0014	0.00087	0.0026	0.0011	0.0000040	15
	Post-Closure	0.020	0.000056	144	0.00024	0.0014	0.00088	0.0026	0.0011	0.0000040	15

Notes:

All concentrations are in mg/L

Alkalinity is in $CaCO_3$ equivalents

Appendix A: Geochemical Source Term Model Output

Facility	Year	Li	Mg	Mn	Mo	Na	Ni	P	Pb	Sb	Se
Eagle Pup WRSA	2021	0.018	40	0.21	0.0070	85	0.0095	0.29	0.0015	0.013	0.011
	2022	0.023	54	0.30	0.0039	97	0.012	0.38	0.0019	0.038	0.020
	2023	0.026	57	0.31	0.0060	120	0.011	0.34	0.0018	0.032	0.017
	2024	0.025	56	0.30	0.0060	132	0.011	0.34	0.0018	0.036	0.017
	2025	0.025	54	0.29	0.0057	137	0.011	0.34	0.0017	0.037	0.016
	2026	0.024	52	0.27	0.0055	140	0.011	0.34	0.0017	0.038	0.016
	2027	0.024	52	0.26	0.0060	149	0.010	0.35	0.0017	0.040	0.015
	2028	0.024	52	0.26	0.0061	153	0.010	0.35	0.0017	0.041	0.015
	Post-Closure	0.013	36	0.18	0.0025	28	0.0083	0.26	0.0029	0.021	0.0077
Platinum Gulch WRSA	2021	0.016	36	0.20	0.0058	82	0.0094	0.30	0.0015	0.015	0.011
	2022	0.017	37	0.20	0.0057	82	0.0094	0.30	0.0015	0.016	0.012
	Post-Closure	0.011	27	0.13	0.0026	25	0.0095	0.27	0.0023	0.0085	0.0062
Eagle Pit Walls	2021	0.014	29	0.13	0.0079	88	0.0046	0.17	0.00086	0.011	0.0098
	2022	0.015	33	0.15	0.0064	98	0.0053	0.19	0.00093	0.020	0.012
	2023	0.015	33	0.16	0.0042	98	0.0057	0.20	0.00095	0.026	0.012
	2024	0.016	34	0.17	0.0039	108	0.0058	0.21	0.00097	0.030	0.013
	2025	0.015	32	0.16	0.0034	108	0.0057	0.21	0.00094	0.031	0.012
	2026	0.015	32	0.15	0.0032	112	0.0057	0.21	0.00093	0.032	0.012
	2027	0.015	33	0.16	0.0032	121	0.0056	0.22	0.00094	0.036	0.012
	2028	0.016	33	0.16	0.0030	130	0.0056	0.23	0.00094	0.040	0.012
	Post-Closure	0.016	33	0.15	0.0030	135	0.0055	0.23	0.00094	0.042	0.012

Notes:

All concentrations are in mg/L

Alkalinity is in CaCO3 equivalents

Appendix A: Geochemical Source Term Model Output

Facility	Year	Si	Sn	Sr	Tl	U	V	Zn
Eagle Pup WRSA	2021	3.3	0.00011	1.2	0.000018	0.016	0.0011	0.012
	2022	3.3	0.00016	2.1	0.000026	0.037	0.0012	0.014
	2023	3.3	0.00016	2.1	0.000021	0.039	0.0013	0.014
	2024	3.3	0.00015	2.3	0.000021	0.048	0.0013	0.014
	2025	3.3	0.00014	2.4	0.000020	0.053	0.0013	0.014
	2026	3.3	0.00013	2.4	0.000020	0.057	0.0013	0.014
	2027	3.3	0.00012	2.5	0.000020	0.062	0.0013	0.013
	2028	3.3	0.00012	2.6	0.000020	0.064	0.0013	0.013
	Post-Closure	3.3	0.00010	1.7	0.000016	0.029	0.0010	0.010
Platinum Gulch WRSA	2021	3.3	0.00010	1.2	0.000018	0.019	0.0010	0.011
	2022	3.3	0.00010	1.2	0.000018	0.019	0.0010	0.011
	Post-Closure	3.3	0.000085	0.85	0.000016	0.012	0.00094	0.0084
Eagle Pit Walls	2021	2.7	0.000038	1.1	0.000012	0.024	0.00074	0.0065
	2022	2.9	0.000056	1.5	0.000013	0.034	0.00080	0.0074
	2023	3.0	0.000070	1.7	0.000012	0.042	0.00081	0.0078
	2024	3.0	0.000072	1.9	0.000012	0.049	0.00084	0.0080
	2025	3.0	0.000071	1.9	0.000011	0.051	0.00082	0.0079
	2026	2.9	0.000069	2.0	0.000011	0.054	0.00083	0.0079
	2027	2.9	0.000067	2.2	0.000011	0.061	0.00085	0.0080
	2028	3.0	0.000067	2.3	0.000011	0.068	0.00088	0.0081
	Post-Closure	2.9	0.000065	2.4	0.000011	0.072	0.00089	0.0082

Notes:

All concentrations are in mg/L

Alkalinity is in CaCO3 equivalents

Appendix B: Water Quality Model Plots for all Parameters

B.1. Haggart Creek below Dublin Gulch (W4) – Water Quality Predictions

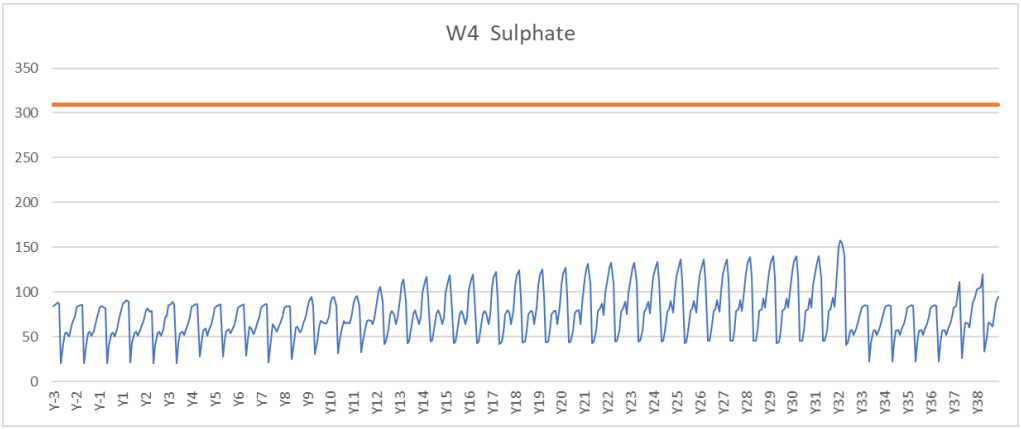
B.2. Haggart Creek below Eagle Creek (W29) – Water Quality Predictions

B.3. Haggart Creek below Eagle Creek (W99) – Water Quality Predictions

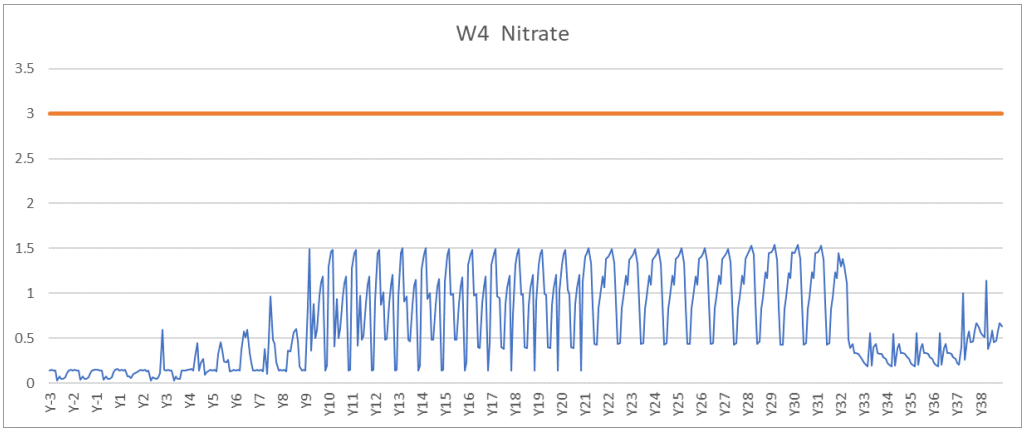
B.4. Haggart Creek below Lynx Creek (W23) – Water Quality Predictions

VICTORIA GOLD CORP

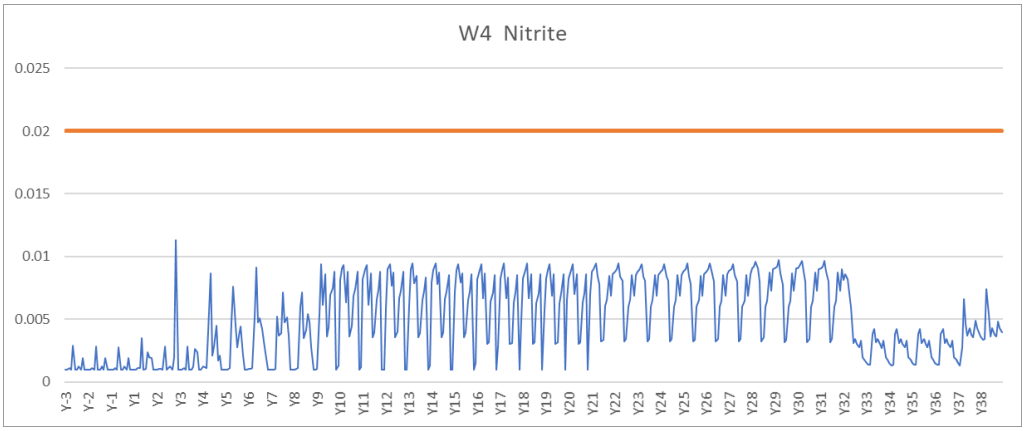
B.1. Haggart Creek below Dublin Gulch (W4) – Water Quality Predictions



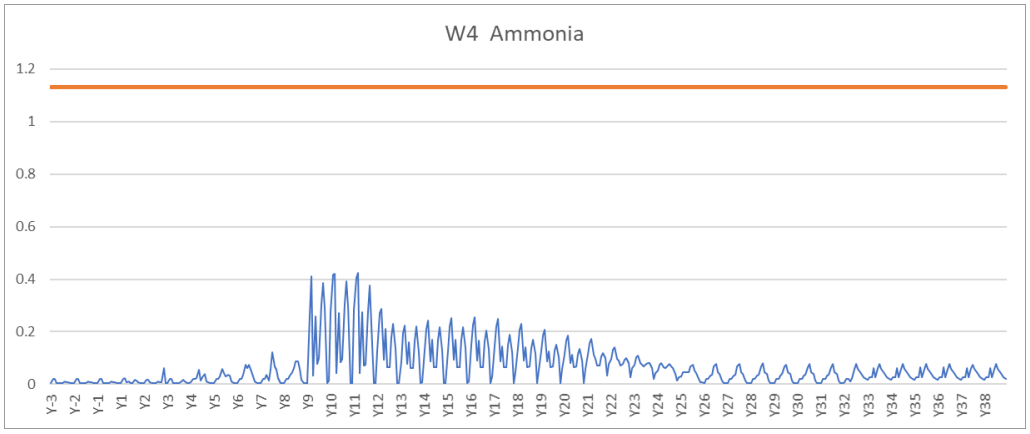
B.1-1: Time series of predicted sulphate concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



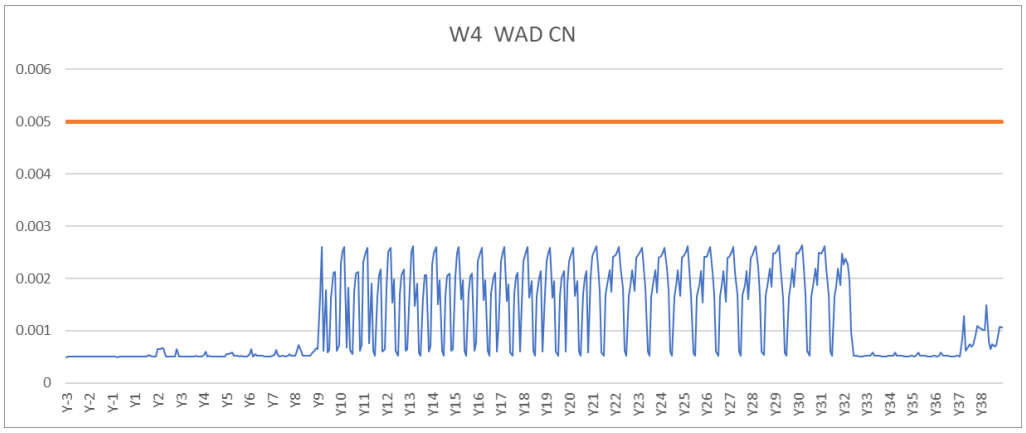
B.1-2: Time series of predicted nitrate concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



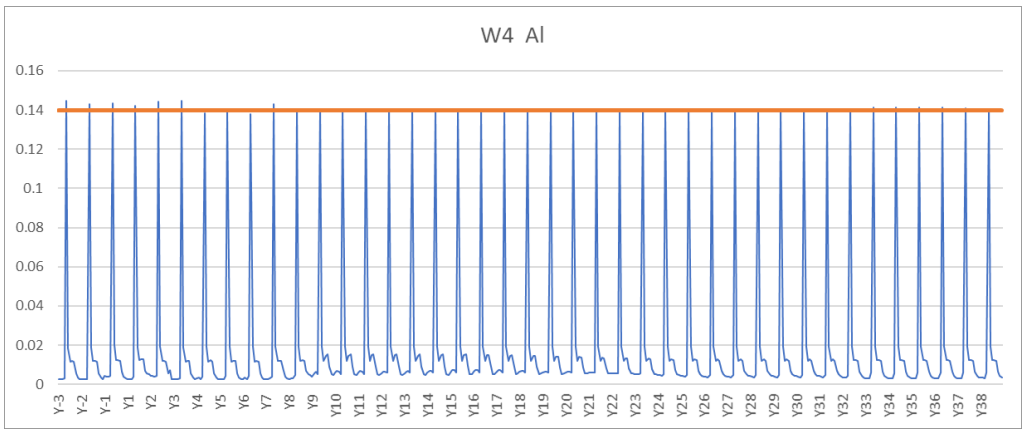
B.1-3: Time series of predicted nitrite concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



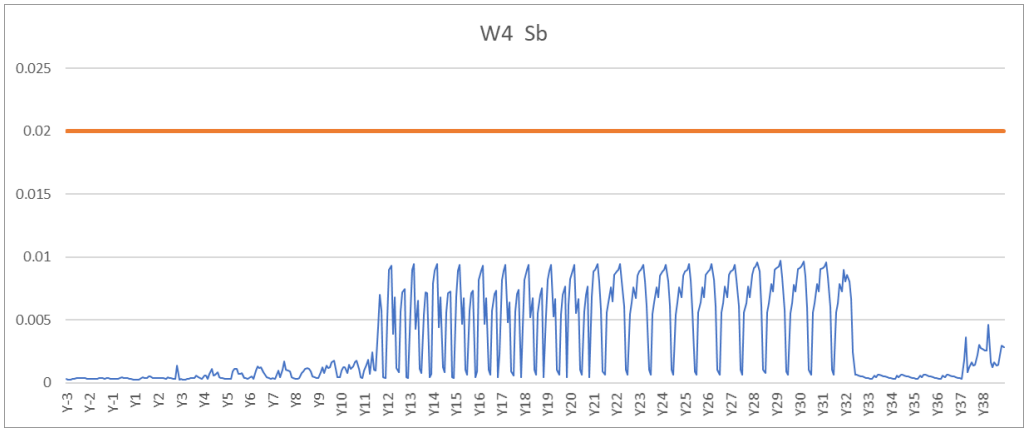
B.1-4: Time series of predicted ammonia concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



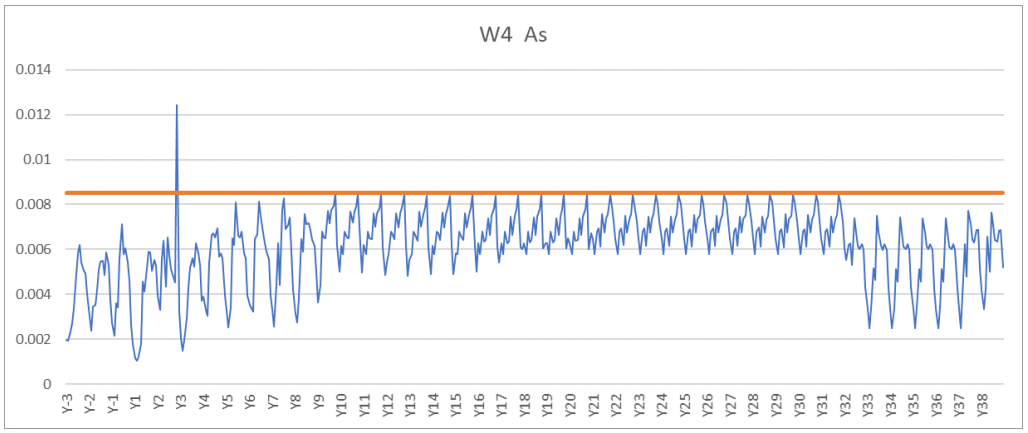
B.1-5: Time series of predicted WAD-CN concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



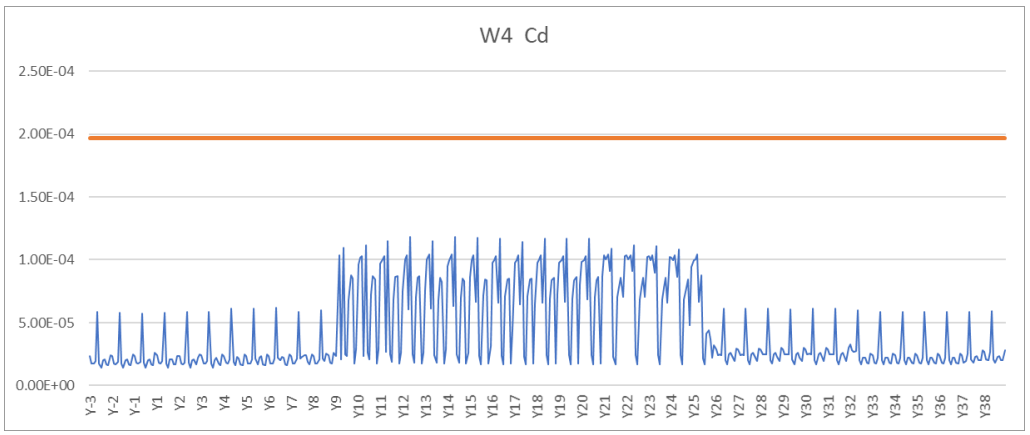
B.1-6: Time series of predicted aluminum concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



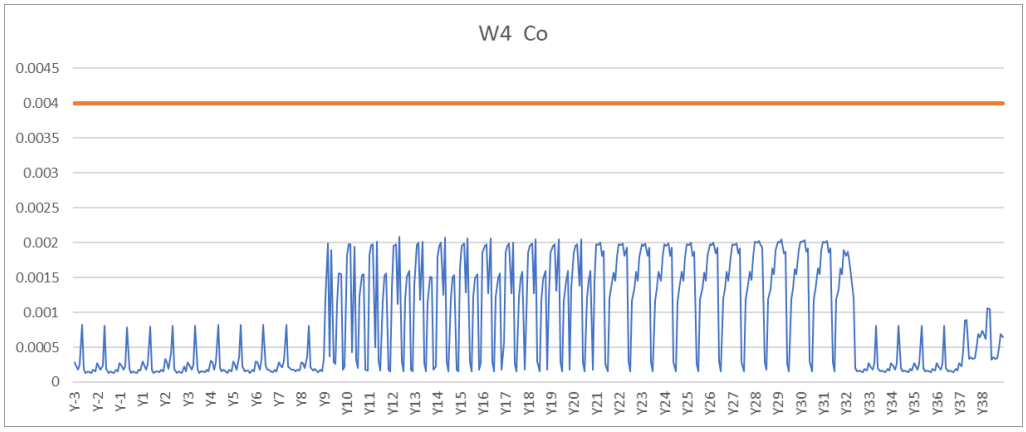
B.1-7: Time series of predicted antimony concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



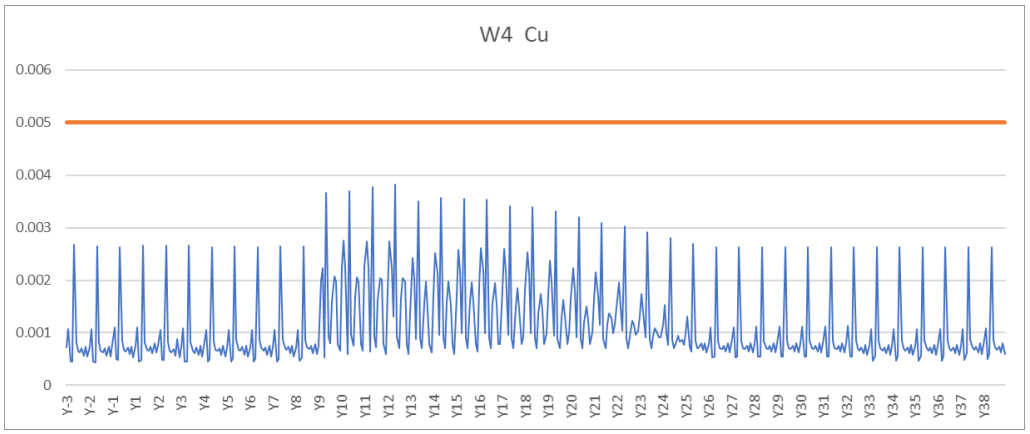
B.1-8: Time series of predicted arsenic concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



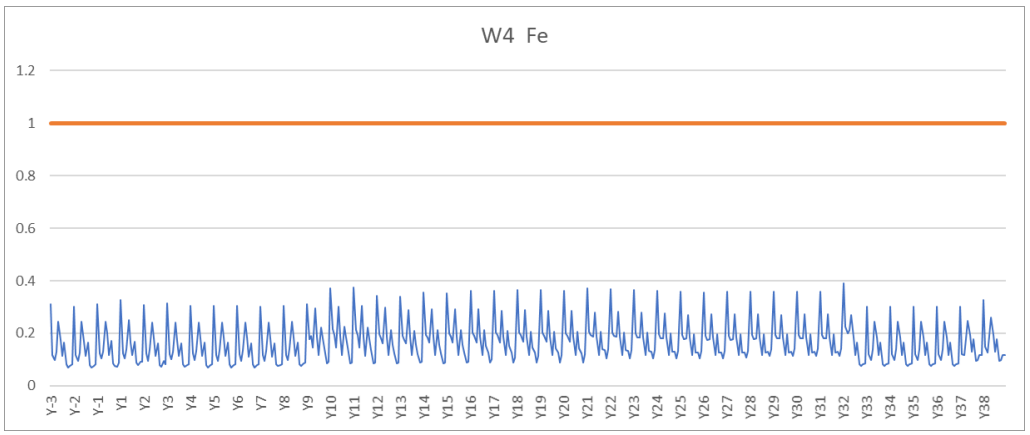
B.1-9: Time series of predicted cadmium concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



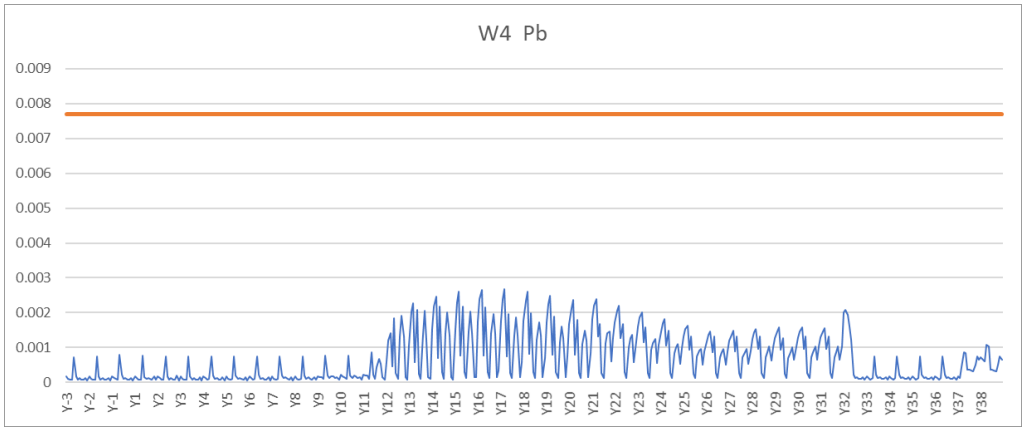
B.1-10: Time series of predicted cobalt concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



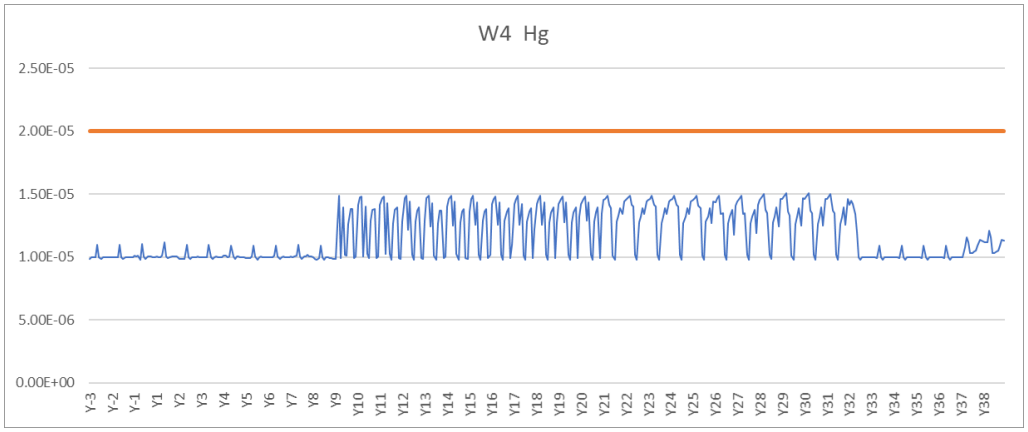
B.1-11: Time series of predicted copper concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



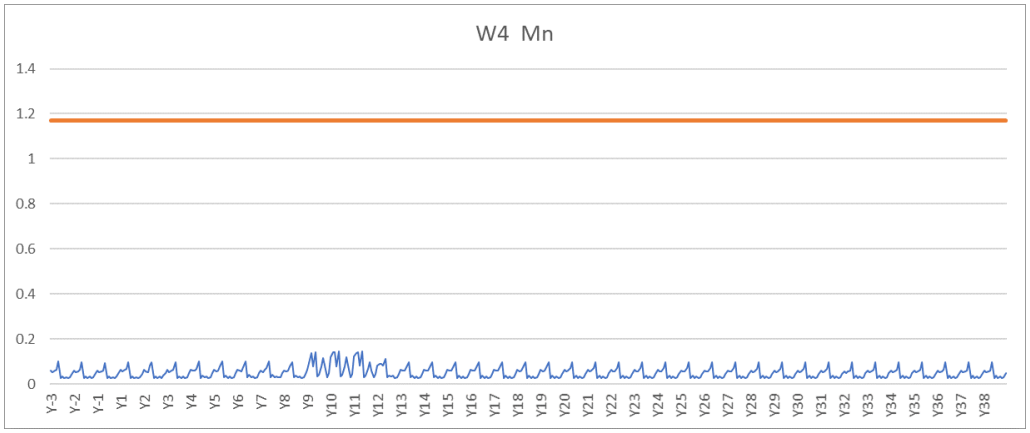
B.1-12: Time series of predicted iron concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



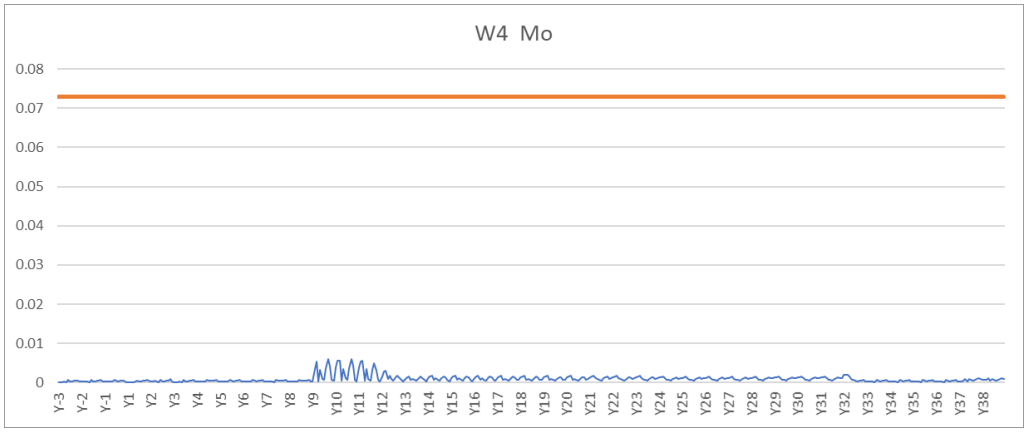
B.1-13: Time series of predicted lead concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



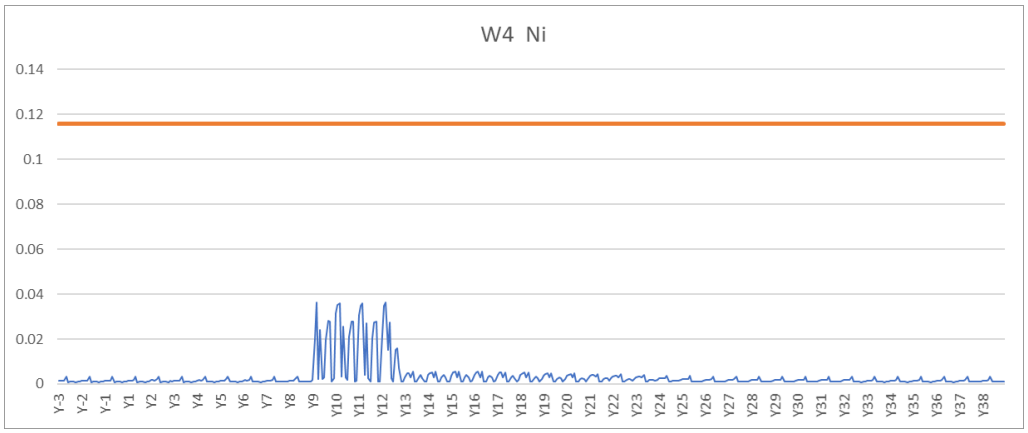
B.1-14: Time series of predicted mercury concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



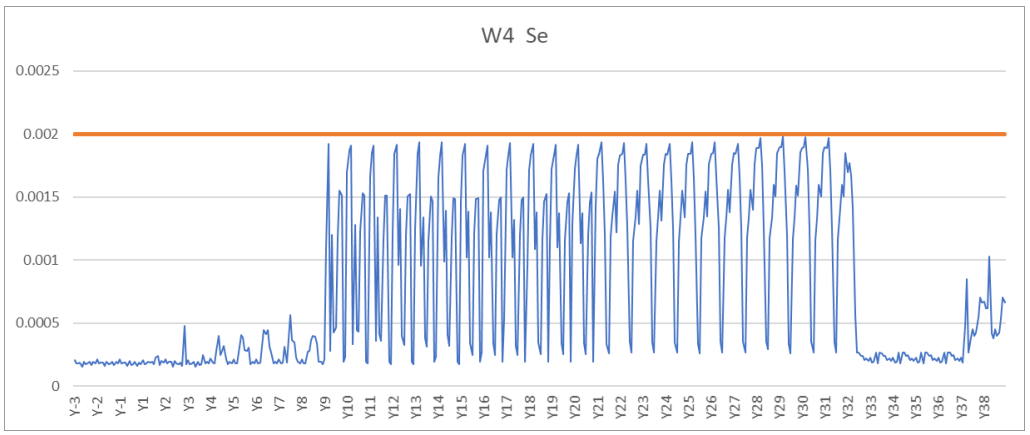
B.1-15: Time series of predicted manganese concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



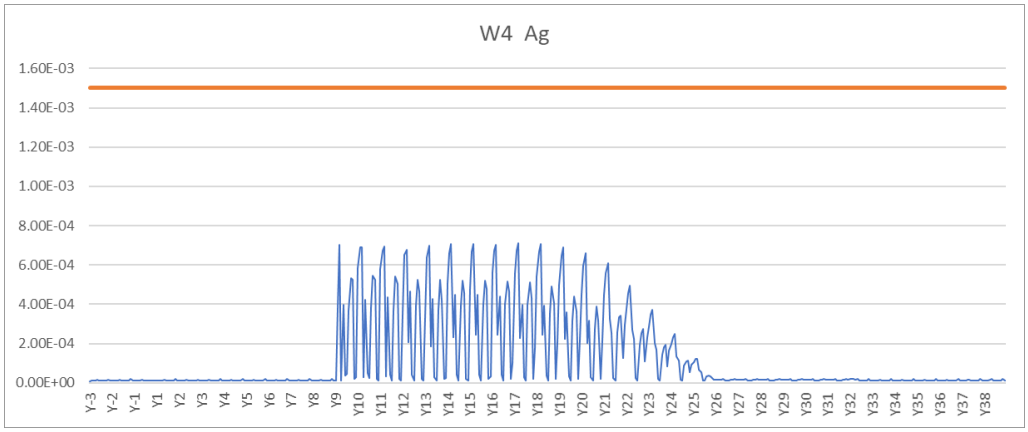
B.1-16: Time series of predicted molybdenum concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



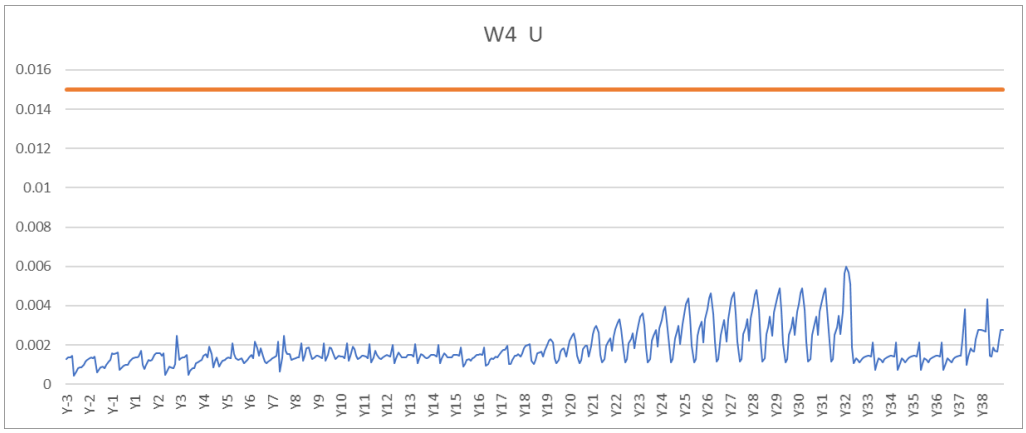
B.1-17: Time series of predicted nickel concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



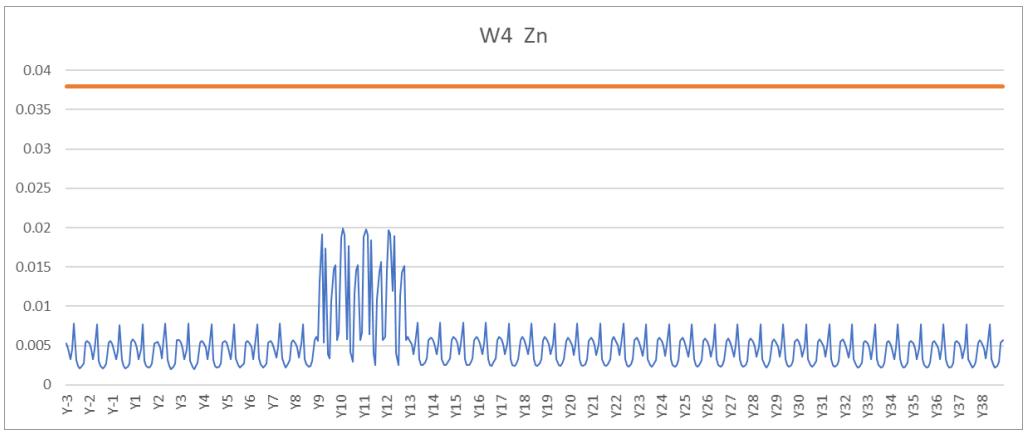
B.1-18: Time series of predicted selenium concentrations (mg/L) for W4. Water Quality Objective is shown by red line.



B.1-19: Time series of predicted silver concentrations (mg/L) for W4. Water Quality Objective is shown by red line.

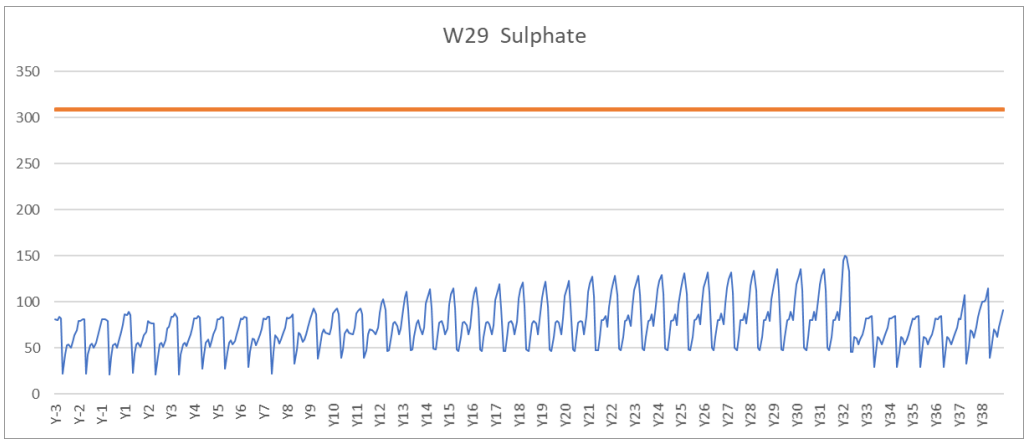


B.1-20: Time series of predicted uranium concentrations (mg/L) for W4. Water Quality Objective is shown by red line.

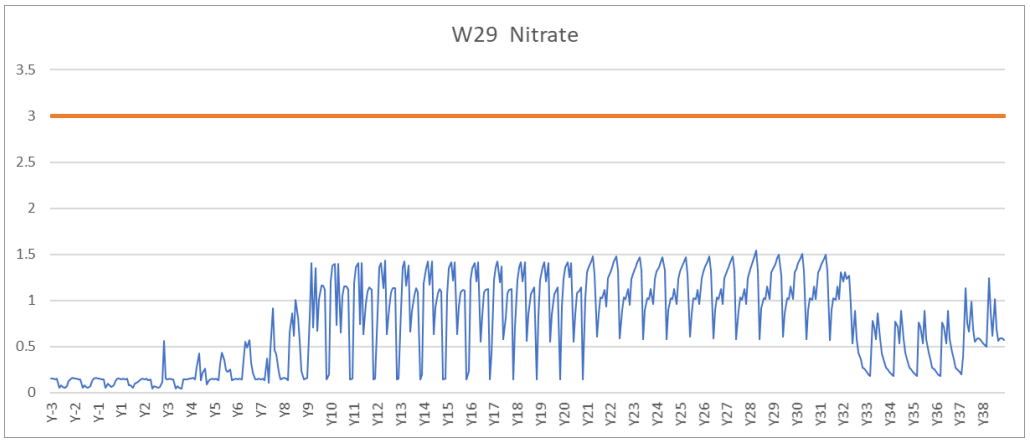


B.1-21: Time series of predicted zinc concentrations (mg/L) for W4. Water Quality Objective is shown by red line.

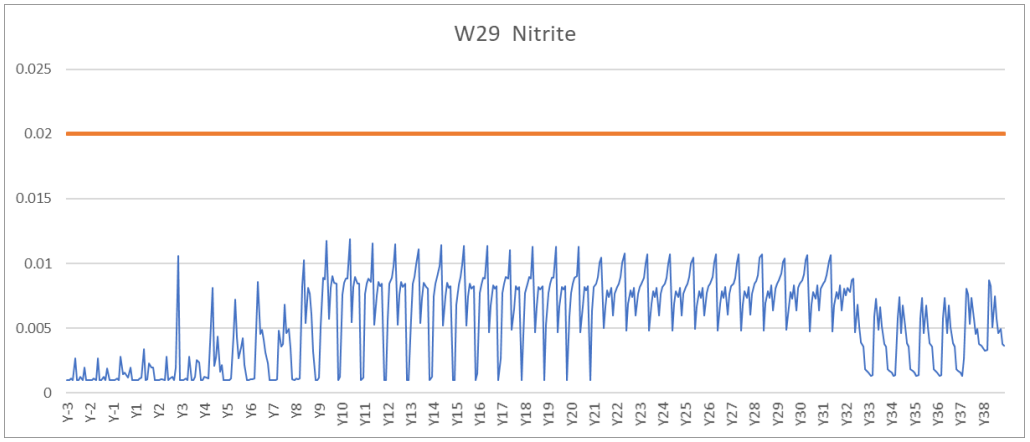
B.2. Haggart Creek below Eagle Creek (W29) – Water Quality Predictions



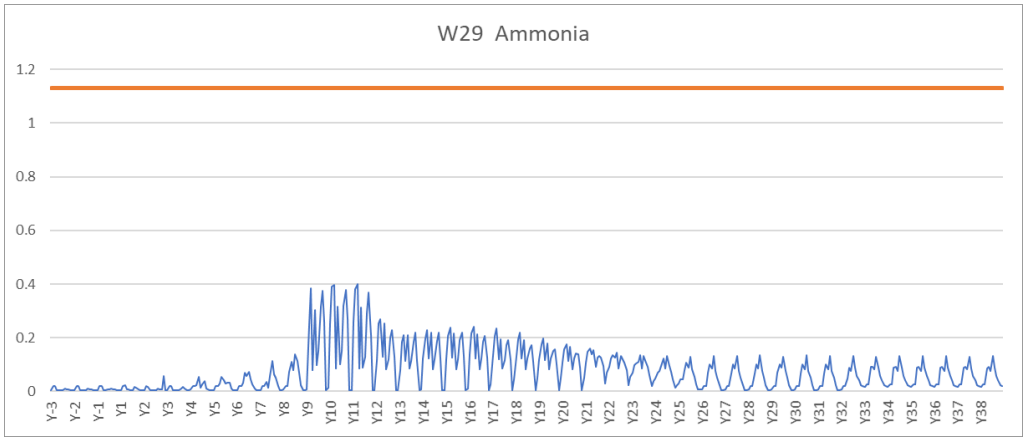
B.2-1: Time series of predicted sulphate concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



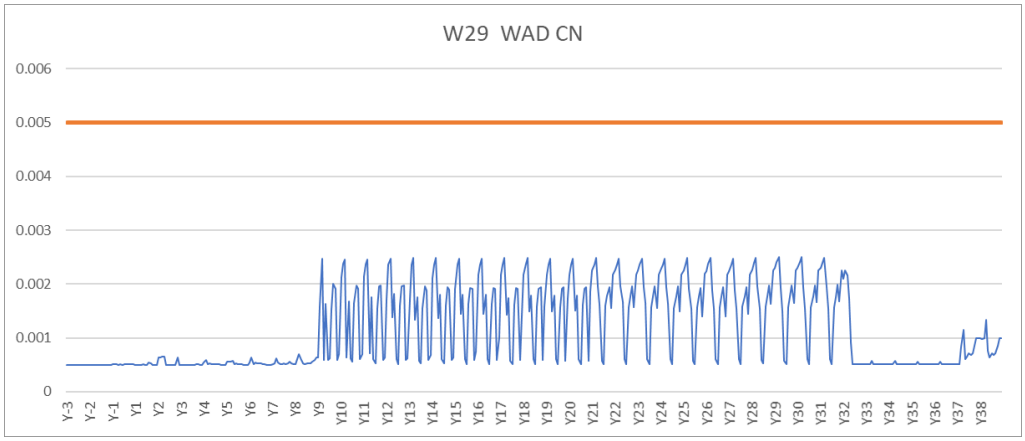
B.2-2: Time series of predicted nitrate concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



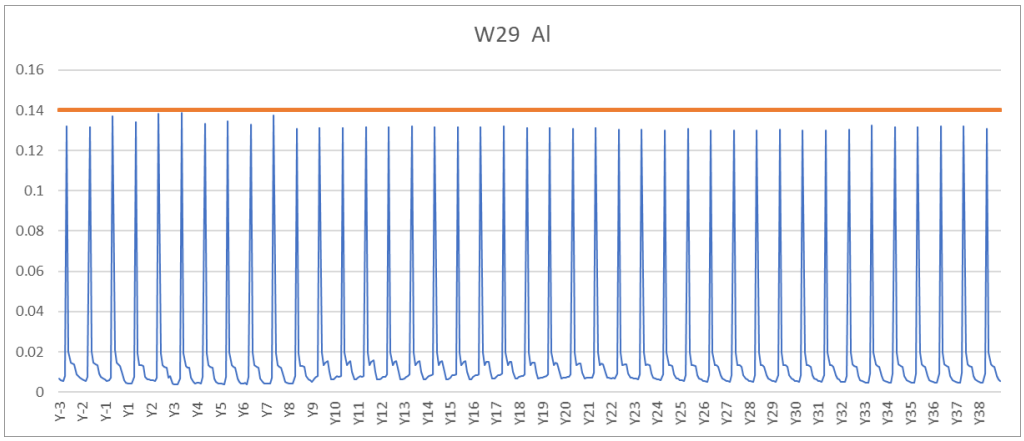
B.2-3: Time series of predicted nitrite concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



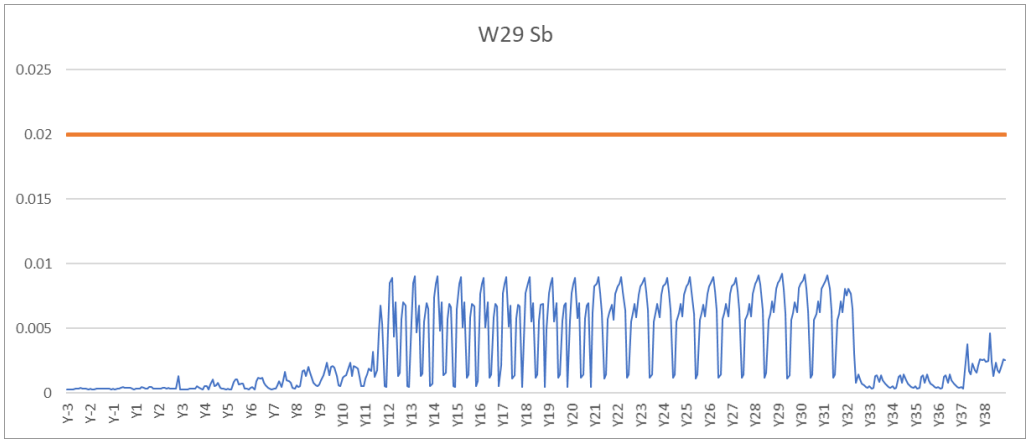
B.2-4: Time series of predicted ammonia concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



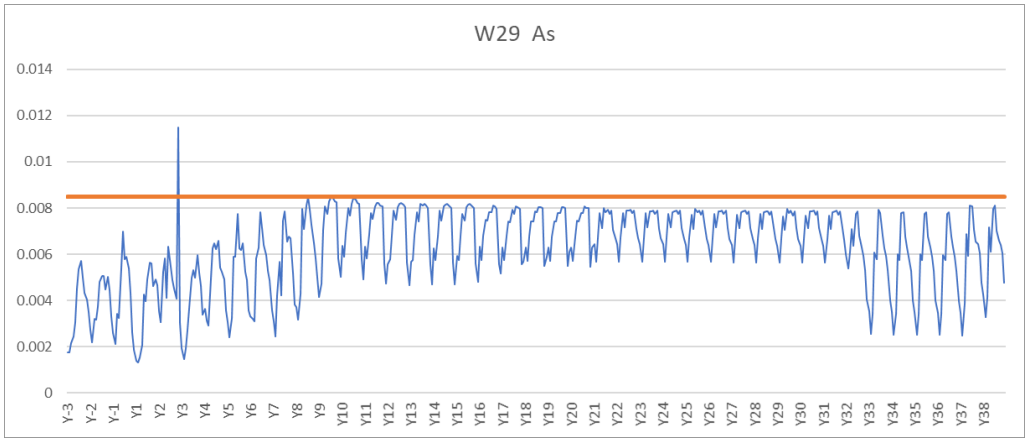
B.2-5: Time series of predicted WAD-CN concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



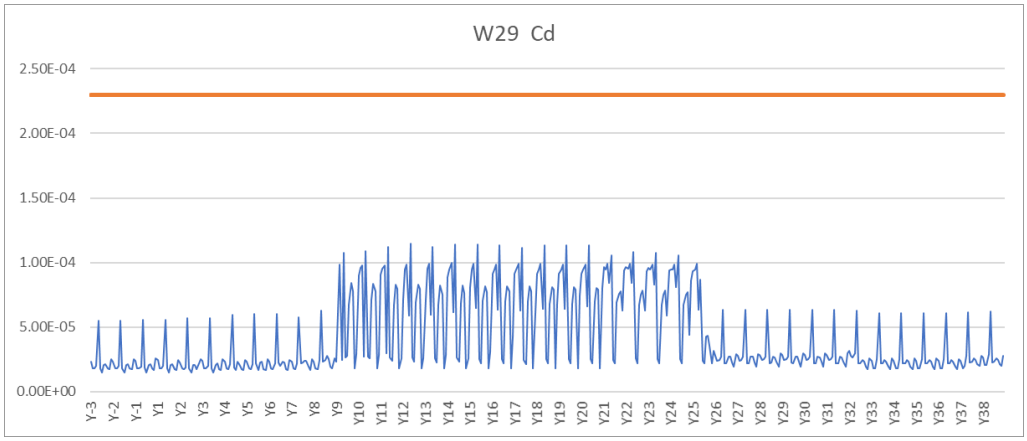
B.2-6: Time series of predicted aluminum concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



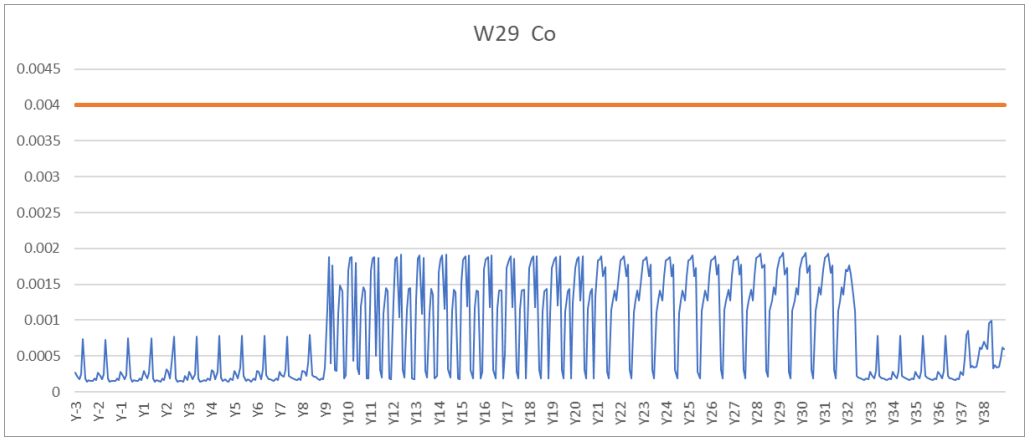
B.2-7: Time series of predicted antimony concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



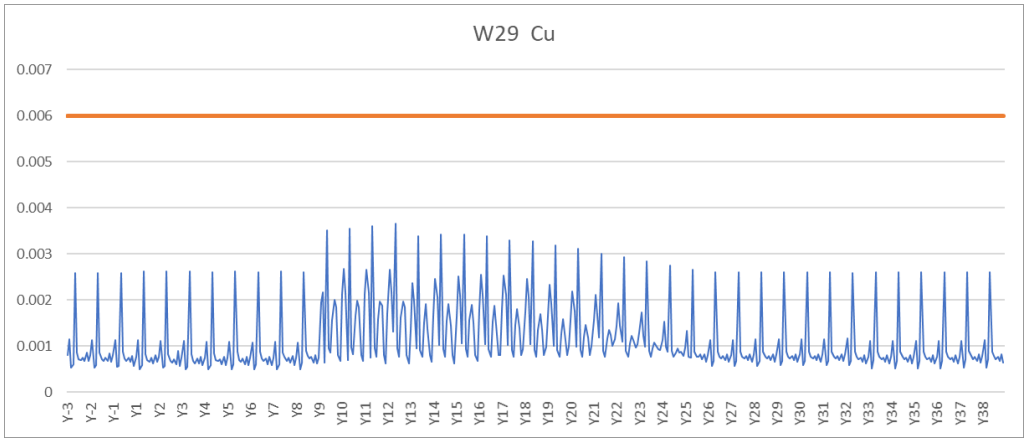
B.2-8: Time series of predicted arsenic concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



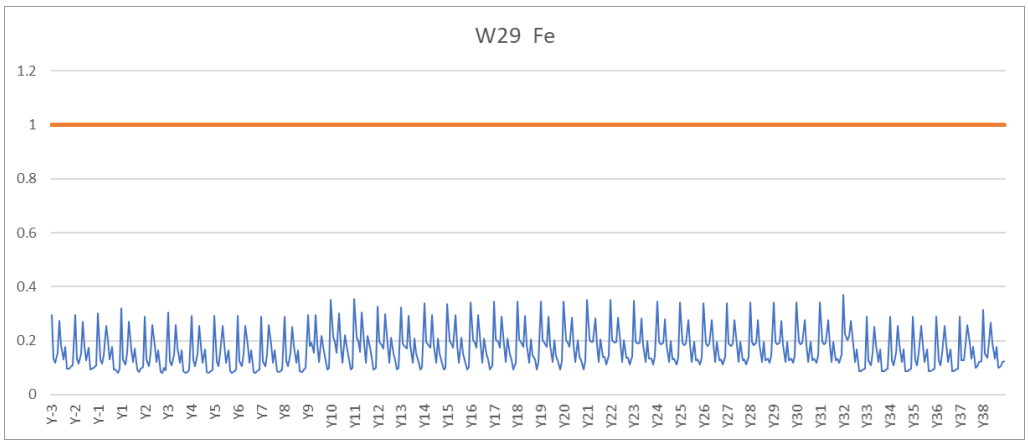
B.2-9: Time series of predicted cadmium concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



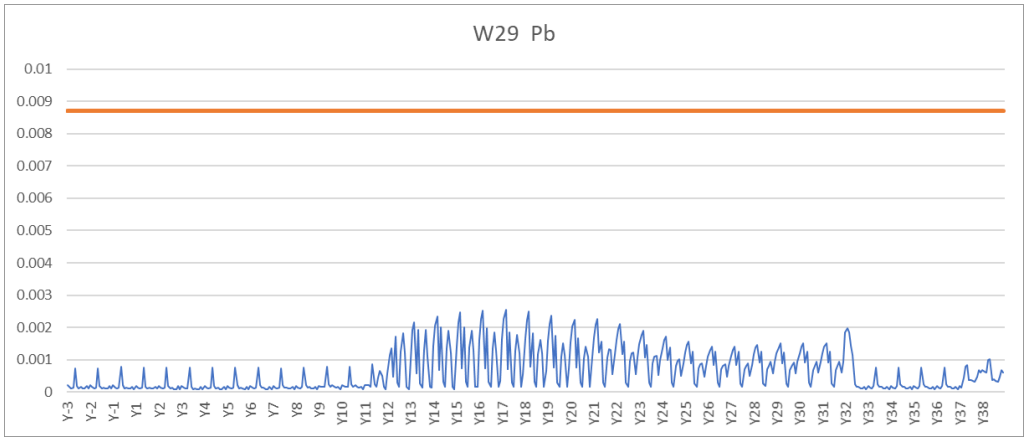
B.2-10: Time series of predicted cobalt concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



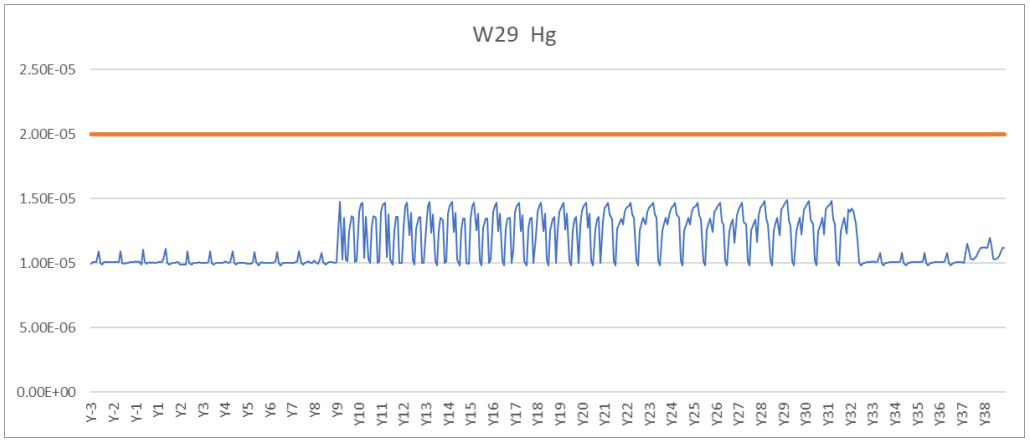
B.2-11: Time series of predicted copper concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



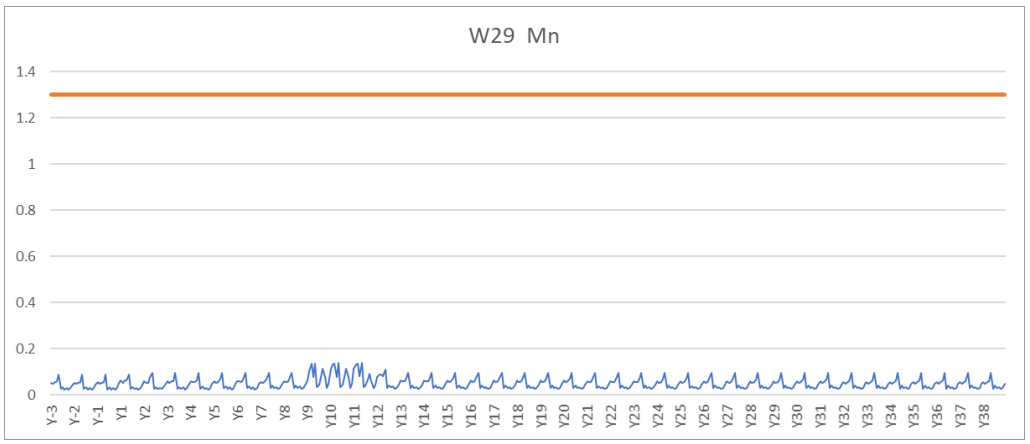
B.2-12: Time series of predicted iron concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



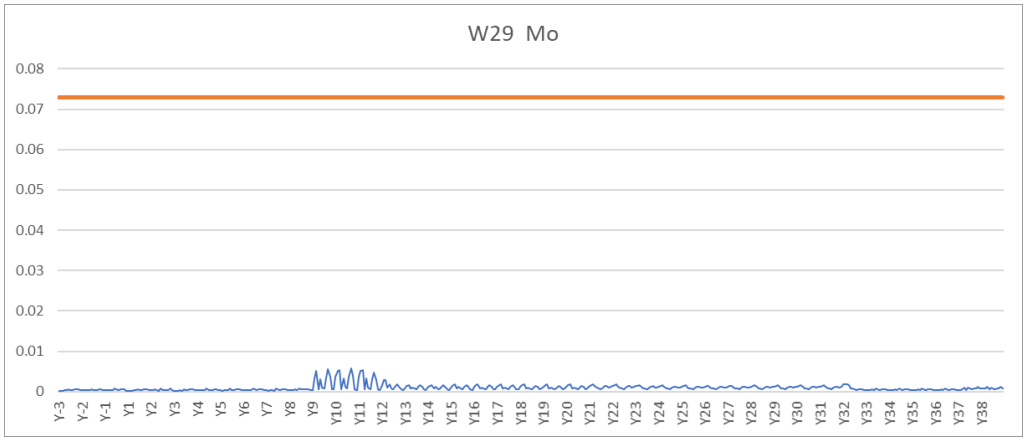
B.2-13: Time series of predicted lead concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



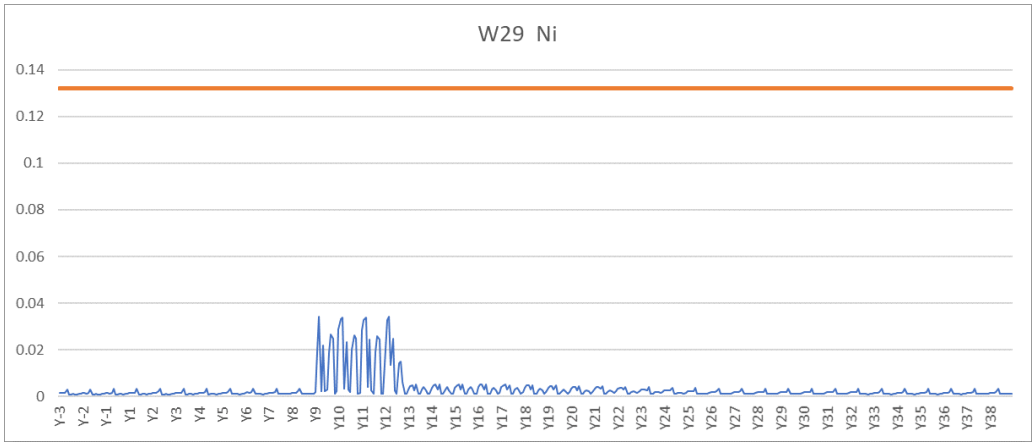
B.2-14: Time series of predicted mercury concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



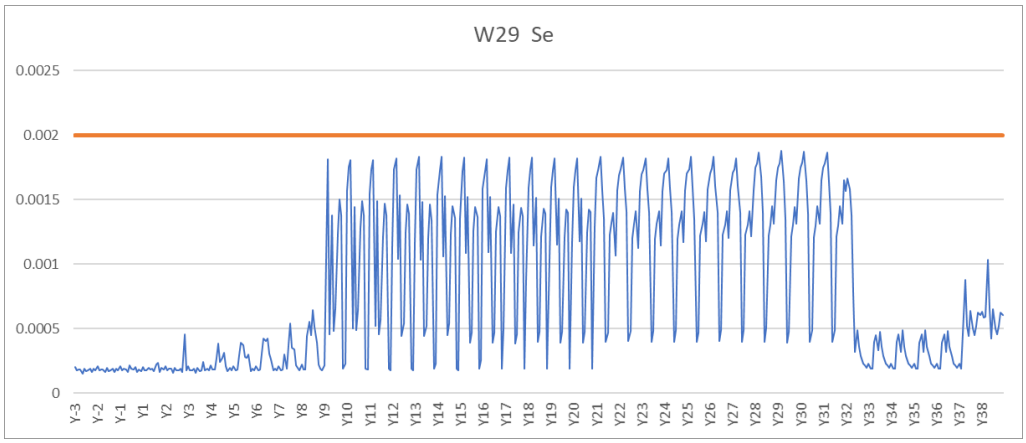
B.2-15: Time series of predicted manganese concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



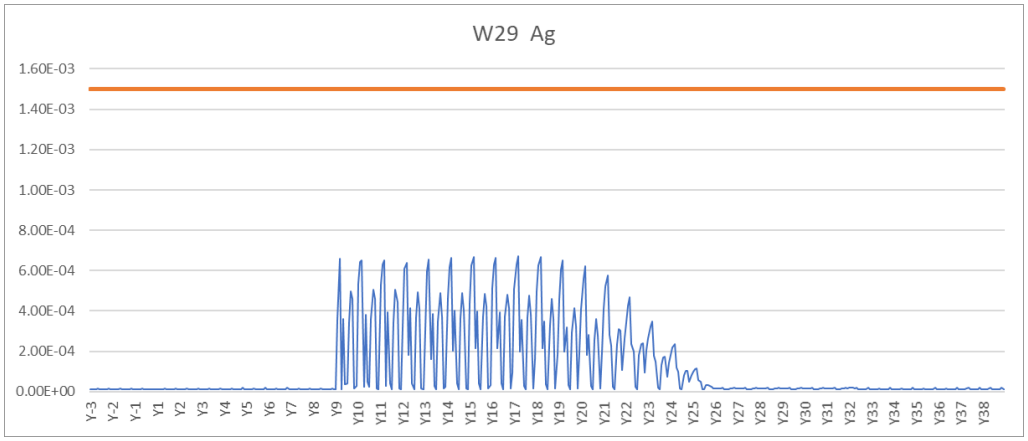
B.2-16: Time series of predicted molybdenum concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



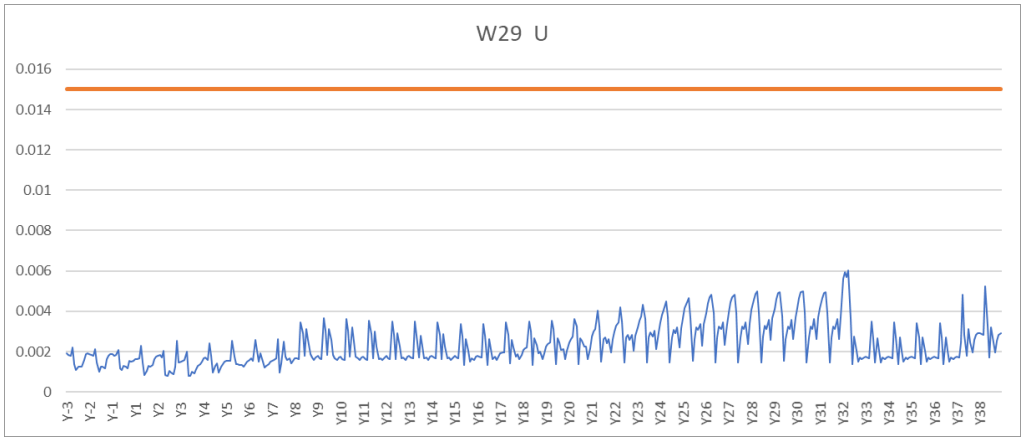
B.2-17: Time series of predicted nickel concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



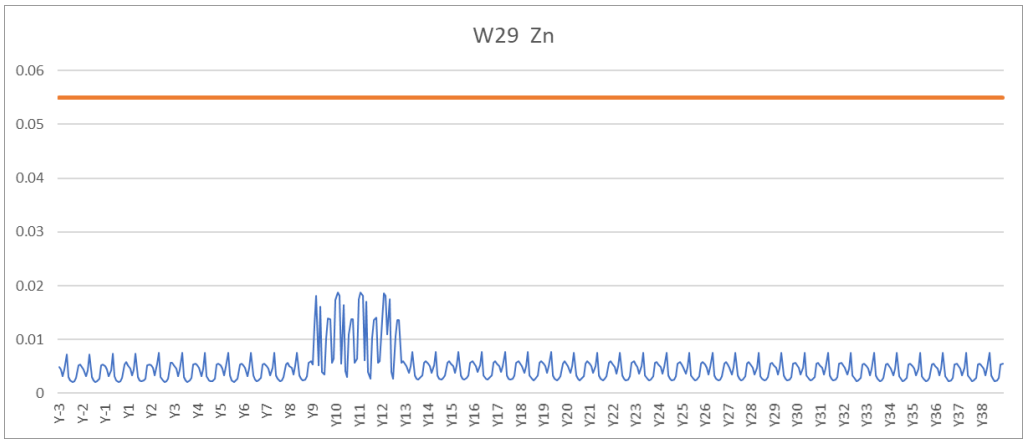
B.2-18: Time series of predicted selenium concentrations (mg/L) for W29. Water Quality Objective is shown by red line.



B.2-19: Time series of predicted silver concentrations (mg/L) for W29. Water Quality Objective is shown by red line.

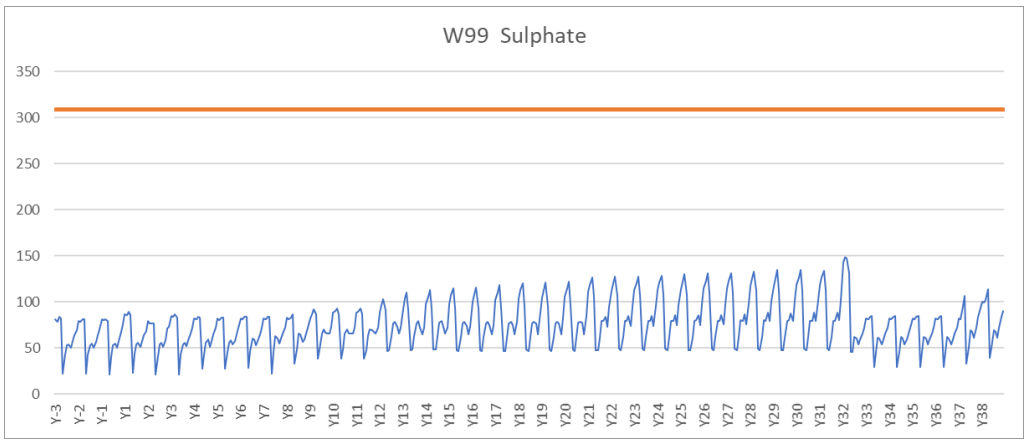


B.2-20: Time series of predicted uranium concentrations (mg/L) for W29. Water Quality Objective is shown by red line.

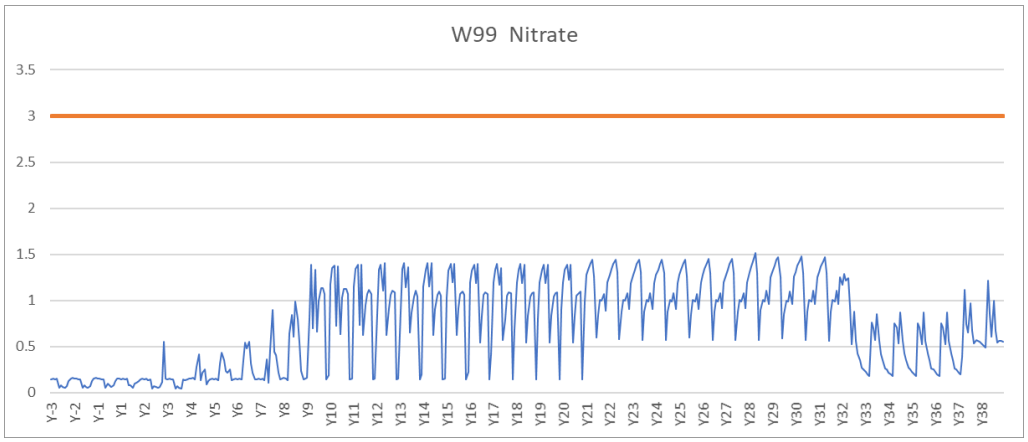


B.2-21: Time series of predicted zinc concentrations (mg/L) for W29. Water Quality Objective is shown by red line.

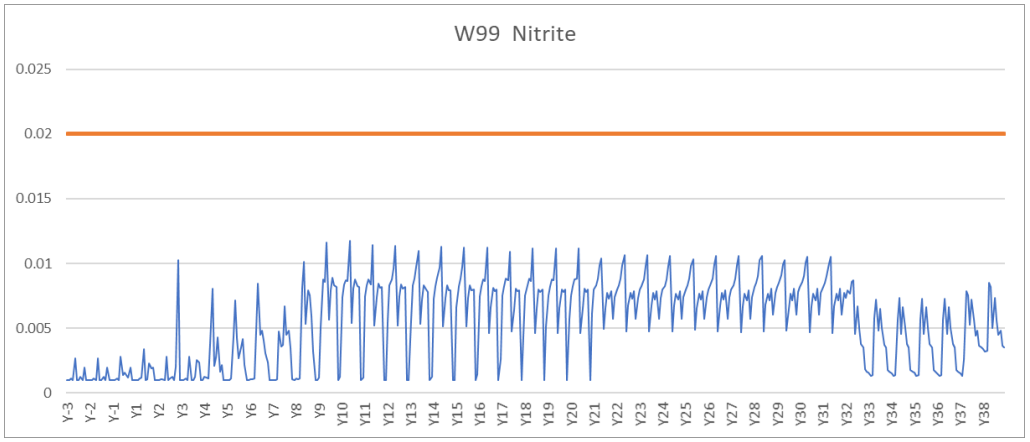
B.3. Haggart Creek below Eagle Creek (W99) – Water Quality Predictions



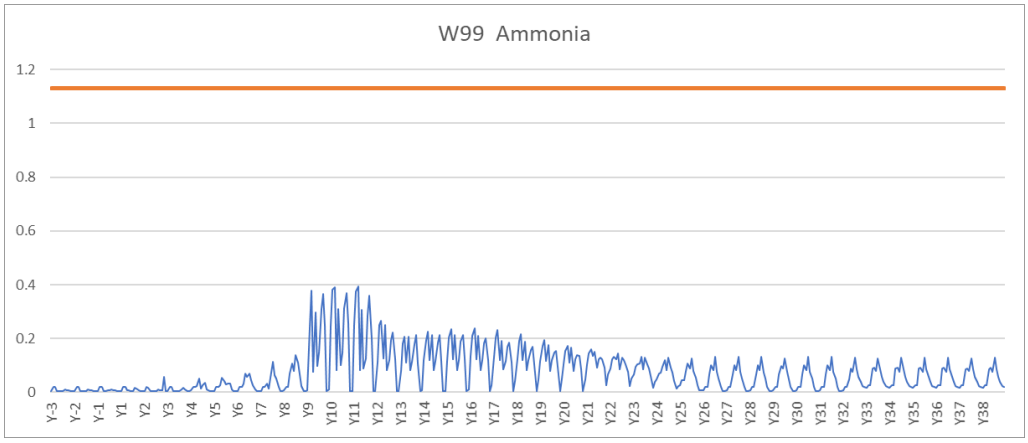
B.3-1: Time series of predicted sulphate concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



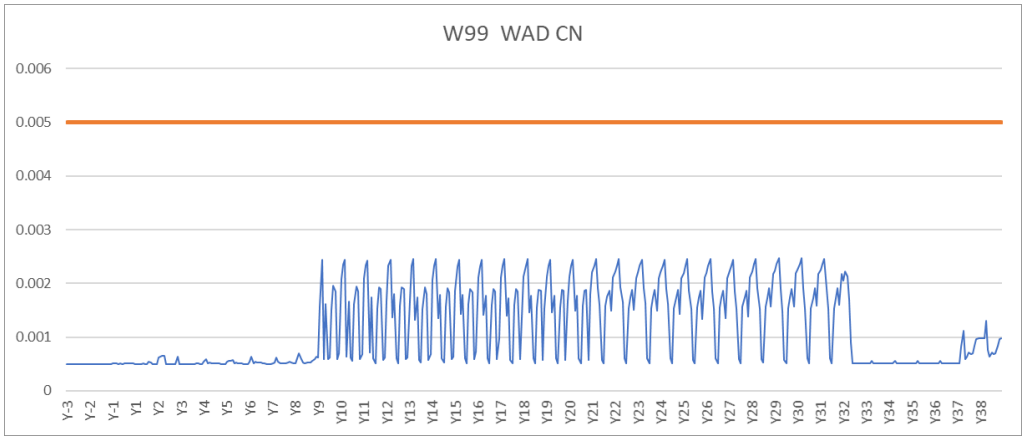
B.3-2: Time series of predicted nitrate concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



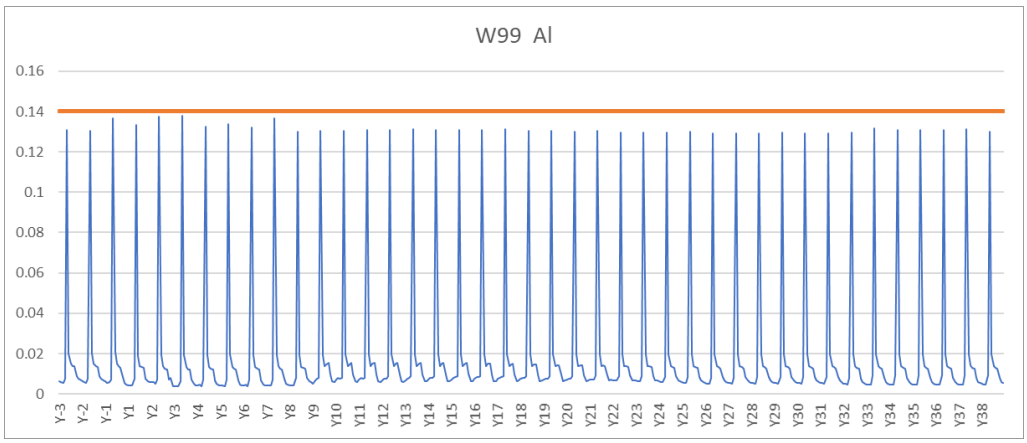
B.3-3: Time series of predicted nitrite concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



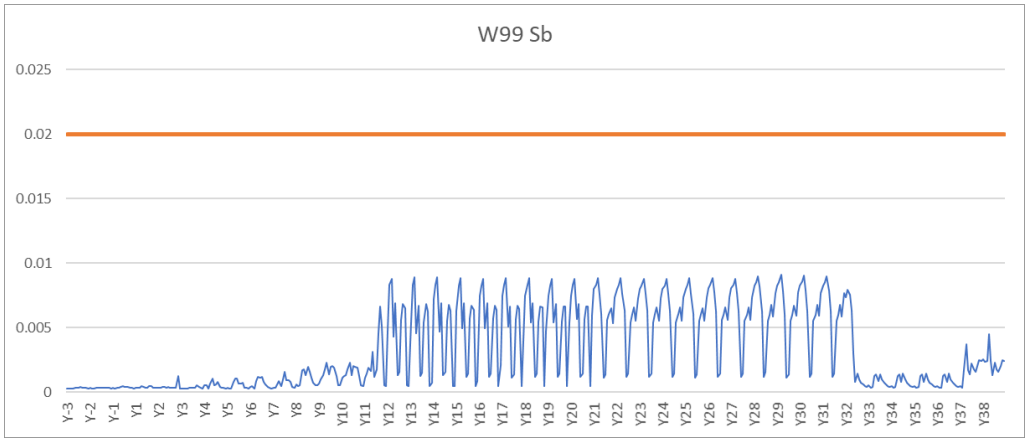
B.3-4: Time series of predicted ammonia concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



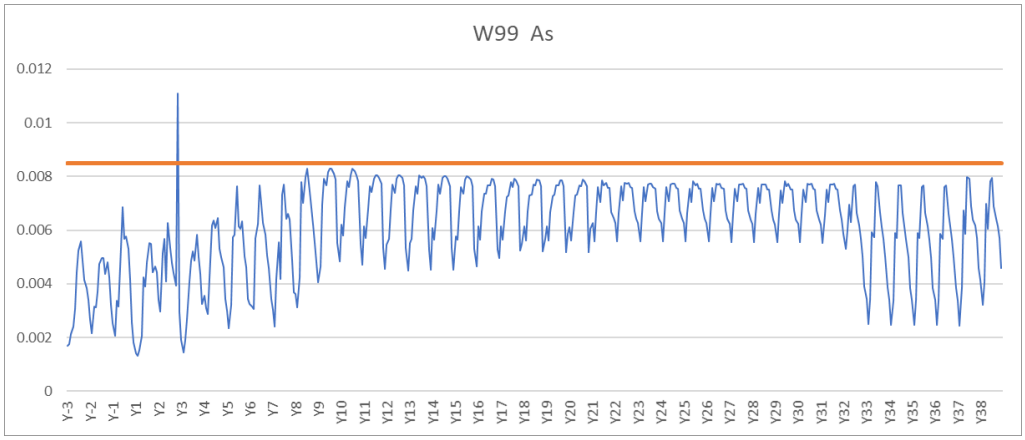
B.3-5: Time series of predicted WAD-CN concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



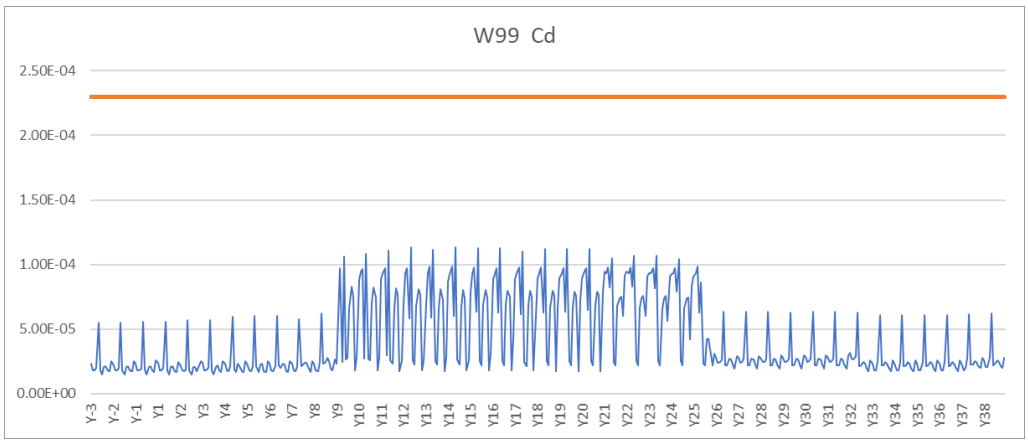
B.3-6: Time series of predicted aluminum concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



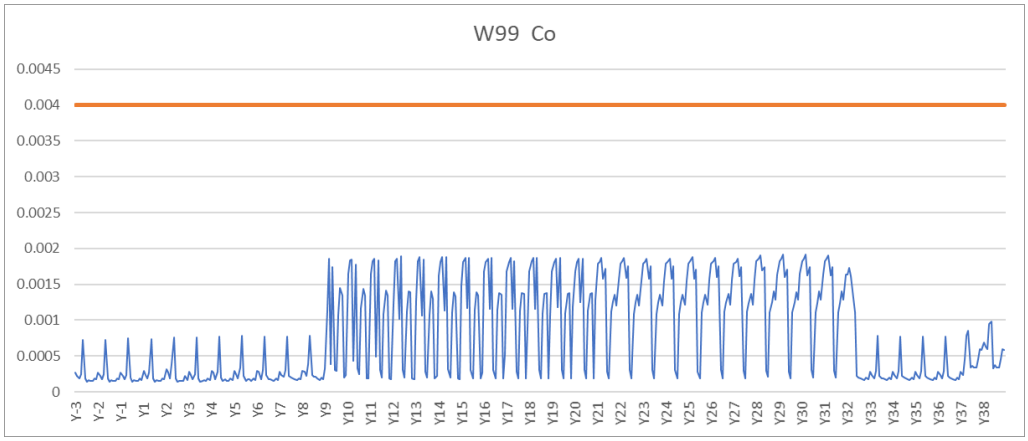
B.3-7: Time series of predicted antimony concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



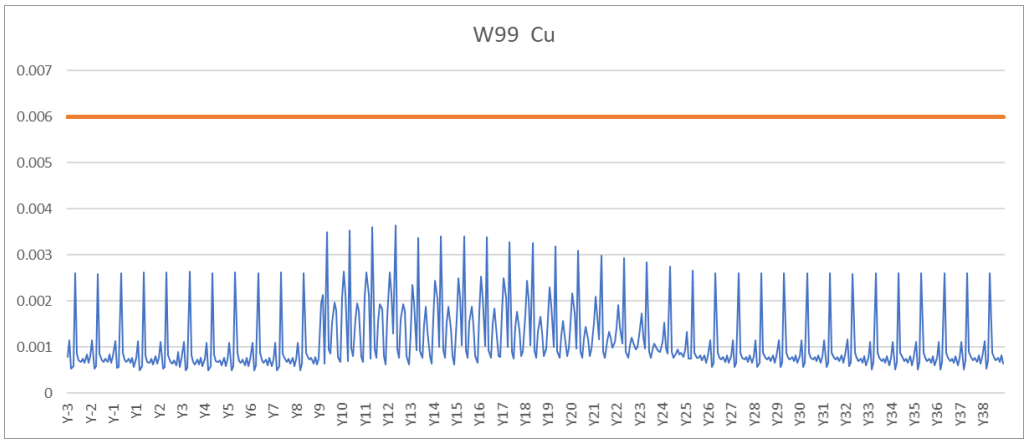
B.3-8: Time series of predicted arsenic concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



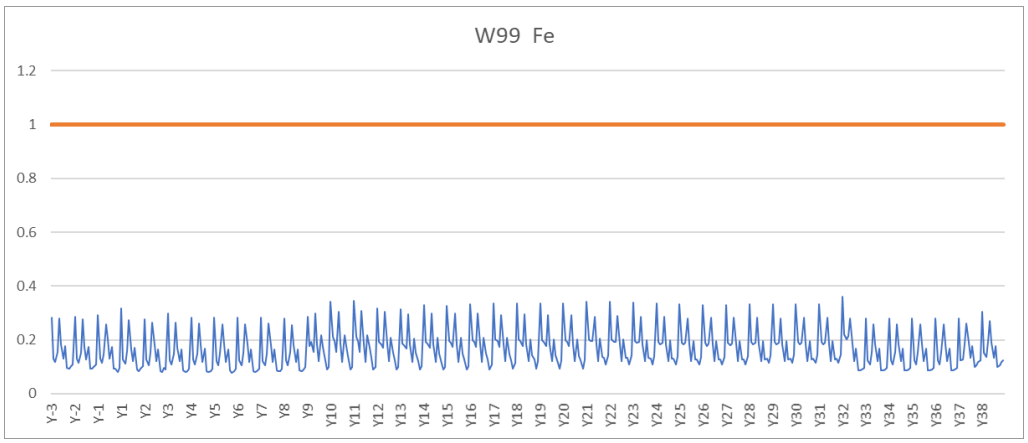
B.3-9: Time series of predicted cadmium concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



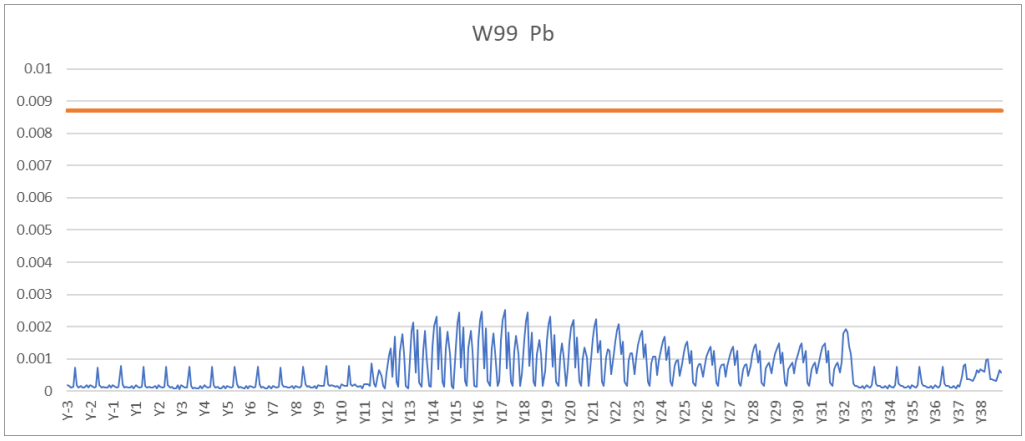
B.3-10: Time series of predicted cobalt concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



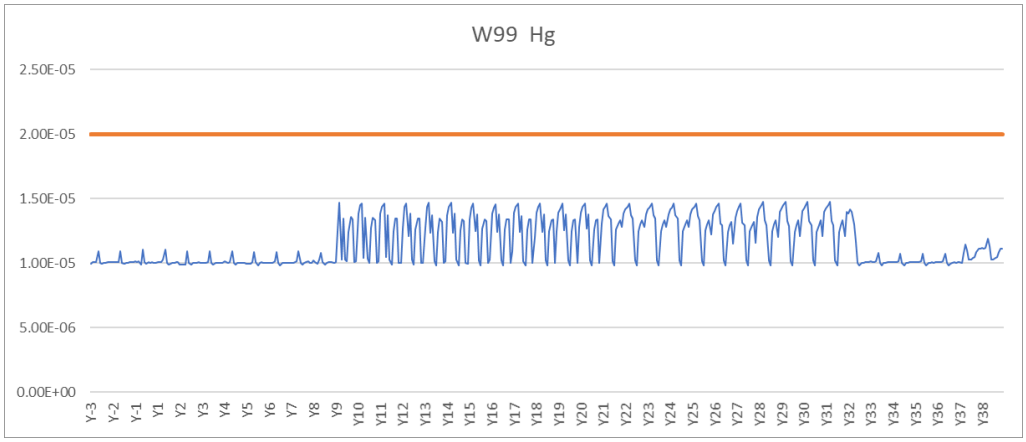
B.3-11: Time series of predicted copper concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



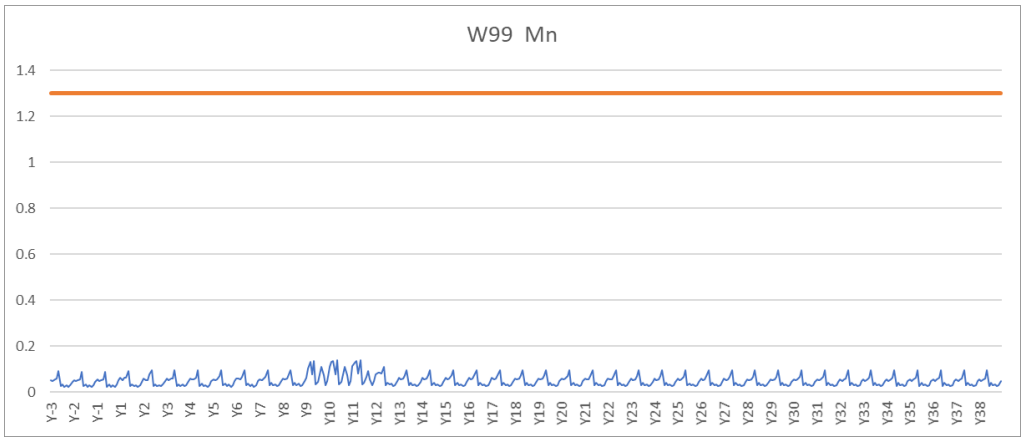
B.3-12: Time series of predicted iron concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



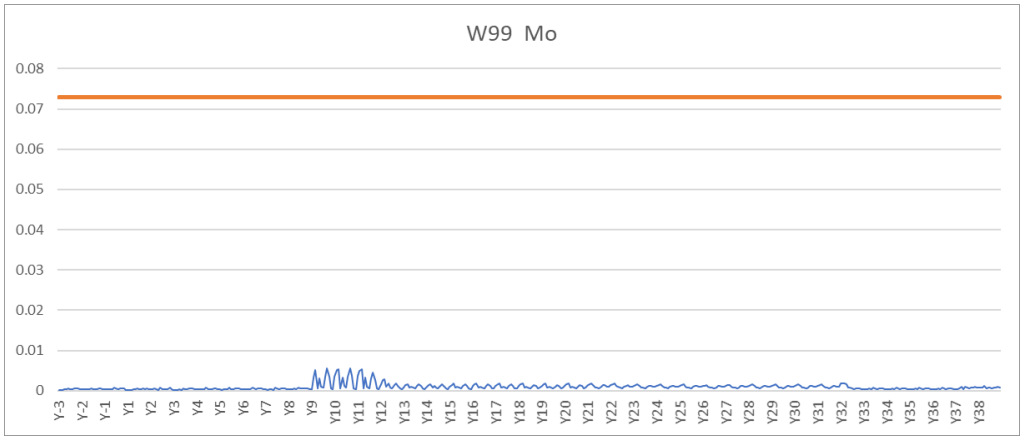
B.3-13: Time series of predicted lead concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



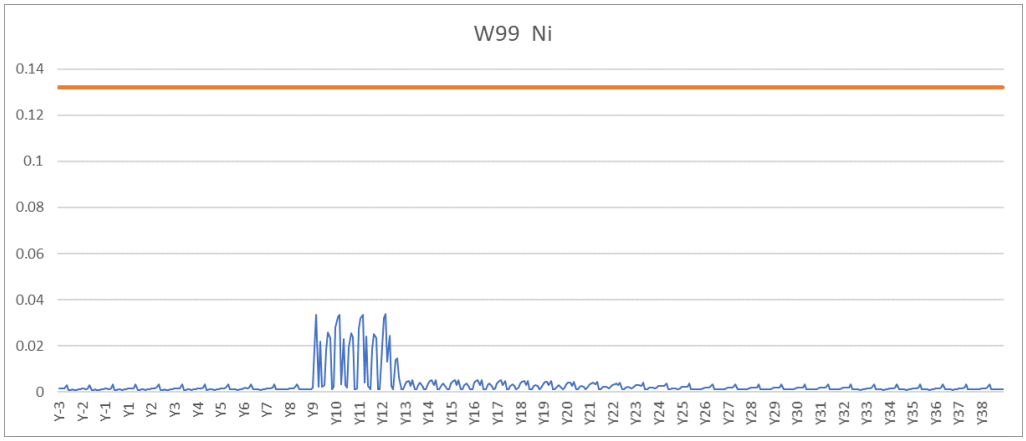
B.3-14: Time series of predicted mercury concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



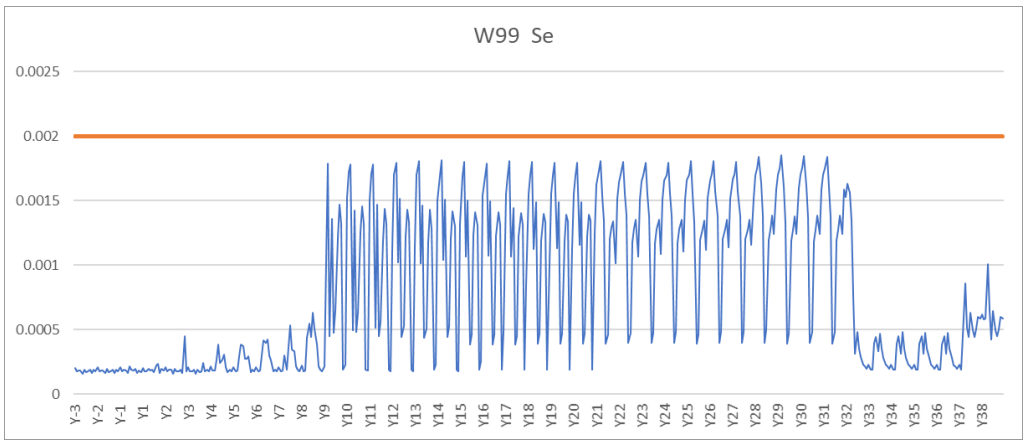
B.3-15: Time series of predicted manganese concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



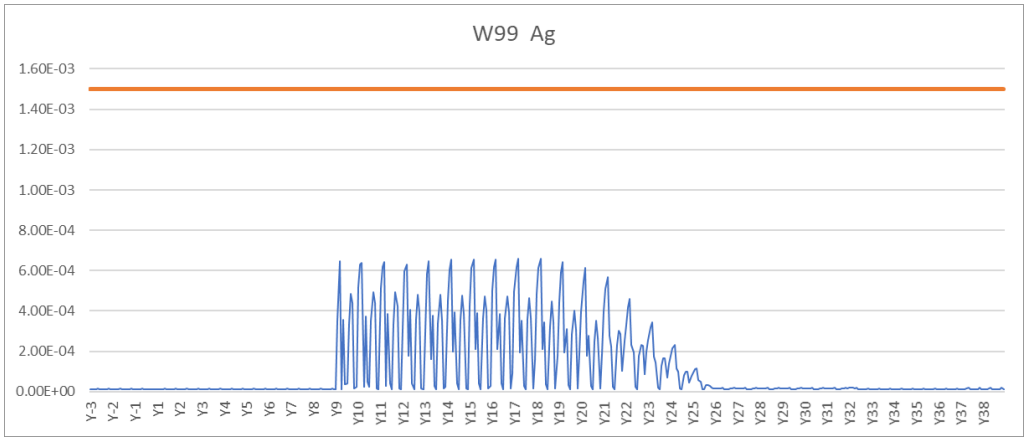
B.3-16: Time series of predicted molybdenum concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



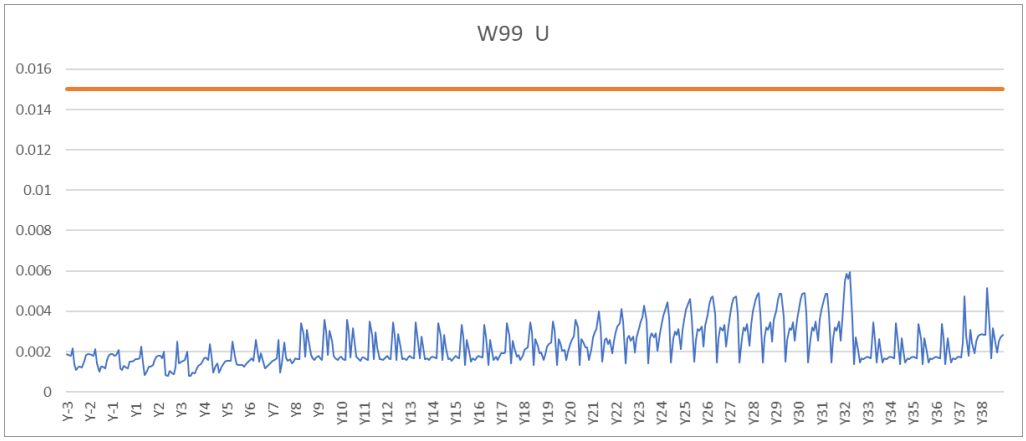
B.3-17: Time series of predicted nickel concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



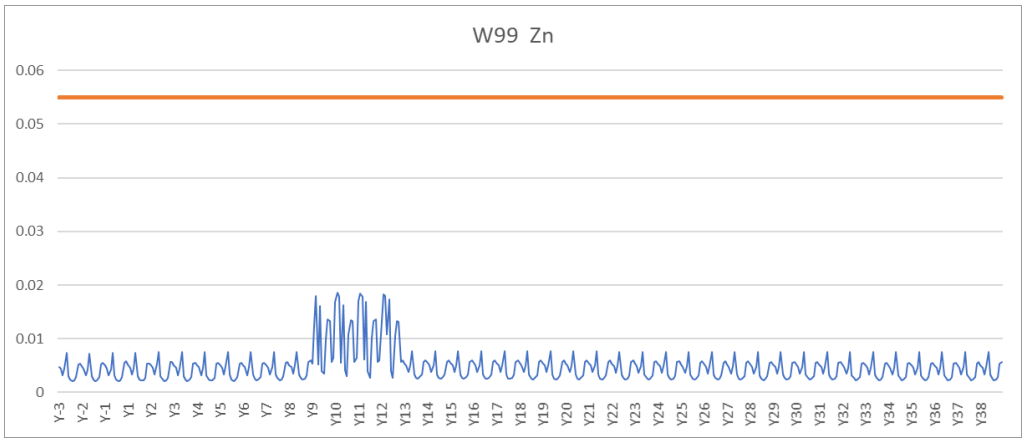
B.3-18: Time series of predicted selenium concentrations (mg/L) for W99. Water Quality Objective is shown by red line.



B.3-19: Time series of predicted silver concentrations (mg/L) for W99. Water Quality Objective is shown by red line.

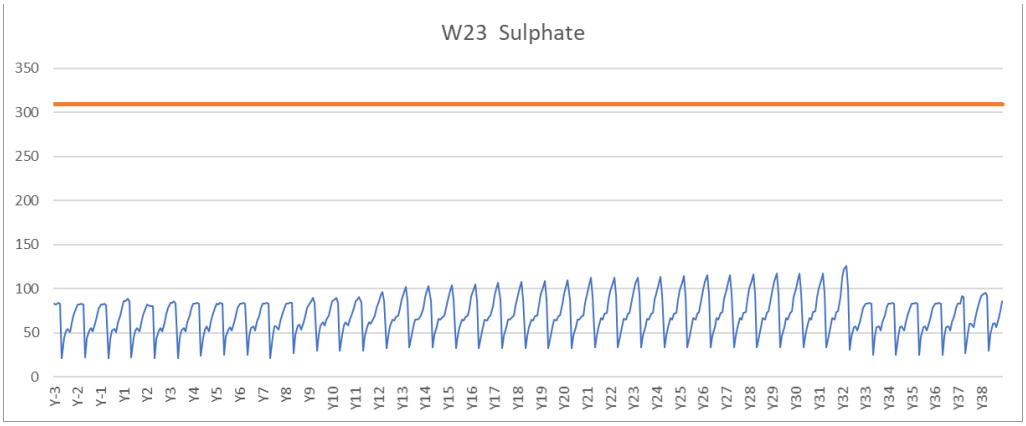


B.3-20: Time series of predicted uranium concentrations (mg/L) for W99. Water Quality Objective is shown by red line.

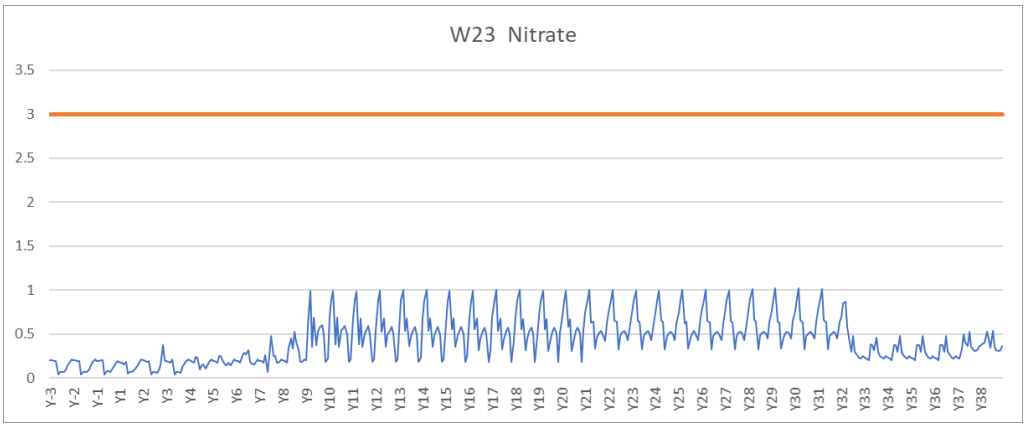


B.3-21: Time series of predicted zinc concentrations (mg/L) for W99. Water Quality Objective is shown by red line.

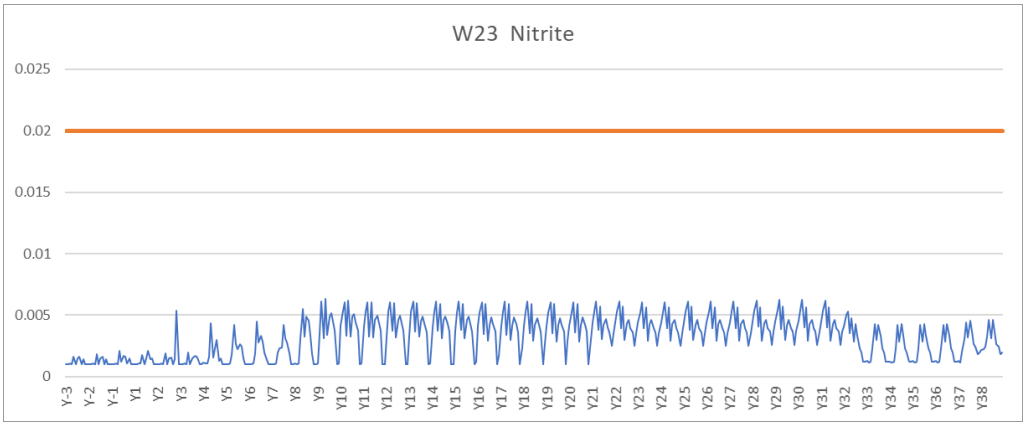
B.4. Haggart Creek below Lynx Creek (W23) – Water Quality Predictions



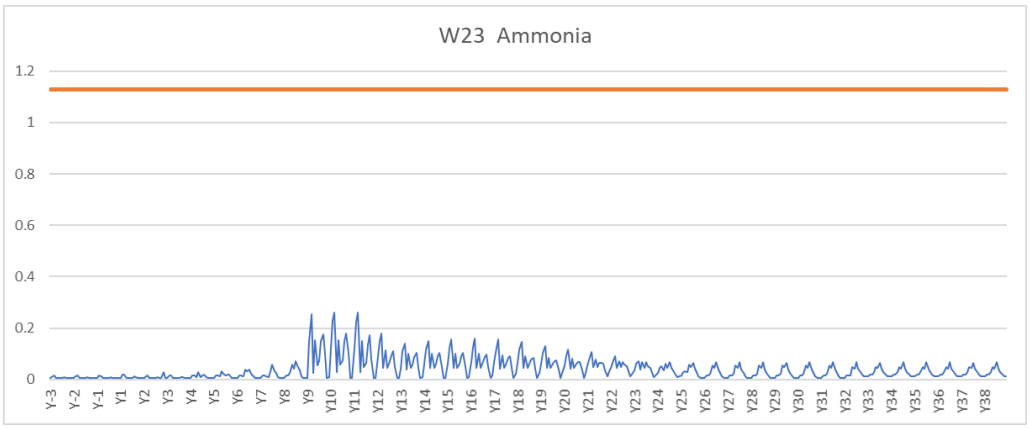
B.4-1: Time series of predicted sulphate concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



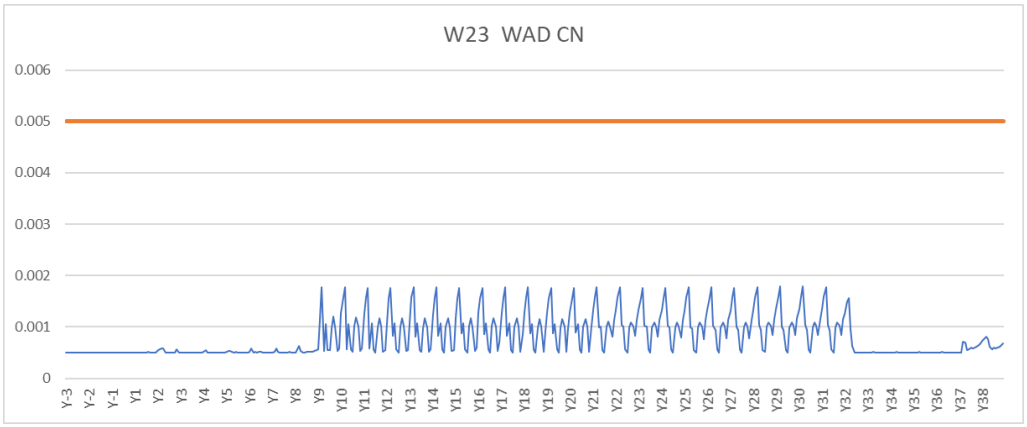
B.4-2: Time series of predicted nitrate concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



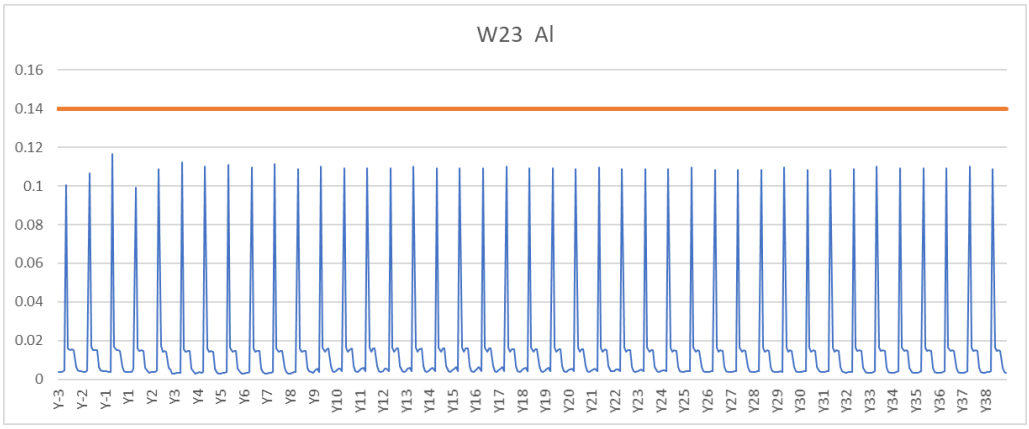
B.4-3: Time series of predicted nitrite concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



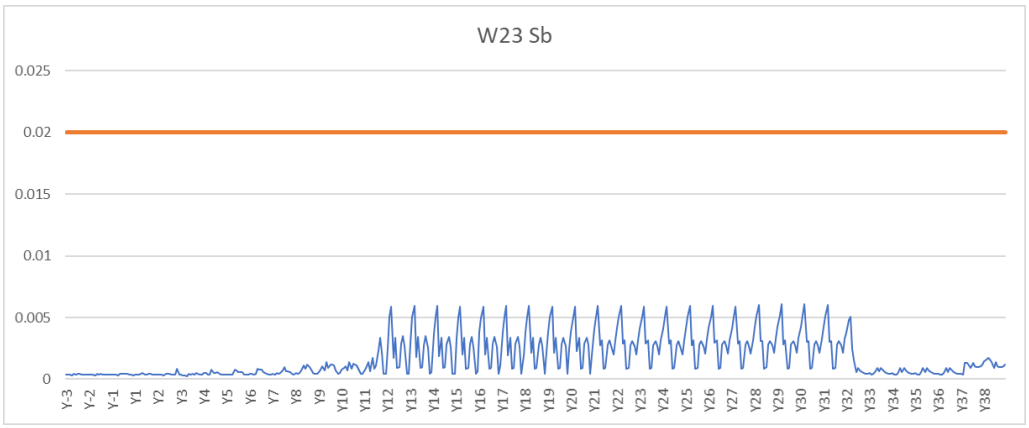
B.4-4: Time series of predicted ammonia concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



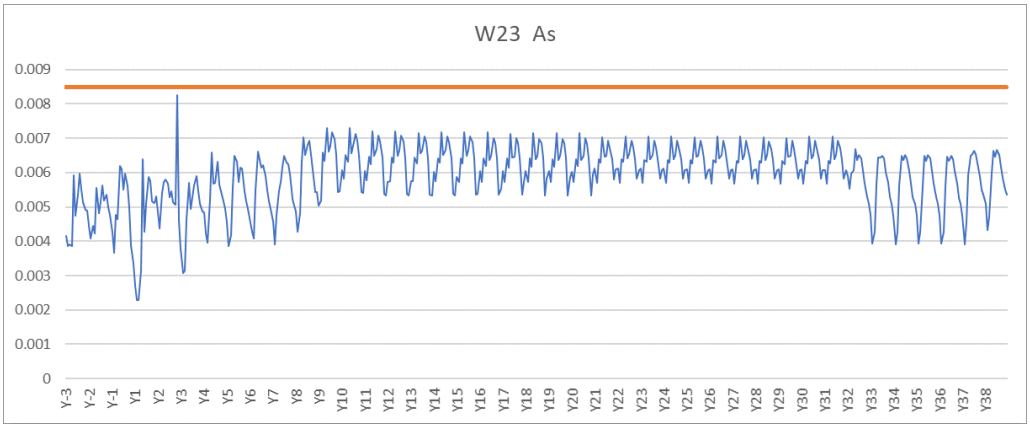
B.4-5: Time series of predicted WAD-CN concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



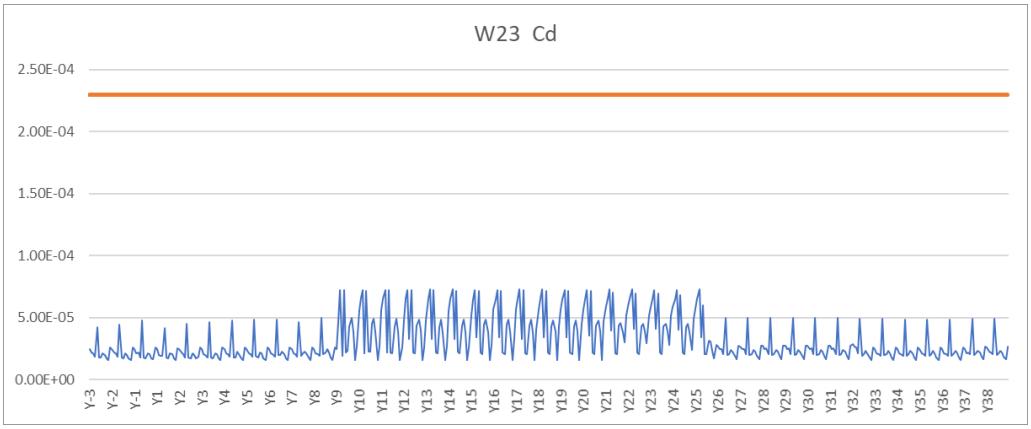
B.4-6: Time series of predicted aluminum concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



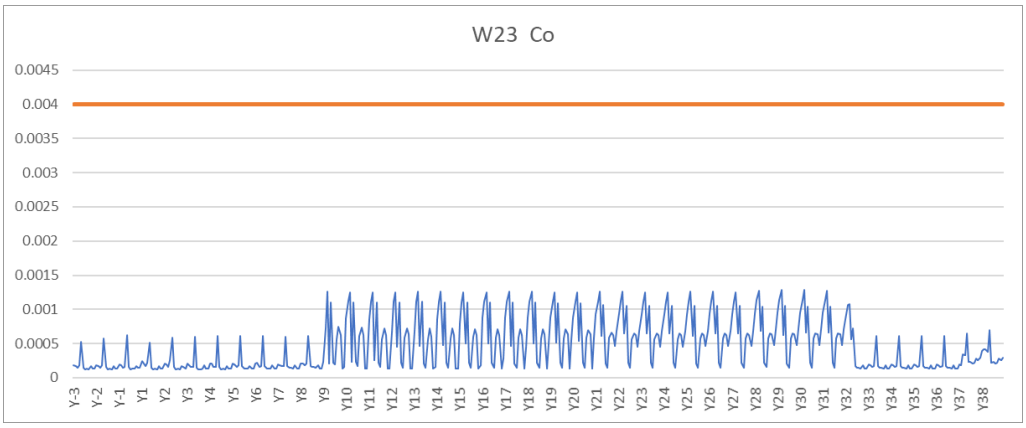
B.4-7: Time series of predicted antimony concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



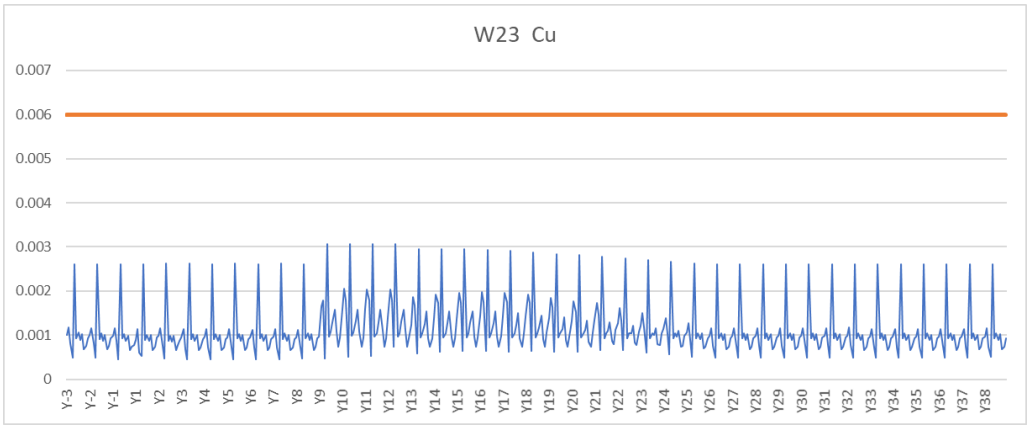
B.4-8: Time series of predicted arsenic concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



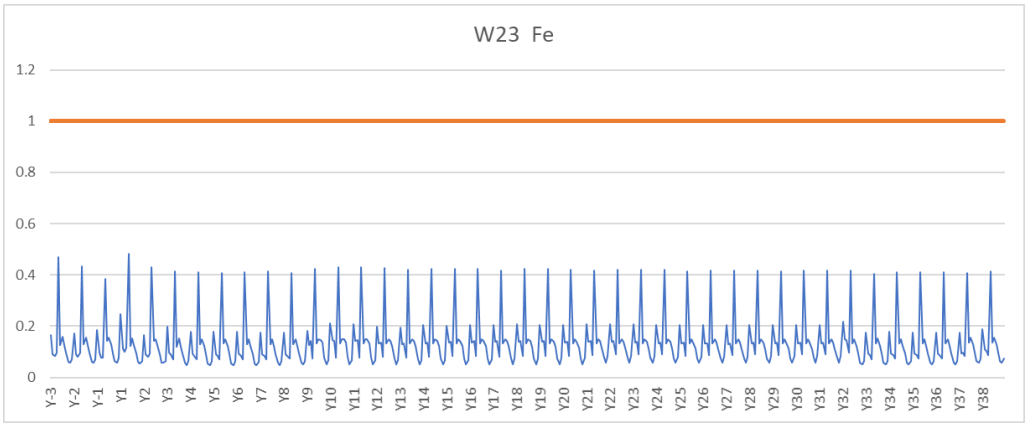
B.4-9: Time series of predicted cadmium concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



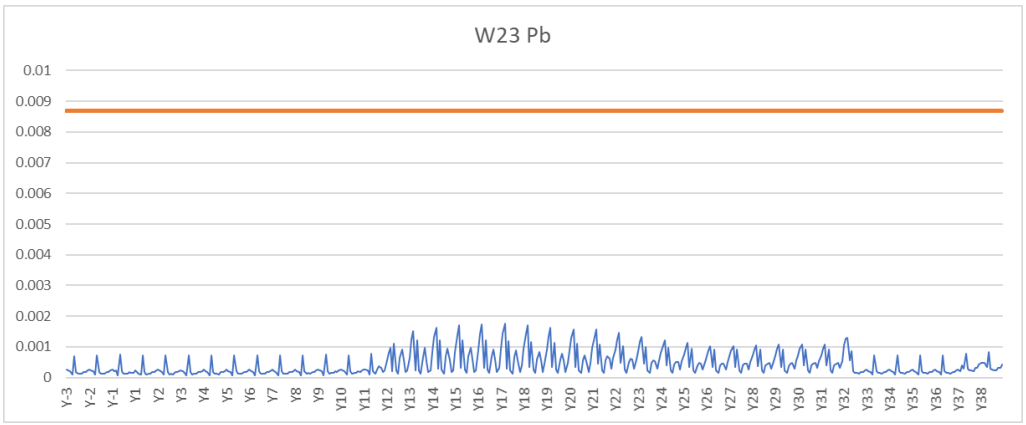
B.4-10: Time series of predicted cobalt concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



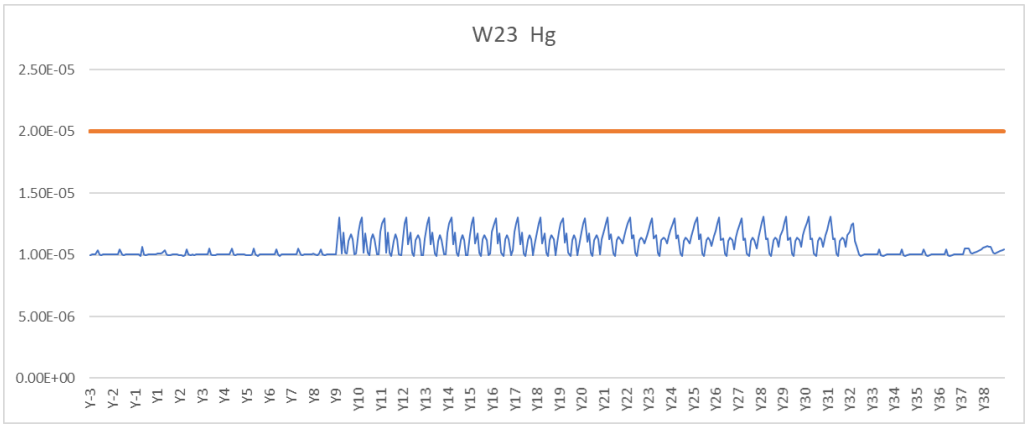
B.4-11: Time series of predicted copper concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



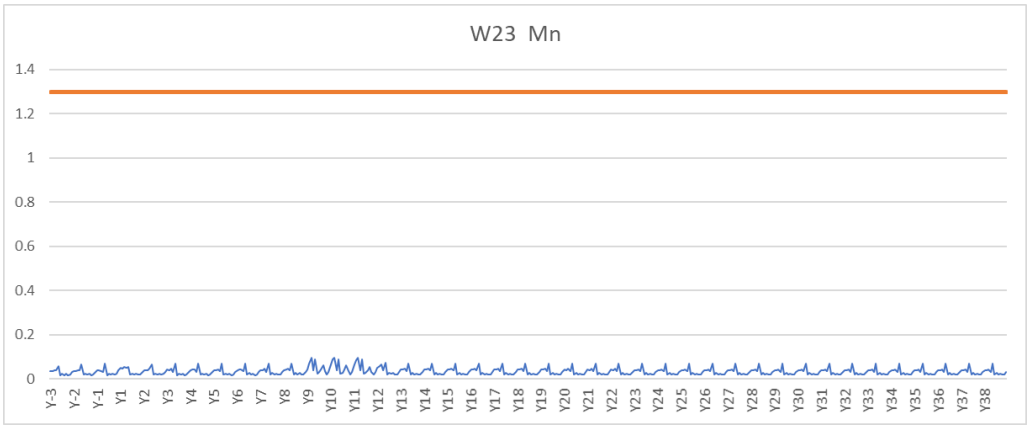
B.4-12: Time series of predicted iron concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



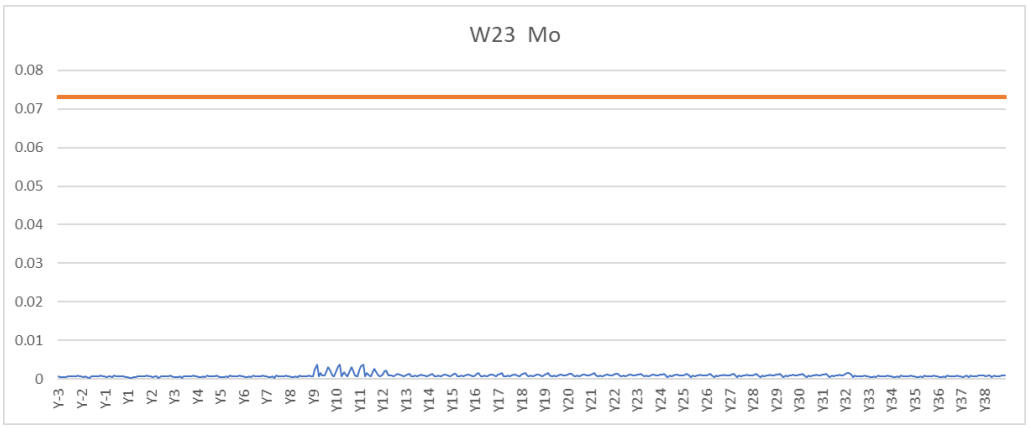
B.4-13: Time series of predicted lead concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



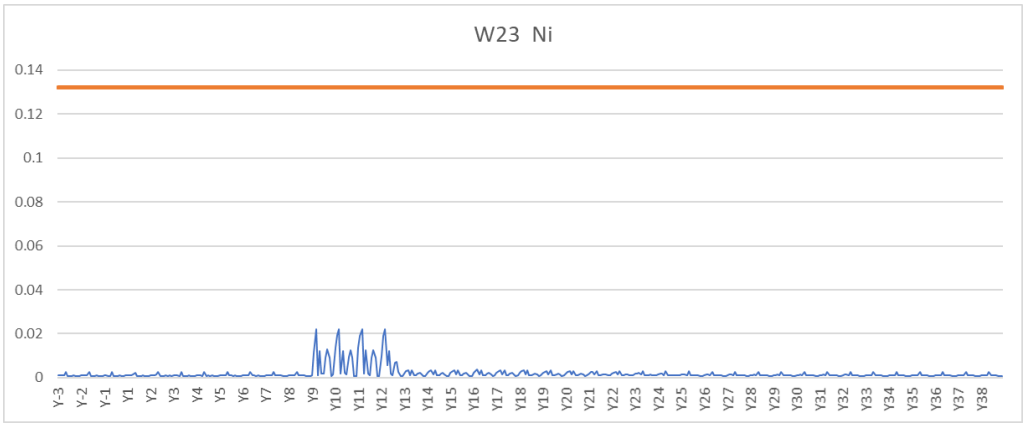
B.4-14: Time series of predicted mercury concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



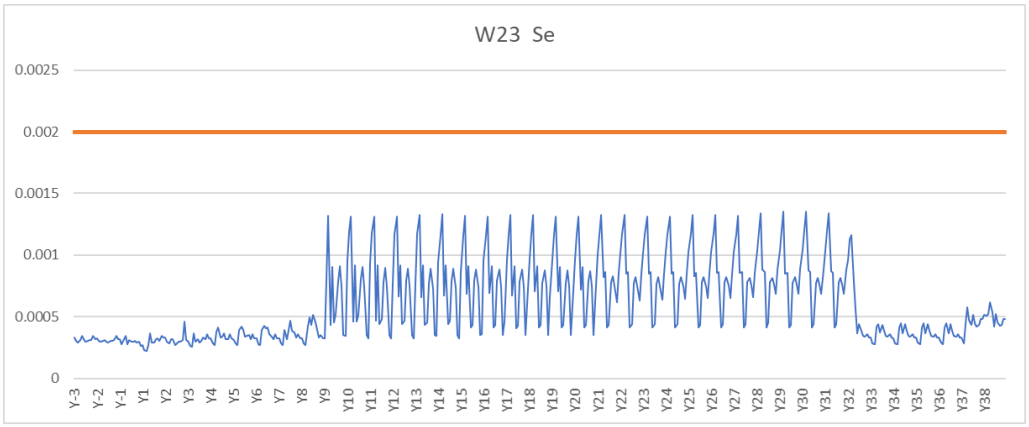
B.4-15: Time series of predicted manganese concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



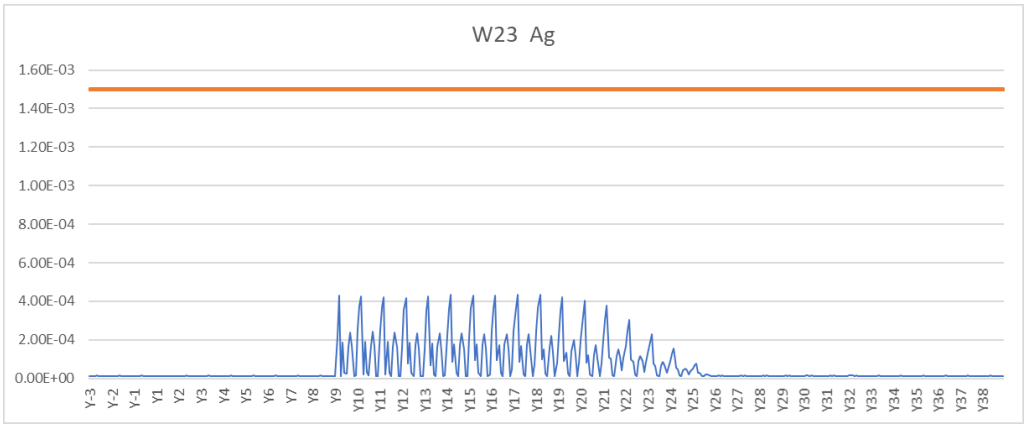
B.4-16: Time series of predicted molybdenum concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



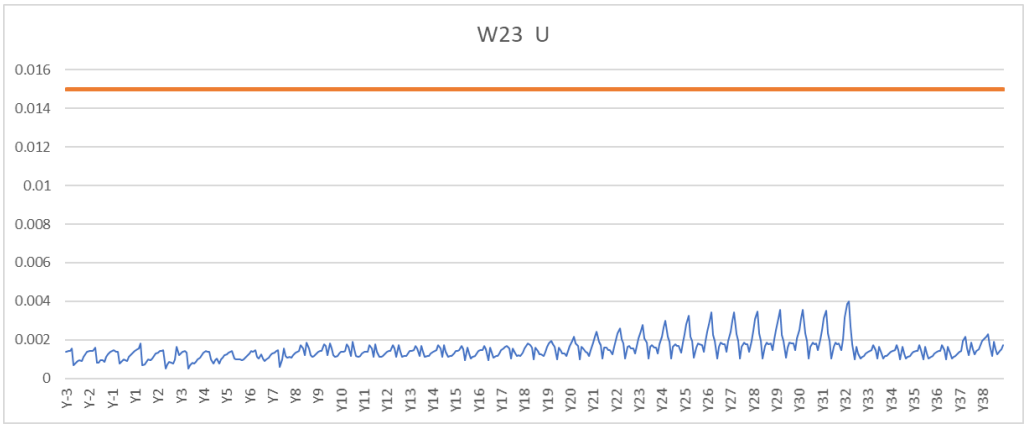
B.4-17: Time series of predicted nickel concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



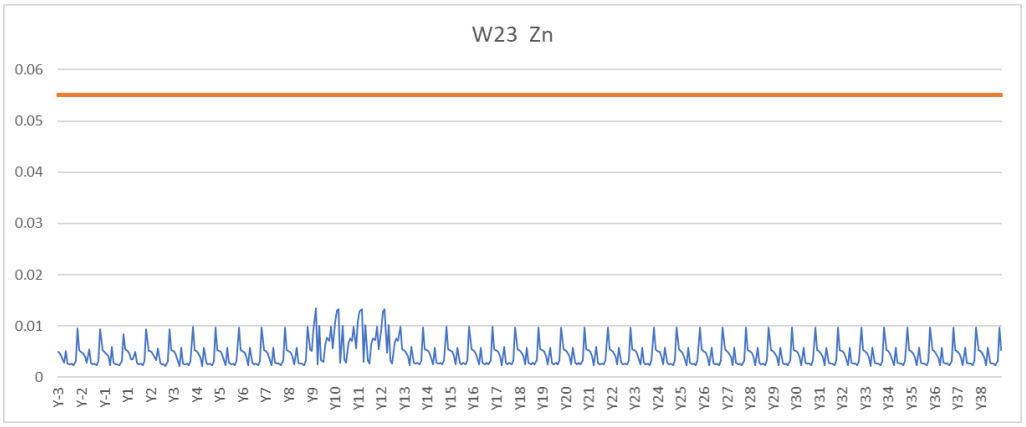
B.4-18: Time series of predicted selenium concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



B.4-19: Time series of predicted silver concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



B.4-20: Time series of predicted uranium concentrations (mg/L) for W23. Water Quality Objective is shown by red line.



B.4-21: Time series of predicted zinc concentrations (mg/L) for W23. Water Quality Objective is shown by red line.

Appendix C: Water Quality Model Output for all Parameters

Provided electronically

VICTORIA GOLD CORP

APPENDIX F

Heap Leach Facilities 2022 Annual Water Balance Modeling Report

Victoria Gold Project

Project #109016

Heap Leach Facility

2022 Annual Water Balance Modeling Report

Document # 109016-51100-01-WBM-0001



Prepared by:

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Revision	Date	Status	Prepared By	Checked By	Approved By
REV A	April 8, 2022	Issued for Client Review	B. Fetter	C.Green	C.Green
REV B	April 14, 2022	Issued for Client Review	B. Fetter	C.Green	C.Green
REV 0	April 22, 2022	Issued Final	B. Fetter	C. Green	C. Green

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1. INTRODUCTION

This document has been prepared by Forte Dynamics Inc. (Forte) on behalf of Victoria Gold (Yukon) Corp. (VGC) for the Eagle Project. The purpose of this model is to provide guidance on future water management strategies for the HLF and to understand climatic impacts on the solution storage facilities. These results will be incorporated to the site wide water balance and water quality model to understand the impact on the whole of the Eagle Project.

This report describes the HLF water balance model inputs and outputs. The model has been developed and updated using historic measured data for ore placement, solution measurements and management, and other relevant data as it pertains to the HLF. Model results include outputs developed for the surface water balance and water quality models as well as the stochastic projections surrounding the In-Heap Pond and Events Pond. Importantly, the model results, presented herein, do not represent all site wide water management practices associated with the Events Pond, however they do represent water management practices surrounding the HLF. This model incorporates site lessons learned for solution management as well as incorporating starting pond levels for the start of the model (January 1, 2022).

2. INPUTS AND ASSUMPTIONS

The HLF Water Balance Model used by Forte makes use of a large array of operational, meteorological, ore hydrodynamic properties, and metallurgical input data. During production, ore samples were collected. Testing has been conducted over the course of operations to characterize ore properties which have been used in the heap water balance model. The heap water balance model incorporates details surrounding the HLF while providing operations with the ability to utilize more recorded inputs to better understand solution and pond level management.

2.1 Modeling Timeframe

- **Deterministic Modeling:**
  - Operations modelled from:
    - 1/1/2022 – 2/15/2028: Normal Operations (stacking and leaching of HLF)
    - 2/15/2028 – 1/1/2040: Residual recovery, closure, solution management (ore rinsing, discharge to treatment)
    - *Resource:* VGC input with guidance from Forte engineering experience
- **Stochastic Modeling:**
  - Operations modelled from:
    - 1/1/2022 – 8/31/2022: Normal Operations (stacking and leaching of HLF)
    - *Resource:* VGC input with guidance from Forte engineering experience

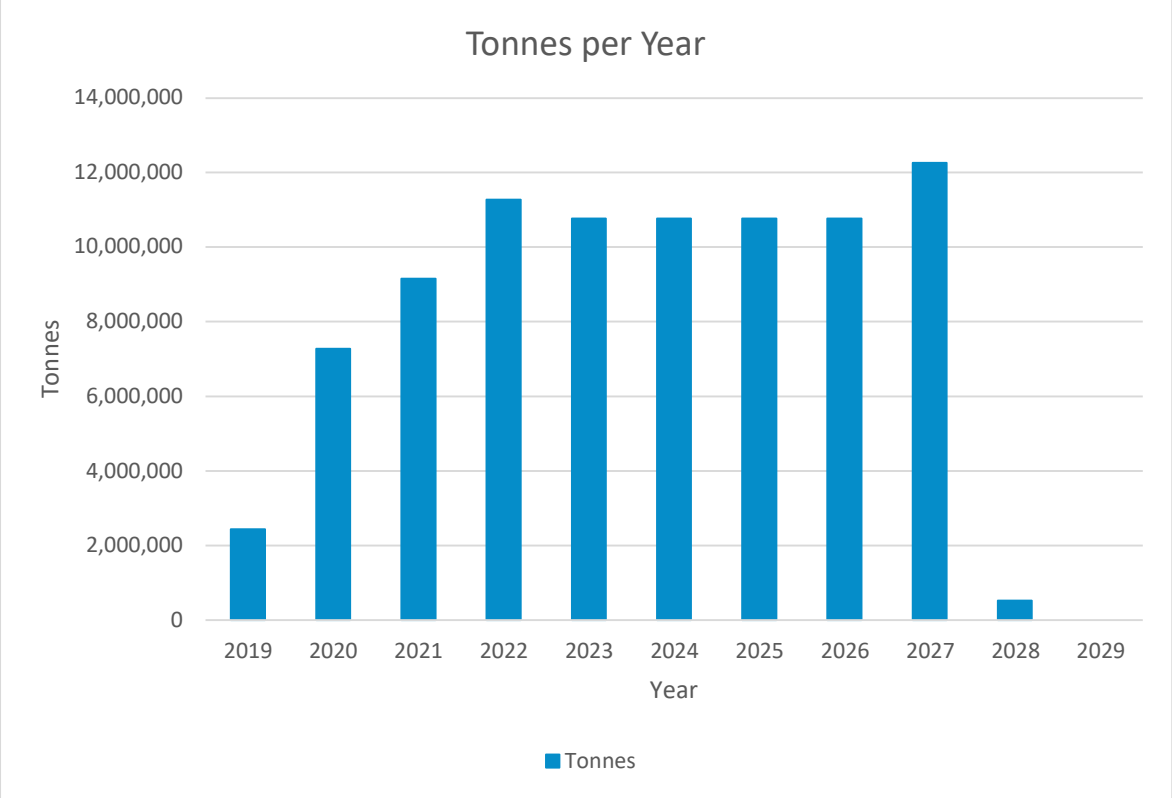
2.2 Ore Properties

- **Initial Moisture Content:**
  - 1.5% by weight
    - *Resource:* Unchanged from previous Annual report.
- **Residual Moisture Content:**
  - 8.6% by weight, corresponding to a 7.69% by weight for Brooks-Corey Calculations
    - *Resource:* Unchanged from previous Annual report.
- **Active Leaching Ore Moisture Content**
  - 14.35% - 11.46% by weight
    - *Resource:* Calculated within the model, based on application rate (discussed in detail below), ore properties, and changes in density based on loading
- **Bulk Dry Density**
  - 1.72 tonne/m3
    - *Resource:* Unchanged from previous Annual report.
- **Density Consolidation**
  - Density_Consolidated=Bulk_Density*Overburden_Depth^(Power_Factor), curve fit equation developed from test work with the Power Factor calculated as 0.0195
    - *Resource:* Unchanged from previous Annual report.
- **Specific Gravity**
  - 2.65

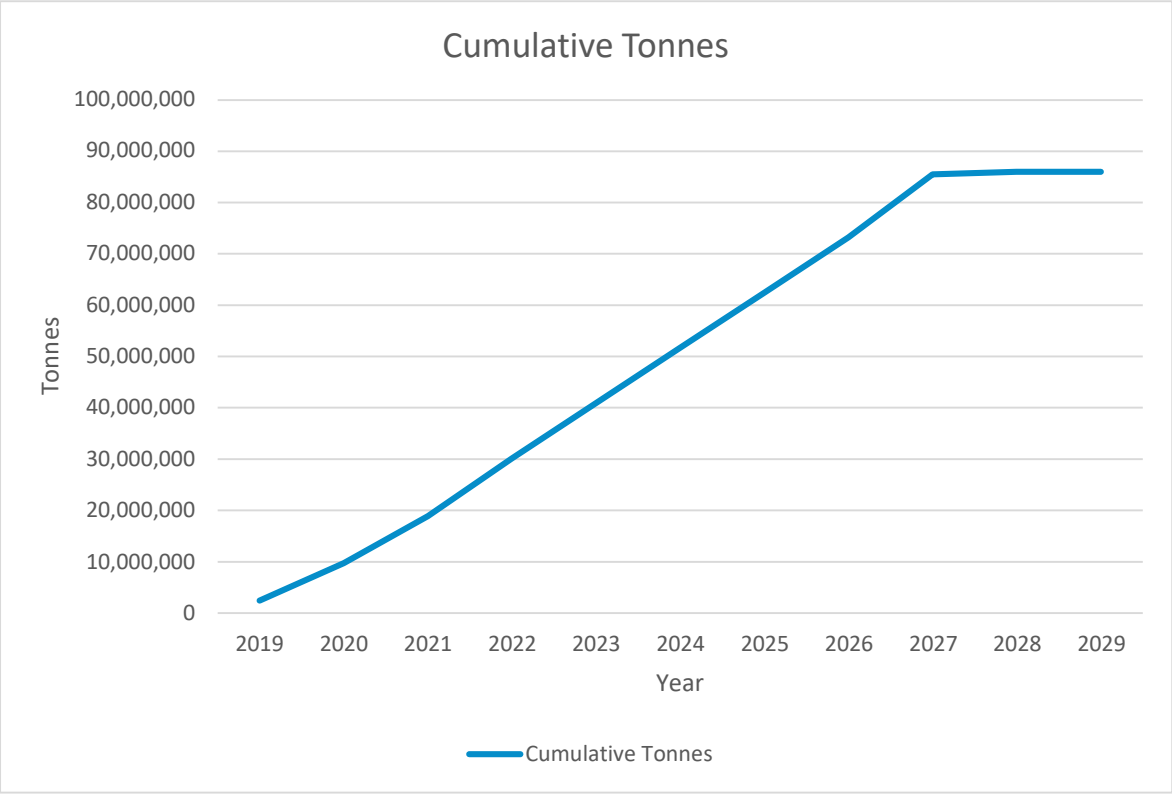
    - *Resource:* Unchanged from previous Annual report.
- **Saturated Hydraulic Conductivity**
    - 0.07268 cm/s (universally scaled down by 1 order of magnitude in model for in-field correction)
        - *Resource:* Unchanged from previous Annual report.
- **Saturated Hydraulic Conductivity Consolidation**
    - K_sat_consolidated=Density_Consolidated*Slope+Intercept, linear fit equation developed from test work with Slope=-0.2285 and Intercept=0.4657
        - *Resource:* Unchanged from previous Annual report.
- **SCS Curve Number – Loaded HLF**
    - 70 for un-leached ore, 91 for leached ore
        - *Resource:* Unchanged from previous Annual report.
- **SCS Curve Number – Un-loaded HLF**
    - 99 for un-loaded HLF area, treated as bare LLDPE liner surface
        - *Resource:* Unchanged from previous Annual report.

2.3 Heap Leach Facility Parameters

- **Total Tonnes:**
    - 86Mt, Shown in Plot 1 and Plot 2.
        - *Resource:* VGC
- **Pad Phasing:**
    - Phase 1A - 1/1/2019, 210,000 m2 Total
    - Phase 1B - 9/24/2020, 460,000 m2 Total
    - Phase 2a - 8/20/2022, 560,000 m2 Total
    - Phase 2b - 4/16/2023, 668,000 m2 Total
    - Phase 3 - 4/3/2025, 983,000 m2 Total



Plot 1 - Mine Plan: Tonnes per Year



Plot 2 - Mine Plan: Cumulative Tonnes

- **Loading Months:**
  - Forecast stacking typically occurs April through December each year (9 months of loading), reduced loading in January and March per the mine plan provided by VGC.
    - Historic loading matches actuals placed to date
    - *Resource:* Unchanged from previous Annual report.
- **Ultimate Elevation:**
  - 1225m above mean sea level
    - *Resource:* Unchanged from previous Annual report.
- **Lift Height:**
  - 10 - 12m
    - *Resource:* Update on operations plan provided by VGC.
- **Precipitation Soak-up/Initial Abstraction of Precipitation:**
  - SCS Curve Number Excess Moisture Method Used
    - *Resource:* Unchanged from previous Annual report.
- **Evaporation Loss from Drip Emitters:**
  - 0.5% only in months with average daily temperatures above 0 Celsius
    - *Resource:* Unchanged from previous Annual report.

2.4 Operational Parameters

- **Initial Leach Cycle:**
  - 45 days
    - *Resource:* Unchanged from previous Annual report.
- **Leaching Application Rate (nominal):**
  - 7 L/hr/m2 target for fresh and aged ore
    - Application rate fluctuates based on area under leach and total from plant.
      - This also varies in forecasting based on solution management practices and recirculation when needed.
    - *Resource:* Unchanged from previous Annual report.
- **Target Plant Flow Rate:**
  - 1500 m3/hr, varies through start-up and dependent on total available area for leaching, see Additional Discussion for more information on how this was treated for modeling of the mine closure in the Deterministic Modeling
    - *Resource:* Unchanged from previous Annual report.
  - Additional Discussion: For the updated Deterministic Model simulations performed by Forte, additional specificity of the plant flow rate and its effects on overall solution management is necessary. This includes allowing for fluctuations to this flow rate to manage the In-Heap pond solution level by utilizing recirculation as required.

- *After the forecasting date:* During normal operations (following initial ramp-up during development of the HLF), the Target Plant Flow Rate is 1500 m3/hr limited by the Leaching Application Rate with the Evaporation Loss from Drip Emitters being subtracted off in the applicable months.
- *Once the mine reaches the end of loading:* After one complete Leach Cycle of the last ore loaded (45 days), the Make-up Water supply is turned off, at which point solution begins to be managed through the discharge of barren solution to treatment, in order to reduce total volume of solution in the system. More information for the modeling of Make-up Water, Discharge to Treatment, Leach Cycle, In-Heap Pond, and Event Pond can be found in each of those respective sections.

- **Discharge to Treatment Rate:**
  - 1000m Climate Series: 12.1 L/s from 2/15/2028 to 1/1/2029, 19 L/s after 2030
  - Climate Change Climate Series: 19 L/s from 2/15/2028 to 1/1/2029, 28.5 L/s after 2030
    - *Resource:* Unchanged from previous Annual report.
- **Event Pond Storage:**
  - 300,577 m3 maximum, 0.5 m Freeboard Volume of 19,325 m3
    - *Resource:* Unchanged from previous Annual report.
  - Additional Discussion: For all the modeling simulations performed by Forte, the Event Pond was modeled being the first source of additional solution required to meet leaching demands. Then, after 2/15/2028, the Event Pond is allowed to fill from meteoric conditions prior to being pumped out and recirculated through the system, eventually returning to the In-Heap Pond. During this same time period the In-Heap Pond level is primarily managed by recirculation and through discharge to treatment. Additionally, the only input to the Event Pond in the model is from In-Heap pond overflow and direct precipitation.
- **In-Heap Pond Storage Volume:**
  - 59,378 m3 (always occupied during operation), 57,763 m3 (maximum available storage volume during operation before overflowing to the Event Pond)
    - *Resource:* Unchanged from previous Annual report.
  - Additional Discussion: For all of the modeling simulations performed by Forte, the In-Heap Pond was drawn from in the following way:
    - As much as possible to maintain the circulation of the targeted flow rate of 1500 m3/hr, with that flow rate acting as the maximum total withdrawal rate from the In-Heap Pond throughout the entire mine life beginning 1/1/2022.
    - As much as possible to maintain the target for Discharge to Treatment rates with those rates acting as the maximum solution removal rates from the system beginning 2/15/2028.
- **Total Available Storage Volume vs Desired Available Storage**

- The Maximum Total Available Storage Volume is **358,340 m³**, which is calculated by subtracting the amount of solution stored in the In-Heap and Event Pond from the Maximum Total Storage Volume:
  - **57,763 m³** (Maximum Available In-Heap Pond Storage Volume)
  - **300,577 m³** (Maximum Available Event Pond Storage Volume)
  - **300,577 + 57,763 = 358,340 m³**

- **Desired Available Storage Volume:**
  - Phase 1 of HLF = 198,340 m3 (License requirement provided by VGC)
  - Phase 2 of HLF = 210,640 m3 (provided by VGC)
  - Phase 3 of HLF = 227,340 m3 (provided by VGC)
- **Monitoring Vault Reclaim:**
  - 165 m3/hr to the Event Pond
    - *Resource:* Provided by VGC based on historic operations

2.5 Meteorological Inputs and Parameters

For the 2021 Annual Update, Lorax provided Forte with measured meteorological data for the site and incorporated it into an updated set of 1000m data. The set of Climate Change meteorological data was unchanged for this modeling from what was provided in 2020.

- **Extreme Precipitation Reference Event:**
  - 54 mm (24-hr, 100 yr Event)
    - *Resource:* Lorax, 2020 meteorological data, using design values regarding catchment area for final HLF (catchment area for the In-Heap Pond and Event Pond through closure)
- **Precipitation Data used in Deterministic Modeling:**
  - Two updated, separate composite sets of data provided by Lorax were used by Forte for the updated water balance model.
    - 1000m Set: The hydrologic 2016 year (Oct 2015 to September 2016) repeated as a typical year from start of 2022 through closure.
    - Climate Change Set: This set has the identical basis as the 1000m set (2016 data repeated for years 2022 through 2099); however, Lorax provided a data set to incorporate the effects of climate change on the weather at the site
    - *Resource:* Lorax 2020 (1000m and Climate Change (CC) data sets provided to Forte)
    - Refer to Figures 1-4
- **Potential Evaporation Data used in Deterministic Modeling:**
  - Two separate composite sets of data provided by Lorax were used by Forte for the water balance model.
    - 1000m Set: The hydrologic 2016 year (October 2015 to September 2016) repeated as a typical year from start of 2022 through closure.

- Climate Change Set: This set has the identical basis as the 1000m set2016 data repeated for years 2022 through 2099); however, Lorax provided a data set to incorporate the effects of climate change on the weather at the site.
- *Resource:* Lorax 1000m data set provided to Forte in 2021.
- *Resource:* Lorax Climate Change (CC) data set provided to Forte in 2020
- Refer to Figures 5-8

- **Temperature Data used in Deterministic Modeling:**
  - Two separate composite sets of data provided by Lorax and were used by Forte for the updated water balance model.
    - 1000m Set: hydrologic 2016 year (October 2015 to September 2016) repeated as a typical year from start of 2022 through closure.
    - Climate Change Set: This set has the identical basis as the 1000m set (Site Synthetic through 2021, 2016 data repeated for years 2022 through 2099); however, Lorax provided a data set to incorporate the assumed effects of climate change on the weather at the site.
    - *Resource:* Lorax 1000m data set provided to Forte in 2021.
    - *Resource:* Lorax Climate Change (CC) data set provided to Forte in 2020
    - Refer to Figures 9-12
- **Stochastic Sampling and Iterations:**
  - Latin Hypercube Sampling, 100 iterations/realizations
    - *Resource:* Engineering and statistical modeling experience updated to reflect the added robustness and detail of the updated operational model with a quarter day timestep.
- **Precipitation Data used in Stochastic Modeling:**
    - 1/1/2022 to 8/31/2022: WGEN (Richardson and Wright, USDA, 1984) with up-front detailed descriptive statistic parameter generation was used on the 71 years of daily Site Synthetic data. Using the stochastic sampling and iterations described previously, 100 realizations of data were produced for each day of data for Precipitation, Maximum and Minimum Temperature, Evaporation, and Solar Radiation.
    - *Resource:* Lorax 2020 (Site Synthetic dataset from 1948-2019 provided to Forte for use in WGEN Stochastic data production).
    - Refer to Figures 13 and 14
- **Potential Evaporation Data used in Stochastic Modeling:**
    - 1/1/2022 to 8/31/2022: Refer to the Precipitation Data used in Stochastic Modeling section for a description of how the 100 yearly Realizations of data were produced for Precipitation, Maximum and Minimum Temperature, Evaporation, and Solar Radiation.

- *Resource:* Lorax 2020 (Site Synthetic dataset from 1948-2019 provided to Forte in for use in WGEN Stochastic data production).
- Refer to Figures 15 and 16

- **Temperature Data used in Stochastic Modeling:**
  - 1/1/2022 to 8/31/2022: Refer to the Precipitation Data used in Stochastic Modeling section for a description of how the 100 yearly Realizations of data are produced for Precipitation, Maximum and Minimum Temperature, Evaporation, and Solar Radiation. As WGEN outputs the Minimum and Maximum Average Daily Temperature, the Forte model calculates the Overall Average Daily Temperature from these.
  - *Resource:* Lorax 2020 (Site Synthetic dataset from 1948-2019 provided to Forte for use in WGEN Stochastic data production).
  - Refer to Figures 17 and 18
- **Solar Radiation Data used in Stochastic Modeling:**
  - 1/1/2022 to 8/31/2022: Refer to the Precipitation Data used in Stochastic Modeling section for a description of how the 100 yearly Realizations of data are produced for Precipitation, Maximum and Minimum Temperature, Evaporation, and Solar Radiation. The Solar Radiation is used in the calculation of Evapotranspiration specifically for the HLF.
  - *Resource:* Lorax 2020 (Eagle Climate Data provided to Forte).
  - Refer to Figure 19
- **Evapotranspiration Calculated on HLF Only:**
  - Specifically, for the HLF, the Eagle Climate Data was used for the solar radiation, wind speed, and relative humidity necessary (along with temperature data from the 1000m and Climate Change data) for the calculation of evapotranspiration. The evaporation data provided directly in the 1000m, and Climate Change datasets were used directly for the ponds.
    - *Resource:* Lorax 1000m data set provided to Forte in 2021.
    - *Resource:* Lorax Climate Change (CC) data set provided to Forte in 2020
    - Calculations/technique determined by Forte from engineering and HLF modeling experience
- **Sublimation Calculated:**
  - Sublimation is calculated using heat transfer principles and is included implicitly within the Snow 17 (Snow Accumulation and Ablation, Anderson, 2016) submodel used by Forte discussed in greater detail below. The Snow 17 approach yields similar results to the method used by Lorax for the site wide water balance and water quality model, however in Forte's experience this approach more closely matches measured snowpack and provides a better representation of snow accumulation and snow melt for heap leach operations.

- *Resource:* Lorax 1000m Site Synthetic Data set provide to Forte in 2021.
- *Resource:* Climate Change (CC) Site Synthetic data set provided to Forte in 2020
- These data sets provide the necessary inputs for Snow 17 (Snow Accumulation and Ablation, Anderson, 2016)

  - Additional Discussion: Snow 17 uses heat transfer and energy balance methodologies to calculate the energy exchange at the snow-air interface taking into account latent and sensible heat exchange, vapor pressure differential, dew-point temperature.

- **Snowfall, Rain, and Melt:**
  - The division of precipitation between rain and snow and the calculation of Snow Water Equivalent and excess water (rain and melt) are modeled by Forte using the Snow 17 submodel. The Snow 17 submodel takes average daily temperature and precipitation as the critical inputs but also corrects for seasonal solar radiation changes, latitude and altitude in the implicit calculations of melt factor and lapse rate most notably. Snow 17 also makes use of daily heat deficit accounting for determination of the internal condition of the snowpack based on the net heat transfer effects caused by the daily temperature and precipitation at the snow surface. The Snow 17 approach yields similar results to the method used by Lorax for the site wide water balance and water quality model, however in Forte's experience this approach more closely matches measured snowpack and provides a better representation of snow accumulation and snow melt for heap leach operations.

3. RESULTS AND DISCUSSION

Please refer to figures 19-34 below for the following discussion of the Deterministic modeling performed from 1/1/2022 through 12/31/2039 and of the Stochastic modeling performed from 1/1/2022 through 8/31/2022.

3.1 Deterministic Modeling Results

Deterministic modeling of the HLF was performed using two sets of Climate/Meteorological data provided to Forte by Lorax labeled in the graphs and discussed below as “1000m” and “Climate Change”/“CC”. The key difference between the 1000m and CC data are changes to account for the impact of climate change for the Eagle site. For the 20+ year timeline modeled by Forte in the Deterministic modeling, the results were consolidated into Monthly datasets and graphed as such.

- **Total Available Storage Volume vs Desired Available Storage**
    - For both the 1000m and Climate Change datasets and model runs, the total available storage volume never fell below the Desired Available Storage (DAS) (license states DAS must be 198,340 for Phase 1).
    - During the forecasted period, there were no infringements on the DAS and the minimum value of the average monthly total available pond storage volume resulting from the Deterministic modeling for the Climate Change dataset was 254,382 m3 June of 2026. For the 1000m dataset there were also no infringements on the DAS and the minimum value of the average monthly total available pond storage volume was 233,720 m3, in August of 2028.
    - Additionally, there was no overflow from the In-Heap pond to the Event Pond in the forecast model runs.
    - Refer to Figures 20-23
- **Total Flow to Plant and Drainage from Heap**
    - The Total Flow to Plant (presumed to flow through the plant with negligible changes in volume to be pumped back to the HLF) and Drainage from HLF rates represent the measured and forecasted values of the “barren” solution flow rate pumped to the HLF and the “pregnant” solution reporting back to the In-Heap Pond from the HLF respectively.
    - Total Flow to Plant:
        - From about 1/1/2022 to 2/15/2028, this rate is primarily a function of the Target Plant Flow Rate of 1500 m3/hr and this rate is seen to stay near the 1500 m3/hr target throughout most of this time period. Variations in this rate are attributed to solution management practices to maintain the DAS and prevent the In-Heap pond from overflowing. Additionally, variations in the Make-Up Water supply are used to indicate that water is being added into the system to maintain the Target Plant Flow Rate (Figure 24 and Figure 25). Variations in leaching rate also coincide with the winter months when stacking rates are decreased. This typically occurs from January through the freshet runoff until about mid-May, when there is sufficient

volume of solution maintained in the In-Heap Pond for the Total Flow to Plant to consistently meet the target leaching demand at about 1500 m3/hr. In the event that there is not enough solution to meet the Target Plant Flow Rate requirement, the demand for Make-Up Water is triggered as shown in Figure 28 and Figure 29.

        - After 2/15/2028 onwards the Total Flow to Plant demand for solution from the In-Heap Pond becomes secondary after the initial leach cycle is completed on the last ore loaded onto the HLF. Solution from the In-Heap Pond is actively pumped out to be discharged to treatment as the top priority and the remaining solution/water is recirculated to the HLF for storage within the ore to maintain the DAS while residual gold recovery continues.
        - Beyond 3/1/2036 for the 1000m Climate Series and 4/1/2031 for the Climate Change Climate Series, the In-Heap Pond reaches sufficiently low levels that there is no longer a need for continuous recirculation of solution. It is at this point when the Total Flow to Plant falls to zero in perpetuity, and the flow from the pond is directed to the HLF passive treatment system.
    - Drainage from Heap
        - Generally, the Drainage from Heap is a function of the Total Flow to Plant plus Make-Up Water with the addition of meteorological factors. Energy transfer (e.g. sublimation of snow and evapotranspiration) is applied at the surface of the HLF as well as the percentage of precipitation (rain or melt) that infiltrates into the HLF. Note that the portion of this precipitation that does not infiltrate into the HLF reports to the In-Heap Pond by running off the heap or exposed liner then infiltrates into the ore at the lowest surface elevation of the heap pad.
    - Refer to Figures 24-27
- **Make-Up Water and Discharge to Treatment Rates**
    - The Make-Up Water is taken as the difference between the solution demand for leaching of ore on the HLF and the available solution in both the In-Heap and Event Pond sent through the plant. The Make-Up water requirement is generally seasonal, until the Make-Up Water supply is shut off to facilitate the closure of the HLF in 2/15/2028.. This would affect the stacking rates to the pad and the make-up water and discharge to treatment requirements. Once the runoff from snow melt is completed in about mid-May each year, the demand for Make-Up Water from an outside source begins to increase and fluctuate through the summer until the average temperature falls below 0 Celsius. Once the site is generally below freezing in about October, precipitation no longer adds significantly to the In-Heap Pond Volume and the requirement for Make-Up Water reaches its highest levels throughout the remaining period of the winter in which the mine continues to stack new ore on the HLF.

- The Discharge to Treatment Rates used by Forte is to reduce solution inventory earlier while residual gold recovery continues from the HLF with the majority of solution continuing to be recirculated through the HLF. This will serve to continue producing gold while gradually reducing solution in the system; approximately 1000 m3/hr is maintained in circulation through the HLF for more than 2 years after the initiation of the Discharge to Treatment.
    - 1000m Climate Series: On 2/15/2028, discharge to treatment begins at a constant rate of 12.1 L/s. This rate is maintained without interruption until it is increased on 1/1/2030 to 19 L/s per previous model runs, Forte engineering judgement, and site direction to not exceed a Discharge to Treatment rate of 20 L/s in line with the WUL.
    - Climate Change Climate Series: On 2/15/2028, discharge to treatment begins at a constant rate of 19 L/s. This rate is maintained without interruption until it is increased on 1/1/2030 to 28.5 L/s per calibration model runs and Forte engineering judgement. Given the increased overall quantity of precipitation in the latter years of the Climate Change Climate Series, the use of the same discharge rates as for the 1000m series are insufficient to drain the HLF of solution. Even with a constant discharge rate of 19 L/s from 2/15/2028 onward, there is sufficient meteoric inflow that the HLF remains in a pseudo-equilibrium requiring constant recirculation. As such, Forte increased the Discharge to Treatment Rate by 50% on 1/1/2030 to 28.5 L/s thus ensuring a swift draindown of the HLF by about 4/1/2031.
- Refer to Figures 28-31

- **Snow Water Equivalent**
    - The Snow Water Equivalent (SWE) as modeled by the Snow 17 method shows both the 1000m and Climate Change datasets repeatedly peaking in April of each year, reaching zero (signifying complete melt) in June of each year, and beginning to increase again in September of each year. The Climate Change dataset yields greater and lesser maximum SWE values than the repeated 1000m dataset indicating that some years the overall effect of the increased temperature will outweigh the effect of the increased precipitation resulting in lower SWE values while in other years the exact reversal of effects is seen.
    - Refer to Figures 32-35

3.2 Stochastic Modeling Results

Stochastic modeling of the HLF was performed using Climate/Meteorological data generated utilizing WGEN and historic data records provided by Lorax. For each model run, the stochastically created Climate/Meteorological data was used. The basis of the stochastically created data is the 71-year Site Synthetic data provided by Lorax which was used in the WGEN model to produce 100 realizations of daily climate data for a single-year record. For the 8 month timeline modeled by Forte in the Stochastic modeling, the results were consolidated into Weekly datasets and graphed as such.

- **Total Available Storage Volume vs Desired Available Storage**
    - Only the freshet and summer period from 3/1/2021 to 8/31/2021 were graphed on a weekly basis to show the highest resolution in the period in which the Total Available Storage Volume reaches its minimum for all datasets.
    - The minimum (corresponding to the 1st Percentile/Lower "Tail") that the weekly minimum value simulated for the Total Available Storage Volume reaches 286,780 m3 in the week of May 16th, 2022. Based on this, there is shown to be no probability of an infringement on the DAS during the summer of 2022.
    - Refer to Figure 36
- **Snow Water Equivalent**
    - For the Stochastic modeling, the simulated SWE values reach their maximum around early May with all of the maximum SWE values between 170mm and 240mm. In all datasets, the SWE shows a decrease from the peak value to about zero over the course of late-May and early-June with variations correlated to variations in the climate input data, especially precipitation and temperature.
    - Refer to Figure 37

4. CONCLUSION/SUMMARY

4.1 Deterministic Modeling

For the historic period:

- There was no infringement upon the DAS as seen in Figure 20-23.
- There is no overflow from the In-Heap pond to the Event Pond

For the 1000m climate dataset presented on a monthly basis, during the forecasted period:

- The Total Available Storage Volume available in the In-Heap and Event Pond never falls below the DAS volume. These results are not necessarily reflective of the site-wide water management practices surrounding the Event Pond.
    - Implicit in this is that there was no release to the environment during this period.
    - By turning off the supply of Make-Up water, turning on a first priority 12.1 L/s Discharge to Treatment (increased to 19 L/s in 2030) and maintaining secondary recirculatory pumping after all of the ore has been loaded onto the HLF and undergone initial leaching, the HLF can maintain volumes below the DAS threshold volume.

For the Climate Change climate dataset presented on a monthly basis, during the forecasted period:

- The Total Available Storage Volume available in the In-Heap and Event Pond also never falls below the DAS volume.

4.2 Stochastic Modeling

All stochastically generated climate datasets are presented on a weekly basis.

The Total Available Storage Volume available in the In-Heap and Event Pond has a 0% probability of falling below the maximum DAS volume required at any point in 2022 for the HLF model results presented herein. As noted above, this model does not incorporate site-wide water management strategies, specifically surrounding the Event Pond.

FIGURES

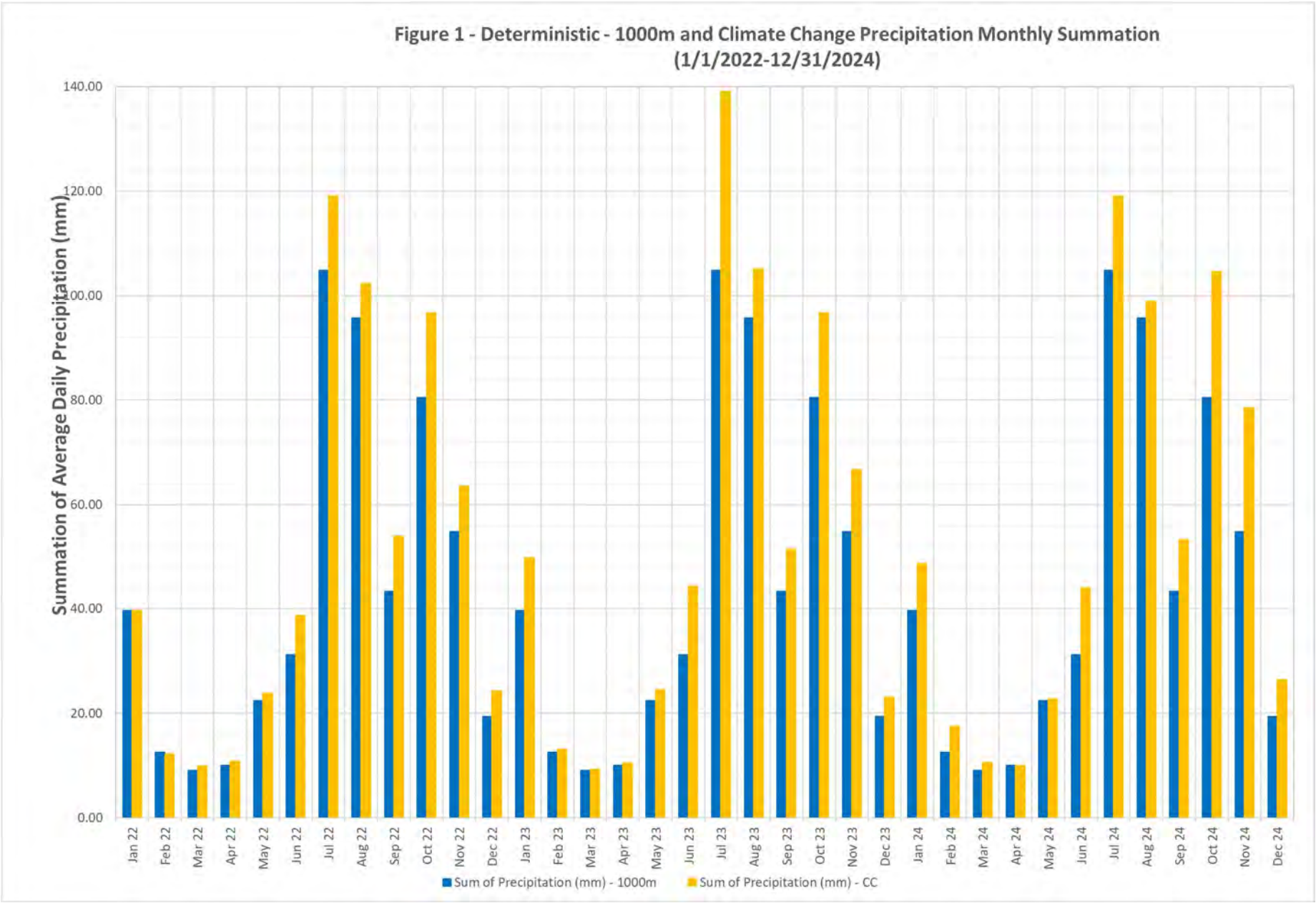

Figure 1 - Deterministic - 1000m and Climate Change Precipitation Monthly Summation
(1/1/2022-12/31/2024)
Summation of Average Daily Precipitation (mm)
140.00
120.00
100.00
80.00
60.00
40.00
20.00
0.00
Jan 22
Feb 22
Mar 22
Apr 22
May 22
Jun 22
Jul 22
Aug 22
Sep 22
Oct 22
Nov 22
Dec 22
Jan 23
Feb 23
Mar 23
Apr 23
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Oct 23
Nov 23
Dec 23
Jan 24
Feb 24
Mar 24
Apr 24
May 24
Jun 24
Jul 24
Aug 24
Sep 24
Oct 24
Nov 24
Dec 24
Sum of Precipitation (mm) - 1000m
Sum of Precipitation (mm) - CC

Figure 2 - Deterministic - 1000m and Climate Change Precipitation Monthly Summation (1/1/2025-12/31/2029)

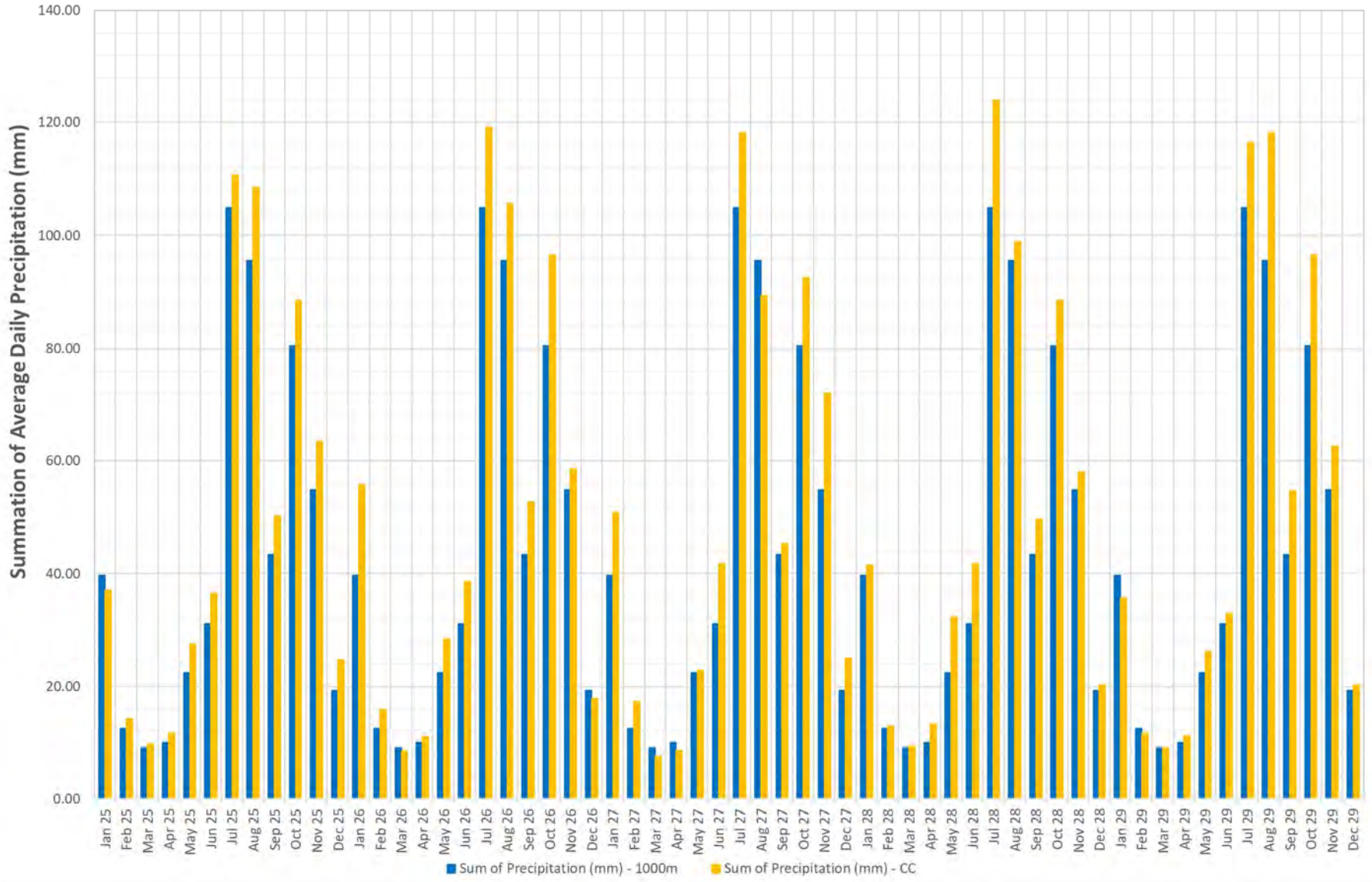


Figure 3 - Deterministic - 1000m and Climate Change Precipitation Monthly Summation (1/1/2030-12/31/2034)

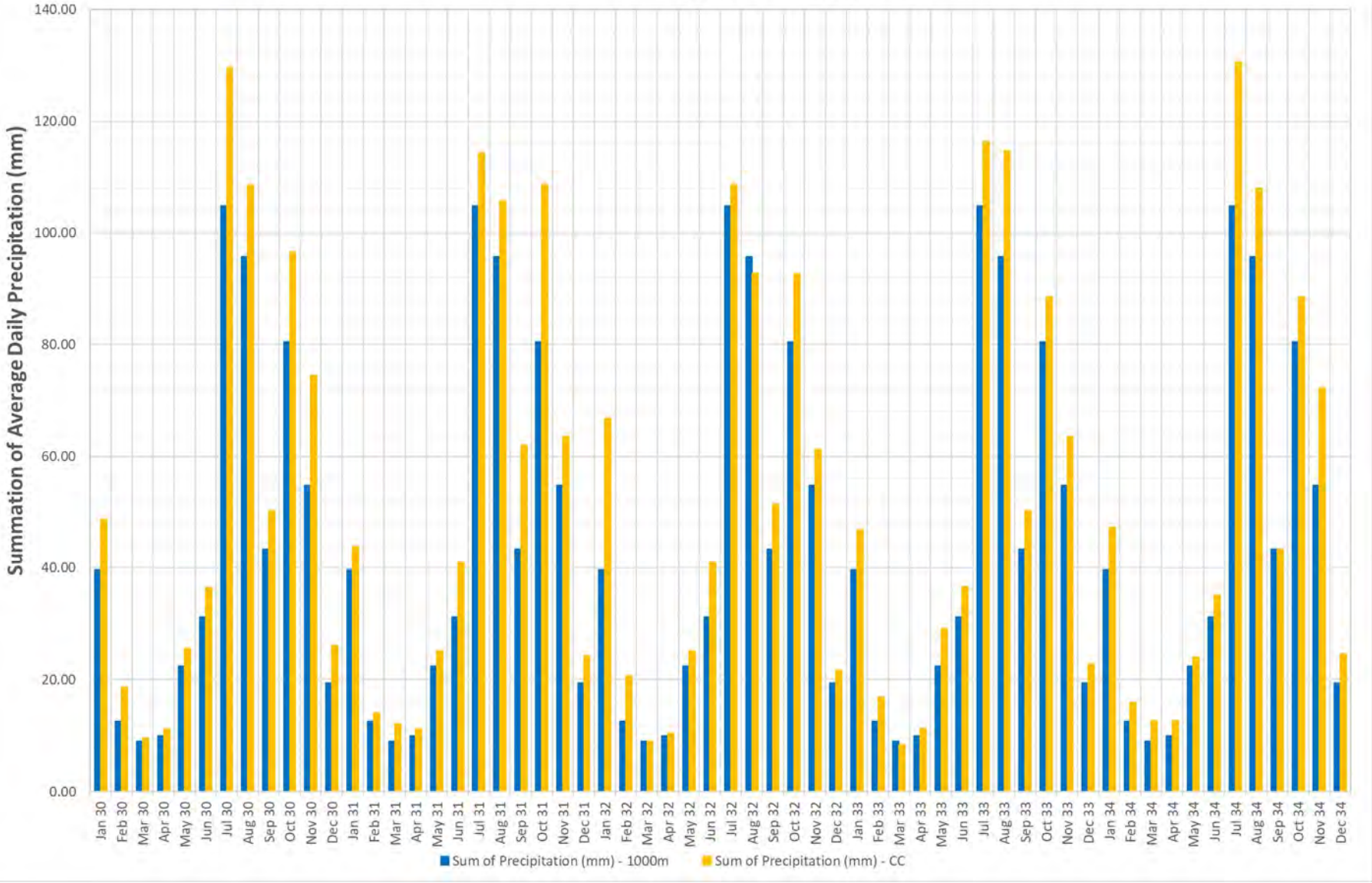


Figure 4 - Deterministic - 1000m and Climate Change Precipitation Monthly Summation (1/1/2035-12/31/2039)

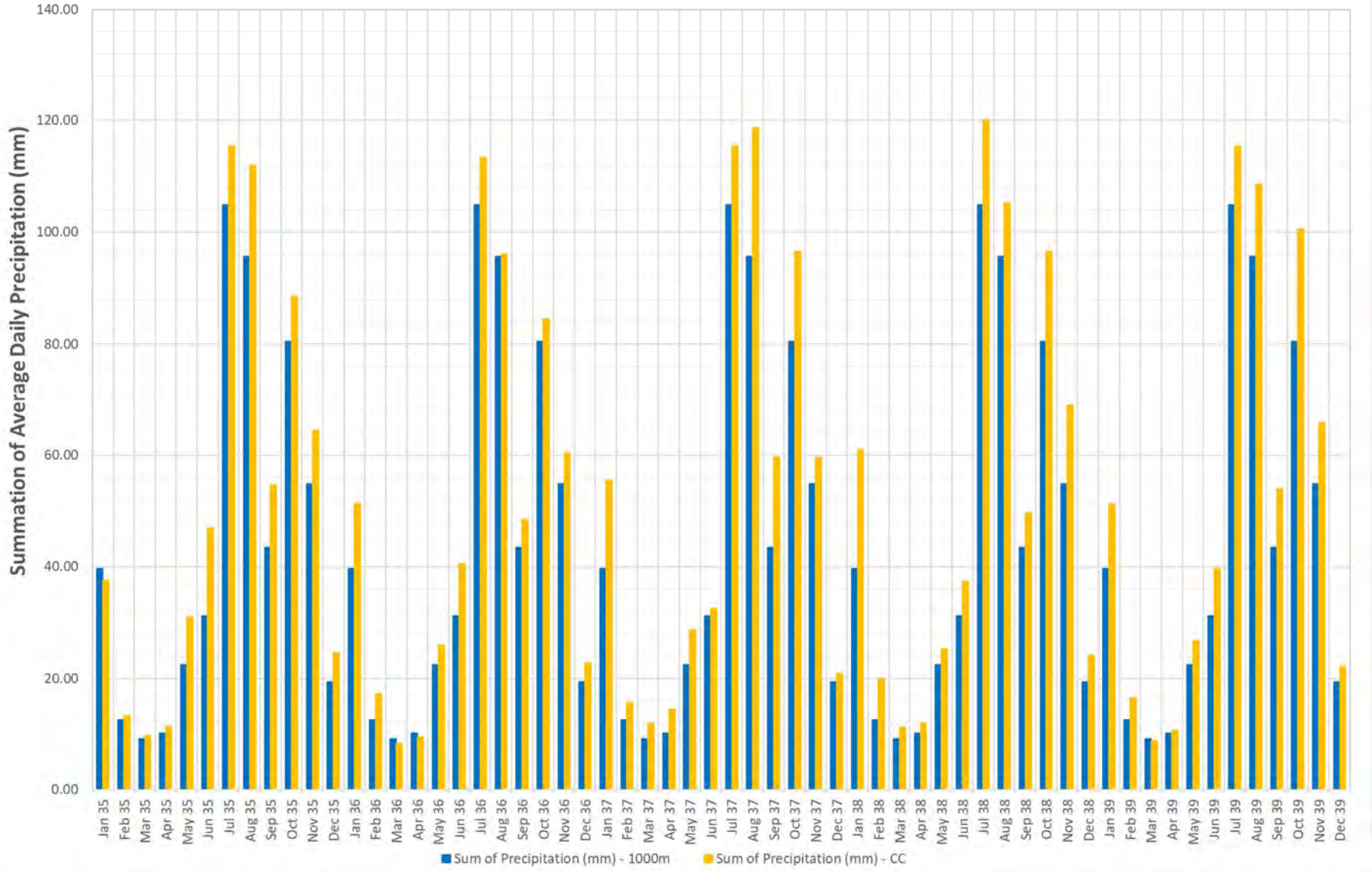


Figure 5 - Deterministic - 1000m and Climate Change Potential Evaporation Monthly Summation (1/1/2022-12/31/2024)

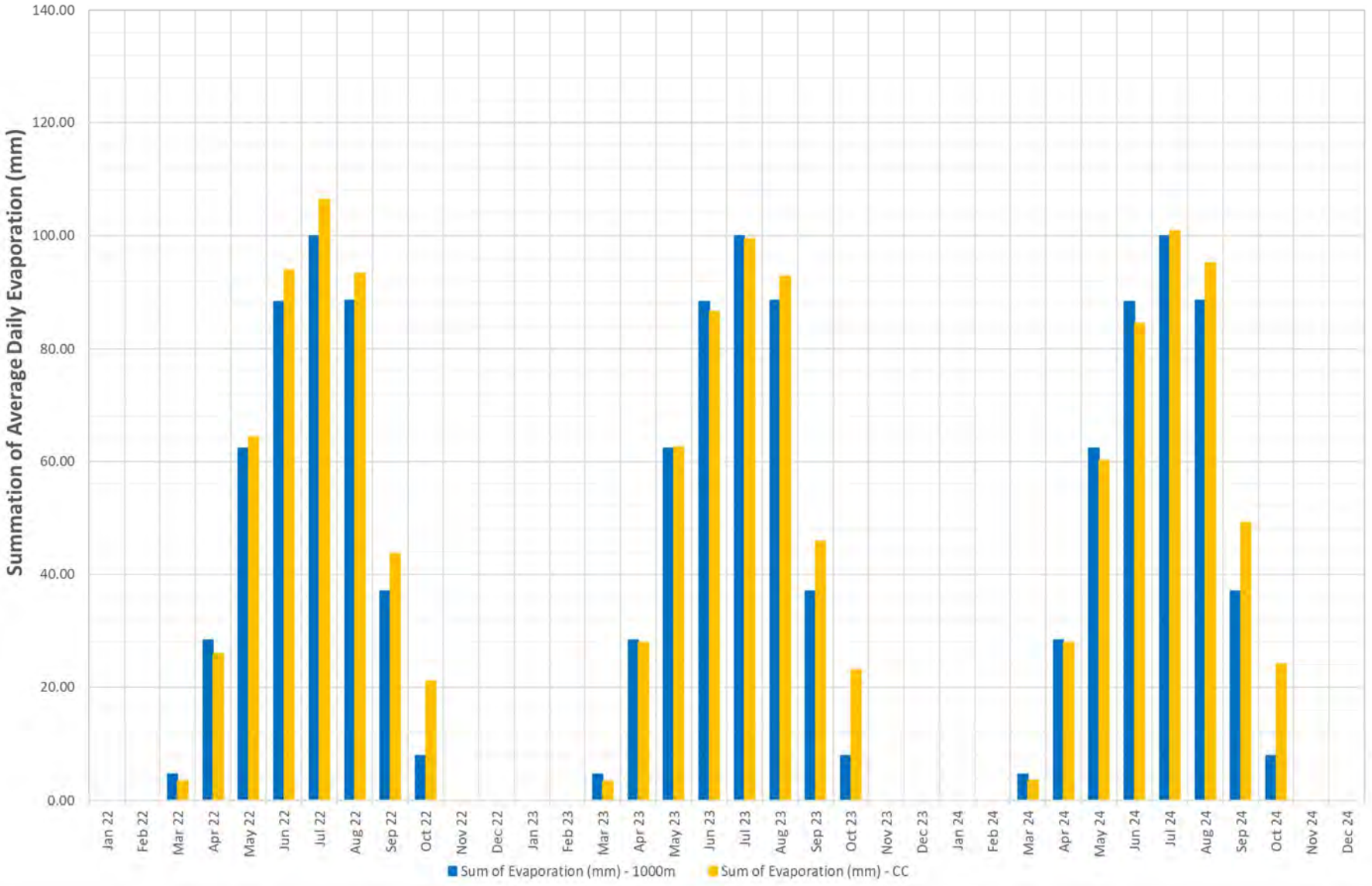


Figure 6 - Deterministic - 1000m and Climate Change Potential Evaporation Monthly Summation (1/1/2025-12/31/2029)

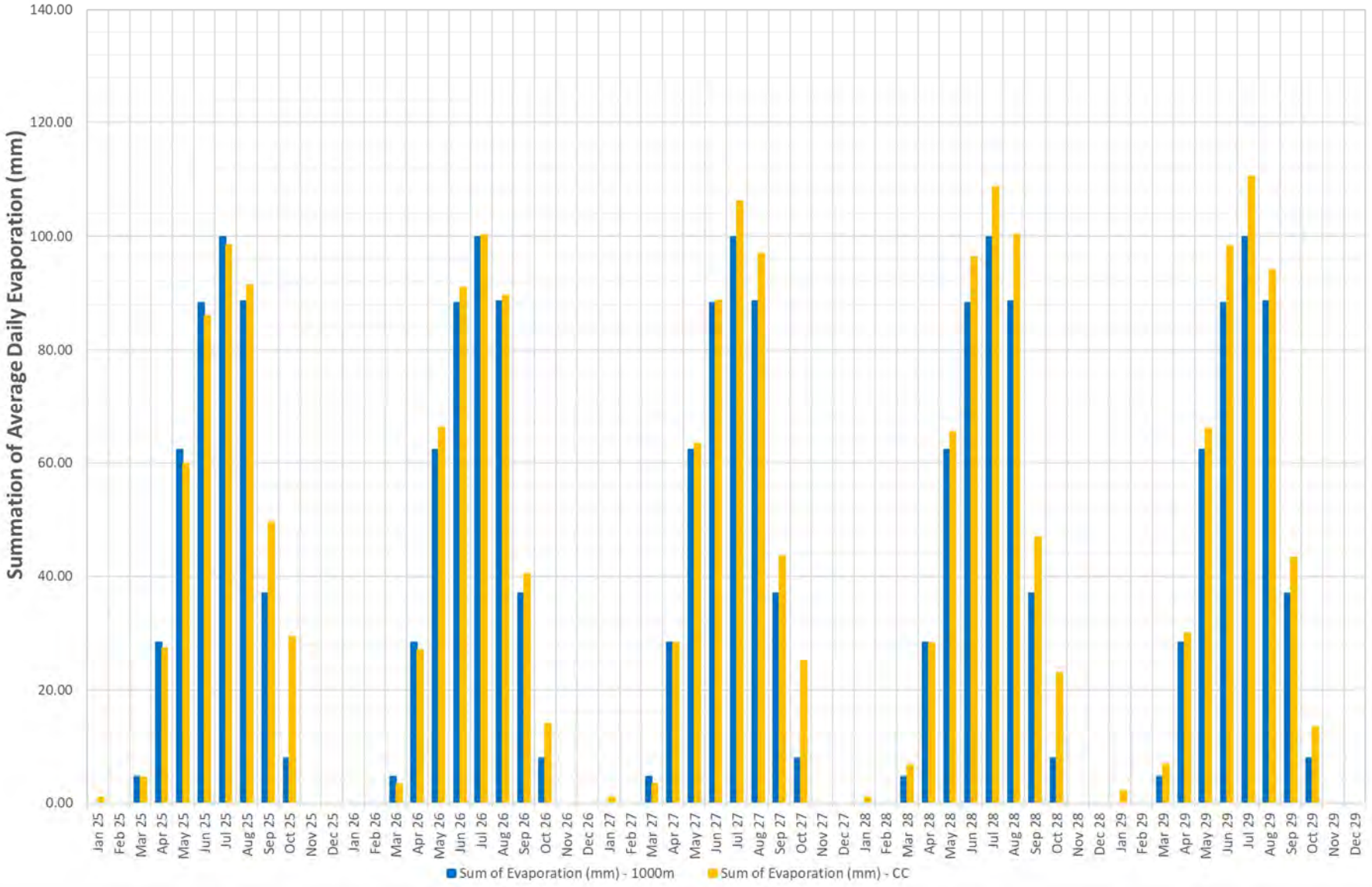


Figure 7 - Deterministic - 1000m and Climate Change Potential Evaporation Monthly Summation (1/1/2030-12/31/2034)

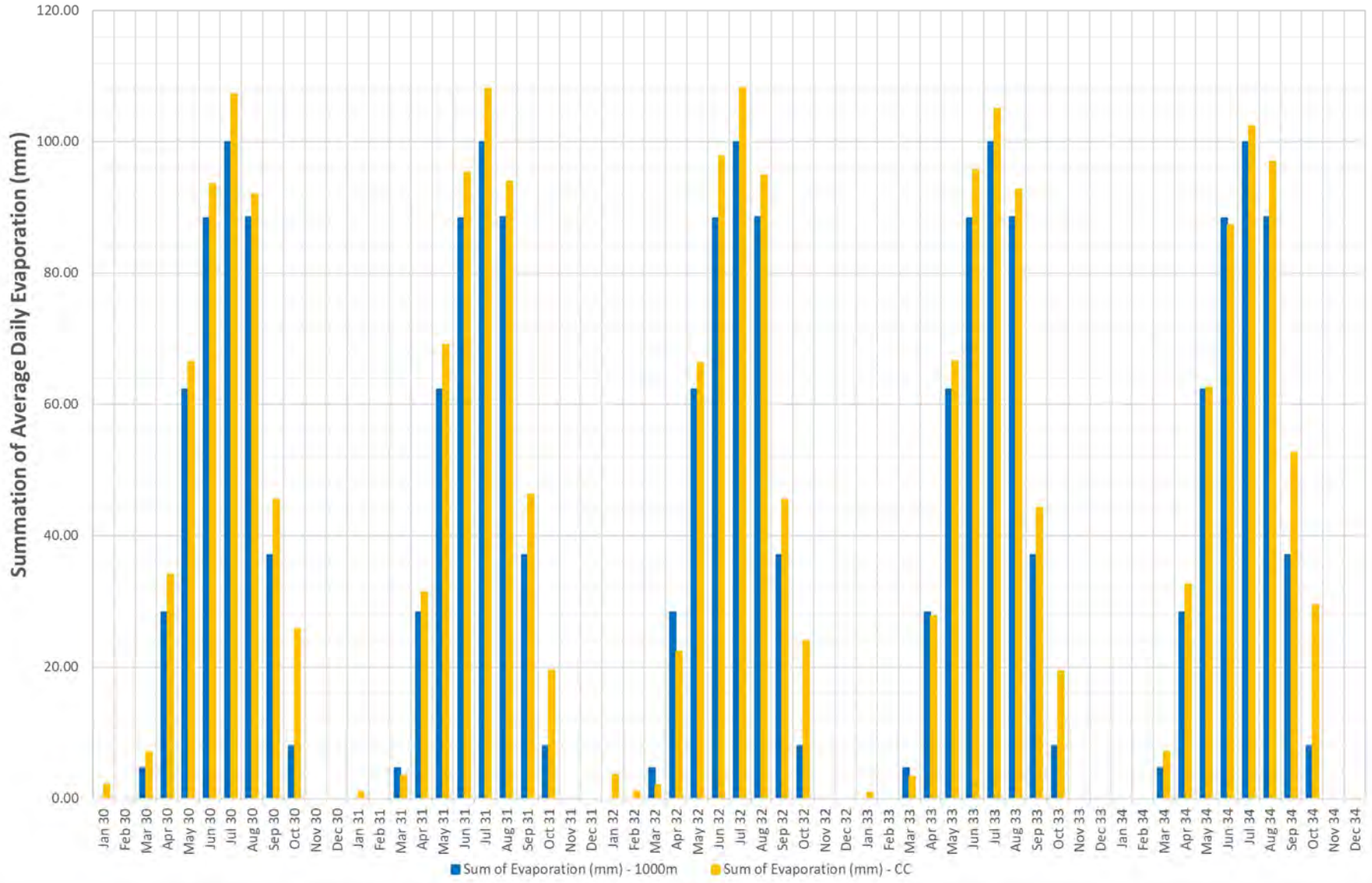


Figure 8 - Deterministic - 1000m and Climate Change Potential Evaporation Monthly Summation (1/1/2035-12/31/2039)

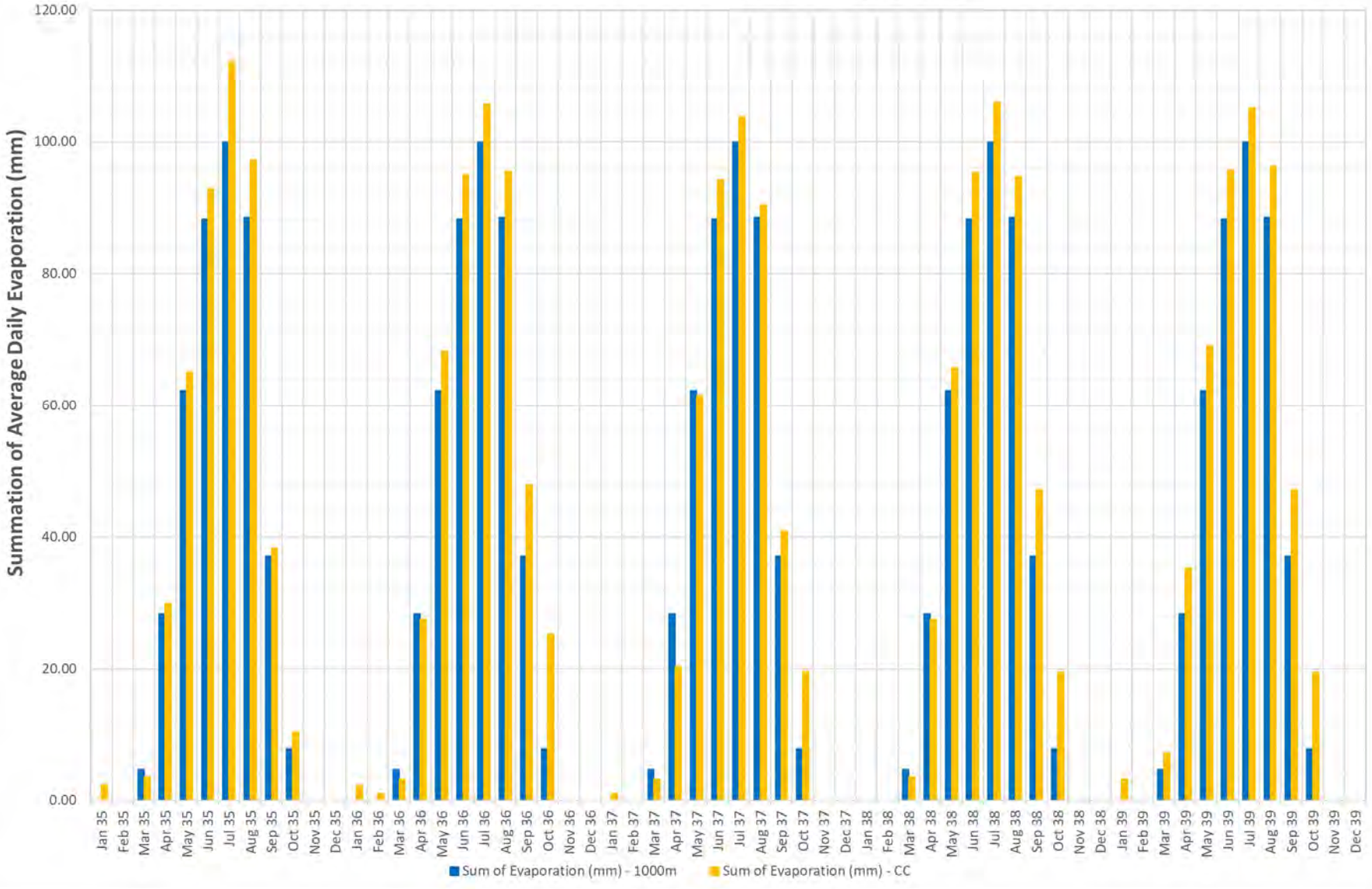


Figure 9 - Deterministic - 1000m and Climate Change Temperature Monthly Average (1/1/2022-12/31/2024)

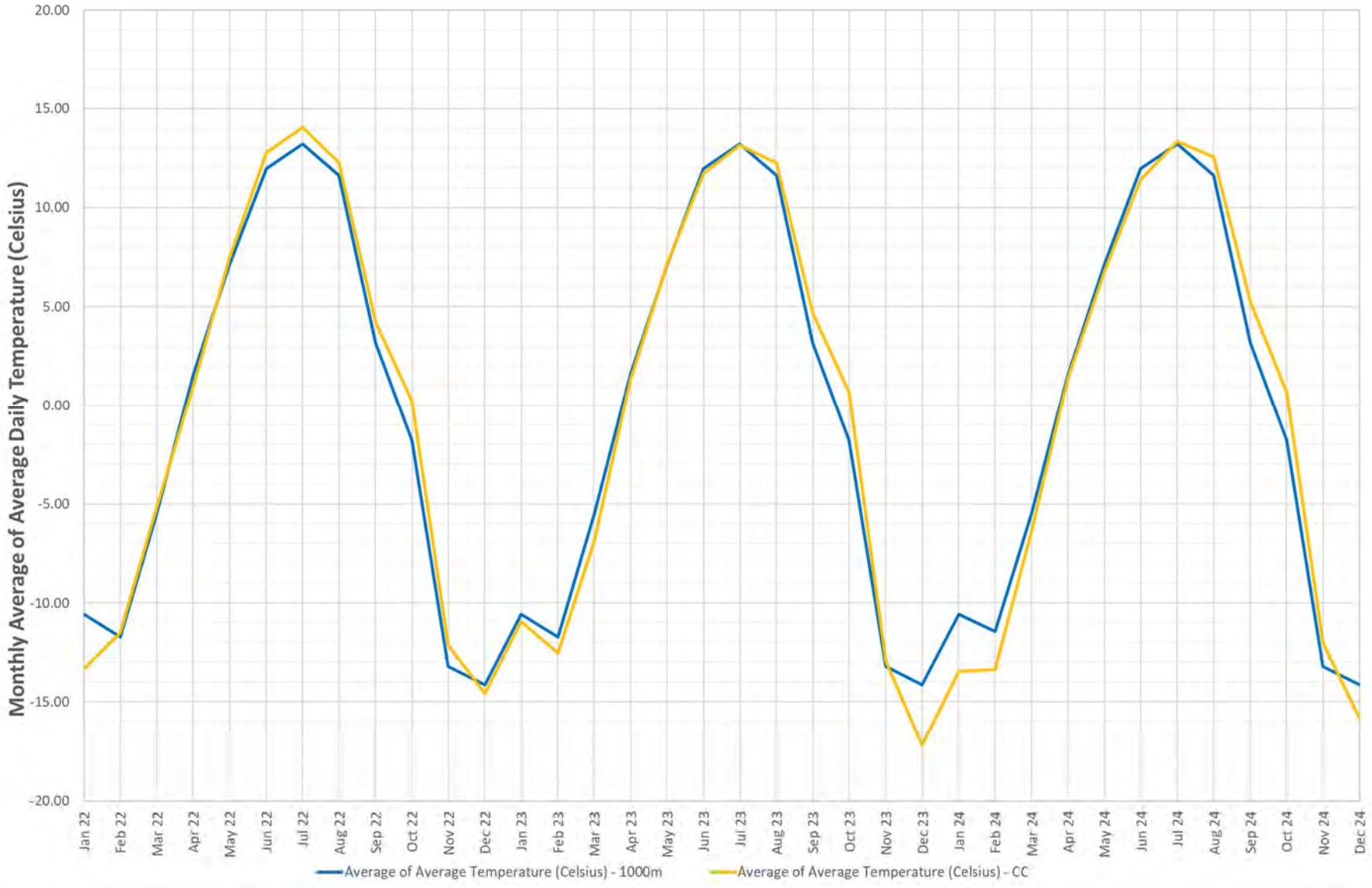


Figure 10 - Deterministic - 1000m and Climate Change Temperature Monthly Average (1/1/2025-12/31/2029)

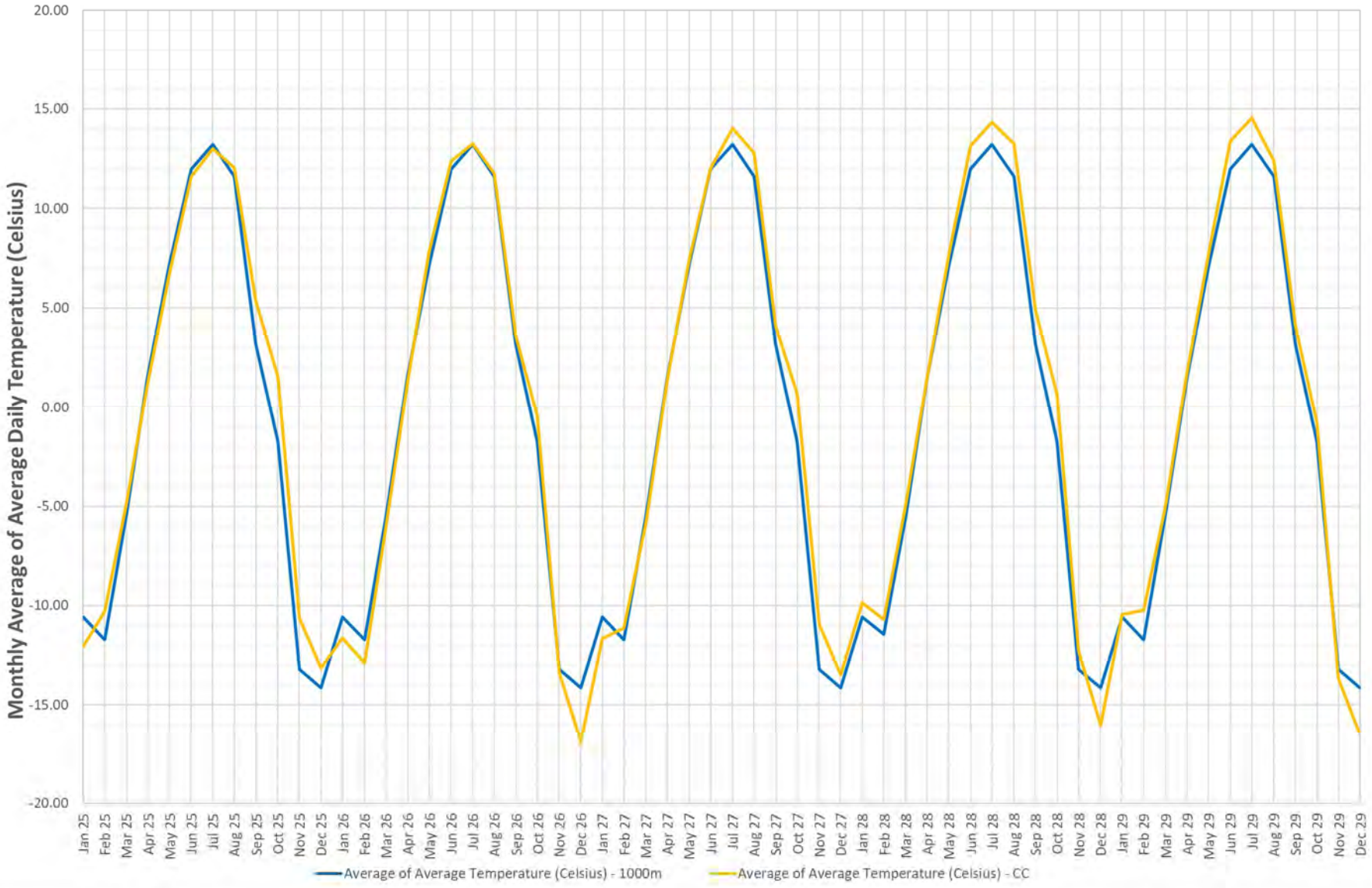


Figure 11 - Deterministic - 1000m and Climate Change Temperature Monthly Average (1/1/2030-12/31/2034)

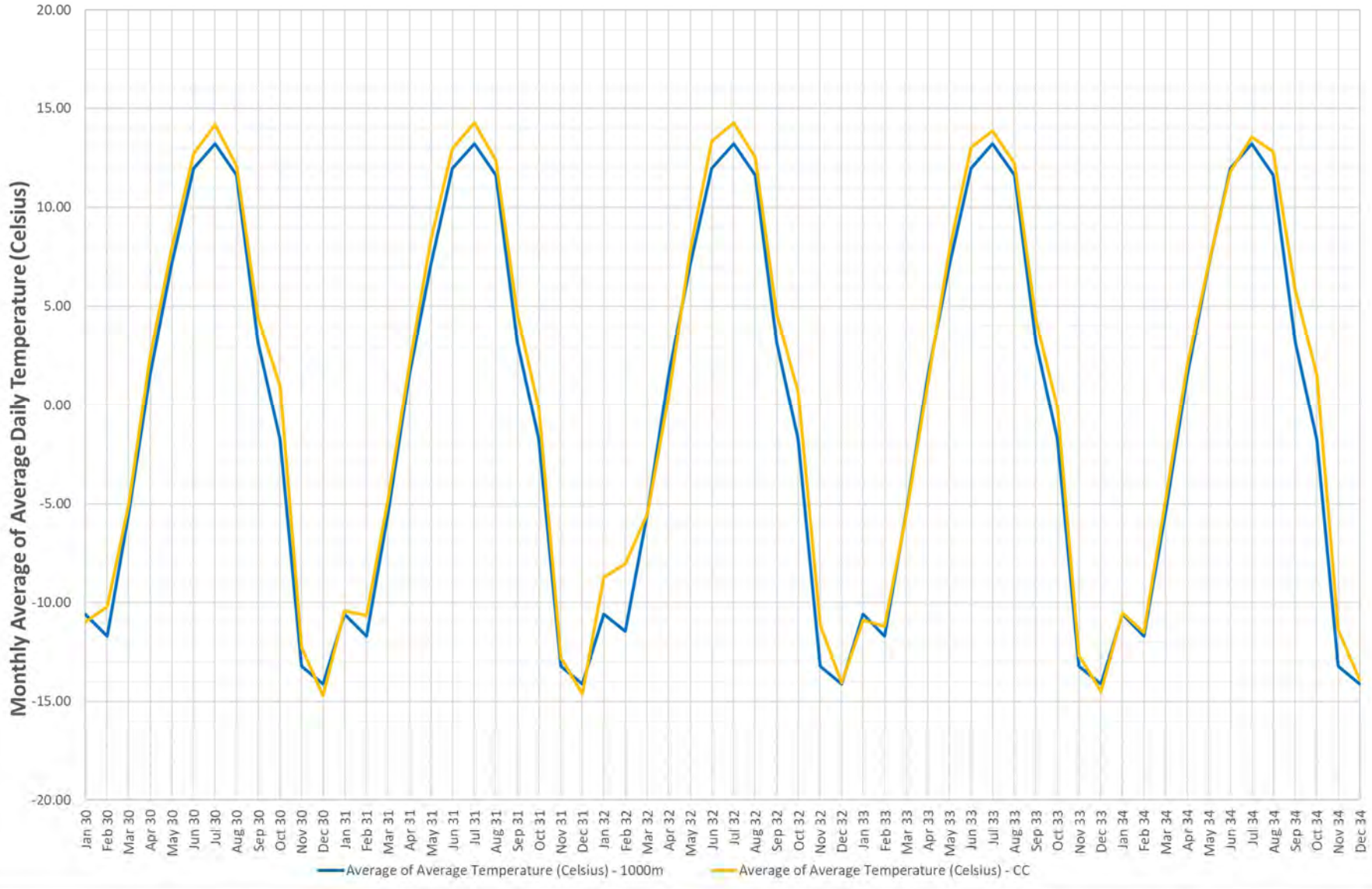
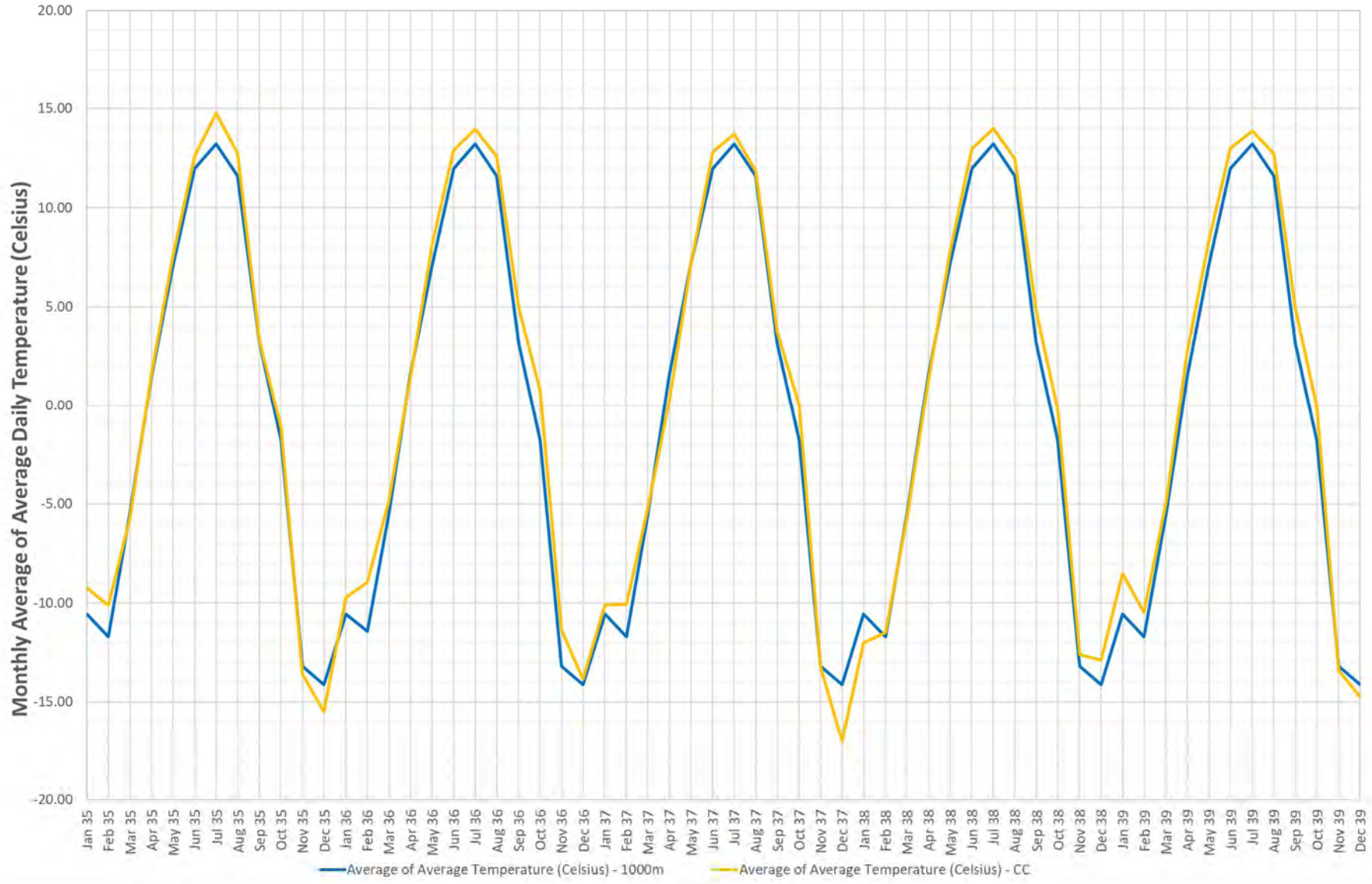
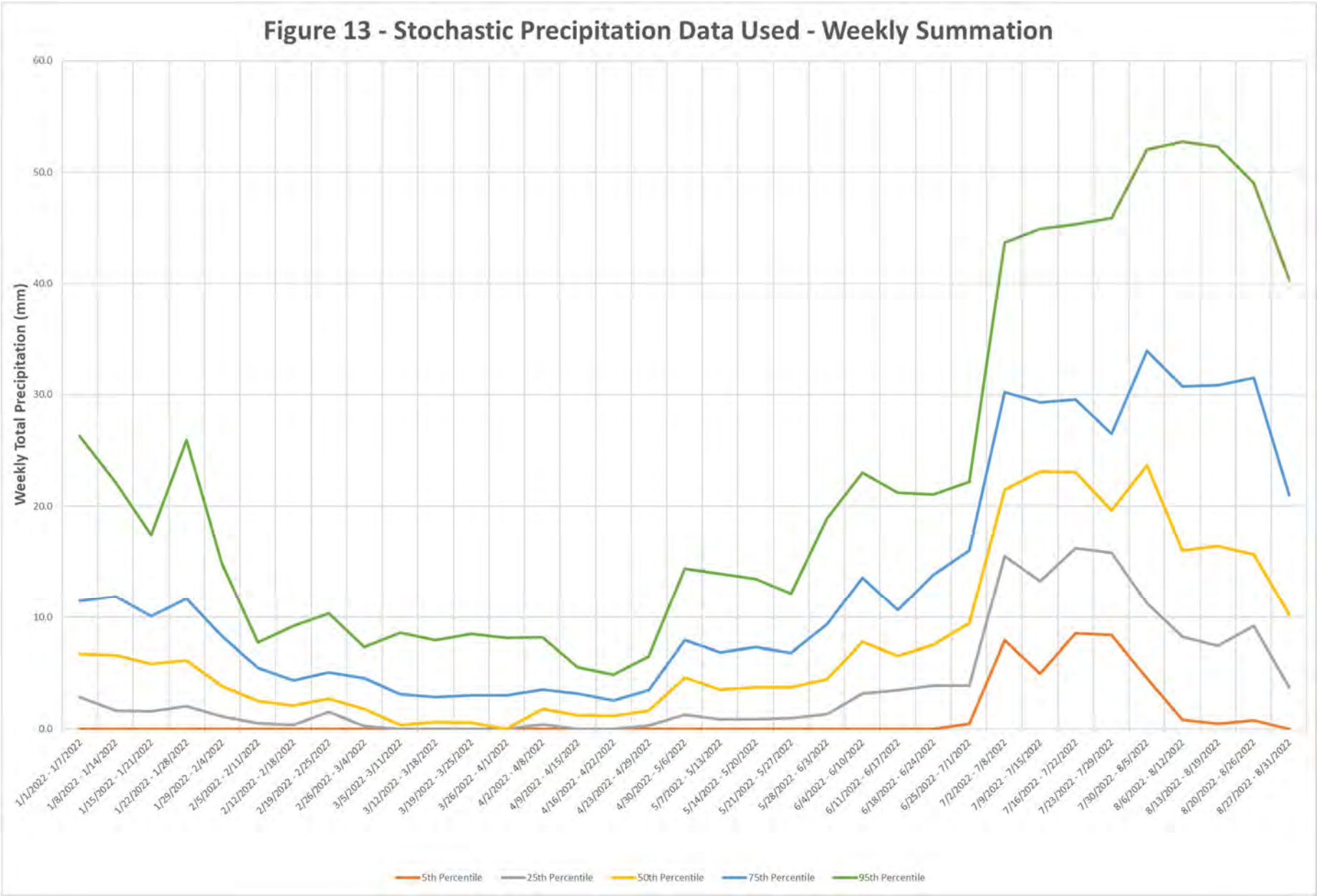
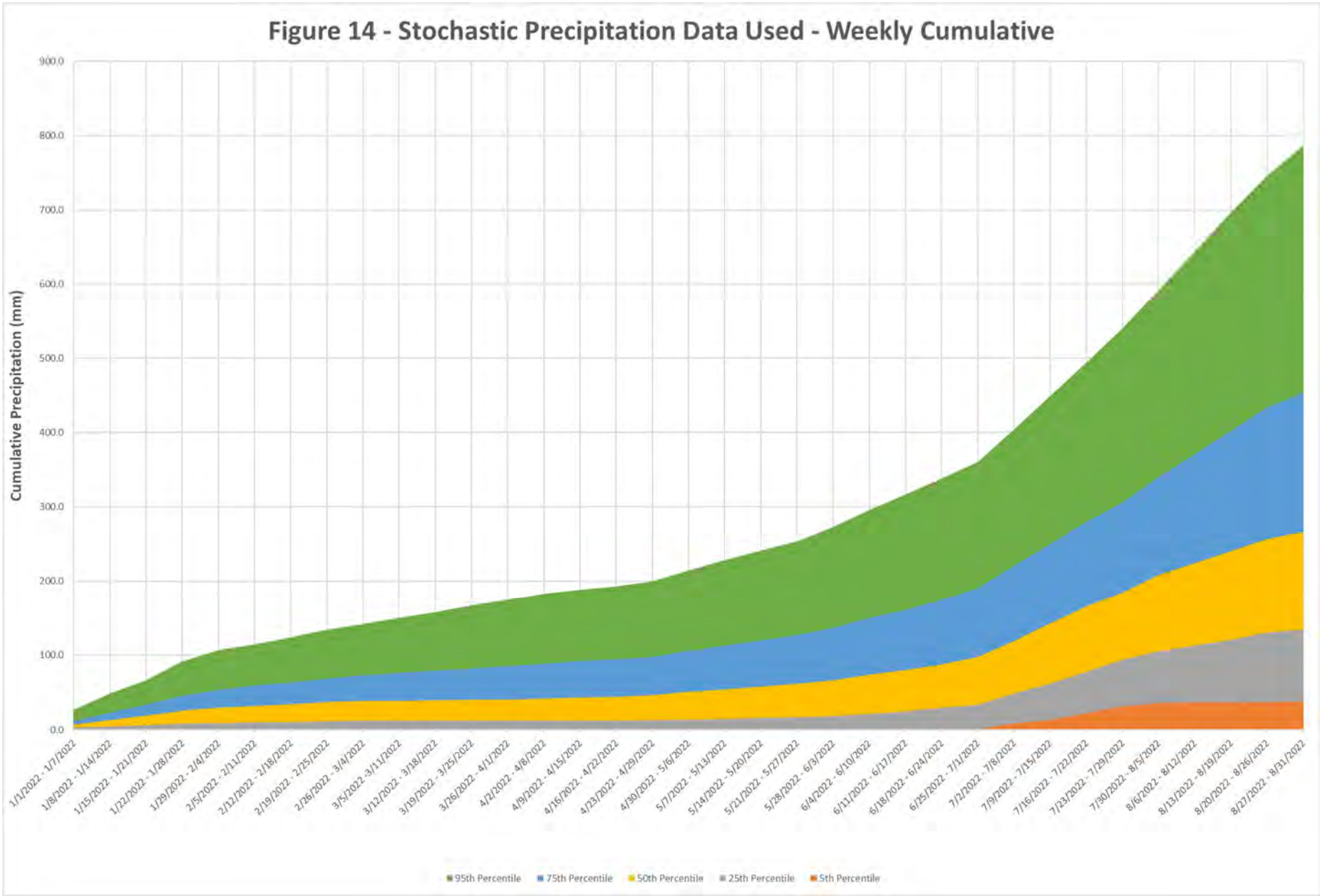


Figure 12 - Deterministic - 1000m and Climate Change Temperature Monthly Average (1/1/2035-12/31/2039)




Figure 13 - Stochastic Precipitation Data Used - Weekly Summation
Weekly Total Precipitation (mm)
60.0
50.0
40.0
30.0
20.0
10.0
0.0
1/1/2022 - 1/7/2022
1/8/2022 - 1/14/2022
1/15/2022 - 1/21/2022
1/22/2022 - 1/28/2022
1/29/2022 - 2/4/2022
2/5/2022 - 2/11/2022
2/12/2022 - 2/18/2022
2/19/2022 - 2/25/2022
2/26/2022 - 3/4/2022
3/5/2022 - 3/11/2022
3/12/2022 - 3/18/2022
3/19/2022 - 3/25/2022
3/26/2022 - 4/1/2022
4/2/2022 - 4/8/2022
4/9/2022 - 4/15/2022
4/16/2022 - 4/22/2022
4/23/2022 - 4/29/2022
4/30/2022 - 5/6/2022
5/7/2022 - 5/13/2022
5/14/2022 - 5/20/2022
5/21/2022 - 5/27/2022
5/28/2022 - 6/3/2022
6/4/2022 - 6/10/2022
6/11/2022 - 6/17/2022
6/18/2022 - 6/24/2022
6/25/2022 - 7/1/2022
7/2/2022 - 7/8/2022
7/9/2022 - 7/15/2022
7/16/2022 - 7/22/2022
7/23/2022 - 7/29/2022
7/30/2022 - 8/5/2022
8/6/2022 - 8/12/2022
8/13/2022 - 8/19/2022
8/20/2022 - 8/26/2022
8/27/2022 - 8/31/2022
5th Percentile
25th Percentile
50th Percentile
75th Percentile
95th Percentile


Figure 14 - Stochastic Precipitation Data Used - Weekly Cumulative
Cumulative Precipitation (mm)
900.0
800.0
700.0
600.0
500.0
400.0
300.0
200.0
100.0
0.0
1/1/2022 - 1/7/2022
1/8/2022 - 1/14/2022
1/15/2022 - 1/21/2022
1/22/2022 - 1/28/2022
1/29/2022 - 2/4/2022
2/5/2022 - 2/11/2022
2/12/2022 - 2/18/2022
2/19/2022 - 2/25/2022
2/26/2022 - 3/4/2022
3/5/2022 - 3/11/2022
3/12/2022 - 3/18/2022
3/19/2022 - 3/25/2022
3/26/2022 - 4/1/2022
4/2/2022 - 4/8/2022
4/9/2022 - 4/15/2022
4/16/2022 - 4/22/2022
4/23/2022 - 4/29/2022
4/30/2022 - 5/6/2022
5/7/2022 - 5/13/2022
5/14/2022 - 5/20/2022
5/21/2022 - 5/27/2022
5/28/2022 - 6/3/2022
6/4/2022 - 6/10/2022
6/11/2022 - 6/17/2022
6/18/2022 - 6/24/2022
6/25/2022 - 7/1/2022
7/2/2022 - 7/8/2022
7/9/2022 - 7/15/2022
7/16/2022 - 7/22/2022
7/23/2022 - 7/29/2022
7/30/2022 - 8/5/2022
8/6/2022 - 8/12/2022
8/13/2022 - 8/19/2022
8/20/2022 - 8/26/2022
8/27/2022 - 8/31/2022
95th Percentile
75th Percentile
50th Percentile
25th Percentile
5th Percentile

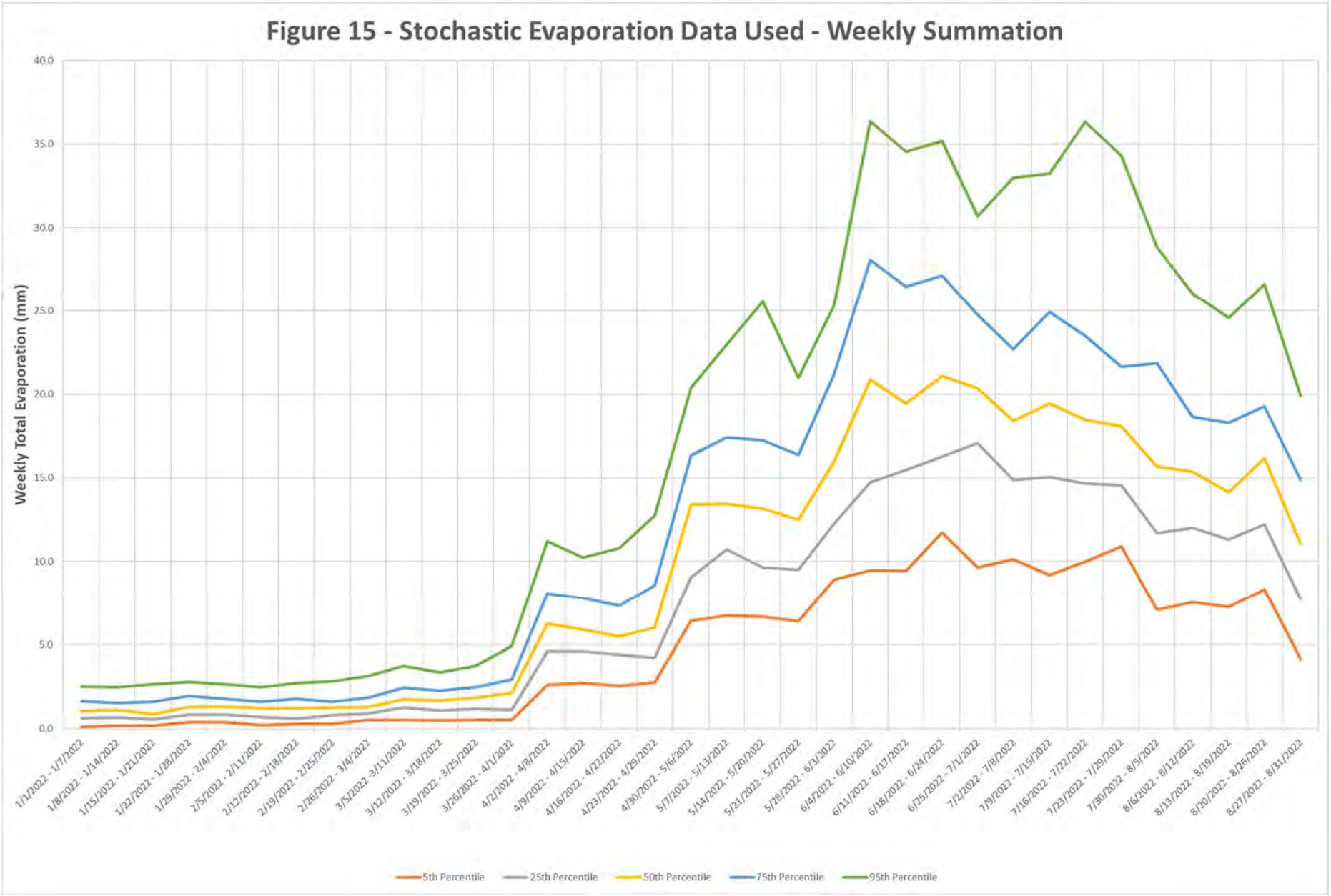

Figure 15 - Stochastic Evaporation Data Used - Weekly Summation
Weekly Total Evaporation (mm)
40.0
35.0
30.0
25.0
20.0
15.0
10.0
5.0
0.0
1/1/2022 - 1/7/2022
1/8/2022 - 1/14/2022
1/15/2022 - 1/21/2022
1/22/2022 - 1/28/2022
1/29/2022 - 2/4/2022
2/5/2022 - 2/11/2022
2/12/2022 - 2/18/2022
2/19/2022 - 2/25/2022
2/26/2022 - 3/4/2022
3/5/2022 - 3/11/2022
3/12/2022 - 3/18/2022
3/19/2022 - 3/25/2022
3/26/2022 - 4/1/2022
4/2/2022 - 4/8/2022
4/9/2022 - 4/15/2022
4/16/2022 - 4/22/2022
4/23/2022 - 4/29/2022
4/30/2022 - 5/6/2022
5/7/2022 - 5/13/2022
5/14/2022 - 5/20/2022
5/21/2022 - 5/27/2022
5/28/2022 - 6/3/2022
6/4/2022 - 6/10/2022
6/11/2022 - 6/17/2022
6/18/2022 - 6/24/2022
6/25/2022 - 7/1/2022
7/2/2022 - 7/8/2022
7/9/2022 - 7/15/2022
7/16/2022 - 7/22/2022
7/23/2022 - 7/29/2022
7/30/2022 - 8/5/2022
8/6/2022 - 8/12/2022
8/13/2022 - 8/19/2022
8/20/2022 - 8/26/2022
8/27/2022 - 8/31/2022
5th Percentile
25th Percentile
50th Percentile
75th Percentile
95th Percentile

Figure 16 - Stochastic Evaporation Data Used - Weekly Cumulative

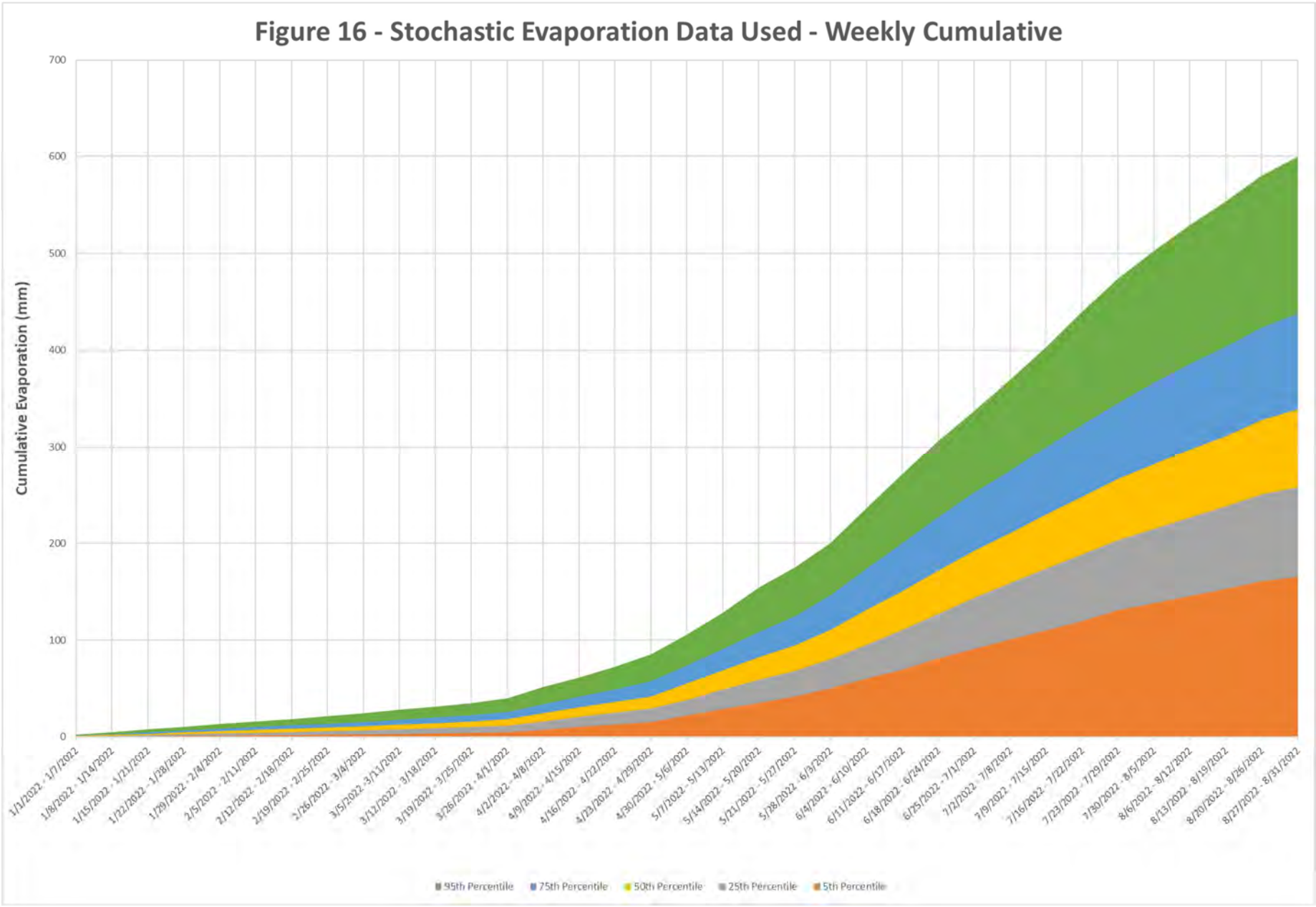
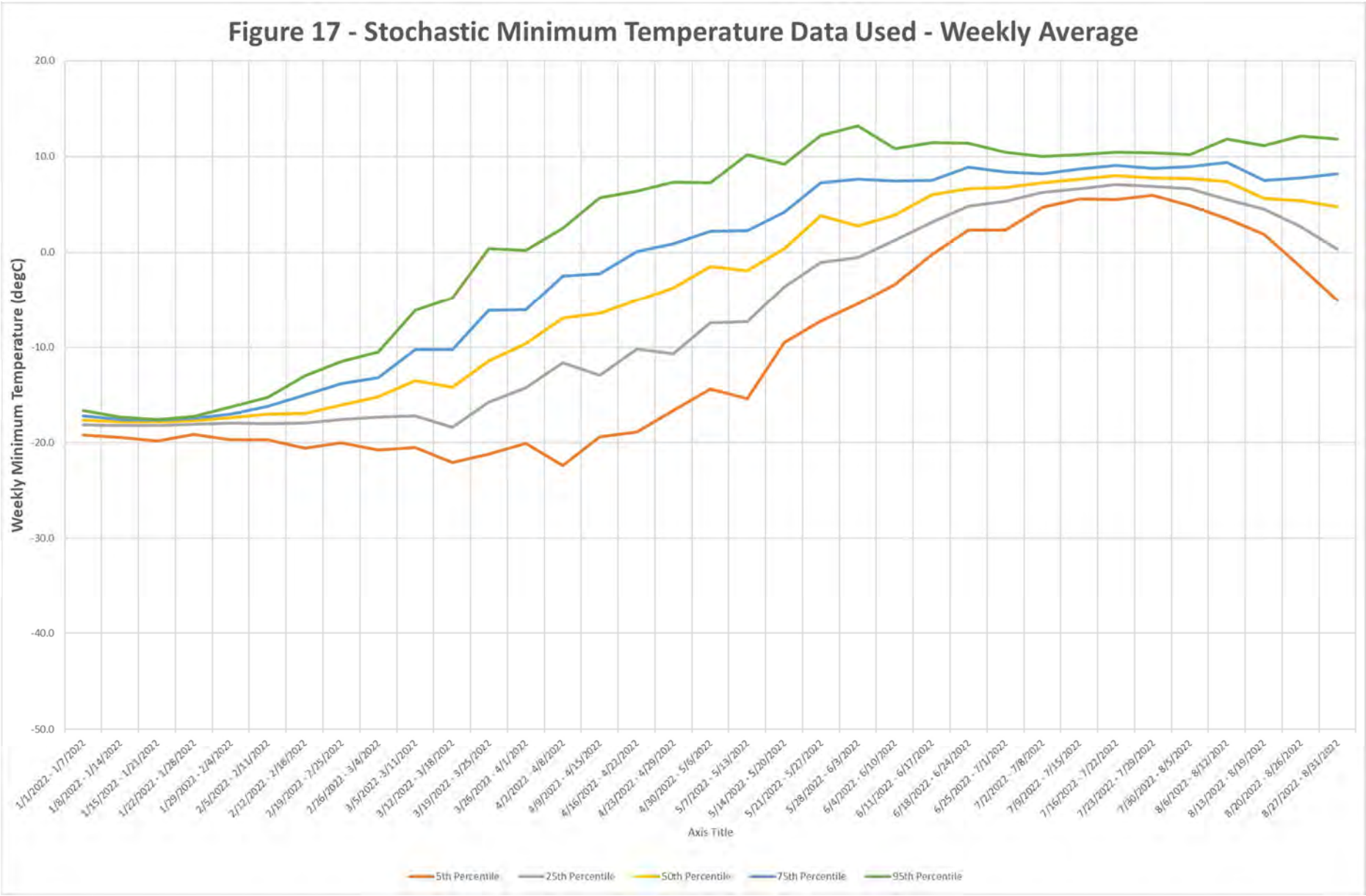
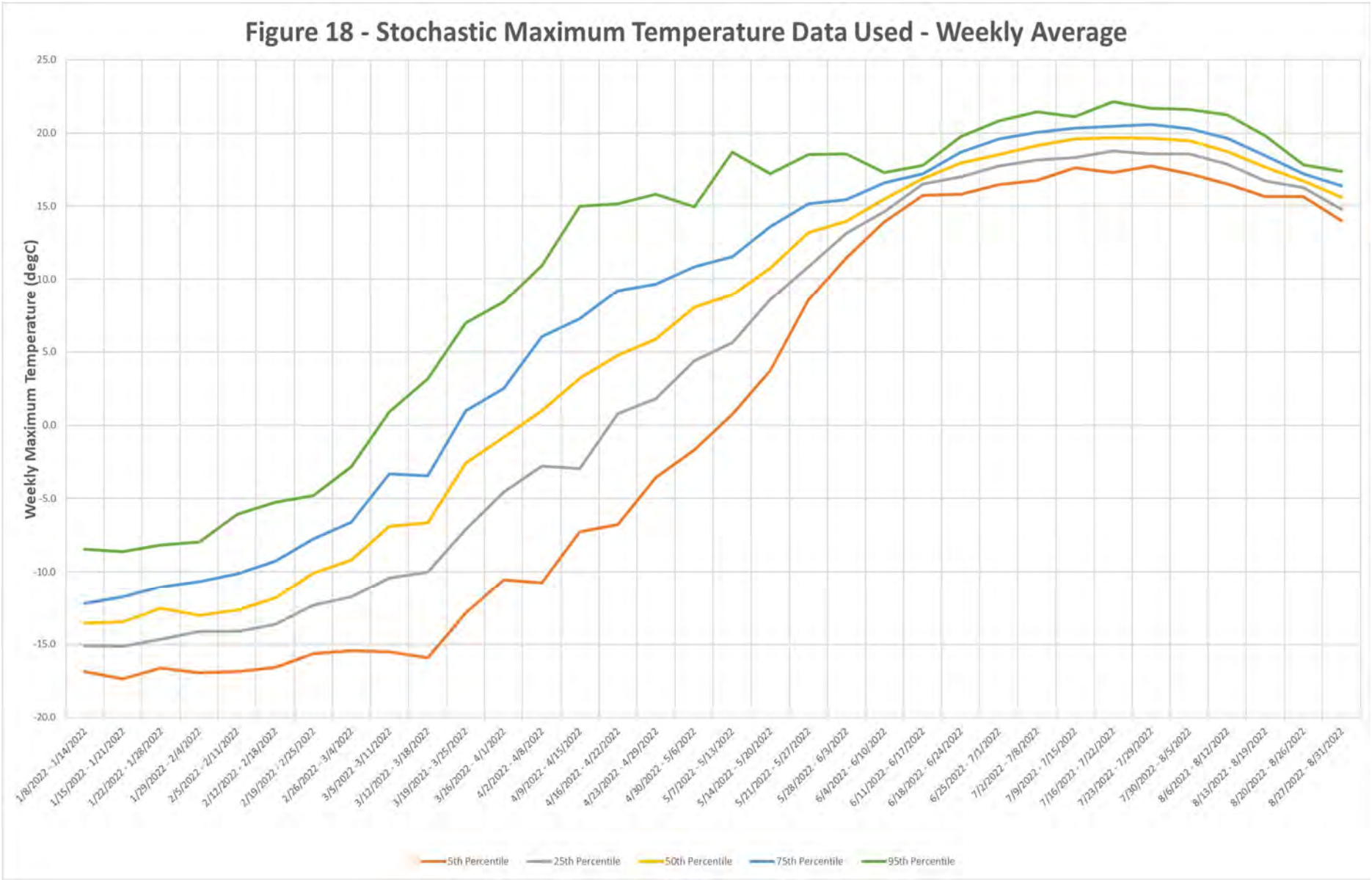


Figure 17 - Stochastic Minimum Temperature Data Used - Weekly Average




Figure 18 - Stochastic Maximum Temperature Data Used - Weekly Average
Weekly Maximum Temperature (degC)
25.0
20.0
15.0
10.0
5.0
0.0
-5.0
-10.0
-15.0
-20.0
1/8/2022 - 1/14/2022
1/15/2022 - 1/21/2022
1/22/2022 - 1/28/2022
1/29/2022 - 2/4/2022
2/5/2022 - 2/11/2022
2/12/2022 - 2/18/2022
2/19/2022 - 2/25/2022
2/26/2022 - 3/4/2022
3/5/2022 - 3/11/2022
3/12/2022 - 3/18/2022
3/19/2022 - 3/25/2022
3/26/2022 - 4/1/2022
4/2/2022 - 4/8/2022
4/9/2022 - 4/15/2022
4/16/2022 - 4/22/2022
4/23/2022 - 4/29/2022
4/30/2022 - 5/6/2022
5/7/2022 - 5/13/2022
5/14/2022 - 5/20/2022
5/21/2022 - 5/27/2022
5/28/2022 - 6/3/2022
6/4/2022 - 6/10/2022
6/11/2022 - 6/17/2022
6/18/2022 - 6/24/2022
6/25/2022 - 7/1/2022
7/2/2022 - 7/8/2022
7/9/2022 - 7/15/2022
7/16/2022 - 7/22/2022
7/23/2022 - 7/29/2022
7/30/2022 - 8/5/2022
8/6/2022 - 8/12/2022
8/13/2022 - 8/19/2022
8/20/2022 - 8/26/2022
8/27/2022 - 8/31/2022
5th Percentile
25th Percentile
50th Percentile
75th Percentile
95th Percentile

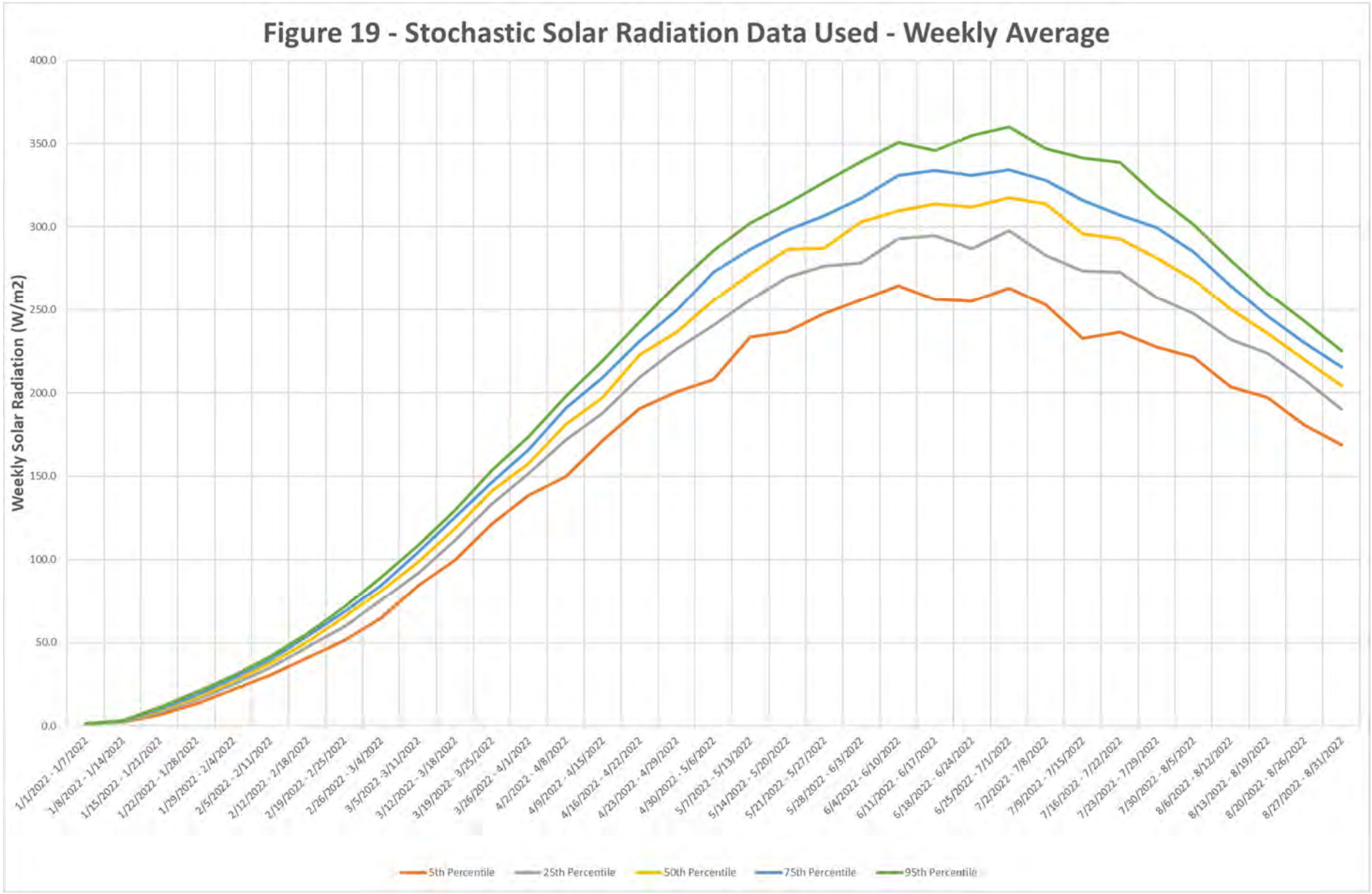

Figure 19 - Stochastic Solar Radiation Data Used - Weekly Average
Weekly Solar Radiation (W/m2)
400.0
350.0
300.0
250.0
200.0
150.0
100.0
50.0
0.0
1/1/2022 - 1/7/2022
1/8/2022 - 1/14/2022
1/15/2022 - 1/21/2022
1/22/2022 - 1/28/2022
1/29/2022 - 2/4/2022
2/5/2022 - 2/11/2022
2/12/2022 - 2/18/2022
2/19/2022 - 2/25/2022
2/26/2022 - 3/4/2022
3/5/2022 - 3/11/2022
3/12/2022 - 3/18/2022
3/19/2022 - 3/25/2022
3/26/2022 - 4/1/2022
4/2/2022 - 4/8/2022
4/9/2022 - 4/15/2022
4/16/2022 - 4/22/2022
4/23/2022 - 4/29/2022
4/30/2022 - 5/6/2022
5/7/2022 - 5/13/2022
5/14/2022 - 5/20/2022
5/21/2022 - 5/27/2022
5/28/2022 - 6/3/2022
6/4/2022 - 6/10/2022
6/11/2022 - 6/17/2022
6/18/2022 - 6/24/2022
6/25/2022 - 7/1/2022
7/2/2022 - 7/8/2022
7/9/2022 - 7/15/2022
7/16/2022 - 7/22/2022
7/23/2022 - 7/29/2022
7/30/2022 - 8/5/2022
8/6/2022 - 8/12/2022
8/13/2022 - 8/19/2022
8/20/2022 - 8/26/2022
8/27/2022 - 8/31/2022
5th Percentile
25th Percentile
50th Percentile
75th Percentile
95th Percentile

Figure 20 - Deterministic - Total Available Storage Volume vs Desired Availabe Storage Volume (1/1/2022-12/31/2024)

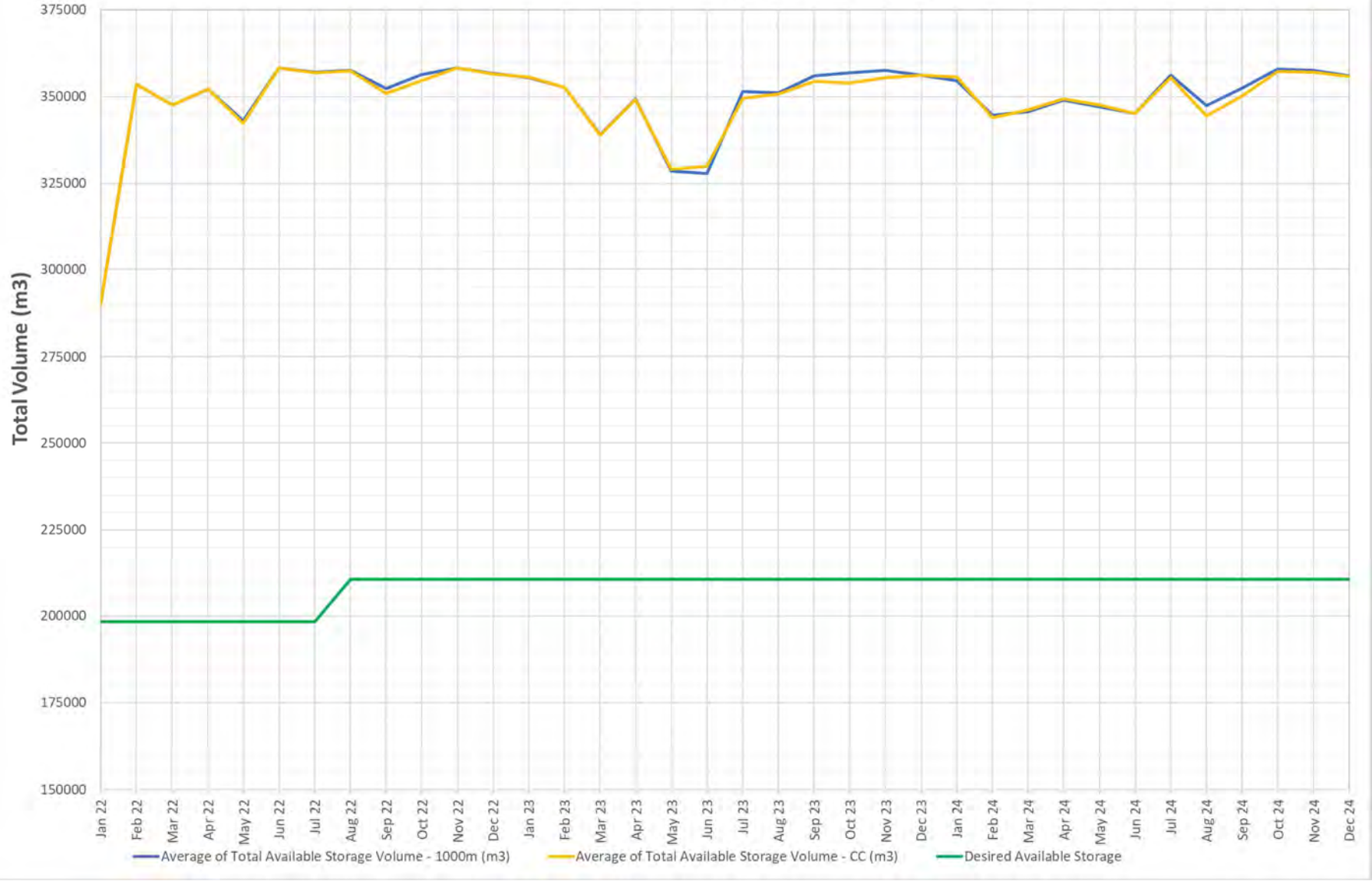


Figure 21 - Deterministic - Total Available Storage Volume vs Desired Availabe Storage Volume (1/1/2025-12/31/2029)

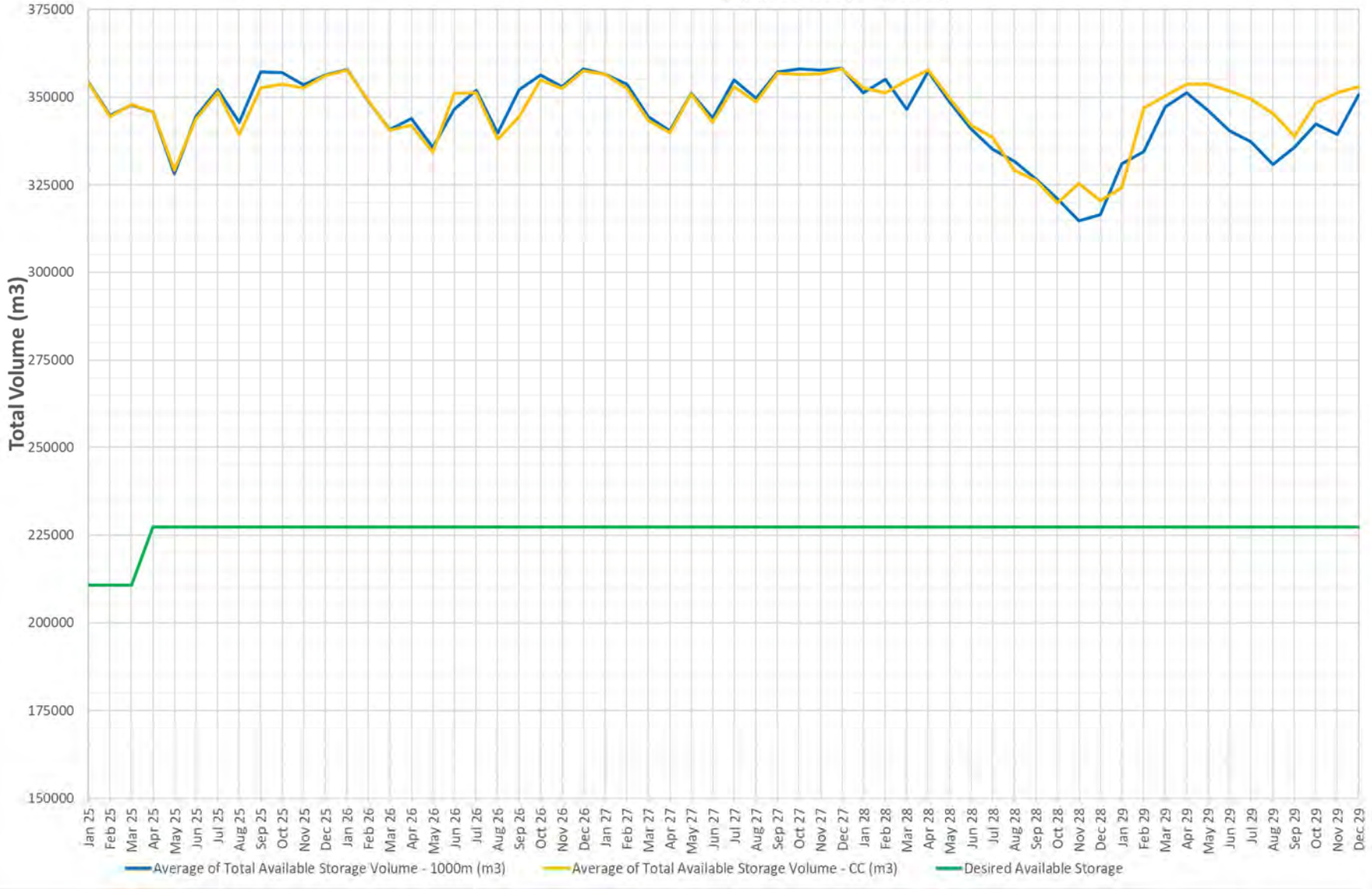


Figure 22 - Deterministic - Total Available Storage Volume vs Desired Availabe Storage Volume (1/1/2030-12/31/2034)

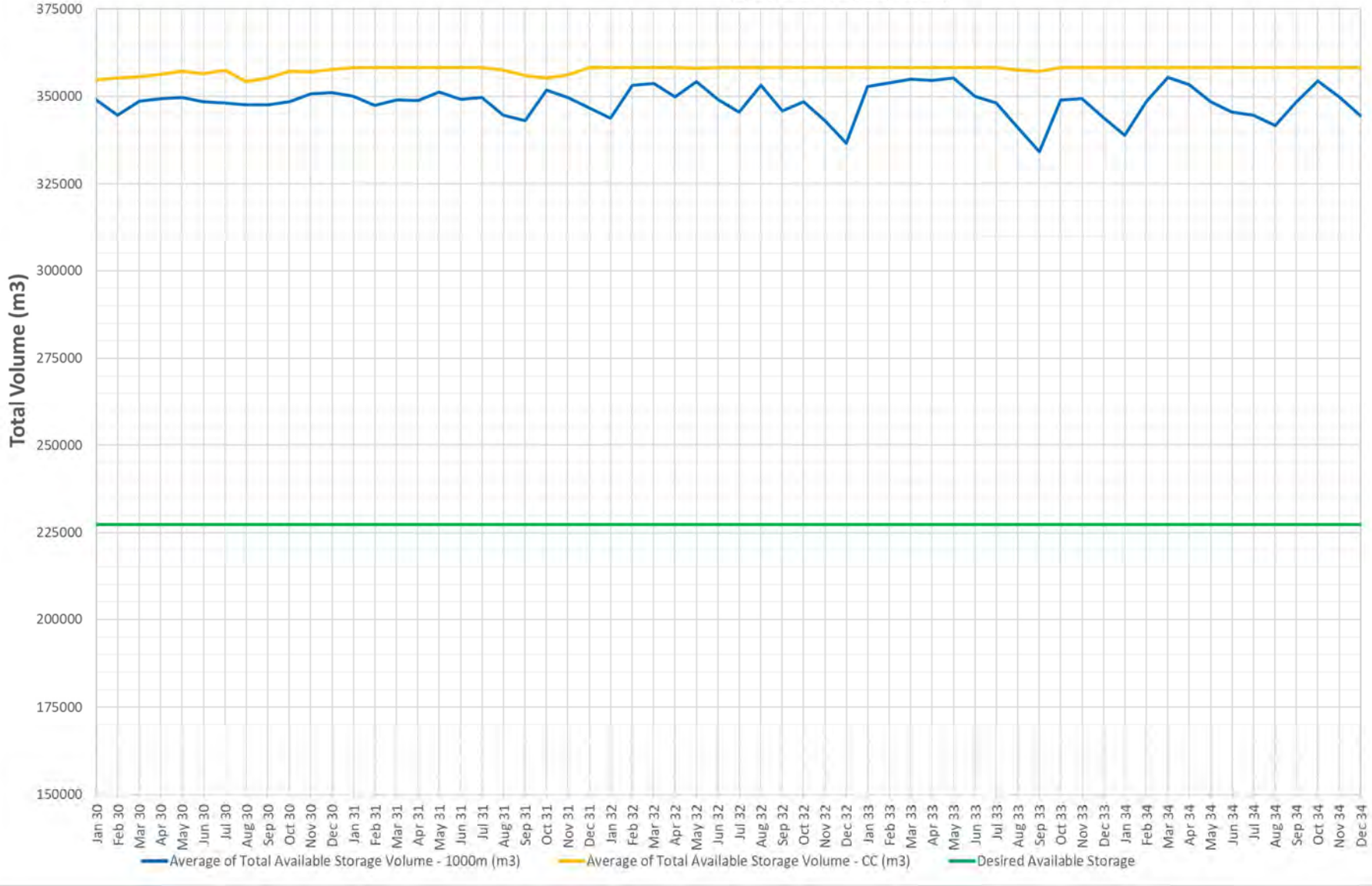


Figure 23 - Deterministic - Total Available Storage Volume vs Desired Available Storage Volume (1/1/2035-12/31/2039)

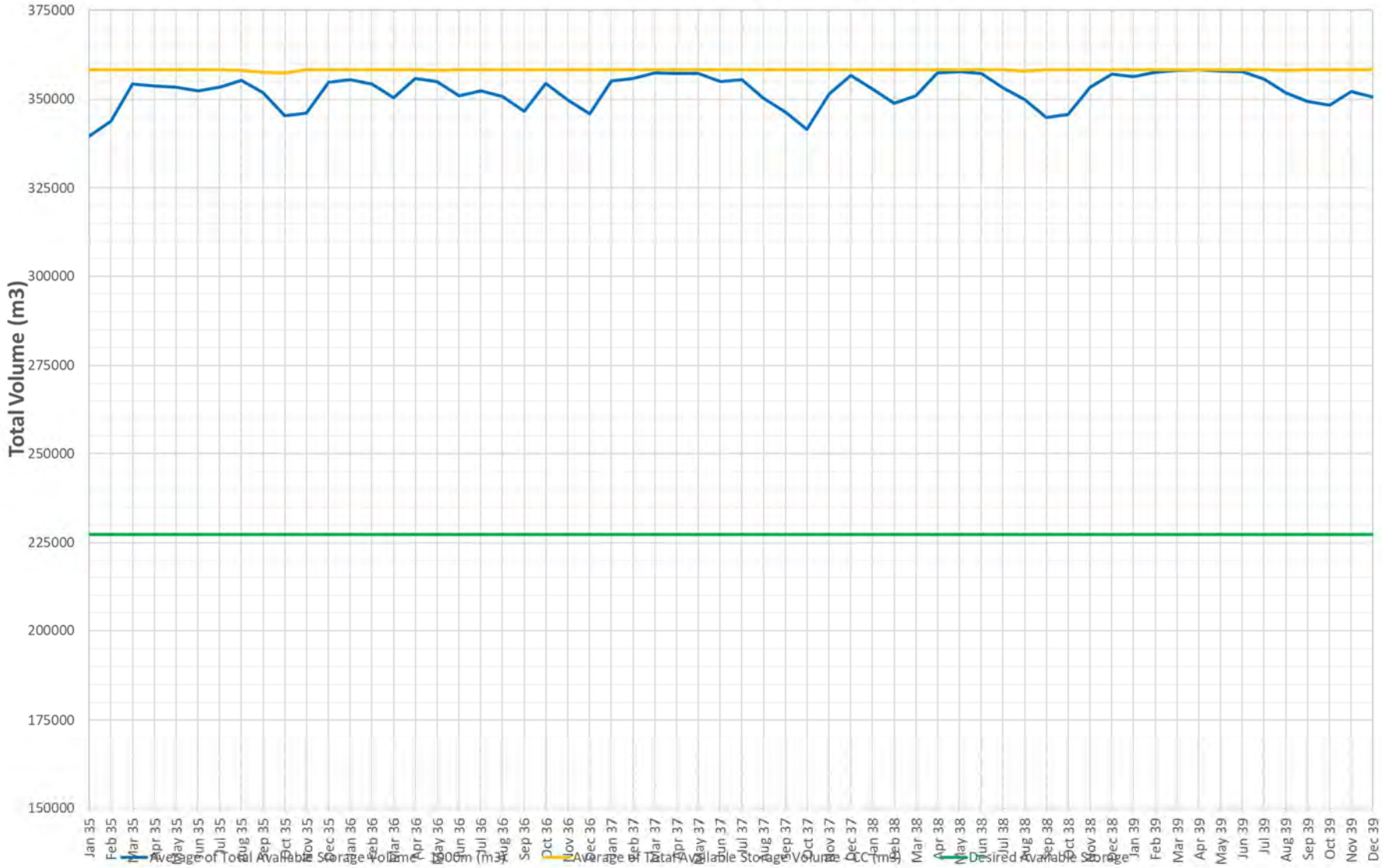


Figure 24 - Deterministic - Monthly Average Total Flow to Plant and Drainage from Heap (1/1/2022-12/31/2024)

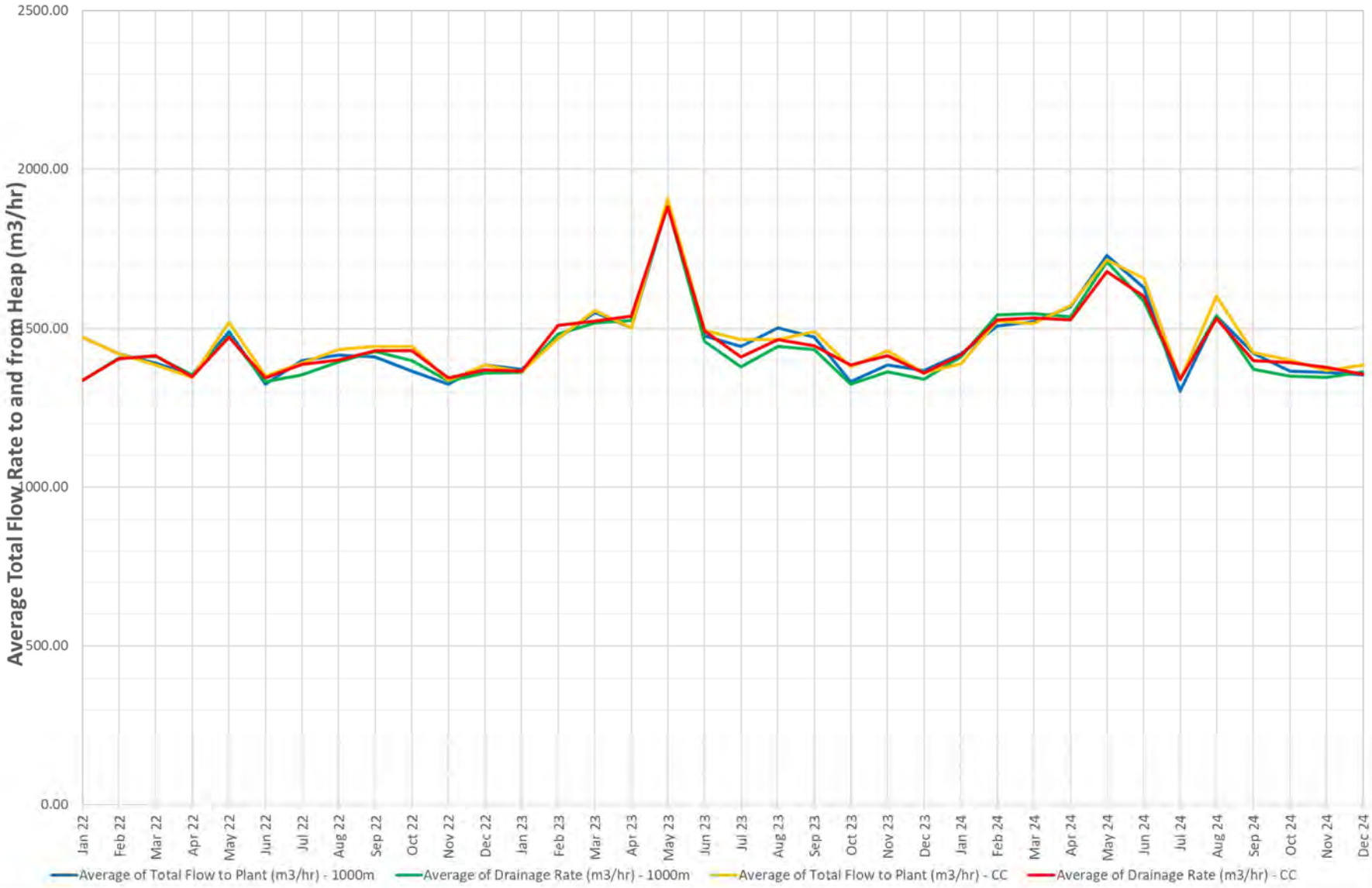


Figure 25 - Deterministic - Monthly Average Total Flow to Plant and Drainage from Heap (1/1/2025-12/31/2029)

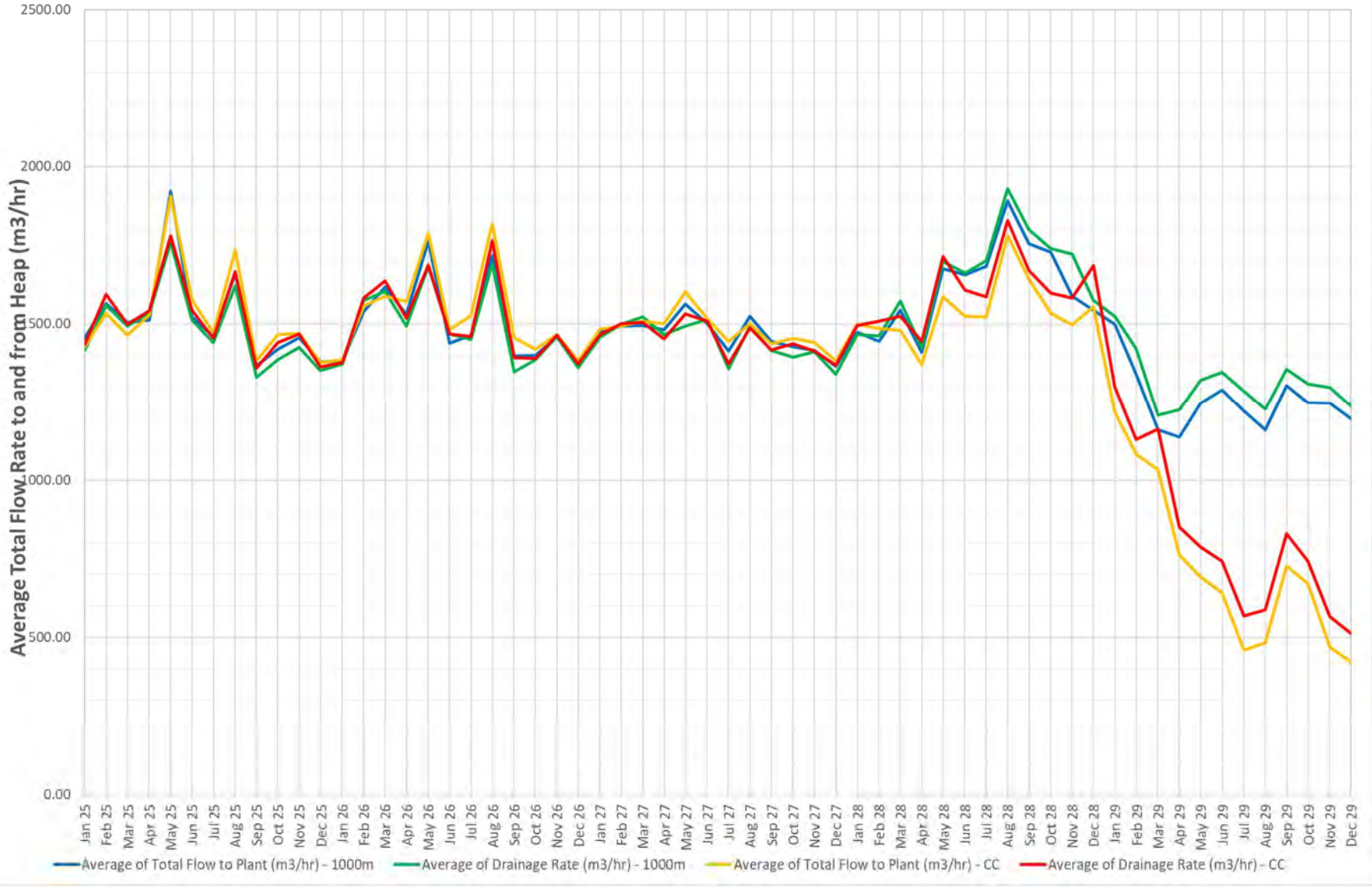


Figure 26 - Deterministic - Monthly Average Total Flow to Plant and Drainage from Heap (1/1/2030-12/31/2034)

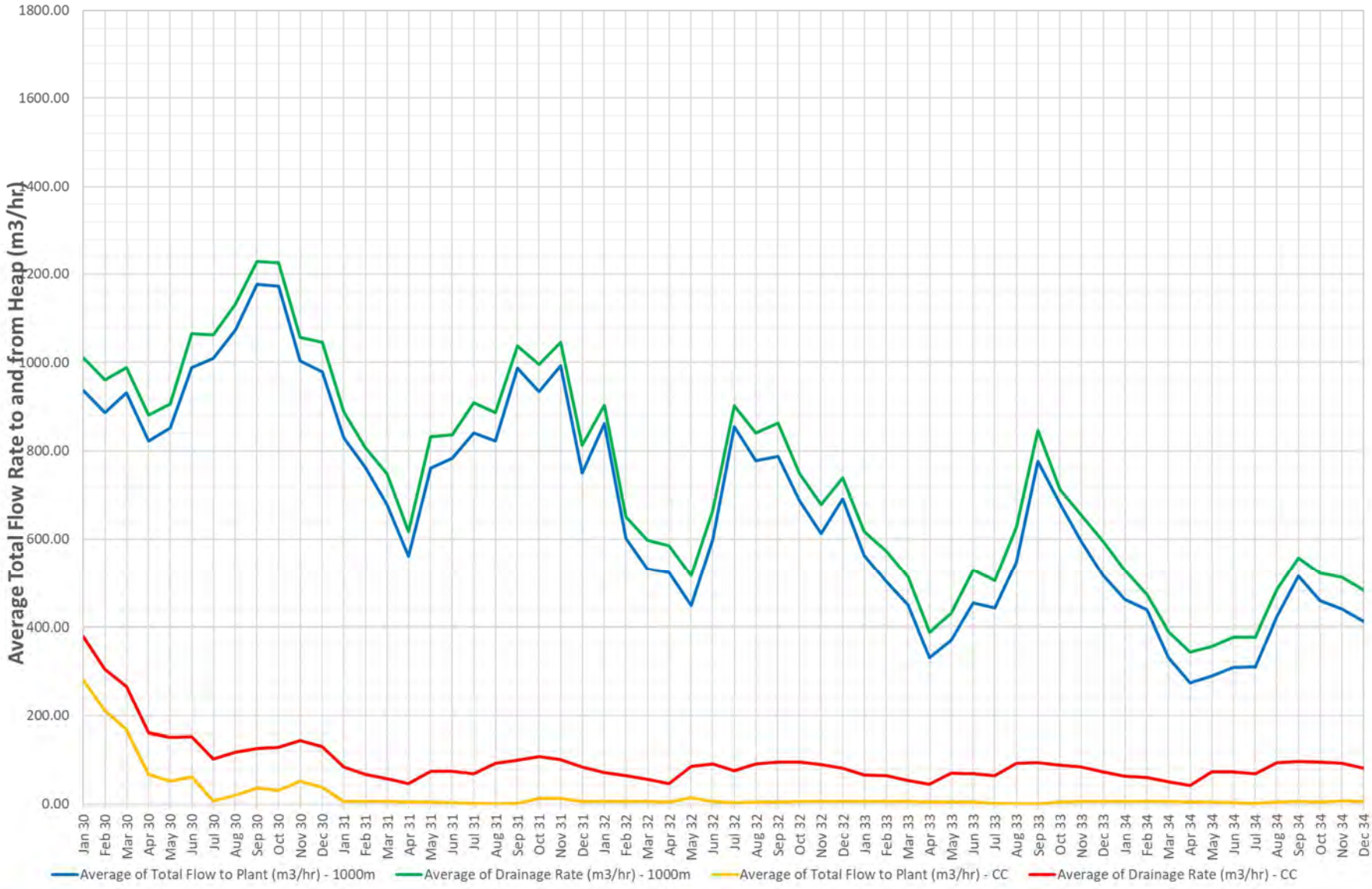


Figure 27 - Deterministic - Monthly Average Total Flow to Plant and Drainage from Heap (1/1/2035-12/31/2039)

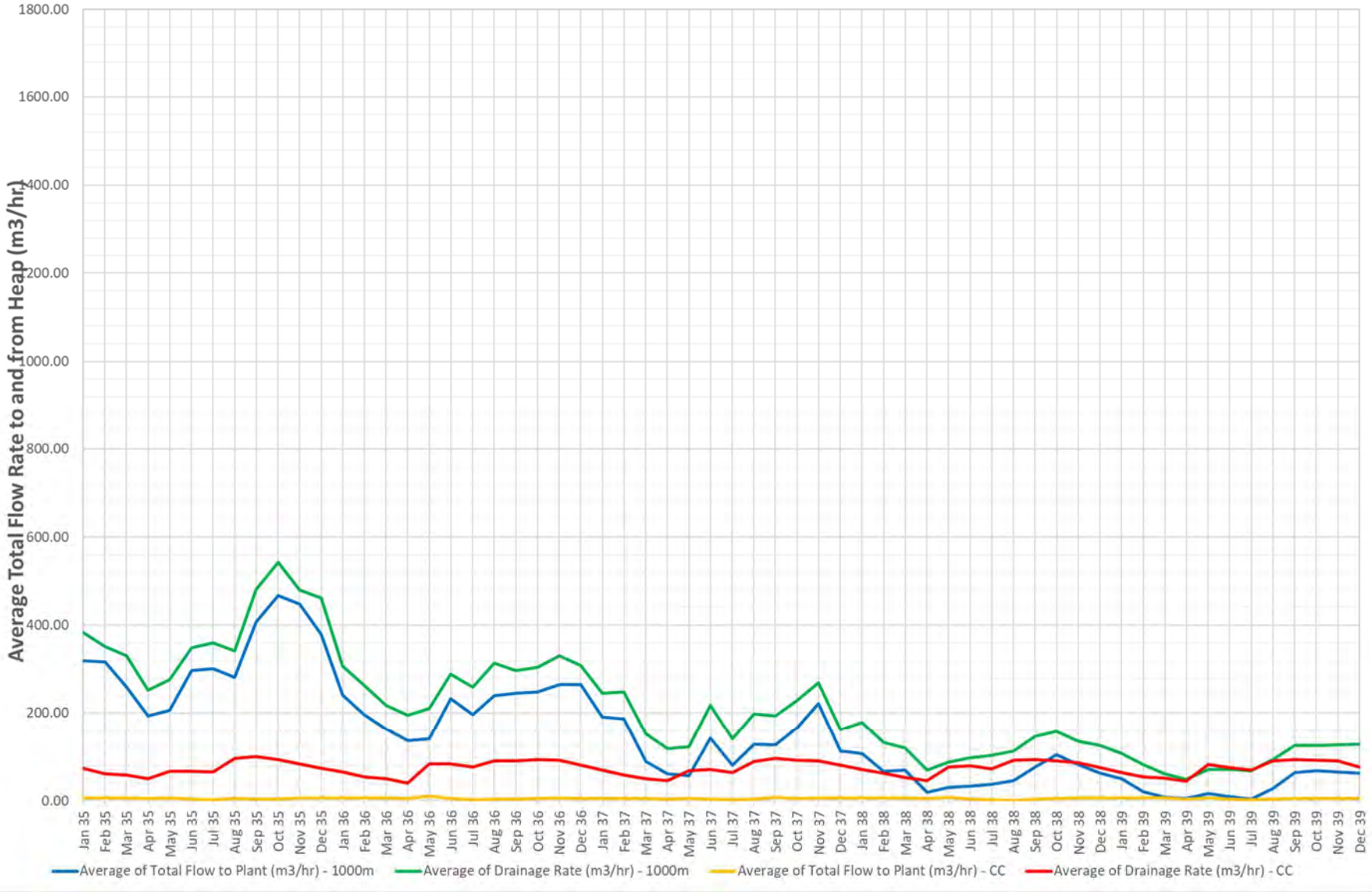


Figure 28 - Deterministic - Monthly Average Make-Up Water and Discharge to Treatment Rates (1/1/2022-12/31/2024)

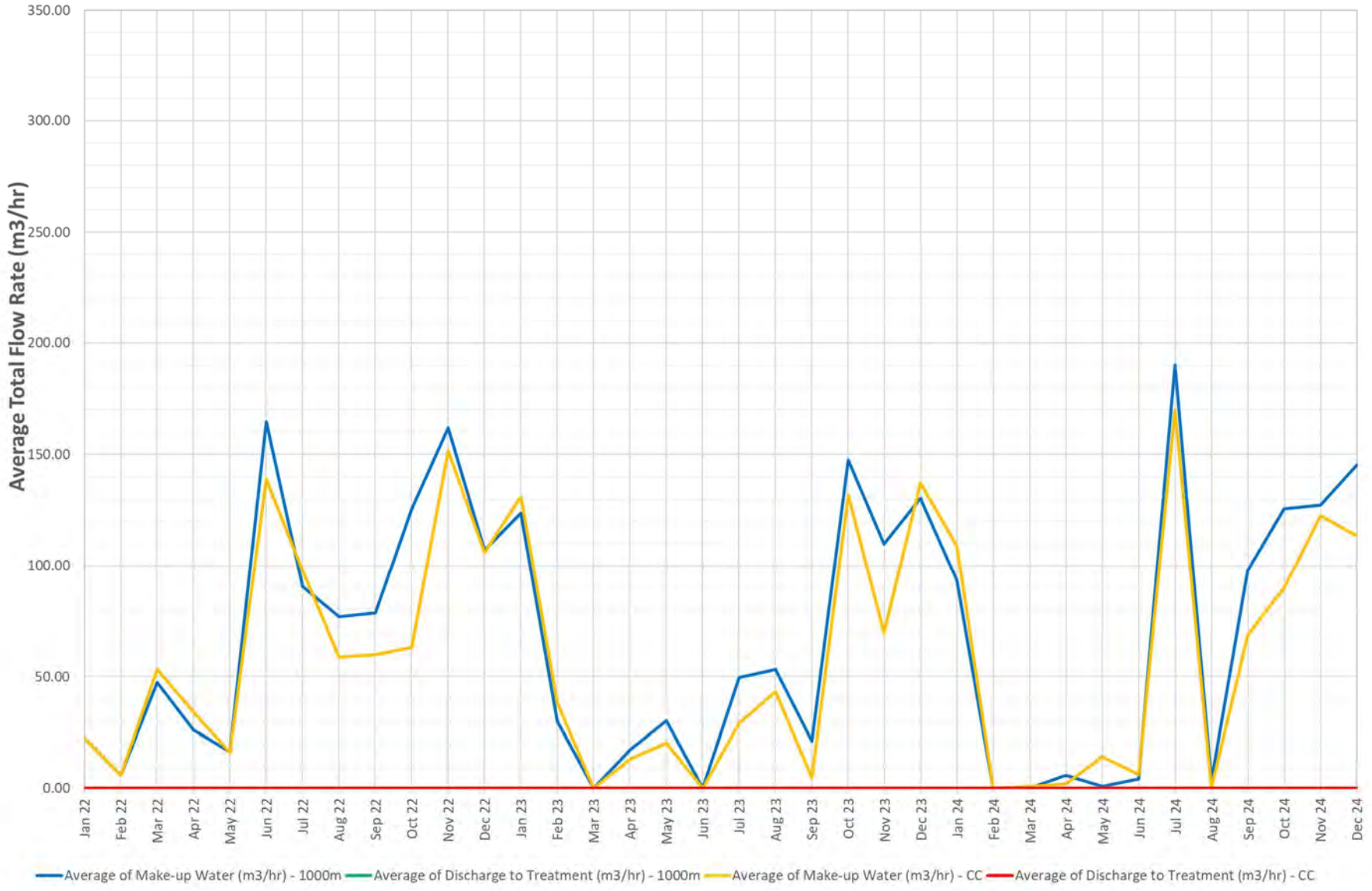


Figure 29 - Deterministic - Monthly Average Make-Up Water and Discharge to Treatment Rates (1/1/2025-12/31/2029)

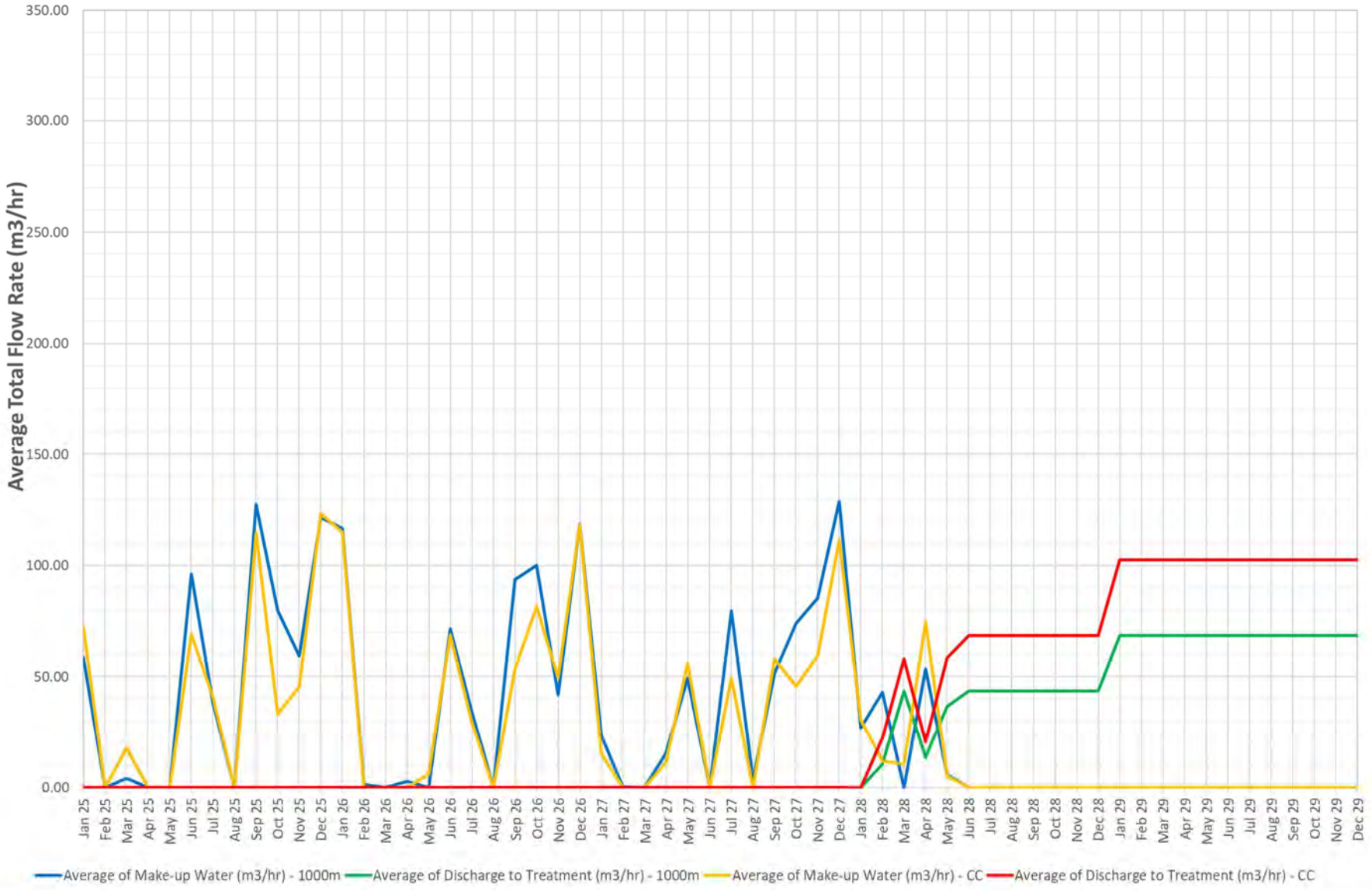


Figure 30 - Deterministic - Monthly Average Make-Up Water and Discharge to Treatment Rates (1/1/2030-12/31/2034)

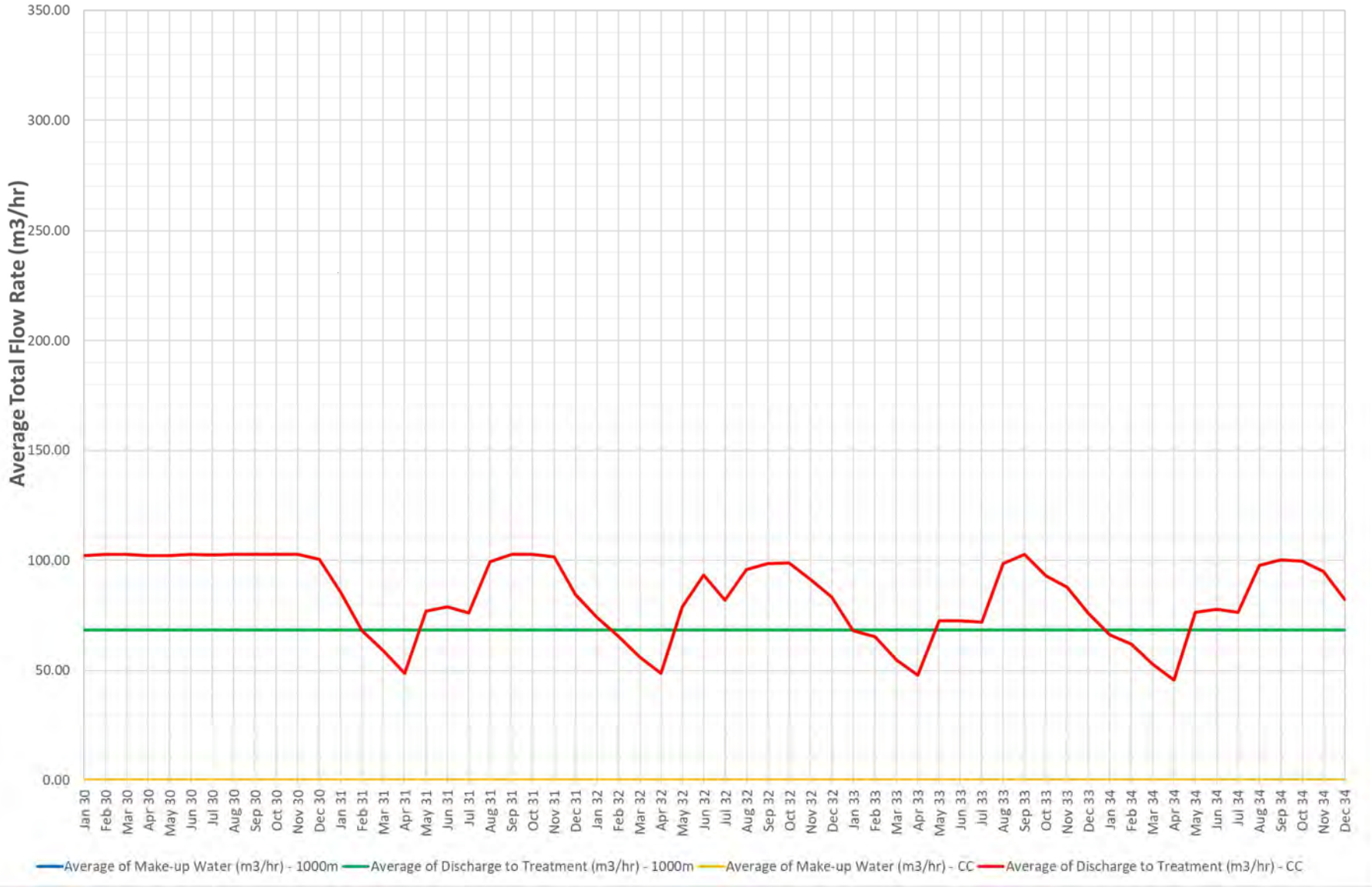


Figure 31 - Deterministic - Monthly Average Make-Up Water and Discharge to Treatment Rates (1/1/2035-12/31/2039)

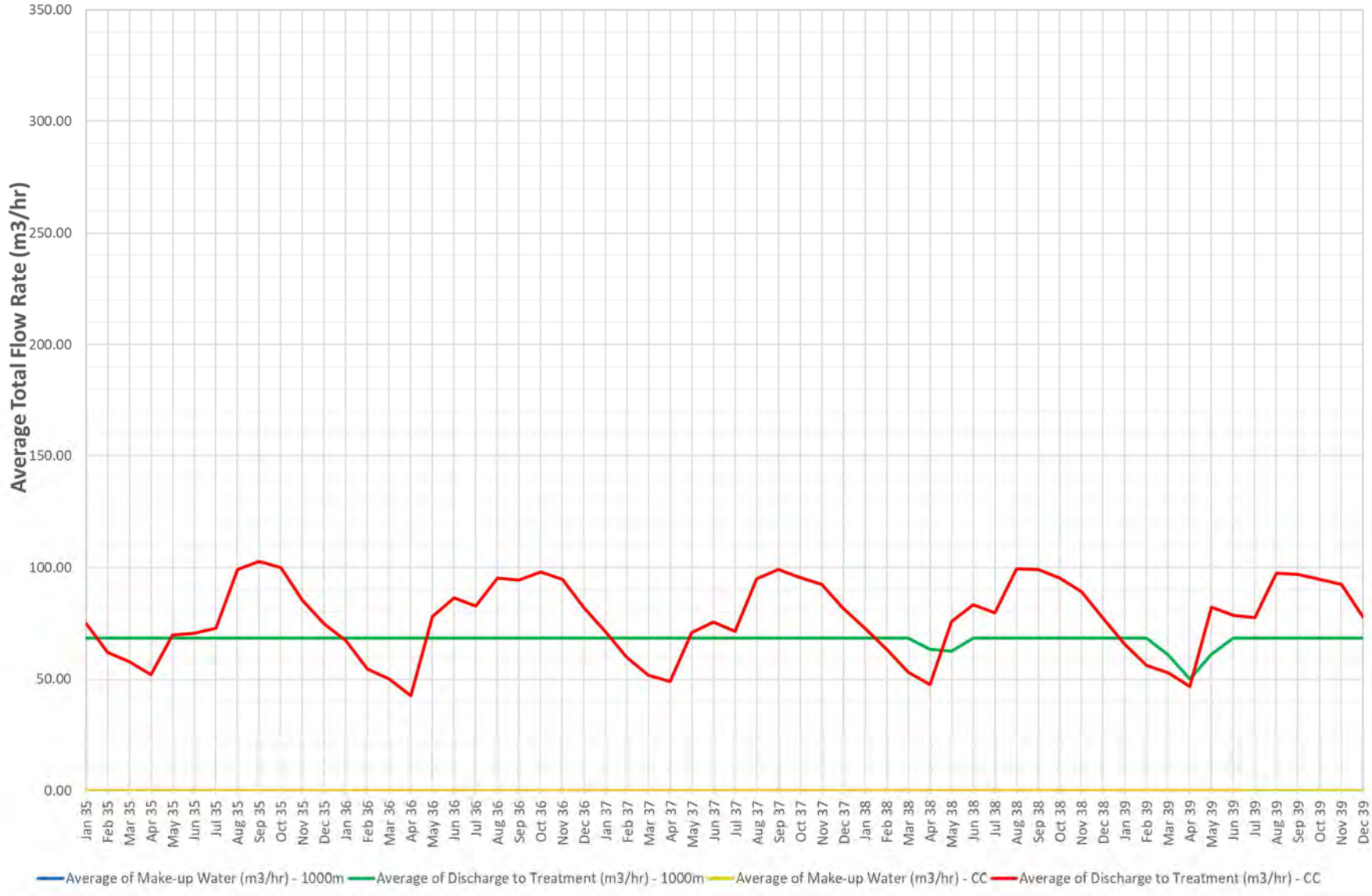


Figure 32 - Deterministic - Monthly Maximum Snow Water Equivalent (1/1/2022-12/31/2024)

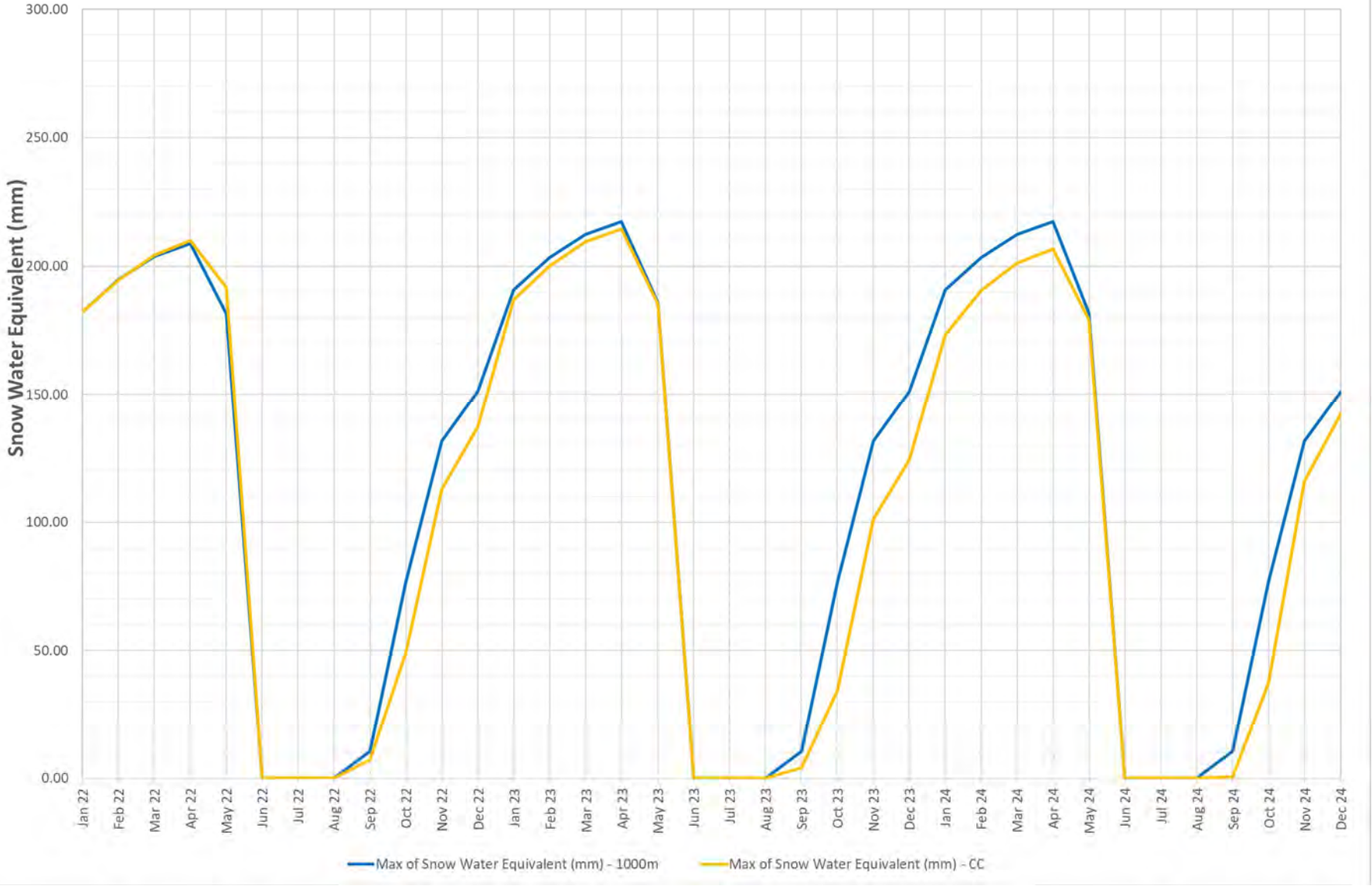


Figure 33 - Deterministic - Monthly Maximum Snow Water Equivalent (1/1/2025-12/31/2029)

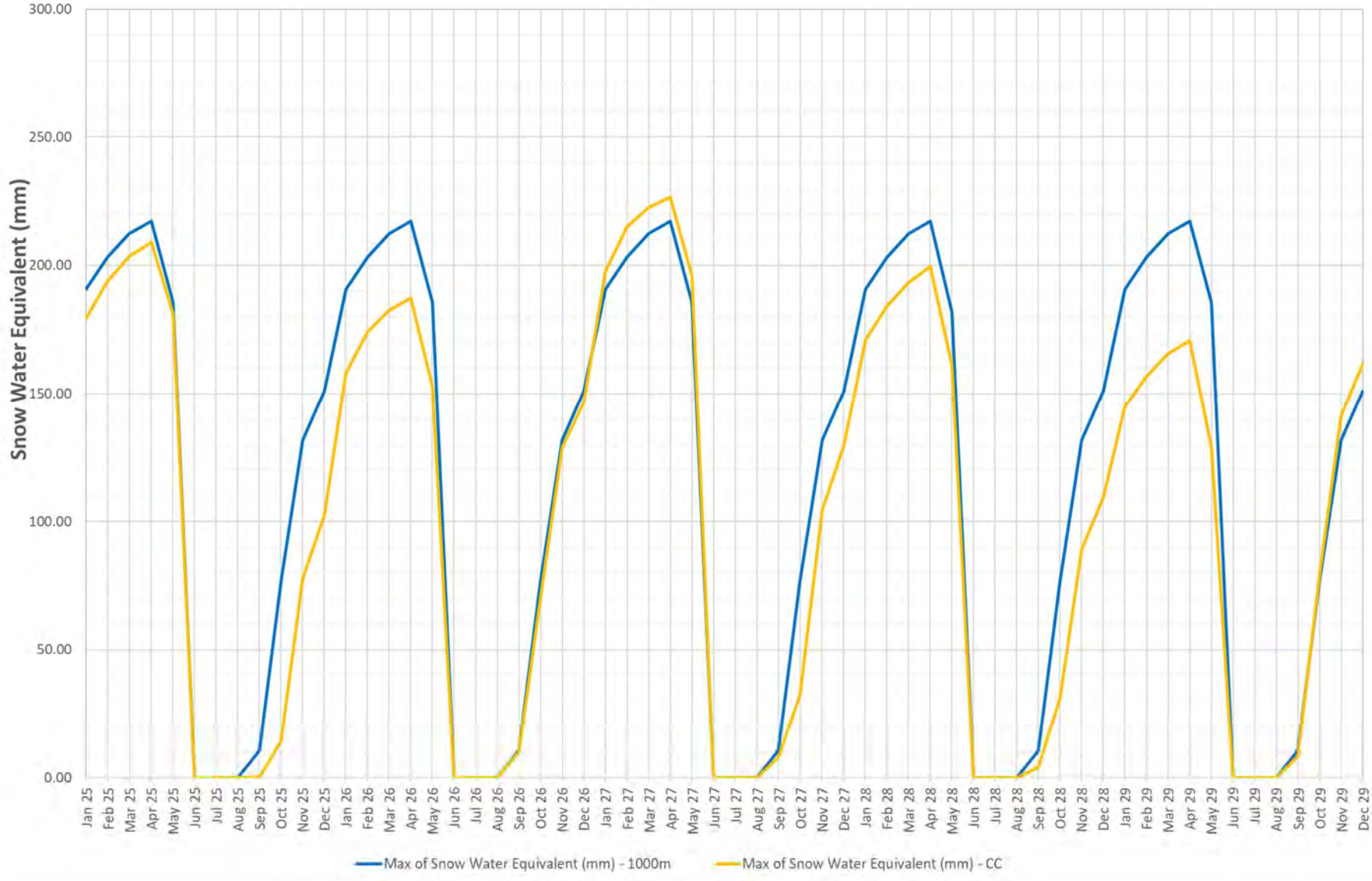


Figure 34 - Deterministic - Monthly Maximum Snow Water Equivalent (1/1/2029-12/31/2034)

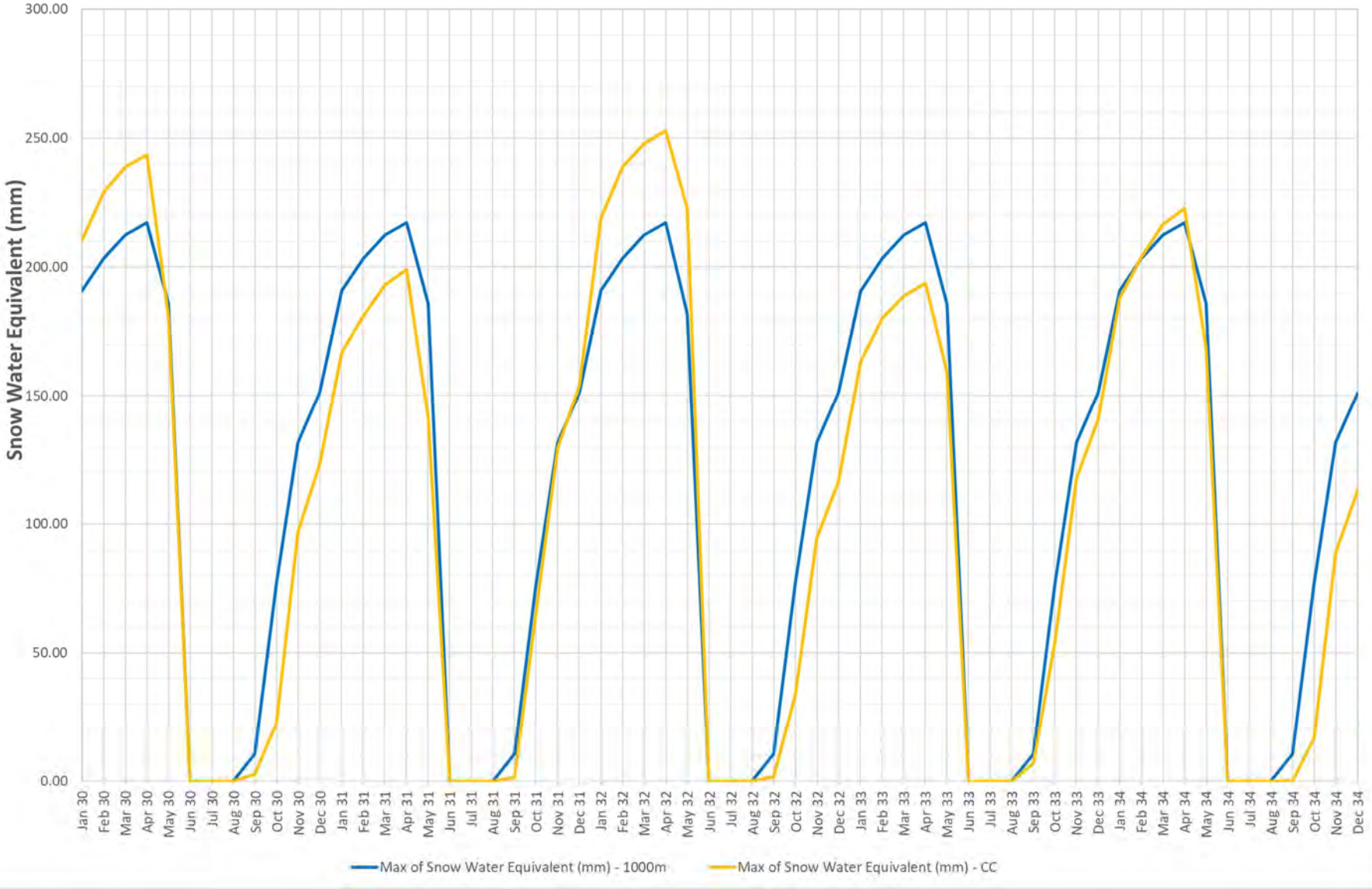


Figure 35 - Deterministic - Monthly Maximum Snow Water Equivalent (1/1/2035-12/31/2040)

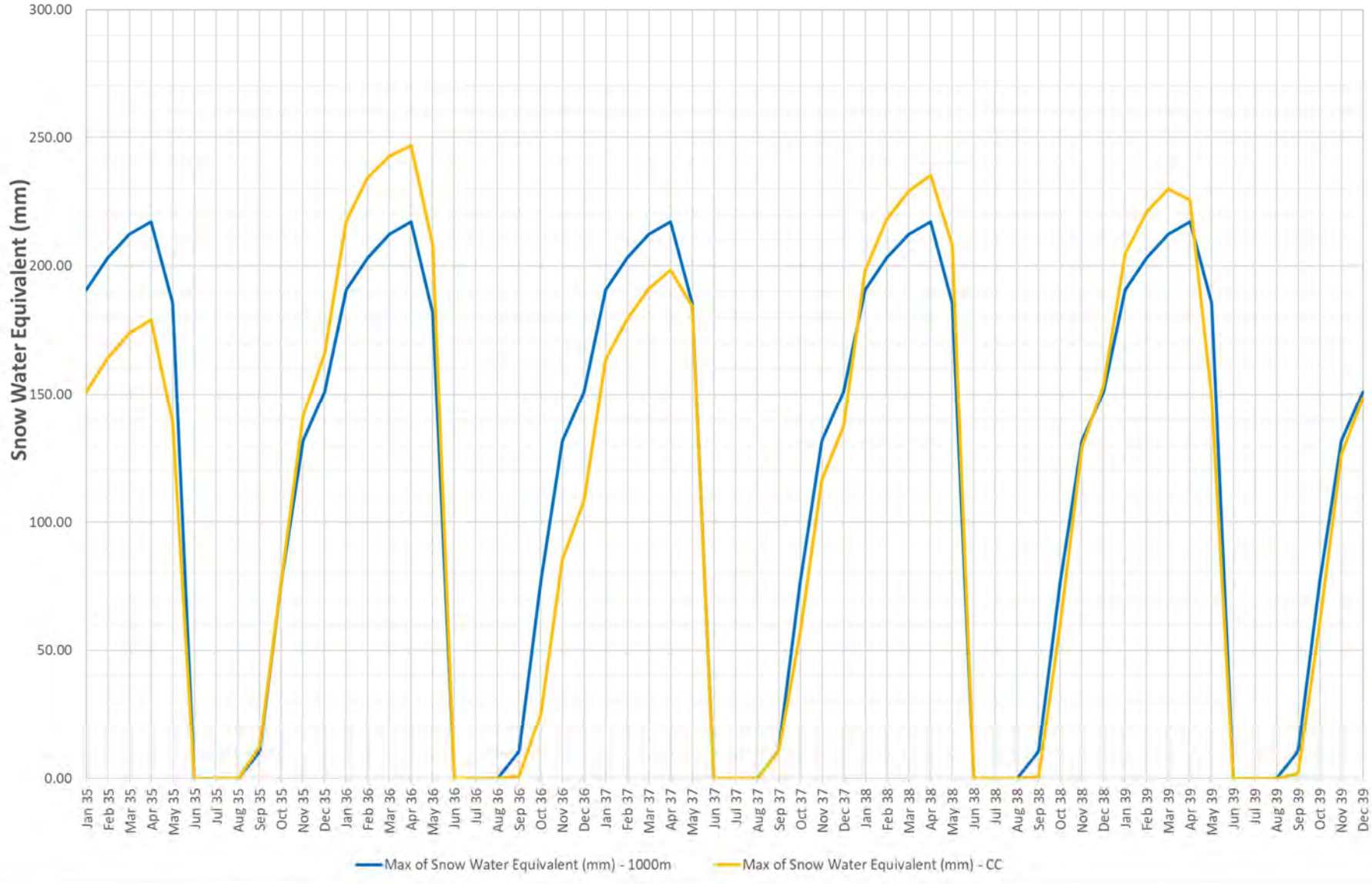


Figure 36 - Stochastic Total Available Storage Volume - Weekly Average

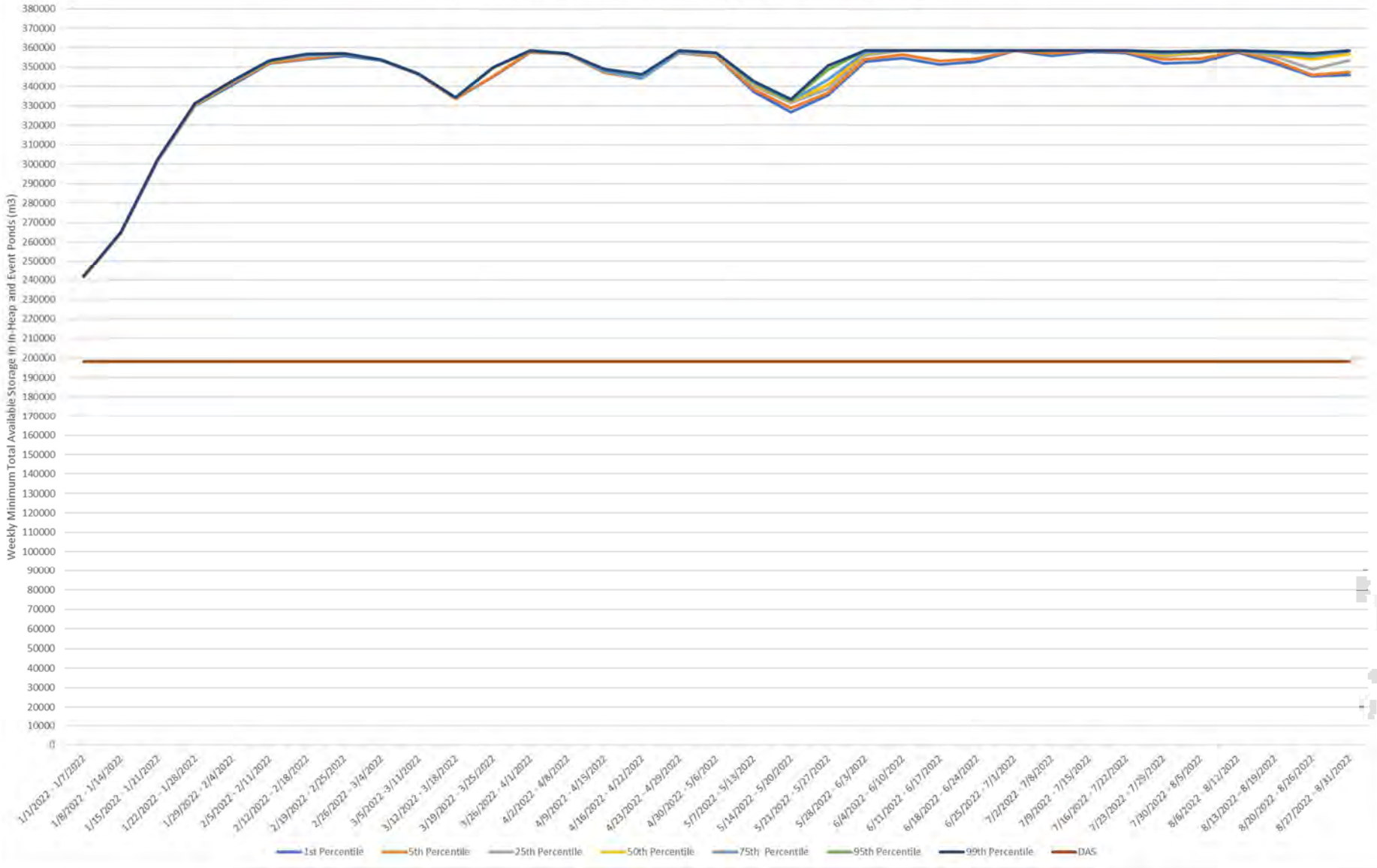
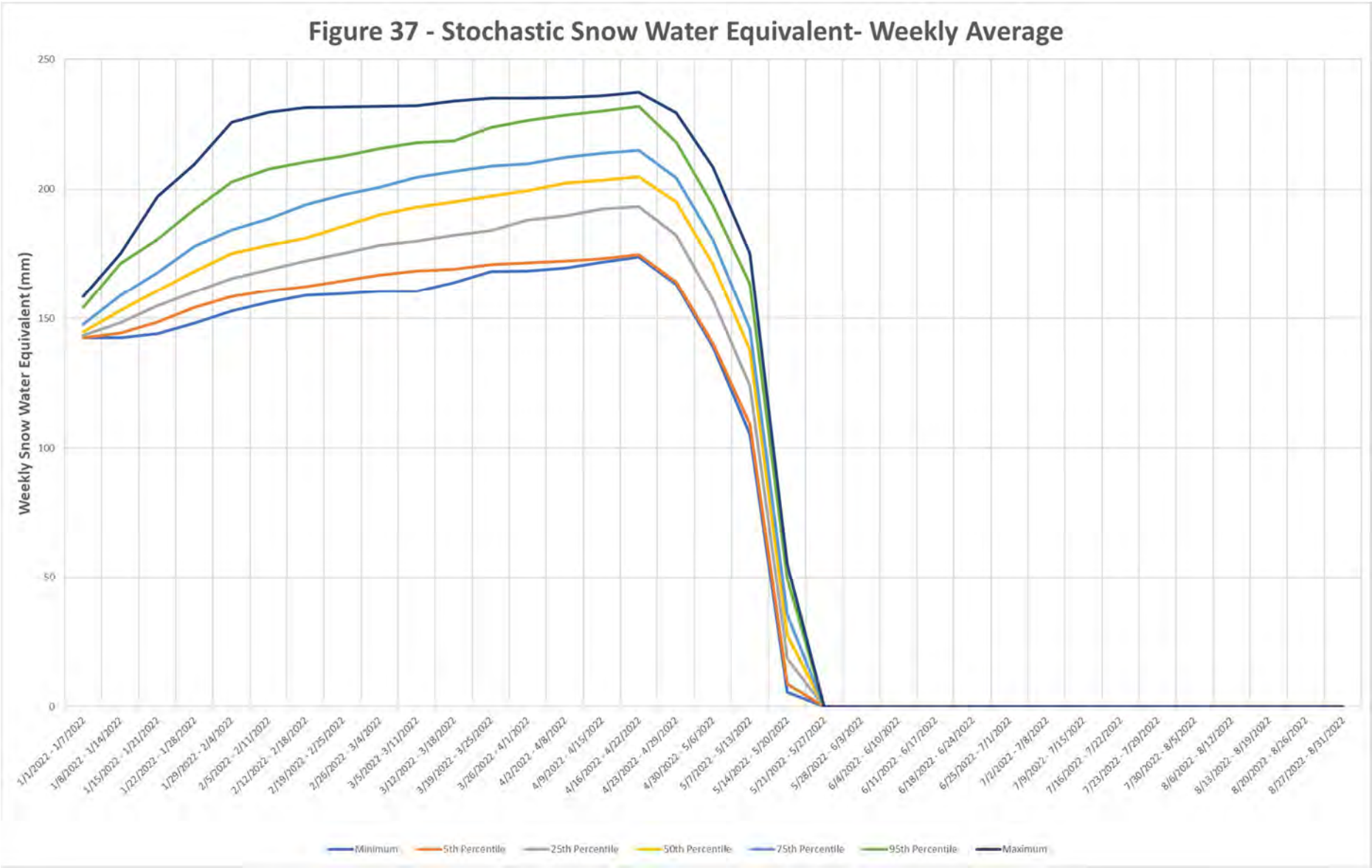


Figure 37 - Stochastic Snow Water Equivalent- Weekly Average





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120 Commerce Drive, Unit 3-4, Fort Collins, CO 80524
Phone: +1 (720) 642-9359 info@fortedynamics.com

APPENDIX G

Eagle Gold Mine Hydrograph Update (2021 Data)

BGC ENGINEERING INC.
AN APPLIED EARTH SCIENCES COMPANY
Suite 500 - 980 Howe Street, Vancouver, BC Canada V6Z 0C8
Telephone (604) 684-5900 Fax (604) 684-5909

Transmittal

To:	**Victoria Gold Corporation**	**Doc. No.:**	**N/A**
Attention:	**Bill Bowden**	**cc:**	**John Jackson**
From:	**Andrew Krentz**	**Date:**	**March 24, 2022**
Subject:	**Eagle Gold Mine Hydrograph Update (2021 Data) – FINAL**		
Project No.:	**0792030**		

BGC Engineering Inc. (BGC) was retained by Victoria Gold Corporation (VGC) to review and process physical hydrogeological and climate data collected from the Eagle Gold mine site by VGC during 2021. BGC has previously provided these services to VGC, and the methods used for the data review and processing described herein are similar to those used previously (BGC, March 9, 2020). This work was carried out under Purchase Order 33613, dated February 24, 2022.

This transmittal letter documents the review and includes hydrograph plots (Figures 1 through 24) and a potentiometric surface map (Figure 25) updated with data collected in 2021. Hydrograph plots are only provided for locations where data were collected in 2021. The potentiometric map considers all locations where groundwater data are available, including data collected prior to 2020, with consideration given to the effects of mining activities such as dewatering.

The groundwater data to be reviewed and processed were received via a SharePoint link provided by email from Ben Widdowson (VGC) on February 23, 2022 and email attachments provided in .xslx format from Phil Emerson (VGC) on February 25, 2022. The data included climate data from the Camp meteorological station operated by VGC (i.e., temperature and precipitation), field notes, manual depth to water measurements, and data from Solinst Leveloggers and a Solinst Barologger. Groundwater chemistry data were also provided; however, these data were not reviewed by BGC, and are not discussed herein, as per direction from VGC (email from Bill Bowden, February 24, 2022). A summary of the locations where hydrograph plots were generated using groundwater level data from 2021 is provided in Table 1. The data provided by VGC were processed by BGC to produce hydrograph plots showing the groundwater elevation through time at each location. The tasks completed by BGC to produce the hydrographs consisted of:

1. Reviewing the data noted above to identify gaps, inconsistencies, and duplicates.
2. Converting manual measurements of groundwater levels to groundwater elevations. These elevations were calculated based on top of casing elevations that are consistent with those used during the previous hydrograph update (BGC, March 19, 2021).
3. Barometrically correcting data from the Leveloggers with data from the Barologger. The corrected data were then converted into groundwater elevations through comparison with the manual measurements of groundwater levels. During this step, the data were corrected for discrepancies associated with deploying the loggers at inconsistent depths throughout time. The manual data generally aligned well with the barometrically corrected datalogger data.

4. The processed Levelogger data were converted to average daily values to decrease the volume of data, and relevant field notes were added to each plot.
5. Climate data from the Camp Meteorological Station (Figure 25) were added in a second plot below each of the hydrographs. These data were converted to daily averages (for temperature) and daily totals (for precipitation) prior to plotting, in accordance with direction from VGC (email from Bill Bowden, personal communication, February 28, 2022).

Since the previous hydrograph update (BGC, March 19, 2021), VGC has expanded their monitoring program to include 19 additional monitoring locations in the Olive Zone Area (Figure 25). In accordance with direction from VGC, no hydrographs were developed for the Olive Zone monitoring area, except for at MW96-9B (email from Bill Bowden, February 24, 2022). For completeness, the new monitoring locations in the Olive Zone are summarized in Table 2, and the representative water levels shown in Figure 25 are based on the 2021 water levels from these locations.

CLOSURE

BGC Engineering Inc. (BGC) prepared this document for the account of Victoria Gold Corporation. The material in it reflects the judgment of BGC staff in light of the information available to BGC at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. BGC accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

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Yours sincerely,

BGC ENGINEERING INC.
per:



Andrew Krentz, M.A.Sc., P.Eng. (BC, ON)
Hydrogeological Engineer

Reviewed by:

Trevor Crozier, M.Eng., P.Eng. (BC, ON)
Principal Hydrogeological Engineer

AK/TWC/wn/mm

Attachment(s): Tabless 1 and 2
Figures 1 to 25

REFERENCES

BGC Engineering Inc. (2020, March 9). *Eagle Gold Project 2020 Numerical Hydrogeological Model Update* [Transmittal]. Prepared for Victoria Gold Corporation.

BGC Engineering Inc. (2021, March 19). *Eagle Gold Mine Hydrograph Update (2020 Data)* [Transmittal]. Prepared for Victoria Gold Corporation.

TABLES

Table 1. Summary of 2021 data for monitoring wells (excluding new locations in Olive Zone).

Well	Northing (m)	Easting (m)	Manual (M) or Dry[2]				2021 Level Logger ID
			Q1	Q2	Q3	Q4	
BH-BGC11-64*	7100263	460182	-	M	-	-	-
BH-BGC11-72	7101087	458238	M	M	M	M	2079898 2094792[3]
BH-BGC11-74	7101163	458275	M	M	M	M	-
MW6	7100854	458641	Dry	Dry	M	M	-
MW10-PG1	7099557	458988	M	M	M	M	2107767
MW18-DG2R	7100865	458950	-	M	M	M	2100811
MW19-DG6RA	7101121	459225	M	M	M	M	2066224 1058360[4]
MW19-DG6RB	7101119	459221	M	-	M	M	-
MW19-EPW1A	7100996	459751	-	M	M	M	2100823
MW19-EPW1B	7100991	459752	-	-	M	M	2079412
MW19-EVP1A	7101188	459264	Dry	M	Dry	Dry	-
MW19-EVP1B	7101193	459264	M	M	Dry	M	-
MW19-EVP2A	7101091	459073	Dry	M	Dry	M	-
MW19-EVP2B	7101088	459075	M	M	M	M	-
MW19-HLF1A	7101316	459542	M	M	Dry	M	-
MW19-HLF1B[5]	7101309	459540	M	M	M	M	1057770
MW19-LDSP-2A	7101045	458365	M	M	M	M	-
MW19-LDSP-2B[6]	7101088	459075	M	M	M	M	2079423
MW19-PWG1A	7099539	459169	M	M	M	M	-
MW19-PWG1B	7099539	459169	Well Damaged				-
MW95-151	7100862	459768	M	M	M	M	-
MW96-9B	7101252	463073	M	M	M	M	1050237
MW96-14A	7100609	460145	M	M	Decommissioned		-
MW96-15A	7100930	459830	M	M	Decommissioned		-
MW96-15B	7100930	459830	M	M	Decommissioned		-
Barologger[8]	7101088	459075	-	-	-	-	2100686

Notes:
1. Data provided by Victoria Gold Corp. (Personal communication, email, Ben Widdowson, February 23, 2022).
2. "-" = no data available; "M" = Manual reading taken; "Dry" = Manual reading taken, but well dry.
3. At BH-BGC11-72 logger 2079898 was lost down hole and replaced with logger 2094792 in April, 2021.
4. At MW18-DG6RA logger 2066224 was replaced with logger 10583604 in July, 2021.
5. No logger data were provided for MW19-HLF1B after August, 2021.
6. No logger data were provided for MW19-LDSP-2B from June to November, 2020.
7. "*" = monitoring well added in 2022.
8. Barologger installed at MW19-LDSP-2B.

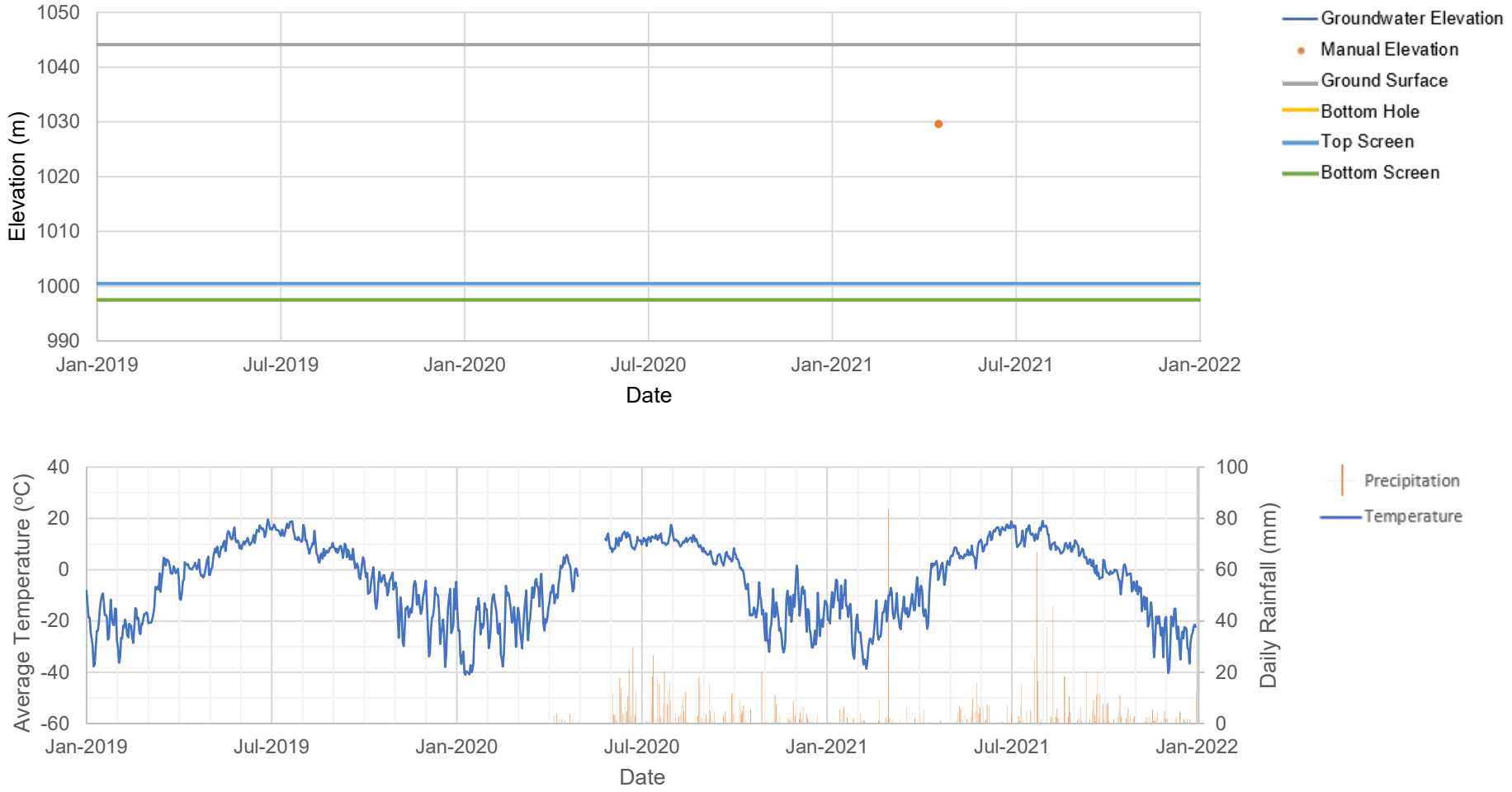
Table 2. Summary of 2021 data for new monitoring locations in Olive Zone.

Well	Northing (m)	Easting (m)	Manual (M) or Dry[2]			
			Q1	Q2	Q3	Q4
DH95-144	7101547	463759	-	-	M	M
BH95-146[3]	7101284	463335	-	-	M	M
GT96-26	7102023	462591	Well Damaged			
MW09-OG1	7100358	461904	-	-	-	-
MW09-OG2	7100599	462221	-	-	M	M
MW09-OG3	7101552	461223	-	-	M	M
MW96-01	7100965	463763	-	-	M	M
MW96-02	7101047	463679	M	M	M	M
MW96-03	7101135	463597	M	M	M	M
MW96-04	7101229	463508	M	M	M	M
MW96-05	7101301	463429	-	-	M	M
MW96-6AB[4]	-	-	M	M	M	M
MW96-7B	7101670	463596	-	-	M	M
MW96-8	7101458	463252	Well Damaged			
MW96-9A	7101244	463076	Dry	Dry	M	Dry
MW96-10A	7101121	462939	-	-	M	Dry
MW96-10B	7101132	462936	-	-	M	M
MW96-26	7101516	462873	-	-	M	M
MW96-27	7101562	462876	-	-	Dry	-

Notes:

1. Data provided by Victoria Gold Corp. (Personal communication, Email, Ben Widdowson, February 23, 2022).
2. "-" = no data available; "M" = Manual reading taken; "Dry" = Manual reading taken, but well dry.
3. It is assumed that BH95-146 reported by VGC is the same location as DH95-146.
4. The location of MW96-6AB is not known to BGC.

FIGURES

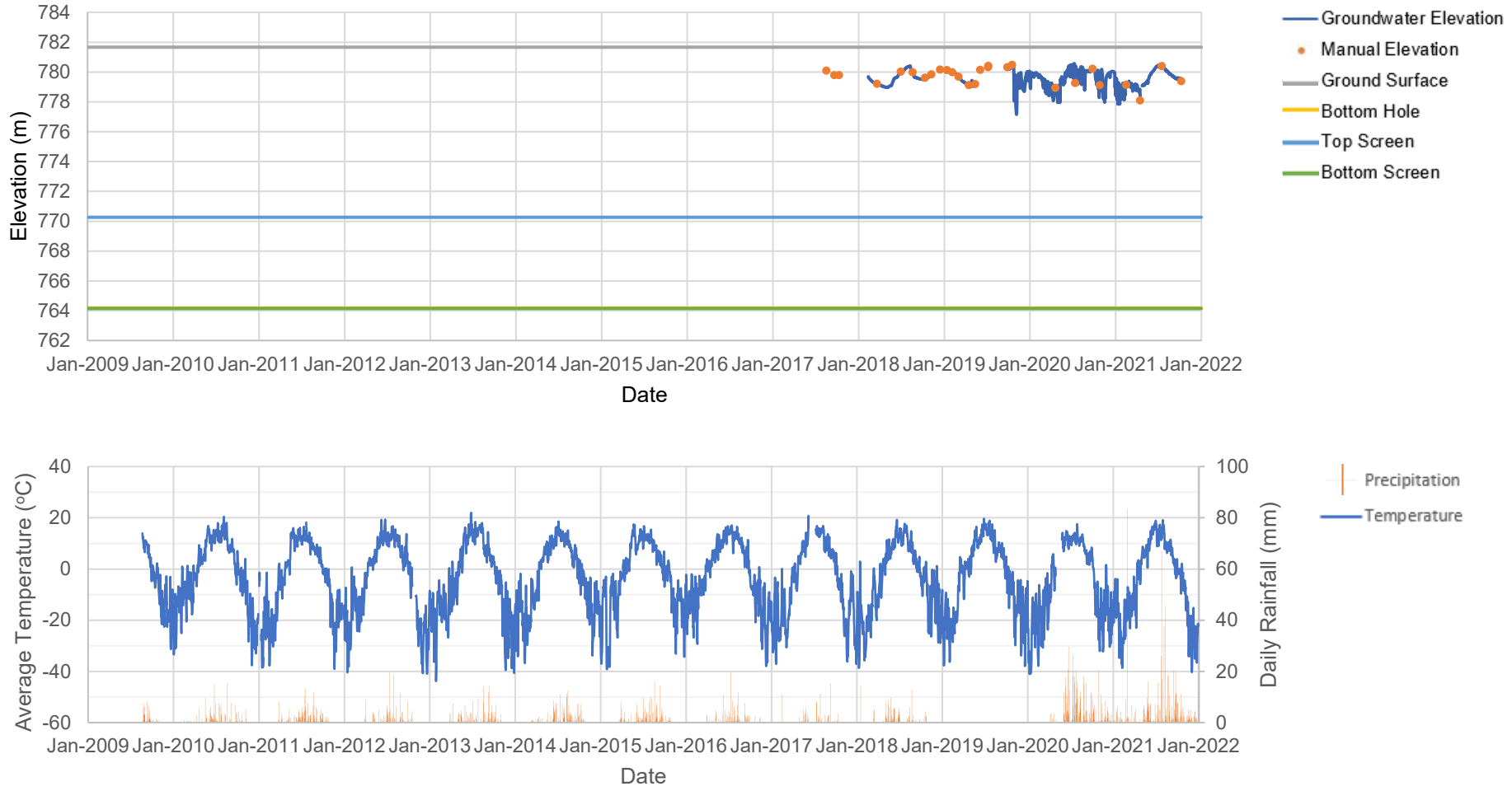


Notes:
1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH AND BOTTOM OF SCREEN DEPTH ARE EQUAL AND BASED ON AVAILABLE BOREHOLE LOGS.

PREPARED BY: AK	FIGURE TITLE: BH-BGC11-64		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 1

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BGC ENGINEERING INC.

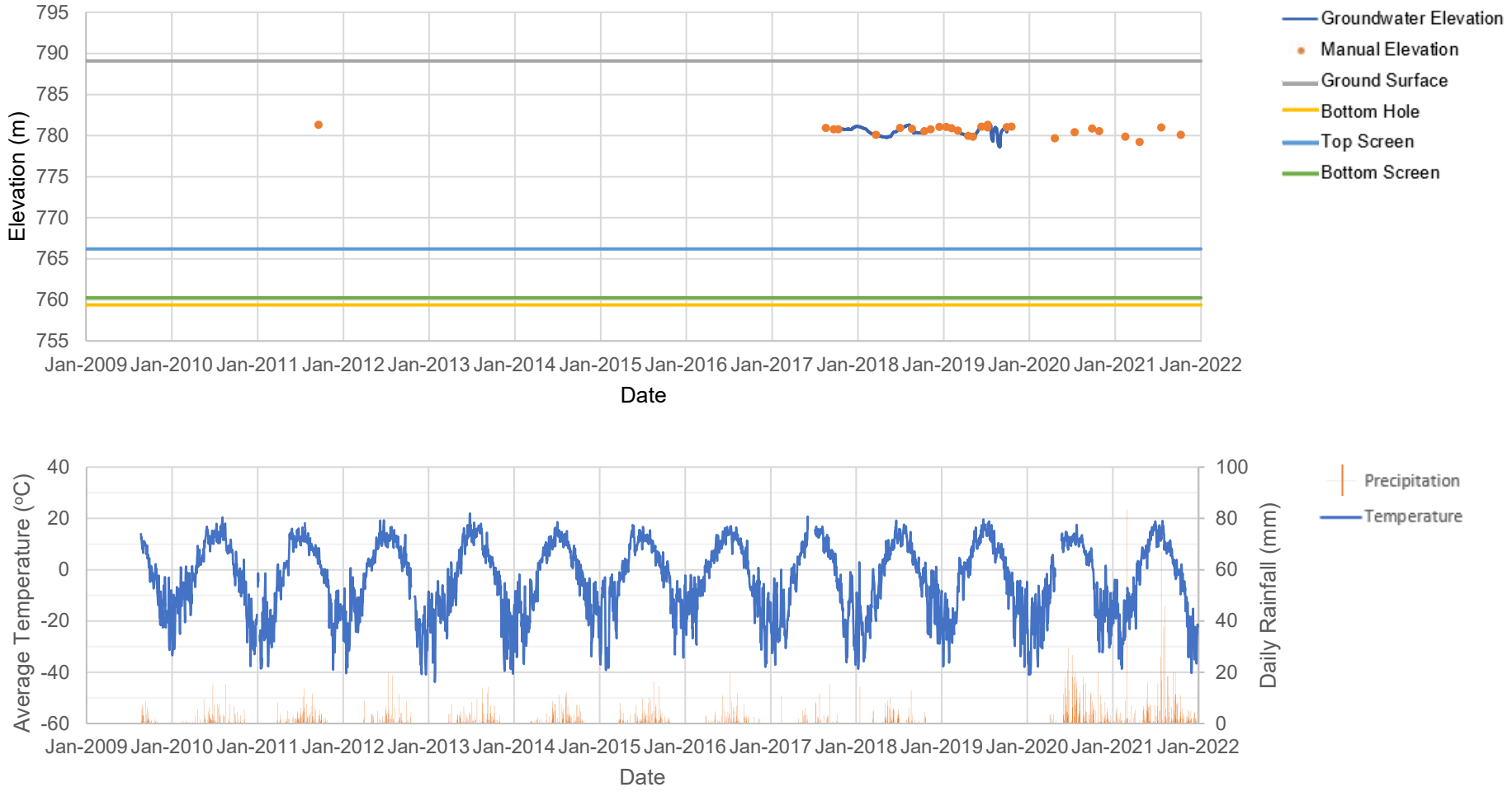


Notes:
1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 20, 2020 (EQUAL TO BOTTOM SCREEN). BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.

PREPARED BY:	FIGURE TITLE		
AK	BH-BGC11-72 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	2

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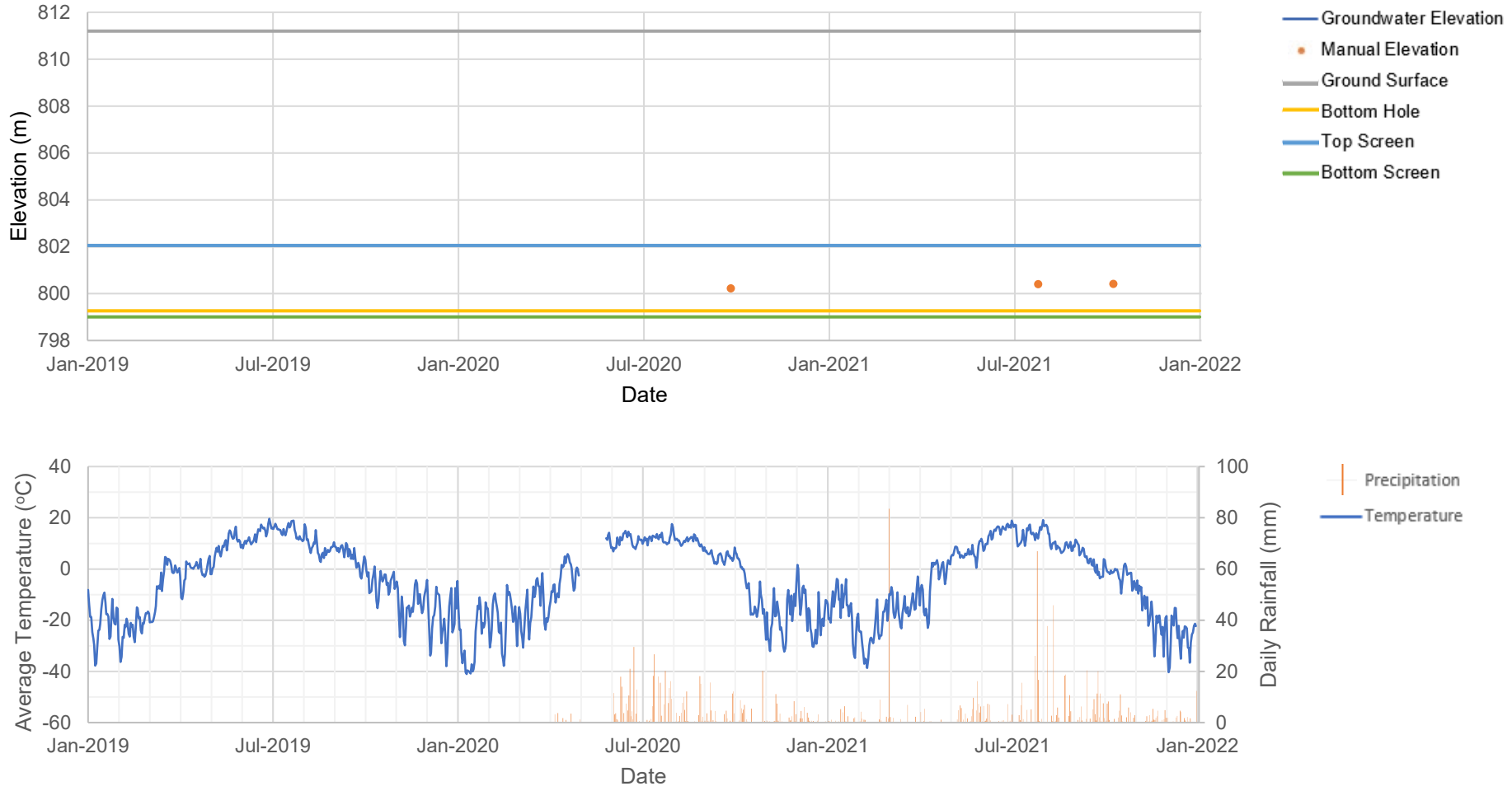
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1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 20, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. NO LOGGER DATA WERE COLLECTED AT BH-BGC11-74 IN 2021.

PREPARED BY: AK	FIGURE TITLE: BH-BGC11-74 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 3

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BGC ENGINEERING INC.



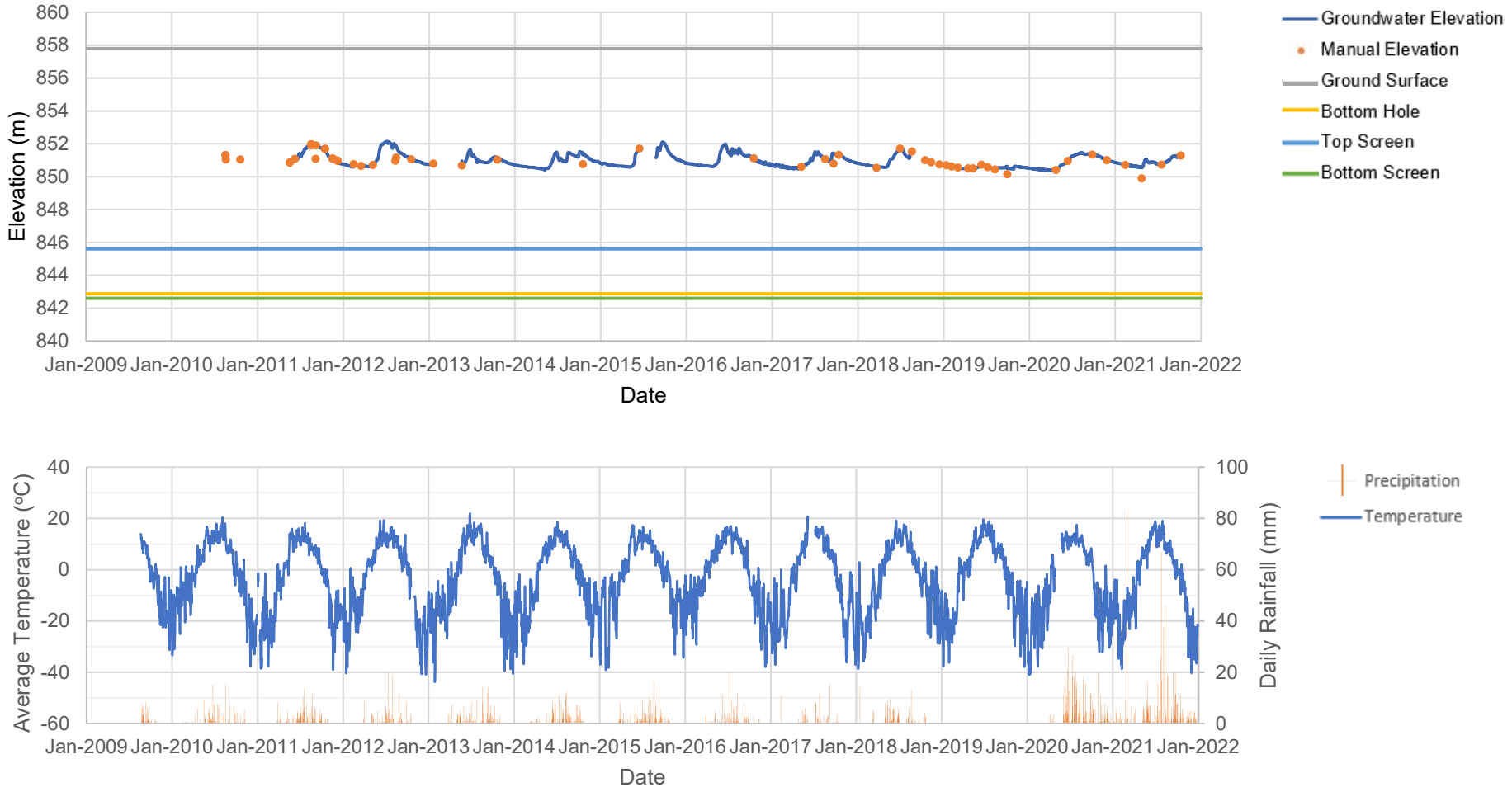
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1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 20, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. NO LOGGER DATA WERE COLLECTED AT MW6 IN 2021.
5. MW6 WAS ORIGINALLY NAMED MW18-LDSP1A; NAME WAS CHANGED SHORTLY AFTER CONSTRUCTION COMPLETED. LOCATION NAME CONFIRMED BY STEPHEN WILBUR (VGC) (EMAIL, FEBRUARY 25, 2020).

PREPARED BY: AK	FIGURE TITLE: MW6 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 4

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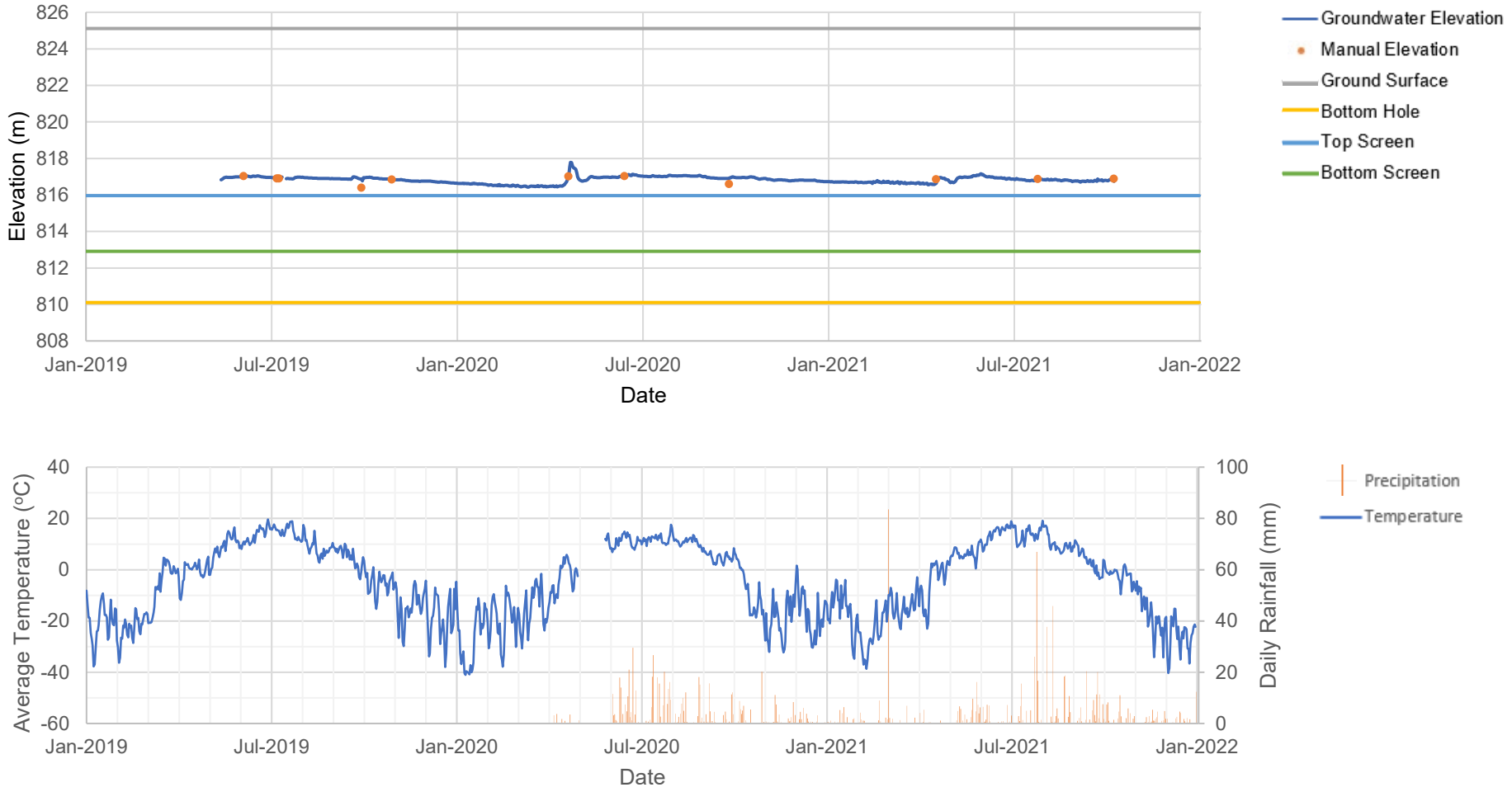
Notes:

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2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 24, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4.

PREPARED BY:	FIGURE TITLE		
AK	MW10-PG1 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	5

0 5 10 mm in ANSI A sized paper

BGC ENGINEERING INC.



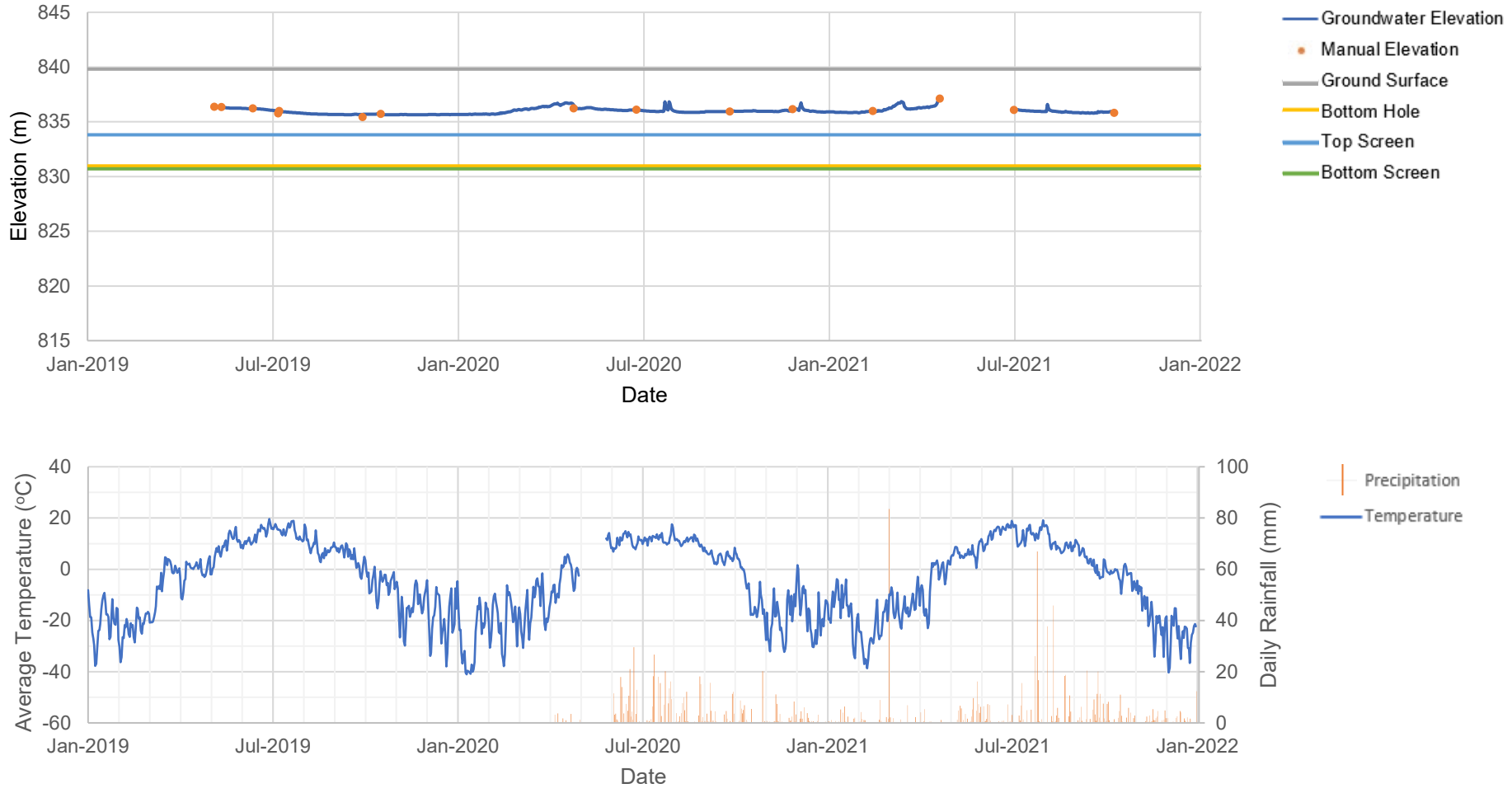
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1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 20, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.

PREPARED BY:	FIGURE TITLE		
AK	MW18-DG2R GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	6

0 5 10 mm in ANSI A sized paper

BGC ENGINEERING INC.



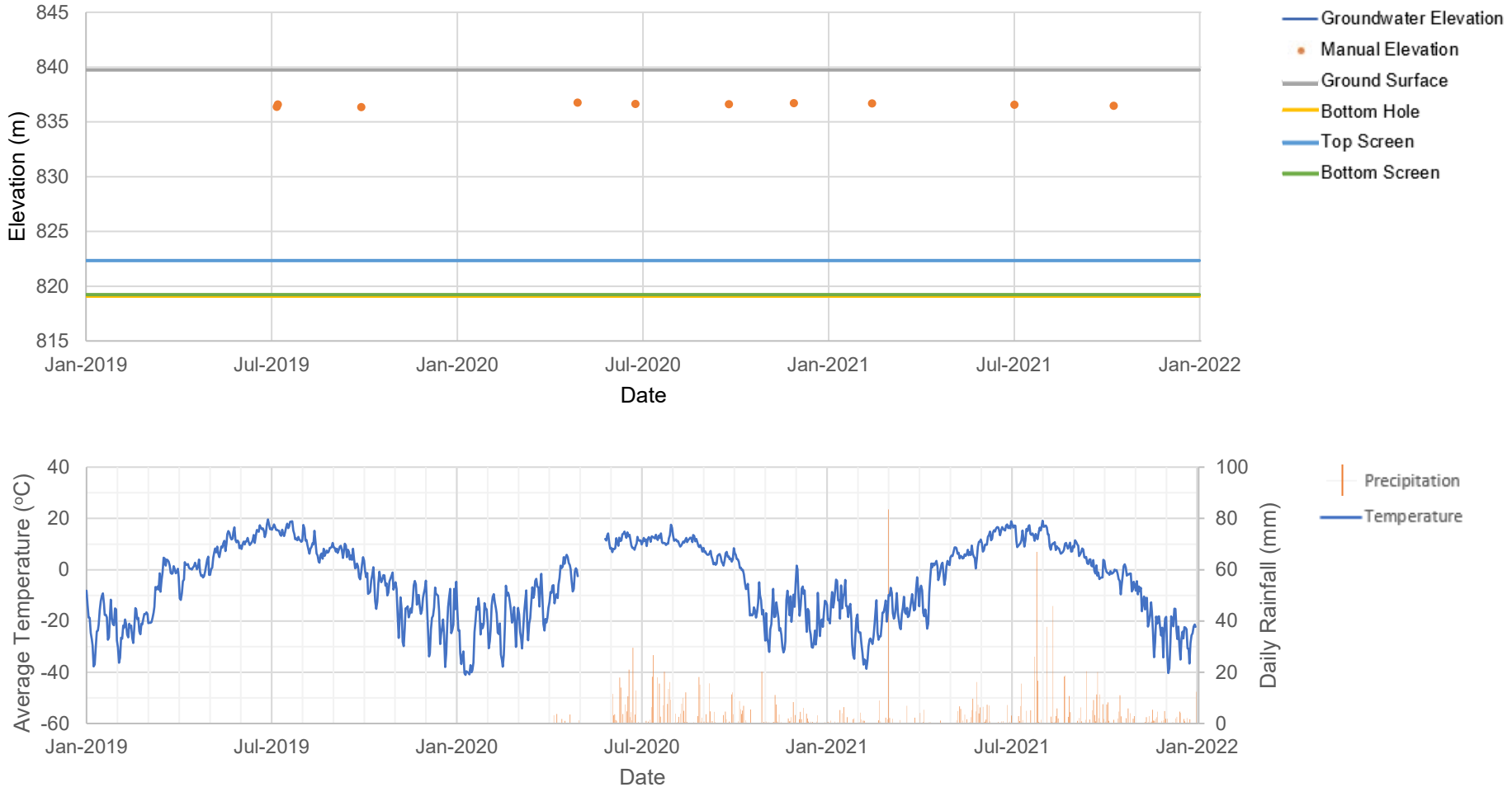
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 29, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW18-DGR6A IS A NESTED MONITORING LOCATION WITH MW18-DGR6B.
5. A NEW LOGGER WAS INSTALLED AT MW18-DGR6A ON JULY 3, 2021.

PREPARED BY:	FIGURE TITLE		
AK	MW19-DG6RA GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	7

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BGC ENGINEERING INC.



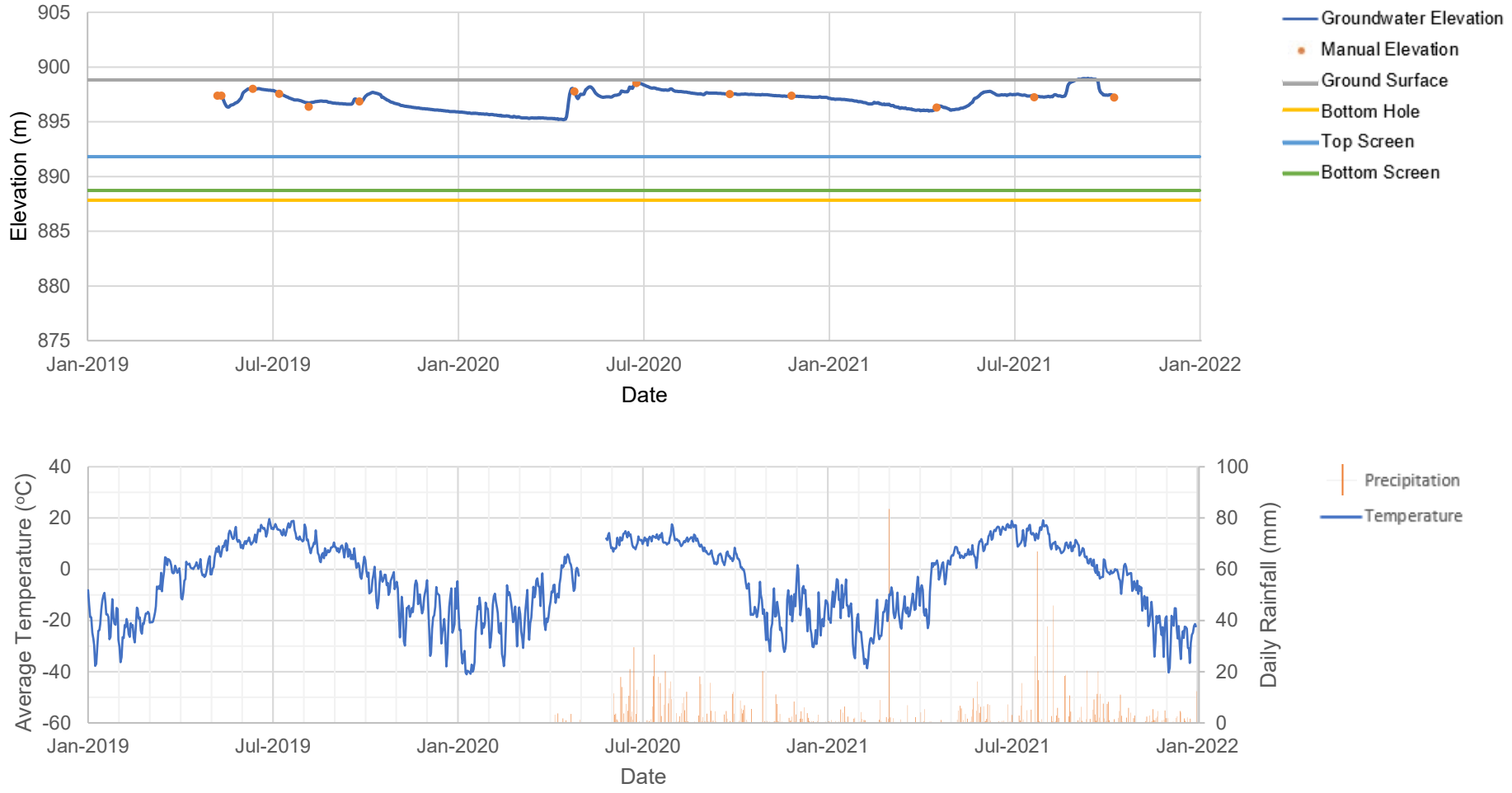
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON JUNE 25, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW18-DGR6B IS A NESTED MONITORING LOCATION WITH MW18-DGR6A.
5. NO MANUAL MEASUREMENT WAS TAKEN IN APRIL 2021 DUE TO FROZEN TUBING IN THE WELL.

PREPARED BY: AK	FIGURE TITLE: MW19-DG6RB GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 8

0 5 10 mm in ANSI A sized paper

BGC ENGINEERING INC.



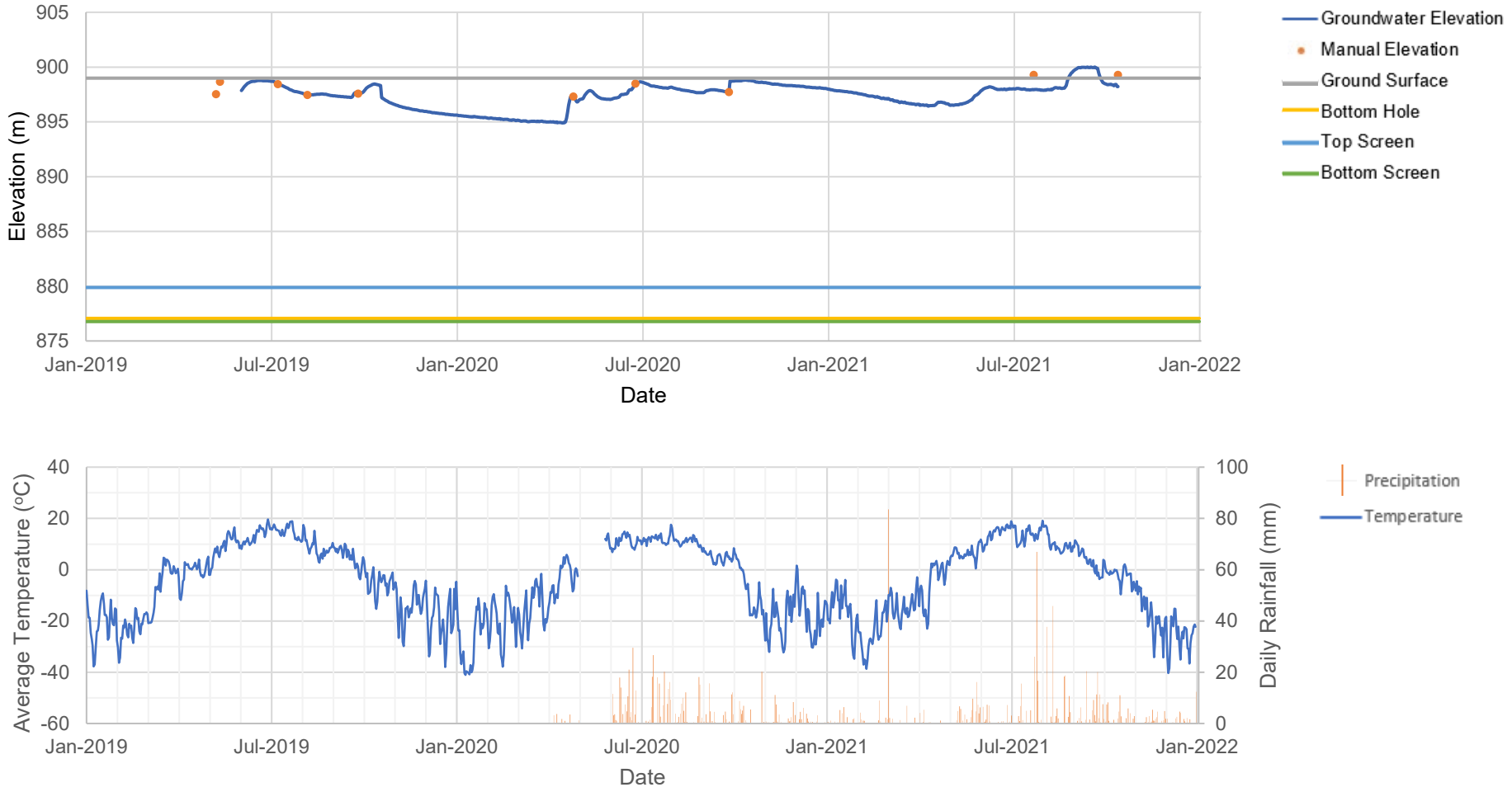
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 25, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-EPW1A IS A NESTED MONITORING LOCATION WITH MW19-EPW1B.
5. NO MANUAL MEASUREMENT WAS TAKEN IN FEBRUARY 2021 DUE TO FROZEN TUBING IN THE WELL.

PREPARED BY:	FIGURE TITLE		
AK	MW19-EPW1A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	9

0 5 10 mm in ANSI A sized paper

BGC ENGINEERING INC.



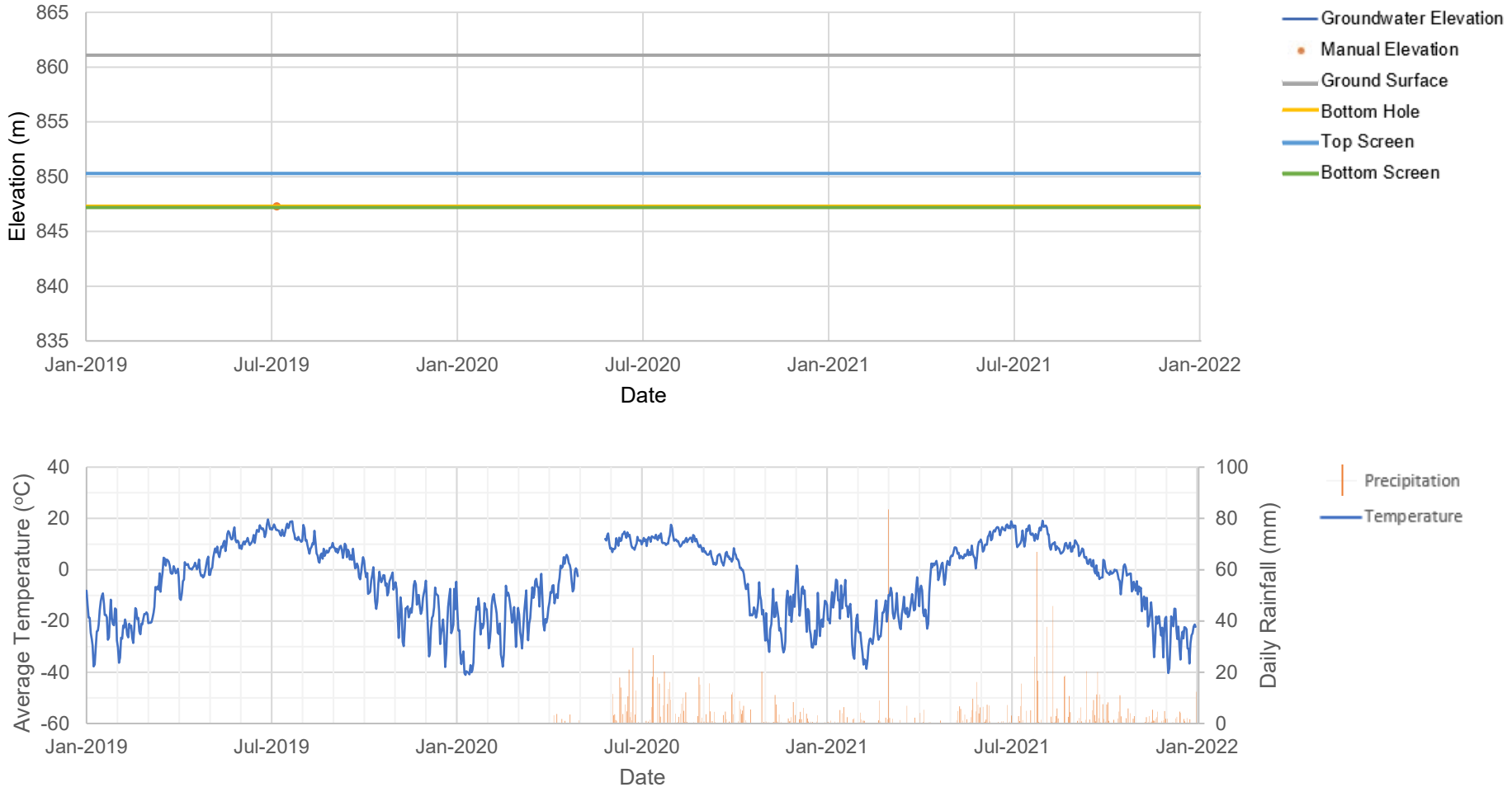
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 25, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-EPW1B IS A NESTED MONITORING LOCATION WITH MW19-EPW1A.
5. NO MANUAL MEASUREMENT WAS TAKEN IN FEBRUARY OR APRIL 2021 DUE TO FROZEN TUBING IN THE WELL.

PREPARED BY:	FIGURE TITLE		
AK	MW19-EPW1B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	10

0 5 10 mm in ANSI A sized paper

BGC ENGINEERING INC.



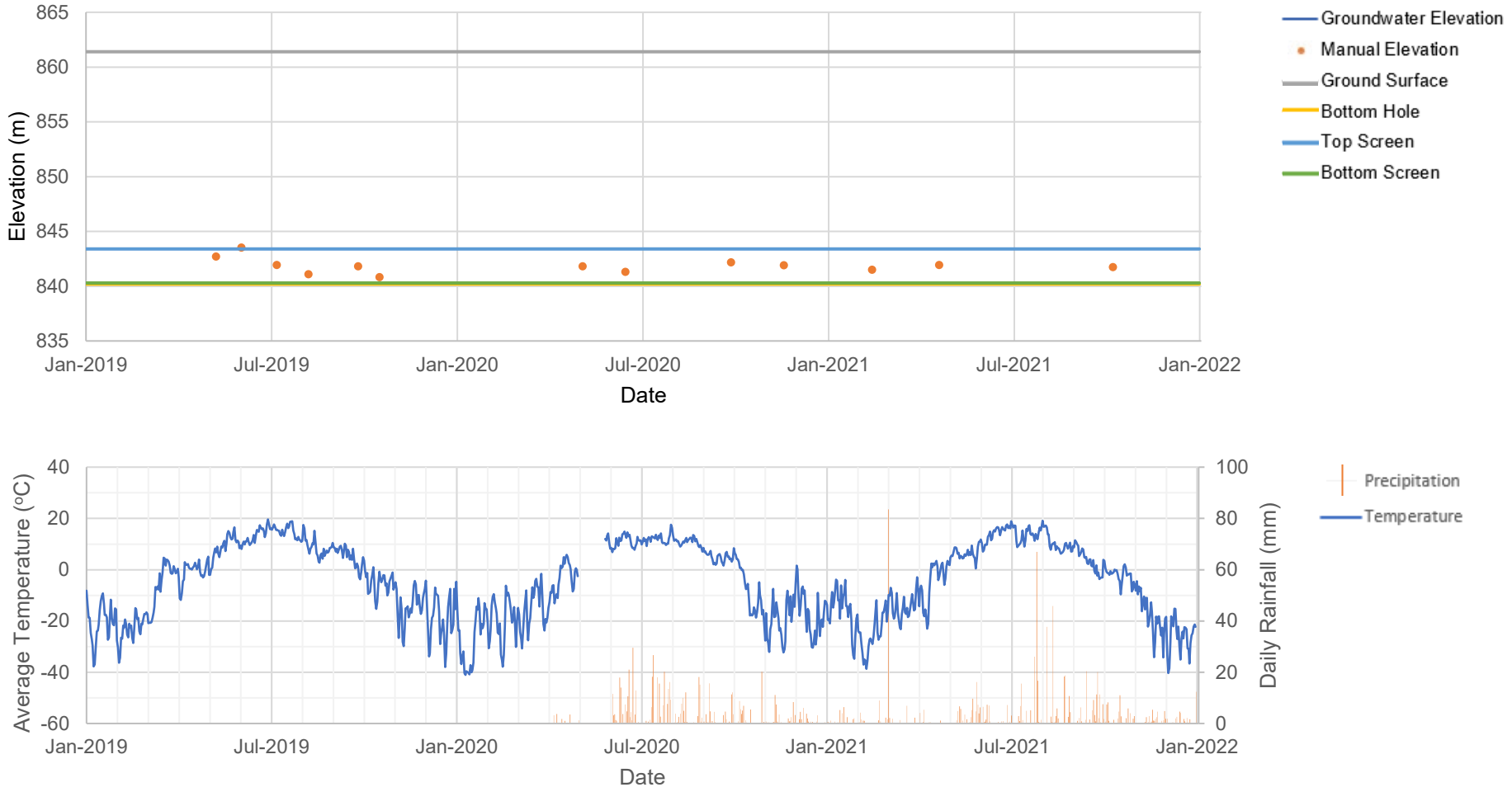
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON MAY 4, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-EVP1A IS A NESTED MONITORING LOCATION WITH MW19-EVP1B.
5. WATER LEVELS WERE CHECKED 4 TIMES IN 2021; THE HOLE WAS DRY EACH TIME.

PREPARED BY: AK	FIGURE TITLE: MW19-EVP1A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 11

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BGC ENGINEERING INC.



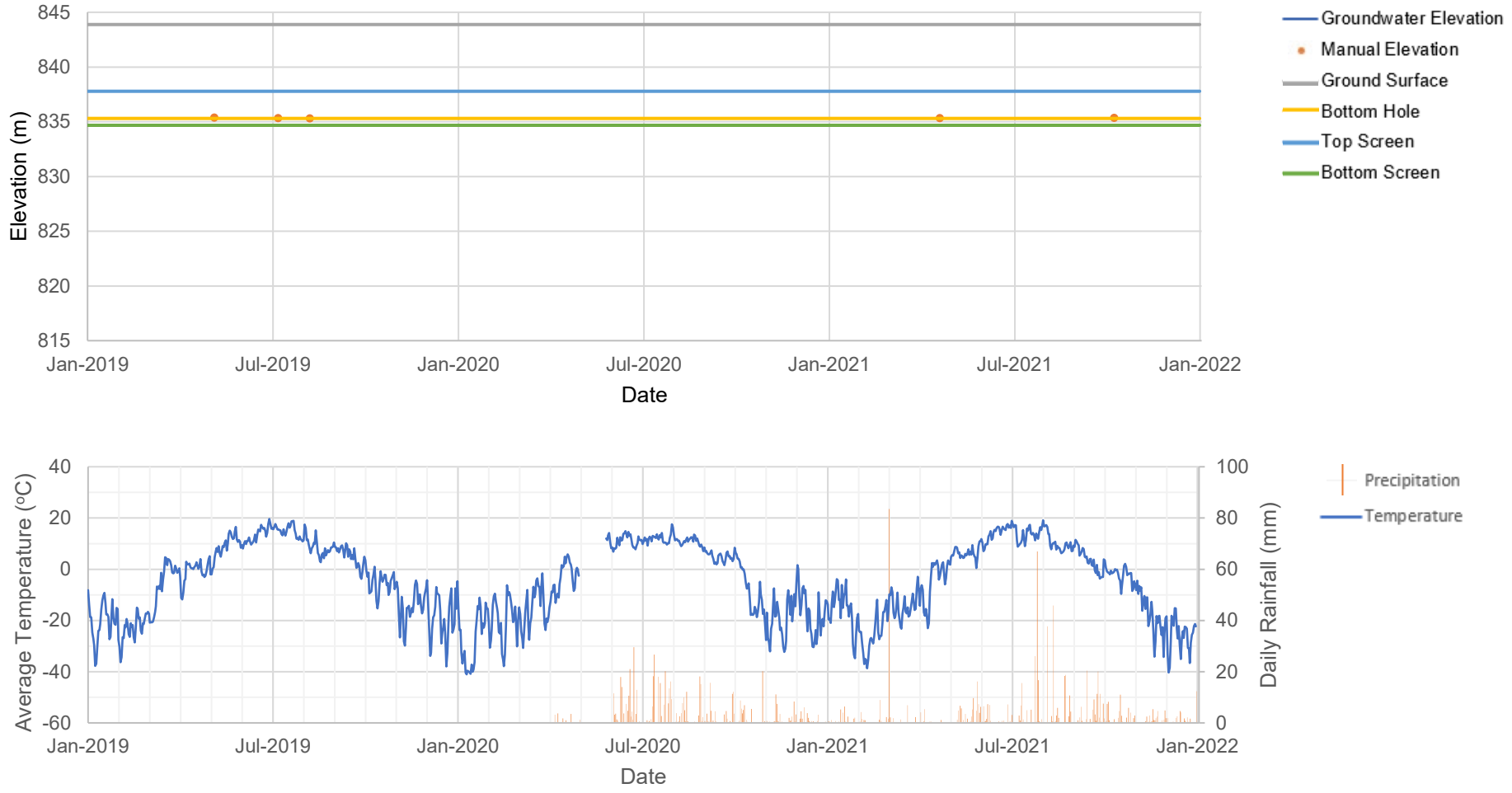
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON MAY 4, 2020 (EQUAL TO BOTTOM SCREEN). BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-EPW1B IS A NESTED MONITORING LOCATION WITH MW19-EPW1A.
5. THE HOLE WAS DRY DURING FIELD MEASUREMENTS IN JULY 2021.

PREPARED BY:	FIGURE TITLE		
AK	MW19-EVP1B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	12

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BGC ENGINEERING INC.



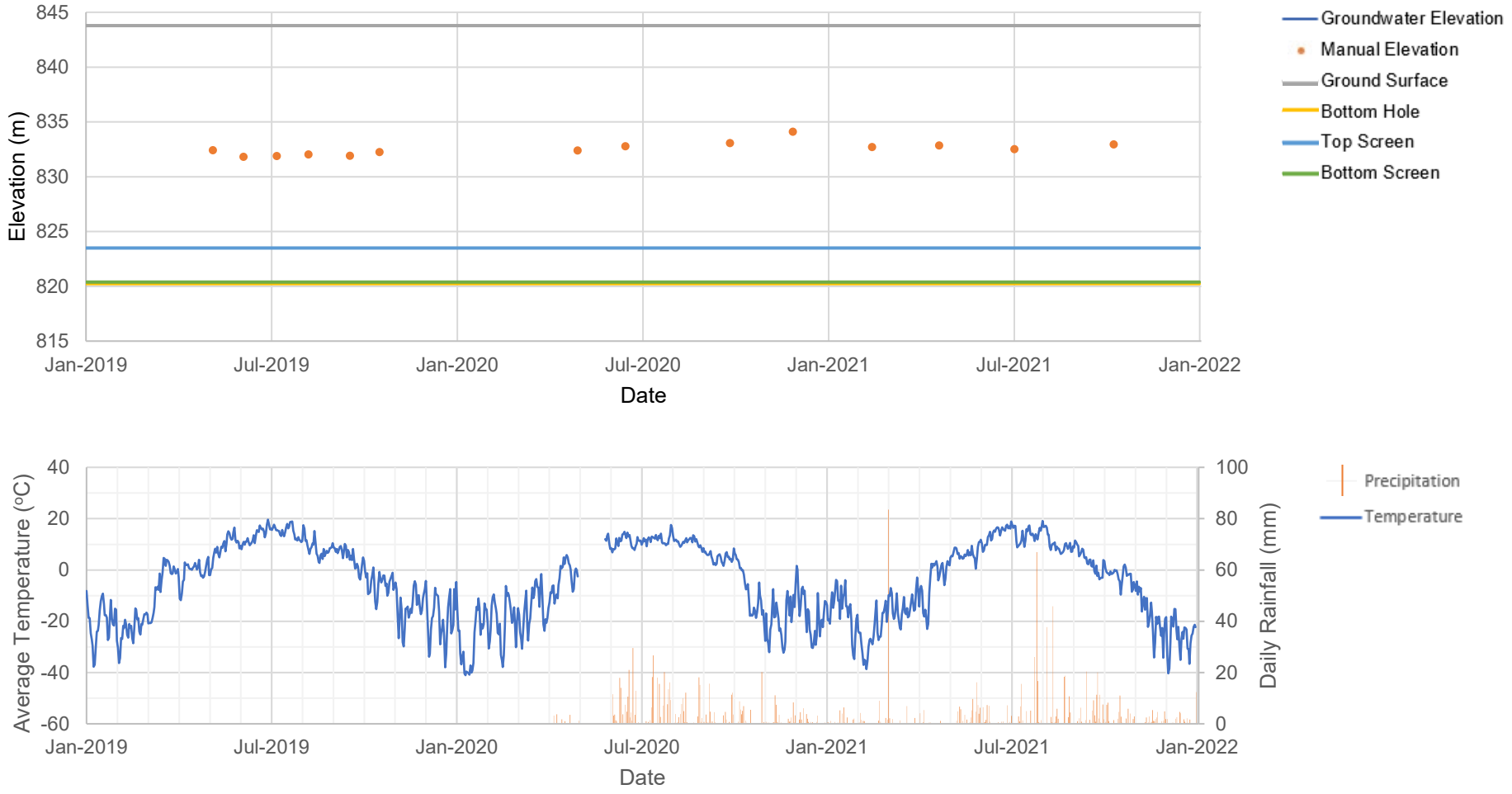
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 29, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-EVP2A IS A NESTED MONITORING LOCATION WITH MW19-EVP2B.
5. THE HOLE WAS DRY DURING FIELD MEASUREMENTS IN FEBRUARY AND JULY 2021.

PREPARED BY: AK	FIGURE TITLE: MW19-EVP2A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 13

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BGC ENGINEERING INC.



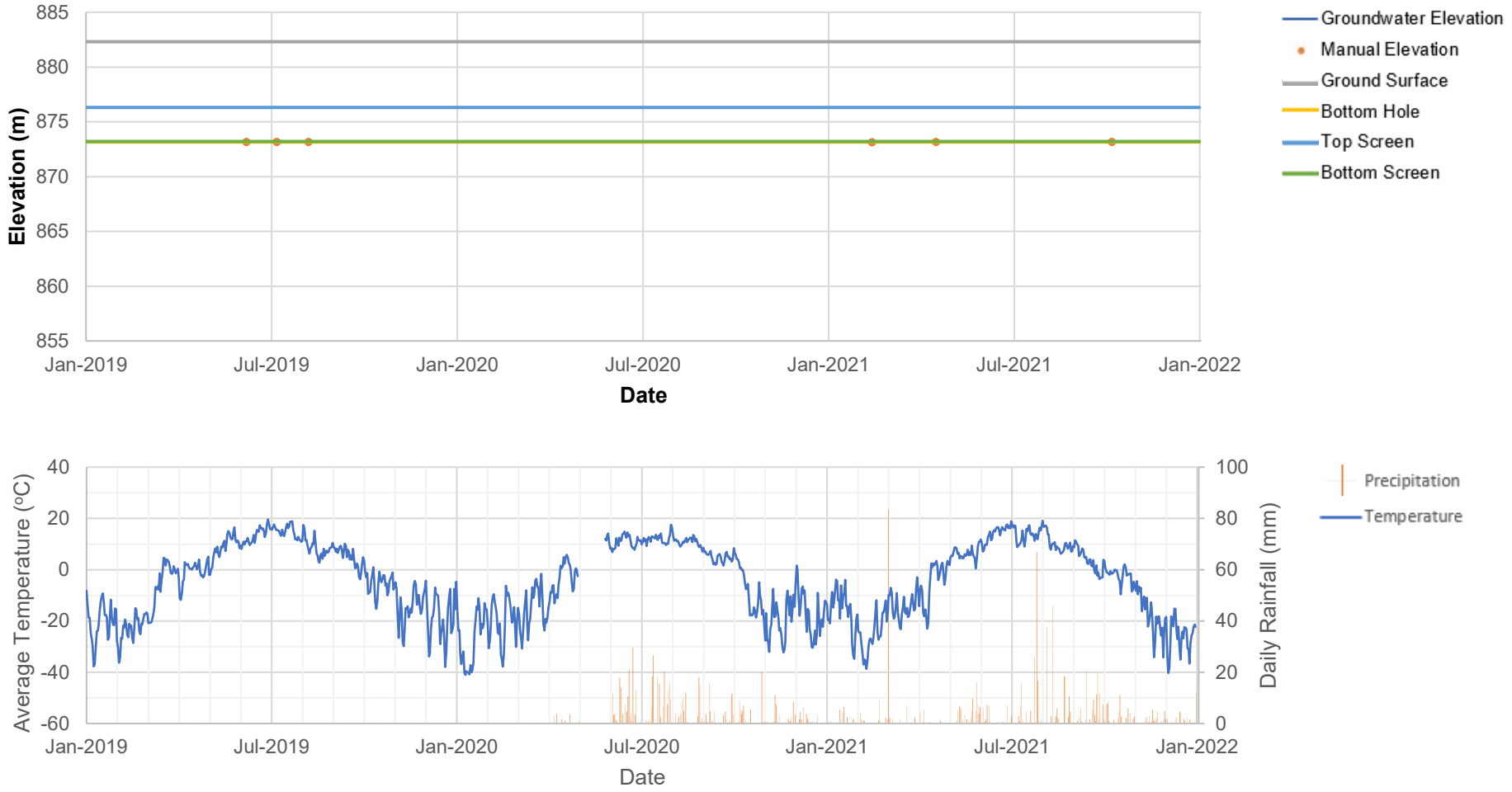
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 29, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-EVP2B IS A NESTED MONITORING LOCATION WITH MW19-EVP2A.

PREPARED BY:	FIGURE TITLE		
AK	MW19-EVP2B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	14

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BGC ENGINEERING INC.



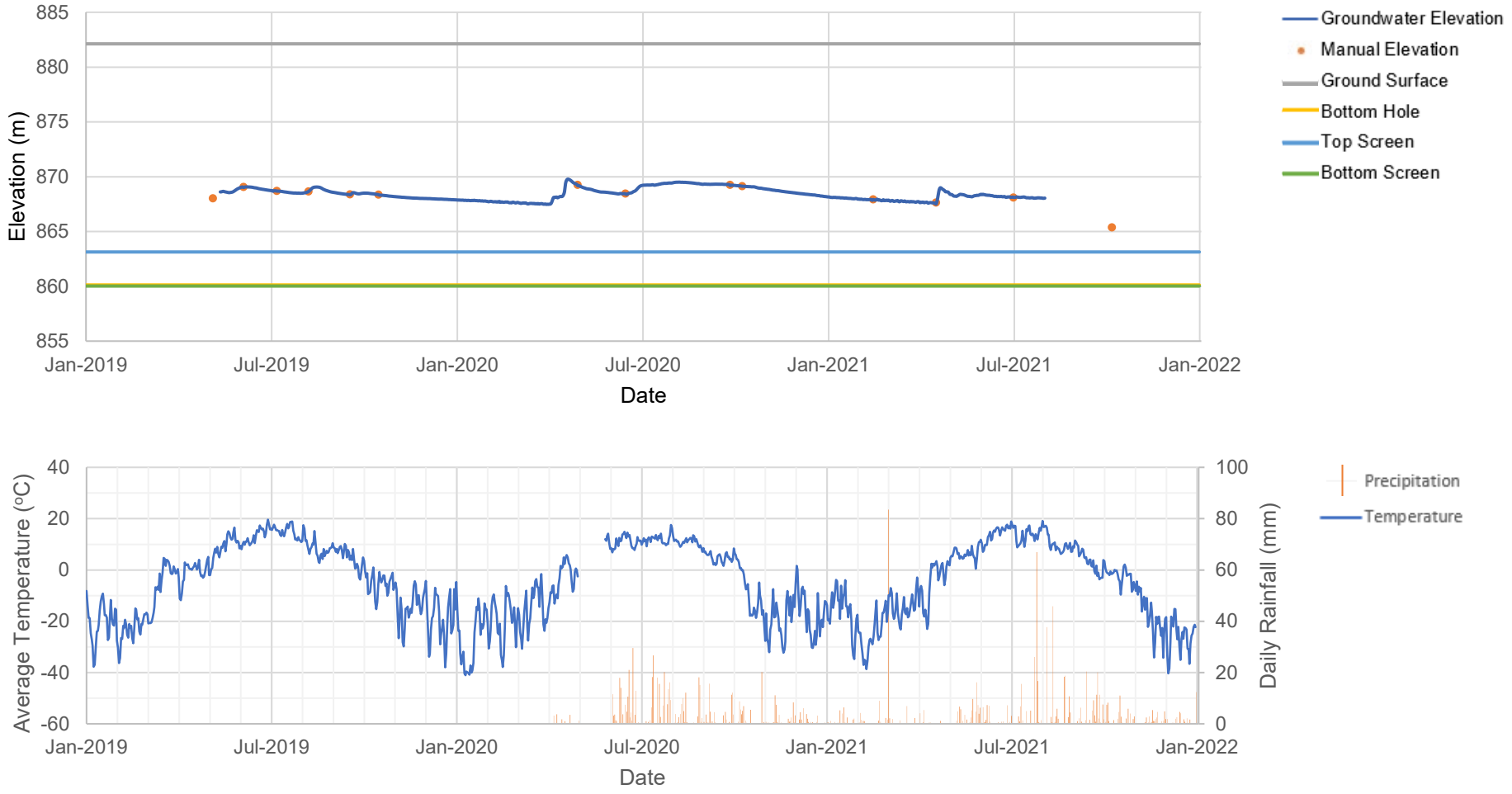
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 29, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-HLF1A IS A NESTED MONITORING LOCATION WITH MW19-HLF1B.
5. THE HOLE WAS DRY DURING FIELD MEASUREMENTS IN FEBRUARY AND JULY 2021.

PREPARED BY:	FIGURE TITLE		
AK	MW19-HLF1A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	15

0 5 10 mm in ANSI A sized paper

BGC ENGINEERING INC.



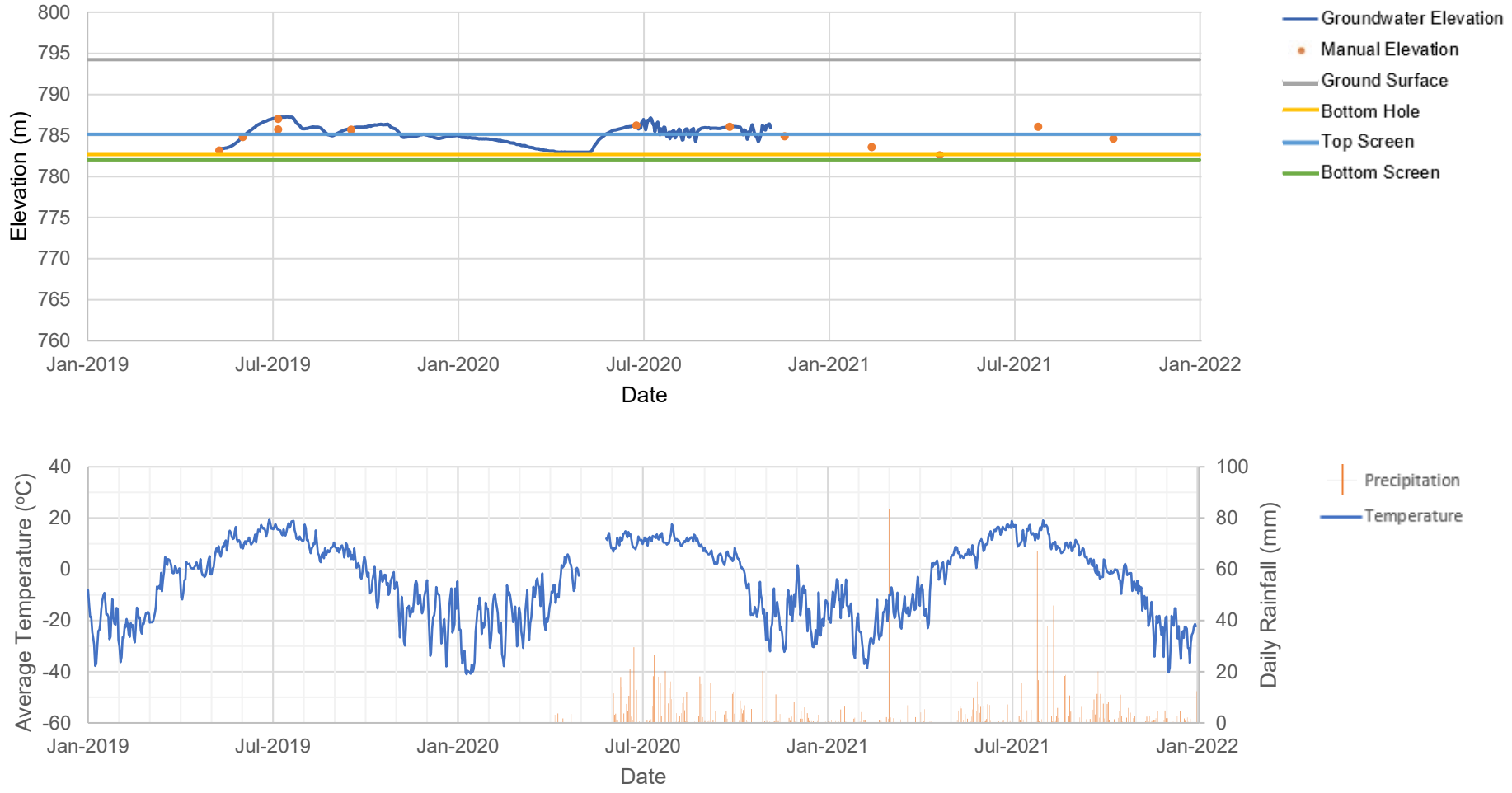
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 29, 2020 (EQUAL TO BOTTOM SCREEN). BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-HLF1B IS A NESTED MONITORING LOCATION WITH MW19-HLF1A.
5. NO LOGGER DATA WERE PROVIDED FOR MW19-HLF1B AFTER AUGUST 2021.

PREPARED BY: AK	FIGURE TITLE: MW19-HLF1B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 16

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BGC ENGINEERING INC.



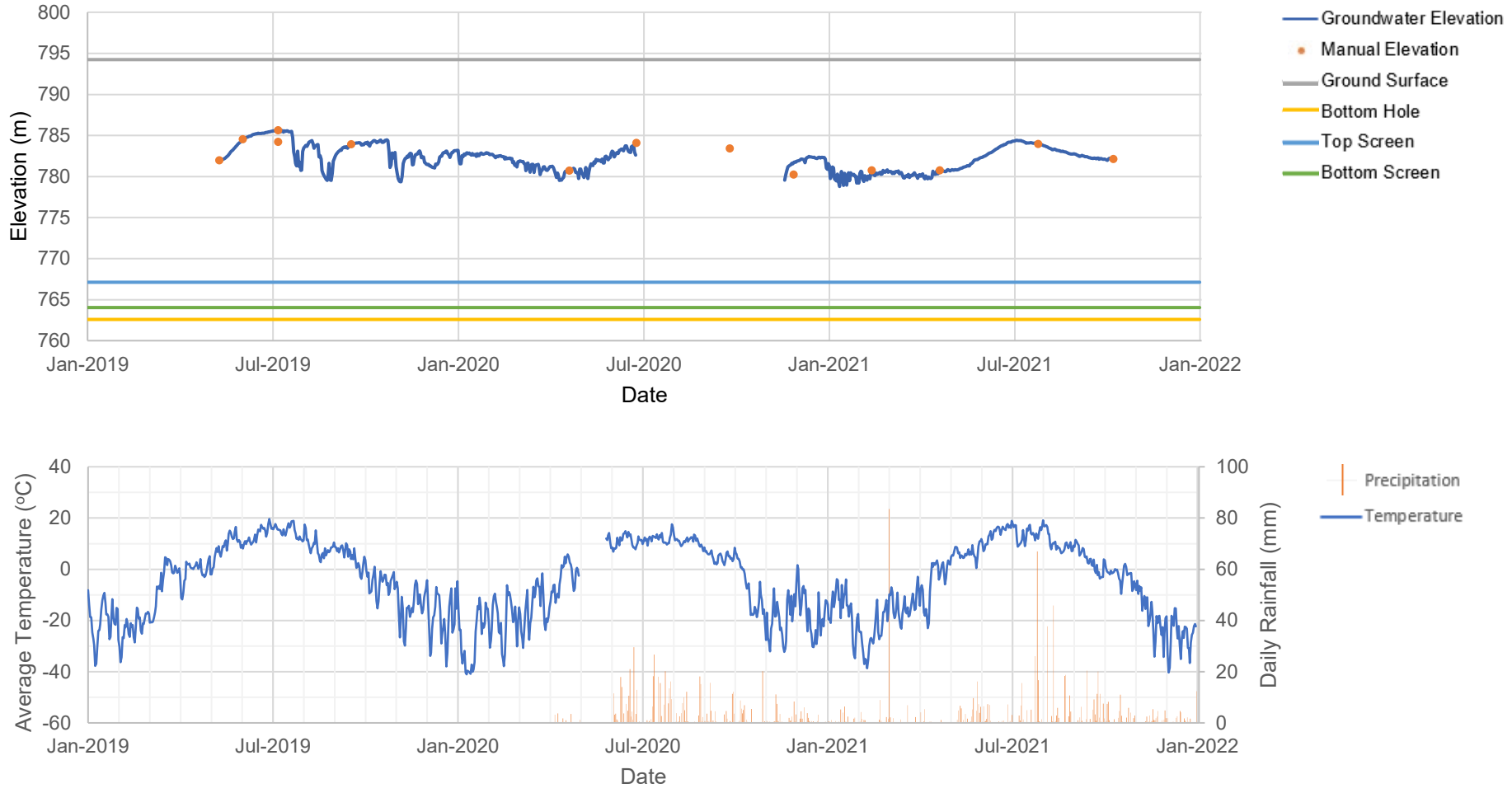
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 20, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-LDSP2A IS A NESTED MONITORING LOCATION WITH MW19-LDSP2B.

PREPARED BY:	FIGURE TITLE		
AK	MW19-LDSP-2A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	17

0 5 10 mm in ANSI A sized paper

BGC ENGINEERING INC.



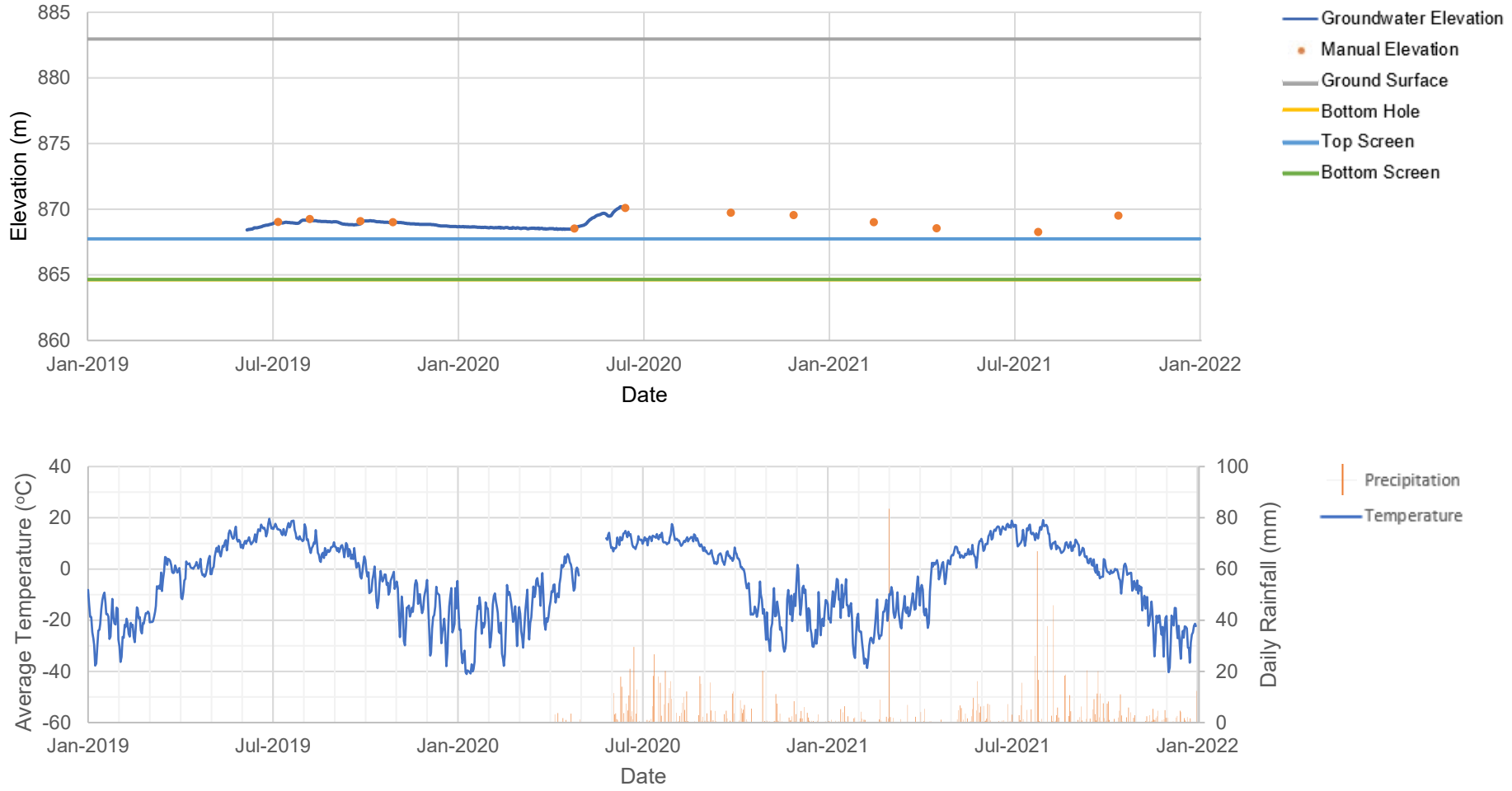
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 20, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW19-LDSP2B IS A NESTED MONITORING LOCATION WITH MW19-LDSP2A.
5. NO LOGGER DATA WERE PROVIDED FROM JUNE TO NOVEMBER 2020.

PREPARED BY:	FIGURE TITLE		
AK	MW19-LDSP-2B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	18

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BGC ENGINEERING INC.



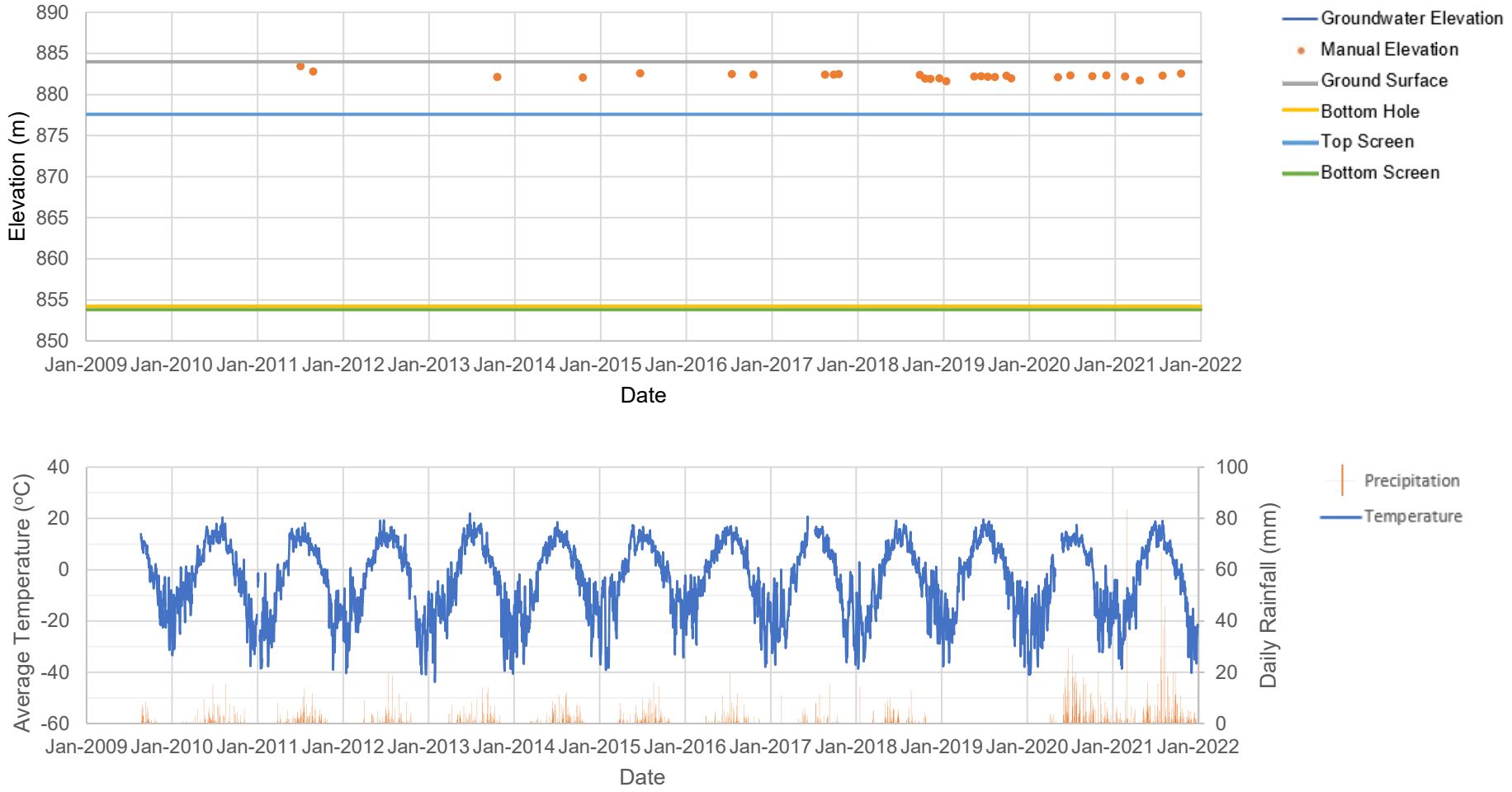
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON APRIL 25, 2020 (EQUAL TO BOTTOM SCREEN). BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. NO LOGGER DATA WERE PROVIDED FOR MW19-PWG1A IN 2021.

PREPARED BY: AK	FIGURE TITLE: MW19-PWG1A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 19

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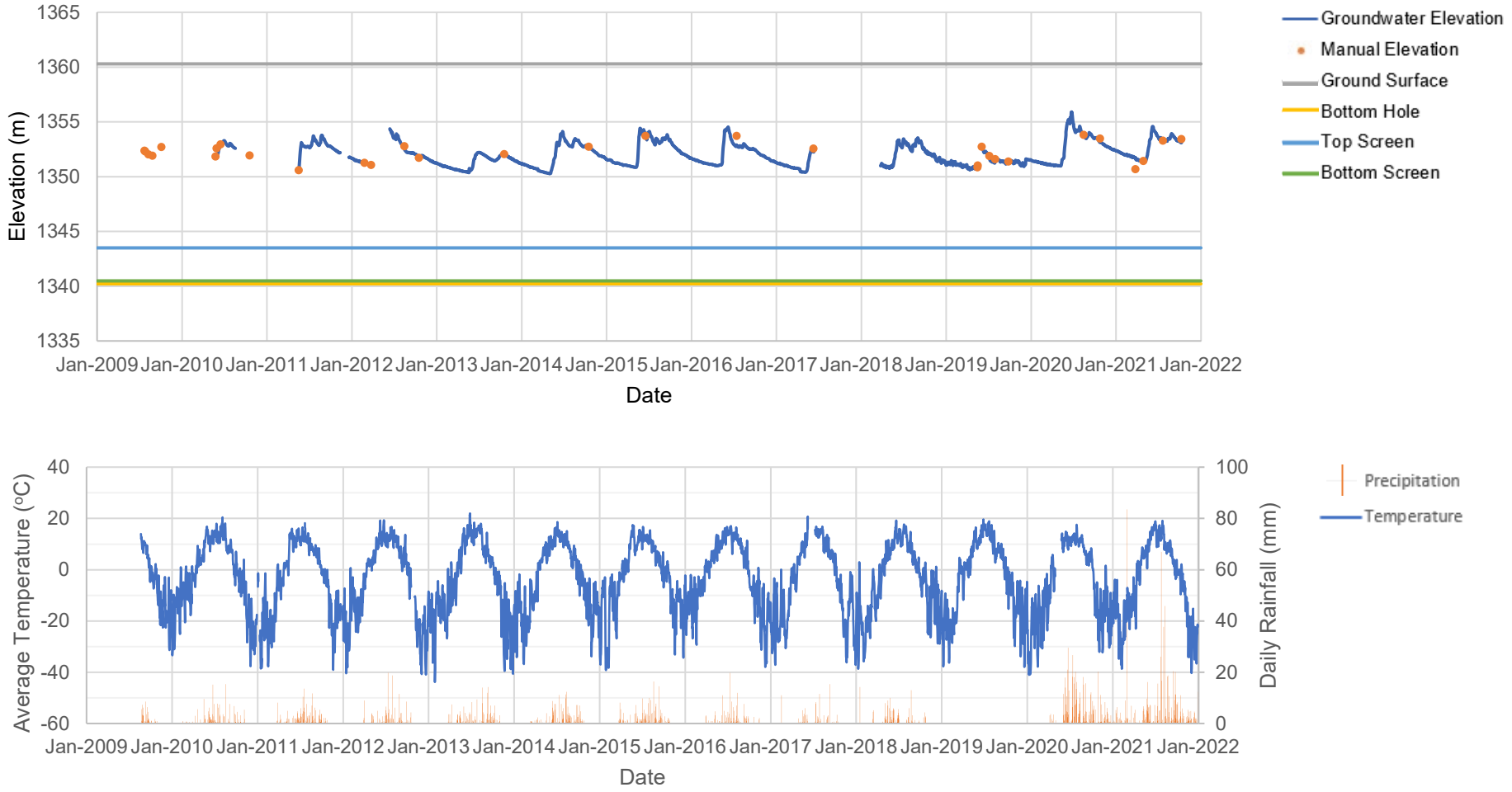
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON SEPTEMBER 26, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW95-151 WAS MISLABELLED AS MW96-15. LOCATION NAME CONFIRMED BY STEPHEN WILBUR (VGC) (EMAIL, FEBRUARY 25, 2020).

PREPARED BY: AK	FIGURE TITLE: MW95-151 GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 20

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BGC ENGINEERING INC.

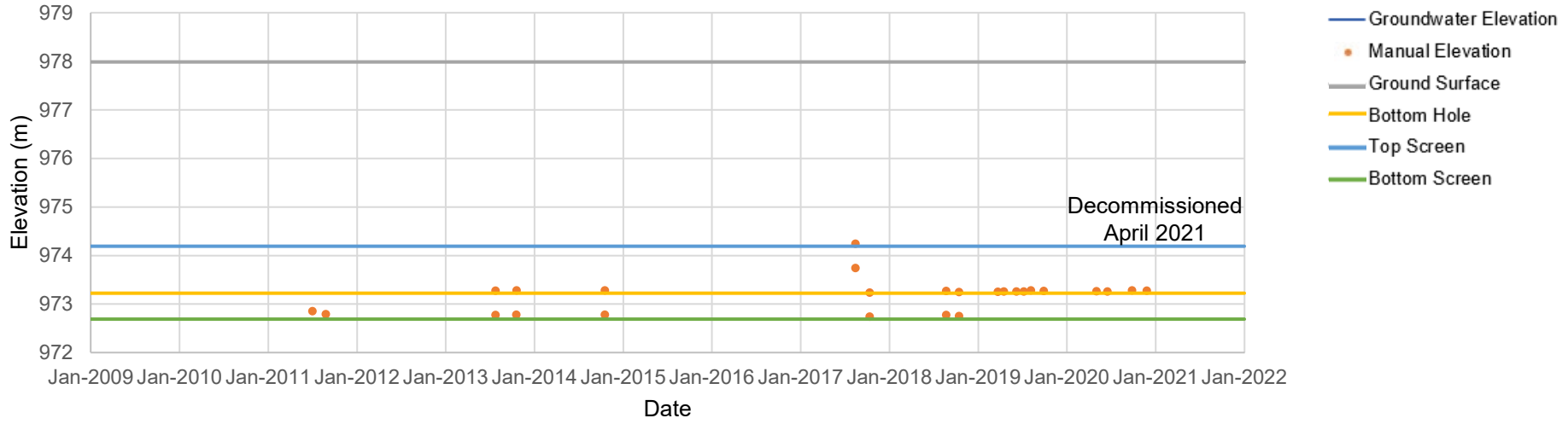


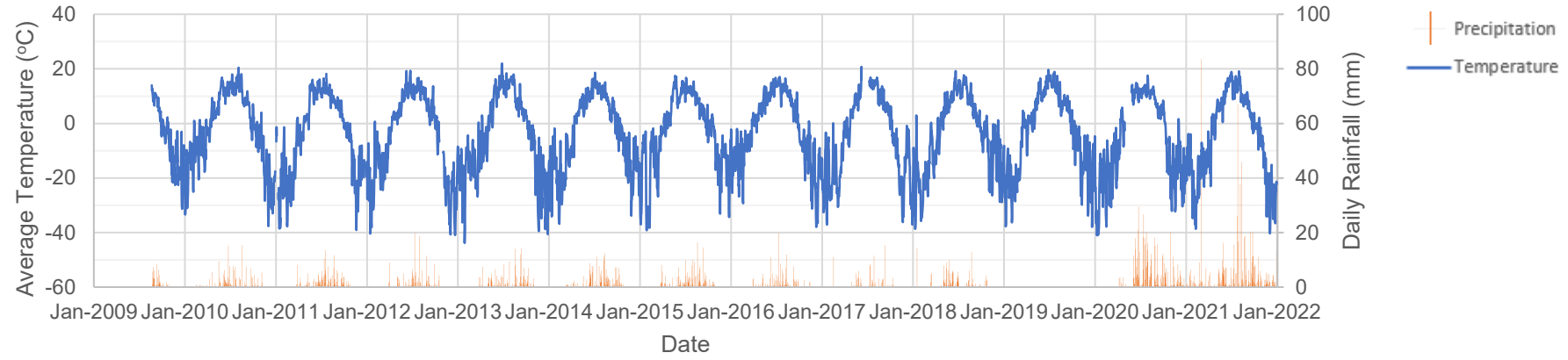
Notes:
1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON AUGUST 15, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.

PREPARED BY:	FIGURE TITLE		
AK	MW96-9B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	21

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BGC ENGINEERING INC.





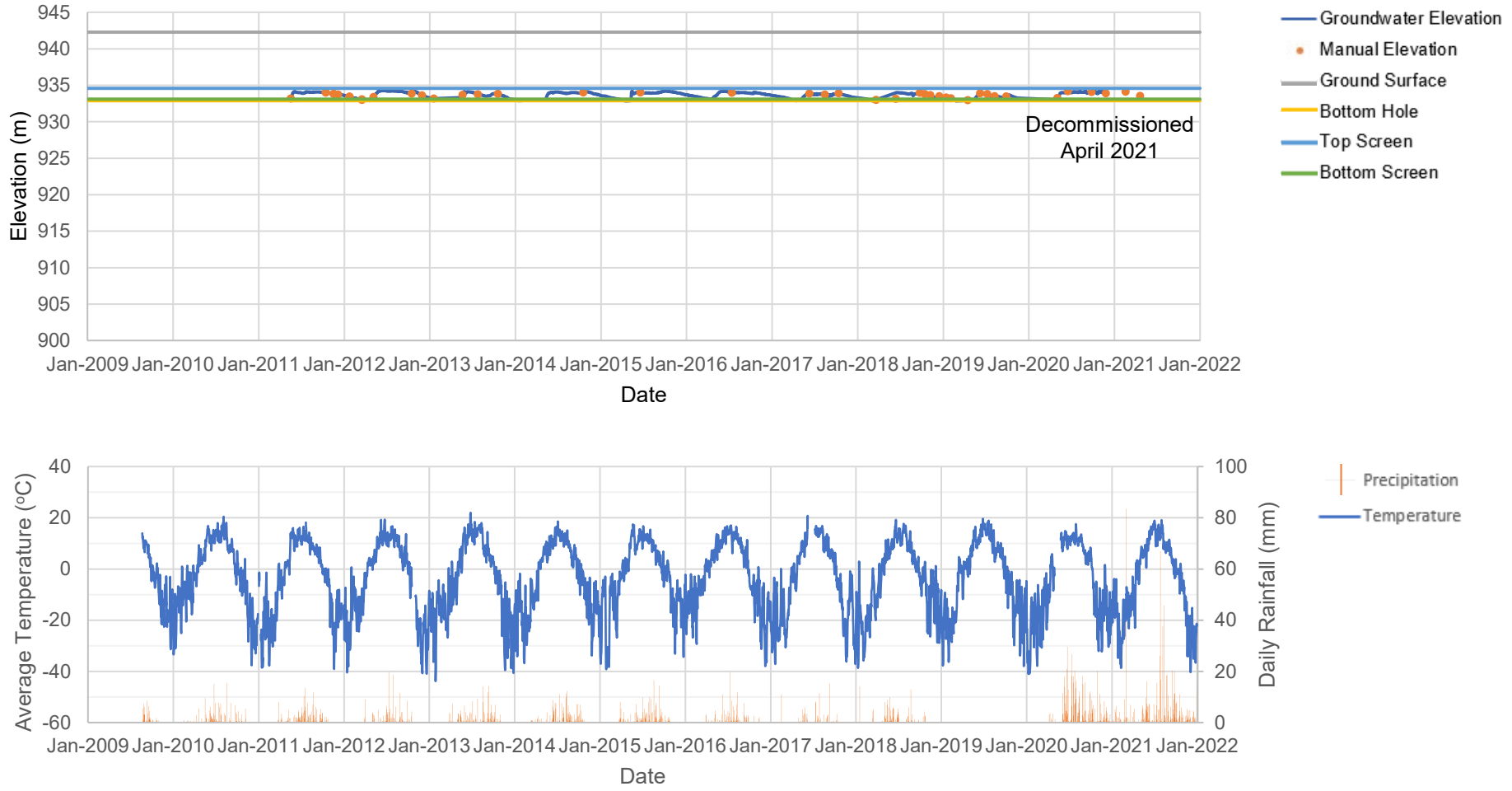
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON SEPTEMBER 26, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. LABELS FOR MW96-14A AND MW96-14B WERE REVERSED.
5. MW96-14A WAS REPORTED AS BROKEN IN APRIL 2021, AND WAS DECOMISSIONED APRIL 30, 2021.

PREPARED BY: AK	FIGURE TITLE: MW96-14A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 22

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BGC ENGINEERING INC.



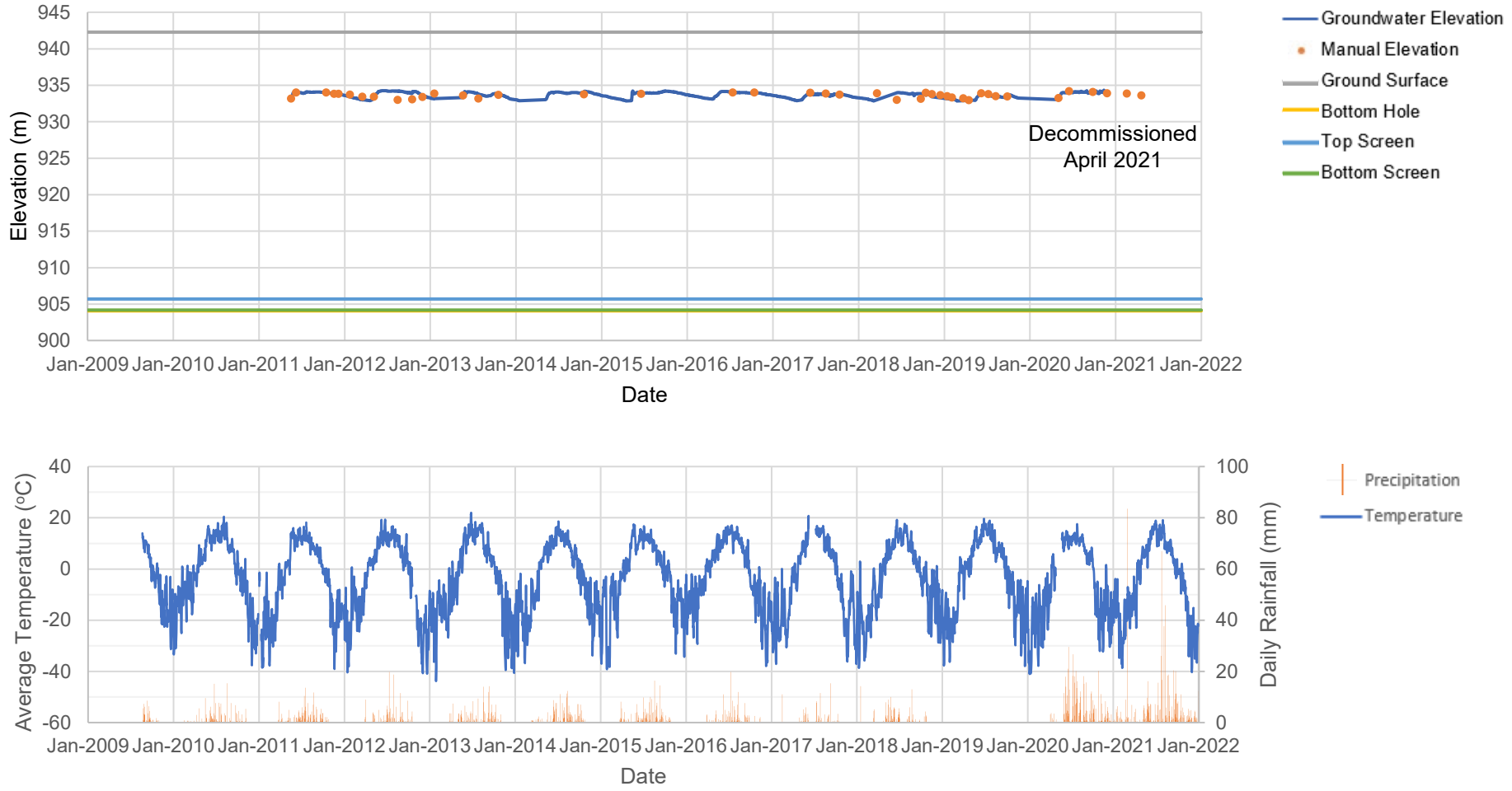
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON MAY 3, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW95-15A WAS MISLABELLED AS MW96-13B. LOCATION NAME CONFIRMED BY STEPHEN WILBUR (VGC) (EMAIL, FEBRUARY 25, 2020).
5. MW96-15A IS A NESTED MONITORING LOCATION WITH MW96-15B.
6. MW96-15A WAS DECOMISSIONED ON APRIL 30, 2021.

PREPARED BY: AK	FIGURE TITLE: MW96-15A GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORP.		
APPROVED BY: AK	SCALE: AS-SHOWN	PROJECT NO: 0792030	FIGURE NO: 23

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BGC ENGINEERING INC.



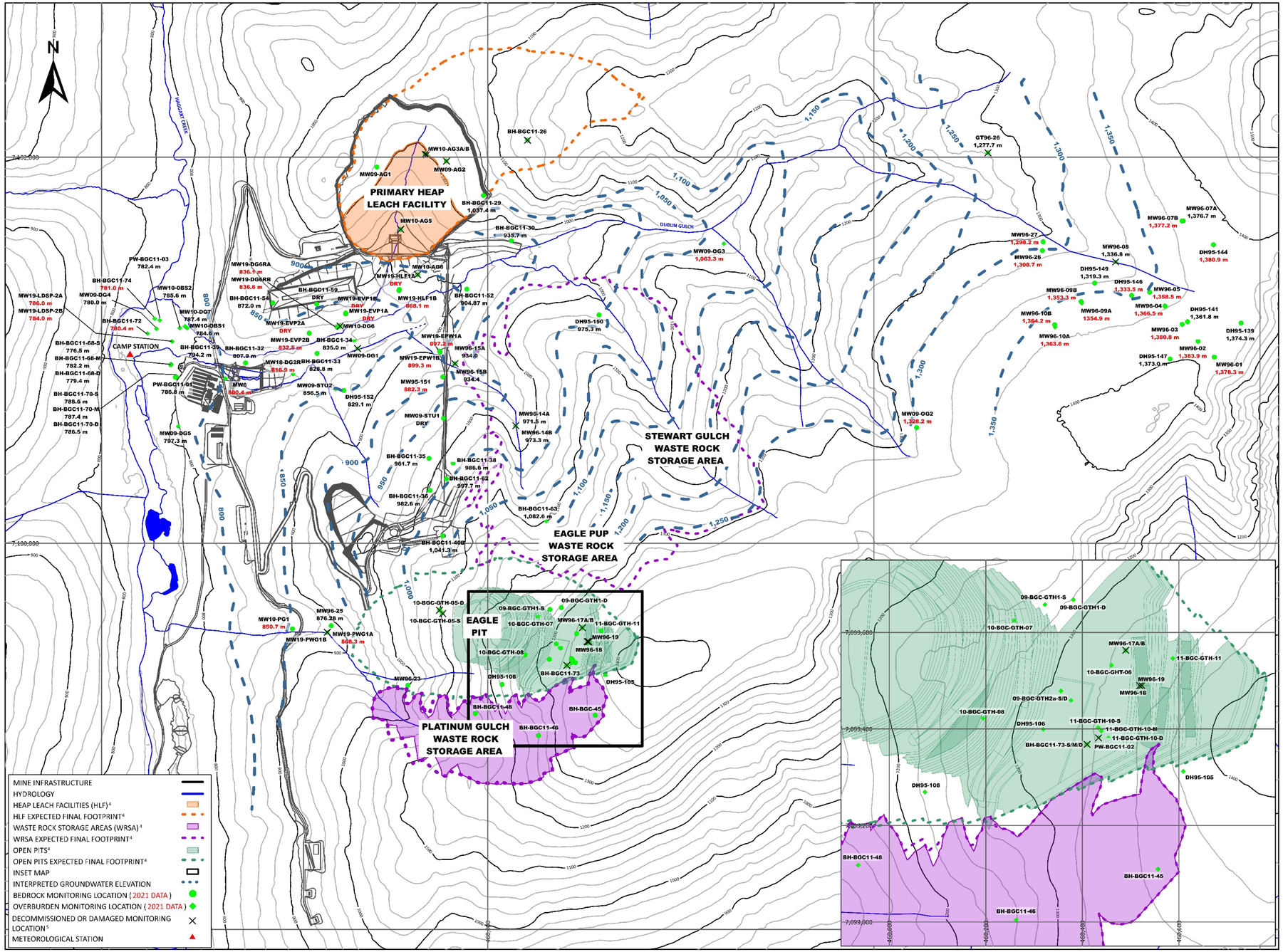
Notes:

1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER TITLED EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA), AND DATED MARCH 24, 2022.
2. 2019 PRECIPITATION DATA NOT AVAILABLE DUE TO DATALOGGER MALFUNCTION. CLIMATE DATA FROM CAMP STATION (SEE FIGURE 25).
3. BOTTOM OF HOLE DEPTH MEASURED BY VICTORIA GOLD FIELD STAFF ON MAY 3, 2020. BOTTOM OF SCREEN DEPTH BASED ON AVAILABLE BOREHOLE LOGS. LOCATIONS WHERE THE BOTTOM OF SCREEN IS BELOW THE MEASURED BOTTOM OF HOLE MAY INDICATE INFILLING WITH SEDIMENTS, OR MODIFICATIONS TO THE WELL STICKUP THAT BGC IS NOT AWARE OF.
4. MW96-15B IS A NESTED MONITORING LOCATION WITH MW96-15A.
5. MW95-15B WAS MISLABELLED AS MW96-13A. LOCATION NAME CONFIRMED BY STEPHEN WILBUR (VGC) (EMAIL, FEBRUARY 25, 2020).
6. MW96-15B WAS DECOMISSIONED ON APRIL 30, 2021.

PREPARED BY:	FIGURE TITLE		
AK	MW96-15B GROUNDWATER ELEVATION AND METEOROLOGICAL DATA		
CHECKED BY:	CLIENT:		
TC	VICTORIA GOLD CORP.		
APPROVED BY:	SCALE:	PROJECT NO:	FIGURE NO:
AK	AS-SHOWN	0792030	24

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BGC ENGINEERING INC.



1. THIS FIGURE SHOULD BE READ IN CONJUNCTION WITH BGC'S LETTER MEMO TITLED "EAGLE GOLD MINE HYDROGRAPH UPDATE (2021 DATA)", AND DATED MARCH 24, 2022.
2. COORDINATE SYSTEM IS NAD 1983 UTM ZONE 8N. VERTICAL DATUM IS CGVD 1928.
3. TOPOGRAPHIC DATASET PROVIDED BY VICTORIA GOLD CORPORATION APRIL 9, 2020. CONTOUR INTERVAL IS 25 m.
4. CURRENT MINE FOOTPRINTS AND EXPECTED FINAL FOOTPRINTS PROVIDED BY VICTORIA GOLD CORPORATION (APRIL 9, 2020; NOVEMBER 2, 2020).
5. LOCATIONS NOTED BY VICTORIA GOLD CORPORATION AS DECOMMISSIONED OR DAMAGED.
6. GROUNDWATER LEVEL DATA SHOWN, BASED ON DATA COLLECTED IN JULY 2021 ALONG WITH HISTORICAL OBSERVATIONS. GROUNDWATER ELEVATION CONTOUR INTERVAL IS 50 m.

PREPARED BY: AK	FIGURE TITLE: GROUNDWATER LEVEL DATA AND INTERPRETED GROUNDWATER ELEVATION CONTOURS		
CHECKED BY: TC	CLIENT: VICTORIA GOLD CORPORATION		
APPROVED BY: AK	SCALE: AS SHOWN	PROJECT NO: 0792-030	FIGURE NO: 25

0 5 10 mm in ANSI D sized paper

APPENDIX I

Aquatic Monitoring and EEM Summary

minnow
environmental inc.
A Trinity Consultants Company
2 Lamb Street
Georgetown, Ontario
L7G 3M9
Tel: (905) 873-3371
Fax: (905) 873-6370

March 29, 2022

Bill Bowden
Environmental Coordinator
Victoria Gold Corporation
Suite 1000-1050 West Pender Street
Vancouver, BC
V6E 3S7

Re: Summary of Stream Sediment, Benthic Invertebrate Community, and Fish Sampling from the Phase 1 EEM for Inclusion in the Eagle Gold Project 2021 Annual Report

The Eagle Gold Project, operated by Victoria Gold Corporation (VGCX), became subject to the Metal and Diamond Mining Effluent Regulations (MDMER) under the Canadian *Fisheries Act* on April 20th, 2019, due to the discharge of mine contact water into Haggart Creek. The MDMER requires mines to monitor for potential effluent-related effects on benthic invertebrate communities and fish populations as part of Environmental Effects Monitoring (EEM) studies. Minnow Environmental Inc. (Minnow) completed benthic invertebrate community sampling from September 1st to 2nd, 2021, lethal fish sampling for slimy sculpin (*Cottus cognatus*) from May 20th to 24th, 2021, and non-lethal sampling of arctic grayling (*Thymallus arcticus*) from September 3rd to 5th, 2021. The EEM work was conducted in accordance with a study design (including addendum; Minnow 2021a,b) approved by Environment and Climate Change Canada (ECCC) as per MDMER requirements and in accordance with the VGCX Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP) for the Eagle Gold Project. The EMSAMP monitoring scope, methods, and frequencies follow the approved EEM study design. This document provides a summary of the EEM sampling and results regarding sediment, benthic invertebrate, and fish community in 2021 and will be included within the 2021 Eagle Gold Project Annual Report as an appendix.

Stream Sediment

Stream sediment monitoring at the Project site was not conducted in 2021 as this sampling was not a requirement under the ECCC-approved EEM study design developed to meet federal MDMER sampling conditions (Minnow 2020; VGCX 2020). The rationale for exclusion of stream sediment sampling for EEM purposes included that the Haggart Creek study area contains very

limited depositional habitat suitable for deposit of fine sediments, being primarily composed of small cobble and gravel. The general absence of any substantial accumulation of fine sediments in Haggart Creek was deemed to preclude meaningful assessment of potential mine-related influences on sediment chemistry within, along and/or between watercourses based on discussion with ECCC. In addition, the applicability of stream sediment chemistry monitoring to the interpretation of benthic invertebrate community data was discussed with ECCC to be minimal given the facts that fine sediment composes much less than 5% of available substrate. Benthic invertebrate samples would not be collected at the same location that fine sediments would be collected (i.e., benthic invertebrate samples were collected from erosional habitat where fine sediments do not accumulate), and the less than 63 um fraction of sediment that is traditionally analyzed at the analytical laboratory for the metal concentrations in sediment are not representative of whole sediment and thus overly conservative. Since fish species inhabiting lotic environments of the area (i.e., slimy sculpin and arctic grayling) largely rely on benthic invertebrates as a food source, the applicability of stream sediment monitoring data to understanding effects on fish was also considered minimal for EEM purposes. Therefore, the inclusion of stream sediment monitoring as part of the Eagle Gold Project EEM study and Project aquatic monitoring was deemed not scientifically meaningful, and thus was not included in the 2021 aquatic environment monitoring.

Benthic Macroinvertebrates

Benthic invertebrate community sampling was conducted in September 2021 to meet the EEM requirement to assess potential impacts of mine effluent on food resources for fish. The benthic invertebrate community (benthic) study was conducted in accordance with the ECCC-approved study design for the purpose of meeting the MDMER requirements (Minnow 2020, VGCX 2020). The design of the benthic study included sampling at Haggart Creek downstream of the Ditch C confluence (Station W29-01 to W29-05) as the effluent-exposed area, and Haggart Creek upstream the Dublin Gulch confluence (Station W22-01 to W22-05) as the reference area (Figure 1). Benthic sampling was conducted using a Hess sampler, with a total of 5 samples collected from each of the station areas to ensure adequate statistical power to meet ECCC expectations based on a control-impact study approach. Benthic invertebrate communities were evaluated using EEM primary metrics of density, richness, Simpson's Evenness Index, and the Bray-Curtis Index of Dissimilarity as required by the MDMER, as well as additional comparisons involving relative abundance of dominant/indicator groups, functional feeding groups, and habit preference groups to augment interpretation of effects. The analysis of benthic data was based on recognized statistical approaches to evaluate differences between the effluent-exposed and reference areas of Haggart Creek in 2021. The design also incorporated use of critical effect sizes (CES) presented in the MDMER (i.e., ±2 SD_{REF}) to further evaluate whether the degree of any

differing benthic metrics between the effluent-exposed and reference areas was ecologically meaningful.

Interpretation of the 2021 benthic invertebrate community data indicated significantly lower benthic invertebrate density downstream of potential effluent discharge in Haggart Creek compared to upstream, however no significant difference in species richness was indicated between these study areas (Table 1). Significantly higher evenness was indicated at Station W29 compared to upstream of the mine in Haggart Creek at Station W22, but because higher evenness indicates more equitable distribution of individuals across taxa present at a station, the difference in evenness between the effluent-exposed and reference areas was not consistent with an adverse effluent-related effect (Table 1). Bray-Curtis index was significantly different between the Haggart Creek study areas suggesting differences in benthic invertebrate community structure. However, the relative abundance of metal-sensitive Ephemeroptera (mayflies) did not differ significantly between the effluent-exposed and reference area indicating that the differences in community structure were unrelated to differing metals exposure potentially related to the mine effluent discharge (Table 1). Rather, a significantly lower relative abundance of metal-tolerant Oligochaeta at the effluent-exposed area compared to the reference area of Haggart Creek was a key difference in community structure between areas in 2021 (Table 1). Since Oligochaeta predominantly have a burrowing habit and preferentially inhabit finer substrate, the differences in community structure potentially reflected slightly differing habitat between study areas. Benthic invertebrate density at both areas in Haggart Creek was lower in 2021 than in previous studies conducted in 2007 and 2018, but richness and relative abundance of metal-sensitive Ephemeroptera at each area were similar between 2021 and 2007 suggesting that benthic invertebrate community structure has not changed substantially between post- and pre-mine operations. Overall, based on available weight of evidence, no adverse mine-related influences on benthic invertebrates were indicated at Haggart Creek in 2021.

Fish Population (Health)

Fish population (health) sampling was conducted in May 2021 and again in September 2021 to meet the EEM requirement to assess potential impacts of mine effluent on fish health. The fish health study was conducted in accordance with the ECCC-approved study design for the purpose of meeting the MDMER requirements (Minnow 2020, VGCX 2020). The design of the fish health study included sampling at Haggart Creek downstream of the Ditch C confluence (spanning the area between Station W4 and W29) as the effluent-exposed area, and lower Lynx Creek (Station L1) serving as the reference area (Figure 1). Similar to historical studies, fish sampling was conducted using a combination of backpack electrofishing, seine netting, and minnow trapping. The EEM fish health survey employed a control-impact lethal design targeting

slimy sculpin (*Cottus cognatus*) and a control-impact non-lethal design targeting arctic grayling (*Thymallus arcticus*). The original study design called for one field study in May 2021, but because of physical (safety-related) challenges related to high flow and low catch of the selected fish species, a second field study was conducted in September 2021 to meet requirements for the arctic grayling non-lethal study. Measurements and observations collected from individual fish were in accordance with those recommended for the EEM program to evaluate health endpoints related to survival (age and age structure), energy use (growth and reproduction), and energy storage (condition and relative liver size) as applicable to lethal and non-lethal designs. The analysis of fish health data was based on recognized statistical approaches to evaluate differences between the effluent-exposed areas of Haggart Creek and the Lynx Creek reference area in 2021. The design also incorporated use of critical effect sizes (CES) presented in the MDMER to further evaluate whether the degree of any differing fish health endpoints between the effluent-exposed and reference areas were ecologically meaningful.

Fish species captured during the May and September field studies in 2021 generally conformed to the same species and relative numbers reported previously at each of Haggart and Lynx creeks considering electrofishing methods and time of year (Table 2). Specifically, slimy sculpin were present in greatest abundance at each creek, followed by arctic grayling in 2021 as in studies conducted in the years prior to the mine becoming operational (Table 2). Adult slimy sculpin were used as the primary basis for evaluation of effects of mine effluent exposure on fish of Haggart Creek. Sample sizes for adult male and female slimy sculpin were small during the spring (May) survey (Table 2), but nevertheless indicated that adult slimy sculpin at Haggart Creek showed no significant differences in age or age structure, growth, relative number and size of eggs produced (females), and relative liver size compared to those at Lynx Creek (Table 3). Significantly lower relative gonad weight (males and females) and condition (males) were shown in slimy sculpin from Haggart Creek compared to the reference creek (Table 3). The difference in relative gonad weights was believed to reflect later development in fish at Haggart Creek due to naturally cooler water temperatures compared to lower Lynx Creek, which would be expected to result in slightly later on-set of reproductive development (and hence lower gonad weight) at Haggart Creek than Lynx Creek. Although greater number of arctic grayling were captured at Haggart Creek than Lynx Creek (Table 4), the few adult arctic grayling captured at Lynx Creek were considerably larger than fish collected at Haggart Creek which partly confounded the analyses. Nevertheless, the statistical analysis indicated no ecologically significant differences in condition of arctic grayling between Haggart Creek and Lynx Creek in 2021 (Table 5). Thus, based on available weight of evidence, no adverse mine-related influences on fish health were indicated at Haggart Creek in 2021.

I hope and trust this letter effectively summarizes the 2021 EEM sampling program. If you have any comments or questions you would like to discuss, please do not hesitate to let me know.

Sincerely,

Minnow Environmental Inc.



Lisa Bowron, M.Sc., R.P. Bio.

Aquatic Scientist

cc: Paul LePage, M.Sc., Senior Aquatic Biologist

References

Minnow (Minnow Environmental Inc.). 2020. Eagle Gold Mine Phase 1 Environmental Effects Monitoring Study Design. Prepared for Victoria Gold (Yukon) Corp, April 2020.

Minnow. 2021a. Amendment to Minnow's Proposal to Complete the Eagle Gold Project Phase 1 EEM Implementation. Prepared for Victoria Gold Corporation, March 2021.

Minnow. 2021b. Proposal for the Eagle Gold Project Phase 1 EEM Implementation. Prepared for Victoria Gold Corporation, February 2021.

VGCX (Victoria Gold Corp.). 2020. Eagle Gold Mine Phase 1 EEM Study Design Addendum. Letter addressed to Ms. Myra Page (ECCC) dated December 1, 2020.

FIGURES

458,000
460,000
7,102,000
7,100,000
7,098,000
7,096,000

W22-05
W22-04
W22-03
W22-02
W22-01
W22
Fisher Gulch
Dublin Gulch
Ditch C
Gil Gulch
Effluent-exposed
Fish Population
Study Area
W29-05
W29-04
W29-03
W29-02
W29-01
EAGLE
GOLD
PROJECT
15 Pup
Haggart Creek
Lynx Creek
Reference Fish Population
Study Area

LEGEND

- Water Monitoring Station
- **Benthic Stations**
  - Reference
  - Exposed
- **Fish Population Study Area**
  - Effluent-exposed
  - Reference
- Collection Ditch
- Collection Ditch and Pipeline
- Pipeline
- Mine Infrastructure

Benthic and Fish Population Study Areas for the Phase 1 EEM Biological Study

0 0.35 0.7 1.4
km

N
W E
S

Projection: North American Datum 1983 UTM Zone 8V, 8W
Reproduced under licence from Her Majesty the Queen in Right of Canada, Department of Natural Resources Canada.

Date: March 2022
Project 217202.0046

minnow environmental inc.
A Trinity Consultants Company

Figure 1

Document Path: C:\Users\capol\Trinity Consultants, Inc\Victoria Gold - 217202.0046 - Phase 1 EEM Implementation\b - GIS\21-46 Figure 1 Proposed Benthic and Fish Population Study Areas.mxd

TABLES

Table 1: Spatial Comparisons for Benthic Invertebrate Community Metrics Collected at Reference (W22) and Exposed Areas (W29) of Haggart Creek, Eagle Gold Phase 1 EEM, September 2021

Metrics	Statistically Signifcant Differences Observed?[a]	Areas	Statistical Summary		
			N	Mean	Standard Devitation
Density (ind/m²)	**Yes (-2.1%)**	W22	5	1,864	365
		W29	5	1,088	187
Richness (# of Families)	No	W22	5	18.8	2.49
		W29	5	18.4	1.14
Family Simpson's Eveness	**Yes (+5.0%)**	W22	5	0.234	0.0348
		W29	5	0.409	0.0910
% EPT	**Yes (+1.2%)**	W22	5	40.3	7.21
		W29	5	49.7	5.62
% Ephemeroptera	No	W22	5	17.7	5.21
		W29	5	17.4	6.01
% Plecoptera	No	W22	5	19.3	2.85
		W29	5	25.0	7.21
% Trichoptera	**Yes (+5.0%)**	W22	5	3.34	0.798
		W29	5	7.31	1.28
% Acari	**Yes (+3.3%)**	W22	5	0.954	0.504
		W29	5	6.55	6.19
% Chironomidae	**Yes (+4.3%)**	W22	5	1.13	0.426
		W29	5	7.12	4.40
% Metal Sensitive Chironomidae	No	W22	5	0.323	0.355
		W29	5	1.49	2.01
% Oligochaeta	**Yes (-3.0%)**	W22	5	50.6	8.31
		W29	5	25.8	11.3
% Shredder	**Yes (+3.3%)**	W22	5	16.4	1.94
		W29	5	24.7	7.46
% Filterer	**Yes (-3.3%)**	W22	5	50.1	7.46
		W29	5	25.8	11.3
% Collector-Gatherer	No	W22	5	17.3	5.59
		W29	5	21.2	4.28
% Clinger	No	W22	5	34.4	8.65
		W29	5	25.8	6.12
% Sprawler	**Yes (12%)**	W22	5	5.72	1.83
		W29	5	26.7	8.79
% Burrower	**Yes (-3.6%)**	W22	5	51.8	6.52
		W29	5	28.6	11.3

Note: Bolded values are signficantly different compared to reference areas.

[a] Significant difference indication (yes/no) is presented with the magnitude of difference compared to the reference area (in parentheses).

Table 2: Fish Catch and Community Summary from Backpack Electrofishing, Seine Netting, and Minnow Trapping Conducted at Haggart Creek and Lynx Creek, Eagle Gold Project Phase 1 EEM, May 2021

Station	Capture Method		Catch	Total No. of Species
			Slimy Sculpin	
Lynx Creek (Reference)	Minnow Trapping	No. Caught	23	1
		CPUE	0.616	
	Electrofishing	No. Caught	15	1
		CPUE	0.0222	
Haggart Creek (Exposed)	Minnow Trapping	No. Caught	1	1
		CPUE	0.095	
	Seine Net	No. Caught	0	0
		CPUE	0.000	
	Electrofishing	No. Caught	78	1
		CPUE	0.0380	

Table 3: Summary of Slimy Sculpin Endpoint Statistical Comparison Results between Haggart Creek Effluent-Exposed and Lynx Creek Reference Study Areas, Eagle Gold Project Phase 1 EEM, May 2021

Endpoint[a]	Statistically Significant Differences Observed?[b]	
	Males	Females
Survival (Age)*	No	No
Survival (Age Frequency Distribution)*	No	No
Growth (Body Weight-at-age)*	No[c]	No
Reproduction (Gonad Weight-at-body weight)*	No	**Yes[d] (-1.7%/-28%)**
Reproduction (Fecundity-at-body weight)	n/a	No
Reproduction (Egg Size)	n/a	**Yes (-22%)**
Energy Storage (Liver weight-at-body weight)*	No	No
Energy Storage (Body weight-at-length)*	**Yes (-8.7%)**	No

Notes: Bolded values are signficantly different compared to reference areas; n/a = analysis not conducted.

[a] Endpoints denoted with an asterisk represent primary EEM endpoints used for the determination of "effects" for a lethal fish population study.

[b] Significant difference indication (yes/no) is presented with the magnitude of difference compared to the reference area (in parentheses).

[c] The covariate was non-signficant and a t-test was conducted just on body weight.

[d] There was an interaction between slopes so analysis was conducted on the lower/higher end of the slope. Both magnitude of differences were presented.

Table 4: Fish Catch and Community Summary from Backpack Electrofishing Conducted at Haggart Creek and Lynx Creek, Eagle Gold Project Phase 1 EEM, September 2021

Station	Capture Method		Catch		Total by Method	Total No. of Species
			Slimy Sculpin	Arctic Grayling		
Lynx Creek (Reference)	Electrofishing	No. Caught	254	42	296	2
		CPUE	0.0243	0.00441	0.0287	
Haggart Creek (Exposed)	Electrofishing	No. Caught	31	103	296	2
		CPUE	0.00400	0.0133	0.0287	

Table 5: Summary of Arctic Grayling Endpoint Statistical Comparison Results between Haggart Creek Effluent-Exposed and Lynx Creek Reference Study Areas, Eagle Gold Project Phase 1 EEM, September 2021

Endpoint[a]	Age	Statistically Significant Differences Observed?[b]
Survival/Recruitment (Length Frequency Distribution)*	Non-YOY	**Yes**
Energy Storage (Body weight-at-length)*	Non-YOY	No
Energy Storage (Body weight-at-length)	All	**Yes[c] (-7.0%)**
Energy Storage (Body weight-at-length)	YOY	**Yes[c] (-3.5%)**
Growth (Fork Length)*	YOY	**Yes (+2.8%)**
Growth (Body Weight)*	YOY	No

Note: Bolded values are signficantly different compared to reference areas.

[a] Endpoints denoted with an asterisk represent primary EEM endpoints used for the determination of "effects" for a lethal fish population study.

[b] Significant difference indication (yes/no) is presented with the magnitude of difference compared to the reference area (in parentheses).

[c] Sample REF-AG-15 was determined to be an outlier and removed from analysis.

APPENDIX J

Eagle Gold Mine - Annual Effluent Monitoring Report

Government of Canada / Gouvernement du Canada

Canada

Eagle Gold Mine - Annual effluent monitoring report - Version 1 - 2021

Report details

Facility name	Eagle Gold Mine
Reporting period	2021
Version	1
Status	Submitted
Last modified	2022/03/29 01:05 (PDT)
Submission date	2022/03/30 22:53 (PDT)

Parent company

Parent company	Physical address
StrataGold Corporation	1000, 1050 West Pender, Street, Vancouver, British Columbia, V6E 3S7, Canada

History

Status	Version	Last modified	Submission date
Submitted	1	2022/03/29 01:05 (PDT)	2022/03/30 22:53 (PDT)

Identifying information

Reporting period	**2021**
Facility name	**Eagle Gold Mine**
Facility physical address	
Operator name (required)	StrataGold Corporation
Operator telephone number	
Operator extension	
Operator e-mail address	

Note	Date	User name
No data available		

Test results

Final discharge point **LDSP**

Final discharge point latitude **64.15639**

Final discharge point longitude **-135.50460**

Monthly mean concentrations, pH and volume of effluent

Month	As (mg/L)	Cu (mg/L)	CN (mg/L)	Pb (mg/L)	Ni (mg/L)	Zn (mg/L)	TSS (mg/L)	Ra-226 (Bq/L)	NH_3 [1] (mg/L expressed as nitrogen (N))	Lowest pH	Highest pH	Effluent volume (m^3)
Jan	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Feb	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Mar	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Apr	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
May	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Jun	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Jul	0.0276	0.0021	0.0025	0.0005	0.0016	0.0015	4.7	0.0038	0.0011	8.27	8.31	80933
Aug	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Sep	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Oct	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Nov	0.052	0.0016	0.0025	0.0011	0.0015	0.0015	8.4	0.0034	0.0001	7.84	7.96	87535
Dec	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP

[1]Note: The monthly mean concentration for un-ionized ammonia is calculated for collection dates as of June 1st, 2021.

Results of acute lethality tests

Date sample collected	Results for rainbow trout acute lethality tests (mean percentage mortality in 100% effluent test concentration)	Results for *Daphnia magna* monitoring / acute lethality tests (mean percentage mortality in 100% effluent test concentration)	Results for threespine stickleback acute lethality tests (mean percentage mortality in 100% effluent test concentration)
2021/07/12 09:50	0%	0%	
2021/11/12 20:30	0%	0%	

If effluent was non-compliant with the authorized limits set out in Schedule 4, or if the pH was less than 6.0 or greater than 9.5, or if effluent

was determined to be acutely lethal, indicate the cause(s) of non-compliance and remedial measures that are planned or have been implemented.

Non-compliance information

Test results

Final discharge point **FDP5**

Final discharge point latitude **64.03333**

Final discharge point longitude **-135.83583**

Monthly mean concentrations, pH and volume of effluent

Month	As (mg/L)	Cu (mg/L)	CN (mg/L)	Pb (mg/L)	Ni (mg/L)	Zn (mg/L)	TSS (mg/L)	Ra-226 (Bq/L)	NH_3 [1] (mg/L expressed as nitrogen (N))	Lowest pH	Highest pH	Effluent volume (m^3)
Jan	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Feb	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Mar	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Apr	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
May	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Jun	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Jul	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Aug	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Sep	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Oct	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Nov	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP
Dec	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP	NDEP

[1]Note: The monthly mean concentration for un-ionized ammonia is calculated for collection dates as of June 1st, 2021.

Results of acute lethality tests

Date sample collected	Results for rainbow trout acute lethality tests (mean percentage mortality in 100% effluent test concentration)	Results for *Daphnia magna* monitoring / acute lethality tests (mean percentage mortality in 100% effluent test concentration)	Results for threespine stickleback acute lethality tests (mean percentage mortality in 100% effluent test concentration)
No data available			

If effluent was non-compliant with the authorized limits set out in Schedule 4, or if the pH was less than 6.0 or greater than 9.5, or if effluent was determined to be acutely lethal, indicate the cause(s) of non-compliance and remedial measures that are planned or have been implemented.

Non-compliance information

APPENDIX K

Climate Station Annual Maintenance Report

On-Site Field Check List
Internal Use

Station Name:	Potato Hills			
Customer:	Victoria Gold Corp.		**Contact:**	Bill Bowden
Contact Information:	**Phone:**	867-456-7700 x.6381	**Cell:**	867-332-5784
	Email:	bbowden@vgcx.com		

CSC Technician(s):	Mario Pagaduan			
	Date(s) On Site		**Type of Work**	
	09/11/2021	To	Preventative Maintenance	
Current Weather Conditions:	Overcast, Light Rain, Feels like 5DegC			
Station Type: (e.g. Solar, Met, RWIS, Precip)	Meteorological Station		**CSC QDP System:**	☐Yes ☑ No
Site Location: (e.g. City, Province, Hwy, Mine site name)	Elsa, Yukon- Eagle Gold Project-Victoria Gold Corp.			
Site GPS Co-ordinates	**Lat:** 64.0257168		**Long:** -135.8346643	

Station On-Site Checklist	
☑Yes ☐ No ☐NA	Complete FLHA form prior to starting any work on-site
☑Yes ☐ No ☐NA	Pre-maintenance site pictures taken as required (e.g. document site condition)
☑Yes ☐ No ☐NA	Establish direct connection to datalogger, and collect/save pre-maintenance data
☑Yes ☐ No ☐NA	Save station program and datalogger/device settings (as required)
☑Yes ☐ No ☐NA	Complete visual inspection of sensor hardware, mounts and cable condition
☑Yes ☐ No ☐NA	Complete on-site calibration/maintenance of station equipment (where applicable)
☑Yes ☐ No ☐NA	Remove existing equipment for factory calibration/maintenance
☑Yes ☐ No ☐NA	Re-level sensors/mounts as required
☑Yes ☐ No ☐NA	Cleaned sensors/hardware as required
☑Yes ☐ No ☐NA	Sensor cables zip tied with dew loops, and coiled/secured neatly
☑Yes ☐ No ☐NA	Confirm battery functionality with load test
☑Yes ☐ No ☐NA	Confirm station properly grounded
☑Yes ☐ No ☐NA	Replace enclosure desiccant with new packs (if required)
☐Yes ☐ No ☑NA	Replace enclosure humidity indicator card (if required)
☐Yes ☐ No ☑NA	Replace enclosure port putty as required and ensure port properly sealed
☐Yes ☐ No ☑NA	Upload revised station program and/or datalogger/device settings (if applicable)
☑Yes ☐ No ☐NA	Collect and save post install/maintenance data (includes Status and Public tables)
☑Yes ☐ No ☐NA	Review post collected data and confirm valid sensor outputs (No NAN, INF, etc..)
☑Yes ☐ No ☐NA	Review Status table for skipped scans, watchdog errors, lithium batt voltage, etc..
☑Yes ☐ No ☐NA	Confirm direct and remote connection to datalogger (if applicable)
☑Yes ☐ No ☐NA	Confirm station updated wiring diagram secured inside station enclosure
☑Yes ☐ No ☐NA	Post maintenance site pictures taken
☑Yes ☐ No ☐NA	Site cleaned of all garbage/debris, and any hazardous material properly disposed

CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

On-Site Field Check List
Internal Use

If checked No for any items, why:

Station Inventory List:

Model	Serial #	Type of Maintenance Completed*	Part(s) Replaced (If none, enter NA)	Values Verified with Reference Device
HMP155A (Air Temp/RH)	R5020629	Equipment Exchange – Removed Unit		**Y** ☑ **N** ☐ **NA** ☐
05103AP (Wind Monitor)	174816	Replaced Parts and Calibrated	Wind speed bearings	**Y** ☑ **N** ☐ **NA** ☐
CS106 (Baro)	S1250302	Equipment Exchange – Removed Unit		**Y** ☑ **N** ☐ **NA** ☐
HMP155A (Air Temp/RH)	P1621019	Equipment Exchange – Installed Unit		**Y** ☑ **N** ☐ **NA** ☐
CS106 (Baro)	T2520422	Equipment Exchange – Installed Unit		**Y** ☑ **N** ☐ **NA** ☐
CMP3 (Pyranometer)	208558	Functional Check Only		**Y** ☐ **N** ☐ **NA** ☑
SR50A (Snow Depth Sensor)	C17986	Equipment Exchange – Removed Unit	Transducer	**Y** ☐ **N** ☐ **NA** ☑
SR50A (Snow Depth Sensor)	C21645	Equipment Exchange – Installed Unit	Transducer	**Y** ☐ **N** ☐ **NA** ☑
T200B (Precipitation gauge)	24920	Functional Check Only		**Y** ☐ **N** ☐ **NA** ☑
Bullet-LTE (Cell modem)	012-129594	Functional Check Only		**Y** ☐ **N** ☐ **NA** ☐
				Y ☐ **N** ☐ **NA** ☐
				Y ☐ **N** ☐ **NA** ☐

*** Type of maintenance completed** (for hard copies please refer to and write in one of the following options below):

1. **Equipment Exchange – Removed Unit -** For existing sensors you've swapped out and require maint/cal
2. **Equipment Exchange – Installed Unit -** Replacement sensor installed**,** either a refurbished calibrated sensor/logger from CSC exchange inventory, or a client owned new replacement or used/calibrated spare
3. **Replaced Parts and Calibrated** – For equipment where parts can be replaced while on-site and can be calibrate with field calibration kit. Ex. 05103-10 wind monitor
4. **Replaced Parts Only** – For equipment where on-site calibration may not be required or may not be possible but includes parts that can be replaced while on-site. Ex. SR50A snow depth sensor
5. **Calibrated only** – For equipment where parts typically do not require replacement but can be calibrated while on site with a field calibration kit. Ex. TE525M tipping bucket rain gauge
6. **Functional Check Only** – For equipment that does not require maintenance, or where parts typically do not need to or cannot easily be replaced and cannot be calibrated while on-site. This equipment requires factory calibration Ex. CS106 BP sensor, CR1000 datalogger.
   Or if installing/commissioning/troubleshooting new or used equipment which does not require maintenance for the purpose of the trip.
7. **Not Applicable** – A serialized part that we want to record as inventory but does not have an operational function.

CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

On-Site Field Check List
Internal Use

Site Specific Notes: (ex. ladder to access sensors, need keys to access site, special required safety equipment, etc…)
Ladder to access 05103 sensor and SR50-A. Site is accessible only with Victoria Gold Environmental Deparment.

Datalogger/Power/Communications Notes:
Datalogger direct connection good. Modem remote connection is not working due to expired data subscription

Sensor/Cable Notes: (Note here general condition of cables – Excellent, Good, Fair or Poor) Comment on any specific cables that are cracking, cut and or have been repaired Make notes if any cracks or damage to sensors/sensor housings, and fixes, if does not affect functionality
Sensor in good condition. Cable in good condition

Tower/Tripod/Mount Notes: (ex. On tower – is winch rusted/in poor condition, is base loose, bolts rusted, etc.)
Mounting for all enclosure and sensors (05103-AP wind monitor, HMP155A, Solar Panel) were replaced with proper banding clamp.

Other Notes or Work Completed To Be Documented:
Cell modem SIM not working due to expired subscription but modem is good-tested with spare simcard. No remote connection active for this station-Only direct connect. Recharge solution for T200B prepared and ready for replacement when necessary.

On-Site Field Check List
Internal Use

Next Recommended Site Visit:
09/11/2022

Follow Up Action Items For Next Visit:
Wind direction bearings and potentiometer-possible replacement/calibration of 05103-AP. T200B empty calibration and recharge solution refill.

On-Site Field Check List
Internal Use

Station Name:	Camp Station			
Customer:	Victoria Gold Corp.		**Contact:**	Bill Bowden
Contact Information:	**Phone:**	867-456-7700 x.6381	**Cell:**	867-332-5784
	Email:	bbowden@vgcx.com		

CSC Technician(s):	Mario Pagaduan			
	Date(s) On Site		**Type of Work**	
	09/11/2021	To	Preventative Maintenance	
Current Weather Conditions:	Mostly Cloudy, Feels like 7 DegC			
Station Type: (e.g. Solar, Met, RWIS, Precip)	Meteorological Station		**CSC QDP System:**	☐Yes ☑ No
Site Location: (e.g. City, Province, Hwy, Mine site name)	Elsa, Yukon- Eagle Gold Project-Victoria Gold Corp.			
Site GPS Co-ordinates	**Lat:** 64.0257168		**Long:** -135.8346643	

Station On-Site Checklist	
☑Yes ☐ No ☐NA	Complete FLHA form prior to starting any work on-site
☑Yes ☐ No ☐NA	Pre-maintenance site pictures taken as required (e.g. document site condition)
☑Yes ☐ No ☐NA	Establish direct connection to datalogger, and collect/save pre-maintenance data
☑Yes ☐ No ☐NA	Save station program and datalogger/device settings (as required)
☑Yes ☐ No ☐NA	Complete visual inspection of sensor hardware, mounts and cable condition
☑Yes ☐ No ☐NA	Complete on-site calibration/maintenance of station equipment (where applicable)
☐Yes ☐ No ☑NA	Remove existing equipment for factory calibration/maintenance
☐Yes ☐ No ☑NA	Re-level sensors/mounts as required
☑Yes ☐ No ☐NA	Cleaned sensors/hardware as required
☑Yes ☐ No ☐NA	Sensor cables zip tied with dew loops, and coiled/secured neatly
☑Yes ☐ No ☐NA	Confirm battery functionality with load test
☑Yes ☐ No ☐NA	Confirm station properly grounded
☐Yes ☐ No ☑NA	Replace enclosure desiccant with new packs (if required)
☐Yes ☐ No ☑NA	Replace enclosure humidity indicator card (if required)
☐Yes ☐ No ☑NA	Replace enclosure port putty as required and ensure port properly sealed
☐Yes ☐ No ☑NA	Upload revised station program and/or datalogger/device settings (if applicable)
☑Yes ☐ No ☐NA	Collect and save post install/maintenance data (includes Status and Public tables)
☑Yes ☐ No ☐NA	Review post collected data and confirm valid sensor outputs (No NAN, INF, etc..)
☑Yes ☐ No ☐NA	Review Status table for skipped scans, watchdog errors, lithium batt voltage, etc..
☑Yes ☐ No ☐NA	Confirm direct and remote connection to datalogger (if applicable)
☑Yes ☐ No ☐NA	Confirm station updated wiring diagram secured inside station enclosure
☑Yes ☐ No ☐NA	Post maintenance site pictures taken
☑Yes ☐ No ☐NA	Site cleaned of all garbage/debris, and any hazardous material properly disposed

On-Site Field Check List
Internal Use

If checked No for any items, why:

Station Inventory List:

Model	Serial #	Type of Maintenance Completed*	Part(s) Replaced (If none, enter NA)	Values Verified with Reference Device
05103-10 (Wind Monitor)	99011	Replaced Parts and Calibrated	Wind speed bearings	**Y** ☑ **N** ☐ **NA** ☐
SR50A (Snow Depth Sensor)	C21646	Equipment Exchange – Removed Unit	Transducer	**Y** ☐ **N** ☐ **NA** ☑
SR50A (Snow Depth Sensor)	C17693	Equipment Exchange – Installed Unit	Transducer	**Y** ☐ **N** ☐ **NA** ☑
CS215 (Air temp/RH)	E21785	Replaced Parts and Calibrated	Probe head/chip	**Y** ☑ **N** ☐ **NA** ☐
T200B (Precipitation gauge)	185819	Functional Check Only	NA	**Y** ☐ **N** ☐ **NA** ☑
CR850 (Datalogger)	38040	Functional Check Only	NA	**Y** ☐ **N** ☐ **NA** ☑
Setra-278 (Baro)	3186477	Functional Check Only	NA	**Y** ☑ **N** ☐ **NA** ☐
CMP3 (Pyranometer)	140895	Functional Check Only	NA	**Y** ☐ **N** ☐ **NA** ☑
				Y ☐ **N** ☐ **NA** ☐
				Y ☐ **N** ☐ **NA** ☐
				Y ☐ **N** ☐ **NA** ☐
				Y ☐ **N** ☐ **NA** ☐

*** Type of maintenance completed** (for hard copies please refer to and write in one of the following options below):

1. **Equipment Exchange – Removed Unit -** For existing sensors you've swapped out and require maint/cal
2. **Equipment Exchange – Installed Unit -** Replacement sensor installed**,** either a refurbished calibrated sensor/logger from CSC exchange inventory, or a client owned new replacement or used/calibrated spare
3. **Replaced Parts and Calibrated** – For equipment where parts can be replaced while on-site and can be calibrate with field calibration kit. Ex. 05103-10 wind monitor
4. **Replaced Parts Only** – For equipment where on-site calibration may not be required or may not be possible but includes parts that can be replaced while on-site. Ex. SR50A snow depth sensor
5. **Calibrated only** – For equipment where parts typically do not require replacement but can be calibrated while on site with a field calibration kit. Ex. TE525M tipping bucket rain gauge
6. **Functional Check Only** – For equipment that does not require maintenance, or where parts typically do not need to or cannot easily be replaced and cannot be calibrated while on-site. This equipment requires factory calibration Ex. CS106 BP sensor, CR1000 datalogger.
   Or if installing/commissioning/troubleshooting new or used equipment which does not require maintenance for the purpose of the trip.
7. **Not Applicable** – A serialized part that we want to record as inventory but does not have an operational function.

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On-Site Field Check List
Internal Use

Site Specific Notes: (ex. ladder to access sensors, need keys to access site, special required safety equipment, etc…)
Ladder to access 05103 sensor and SR50-A. Site is accessible only with Victoria Gold Environmental Deparment.

Datalogger/Power/Communications Notes:
Datalogger direct connection good. Batteries in good condition

Sensor/Cable Notes: (Note here general condition of cables – Excellent, Good, Fair or Poor) Comment on any specific cables that are cracking, cut and or have been repaired Make notes if any cracks or damage to sensors/sensor housings, and fixes, if does not affect functionality
Cables in fair condition. Sensors are cleaned. Sensor housing in fair condition

Tower/Tripod/Mount Notes: (ex. On tower – is winch rusted/in poor condition, is base loose, bolts rusted, etc.)
Tripod base in good condition. Guy wires are tight and secured.

Other Notes or Work Completed To Be Documented:

CAMPBELL SCIENTIFIC
WHEN MEASUREMENTS MATTER

On-Site Field Check List
Internal Use

Next Recommended Site Visit:
9/11/2021

Follow Up Action Items For Next Visit:
Upgrade CR850 to new generation CR1000X. Calibrate CMP 3 Pyranometer.

Victoria GOLD CORP

Eagle Gold
Climate Data Report 2021



Project No. A610-1
24 March 2022

LORAX ENVIRONMENTAL

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1. Introduction



1 Introduction

1.1 Scope of Report

This report presents a summary of all climate data collected for the Eagle Gold Project (Project) since August 2007[1]. Monitoring data from two Project climate stations and four local snow courses are presented to characterize local conditions for the following variables:

- Air temperature;
- Rainfall;
- Snow depth and snow water equivalent (SWE);
- Barometric pressure;
- Relative humidity;
- Wind speed and direction, and;
- Solar radiation.

Measured data are also used to estimate potential evaporation for the Project site.

1.2 Previous Reports

The climate data collected at the Eagle Gold Project site from 2007, up to and including December 2020, have been previously summarized in the following reports:

- *Dublin Gulch Project - Climate and Hydrology Environmental Baseline Report* (2008), prepared by Jacques Whitford AXYS (Burnaby, BC) for StrataGold Corp. (Vancouver, BC), December 2008.
- *Snow Survey Environmental Baseline Report* (2009), prepared by Jacques Whitford Stantec AXYS (Burnaby, BC) for StrataGold Corp. (Vancouver, BC).
- *Eagle Gold Project, Environmental Baseline Report: Climate* (2010), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., February 2010.
- *Eagle Gold Project, Surface Water Balance Model Report* (2011), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2011.

[1] Historic climate data collected during 1993 to 1996 for the Project area is summarized in *Eagle Gold Project, Environmental Baseline Report: Climate*, prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., March 2012

- *Eagle Gold Project, Environmental Data Summary Report: Climate 2011 Update* (2011), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., June 2011.
- *Eagle Gold Project, Environmental Baseline Report: Climate* (2012), prepared by Stantec (Burnaby, BC) for Victoria Gold Corp., March 2012.
- *Victoria Gold Corp., Eagle Gold Project – Climate Baseline Data Summary. VA101-290/6-9* (2013), prepared by Knight Piesold Ltd. (Vancouver, BC) for Victoria Gold Corp., August 2013.
- *Victoria Gold Corp., Eagle Gold – Climate Baseline Report* (2016). Prepared by Lorax Environmental Services Ltd., October 2016. 34 pp.
- *Victoria Gold Corp. Eagle Gold Project – Hydrometeorology Report* (2017). A413-3, prepared by Lorax Environmental Services Ltd. (Vancouver, BC) for Victoria Gold Corp., March 2017.
- *Victoria Gold Corp., Eagle Gold – Climate Baseline Report – 2017* (2018). Prepared by Lorax Environmental Services Ltd., March 2018. 35 pp.
- *Victoria Gold Corp., Eagle Gold – Climate Data Report - 2018* (2019). Prepared by Lorax Environmental Services Ltd., March 2019. 34 pp.
- *Victoria Gold Corp., Eagle Gold – Climate Data Report – 2019* (2020). Prepared by Lorax Environmental Services Ltd., February 2020. 35 pp.
- *Victoria Gold Corp., Eagle Gold – Climate Data Report - 2020* (2021). Prepared by Lorax Environmental Services Ltd., March 2021. 31 pp.

2. Climate Monitoring Locations

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2 Climate Monitoring Locations

2.1 Meteorological Stations

Climatic parameters are measured at the Project site by two weather stations that were originally installed by Stantec (formerly Jacques Whitford AXYS). The Potato Hills station is situated near the eastern basin divide (1,420 m) and was installed in August 2007. The second station was originally installed near the camp at 823 m in August 2009, and subsequently was moved to its current location in September 2010 (782 m) following construction of new camp facilities.

The Potato Hills station installed by Stantec used an ONSET Hobo datalogger to measure air temperature, rainfall, wind speed and direction, barometric pressure, relative humidity, snow depth and solar radiation at 15-minute intervals. The recording interval was initially set to record at 60-minute intervals from August 14, 2007 to August 13, 2008 and then was switched to record at 15-minute intervals as of August 13, 2008.

A snow sensor was added to the Potato Hills station in April 2011. However, since snow sensor installation, the continuous snow depth data have not been reliable and therefore are not presented in this report. The Potato Hills station experienced repeated failures in 2019 and was decommissioned in October 2019. A replacement all weather station was installed at Potato Hills in March 2020. The new station includes a Campbell Scientific CR1000X datalogger measuring air temperature, precipitation, wind speed and direction, barometric pressure, snow depth, solar radiation and relative humidity at 15-minute intervals.

The Camp station consists of a Campbell Scientific CR800 datalogger and sensors measuring air temperature, precipitation, wind speed and direction, barometric pressure, snow depth, solar radiation and relative humidity. All data are recorded at a 15-minute interval at this location. The snow sensor and pyranometer (measuring solar radiation) were added in April and October 2011, respectively, and a new Geonor precipitation gauge was installed in March 2020. Continuous snow depth data are provided herein for the Camp station, as are records of snow survey measurements for actively measured stations through spring 2021. Both the Camp and Potato Hills climate stations were serviced and calibrated in 2021.

The Project climate stations and snow survey locations are presented in Table 2-1 and Figure 2-1.

Table 2-1:
Climate station and snow survey locations.

Station	Elevation (m asl)	UTM E	UTM N	Record Period
Climate Stations				
Camp Station	782	458,164	7,101,036	2009-present
Potato Hills Station	1,420	463,544	7,100,833	2007-present
Snow Surveys				
Camp Snow Survey	782	458,164	7,101,036	2009-present
Ann Gulch Snow Survey	875	458,945	7,101,185	2012-2017
Stewart (Snow Survey #2)	995	460,570	7,101,490	Mar. 2012 only
HLF Snow Survey	1,078	459,859	7,102,319	2019-present
Potato Hills Snow Survey	1,420	463,290	7,100,568	2009-present
1370 Bench	1,370	460,581	7,099,188	2021-present
HLF 3b (Bench and Slope)	1,066	459,295	7,102,063	2021-present
HLF 4b (Bench and Slope)	1,049	459,602	7,102,212	2021-present
HLF 5b (Bench and Slope)	1,048	459,580	7,102,207	2021-present

460,000

465,000

7,100,000

N

Ironwood Creek

Fisher Gulch

Haggart Creek

Dublin Gulch

Eagle Pup

HLF Snow Survey

Stewart (Snow Survey #2)

Ann Gulch Snow Survey

Camp Station

Camp Snow Survey

Potato Hills Station

Potato Hills Snow Survey

1000

900

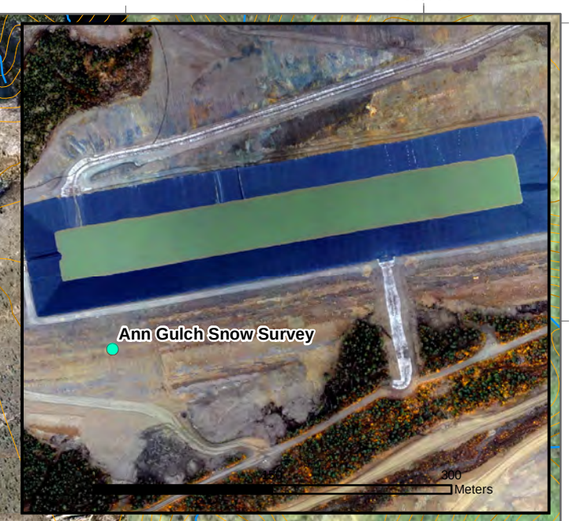
800

1100

1200

1300

1400





LEGEND

- Climate Station
- Snow Survey Station
- Watercourse
- Waterbody
- Contour (100m)
- Contour (20m)

Notes:
1. Imagery around mine site taken September 16, 2019
2. Imagery near Potato Hills taken in 2010

DATE SAVED:	Feb 11, 2020
DRAWN BY:	GM
REVIEWED:	LF
VERSION:	1

Coordinate System: *NAD 1983 UTM Zone 8N*
Projection: *Transverse Mercator*
Datum: *North American 1983*
Units: *Meter*

1:20,000

0 200 400 Meters

CLIENT: Victoria GOLD CORP

LORAX ENVIRONMENTAL

PROJECT:

Eagle Gold Climate Data Report

TITLE: Project Site Climate Station and Snow Survey Locations

PROJECT #: A562-1

FIGURE: 2-1

P:\@Drafting\Eagle Gold\Drafting Figures\MXD\2020 Hydrology Report\Climate-Snow Survery Stations.mxd

2.1.1 Data Gaps for 2021

This section of the report summarizes data gaps in the climate record for the Potato Hills and Camp climate stations during the period January 2021 to December 2021. Data gaps prior to January 2021 are discussed in previous reports.

Potato Hills Station – The available data spans the period January 1 to December 31, 2021. Only one data gap greater than 24 hours exists in the Potato Hills climate station record for 2021:

- Data loss occurred from January 22 to February 27 as a result of a malfunction during a software update and install.

Camp Station – The data record for the Camp climate station spans January 1 to December 31, 2021. There were no data gaps for the Camp climate station during this period.

2.2 Snow Surveys

Snow surveys were completed in 2021 at the Camp (Lower) snow course and Potato Hills (Upper) snow course. The location established in Ann Gulch upgradient from HLF Phase 1 construction activities for the 2019 (HLF) snow survey season was revisited in 2021. In addition, four more snow surveys were initiated in spring of 2021, with three on the footprint of the HLF Phase 1, representative of snow accumulation on benches and slopes, and one to support cover trials at 1370 bench of the Platinum Gulch WRSA (Table 2-1). All snow surveys were generally conducted at, or near to the date that Water Resources Branch of Environment Yukon conducted their monthly surveys, which included the annual maximum snowpack. This peak in terms of SWE measurement typically occurs between late-March to mid-April in the Yukon.

Snow surveys are conducted following the guidelines set out in the *Snow Survey Sampling Guide* (BC Ministry of Environment, 1981). At each site, 10 sampling locations along a transect were sampled for depth and snow water equivalent [SWE] using a Federal snow sampler, and then averaged. As summarized in previous annual reports, snow courses were established at the Project site to discern effects of aspect and elevation gain on local snow accumulation (Table 2-1 and Figure 2-1).

3. Climate Data Summary

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3 Climate Data Summary

3.1 Temperature

Air temperatures at the Project site are consistent with those throughout the Yukon interior. Mean annual air temperature at site is -3.7°C at the Camp station (782 m) and -3.6°C at the Potato Hills station (1,420 m) over their respective periods of record.

Mean, maximum and minimum monthly (based on the daily average) temperatures are presented in Table 3-1 for both stations. At the Camp station, monthly average temperature ranges from -20.0°C in November to 13.4°C in July, and -15.1°C in December to 10.9°C in July at the Potato Hills station. The minimum (maximum) recorded daily average temperatures were -43.8°C (22.0°C) and -36.6°C (22.9°C) at the Camp and Potato Hills stations, respectively. The minimum (maximum) recorded 15-minute temperatures were -46.4°C (31.6°C) and -37.6°C (31.7°C) at the Camp and Potato Hills stations, respectively.

The monthly mean temperature signatures for both climate stations are shown in Figure 3-1, and the pattern is consistent with the larger regional picture. During the months of March to October inclusive, the standard lapse rate applies, with temperatures decreasing with rising elevation, and are approximately 3°C cooler at the upper station, on average. However, during the winter months of November to February, temperature inversions are common at the Project site, with temperatures approximately 2.5°C cooler on average in the valley bottom than at the height of land.

The spring/summer lapse rate of -3.7°C/1000 m is consistent with the saturated adiabatic lapse rate (SALR) of -5.0°C/1000 m. Minor deviation from the SALR is likely due to the increased frequency of precipitation during the summer months, when a larger portion of the annual precipitation falls, resulting in warmer and wetter air masses at the Project site. The winter lapse rate of +4.3°C/1000 m is consistent with that reported by Wahl *et al.* (1987), which states that during a temperature inversion, lapse rates can range from 3-5°C/1000 m of elevation gain.

Table 3-1:
Project site monthly air temperature record.

Climate Station	Elevation (m asl)	Temperature (°C)													
		Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Camp Station	782	2009	Mean	-	-	-	-	-	-	-	10.5	6.2	-2.6	-13.6	-17.3	-
			Maximum	-	-	-	-	-	-	-	14.0	11.2	2.3	-2.2	-2.8	-
			Minimum	-	-	-	-	-	-	-	6.6	-4.8	-9.7	-22.6	-31.3	-
		2010	Mean	-17.1	-10.8	-6.9	1.1	8.3	12.1	13.6	12.1	4.4	-3.4	-13.5	-24.1	-2.0
			Maximum	-6.7	1.0	1.4	9.4	16.9	15.7	18.0	20.5	11.8	7.1	4.0	-11.2	20.5
			Minimum	-33.4	-25.0	-17.7	-6.8	1.8	7.2	10.3	6.2	-6.1	-10.5	-28.4	-37.7	-37.7
		2011	Mean	-22.9	-21.3	-15.9	-3.2	7.7	11.5	12.8	9.2	5.1	-2.8	-20.7	M	-
			Maximum	-1.3	-1.4	2.1	2.7	16.1	16.1	18.2	14.3	9.7	0.3	-6.4	M	18.2
			Minimum	-38.5	-37.8	-30.3	-11.6	-2.2	7.0	9.5	5.7	0.9	-6.8	-39.1	M	-
		2012	Mean	-25.2	-12.2	-13.4	0.4	5.9	13.3	12.6	10.5	5.0	M	-24.1	-25.9	-
			Maximum	-7.2	0.7	-1.4	4.4	12.6	19.4	16.7	15.6	13.6	M	-10.3	-8.5	19.4
			Minimum	-40.4	-24.2	-24.4	-7.6	-0.4	8.7	8.7	4.5	-0.6	M	-37.1	-41.0	-41.0
		2013	Mean	-21.6	-13.3	-15.5	-8.6	5.0	14.2	14.0	11.9	5.5	-2.5	-18.7	-26.7	-4.7
			Maximum	-9.3	-4.4	0.3	2.9	14.1	22.0	18.5	18.0	14.5	4.9	-4.0	-11.6	22.0
			Minimum	-43.8	-20.9	-26.8	-16.6	-2.6	6.0	9.5	4.9	0.9	-9.9	-39.5	-40.7	-43.8
		2014	Mean	-14.9	-23.4	-13.8	-1.8	7.0	11.0	13.4	10.6	3.7	-3.5	-15.8	-15.2	-3.6
			Maximum	-1.8	-6.4	-3.8	4.5	12.9	16.5	18.6	15.1	9.4	3.4	-3.3	-4.6	18.6
			Minimum	-34.1	-36.8	-24.4	-12.4	2.5	5.4	8.7	4.5	-3.8	-11.9	-33.8	-26.4	-36.8
		2015	Mean	-19.4	-18.1	-11.5	-0.1	10.1	11.2	12.2	9.0	2.9	-1.5	-15.1	-15.2	-3.0
			Maximum	-2.9	-1.7	-1.0	4.4	17.5	15.5	16.8	15.4	7.3	3.4	-4.4	-6.0	17.5
			Minimum	-39.1	-38.3	-26.8	-4.8	-0.9	5.6	7.9	1.6	-4.3	-9.3	-33.1	-34.3	-39.1
		2016	Mean	-13.1	-13.5	-5.1	2.3	8.2	12.4	13.6	11.5	4.1	-8.3	-13.7	-21.9	-1.9
			Maximum	-2.0	-2.6	3.9	7.3	13.7	16.7	17.0	16.6	11.4	-0.7	0.8	-5.4	17.0
			Minimum	-25.4	-29.3	-10.3	-3.3	2.6	8.2	6.1	6.3	-2.5	-20.8	-31.3	-37.9	-37.9
		2017	Mean	-19.6	-18.8	-17.2	-1.4	7.3	M	M	11.8	6.3	-4.1	-22.9	-16.6	-
			Maximum	-3.3	0.1	0.5	5.2	14.3	M	M	16.9	12.5	6.3	-11.6	-0.8	-
			Minimum	-37.1	-28.3	-30.6	-8.6	1.9	M	M	6.6	0.1	-12.8	-36.1	-37.1	-37.1
		2018	Mean	-19.4	-24.3	-11.9	-3.7	5.9	11.8	13.8	9.9	1.9	-3.8	-12.8	-16.0	-3.9
			Maximum	3.0	-14.0	0.3	4.4	11.6	19.2	17.7	17.0	7.2	2.8	-0.3	1.2	19.2
			Minimum	-38.6	-35.8	-26.7	-15.0	-2.3	7.8	9.1	2.9	-2.9	-12.1	-26.4	-28.8	-38.6
		2019	Mean	-20.4	-23.1	-6.2	-0.9	8.7	13.0	15.2	8.6	5.3	-4.6	-14.4	-18.7	-3.1
			Maximum	-8.2	-15.0	4.7	4.0	16.6	19.6	18.9	17.5	10.5	4.9	-4.3	-4.3	19.6
			Minimum	-37.7	-36.3	-20.9	-11.8	-2.0	8.2	11.4	2.8	-3.8	-15.3	-29.7	-38.0	-38.0
		2020	Mean	-26.8	-20.2	-15.7	-3.4	7.0	10.9	11.9	11.1	4.8	-7.9	-19.7	-16.8	-5.4
			Maximum	-4.7	-6.2	-1.6	5.9	14.1	14.9	17.6	16.3	8.5	8.5	-7.4	1.6	17.6
			Minimum	-41.0	-37.8	-30.7	-14.9	0.0	6.9	9.3	7.0	1.6	-21.3	-32.3	-30.4	-41.0
		2021	Mean	-15.5	-25.6	-14.6	-5.4	5.9	14.1	13.9	10.9	3.7	-1.8	-17.0	-25.6	-4.8
			Maximum	-3.8	-11.8	-2.9	3.5	10.9	18.0	18.9	19.6	11.5	3.9	-4.5	-15.1	19.6
			Minimum	-34.8	-38.6	-23.2	-23.0	0.5	7.4	8.8	6.4	-3.6	-9.6	-34.2	-40.3	-40.3
		All Years	Mean	-19.7	-18.7	-12.3	-2.1	7.3	12.3	13.4	10.6	4.5	-3.9	-17.1	-20.0	-3.6
			Maximum	3.0	1.0	4.7	9.4	17.5	22.0	18.9	20.5	14.5	8.5	4.0	1.6	22.0
			Minimum	-43.8	-38.6	-30.7	-23.0	-2.6	5.4	6.1	1.6	-6.1	-21.3	-39.5	-41.0	-43.8
Potato Hills Station	1,420	2007	Mean	-	-	-	-	-	-	-	-	1.0	-6.9	-12.0	-15.2	-
			Maximum	-	-	-	-	-	-	-	-	8.0	-1.5	-5.5	-9.4	-
			Minimum	-	-	-	-	-	-	-	-	-6.2	-13.8	-27.7	-24.2	-
		2008	Mean	-17.7	-17.2	-11.3	-4.8	3.3	8.7	8.1	5.3	1.9	-7.7	-10.8	-18.6	-5.1
			Maximum	-9.2	-3.4	-2.8	2.7	12.5	14.3	13.4	9.2	6.7	2.4	-5.4	-8.4	14.3
			Minimum	-33.1	-31.9	-29.6	-16.8	-0.6	4.6	2.8	1.7	-7.7	-21.3	-19.6	-27.2	-33.1
		2009	Mean	-19.3	-17.2	-16.7	-4.4	M	M	12.6	7.4	3.3	-5.3	-12.8	-11.9	-
			Maximum	-0.5	-10.4	-7.0	9.4	M	M	22.8	16.2	10.4	-1.9	-4.9	-3.8	-
			Minimum	-34.8	-30.3	-25.2	-13.0	M	M	6.6	3.1	-6.3	-14.2	-19.1	-21.2	-34.8
		2010	Mean	-14.5	-9.7	-9.4	-1.8	5.2	8.8	10.5	9.7	2.3	-5.3	-11.7	-18.2	-2.9
			Maximum	-5.1	-1.8	-2.9	6.3	15.1	13.4	15.2	19.5	8.8	3.1	-1.4	-8.8	19.5
			Minimum	-30.9	-26.4	-16.5	-8.3	-4.0	2.7	6.2	3.4	-9.3	-10.4	-23.1	-25.6	-30.9
		2011	Mean	-15.5	-18.3	-13.9	-5.6	4.8	8.8	10.3	7.0	4.1	-5.7	-18.0	-13.0	-4.6
			Maximum	-5.6	-3.6	-1.4	1.3	15.3	13.9	15.7	11.4	20.4	-1.2	-9.1	-8.8	20.4
			Minimum	-28.0	-30.2	-23.2	-13.0	-7.2	2.2	5.9	5.3	-5.5	-12.1	-29.0	-20.0	-30.2
		2012	Mean	-19.8	-11.1	-13.4	-1.9	3.1	11.3	10.9	-	-	-8.4	-18.8	-19.4	-
			Maximum	-6.8	-5.1	-1.7	1.8	9.5	18.5	17.9	-	-	3.3	-8.0	-6.5	-
			Minimum	-30.3	-19.5	-22.6	-8.0	-2.5	5.5	5.5	-	-	-16.8	-24.0	-29.2	-
		2013	Mean	-17.6	-11.3	-14.2	*-10.4*	*2.8*	12.1	11.6	11.0	3.0	-2.9	-16.0	-19.5	-4.3
			Maximum	-5.5	-4.9	-5.1	*-2.5*	*13.5*	22.2	17.4	19.9	10.2	1.3	-4.7	-3.4	22.2
			Minimum	-36.6	-15.5	-24.8	*-18.4*	*-6.2*	2.0	5.3	1.7	-1.8	-8.5	-28.9	-29.1	-36.6
		2014	Mean	-10.0	-15.9	-11.5	-3.4	*5.6*	8.7	11.8	8.7	2.1	-5.6	-11.6	-11.4	-2.7
			Maximum	0.6	-7.8	-5.1	3.2	*11.5*	17.6	15.6	13.9	8.5	0.9	-5.0	-5.4	17.6
			Minimum	-27.3	-26.3	-19.9	-13.5	*0.4*	1.7	7.4	1.7	-5.2	-12.1	-22.5	-19.2	-27.3
		2015	Mean	-14.4	-13.8	-9.6	*-2.3*	*8.6*	*8.6*	*9.5*	7.1	0.1	-3.7	-13.5	-13.6	-3.1
			Maximum	-3.9	-2.3	-0.5	*1.4*	*16.5*	*13.6*	*14.9*	17.0	4.9	2.0	-4.3	-5.6	17.0
			Minimum	-31.7	-32.7	-24.3	*-6.5*	*-3.2*	*1.9*	*4.4*	-2.0	-6.1	-10.7	-28.3	-25.3	-32.7
		2016	Mean	-9.2	-10.4	-6.2	-	7.2	12.0	12.2	9.3	2.8	-6.8	-10.1	-16.2	-
			Maximum	-4.4	-5.2	3.4	-	15.4	19.4	17.7	13.9	8.5	-0.7	-2.0	-8.8	-
			Minimum	-14.0	-20.4	-12.4	-	0.5	5.0	5.3	3.6	-3.4	-15.6	-18.2	-25.1	-
		2017	Mean	-13.0	-13.3	-16.7	-3.2	4.5	9.7	-	-	-	-	-17.4	-10.2	-
			Maximum	-3.4	-1.1	-3.6	3.9	11.9	16.7	-	-	-	-	-9.4	-1.6	-
			Minimum	-27.2	-21.5	-28.0	-12.4	-0.5	0.3	-	-	-	-	-26.5	-22.8	-
		2018	Mean	-14.4	-16.9	-12.0	-6.1	M	M	M	M	M	-3.3	-9.9	M	-
			Maximum	0.9	-10.8	0.6	1.5	M	M	M	M	M	1.3	-2.0	M	-
			Minimum	-26.0	-26.4	-22.9	-18.1	M	M	M	M	M	-13.4	-17.3	M	-
		2019	Mean	-16.0	M	-5.1	-3.5	M	11.1	13.6	8.9	M	M	-10.8	M	-
			Maximum	-6.9	M	3.8	2.4	M	17.1	18.0	22.9	M	M	-3.5	M	-
			Minimum	-28.0	M	-14.5	-16.8	M	2.1	7.7	4.6	M	M	-17.3	M	-
		2020	Mean	-17.4	-16.1	M	-6.0	M	8.3	8.9	8.6	2.8	-8.4	-14.9	-13.4	-
			Maximum	-5.5	-6.1	M	2.3	M	13.9	17.7	17.3	7.4	5.7	-8.3	-1.0	-
			Minimum	-27.8	-27.8	M	-15.2	M	3.5	4.6	3.0	-1.4	-20.3	-22.2	-29.6	-
		2021	Mean	-10.2	M	-14.7	-7.6	2.5	11.0	12.2	8.4	1.3	-4.7	-14.9	-21.5	-4.4
			Maximum	-5.9	M	-7.5	4.6	7.3	16.4	19.9	20.4	10.1	-0.9	0.1	-13.3	20.4
			Minimum	-18.0	M	-22.4	-27.9	-3.6	3.4	5.2	2.0	-8.1	-9.5	-24.5	-28.5	-28.5
		All Years	Mean	-14.9	-14.3	-11.7	-4.5	5.0	9.8	10.9	8.3	2.3	-5.8	-13.4	-15.1	-3.6
			Maximum	0.9	-1.1	3.8	9.4	16.5	22.2	22.8	22.9	20.4	5.7	0.1	-1.0	22.9
			Minimum	-36.6	-32.7	-29.6	-27.9	-7.2	0.3	2.8	-2.0	-9.3	-21.3	-29.0	-29.6	-36.6

Notes:
1. Values are calculated from average daily temperatures.
2. Data is considered missing for a month when there are less than 25 days of data available for that month (beginning of data record until end of 2021).
3. Monthly values in italics for the Potato Hills station, for the period of 2013 through 2015 have been infilled using monthly regression relationships with temperature data from the Camp station.
4. Monthly values in gray for the period of June 2014 to March 2015, May through July 2016, November 2019 and January to February 2020 were recorded by a standalone HOBO temperature sensor.
5. 'M' denotes data missing due to a sensor/datalogger malfunction.
6. Monthly temperature lapse rates presented in Section 3.1 are based on a comparison of monthly average temperature data from the Camp and Potato Hills stations.

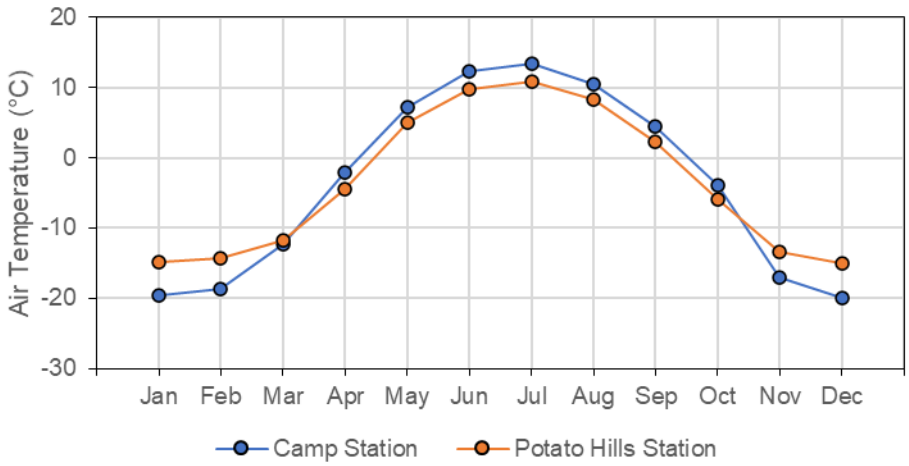


Figure 3-1: Monthly mean air temperature for the Project climate stations for the available period of record.

3.2 Rainfall

Historically, gauge precipitation data was collected at the Project site using tipping bucket rain gauges, which were not adapted to measure snowfall. Therefore, the precipitation data presented in Table 3-2 is for rainfall only, collected between the months of March and October, inclusive. The precipitation gauges were replaced with all-season instruments (Geonor weighing cell gauges) in 2020, and thus these data accurately represent total solid phase precipitation. Generally, precipitation falls as snow from November through March, with precipitation falling as a mix of rain and snow in April and October. Rainfall data for March is included in the table below, where the temperature record indicates that precipitation would have fallen as rain (*i.e.*, daily average air temperature was above zero).

May and August monthly precipitation values for 2021 at the Camp Station were highest on record, and May through September precipitation values were approximately a factor of two to three times higher than the historical average values. A similar but less pronounced pattern was observed at Potato Hills station with only May precipitation slightly elevated above the historical maximum, and May and August precipitation double the historical average.

Notably, total annual precipitation was 682.6 mm at the Camp station, while it was lower at the Potato Hills station (526.1 mm), which is the inverse of the typical precipitation distribution with elevation (*i.e.*, increased precipitation at higher elevations). This divergence is driven primarily by rainfall events in late-July through mid-September, which suggests that convective rainfall events were more intense at lower elevations in 2021. The precipitation sensors at both stations will continue to be checked by Campbell Scientific technicians on an annual basis to mitigate the potential for erroneous data. .

Table 3-2:
Project site monthly precipitation data.

Climate Station	Elevation (m asl)	Rainfall (mm)															
		Year		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual	Apr-Sept.
Camp Station	782	2009		-	-	-	-	-	-	-	-	35.0	*8.0*	S	S	-	
		2010		S	S	5.0	9.0	20.0	62.0	34.0	28.0	25.0	*12.0*	S	S	195.0	178.0
		2011		S	S	11.0	10.0	16.0	31.0	75.0	44.0	40.0	*9.0*	S	S	236.0	216.0
		2012		S	S	13.0	1.0	22.0	18.0	74.6	29.8	24.0	*4.8*	S	S	187.2	169.4
		2013		S	S	8.6	10.4	34.6	25.6	28.4	35.2	58.6	*25.2*	S	S	226.6	192.8
		2014		S	S	5.4	8.8	9.2	52.8	43.2	70.4	28.8	*23.2*	S	S	241.8	213.2
		2015		S	S	20.8	13.0	8.2	28.8	64.0	62.0	38.6	*13.4*	S	S	248.8	214.6
		2016		S	S	6.2	4.4	14.0	32.6	55.0	31.0	25.6	*2.6*	S	S	171.4	162.6
		2017		S	S	S	2.2	24.4	M	M	12.8	20.4	*6.0*	S	S	-	-
		2018		S	S	12.0	1.4	63.2	49.4	1.6	34.4	4.6	*12.4*	S	S	179.0	154.6
		2019		M	M	M	M	M	M	M	M	M	M	M	M	-	-
		2020		M	M	M	M	M	156.2	165.7	89.7	71.0	60.9	46.3	28.5	-	-
		2021		27.0	23.7	16.4	12.6	82.5	39.0	83.2	154.4	107.3	58.9	36.0	41.7	682.6	479.0
		All Years	Mean	S	S	10.9	7.3	29.4	49.5	62.5	53.8	39.9	19.7	41.1	35.1	263.2	220.0
			Maximum	S	S	20.8	13.0	82.5	156.2	165.7	154.4	107.3	60.9	46.3	41.7	682.6	479.0
			Minimum	S	S	5.0	1.0	8.2	18.0	1.6	12.8	4.6	2.6	36.0	28.5	171.4	154.6
Potato Hills Station	1,420	2007		S	S	S	M	M	M	M	24.0	100.8	*2.0*	S	S	-	-
		2008		S	S	3.4	4.8	58.4	52.0	201.2	130.0	11.2	*1.2*	S	S	462.2	457.6
		2009		S	S	S	3.0	M	50.8	12.6	75.4	44.4	*1.2*	S	S	-	-
		2010		S	S	1.0	6.2	16.4	77.2	45.8	39.4	4.2	*5.4*	S	S	195.6	189.2
		2011		S	S	0.2	7.2	21.2	38.0	92.8	83.8	34.4	*0.4*	S	S	278.0	277.4
		2012		S	S	S	0.6	9.6	24.2	64.8	37.8	21.0	*4.6*	S	S	162.6	158.0
		2013		S	S	2.2	0.2	29.6	33.2	18.0	18.2	63.8	*10.0*	S	S	175.2	163.0
		2014		S	S	S	M	M	M	M	M	M	*M*	S	S	-	-
		2015		S	S	S	M	M	M	M	48.5	27.1	*10.0*	S	S	-	-
		2016		S	S	D	D	14.5	23.0	38.3	42.6	24.6	*0.6*	S	S	-	-
		2017		S	S	D	D	16.2	25.8	46.3	21.8	53.0	*6.1*	S	S	-	-
		2018		S	S	D	D	D	46.5	13.5	77.0	4.0	*3.8*	S	S	-	-
		2019		S	S	D	D	D	D	18.5	D	D	D	S	S	-	-
		2020		S	S	D	D	D	101.2	103.5	68.5	63.7	44.2	18.3	19.0	-	-
		2021		*14.2*	21.0	58.7	10.9	60.3	29.8	68.2	112.3	66.4	43.5	15.6	25.1	526.1	347.9
		All Years	Mean	S	S	13.1	4.7	28.3	45.6	60.3	59.9	39.9	10.2	17.0	22.1	254.7	265.5
			Maximum	S	S	58.7	10.9	60.3	101.2	201.2	130.0	100.8	44.2	18.3	25.1	526.1	457.6
			Minimum	S	S	0.2	0.2	9.6	23.0	12.6	18.2	4.0	0.4	15.6	19.0	162.6	158.0

Notes:

1. Winter precipitation data (October through April in many years) are unreliable due to the majority falling as snow. The months where no rainfall was recorded due to freezing conditions are denoted by an 'S'. The exception is after October of 2020, following the installation of an all-season Geonor precipitation gauge at both climate stations.
2. Data for the month of October are in italics, as rainfall is not measured for the entire month.
3. 'M' denotes when there are less than 25 days of data available for that month.
4. In August 2015, the primary rain gauge at the Potato Hills Station was replaced by a standalone tipping bucket rain gauge. The replacement gauge is deployed each spring (*i.e.*, in April or May) then decommissioned in the autumn (October). Missing data at Potato Hills Station denoted by 'D' indicate time periods during which the standalone tipping bucket rain gauge was not functioning.
5. February 2021 precipitation value is estimated from the difference between the Feb. 1 and Mar. 1 Potato Hills snow water equivalent values.

3.3 Snow Water Equivalent and Continuous Snow Depth Data

As discussed in Section 2.2, snow data have been collected at three snow courses[2] at the Project site since 2009. Furthermore, the annual maximum snow water equivalent (SWE) value generally occurs in late-March or early-April at the Project site. Field measurements from site show that snow density is generally lower earlier in the season, corresponding to colder temperatures, but increases through winter as the snowpack deepens, consolidates and as snow melt progresses.

Project site snow survey data is summarized in Table 3-3 for period of record 2009 to 2021. Annual maximum SWE values range from 72 mm to 199 mm at the Camp snow course, 98 mm to 117 mm (shorter record) at the Ann Gulch snow course and from 190 mm to 431 mm at the Potato Hills snow course, which is at highest elevation.

The Potato Hills snow survey was conducted in the immediate vicinity of the weather station from 2009 to 2011. However, due to the exposed location, snow redistribution resulted in variable measurements, and therefore the survey was moved to its current and more sheltered location in 2012, several hundred metres to the south-east (Figure 2-1). Note that high snowpacks did not allow access to the Potato Hills snow course in March 2012, and therefore the survey was conducted at Stewart Gulch (Snow Survey #2; see Figure 2-1). Snow surveys conducted at the Heap Leach facility in 2019 through 2021 were primarily above or below the diversion ditch as indicated in Table 3-3. The 2021 Camp and Potato Hills snow surveys exhibited annual SWE maximums that were 11% and 17% below the historical average annual maximum value, respectively.

Additional SWE, snow depth and density data collected at HLF snow courses initiated in 2021 are presented in Table 3-4.

[2] See Note 1 in Table 3-3.

Table 3-3:
Project site snow survey data.

Year	Camp Station (782 m)				Ann Gulch (Snow Survey #2; 995 m)				HLF Station (1,078 m)				Potato Hills Station (1,420 m)			
	Survey Date	Depth (cm)	SWE (mm)	Density (%)	Survey Date	Depth (cm)	SWE (mm)	Density (%)	Survey Date	Depth (cm)	SWE (mm)	Density (%)	Survey Date	Depth (cm)	SWE (mm)	Density (%)
2009	2009-04-21	69	112	16%	-	-	-	-	-	-	-	-	2009-04-21	126	410	33%
2010	2010-03-31	50	99	20%	-	-	-	-	-	-	-	-	2010-03-31	103	278	27%
	2010-04-21	69	112	16%	-	-	-	-	-	-	-	-	2010-04-21	126	405	32%
2011	2011-03-28	55	93	17%	-	-	-	-	-	-	-	-	2011-03-28	105	251	24%
2012	2012-03-20	78	161	21%	-	-	-	-	-	-	-	-	2012-03-20	99	237	24%
	2012-04-20	56.4	79	14%	-	-	-	-	-	-	-	-	2012-04-22	117	262	22%
2013	-	-	-	-	2013-02-20	69.6	97	14%	-	-	-	-	2013-02-28	95.6	185	19%
	2013-03-02	60.9	108	18%	2013-03-02	66.9	115	17%	-	-	-	-	-	-	-	-
	2013-04-02	59.3	108	18%	2013-04-02	61.8	117	19%	-	-	-	-	2013-04-03	90	190	21%
	2013-05-05	57.6	106	18%	2013-04-16	62.2	85	14%	-	-	-	-	-	-	-	-
	-	-	-	-	2013-05-03	58	105	18%	-	-	-	-	2013-05-05	116.8	167	14%
2014	2014-03-12	56.8	126	22%	2014-03-12	51	94	18%	-	-	-	-	2014-03-11	97.5	276	28%
	2014-04-02	54.6	100	18%	2014-04-02	46	98	21%	-	-	-	-	2014-04-02	96.2	275	29%
	-	-	-	-	-	-	-	-	-	-	-	-	2014-05-08	69.6	258	37%
2016	2016-03-02	53	118	22%	2016-03-02	52.6	117	22%	-	-	-	-	2016-03-02	95.4	214	22%
	2016-04-09	38	140	37%	2016-04-09	22.2	115	52%	-	-	-	-	2016-04-10	107.4	257	24%
	-	-	-	-	-	-	-	-	-	-	-	-	2016-05-03	95.0	226	24%
2017	2017-03-17	50.9	89	17%	2017-03-17	50.3	100	20%	-	-	-	-	2017-03-17	84.0	206	25%
	2017-04-13	46	117	25%	2017-04-13	30.1	82	27%	-	-	-	-	2017-04-13	98.0	244	25%
	2017-05-04	7	28	40%	2017-05-04	0	0	NA	-	-	-	-	2017-05-03	89.0	236	27%
2018	2018-02-28	53	100	19%	-	-	-	-	-	-	-	-	2018-02-28	85.1	203	24%
	2018-04-04	53.9	109	20%	-	-	-	-	-	-	-	-	2018-04-04	90.5	219	24%
	2018-05-16	-	-	-	-	-	-	-	-	-	-	-	2018-05-16	80.7	226	28%
2019	2019-03-02	48.3	94	20%	-	-	-	-	2019-03-02	56.2	119	21%	2019-03-02	78.7	205	26%
	2019-04-01	25.3	72	31%	-	-	-	-	2019-04-02	37.2	93	25%	2019-04-01	79.3	171	22%
	2019-04-30	0.0	0	-	-	-	-	-	2019-04-30	31.7	71	18%	2019-04-30	91.0	200	22%
	2019-05-16	0.0	0	-	-	-	-	-	-	-	-	-	2019-05-16	48.3	111	23%
	2019-06-01	0.0	0	-	-	-	-	-	-	-	-	-	2019-06-01	0.0	0	-
2020	2020-03-07	89.8	157	18%	-	-	-	-	2020-03-07	108.7	229	21%	2020-03-13	188.5	431	23%
	2020-04-05	93.9	199	22%	-	-	-	-	2020-04-10	108.1	262	24%	2020-04-10	140.5	297	21%
	2020-05-02	40.1	142	35%	-	-	-	-	2020-05-02	50.3	176	35%	2020-05-02	130.3	384	29%
2021	2021-01-15	51.2	74	15%	-	-	-	-	-	-	-	-	-	-	-	-
	2021-01-30	50.3	77	15%	-	-	-	-	-	-	-	-	2021-02-03	92.6	216	23%
	2021-02-26	63.1	108	17%	-	-	-	-	2021-02-26	75.3	140	19%	2021-02-28	100.1	237	24%
	2021-03-30	62.3	113	18%	-	-	-	-	2021-03-30	78.1	116	15%	2021-03-29	108.9	168	15%
	2021-04-28	38.0	95	26%	-	-	-	-	-	-	-	-	2021-04-28	95.6	230	24%
	-	-	-	-	-	-	-	-	-	-	-	-	2021-06-01	16.4	70	32%

Notes:
1. Snow survey data for Potato Hills collected on 2012-03-20 is from the Stewart Gulch survey (Snow Survey #2) at 995 m asl (see Figure 2-1).
2. No snow surveys were conducted at site in 2015.
3. Snow survey data for Heap Leach Facility collected on 2019-04-02 from above and below the diversion ditch.
4. Snow survey data for Heap Leach Facility collected on 2019-04-30 from above the diversion ditch.
5. The Potato Hills Station SWE value for 2020-03-13 was estimated from the average March snow density value (22%) and the measured snow depth on this date, to correct for an error in the SWE measurements.

Table 3-4:
Snow survey data for heap leach facility snow courses initiated in 2021.

Year	Elevation (m)	Latitude (°)	Longitude (°)	Snow Survey	Survey Date	Depth (cm)	SWE (mm)	Density (%)
2021	1,370	64.0172	-135.8064	1370 Bench	2021-04-01	22.3	46	21%
	1,066	64.0429	-135.8335	HLF 3b (Bench)	2021-01-16	21.5	42	14%
				HLF 3b (Slope)	2021-01-16	29	52	18%
				HLF 3b (Bench)	2021-02-27	29.4	80	19%
				HLF 3b (Bench)	2021-03-30	27.5	72	17%
	1,049	64.0443	-135.8273	HLF 4b (Bench)	2021-01-16	96.2	247	26%
				HLF 4b (Slope)	2021-01-16	33.6	60	18%
				HLF 4b (Bench)	2021-01-30	93.9	302	32%
				HLF 4b (Bench)	2021-02-27	100.2	266	27%
				HLF 4b (Bench)	2021-03-30	105.9	297	28%
	1,048	64.0442	-135.8277	HLF 5b (Bench)	2021-01-16	67.4	121	18%
				HLF 5b (Slope)	2021-01-16	59	89	15%
				HLF 5b (Bench)	2021-01-30	62.1	124	20%
				HLF 5b (Bench)	2021-02-27	71.1	161	23%
				HLF 5b (Bench)	2021-03-30	75.9	188	25%

3.3-1 Continuous Snow Depth Data

Continuous snow depth data is summarized for the Camp climate station in Figure 3-2.

The upper panel of Figure 3-2 shows the evolution of the snowpack for the 2012 to 2021 time-period, with pack depth showing initial and appreciable accumulation through the months of November and December, typically reaching maximum depth by mid-March each year. These data then show that snowpack depth remains deep and relatively stable to April. The maximum 2021 snow depth at Camp Station was comparable to that experienced in March 2015, but lower than that measured in March 2020.

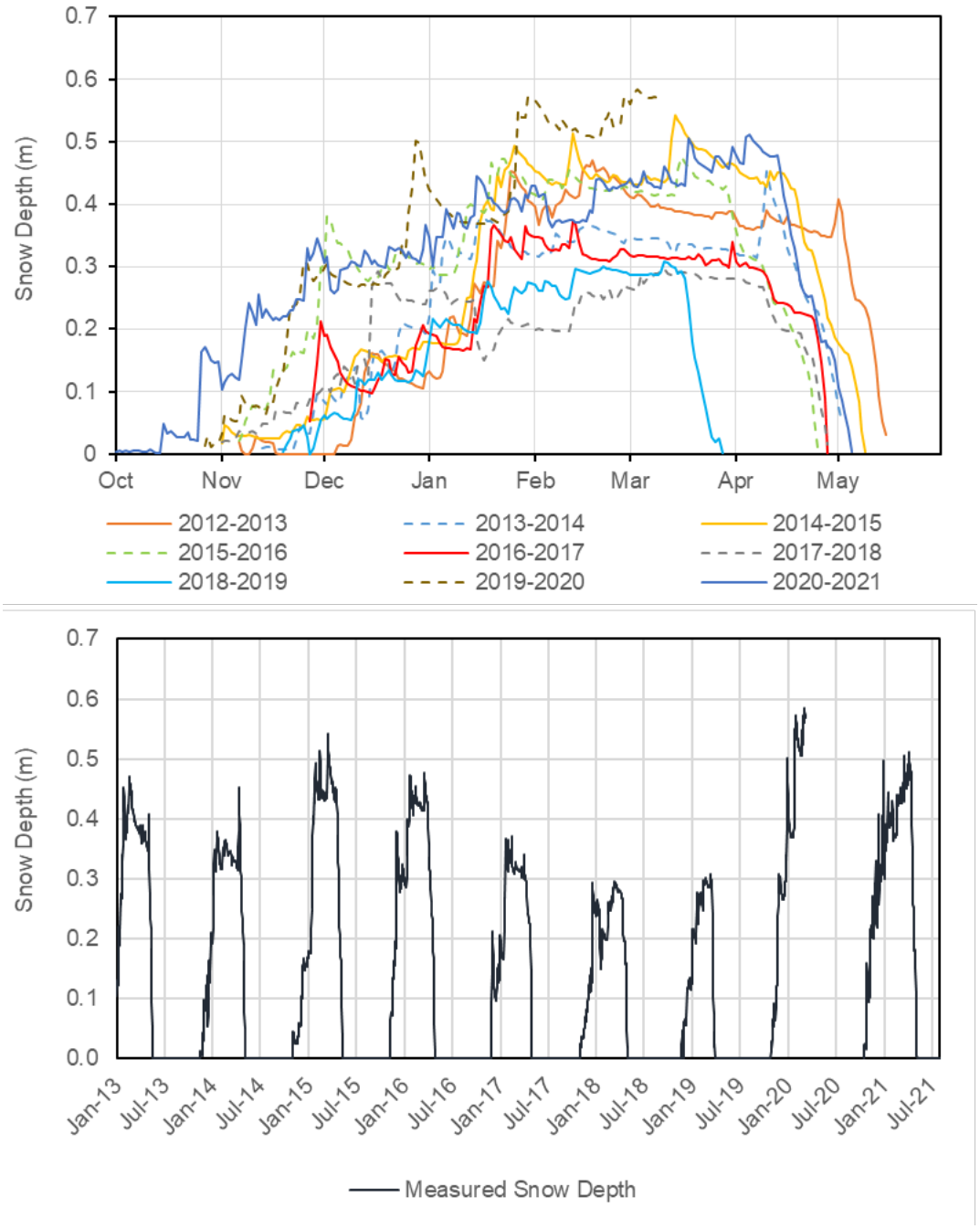


Figure 3-2: Summary of recent (2012-2021) continuous snow depth data for the Camp climate station.

The lower panel of Figure 3-2, illustrates the timing and rate of snowpack loss for the Camp climate station. While variable from year to year, these data show snowpack losses typically begin in earnest by mid- to late-April, with the duration of melt lasting 15-20 days. The timing of melt onset, and the duration of melt in 2021 were fairly typical (April 13 to May 5; 23 days).

3.4 Barometric Pressure

Barometric pressure provides a measure of the weight exerted by the atmosphere on the earth's surface at a point and provides a direct indication of changes in the synoptic weather pattern (*e.g.*, dropping barometric pressure can indicate the approach of a warm front). As expected, barometric pressure decreases with elevation at site, and is generally elevated during the summer months in comparison to the winter season (Table 3-5). When the Potato Hills climate station experienced a malfunction between May 2014 and July 2015, Table 3-5 was populated with data recorded by a standalone HOBO temperature/pressure logger for this time period. Similarly, a standalone HOBO sensor measured barometric pressure at the Potato Hills station in January and February 2020, but malfunctioned thereafter, resulting in no further usable data collected in 2020. The sensor was replaced, and data collected for January to August, and November 2021. Annual average barometric pressure is 91.9 kPa at the Camp station, and 84.9 kPa at the Potato Hills station.

Table 3-5:
Project site monthly average barometric pressure data.

Climate Station	Elevation (m asl)	Barometric Pressure (kPa)												
		Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Camp Station	782	2009	-	-	-	-	-	-	-	91.6	91.3	91.7	90.1	91.9	-
		2010	91.2	91.2	90.5	91.2	91.9	91.5	91.8	91.8	91.8	91.2	91.7	91.9	91.5
		2011	91.8	92.2	91.9	91.6	92.1	91.9	91.8	91.8	91.4	91.3	91.1	91.2	91.7
		2012	91.2	91.5	90.9	91.9	91.8	91.3	92.2	92.2	91.8	92.5	92.1	91.5	91.7
		2013	91.9	91.2	92.3	92.2	92.2	92.4	92.5	92.0	91.4	91.9	92.1	92.5	92.1
		2014	91.7	92.3	92.0	91.6	92.4	92.0	92.2	92.1	92.0	91.3	92.3	91.6	92.0
		2015	92.2	92.5	91.9	91.4	92.5	92.2	92.1	92.0	91.6	91.7	91.3	91.0	91.9
		2016	91.3	91.6	91.5	91.8	92.4	92.1	92.2	92.5	92.0	92.1	91.1	92.0	91.9
		2017	91.8	91.7	92.0	92.0	91.9	M	M	91.9	91.9	91.7	92.1	92.3	-
		2018	91.9	92.6	92.3	91.9	91.9	91.9	92.7	92.0	92.9	91.9	91.9	91.2	92.1
		2019	91.9	92.9	92.3	91.8	92.1	92.3	92.3	92.5	91.9	91.9	91.9	91.0	92.1
		2020	91.5	91.6	92.3	92.0	92.6	91.9	92.1	91.8	92.1	92.2	91.4	91.2	91.9
		2021	91.1	92.1	91.5	92.4	92.1	92.0	92.3	92.0	91.4	91.0	91.2	91.6	91.7
		Average	91.6	92.0	91.8	91.8	92.2	91.9	92.2	92.0	91.8	91.7	91.6	91.6	91.9
Potato Hills Station	1,420	2007	-	-	-	-	-	-	-	85.5	85.1	84.1	84.7	84.0	-
		2008	84.1	84.3	84.6	84.9	85.4	85.4	85.2	85.4	85.3	84.4	84.3	85.0	84.9
		2009	84.7	84.8	84.5	85.3	85.4	86.0	85.8	85.4	85.0	85.1	83.4	85.1	85.0
		2010	84.4	84.5	83.9	84.7	85.5	85.2	85.5	85.5	85.3	84.3	84.6	84.4	84.8
		2011	84.9	84.8	84.6	84.6	85.3	85.2	85.2	85.2	84.6	84.5	83.7	84.4	84.8
		2012	83.8	83.3	84.0	84.9	84.5	84.8	85.3	85.5	85.0	85.4	84.8	84.1	84.6
		2013	84.6	84.1	85.1	84.9	85.4	85.8	85.8	85.4	84.7	85.0	84.8	85.0	85.1
		2014	84.6	85.0	84.8	84.7	85.8	85.1	85.6	85.4	85.2	84.5	85.4	84.8	85.1
		2015	85.2	85.6	85.0	85.6	M	M	85.9	85.3	84.8	84.8	84.2	83.9	-
		2016	84.3	84.5	84.5	M	M	M	M	85.9	85.2	85.1	84.0	84.7	-
		2017	84.6	84.6	84.7	85.1	85.1	85.3	M	M	M	M	84.7	85.2	-
		2018	84.7	85.2	85.2	84.9	M	M	M	M	M	85.0	84.7	M	-
		2019	84.6	M	85.3	84.9	M	85.7	85.8	M	M	M	84.8	M	-
		2020	84.3	84.4	M	M	M	M	M	M	M	M	M	M	-
		2021	84.1	84.8	84.4	85.4	85.3	85.3	85.7	85.3	M	M	83.9	M	-
		Average	84.5	84.6	84.7	85.0	85.3	85.4	85.6	85.4	85.0	84.7	84.4	84.6	84.9

Notes:
1. Monthly values in gray for the period of June 2014 to March 2015, November 2019 and January to February 2020 were recorded by a standalone HOBO barometric pressure sensor.
2. 'M' denotes data missing when there are less than 25 days per month due to a sensor malfunction.

3.5 Relative Humidity

Relative humidity is a measure of the water vapour content of an air parcel, expressed as a percentage of the total water vapour required for the air to be fully saturated at a given temperature. Therefore, at colder temperatures, less water vapour is required to achieve a high relative humidity, and conversely at higher temperatures, more water vapour is required to obtain the same relative humidity value.

Given that air temperatures are well below zero during the winter, relative humidity values are elevated throughout the winter, and lower during the summer. With respect to monthly patterns for relative humidity, the annual minimum is expected to occur in the month of May. All monthly average relative humidity values from both climate stations are provided in Figure 3-3 and Table 3-6. Annual average relative humidity is 71% at the Camp station, and 77% at the Potato Hills station.

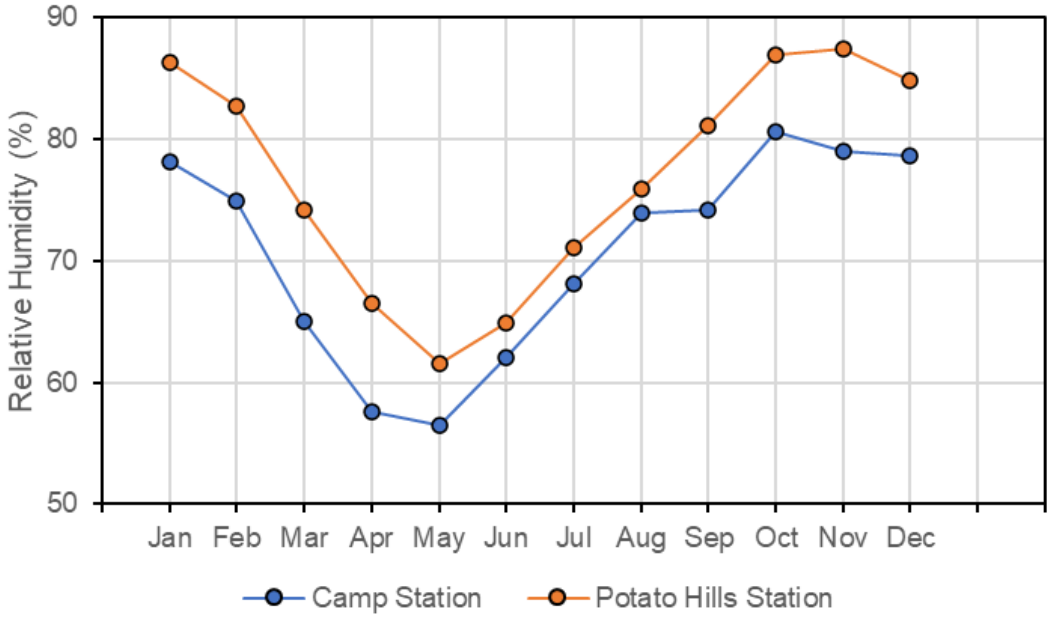


Figure 3-3: Project site average monthly relative humidity for the period of record.

Table 3-6:
Project site monthly average relative humidity measurements.

Climate Station	Elevation (m asl)	Relative Humidity (%)												
		Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Camp Station	782	2009	-	-	-	-	-	-	-	82	76	73	80	79	-
		2010	77	76	60	54	49	66	68	66	65	79	80	73	68
		2011	76	71	62	61	56	64	74	77	73	81	75	81	71
		2012	73	75	66	59	57	59	70	70	71	75	70	73	68
		2013	75	80	64	52	61	60	63	70	76	84	77	71	69
		2014	83	71	59	58	53	59	67	76	71	82	78	82	70
		2015	80	78	68	62	49	62	71	75	75	84	80	82	72
		2016	82	79	71	62	55	59	72	73	72	75	82	75	71
		2017	78	73	59	56	58	M	M	70	79	83	75	81	-
		2018	76	72	64	51	64	65	61	77	64	76	82	79	69
		2019	77	72	67	55	52	54	62	64	73	83	78	77	68
		2020	72	74	67	63	56	74	74	79	84	84	86	87	75
		2021	89	80	73	57	68	61	67	81	85	89	84	83	77
		Average	78	75	65	58	56	62	68	74	74	81	79	79	71
Potato Hills Station	1,420	2007	-	-	-	-	-	-	-	63	83	88	81	88	-
		2008	82	79	74	69	67	60	77	82	83	91	90	74	77
		2009	76	80	81	70	37	68	53	85	85	82	91	86	75
		2010	86	83	75	65	55	72	75	71	72	90	89	86	76
		2011	85	80	64	75	63	67	77	82	79	90	90	89	78
		2012	93	90	87	73	73	69	74	71	73	84	82	86	80
		2013	87	94	73	65	63	62	67	70	86	92	87	85	78
		2014	91	72	59	66	59	M	M	M	M	M	M	M	-
		2015	M	M	M	M	M	M	85	80	88	96	95	94	-
		2016	88	90	86	M	M	M	M	78	77	81	92	86	-
		2017	86	83	73	66	67	61	M	M	M	M	89	84	-
		2018	84	77	73	61	M	M	M	M	M	80	89	M	-
		2019	89	M	72	67	M	59	67	73	M	M	M	M	-
		2020	M	M	M	66	M	73	75	79	81	84	84	83	-
		2021	*89*	M	75	56	71	58	63	77	84	88	78	78	75
		Average	86	83	74	67	62	65	71	76	81	87	88	85	77

Notes: 1'M' denotes data missing for at least 14 days in the month due to a sensor malfunction.

3.6 Wind Speed and Direction

The predominant wind direction at the climate stations is north, and west-northwest, for the Camp and Potato Hills stations, respectively. No wind direction data was collected at the Potato Hills station in 2019 and early 2020. Wind speeds averaged 1.2 m/s at the Camp station, and 2.5 m/s at the Potato Hills station, on an annual basis (Table 3-7; Figure 3-4).

The maximum recorded gust speed at the Camp station was 23.5 m/s over a 15-minute interval (August 15, 2016). At the Potato Hills station, wind speeds averaged 23.5 m/s over a 1-hour period (November 3, 2010; 15-min maximum gust of 23.9 m/s), and during the same event, wind speeds in excess of 20 m/s were recorded for a 4.5-hour period. As shown in Table 3-7, the mean monthly wind speeds for both stations are higher in the spring, summer, and autumn months, and lower in the winter, with annual average monthly minimums occurring in December, and annual maximum winds in April and May.

Table 3-7:
Project site monthly average wind speed data.

Climate Station	Elevation (m asl)	Wind Speed (m/s)												
		Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Camp Station	782	2009	-	-	-	-	-	-	-	1.4	1.2	1.2	1.1	0.7	-
		2010	1.2	1.1	2.2	2.0	1.9	1.5	1.4	1.3	1.5	1.2	0.7	1.0	1.4
		2011	0.6	1.2	1.3	1.8	1.7	1.5	1.3	1.2	1.4	0.9	0.9	0.2	1.2
		2012	0.9	1.2	1.6	1.4	1.9	1.3	1.4	1.3	1.5	1.1	1.3	0.7	1.3
		2013	0.8	0.9	1.2	2.2	1.5	1.7	1.5	1.3	1.6	0.8	0.7	0.7	1.2
		2014	0.1	0.8	1.3	1.5	1.8	1.6	1.5	1.2	1.2	1.3	0.9	0.5	1.2
		2015	0.2	0.3	1.1	1.4	1.6	1.6	1.2	1.2	1.3	1.1	0.7	0.0	1.0
		2016	0.7	0.7	1.4	1.5	1.7	1.5	1.2	1.3	1.2	1.2	0.5	0.5	1.1
		2017	R	R	1.6	1.7	1.6	2.1	1.3	1.2	1.0	0.8	0.5	R	-
		2018	0.5	0.7	1.3	1.7	1.5	1.5	1.5	1.4	1.4	1.1	0.7	0.8	1.2
		2019	0.3	0.8	1.3	1.8	1.7	1.8	1.5	1.5	1.2	1.0	1.0	1.1	1.3
		2020	1.1	1.0	1.4	1.6	1.9	1.4	1.4	1.3	1.0	1.1	0.8	1.0	1.2
		2021	0.7	1.0	1.4	1.6	1.6	3.5	1.4	0.3	1.1	0.8	1.4	0.5	1.3
		Average	0.6	0.9	1.4	1.7	1.7	1.7	1.4	1.2	1.3	1.0	0.9	0.6	1.2
Potato Hills Station	1,420	2007	-	-	-	-	-	-	-	2.3	2.3	3.0	3.0	0.8	-
		2008	2.8	3.7	3.6	3.6	3.6	3.1	3.1	2.8	1.7	1.3	2.6	3.1	2.9
		2009	3.2	2.5	3.2	3.0	3.1	2.7	2.9	2.0	2.0	3.4	2.3	2.1	2.7
		2010	2.1	2.1	3.9	3.6	2.7	2.0	2.6	2.7	3.0	2.8	1.5	1.0	2.5
		2011	2.0	3.2	3.4	3.2	3.4	2.0	1.8	2.3	1.2	0.4	2.0	1.4	2.2
		2012	0.0	0.2	1.4	2.0	2.9	1.8	1.9	2.0	2.9	2.5	2.6	0.7	1.7
		2013	1.7	0.7	2.9	4.8	2.6	2.3	2.5	1.8	2.9	2.2	2.1	2.2	2.4
		2014	1.6	2.6	2.5	3.0	2.7	M	M	M	M	M	M	M	-
		2015	M	M	M	M	M	M	0.9	1.8	2.5	1.4	0.0	0.0	-
		2016	1.3	2.7	2.8	M	M	M	M	2.1	2.1	1.6	1.3	0.6	-
		2017	2.2	2.8	2.5	3.1	2.6	2.5	M	M	M	M	1.6	1.0	-
		2018	2.8	2.7	2.7	3.2	M	M	M	M	M	2.5	0.7	M	-
		2019	0.7	M	3.0	3.1	M	2.8	2.0	M	M	M	M	M	-
		2020	M	M	M	2.7	M	2.3	2.5	2.4	2.6	2.2	2.5	2.7	-
		2021	*2.3*	M	2.6	3.1	2.7	2.9	2.1	2.4	2.0	2.9	3.9	2.6	2.9
		Average	1.9	2.6	2.9	3.2	2.9	2.4	2.2	2.2	2.3	2.2	2.0	1.5	2.5

Notes:
1. Zero value for the Potato Hills Station in January 2012 is likely due to icing of the wind sensor.
2. 'M' denotes data missing when there are less than 25 days per month due to a sensor malfunction and R an indicator the wind sensor affected by rime.

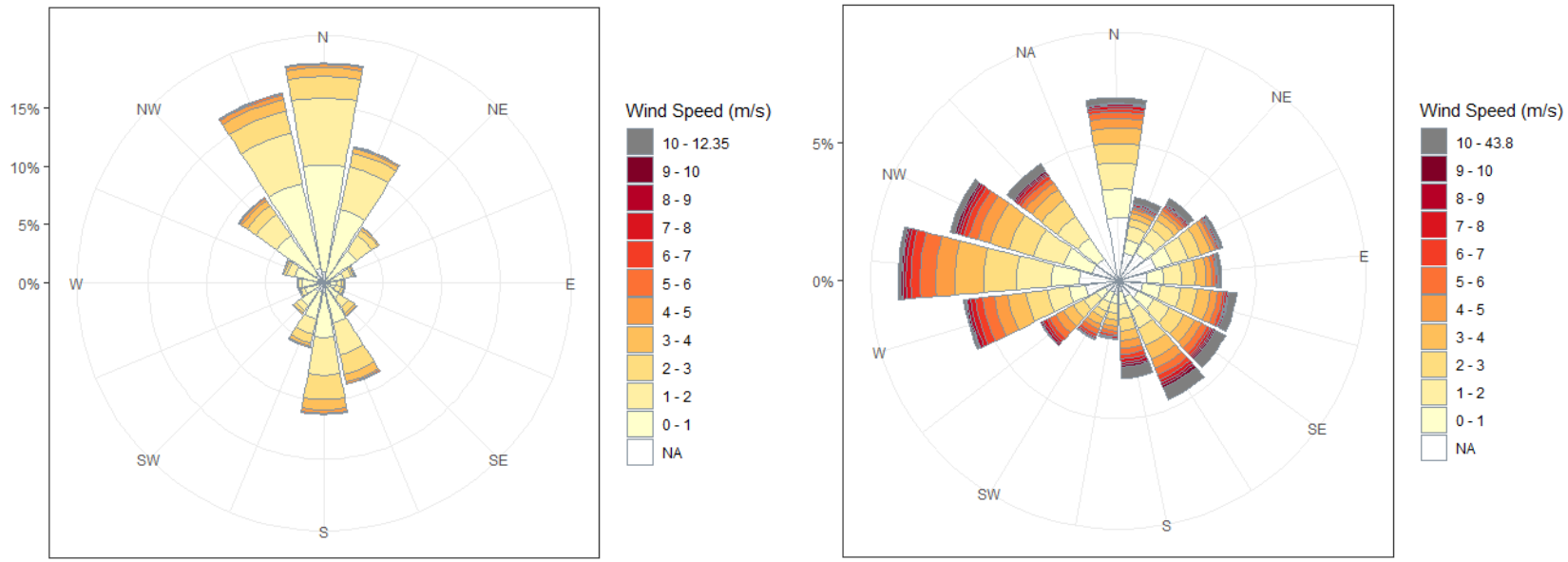


Figure 3-4: Project site wind roses for the Camp station (left) and the Potato Hills station (right). Wind roses are based on hourly averages of 15-minute readings of wind speed and direction.

3.7 Solar Radiation

Solar radiation (or solar irradiance) is a measure of the power per unit area provided by the Sun, in watts per square meter (W/m^2). Given the high-latitude location of the Project site, day length, and therefore solar radiation, fluctuate greatly on a seasonal basis. The average annual minimum of 1 W/m^2 (Camp station) and 3 W/m^2 (Potato Hills station) occur in the month of December, while the average annual maximum of 227 W/m^2 and 218 W/m^2 occur in May and June at the Camp station and May at the Potato Hills stations, respectively. The Camp station location in the valley bottom results in slightly lower incident solar radiation, presumably due to the shading effect of the surrounding terrain. The monthly average and maximum solar radiation values for both stations are presented in Table 3-8 for their periods of record.

Table 3-8:
Project site monthly maximum and average incoming solar radiation data.

Climate Station	Elevation (m asl)	Maximum Solar Radiation (W/m²)												
		Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Camp Station	782	2011	-	-	-	-	-	-	-	-	-	194	214	28	-
		2012	28	272	716	917	951	801	1022	832	708	423	172	119	1022
		2013	181	291	718	748	951	920	1005	810	741	461	191	38	1005
		2014	35	123	579	838	937	954	913	791	731	403	203	29	954
		2015	39	398	629	845	950	991	965	867	634	470	215	8	991
		2016	142	358	628	852	951	999	951	826	659	391	158	78	999
		2017	28	388	563	904	961	M	M	859	688	381	129	34	-
		2018	224	238	561	833	969	1008	926	885	684	382	84	36	1008
		2019	31	589	617	815	944	954	873	891	644	438	70	73	954
		2020	136	333	827	1087	1150	1224	1239	1094	986	530	190	44	1239
		2021	305	294	986	1447	1596	1760	1647	1409	1152	629	229	118	1760
		Maximum	305	589	986	1447	1596	1760	1647	1409	1152	629	229	119	1760
Potato Hills Station	1,420	2007	-	-	-	-	-	-	-	954	714	517	206	67	-
		2008	148	484	564	988	1047	1159	1162	1117	863	344	197	51	1162
		2009	179	302	856	976	979	1118	1086	908	768	488	188	69	1118
		2010	109	396	704	971	1069	1112	1079	944	838	472	247	77	1112
		2011	184	377	802	957	1136	1174	1124	1037	767	441	201	131	1174
		2012	31	34	126	1042	1126	1216	1251	934	897	483	163	78	1251
		2013	124	252	938	787	1071	1199	1233	1026	838	564	243	103	1233
		2014	162	356	667	1127	1021	M	M	M	M	M	M	M	-
		2015	M	M	M	M	M	M	662	1096	766	536	101	71	-
		2016	177	344	823	M	M	M	M	M	M	M	M	M	-
		2017	M	M	M	M	M	M	M	M	M	M	M	M	-
		2018	M	M	M	M	M	M	M	M	M	M	M	M	-
		2019	M	M	M	M	M	M	M	M	M	M	M	M	-
		2020	M	M	M	645	M	758	791	731	545	275	173	74	-
		2021	*113*	M	612	943	1132	1093	1136	961	862	451	160	76	1136
		Maximum	184	484	938	1127	1136	1216	1251	1117	897	564	247	131	1251

Climate Station	Elevation (m asl)	Average Solar Radiation (W/m²)												
		Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Camp Station	782	2011	-	-	-	-	-	-	-	-	-	40	12	2	-
		2012	3	44	165	263	237	174	184	153	84	42	10	2	113
		2013	4	18	108	181	201	225	198	154	77	36	9	1	101
		2014	2	10	106	162	204	208	183	128	96	23	11	1	95
		2015	2	14	86	155	242	210	176	144	80	32	5	1	96
		2016	4	27	76	150	200	228	170	148	102	49	7	2	97
		2017	2	25	97	173	192	M	M	147	82	28	6	1	-
		2018	6	21	93	178	178	195	204	128	117	44	4	1	98
		2019	2	24	89	162	208	224	203	152	91	30	5	2	99
		2020	5	23	119	245	345	250	264	196	120	53	7	2	136
		2021	6	29	135	275	266	332	296	190	112	34	10	2	141
		Average	3	23	108	194	227	227	209	154	96	37	8	1	108
Potato Hills Station	1,420	2007	-	-	-	-	-	-	-	162	87	37	11	2	-
		2008	9	38	98	163	193	222	180	132	83	22	10	3	96
		2009	7	35	95	184	250	228	244	116	81	42	8	3	108
		2010	6	34	96	183	233	210	191	178	115	35	10	3	108
		2011	8	35	106	187	250	221	199	152	100	46	13	7	110
		2012	1	2	6	110	163	189	203	168	93	46	11	3	83
		2013	7	16	112	171	246	245	218	169	82	36	11	3	110
		2014	7	43	122	178	234	M	M	M	M	M	M	M	-
		2015	M	M	M	M	M	M	185	163	89	35	5	1	-
		2016	5	34	94	M	M	M	M	M	M	M	M	M	-
		2017	M	M	M	M	M	M	M	M	M	M	M	M	-
		2018	M	M	M	M	M	M	M	M	M	M	M	M	-
		2019	M	M	M	M	M	M	M	M	M	M	M	M	-
		2020	M	M	M	M	M	180	176	134	78	29	11	2	-
		2021	4	M	86	181	176	242	213	134	71	24	10	3	98
		Average	6	30	91	170	218	217	201	151	88	35	10	3	102

Notes:
1. Solar radiation is zero at night.
2. Maximum values are based on an hourly/sub-hourly recording interval, and are calculated based on all available data, including months with fewer than 25 days of data.
3. Zero values are included in the calculation of averages.
4. 'M' denotes data missing when there are less than 25 days per month due to a sensor malfunction

3.8 Potential Evaporation

15-minute potential evaporation rates were computed for the Camp station using available climate and the Ref-ET calculator – a compiled, stand-alone computer program that calculates reference evapotranspiration (ASCE, 2005). For the period of available record (January 2013 to December 2021), a 15-minute climate input file was prepared for the Eagle Gold site. The input variables required by Ref-ET are: maximum air temperature, minimum air temperature, relative humidity, incoming solar radiation, atmospheric pressure and wind speed. Albedo values were estimated to be 0.6 during winter and 0.18 for snow-free months.

From the assembled climate inputs, Ref-ET returned potential evaporation (PE) computations at daily time-step based on an array of evaporation models (*e.g.,* Penman-Monteith model, Priestley-Taylor formulation). Presented in Table 3-9 (monthly tabulations) are resulting outputs from Ref-ET for months March to October. May to end-September PE for the Camp station is estimated to range from 367-448 mm with the Priestley-Taylor equation resulting in average PE estimates similar to values calculated using the Penman-Monteith equation. 2021 PE estimates using the Priestley-Taylor equation substantially exceeded the historical average, a similar result to that noted in the 2020 data following sensor servicing and calibration. A potential reason for this increase is the abnormally high solar radiation measured at Camp station during this period and the considerable influence exerted by solar radiation in the Priestley-Taylor equation. The highest monthly rates of PE are expected in May, June, July and August of each year.

Table 3-9:
Potential evaporation (PE) estimates for the Camp station.

Period	Method	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	Average (2012-2021)
Mar	PM	---	17	21	17	24	18	20	24	17	10	19
	P-T	---	16	19	16	16	13	25	19	19	12	17
Apr	PM	---	40	47	47	57	56	51	50	59	53	51
	P-T	---	40	46	46	48	50	59	47	70	65	52
May	PM	---	78	91	113	106	97	78	96	76	82	91
	P-T	---	82	85	108	86	80	83	92	89	103	90
Jun	PM	---	114	98	97	126	---	94	113	95	137	109
	P-T	---	116	96	97	109	---	99	109	116	162	113
Jul	PM	87	102	91	80	91	---	108	106	108	120	99
	P-T	93	102	90	86	86	---	113	107	130	147	106
Aug	PM	69	74	55	61	79	83	60	69	75	65	69
	P-T	70	73	56	63	67	68	67	65	90	85	70
Sep	PM	36	30	33	27	45	34	44	34	32	24	34
	P-T	26	24	28	23	30	25	49	30	38	32	30
Oct	PM	6	3	10	10	12	5	14	4	7	1	7
	P-T	4	3	4	5	5	4	17	4	6	2	5
Total (Mar-Oct)	PM	---	461	441	455	541	---	470	496	469	493	479
	P-T	---	453	419	440	447	---	511	473	558	608	484
Total (May-Sep)	PM	---	397	367	378	448	---	384	418	386	428	402
	P-T	---	397	354	378	378	---	410	403	463	529	410

Notes:
1. PM and P-T Indicate potential evaporation (PE) estimates based on Penman–Monteith and Priestley–Taylor approaches respectively.
2. PE Estimates computed using Eagle Camp/Lower 15-min climate data (*i.e.*, air temperature, relative humidity, wind speed, precipitation, solar radiation and atmospheric pressure measurements) and Ref-Et software

4. Closure

Victoria
GOLD CORP

4 Closure

We trust that this report meets your expectations at this time. Please contact the undersigned with any questions or comments.

Sincerely,

LORAX ENVIRONMENTAL SERVICES LTD.

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APPENDIX M

Vegetation Monitoring at the Eagle Gold Project 2021

VEGETATION MONITORING
AT THE EAGLE GOLD PROJECT
2021

(Sections 12 and 13 of the EMSAMP, Version 2020-01)

For

Victoria GOLD CORP

Submitted by

Laberge Environmental Services

November 2021

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1.0 INTRODUCTION

The vegetation monitoring program has been designed to evaluate changes to vegetation during the life of the Eagle Gold Project. Specifically, metal burden in and on plant tissues is measured annually during the growing season of each year to help identify whether any trends may be attributed to the Project. The 2021 survey is the fourth year of the program.

The Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP), Version 2020-01, identifies four areas located within the Project area for the establishment of permanent vegetation and soil plots. These sites are also the locations of dust fall monitoring installations.

An additional dust fall station was established during 2020 as contemplated in the Air Quality Monitoring Plan (dated August 2019). A vegetation plot was also established at this site during 2020.

The vegetation monitoring program now consists of five permanent plots since 2020.

2.0 METHODS

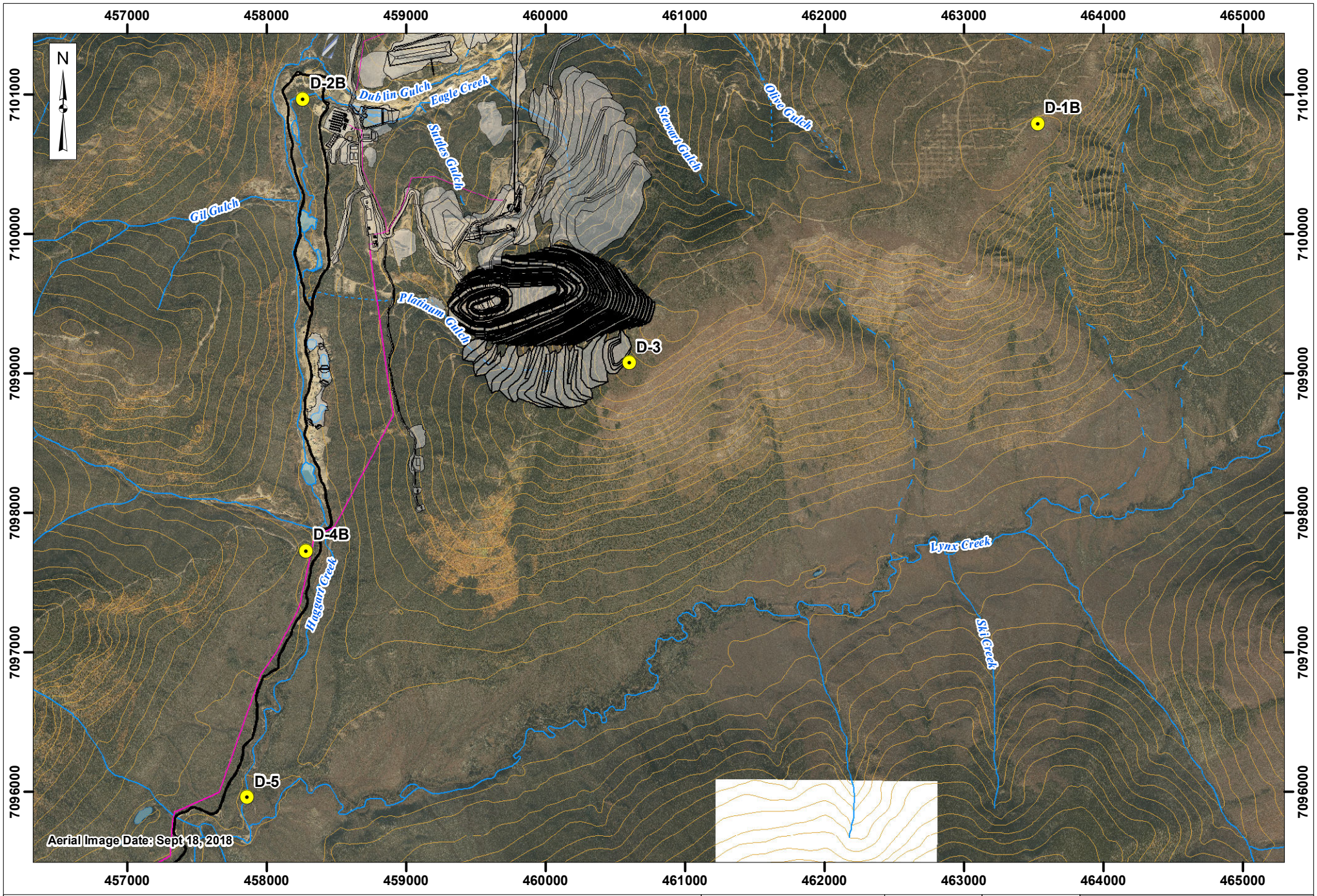
The original four sites were established in each of the identified quadrants with initial assessments and collections completed in early August 2018 (Laberge, 2018a). Two of these original sites (D-1 and D-3) were assessed and sampled again on July 11, 2019. Due to construction requirements, alternate sites for D-2 (approximately 70 m from original site) and D-4 (approximately 300 m south of the original site) were established and sampled as D-2B on July 10, 2019 and D-4B on July 12, 2019.

During late spring of 2020 part of site D-1 was impacted by a snowplow as it was clearing site roads. This site was re-located 40 m south of the original site and assessed and renamed D-1B. A new site (D-5) was established in 2020 by the dust fall station that had been launched near the confluence of Haggart Creek and Lynx Creek.

In late July 2021, sites D-1B, D-2B, D-3, D-4B and D-5 were assessed. Descriptions and locations are detailed in Table 1 and displayed on Figure 1. The coordinates of each site represent the centre point for that site. Four corner points were then established in cardinal directions 10 metres from the centre. The plot layout is represented in Figure 2. For each plot the five points were identified with fluorescent painted half-inch diameter rebar, 50 cm long.

TABLE 1 LOCATION AND DESCRIPTION OF VEGETATION SITES

Site #	NAD 83 Zone 8W		Aspect	Elevation (m)	Site Description
	Easting	Northing			
D-1B	463530	7100794	level	1437	Potato Hills near climate station, 40 m south of the original site D-1.
D-2B	458256	7100972	west	791	Upslope of the air quality station and the camp climate station, south side of Eagle Cr. Within influence.
D-3	460598	7099079	south west	1356	Above Platinum Gulch, below waste rock storage area. Within influence.
D-4B	458279	7097731	east	751	On the west side of the access road south of the Haggart Cr culverts and the power line, downwind of influence.
D-5	457857	7095962	level	720	Near surface water quality site W5, Haggart Creek upstream of Lynx Creek, downwind of influence.



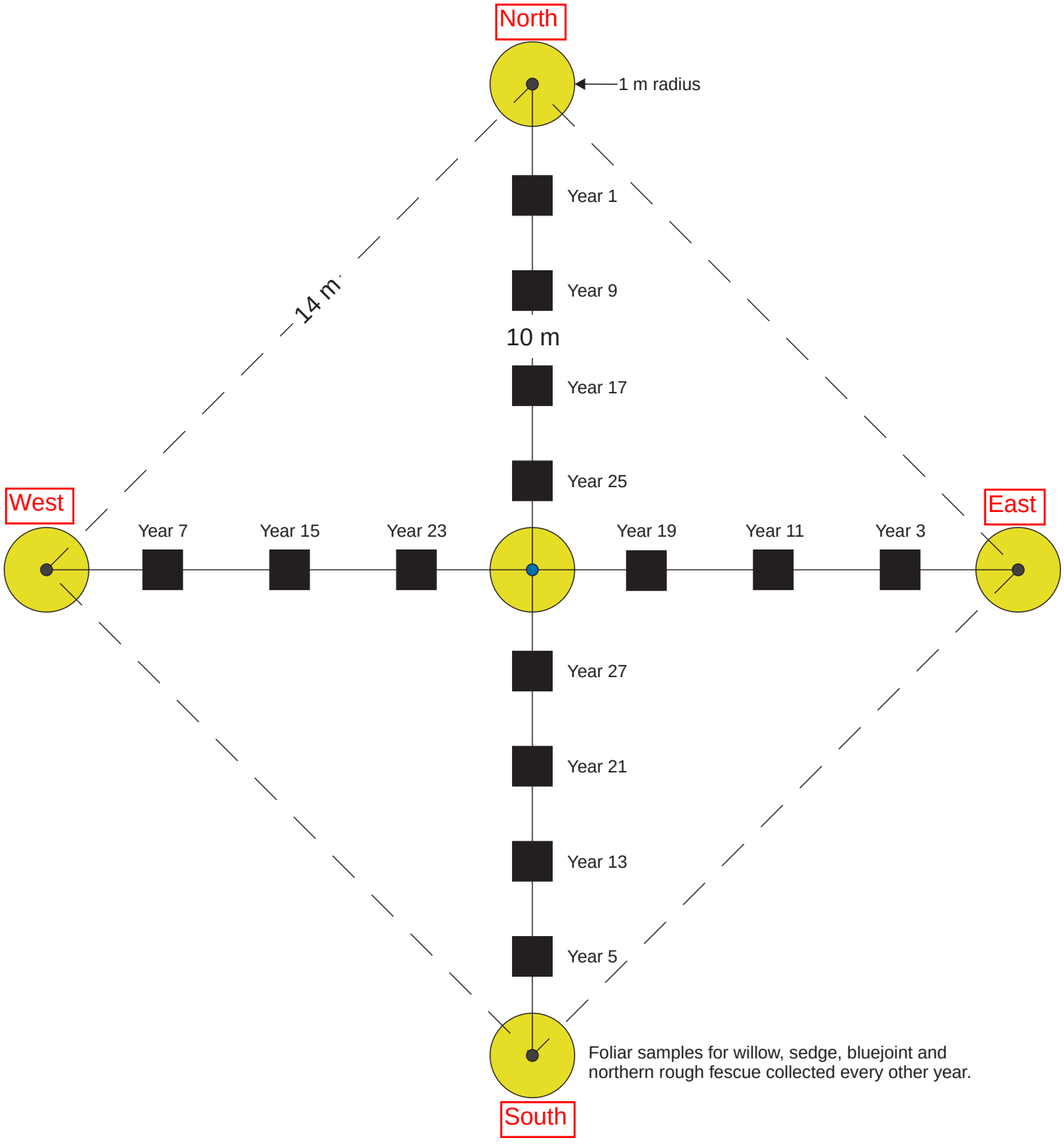
Legend:

- Vegetation & Soils Monitoring Locations
- Major Facility
- Site Power
- Contour (100ft)
- Reserved Area
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent

VICTORIA GOLD CORP

0 250 500 1,000
Metres

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 UTM Zone 8N	HC	
Date:	Figure:	Vegetation and Soil Monitoring Locations
2020/10/19		



Legend:

1 m radius

Vegetation sample plot locations; painted ½ inch rebar to locate centre and corner plots; foliar samples collected every other year.

Soil sampling locations, surface horizon between 0 and 0.5 m depths; one sample every other year.

StrataGold Corporation

EAGLE GOLD PROJECT
YUKON TERRITORY

Vegetation and Soil Monitoring Plot Layout

Projection:	Drawn By:	Date:	Figure:
N/A	SS	2014/07/02	2

2.1 Vegetation Assessments

At each site, circle plots of one-meter radius, were flagged around each of the rebars that were located at the centre, north, south, east and west points. The EMSAMP states that foliar samples of willow (*Salix* spp.), sedge (*Carex* spp.), bluejoint (*Calamagrostis canadensis*) and northern rough fescue (*Festuca altaica*) are to be collected within these five two-meter diameter plots. As each of these five vegetation sites are located in different ecosystem units, not all species were present at each site and substitutions were made where applicable. Duplicate samples of willow leaves, dwarf birch leaves (*Betula glandulosa)* and horsetail (*Equisetum spp*.) were collected at various plots during the survey for the purpose of QA/QC of laboratory analytical techniques.

New disposable nitrile gloves were worn for each collection and tissues were placed in new resealable plastic bags. Where possible, separate samples were collected for willow leaves and the current season's growth of twigs. Due to their presence at most of the plots, and the fact they also have reasonable surface area for dust deposits, dwarf birch (*Betula glandulosa*) leaves were also sampled. As in previous years (except for the original location of D-4 in 2018) sedge and bluejoint were not present in collectable quantities at any of the sites. Fescue biomass was sufficient for collection at D-1B only. Other species were substituted that were present at the plots. Table 2 lists the foliar samples that were collected and analyzed per plot.

TABLE 2 FOLIAR SAMPLES COLLECTED PER PLOT, 2021

SITE #	PLOT #	WILLOW LEAVES	WILLOW TWIGS	DWARF BIRCH LEAVES	EQUISETUM	FESCUE	PAPER BIRCH LEAVES	PAPER BIRCH TWIGS	LABRADOR TEA LEAVES	POPLAR LEAVES	POPLAR TWIGS
D-1B	Centre	√		√		Composite, gathered throughout site					
	North	√	√	√							
	East	√		√							
	South	√		√							
	West	√	√	√							
D-2B	Centre	√	√		√						
	North	√	√		√						
	East						√	√			
	South	√	√	√							
	West	√	√		√						
D-3	Centre	√	√	√							
	North	√		√							
	East	√		√							
	South			√							
	West	√	√	√							
D-4B	Centre			√					√		
	North	√	√		√						
	East	√		√					√		
	South	√	√								
	West			√					√		
D-5	Centre	√			√						
	North	√			√						
	East	√								√	
	South				√					√	√
	West	√			√						
# of individual samples:		20	10	14	8	1	1	1	3	2	1

A total of 61 foliar samples were collected and kept cool until delivered to the ALS depot in Whitehorse, Yukon. After they were logged in, the samples were frozen and shipped to the ALS laboratory in Burnaby, BC for analysis. Analysis was performed on unrinsed tissues as in the past surveys, and thus data includes dust deposition as well as metal uptake from the soil.

The foliar samples were homogenized and sub-sampled prior to hot-block digestion with nitric and hydrochloric acids, in combination with the addition of hydrogen peroxide. Metals were analyzed using collision cell inductively coupled plasma-mass spectrometry. Analysis for mercury was done by atomic fluorescence or atomic absorption spectrophotometry.

3.0 RESULTS

3.1 Description of the Vegetation Sites

The five 200 m^2 established sites lie within two ecological zones; the Subalpine Zone where the elevation is greater than 1225 masl and the Forested Zone which includes the treed areas on the mountain slopes and the valley bottoms (Stantec, 2011b). D-1B and D-3 are located in the Subalpine Zone while D-2B, D-4B and D-5 are in the Forested Zone. Selected photographs of the sites are presented in Appendix A.

D-1B
Stantec (2011b) conducted ecosystem mapping throughout the Eagle Gold Project area in 2009. The polygon that contains D-1B is classified as 50% Dwarf Birch and Lichen, 40% Dwarf Birch and Northern Rough Fescue and 10% Subalpine Fir, Dwarf Birch, Crowberry and Lichens (Stantec, 2011b, Appendix 11, Part 1).

Within the boundary of D-1B, as observed in previous years, dwarf birch was the dominant species followed by willow. Tree species were solitary sporadic subalpine fir. There was some exposed rock and talus throughout the site with the majority encrusted with lichen. A diversity of forbs was noted. A bumble bee was observed in the plot. The following plants were identified within D-1B:

Common Name	Scientific Name
Subalpine Fir	*Abies lasiocarpa*
White Spruce	*Picea glauca*
Dwarf Birch	*Betula glandulosa*
Willow	*Salix planifolia*
Diamond Leaf Willow	*Salix pulcha*
Willow	*Salix richardsonii*
Northern Labrador Tea	*Rhododendron tomentosum*
Low Bush Cranberry	*Vaccinium vitis-idaea*
Blueberry	*Vaccinium uliginosum*
Arctic White Heather	*Cassiope tetragona*
Crowberry	*Empetrum nigrum*
Colt's Foot	*Petasites frigidus* var. *sagittatus*
Lupine – some with pods	*Lupinus arcticus*
Mountain Sagewort	*Artemisia norvegica*
Anemone	*Anemone narcissiflora*
Richardson's Anemone	*Anemone richardsonii*
Labrador lousewort	*Pedicularis labradorica*
Spike Trisetum	*Trisetum spicatum*
Northern rough fescue	*Festuca altaica*
Heron bill moss	*Dicranum sp. – D. acutifolium?*
Red-stemmed feather moss	*Pleurozium schreberi*
Haircap moss	*Polytrichum sp.*

Common Name	Scientific Name
Arctic butterfingers lichen	*Dactylina arctica*
Star reindeer lichen	*Cladina stellaris*
Grey reindeer lichen	*Cladina rangiferina*
Club lichen	*Cladonia* spp.
Arctic kidney lichen	*Nephroma arcticum*
Alpine foam lichen	*Stereocaulon alpinum*
Rockstripe lichen	*Umbilicaria torrefacta*
Green crusticose lichen	*Aspicilia caesiocinerea*
Common freckle pelt lichen	*Peltigera aphthosa*
Caribou horn tumbleweed lichen	*Masonhalea richardsonii*

D-2B

D-2B is located east of the camp weather station on the south side of Eagle Creek, approximately 70 m south of the original D-2. Stantec (2011b) classified the polygon where D-2B is located as 80% Black spruce, Labrador Tea and Feathermoss and 20% Subalpine Fir, Crowberry and Lichen.

Tree species found within the boundary of site D-2B consisted of white spruce, trembling aspen, balsam poplar and paper birch, which is consistent with the D-2 site located approximately 70 m north that was sampled in 2018. Willows were the dominant shrub species. Horsetail (*Equisetum spp.)* and grasses were the dominant ground cover. Forbs and other shrubs were also present. Moose scat and rabbit pellets were observed throughout the plot.

The following plants were identified at D-2B:

Common Name	Scientific Name
Balsam poplar	*Populus balsamifera*
Trembling aspen	*Populus tremuloides*
White spruce	*Picea glauca*
Alaska paper birch	*Betula neoalaskana*
Black spruce	*Picea mariana*
Green alder	*Alnus viridis* subsp*. crispa*
Kinnikinnick	*Arctostaphylos uva-ursi*
Black crowberry	*Empetrum nigrum*
Diamond Leaf Willow	*Salix pulchra*
Scouler's Willow	*Salix scouleriana*
Felt-leaf willow	*Salix alaxensis*
Little-tree willow	*Salix arbusculoides*
Grey-leaved willow	*Salix glauca*
Blueberry willow	*Salix myrtillifolia*
Dwarf Birch	*Betula glandulosa*
Labrador Tea	*Rhododendron groenlandicum*
Low Bush Cranberry	*Vaccinium vitis-idaea*
Bog blueberry	*Vaccinium uliginosum*
Prickly rose	*Rosa acicularis*
Soapberry	*Shepherdia canadensis*
Alpine milk-vetch	*Astragalus alpinus*
Fireweed	*Chamerion angustifolium*
Alpine sweet-vetch	*Hedysarum alpinum*

Common Name	Scientific Name
Arctic sweet coltsfoot	*Petasites frigidus*
Wintergreen	*Pyrola sp.*
Grass-of-Parnassus	*Parnassia palustris*
Northern green bog orchid	*Habenaria hyperborea*
Small tofieldia	*Tofieldia pulsilla*
Hedysarum	*Hedysarum alpina*
Common horsetail	*Equisetum arvense*
Dwarf scouring-rush	*Equisetum scirpoides*
Small sedge	*Carex* sp.
Altai fescue	*Festuca altaica*
Fire moss	*Ceratadon purpureus*
Step moss	*Hylocomium splendens*
Red-stemmed feather moss	*Pleurozium schreberi*
Star reindeer lichen	*Cladina stellaris*
Grey reindeer lichen	*Cladina rangiferina*
Club lichen	*Cladonia* spp.
Crinkled snow lichen	*Flavocetraria nivalis*
Common freckle pelt lichen	*Peltigera apthosa*
Alpine foam lichen	*Stereocaulon alpinum*

D-3

D-3 is located in a subalpine setting above Platinum Gulch. The site itself has not been disturbed however the waste rock dump has encroached closer to the site over the past couple of years. The ecosystem classification in the polygon where D-3 is situated is 50% dwarf birch and northern rough fescue, 40% dwarf birch and lichen, and 10% subalpine fir, dwarf birch, crowberry and lichens (Stantec, 2011b).

As observed in 2018, 2019 and 2020 within the boundaries of D-3, dwarf birch was the dominant species with scattered subalpine fir and white spruce. Willows, berry bushes, lichens and moss were also present.

The following plants were identified at D-3:

Common Name	Scientific Name
Subalpine Fir	*Abies lasiocarpa*
White Spruce	*Picea glauca*
Grey-leaved Willow	*Salix glauca*
Diamond Leaf Willow	*Salix pulchra*
Dwarf Birch	*Betula glandulosa*
Low Bush Cranberry	*Vaccinium vitis-idaea*
Blueberry	*Vaccinium uliginosum*
Crowberry	*Empetrum nigrum*
Labrador tea	*Rhododendron groelandicum*
Labrador Lousewort	*Pedicularis labradorica*
Anemone	*Anemone narcissiflora*
Mountain sagewort	*Artemisia norvegica*
Caespitose fleabane	*Erigeron caespitosus*
Labrador lousewort	*Pedicularis labradorica*

Common Name	Scientific Name
Northern rough fescue	*Festuca altaica*
Alpine bluegrass	*Poa alpina*
Woodrush	*Luzula parviflora*
Glow moss	*Aulacomnium palustre*
Broom moss	*Dicranum* sp. – *D. acutifolium?*
Haircap moss	*Polytricum* sp.
Red-stemmed feather moss	*Pleurozium schreberi*
True Iceland lichen	*Cetraria islandica*
Club lichens	*Cladonia* spp.
Crinkled snow lichen	*Flavocetraria nivalis*
Arctic kidney lichen	*Nephroma arcticum*
Star reindeer lichen	*Cladina stellaris*
Caribou horn	*Masonhalea richardsonii*
Common freckle pelt lichen	*Peltigera aphthosa*

D-4B

D-4B is located in the Forested Zone downstream of the Haggart Creek culverts on the west side of the road just past the power line in an undisturbed area of the natural forest. The ecosystem classification in the polygon in which D-4B is situated is 60% subalpine fir, crowberry and lichens, 30% black spruce, Labrador tea and feathermoss and 10% Alaska paper birch, white spruce and willow (Stantec 2011b). This is somewhat different to the classification of D-4, sampled in 2018, which was located in the Haggart Creek floodplain, and classified as river/creek system with gravel bars and 20% as an ecosystem type of White Spruce and Horsetail and therefore comparisons between these two sites will be irrelevant.

Alaska paper birch, white spruce, black spruce and trembling aspen were the tree species identified within the boundaries of plot D-4B. Many species of shrubs dominated the site notably willows and dwarf birch. Moss and lichens were common. Berries were present on the bog blueberry, cranberry, crowberry and bearberry shrubs. Moose scat was observed in the plot.

The following plants were identified at D-4B:

Common Name	Scientific Name
Alaska paper birch	*Betula neoalaskana*
White spruce	*Picea glauca*
Black spruce	*Picea mariana*
Trembling aspen	*Populus tremuloides*
Green alder	*Alnus viridis* subsp. *crispa*
Red bearberry	*Arctos rubra*
Glandular scrub birch	*Betula glandulosa*
Water birch	*Betula occidentalis*
Shrubby cinquefoil	*Dasiphora fruticosa*
Black crowberry	*Empetrum nigrum*
Labrador tea	*Rhododendron groenlandicum*
Prickly rose	*Rosa acicularis*
Arctic willow	*Salix arctica*
Barclay's willow	*Salix barclayi*
Bebb's willow	*Salix bebbiana*

Common Name	Scientific Name
Grey-leaved willow	*Salix glauca*
Blueberry willow	*Salix myrtillifolia*
Diamond leaved willow	*Salix pulchra*
Net-veined willow	*Salix reticulata*
Small cranberry	*Vaccinium oxycoccos*
Bog blueberry	*Vaccinium uliginosum*
Lowbush cranberry	*Vaccinium vitis-idaea*
Twinflower	*Linnaea borealis*
Arctic lupine	*Lupinus arcticus*
Tall bluebells	*Mertensia paniculata*
Labrador lousewort	*Pedicularis labradorica*
Arctic sweet coltsfoot	*Petasites frigidus*
Hooded ladies' tresses	*Spiranthes romanzoffiana*
Common false asphodel	*Tofieldia pulsilla*
Common horsetail	*Equisetum arvense*
Dwarf scouring rush	*Equisetum scirpoides*
Woodland horsetail	*Equisetum sylvaticum*
Bristly club-moss	*Lycopodium annotinum*
Polar grass	*Arctagrostis latifolia*
Bluejoint	*Calamagrostis canadensis*
Bigelow sedge	*Carex consimilis*
Glow moss	*Aulacomnium palustre*
Bryum family moss	*Bryacease* sp. – *Pohlia nutans?*
Broom mosses	*Dicranum* spp.
Red-stemmed feather moss	*Pleurozium schreberi*
Haircap moss	*Polytricum* sp.
Narrow-leaved peat moss	*Sphagnum angustifolium?*
Warnstorf's peat moss	*Sphagnum warnstorfii?*
Golden fuzzy fen moss	*Tomenthypnum nitens*
True Iceland lichen	*Cetraria islandica*
Grey reindeer lichen	*Cladina rangiferina*
Star reindeer lichen	*Cladina stellaris*
Club lichens	*Cladonia* spp.
Crinkled snow lichen	*Flavocetraria nivalis*
Candy lichen	*Icmadophila ericetorum*
Reindeer tumbleweed lichen	*Masonhalea richardsonii*
Arctic kidney lichen	*Nephroma arcticum*
Common freckle pelt lichen	*Peltigera apthosa*
Undulating pelt lichen	*Peltigera neopolydactyla*

D-5

D-5 is located in the Forested Zone near Haggart Creek and water quality station W-5. According to Stantec's ecosystem mapping (2011) site D-5 lies in the 100% white spruce horsetail unit within the active floodplain. D-5 was set up so that one of the plots was located in the riparian zone. Balsam poplar saplings were common. Shrubs and forbs were common in the forested section and horsetail was the dominant ground cover.

The following plants were identified at D-5:

Common Name	Scientific Name
White spruce	*Picea glauca*
Balsam poplar	*Populus balsamifera*
River alder	*Alnus incanna*
Grey-leafed willow	*Salix glauca*
Little-tree willow	*Salix arbusculoides*
Shrubby cinquefoil	*Potentilla fruticosa*
Soapberry	*Shepherdia canadensis*
Kinnikinnick	*Arctostaphylos uva-ursi*
Crowberry	*Empetrum nigrum*
Blueberry	*Vaccinium uliginosum*
Hedysarum	*Hedysarum alpinum*
Pussytoes	*Antennaria microphylla*
Fireweed	*Chamerion angustifolium*
Jacob's ladder	*Polemonium pulcherrimum*
Wintergreen	*Pyrola sp*
Bearberry	*Arctos rubra*
Bastard toad-flax	*Geocaulon lividum*
Green kidney lichen	*Nephroma arcticum*
Common freckle pelt lichen	*Peltigera aphthosa*
Tree lichen	*Parmelia sulcata*
Common horsetail	*Equisetum arvense*
Feather moss	*Pleurozium schreberi*

It should be noted that no invasive plant species were identified at any of the plots nor on route to the plots during the 2021 survey.

3.2 2021 Metals Data in Vegetation

Foliar samples were collected from each site and where possible from each of the five plots at each site (Table 2). Willows were collected from all of the sites and most of the individual plots, followed by dwarf birch. The majority of the willows were *Salix pulchra*, diamond leaf willow, and this species was present at all of the sites. There was insufficient biomass for the collection of fescue (*Festuca altaica*) except at site D-1B where the grass sample was gathered throughout the site. A total of 61 tissue samples were collected for analysis.

The analytical tissue reports for monitored vegetation species and plots are presented in Appendix B. Samples were analyzed for a suite of 34 metals including mercury.

The range of concentrations of each parameter for all vegetation types per site is summarized in Table B-1 (in Appendix B). Note that tellurium and tin were not detected in any of the tissues at any of the sites. There are no territorial or federal guidelines regarding metal concentrations in vegetation with respect to wildlife consumption (e.g., moose, caribou and/or bear). As an alternate means to characterize potential ingestion effects for wildlife, the metal data have been compared to the maximum tolerable levels (MTL) for cattle and rodents (NRC 2005). Maximum tolerable levels are defined as the dietary level that, when consumed over time, will not impair health or performance. These MTL values have also been included in Table B-1.

For the majority of the metals, concentrations in the 2021 foliar samples were well below these levels. Two metals, manganese and selenium, exceeded the MTL in some tissues. Manganese levels exceeded the MTL in dwarf birch leaves collected from the west, north and south plots at D1-B, and in the east and west plots at D3.

The MTL for selenium was exceeded in the north plot at D2-B in horsetail tissues. A high concentration of 31.1 mg/kg was documented in the horsetail tissues here which is similar to the 2019 and 2020 data where concentrations of 26.7 mg/kg and 29.2 mg/kg respectively were documented at the same plot. Horsetail has been shown to have high accumulations of selenium in other studies where concentrations are typically higher than in other vegetation tissues (Ozkutlu et al, 2011, Patorczyk-Pytlik, B. 2009, Shawl and Reynolds, 1985).

Willow leaves and twigs are a preferred browse for moose. Moose will browse on dwarf birch although willow is preferred. Bear and snowshoe hare will also browse on the leaves and twigs of dwarf birch, and ptarmigan and grouse will eat the buds and catkins. Bears and moose will eat horsetail. The low levels documented in this study are unlikely to cause any health issues to the wildlife in the Project area.

Potential emissions related to the gold recovery process include the metals arsenic, cadmium, chromium, mercury and lead (EMSAMP, 2020-01). These metals were averaged per vegetation type for the five collection plots at each site. These data were sorted from lowest concentration to highest and charted on Figure 3 to help assess potential relationships between tissue type and location. Mercury was not charted due to the high number of non-detections and any detected concentrations were very low.

Fescue tissues collected from D-1B had the lowest arsenic levels (0.148 mg/kg), followed by all other tissue types collected from D-1B. The greatest average concentration of arsenic was documented in willow twigs (n=2) collected from D-3. The single highest concentration of arsenic, 5.15 mg/kg, was found in the willow twigs sampled from the centre plot at D-3 (Appendix B). This concentration is well below the MTL for arsenic.

Labrador tea (n=4) had the lowest average cadmium concentration (0.008 mg/kg) and low values occurred in the fescue and dwarf birch tissues unrelated to the site they were collected from. The highest average concentration of cadmium was documented in the willow leaves collected from D-2B (n=4), however the highest concentration (6.23 mg/kg) in willow leaves was collected from the east plot at D1-B. All concentrations were below the MTL however.

Chromium concentrations were low at most of the sites and in most of the tissues. The highest concentration was documented in the dwarf birch leaves collected from the centre plot at D4-B with a value of 0.696 mg/kg. All concentrations were well below the MTL.

Average lead levels ranged from a low of 0.0592 mg/kg in dwarf birch leaves collected from D1-B to an average of 0.674 mg/kg in paper birch tissues from D2-B. These concentrations are well below the MTL.

Mercury levels were very low in the tissues at all of the sites (no exceedances) and were not detected in any of the poplar or paper birch twigs, or in the fescue tissues.

Visually, all vegetation surveyed at the plots appeared healthy with no signs of stress. The exception to this were galls that were present on willow leaves at D-1B. These are the result from the laying of eggs by sawflies (from the order Hymenoptera) on the leaves (see Photo #7).

3.3 Quality Assurance and Quality Control (QA/QC)

As a measure of QA/QC duplicate samples of the three main vegetation types were collected and analyzed. DUP-1 represents willow leaves collected from D3-North, DUP-2 represents dwarf birch leaves collected from the East plot at D1-B, and DUP-3 represents horsetail tissues collected from the North plot at D5.

Relative percent difference (RPD) was calculated for each parameter, according to the following formula:

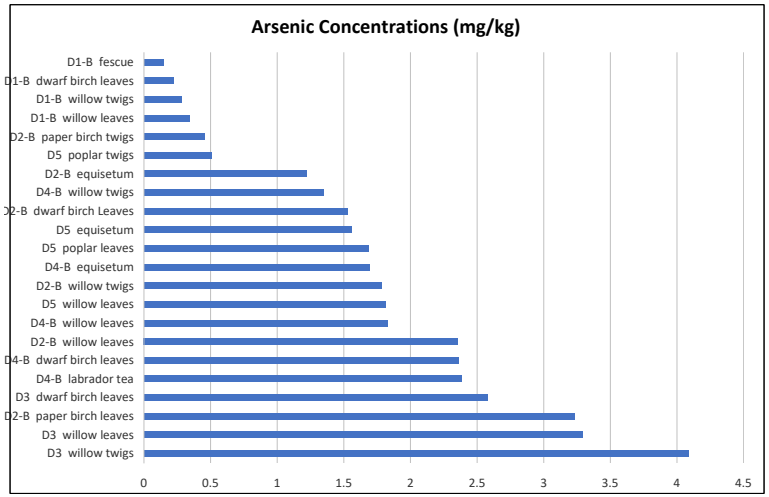
$$\boldsymbol{RPD} = \frac{\left|\boldsymbol{Result_{Sample}} - \boldsymbol{Result_{Replicate}}\right|}{\left(\frac{\boldsymbol{Result_{Sample}} + \boldsymbol{Result_{Replicate}}}{\boldsymbol{2}}\right)} \boldsymbol{x100}\%$$

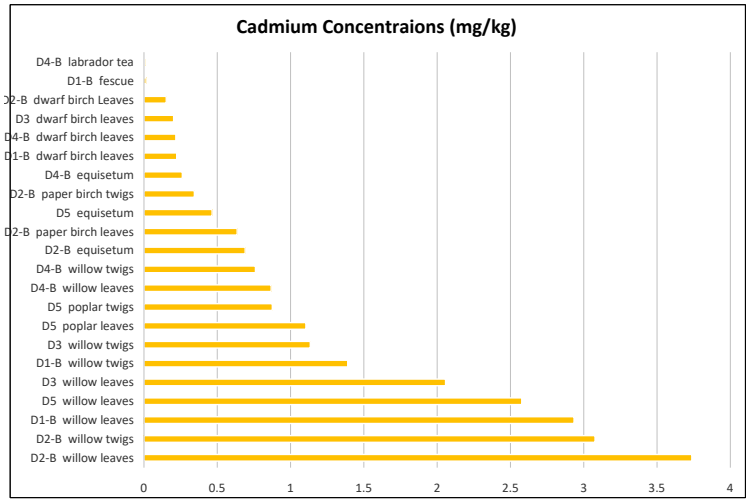
An RPD of 20% was used as a benchmark for analyte variability, such that an RPD greater than 20% warranted further comment or investigation. If the RPD of an analyte was greater than 20%, the results were compared to the laboratory detection limit (DL) to determine if the practical quantitation limit (PQL) was met. Typically, as analytes approach their detection limit, high variability is more likely to occur. The PQL is defined as the minimum concentration that can be measured within specified limits of precision and accuracy and was calculated as five times the DL. Both the sample and replicate results for a particular analyte needed to be greater than five times the DL for the PQL to be met. If one result from the sample or replicate is greater than five times the DL and the other result is less than five times the DL, the PQL was not met. If the analyte PQL was not met, the constituent being analyzed was not present in a sufficient amount to be reliably quantified. These data are presented in Table B-2 of Appendix B.

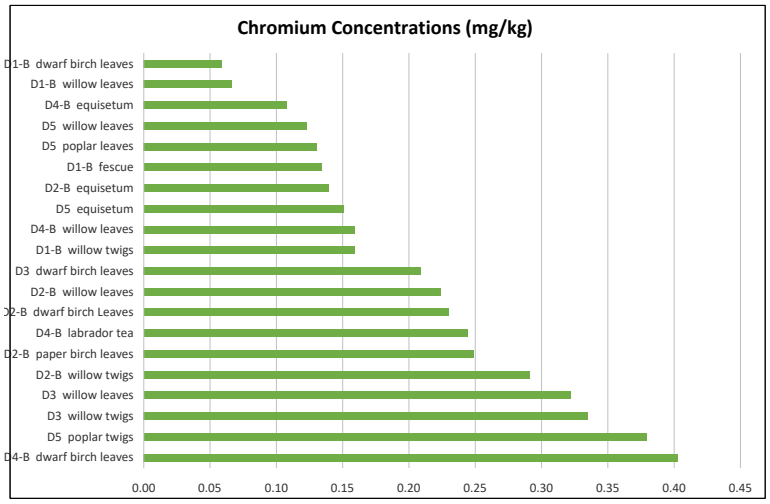
Bismuth was the only parameter in willow leaves where the RPD was greater than 20%, however the PQL was met. Three parameters exceeded the RPD and PQL in the dwarf birch leaves; bismuth, chromium and lead. Antimony was the only metal where the RPD was exceeded in the horsetail tissues however it met the PQL.

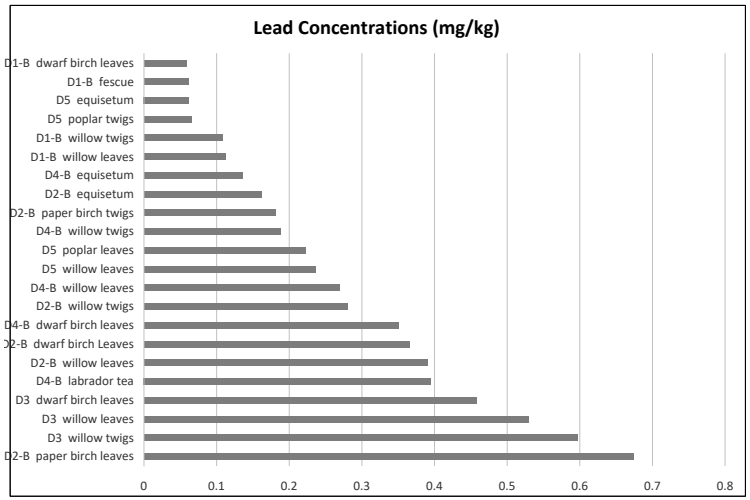
Based on this, it appears that dwarf birch leaves have greater variability regarding metal uptake than willow leaves or horsetail tissues.

FIGURE 3 **GRAPHICAL REPRESENTATION OF METALS IN VEGETATION TISSUES, 2021**









3.3 Previous Vegetation Data

Foliar samples for tissue analysis have been collected in 2018, 2019, 2020 and 2021. The selected metal concentrations in the tissue samples have been tabulated per site, per year, per tissue type, in Table B-3 in Appendix B. Foliar samples have been collected for four years, however not all sites have been in consistent locations. Site D-3 is the only site where vegetation tissue samples have been collected every year. Data from all four years for site D-1B have also been included since the location was only shifted by approximately 40 m in 2020 and therefore should be relatively representative of conditions. Site D-5 now has two sets of data and has been included below and in Table B-3. General observations of the data with some discussion are listed below:

- There was a slight increase in arsenic concentrations in the dwarf birch and willow leaves at D-1 but most of the other metals decreased in concentration in 2021 in all tissue types.

- There was some minor fluctuations throughout all tissue types at D-2B.

- Four consecutive years of data exist for D-3. There was an increase each year of all of the selected metals in the willow leaves, willow twigs and dwarf birch leaves up to 2020 with concentrations decreasing somewhat in 2021. The Platinum Gulch waste rock storage area (WRSA) has encroached closer to D-3 over the time period. It is likely that dust generated from the off-loading of waste rock to the storage area has possibly lead to the increase in tissue concentrations observed in 2020. The July 2021 precipitation data from the Potato Hills and Camp Climate stations show that 23 mm and 37 mm of rain respectively, fell from July 15th to 24th, and may have created a rinsing effect of the foliage (Figure C-1, Appendix C). No dust accumulations were observed on the vegetation during the collection process. Little is known about heavy metal uptake by plant leaves from the atmosphere however studies have shown that non-essential metals such as lead, cadmium, chromium and arsenic can enter plant leaves via foliar transfer (Shahida, 2017). Plants also uptake metals from the soil. The biennial soil sampling program was not conducted in 2021.

- Data were generally similar each year with some fluctuation over the three years at D-4B.

- Site D-5 now has two set of data. Arsenic and chromium increased in 2021 in all tissue types.

4.0 DISCUSSION

The levels of metals found in the foliar samples collected in 2021 represent the fourth year of assessment for sites D-1(B) and D-3, third year for sites D-2B and D-4B and second year for D-5. The data gives a general idea of the metal burden (uptake from soil in tissues as well as through dust deposition) in various species in different ecological zones.

Arsenic is potentially a parameter of concern in the Eagle Gold Project area. The soil samples collected to date indicate high naturally occurring levels of arsenic in the area. Arsenic is associated with the gold bearing anomalies in the district and these initial concentrations reflect the natural mineralization of the Project area. Arsenic soil concentrations exceeded the CCME and CSR guidelines in the samples collected in 2018 (Laberge, 2018), 2019 (Laberge, 2019) and 2020 (Appendix C). However, these relatively high soil concentrations are not overly reflected in the plant tissues. This incongruity may be related to the bioavailability associated with arsenic speciation.

It is a general consensus that arsenic is not essential for plants. The concentration of arsenic in plants is usually less than 1.0 mg/kg (Abbas, 2018). Arsenic concentrations ranged from 0.148 to 5.15 mg/kg in the 61 individual tissue samples analyzed in 2021. These concentrations are well below the MTL of 30 mg/kg arsenic in a dietary source.

The toxicity of arsenic to biota depends upon the speciation with inorganic forms generally thought to be more toxic than organic forms. Arsenate [As(V)] is the dominant form of arsenic in aerobic soils (Meharg et al, 2002). It is similar to the macronutrient phosphate and creates toxicity in plants by competing with phosphate. Processes within the plant convert arsenate to the more toxic arsenite [As(III)]. Trivalent arsenic (arsenite) is 5 to 10 times more toxic than pentavalent arsenic (arsenate). Elemental arsenic is non-toxic. There was no visible sign of stress in any of the vegetation in the plots. It is not known what species of arsenic are present in the Project's soils or the species present in the plant tissues. Investigations into the speciation of arsenic in plant tissues have shown more than one species present (Meharg et al, 2002). Therefore, the arsenic present in the soil may not be bioavailable to plants or the availability may be limited by the mycelium associated with the vegetation types, which effectively screen out toxins at the root hairs.

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APPENDIX A

PHOTOGRAPHS – JULY 2021



Photo #1: Collecting willow leaves at the South Plot of D-1B.



Photo #2: D-2B, North Plot.



Photo #3 Collecting foliar samples at the South Plot of D-3.



Photo #4: Centre Plot at D-4B.



Photo #5 Net-viened willow (*Salix reticulata*) at D-4B. .



Photo #6 Collecting foliar samples from the South Plot at D-5.



Photo #7: Galls resulting from egg laying by sawflies.

APPENDIX B

VEGETATION TISSUES DATA

- **TABLE B-1**
- **TABLE B-2**
- **TABLE B-3**
- **ANALYTICAL REPORT, JULY 2021**

TABLE B-1 **RANGE OF DETECTED METALS (mg/kg) IN ALL TISSUE TYPES, 2021**

Parameter	D1-B (n=13)	D2-B (n=14)	D3 (n=11)	D4-B (n=12)	D5 (n=11)	Maximum Tolerance Level	
						Cattle	Rodent
moisture (%)	54.8 to 64.9	51.7 to 77	55.6 to 64.8	49.4 to 71.9	55.9 to 76.3		
aluminum	7.2 to 27.9	17 to 93	62.2 to 190	21.1 to 90.2	9.2 to 55.4	1000	200
antimony	0.011 to 0.025	0.031 to 0.202	0.092 to 0.258	0.048 to 0.235	0.015 to 0.11		70 - 150
arsenic	0.148 to 0.463	0.457 to 3.23	1.7 to 5.15	0.763 to 3.52	0.51 to 2.56	30	30
barium	21.9 to 55.4	29.5 to 149	28.6 to 124	10.4 to 85.5	9.46 to 50.2		250
beryllium	0.01 to 0.015	ND	0.012 to 0.02	ND	ND		
bismuth	0.01 to 0.013	0.016 to 0.163	0.047 to 0.158	0.02 to 0.407	0.024 to 0.059		
boron	1.6 to 12	1.8 to 26.6	1.5 to 8.1	3.6 to 17.9	8.1 to 15.8	150	150
cadmium	0.0152 to 6.23	0.152 to 5.37	0.119 to 3.8	0.0076 to 1.31	0.236 to 3.82	10	10
calcium	1820 to 7760	1410 to 26600	3640 to 9380	3500 to 14300	4060 to 21700		
cesium	0.014 to 0.204	0.0081 to 0.111	0.0591 to 0.209	0.0118 to 0.268	0.0091 to 0.404		
chromium	0.05 to 0.202	0.103 to 0.494	0.12 to 0.41	0.108 to 0.696	0.086 to 0.379	100	100
cobalt	0.043 to 4.56	0.042 to 2.68	0.606 to 7.94	0.043 to 0.843	0.255 to 2.69	25	25
copper	1.4 to 6.4	2.52 to 8	2.82 to 6.13	2.18 to 7.38	2.84 to 5.18	40	500
iron	34 to 75.4	39.9 to 262	134 to 330	54.5 to 212	36.1 to 153	500	500
lead	0.044 to 0.173	0.13 to 0.674	0.298 to 0.723	0.104 to 0.556	0.049 to 0.279	100	10
lithium	ND	ND	ND	ND	0.55 to 0.55	25	25
magnesium	887 to 2600	314 to 8710	1080 to 2890	1160 to 4370	1420 to 6600		
manganese	73.2 to 3350	25.8 to 1300	175 to 2780	50.3 to 1960	32.5 to 401	2000	2000
mercury	0.0051 to 0.0062	0.0052 to 0.08	0.005 to 0.0075	0.0052 to 0.0067	0.0051 to 0.0064		0.2
molybdenum	0.057 to 0.18	0.07 to 1.41	0.039 to 0.184	0.027 to 0.353	0.021 to 0.585	5	7
nickel	0.78 to 6.96	0.72 to 6.69	4.97 to 15.8	0.26 to 4.1	0.83 to 4.8	100	50
phosphorus	1470 to 3390	478 to 4550	1810 to 5720	1010 to 2310	1160 to 3890		
potassium	5780 to 12400	1420 to 35500	5960 to 17300	4680 to 20300	8240 to 43800		
rubidium	10.6 to 40	0.976 to 30	10.6 to 24.9	2.5 to 44.4	2.12 to 91.6		200
selenium	ND	0.066 to 31.1	0.071 to 0.074	0.055 to 0.506	0.059 to 0.35	5	5
silver	0.005 to 0.0074	0.0067 to 0.0753	0.0054 to 0.0115	0.0051 to 0.0154	0.0051 to 0.0361		
sodium	25 to 32	21 to 97	26 to 36	21 to 63	20 to 67	2000	1000
strontium	8.89 to 46.9	8.73 to 85.5	10.7 to 90.9	6.33 to 54	28 to 120		
thallium	ND	0.0024 to 0.0114	0.0023 to 0.0043	0.0022 to 0.0189	0.0023 to 0.0125		
titanium	0.35 to 1.05	0.72 to 5.03	2.42 to 9.52	1.12 to 4.57	0.54 to 2.66	100	100
uranium	0.0021 to 0.0028	0.0029 to 0.0203	0.0119 to 0.0244	0.0032 to 0.0166	0.0025 to 0.0165		100
vanadium	ND	0.11 to 0.18	0.1 to 0.4	0.1 to 0.16	0.1 to 0.12	50	
zinc	30.8 to 234	25.7 to 226	56.8 to 174	19.3 to 286	22.3 to 356	500	500
zirconium	ND	0.26 to 0.28	ND	0.21 to 0.36	0.23 to 0.52		

TABLE B-2 **RPD % AND PQL FOR DUPLICATE TISSUE SAMPLING**

Parameter	Lowest Detection Limit	Units	D3, North, Willow Leaves	DUP-1, Willow Leaves	RPD %	PQL	D1-B, East, Dwarf Birch Leaves	DUP-2, dwarf birch leaves	RPD %	PQL	D5, North, Horsetail	DUP-3, Horsetail	RPD %	PQL
moisture	0.5	%	62	58.8	5.3	NA	**64.9**	**64.7**	**0.3**	NA	76.3	76.7	0.5	NA
aluminum	2	mg/kg	119	108	9.7	NA	17	18.2	6.8	NA	11.5	9.8	16.0	NA
antimony	0.01	mg/kg	0.138	0.132	4.4	NA	0.025	0.027	7.7	NA	0.016	0.02	22.2	0.05
arsenic	0.02	mg/kg	2.72	2.52	7.6	NA	0.463	0.557	18.4	NA	1.49	1.47	1.4	NA
barium	0.05	mg/kg	99.8	118	16.7	NA	26.2	26.8	2.3	NA	25	21.9	13.2	NA
beryllium	0.01	mg/kg	0.02	0.018	10.5	NA	<0.010	<0.010	ND	NA	<0.010	<0.010	ND	NA
bismuth	0.01	mg/kg	0.066	0.089	29.7	0.05	0.013	0.02	42.4	0.05	<0.010	<0.010	ND	NA
boron	1	mg/kg	2.8	2.4	15.4	NA	12	11.8	1.7	NA	14.1	11.3	22.0	5
cadmium	0.005	mg/kg	1.33	1.54	14.6	NA	0.243	0.233	4.2	NA	0.861	0.814	5.6	NA
calcium	20	mg/kg	6180	6670	7.6	NA	3890	4100	5.3	NA	21700	20500	5.7	NA
cesium	0.005	mg/kg	0.074	0.0793	6.9	NA	0.0318	0.0274	14.9	NA	0.366	0.355	3.1	NA
chromium	0.05	mg/kg	0.231	0.236	2.1	NA	0.068	0.122	56.8	0.25	0.21	0.186	12.1	NA
cobalt	0.02	mg/kg	6.37	5.22	19.8	NA	0.779	0.66	16.5	NA	0.255	0.213	17.9	NA
copper	0.1	mg/kg	3.02	2.68	11.9	NA	5.51	5.18	6.2	NA	3.82	3.71	2.9	NA
iron	3	mg/kg	201	189	6.2	NA	75.4	89.8	17.4	NA	51.2	47.2	8.1	NA
lead	0.02	mg/kg	0.415	0.427	2.9	NA	0.089	0.115	25.5	0.1	0.061	0.059	3.3	NA
lithium	0.5	mg/kg	<0.50	<0.50	ND	NA	<0.50	<0.50	ND	NA	<0.50	<0.50	ND	NA
magnesium	2	mg/kg	2220	1900	15.5	NA	1580	1620	2.5	NA	6600	6310	4.5	NA
manganese	0.05	mg/kg	779	719	8.0	NA	1850	1600	14.5	NA	32.5	35.2	8.0	NA
mercury	0.005	mg/kg	0.0051	<0.0050	ND	NA	<0.0050	0.0059	ND	NA	0.0064	0.0054	16.9	NA
molybdenum	0.02	mg/kg	0.155	0.176	12.7	NA	<0.020	0.021	ND	NA	0.4	0.328	19.8	NA
nickel	0.2	mg/kg	9.02	8.39	7.2	NA	3.41	3.37	1.2	NA	0.83	0.85	2.4	NA
phosphorus	10	mg/kg	3750	3740	0.3	NA	3390	3630	6.8	NA	1180	1210	2.5	NA
potassium	20	mg/kg	11600	11900	2.6	NA	9570	10200	6.4	NA	43800	41700	4.9	NA
rubidium	0.05	mg/kg	13.3	13.9	4.4	NA	20	19.3	3.6	NA	88.7	79.8	10.6	NA
selenium	0.05	mg/kg	<0.050	<0.050	ND	NA	<0.050	<0.050	ND	NA	<0.050	<0.050	ND	NA
silver	0.005	mg/kg	<0.0050	0.0051	ND	NA	<0.0050	<0.0050	ND	NA	0.0361	0.0344	4.8	NA
sodium	20	mg/kg	<20	28	ND	NA	<20	<20	ND	NA	62	64	3.2	NA
strontium	0.05	mg/kg	68.2	72.2	5.7	NA	8.89	10.1	12.7	NA	95.3	88.9	6.9	NA
tellurium	0.02	mg/kg	<0.020	<0.020	ND	NA	<0.020	<0.020	ND	NA	<0.020	<0.020	ND	NA
thallium	0.002	mg/kg	<0.0020	<0.0020	ND	NA	<0.0020	<0.0020	ND	NA	0.0058	0.0035	49.5	0.01
tin	0.1	mg/kg	<0.10	<0.10	ND	NA	<0.10	<0.10	ND	NA	<0.10	<0.10	ND	NA
titanium	0.25	mg/kg	5.08	4.87	4.2	NA	1.05	1.08	2.8	NA	0.64	0.53	18.8	NA
uranium	0.002	mg/kg	0.0149	0.0133	11.3	NA	0.0022	0.0026	16.7	NA	0.0092	0.0088	4.4	NA
vanadium	0.1	mg/kg	0.17	0.17	0.0	NA	<0.10	<0.10	ND	NA	<0.10	<0.10	ND	NA
zinc	0.5	mg/kg	59.5	66	10.4	NA	183	182	0.5	NA	44.9	42.4	5.7	NA
zirconium	0.2	mg/kg	<0.20	<0.20	ND	NA	<0.20	<0.20	ND	NA	0.23	<0.20	ND	NA

ND = not detected

NA = not applicable

Values in red have an RPD>20% but PQL < 5 times the DL

Values in shaded cells have an RPD>20% and a PQL > 5 times the DL

TABLE B-3 COMPARISONS OF METAL CONCENTRATIONS (mg/kg) 2018, 2019, 2020 AND 2021 WHERE APPLICABLE

Plot #		Tissue	N	Arsenic	Cadmium	Chromium	Lead	Mercury
D-1B	2021	Dwarf Birch	5	0.223	0.223	0.059	0.059	0.0052
	2020		4	0.206	0.277	0.095	0.091	0.0065
	2019		5	0.136	0.174	0.101	0.070	0.0053
	2018		5	0.187	0.187	ND	0.055	0.0054
	2021	Fescue	1	0.148	0.015	0.134	0.062	ND
	2020		1	0.157	0.095	0.074	0.203	ND
	2019		1	0.104	0.077	0.173	0.143	ND
	2018		5	0.113	0.055	0.073	0.108	ND
	2021	Willow leaves	5	0.341	2.934	0.066	0.112	0.0058
	2020		5	0.236	4.074	0.079	0.141	0.0069
	2019		5	0.167	2.066	0.105	0.113	0.0067
	2018		5	0.187	1.758	ND	0.082	ND
D-2B	2021	Dwarf Birch	1	1.530	0.152	0.230	0.366	0.0053
	2020		1	0.730	0.125	0.136	0.220	0.0076
	2019		1	1.280	0.123	0.200	0.262	0.0055
	2021	Equisetum	3	1.217	0.691	0.139	0.162	0.0057
	2020		2	0.430	0.737	0.098	0.067	0.0068
	2019		1	0.583	1.030	0.135	0.107	0.0053
	2021	Paper Birch Leaves	1	3.230	0.636	0.249	0.674	0.0061
	2020		1	1.290	0.636	0.133	0.364	0.0067
	2019		1	1.880	0.464	0.394	0.464	0.0058
	2021	Paper Birch Twigs	1	0.457	0.344	<0.20	0.181	ND
	2020		1	0.502	0.791	0.367	0.250	ND
	2019		1	0.514	0.771	0.155	0.174	ND
	2021	Willow Leaves	4	2.358	3.738	0.224	0.391	0.0054
	2020		4	1.004	3.228	0.574	0.300	0.0058
	2019		4	1.648	3.560	0.208	0.324	0.0064
	2021	Willow Twigs	4	1.783	3.078	0.291	0.280	0.08
	2020		4	0.491	2.538	0.108	0.132	ND
	2019		3	1.002	2.737	0.393	0.213	ND
D-3	2021	Dwarf Birch	5	2.580	0.203	0.209	0.457	0.0056
	2020		5	1.990	0.198	0.224	0.494	0.0069
	2019		5	0.835	0.149	0.178	0.297	0.0056
	2018		5	0.410	0.188	ND	0.066	0.005
	2021	Willow leaves	4	3.290	2.058	0.322	0.529	0.0066
	2020		4	4.113	2.260	0.456	0.989	0.0078
	2019		5	1.267	1.761	0.259	0.377	0.0071
	2018		1	0.551	1.050	ND	0.132	0.0055
	2021	Willow twigs	2	4.090	1.135	0.335	0.597	ND
	2020		1	0.915	1.280	0.828	0.379	ND
	2019		3	1.030	1.050	0.392	0.347	ND
	2018		1	0.311	1.030	0.068	0.102	ND
D-4B	2021	Dwarf Birch	3	2.363	0.218	0.403	0.351	0.0067
	2020		3	0.821	0.120	0.115	0.254	0.0062
	2019		3	1.035	0.137	0.182	0.234	0.0061
	2021	Equisetum	1	1.690	0.262	0.108	0.136	0.0055
	2020		2	0.669	0.237	0.119	0.099	0.0068
	2019		2	0.545	0.803	0.147	0.086	0.0070
	2021	Willow Leaves	3	1.827	0.868	0.159	0.269	0.0060
	2020		4	0.981	1.669	0.140	0.204	0.0063
	2019		4	0.996	1.607	0.173	0.171	0.0058
	2021	Willow Twigs	2	1.347	0.761	ND	0.188	ND
	2020		3	0.686	1.242	0.161	0.194	ND
	2019		2	0.876	0.852	0.242	0.155	ND
D-5	2021	Equisetum	4	1.560	0.466	0.151	0.062	0.0060
	2020		2	0.926	0.523	0.094	0.094	0.0066
	2021	Poplar leaves	2	1.685	1.105	0.131	0.222	0.0053
	2020		2	0.828	1.615	0.119	0.205	ND
	2021	Poplar twigs	1	0.510	0.876	0.379	0.065	ND
	2020		2	0.303	1.382	0.071	0.094	ND
	2021	Willow leaves	4	1.813	2.578	0.123	0.236	0.0055
	2020		3	0.674	3.012	0.090	0.139	0.0064
MTL for cattle (NRC, 2005)				30	10	100	100	N/A

ND = not detected N/A = not applicable

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WR2100889**	Page	: 1 of 55
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse YT Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: EMSAMP vegetation monitoring	Date Samples Received	: 26-Jul-2021 11:55
PO	: 22037	Date Analysis Commenced	: 24-Aug-2021
C-O-C number	: ----	Issue Date	: 28-Sep-2021 16:20
Sampler	: Bonnie Burns		
Site	: Victoria Gold Corp.		
Quote number	: Q68199		
No. of samples received	: 64		
No. of samples analysed	: 64		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Salimah Khimani	Lab Assistant	Metals, Burnaby, British Columbia
Shaneel Dayal	Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
%	percent
mg/kg	milligrams per kilogram
mg/kg wwt	milligrams per kilogram wet weight

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, Center, Willow leaves	D1-B, Centre, Dwarf Birch leaves	D1-B, East, Willow leaves	D1-B, East, Dwarf Birch Leaves	D1-B, South, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-001	WR2100889-002	WR2100889-003	WR2100889-004	WR2100889-005
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		60.8	58.2	63.5	64.9	61.3
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		25.3	7.2	26.2	17.0	20.0
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		9.93	3.03	9.55	5.94	7.73
antimony	7440-36-0	E440	0.010	mg/kg		0.022	0.011	0.021	0.025	0.020
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0088	0.0047	0.0076	0.0088	0.0078
arsenic	7440-38-2	E440	0.020	mg/kg		0.396	0.158	0.377	0.463	0.314
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.155	0.0661	0.138	0.162	0.122
barium	7440-39-3	E440	0.050	mg/kg		38.5	47.3	44.7	26.2	43.3
barium	7440-39-3	E440A	0.010	mg/kg wwt		15.1	19.8	16.3	9.19	16.7
beryllium	7440-41-7	E440	0.010	mg/kg		0.010	<0.010	0.013	<0.010	0.010
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		0.0040	<0.0020	0.0047	<0.0020	0.0040
bismuth	7440-69-9	E440	0.010	mg/kg		0.010	<0.010	0.010	0.013	0.011
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.0041	<0.0020	0.0038	0.0047	0.0043
boron	7440-42-8	E440	1.0	mg/kg		2.8	4.7	3.1	12.0	2.6
boron	7440-42-8	E440A	0.20	mg/kg wwt		1.08	1.96	1.13	4.22	1.00
cadmium	7440-43-9	E440	0.0050	mg/kg		3.04	0.215	6.23	0.243	2.28
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		1.19	0.0900	2.27	0.0852	0.882
calcium	7440-70-2	E440	20	mg/kg		5240	3740	7760	3890	6250
calcium	7440-70-2	E440A	4.0	mg/kg wwt		2050	1560	2830	1360	2420
cesium	7440-46-2	E440	0.0050	mg/kg		0.0966	0.0280	0.175	0.0318	0.144
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0379	0.0117	0.0639	0.0111	0.0558
chromium	7440-47-3	E440	0.050	mg/kg		0.080	<0.050	0.058	0.068	0.050
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.031	0.013	0.021	0.024	0.019
cobalt	7440-48-4	E440	0.020	mg/kg		3.60	0.277	4.56	0.779	3.94
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		1.41	0.116	1.66	0.273	1.52
copper	7440-50-8	E440	0.10	mg/kg		3.20	4.69	3.97	5.51	2.86
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.25	1.96	1.45	1.93	1.11
iron	7439-89-6	E440	3.0	mg/kg		57.3	45.4	62.3	75.4	57.1
iron	7439-89-6	E440A	0.60	mg/kg wwt		22.5	19.0	22.7	26.4	22.1

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, Center, Willow leaves	D1-B, Centre, Dwarf Birch leaves	D1-B, East, Willow leaves	D1-B, East, Dwarf Birch Leaves	D1-B, South, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-001	WR2100889-002	WR2100889-003	WR2100889-004	WR2100889-005
						Result	Result	Result	Result	Result
Metals										
lead	7439-92-1	E440	0.020	mg/kg		0.133	0.044	0.173	0.089	0.083
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.0522	0.0186	0.0631	0.0313	0.0321
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	<0.10	<0.10	<0.10
magnesium	7439-95-4	E440	2.0	mg/kg		1560	1240	2600	1580	2290
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		611	518	948	553	886
manganese	7439-96-5	E440	0.050	mg/kg		1260	1640	1350	1850	829
manganese	7439-96-5	E440A	0.010	mg/kg wwt		492	685	494	648	321
mercury	7439-97-6	E510	0.0050	mg/kg		<0.0050	<0.0050	0.0054	<0.0050	<0.0050
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0019	0.0016	0.0020	0.0016	0.0015
molybdenum	7439-98-7	E440	0.020	mg/kg		0.087	<0.020	0.096	<0.020	0.081
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0343	<0.0040	0.0352	<0.0040	0.0313
nickel	7440-02-0	E440	0.20	mg/kg		4.66	2.98	6.11	3.41	5.41
nickel	7440-02-0	E440A	0.040	mg/kg wwt		1.82	1.25	2.23	1.20	2.09
phosphorus	7723-14-0	E440	10	mg/kg		2160	2000	2630	3390	2830
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		848	838	960	1190	1090
potassium	7440-09-7	E440	20	mg/kg		11500	7120	9460	9570	9700
potassium	7440-09-7	E440A	4.0	mg/kg wwt		4520	2980	3460	3360	3750
rubidium	7440-17-7	E440	0.050	mg/kg		25.0	18.0	28.4	20.0	23.5
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		9.78	7.53	10.4	7.00	9.08
selenium	7782-49-2	E440	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
selenium	7782-49-2	E440A	0.010	mg/kg wwt		<0.010	<0.010	0.011	<0.010	<0.010
silver	7440-22-4	E440.Ag	0.0050	mg/kg		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		<0.0010	0.0012	0.0013	0.0015	0.0017
sodium	7440-23-5	E440	20	mg/kg		<20	<20	<20	<20	<20
sodium	7440-23-5	E440A	4.0	mg/kg wwt		6.3	<4.0	<4.0	<4.0	<4.0
strontium	7440-24-6	E440	0.050	mg/kg		32.2	10.9	46.9	8.89	44.5
strontium	7440-24-6	E440A	0.010	mg/kg wwt		12.6	4.56	17.1	3.12	17.2
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
thallium	7440-28-0	E440	0.0020	mg/kg		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, Center, Willow leaves	D1-B, Centre, Dwarf Birch leaves	D1-B, East, Willow leaves	D1-B, East, Dwarf Birch Leaves	D1-B, South, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-001	WR2100889-002	WR2100889-003	WR2100889-004	WR2100889-005
						Result	Result	Result	Result	Result
Metals										
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00063	<0.00040	0.00056	<0.00040	<0.00040
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		0.81	0.50	0.84	1.05	0.70
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		0.317	0.211	0.307	0.368	0.270
uranium	7440-61-1	E440	0.0020	mg/kg		<0.0020	<0.0020	0.0021	0.0022	<0.0020
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00065	0.00057	0.00077	0.00077	0.00053
vanadium	7440-62-2	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	<0.020
zinc	7440-66-6	E440	0.50	mg/kg		108	151	129	183	97.4
zinc	7440-66-6	E440A	0.10	mg/kg wwt		42.3	63.2	47.1	64.3	37.7
zirconium	7440-67-7	E440	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		<0.040	0.051	<0.040	<0.040	<0.040

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, South, dwarf birch leaves	D1-B, West, willow leaves	D1-B, West, willow twigs	D1-B, West, dwarf birch leaves	D1-B, North, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-006	WR2100889-007	WR2100889-009	WR2100889-010	WR2100889-011
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		62.4	64.9	59.4	62.9	60.8
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		10.1	27.9	13.5	10.0	19.5
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		3.78	9.78	5.48	3.71	7.65
antimony	7440-36-0	E440	0.010	mg/kg		0.014	0.018	0.018	0.011	0.015
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0054	0.0063	0.0073	0.0042	0.0060
arsenic	7440-38-2	E440	0.020	mg/kg		0.153	0.397	0.290	0.152	0.222
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.0576	0.139	0.118	0.0566	0.0870
barium	7440-39-3	E440	0.050	mg/kg		21.9	31.1	32.2	46.5	25.7
barium	7440-39-3	E440A	0.010	mg/kg wwt		8.25	10.9	13.1	17.2	10.1
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	0.015	<0.010	<0.010	0.014
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		<0.0020	0.0054	<0.0020	<0.0020	0.0057
bismuth	7440-69-9	E440	0.010	mg/kg		<0.010	0.011	0.011	<0.010	<0.010
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		<0.0020	0.0038	0.0044	<0.0020	0.0036
boron	7440-42-8	E440	1.0	mg/kg		6.9	3.5	4.2	8.9	3.2
boron	7440-42-8	E440A	0.20	mg/kg wwt		2.58	1.24	1.69	3.31	1.26
cadmium	7440-43-9	E440	0.0050	mg/kg		0.216	1.42	1.20	0.318	1.70
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		0.0812	0.498	0.488	0.118	0.668
calcium	7440-70-2	E440	20	mg/kg		4190	5610	2640	5360	5050
calcium	7440-70-2	E440A	4.0	mg/kg wwt		1570	1970	1070	1990	1980
cesium	7440-46-2	E440	0.0050	mg/kg		0.0263	0.0953	0.0897	0.0140	0.204
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0099	0.0334	0.0364	0.0052	0.0802
chromium	7440-47-3	E440	0.050	mg/kg		<0.050	0.079	0.117	0.053	0.065
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.017	0.028	0.047	0.020	0.026
cobalt	7440-48-4	E440	0.020	mg/kg		0.456	3.58	0.675	0.653	3.52
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.171	1.25	0.274	0.242	1.38
copper	7440-50-8	E440	0.10	mg/kg		5.15	2.71	2.82	5.11	4.11
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.94	0.950	1.14	1.90	1.61
iron	7439-89-6	E440	3.0	mg/kg		54.2	62.5	34.0	56.7	75.4
iron	7439-89-6	E440A	0.60	mg/kg wwt		20.4	21.9	13.8	21.1	29.6
lead	7439-92-1	E440	0.020	mg/kg		0.054	0.066	0.060	0.044	0.104

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, South, dwarf birch leaves	D1-B, West, willow leaves	D1-B, West, willow twigs	D1-B, West, dwarf birch leaves	D1-B, North, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-006	WR2100889-007	WR2100889-009	WR2100889-010	WR2100889-011
						Result	Result	Result	Result	Result
Metals										
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.0202	0.0232	0.0242	0.0165	0.0410
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	<0.10	<0.10	<0.10
magnesium	7439-95-4	E440	2.0	mg/kg		2310	1560	909	1920	1510
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		867	547	369	712	592
manganese	7439-96-5	E440	0.050	mg/kg		2770	840	264	3090	1220
manganese	7439-96-5	E440A	0.010	mg/kg wwt		1040	294	107	1150	481
mercury	7439-97-6	E510	0.0050	mg/kg		0.0053	0.0062	<0.0050	<0.0050	<0.0050
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0020	0.0022	<0.0011	0.0018	0.0019
molybdenum	7439-98-7	E440	0.020	mg/kg		<0.020	0.102	0.065	<0.020	0.156
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0042	0.0357	0.0264	<0.0040	0.0611
nickel	7440-02-0	E440	0.20	mg/kg		4.36	4.80	2.67	3.45	6.96
nickel	7440-02-0	E440A	0.040	mg/kg wwt		1.64	1.68	1.09	1.28	2.73
phosphorus	7723-14-0	E440	10	mg/kg		2820	2110	1470	2910	2230
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		1060	741	598	1080	874
potassium	7440-09-7	E440	20	mg/kg		6250	12400	5780	7880	11700
potassium	7440-09-7	E440A	4.0	mg/kg wwt		2350	4350	2350	2920	4580
rubidium	7440-17-7	E440	0.050	mg/kg		10.6	25.6	23.6	10.8	27.6
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		3.98	8.97	9.60	4.00	10.8
selenium	7782-49-2	E440	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
selenium	7782-49-2	E440A	0.010	mg/kg wwt		<0.010	<0.010	<0.010	<0.010	<0.010
silver	7440-22-4	E440.Ag	0.0050	mg/kg		<0.0050	<0.0050	0.0068	0.0050	<0.0050
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0014	<0.0010	0.0028	0.0019	<0.0010
sodium	7440-23-5	E440	20	mg/kg		<20	<20	<20	<20	<20
sodium	7440-23-5	E440A	4.0	mg/kg wwt		<4.0	<4.0	7.0	5.2	<4.0
strontium	7440-24-6	E440	0.050	mg/kg		11.4	39.8	26.2	12.6	34.0
strontium	7440-24-6	E440A	0.010	mg/kg wwt		4.28	14.0	10.6	4.69	13.4
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
thallium	7440-28-0	E440	0.0020	mg/kg		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		<0.00040	<0.00040	<0.00040	<0.00040	0.00050

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, South, dwarf birch leaves	D1-B, West, willow leaves	D1-B, West, willow twigs	D1-B, West, dwarf birch leaves	D1-B, North, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-006	WR2100889-007	WR2100889-009	WR2100889-010	WR2100889-011
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		0.47	0.80	0.78	0.41	0.59
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		0.176	0.282	0.317	0.151	0.231
uranium	7440-61-1	E440	0.0020	mg/kg		<0.0020	0.0028	<0.0020	<0.0020	<0.0020
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00059	0.00099	0.00049	0.00051	0.00042
vanadium	7440-62-2	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	<0.020
zinc	7440-66-6	E440	0.50	mg/kg		143	45.6	52.6	234	94.6
zinc	7440-66-6	E440A	0.10	mg/kg wwt		53.7	16.0	21.4	86.7	37.1
zirconium	7440-67-7	E440	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		<0.040	<0.040	<0.040	<0.040	<0.040

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, North, willow twigs	D1-B, North, dwarf birch leaves	D1-B, Composite, fescue	D2, Centre, willow leaves	D2, Centre, willow twigs
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-012	WR2100889-013	WR2100889-014	WR2100889-015	WR2100889-016
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		56.7	61.6	54.8	74.3	62.6
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		15.5	11.9	9.7	70.9	41.7
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		6.71	4.58	4.38	18.2	15.6
antimony	7440-36-0	E440	0.010	mg/kg		0.018	0.013	0.019	0.138	0.067
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0076	0.0049	0.0084	0.0354	0.0249
arsenic	7440-38-2	E440	0.020	mg/kg		0.280	0.189	0.148	2.35	1.34
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.121	0.0724	0.0669	0.604	0.500
barium	7440-39-3	E440	0.050	mg/kg		55.4	53.4	29.8	72.4	68.7
barium	7440-39-3	E440A	0.010	mg/kg wwt		24.0	20.5	13.5	18.6	25.7
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
bismuth	7440-69-9	E440	0.010	mg/kg		<0.010	<0.010	<0.010	0.050	0.044
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.0043	0.0021	0.0029	0.0128	0.0165
boron	7440-42-8	E440	1.0	mg/kg		7.4	7.2	1.6	6.2	10.1
boron	7440-42-8	E440A	0.20	mg/kg wwt		3.19	2.75	0.72	1.60	3.78
cadmium	7440-43-9	E440	0.0050	mg/kg		1.58	0.125	0.0152	1.87	1.25
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		0.685	0.0481	0.0069	0.480	0.469
calcium	7440-70-2	E440	20	mg/kg		2920	4460	1820	10200	3560
calcium	7440-70-2	E440A	4.0	mg/kg wwt		1270	1710	825	2630	1330
cesium	7440-46-2	E440	0.0050	mg/kg		0.132	0.0430	0.0657	0.0619	0.0271
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0573	0.0165	0.0297	0.0159	0.0101
chromium	7440-47-3	E440	0.050	mg/kg		0.202	0.056	0.134	0.210	0.494
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.087	0.021	0.061	0.054	0.185
cobalt	7440-48-4	E440	0.020	mg/kg		1.45	0.514	0.043	1.93	0.347
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.627	0.197	0.0196	0.496	0.130
copper	7440-50-8	E440	0.10	mg/kg		4.54	6.40	1.40	5.29	5.41
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.96	2.46	0.636	1.36	2.02
iron	7439-89-6	E440	3.0	mg/kg		36.8	59.1	35.4	167	99.9
iron	7439-89-6	E440A	0.60	mg/kg wwt		15.9	22.7	16.0	42.9	37.4
lead	7439-92-1	E440	0.020	mg/kg		0.157	0.065	0.062	0.356	0.212

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, North, willow twigs	D1-B, North, dwarf birch leaves	D1-B, Composite, fescue	D2, Centre, willow leaves	D2, Centre, willow twigs
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-012	WR2100889-013	WR2100889-014	WR2100889-015	WR2100889-016
						Result	Result	Result	Result	Result
Metals										
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.0680	0.0249	0.0280	0.0915	0.0794
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	<0.10	<0.10	<0.10
magnesium	7439-95-4	E440	2.0	mg/kg		1000	1750	887	3770	1180
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		435	672	401	969	442
manganese	7439-96-5	E440	0.050	mg/kg		486	3350	73.2	471	164
manganese	7439-96-5	E440A	0.010	mg/kg wwt		210	1280	33.1	121	61.5
mercury	7439-97-6	E510	0.0050	mg/kg		<0.0050	0.0051	<0.0050	<0.0050	<0.0050
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		<0.0011	0.0020	<0.0015	0.0012	<0.0010
molybdenum	7439-98-7	E440	0.020	mg/kg		0.057	<0.020	0.180	0.199	0.081
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0248	0.0049	0.0813	0.0513	0.0304
nickel	7440-02-0	E440	0.20	mg/kg		3.53	3.72	0.78	5.98	1.59
nickel	7440-02-0	E440A	0.040	mg/kg wwt		1.53	1.43	0.354	1.54	0.594
phosphorus	7723-14-0	E440	10	mg/kg		1690	2860	1850	2390	1300
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		732	1100	838	614	487
potassium	7440-09-7	E440	20	mg/kg		7070	7740	11800	21300	7960
potassium	7440-09-7	E440A	4.0	mg/kg wwt		3060	2970	5340	5480	2980
rubidium	7440-17-7	E440	0.050	mg/kg		24.9	16.6	40.0	15.6	7.94
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		10.8	6.40	18.1	4.02	2.97
selenium	7782-49-2	E440	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
selenium	7782-49-2	E440A	0.010	mg/kg wwt		<0.010	<0.010	<0.010	<0.010	0.016
silver	7440-22-4	E440.Ag	0.0050	mg/kg		<0.0050	0.0063	0.0074	0.0067	0.0120
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0015	0.0024	0.0033	0.0017	0.0045
sodium	7440-23-5	E440	20	mg/kg		25	<20	32	21	76
sodium	7440-23-5	E440A	4.0	mg/kg wwt		10.7	5.1	14.5	5.4	28.6
strontium	7440-24-6	E440	0.050	mg/kg		26.4	15.1	11.5	53.2	23.5
strontium	7440-24-6	E440A	0.010	mg/kg wwt		11.4	5.79	5.21	13.7	8.78
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
thallium	7440-28-0	E440	0.0020	mg/kg		<0.0020	<0.0020	<0.0020	0.0114	0.0073
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00043	<0.00040	<0.00040	0.00295	0.00274

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D1-B, North, willow twigs	D1-B, North, dwarf birch leaves	D1-B, Composite, fescue	D2, Centre, willow leaves	D2, Centre, willow twigs
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-012	WR2100889-013	WR2100889-014	WR2100889-015	WR2100889-016
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		0.80	0.60	0.35	3.71	2.53
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		0.346	0.230	0.157	0.954	0.945
uranium	7440-61-1	E440	0.0020	mg/kg		<0.0020	<0.0020	<0.0020	0.0110	0.0055
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00064	0.00072	<0.00040	0.00283	0.00204
vanadium	7440-62-2	E440	0.10	mg/kg		<0.10	<0.10	<0.10	0.14	<0.10
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	0.036	0.032
zinc	7440-66-6	E440	0.50	mg/kg		85.4	162	30.8	86.7	65.6
zinc	7440-66-6	E440A	0.10	mg/kg wwt		37.0	62.2	14.0	22.3	24.5
zirconium	7440-67-7	E440	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	<0.20
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		<0.040	<0.040	<0.040	<0.040	0.062

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, Centre, equisetum	D2, South, willow leaves	D2, South, willow twigs	D2, South, dwarf birch	D2, West, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-017	WR2100889-018	WR2100889-019	WR2100889-020	WR2100889-021
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		75.1	66.8	----	70.6	70.9
moisture	----	E144-H	2.0	%		----	----	57.9	----	----
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		44.6	72.6	----	47.5	63.7
aluminum	7429-90-5	E472	5.0	mg/kg		----	----	51.8	----	----
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		11.1	24.1	----	14.0	18.5
aluminum	7429-90-5	E472A	1.0	mg/kg wwt		----	----	21.8	----	----
antimony	7440-36-0	E472	0.010	mg/kg		----	----	0.106	----	----
antimony	7440-36-0	E440	0.010	mg/kg		0.053	0.182	----	0.098	0.144
antimony	7440-36-0	E472A	0.0020	mg/kg wwt		----	----	0.0445	----	----
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0132	0.0602	----	0.0287	0.0418
arsenic	7440-38-2	E440	0.020	mg/kg		1.96	2.36	----	1.53	2.34
arsenic	7440-38-2	E472	0.030	mg/kg		----	----	1.63	----	----
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.488	0.784	----	0.451	0.679
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt		----	----	0.688	----	----
barium	7440-39-3	E472	0.050	mg/kg		----	----	38.9	----	----
barium	7440-39-3	E440	0.050	mg/kg		110	29.5	----	81.8	51.3
barium	7440-39-3	E472A	0.010	mg/kg wwt		----	----	16.4	----	----
barium	7440-39-3	E440A	0.010	mg/kg wwt		27.5	9.79	----	24.1	14.9
beryllium	7440-41-7	E472	0.010	mg/kg		----	----	<0.010	----	----
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	<0.010	----	<0.010	<0.010
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt		----	----	<0.0020	----	----
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		<0.0020	<0.0020	----	<0.0020	<0.0020
bismuth	7440-69-9	E472	0.010	mg/kg		----	----	0.090	----	----
bismuth	7440-69-9	E440	0.010	mg/kg		0.024	0.052	----	0.038	0.074
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt		----	----	0.0379	----	----
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.0060	0.0173	----	0.0113	0.0216
boron	7440-42-8	E472	1.0	mg/kg		----	----	7.0	----	----
boron	7440-42-8	E440	1.0	mg/kg		15.8	6.5	----	16.2	3.4
boron	7440-42-8	E472A	0.20	mg/kg wwt		----	----	2.97	----	----
boron	7440-42-8	E440A	0.20	mg/kg wwt		3.94	2.15	----	4.76	1.00
cadmium	7440-43-9	E440	0.0050	mg/kg		0.255	4.27	----	0.152	3.44

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, Centre, equisetum	D2, South, willow leaves	D2, South, willow twigs	D2, South, dwarf birch	D2, West, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-017	WR2100889-018	WR2100889-019	WR2100889-020	WR2100889-021
						Result	Result	Result	Result	Result
Metals										
cadmium	7440-43-9	E472	0.010	mg/kg		----	----	4.29	----	----
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		0.0635	1.42	----	0.0447	1.00
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt		----	----	1.80	----	----
calcium	7440-70-2	E472	20	mg/kg		----	----	3610	----	----
calcium	7440-70-2	E440	20	mg/kg		16800	7120	----	6530	8100
calcium	7440-70-2	E472A	4.0	mg/kg wwt		----	----	1520	----	----
calcium	7440-70-2	E440A	4.0	mg/kg wwt		4180	2360	----	1920	2350
cesium	7440-46-2	E472	0.0050	mg/kg		----	----	0.0310	----	----
cesium	7440-46-2	E440	0.0050	mg/kg		0.0679	0.0444	----	0.0217	0.0291
cesium	7440-46-2	E472A	0.0010	mg/kg wwt		----	----	0.0130	----	----
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0169	0.0147	----	0.0064	0.0084
chromium	7440-47-3	E440	0.050	mg/kg		0.181	0.240	----	0.230	0.248
chromium	7440-47-3	E472	0.20	mg/kg		----	----	0.23	----	----
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.045	0.080	----	0.068	0.072
chromium	7440-47-3	E472A	0.040	mg/kg wwt		----	----	0.096	----	----
cobalt	7440-48-4	E472	0.020	mg/kg		----	----	0.713	----	----
cobalt	7440-48-4	E440	0.020	mg/kg		0.440	2.68	----	0.373	0.476
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt		----	----	0.300	----	----
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.110	0.889	----	0.110	0.138
copper	7440-50-8	E440	0.10	mg/kg		4.81	3.78	----	4.75	4.22
copper	7440-50-8	E472	0.20	mg/kg		----	----	4.47	----	----
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.20	1.25	----	1.40	1.22
copper	7440-50-8	E472A	0.040	mg/kg wwt		----	----	1.88	----	----
iron	7439-89-6	E440	3.0	mg/kg		94.8	189	----	194	156
iron	7439-89-6	E472	5.0	mg/kg		----	----	117	----	----
iron	7439-89-6	E440A	0.60	mg/kg wwt		23.6	62.6	----	57.2	45.4
iron	7439-89-6	E472A	1.0	mg/kg wwt		----	----	49.3	----	----
lead	7439-92-1	E440	0.020	mg/kg		0.217	0.442	----	0.366	0.362
lead	7439-92-1	E472	0.050	mg/kg		----	----	0.276	----	----
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.0541	0.146	----	0.108	0.105
lead	7439-92-1	E472A	0.010	mg/kg wwt		----	----	0.116	----	----
lithium	7439-93-2	E472	0.50	mg/kg		----	----	<0.50	----	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, Centre, equisetum	D2, South, willow leaves	D2, South, willow twigs	D2, South, dwarf birch	D2, West, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-017	WR2100889-018	WR2100889-019	WR2100889-020	WR2100889-021
						Result	Result	Result	Result	Result
Metals										
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	----	<0.50	<0.50
lithium	7439-93-2	E472A	0.10	mg/kg wwt		----	----	<0.10	----	----
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	0.15	----	<0.10	<0.10
magnesium	7439-95-4	E472	2.0	mg/kg		----	----	930	----	----
magnesium	7439-95-4	E440	2.0	mg/kg		7100	2990	----	3110	3540
magnesium	7439-95-4	E472A	0.40	mg/kg wwt		----	----	392	----	----
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		1770	991	----	914	1030
manganese	7439-96-5	E472	0.050	mg/kg		----	----	346	----	----
manganese	7439-96-5	E440	0.050	mg/kg		187	1170	----	866	243
manganese	7439-96-5	E472A	0.010	mg/kg wwt		----	----	146	----	----
manganese	7439-96-5	E440A	0.010	mg/kg wwt		46.6	387	----	255	70.7
mercury	7439-97-6	E511	0.0050	mg/kg		----	----	0.0800	----	----
mercury	7439-97-6	E510	0.0050	mg/kg		<0.0050	0.0055	----	0.0053	<0.0050
mercury	7439-97-6	E511A	0.0010	mg/kg wwt		----	----	0.0337	----	----
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0011	0.0018	----	0.0016	0.0012
molybdenum	7439-98-7	E440	0.020	mg/kg		0.553	0.138	----	0.071	0.405
molybdenum	7439-98-7	E472	0.040	mg/kg		----	----	0.070	----	----
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.138	0.0458	----	0.0209	0.118
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt		----	----	0.0296	----	----
nickel	7440-02-0	E472	0.20	mg/kg		----	----	2.12	----	----
nickel	7440-02-0	E440	0.20	mg/kg		0.72	6.64	----	6.69	4.28
nickel	7440-02-0	E472A	0.040	mg/kg wwt		----	----	0.890	----	----
nickel	7440-02-0	E440A	0.040	mg/kg wwt		0.180	2.20	----	1.97	1.24
phosphorus	7723-14-0	E472	10	mg/kg		----	----	1210	----	----
phosphorus	7723-14-0	E440	10	mg/kg		1570	2480	----	2570	3310
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt		----	----	510	----	----
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		392	823	----	757	962
potassium	7440-09-7	E472	20	mg/kg		----	----	4470	----	----
potassium	7440-09-7	E440	20	mg/kg		32400	7580	----	8130	14400
potassium	7440-09-7	E472A	4.0	mg/kg wwt		----	----	1880	----	----
potassium	7440-09-7	E440A	4.0	mg/kg wwt		8060	2510	----	2390	4180
rubidium	7440-17-7	E472	0.050	mg/kg		----	----	6.02	----	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, Centre, equisetum	D2, South, willow leaves	D2, South, willow twigs	D2, South, dwarf birch	D2, West, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-017	WR2100889-018	WR2100889-019	WR2100889-020	WR2100889-021
						Result	Result	Result	Result	Result
Metals										
rubidium	7440-17-7	E440	0.050	mg/kg		18.6	8.15	----	4.92	6.08
rubidium	7440-17-7	E472A	0.010	mg/kg wwt		----	----	2.54	----	----
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		4.64	2.70	----	1.45	1.76
selenium	7782-49-2	E440	0.050	mg/kg		0.066	<0.050	----	<0.050	0.066
selenium	7782-49-2	E472	0.10	mg/kg		----	----	0.16	----	----
selenium	7782-49-2	E440A	0.010	mg/kg wwt		0.016	0.013	----	0.013	0.019
selenium	7782-49-2	E472A	0.020	mg/kg wwt		----	----	0.068	----	----
silver	7440-22-4	E472.Ag	0.0050	mg/kg		----	----	0.0368	----	----
silver	7440-22-4	E440.Ag	0.0050	mg/kg		0.0404	0.0075	----	0.0114	<0.0050
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt		----	----	0.0155	----	----
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0100	0.0025	----	0.0034	0.0013
sodium	7440-23-5	E472	20	mg/kg		----	----	93	----	----
sodium	7440-23-5	E440	20	mg/kg		49	48	----	24	<20
sodium	7440-23-5	E472A	4.0	mg/kg wwt		----	----	39.3	----	----
sodium	7440-23-5	E440A	4.0	mg/kg wwt		12.2	16.0	----	7.1	4.3
strontium	7440-24-6	E440	0.050	mg/kg		69.3	34.5	----	23.4	32.5
strontium	7440-24-6	E472	0.10	mg/kg		----	----	23.7	----	----
strontium	7440-24-6	E440A	0.010	mg/kg wwt		17.3	11.4	----	6.90	9.44
strontium	7440-24-6	E472A	0.020	mg/kg wwt		----	----	9.98	----	----
tellurium	13494-80-9	E472	0.020	mg/kg		----	----	<0.020	----	----
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	----	<0.020	<0.020
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt		----	----	<0.0040	----	----
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	----	<0.0040	<0.0040
thallium	7440-28-0	E472	0.0020	mg/kg		----	----	<0.0020	----	----
thallium	7440-28-0	E440	0.0020	mg/kg		0.0026	<0.0020	----	<0.0020	0.0024
thallium	7440-28-0	E472A	0.00040	mg/kg wwt		----	----	0.00075	----	----
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00065	0.00052	----	0.00053	0.00070
tin	7440-31-5	E472	0.10	mg/kg		----	----	<0.10	----	----
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	----	<0.10	<0.10
tin	7440-31-5	E472A	0.020	mg/kg wwt		----	----	0.021	----	----
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	----	0.026	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		2.03	3.85	----	3.06	3.77

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, Centre, equisetum	D2, South, willow leaves	D2, South, willow twigs	D2, South, dwarf birch	D2, West, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-017	WR2100889-018	WR2100889-019	WR2100889-020	WR2100889-021
						Result	Result	Result	Result	Result
Metals										
titanium	7440-32-6	E472.Ti	0.50	mg/kg		----	----	2.72	----	----
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		0.506	1.28	----	0.901	1.10
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt		----	----	1.14	----	----
uranium	7440-61-1	E472	0.0020	mg/kg		----	----	0.0070	----	----
uranium	7440-61-1	E440	0.0020	mg/kg		0.0060	0.0115	----	0.0089	0.0100
uranium	7440-61-1	E472A	0.00040	mg/kg wwt		----	----	0.00296	----	----
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00150	0.00380	----	0.00263	0.00292
vanadium	7440-62-2	E472	0.10	mg/kg		----	----	<0.10	----	----
vanadium	7440-62-2	E440	0.10	mg/kg		<0.10	0.14	----	0.11	0.14
vanadium	7440-62-2	E472A	0.020	mg/kg wwt		----	----	0.041	----	----
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		0.022	0.048	----	0.032	0.042
zinc	7440-66-6	E440	0.50	mg/kg		43.5	146	----	164	82.6
zinc	7440-66-6	E472	1.0	mg/kg		----	----	149	----	----
zinc	7440-66-6	E440A	0.10	mg/kg wwt		10.8	48.6	----	48.3	24.0
zinc	7440-66-6	E472A	0.20	mg/kg wwt		----	----	62.9	----	----
zirconium	7440-67-7	E472	0.20	mg/kg		----	----	<0.20	----	----
zirconium	7440-67-7	E440	0.20	mg/kg		<0.20	<0.20	----	<0.20	<0.20
zirconium	7440-67-7	E472A	0.040	mg/kg wwt		----	----	0.079	----	----
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		0.042	<0.040	----	<0.040	<0.040

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, West, willow twigs	D2, West, equisetum	D2, East, paper birch leaves	D2, East, paper birch twigs	D2, North, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-022	WR2100889-023	WR2100889-024	WR2100889-025	WR2100889-026
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		----	76.9	74.6	----	73.5
moisture	----	E144-H	2.0	%		56.4	----	----	51.7	----
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		----	22.6	93.0	----	68.2
aluminum	7429-90-5	E472	5.0	mg/kg		47.3	----	----	17.0	----
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		----	5.24	23.6	----	18.1
aluminum	7429-90-5	E472A	1.0	mg/kg wwt		20.6	----	----	8.2	----
antimony	7440-36-0	E472	0.010	mg/kg		0.086	----	----	0.045	----
antimony	7440-36-0	E440	0.010	mg/kg		----	0.031	0.202	----	0.118
antimony	7440-36-0	E472A	0.0020	mg/kg wwt		0.0377	----	----	0.0218	----
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		----	0.0072	0.0513	----	0.0314
arsenic	7440-38-2	E440	0.020	mg/kg		----	0.919	3.23	----	2.38
arsenic	7440-38-2	E472	0.030	mg/kg		1.69	----	----	0.457	----
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		----	0.212	0.822	----	0.631
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt		0.737	----	----	0.221	----
barium	7440-39-3	E472	0.050	mg/kg		53.0	----	----	50.3	----
barium	7440-39-3	E440	0.050	mg/kg		----	118	149	----	65.2
barium	7440-39-3	E472A	0.010	mg/kg wwt		23.1	----	----	24.3	----
barium	7440-39-3	E440A	0.010	mg/kg wwt		----	27.2	38.0	----	17.3
beryllium	7440-41-7	E472	0.010	mg/kg		<0.010	----	----	<0.010	----
beryllium	7440-41-7	E440	0.010	mg/kg		----	<0.010	<0.010	----	<0.010
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt		<0.0020	----	----	<0.0020	----
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		----	<0.0020	<0.0020	----	<0.0020
bismuth	7440-69-9	E472	0.010	mg/kg		0.039	----	----	0.016	----
bismuth	7440-69-9	E440	0.010	mg/kg		----	0.025	0.111	----	0.089
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt		0.0170	----	----	0.0078	----
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		----	0.0058	0.0282	----	0.0236
boron	7440-42-8	E472	1.0	mg/kg		5.7	----	----	1.8	----
boron	7440-42-8	E440	1.0	mg/kg		----	9.9	4.6	----	26.6
boron	7440-42-8	E472A	0.20	mg/kg wwt		2.47	----	----	0.88	----
boron	7440-42-8	E440A	0.20	mg/kg wwt		----	2.29	1.18	----	7.05
cadmium	7440-43-9	E440	0.0050	mg/kg		----	0.777	0.636	----	5.37

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, West, willow twigs	D2, West, equisetum	D2, East, paper birch leaves	D2, East, paper birch twigs	D2, North, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-022	WR2100889-023	WR2100889-024	WR2100889-025	WR2100889-026
						Result	Result	Result	Result	Result
Metals										
cadmium	7440-43-9	E472	0.010	mg/kg		3.29	----	----	0.344	----
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		----	0.180	0.162	----	1.42
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt		1.43	----	----	0.166	----
calcium	7440-70-2	E472	20	mg/kg		3600	----	----	1410	----
calcium	7440-70-2	E440	20	mg/kg		----	24000	6280	----	17400
calcium	7440-70-2	E472A	4.0	mg/kg wwt		1570	----	----	680	----
calcium	7440-70-2	E440A	4.0	mg/kg wwt		----	5560	1600	----	4620
cesium	7440-46-2	E472	0.0050	mg/kg		0.0197	----	----	0.0081	----
cesium	7440-46-2	E440	0.0050	mg/kg		----	0.0955	0.0398	----	0.0232
cesium	7440-46-2	E472A	0.0010	mg/kg wwt		0.0086	----	----	0.0039	----
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		----	0.0221	0.0101	----	0.0062
chromium	7440-47-3	E440	0.050	mg/kg		----	0.134	0.249	----	0.197
chromium	7440-47-3	E472	0.20	mg/kg		0.20	----	----	<0.20	----
chromium	7440-47-3	E440A	0.010	mg/kg wwt		----	0.031	0.063	----	0.052
chromium	7440-47-3	E472A	0.040	mg/kg wwt		0.087	----	----	<0.040	----
cobalt	7440-48-4	E472	0.020	mg/kg		0.230	----	----	0.122	----
cobalt	7440-48-4	E440	0.020	mg/kg		----	0.212	0.439	----	1.07
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt		0.100	----	----	0.0590	----
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		----	0.0490	0.112	----	0.285
copper	7440-50-8	E440	0.10	mg/kg		----	5.41	4.66	----	4.43
copper	7440-50-8	E472	0.20	mg/kg		6.16	----	----	2.52	----
copper	7440-50-8	E440A	0.020	mg/kg wwt		----	1.25	1.18	----	1.17
copper	7440-50-8	E472A	0.040	mg/kg wwt		2.69	----	----	1.22	----
iron	7439-89-6	E440	3.0	mg/kg		----	70.1	262	----	156
iron	7439-89-6	E472	5.0	mg/kg		104	----	----	39.9	----
iron	7439-89-6	E440A	0.60	mg/kg wwt		----	16.2	66.6	----	41.3
iron	7439-89-6	E472A	1.0	mg/kg wwt		45.1	----	----	19.3	----
lead	7439-92-1	E440	0.020	mg/kg		----	0.130	0.674	----	0.402
lead	7439-92-1	E472	0.050	mg/kg		0.237	----	----	0.181	----
lead	7439-92-1	E440A	0.0040	mg/kg wwt		----	0.0300	0.171	----	0.106
lead	7439-92-1	E472A	0.010	mg/kg wwt		0.103	----	----	0.088	----
lithium	7439-93-2	E472	0.50	mg/kg		<0.50	----	----	<0.50	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, West, willow twigs	D2, West, equisetum	D2, East, paper birch leaves	D2, East, paper birch twigs	D2, North, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-022	WR2100889-023	WR2100889-024	WR2100889-025	WR2100889-026
						Result	Result	Result	Result	Result
Metals										
lithium	7439-93-2	E440	0.50	mg/kg		----	<0.50	<0.50	----	<0.50
lithium	7439-93-2	E472A	0.10	mg/kg wwt		<0.10	----	----	<0.10	----
lithium	7439-93-2	E440A	0.10	mg/kg wwt		----	<0.10	<0.10	----	<0.10
magnesium	7439-95-4	E472	2.0	mg/kg		1040	----	----	314	----
magnesium	7439-95-4	E440	2.0	mg/kg		----	8710	2610	----	4600
magnesium	7439-95-4	E472A	0.40	mg/kg wwt		452	----	----	152	----
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		----	2020	663	----	1220
manganese	7439-96-5	E472	0.050	mg/kg		98.1	----	----	114	----
manganese	7439-96-5	E440	0.050	mg/kg		----	170	1300	----	114
manganese	7439-96-5	E472A	0.010	mg/kg wwt		42.8	----	----	55.3	----
manganese	7439-96-5	E440A	0.010	mg/kg wwt		----	39.2	332	----	30.2
mercury	7439-97-6	E511	0.0050	mg/kg		<0.0050	----	----	<0.0050	----
mercury	7439-97-6	E510	0.0050	mg/kg		----	0.0060	0.0061	----	0.0052
mercury	7439-97-6	E511A	0.0010	mg/kg wwt		<0.0010	----	----	<0.0010	----
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		----	0.0014	0.0016	----	0.0014
molybdenum	7439-98-7	E440	0.020	mg/kg		----	0.886	0.071	----	0.314
molybdenum	7439-98-7	E472	0.040	mg/kg		0.185	----	----	<0.040	----
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		----	0.205	0.0181	----	0.0833
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt		0.0805	----	----	<0.0080	----
nickel	7440-02-0	E472	0.20	mg/kg		1.98	----	----	2.59	----
nickel	7440-02-0	E440	0.20	mg/kg		----	0.81	2.48	----	4.03
nickel	7440-02-0	E472A	0.040	mg/kg wwt		0.863	----	----	1.25	----
nickel	7440-02-0	E440A	0.040	mg/kg wwt		----	0.188	0.631	----	1.07
phosphorus	7723-14-0	E472	10	mg/kg		1270	----	----	478	----
phosphorus	7723-14-0	E440	10	mg/kg		----	1700	2320	----	4550
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt		554	----	----	231	----
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		----	394	591	----	1210
potassium	7440-09-7	E472	20	mg/kg		5710	----	----	1420	----
potassium	7440-09-7	E440	20	mg/kg		----	35500	12200	----	18100
potassium	7440-09-7	E472A	4.0	mg/kg wwt		2490	----	----	688	----
potassium	7440-09-7	E440A	4.0	mg/kg wwt		----	8200	3100	----	4810
rubidium	7440-17-7	E472	0.050	mg/kg		3.29	----	----	1.21	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, West, willow twigs	D2, West, equisetum	D2, East, paper birch leaves	D2, East, paper birch twigs	D2, North, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-022	WR2100889-023	WR2100889-024	WR2100889-025	WR2100889-026
						Result	Result	Result	Result	Result
Metals										
rubidium	7440-17-7	E440	0.050	mg/kg		----	22.6	4.96	----	1.60
rubidium	7440-17-7	E472A	0.010	mg/kg wwt		1.43	----	----	0.583	----
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		----	5.23	1.26	----	0.424
selenium	7782-49-2	E440	0.050	mg/kg		----	0.166	0.149	----	1.61
selenium	7782-49-2	E472	0.10	mg/kg		<0.10	----	----	<0.10	----
selenium	7782-49-2	E440A	0.010	mg/kg wwt		----	0.038	0.038	----	0.426
selenium	7782-49-2	E472A	0.020	mg/kg wwt		0.038	----	----	<0.020	----
silver	7440-22-4	E472.Ag	0.0050	mg/kg		0.0093	----	----	0.0078	----
silver	7440-22-4	E440.Ag	0.0050	mg/kg		----	0.0420	0.0116	----	0.0120
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt		0.0040	----	----	0.0038	----
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		----	0.0097	0.0029	----	0.0032
sodium	7440-23-5	E472	20	mg/kg		48	----	----	<20	----
sodium	7440-23-5	E440	20	mg/kg		----	46	22	----	<20
sodium	7440-23-5	E472A	4.0	mg/kg wwt		20.8	----	----	7.7	----
sodium	7440-23-5	E440A	4.0	mg/kg wwt		----	10.6	5.6	----	5.0
strontium	7440-24-6	E440	0.050	mg/kg		----	85.5	28.9	----	42.8
strontium	7440-24-6	E472	0.10	mg/kg		18.0	----	----	8.73	----
strontium	7440-24-6	E440A	0.010	mg/kg wwt		----	19.8	7.35	----	11.3
strontium	7440-24-6	E472A	0.020	mg/kg wwt		7.83	----	----	4.22	----
tellurium	13494-80-9	E472	0.020	mg/kg		<0.020	----	----	<0.020	----
tellurium	13494-80-9	E440	0.020	mg/kg		----	<0.020	<0.020	----	<0.020
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt		<0.0040	----	----	<0.0040	----
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		----	<0.0040	<0.0040	----	<0.0040
thallium	7440-28-0	E472	0.0020	mg/kg		<0.0020	----	----	<0.0020	----
thallium	7440-28-0	E440	0.0020	mg/kg		----	<0.0020	0.0042	----	<0.0020
thallium	7440-28-0	E472A	0.00040	mg/kg wwt		0.00074	----	----	0.00055	----
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		----	0.00046	0.00106	----	<0.00040
tin	7440-31-5	E472	0.10	mg/kg		<0.10	----	----	<0.10	----
tin	7440-31-5	E440	0.10	mg/kg		----	<0.10	<0.10	----	<0.10
tin	7440-31-5	E472A	0.020	mg/kg wwt		<0.020	----	----	<0.020	----
tin	7440-31-5	E440A	0.020	mg/kg wwt		----	<0.020	<0.020	----	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		----	1.27	5.03	----	2.36

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, West, willow twigs	D2, West, equisetum	D2, East, paper birch leaves	D2, East, paper birch twigs	D2, North, willow leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-022	WR2100889-023	WR2100889-024	WR2100889-025	WR2100889-026
						Result	Result	Result	Result	Result
Metals										
titanium	7440-32-6	E472.Ti	0.50	mg/kg		2.66	----	----	0.72	----
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		----	0.295	1.28	----	0.624
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt		1.16	----	----	0.35	----
uranium	7440-61-1	E472	0.0020	mg/kg		0.0066	----	----	0.0029	----
uranium	7440-61-1	E440	0.0020	mg/kg		----	0.0051	0.0203	----	0.0117
uranium	7440-61-1	E472A	0.00040	mg/kg wwt		0.00288	----	----	0.00140	----
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		----	0.00118	0.00515	----	0.00311
vanadium	7440-62-2	E472	0.10	mg/kg		<0.10	----	----	<0.10	----
vanadium	7440-62-2	E440	0.10	mg/kg		----	<0.10	0.18	----	0.12
vanadium	7440-62-2	E472A	0.020	mg/kg wwt		0.041	----	----	<0.020	----
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		----	<0.020	0.045	----	0.032
zinc	7440-66-6	E440	0.50	mg/kg		----	34.3	90.7	----	226
zinc	7440-66-6	E472	1.0	mg/kg		105	----	----	33.4	----
zinc	7440-66-6	E440A	0.10	mg/kg wwt		----	7.93	23.0	----	59.9
zinc	7440-66-6	E472A	0.20	mg/kg wwt		45.7	----	----	16.1	----
zirconium	7440-67-7	E472	0.20	mg/kg		<0.20	----	----	<0.20	----
zirconium	7440-67-7	E440	0.20	mg/kg		----	<0.20	0.28	----	<0.20
zirconium	7440-67-7	E472A	0.040	mg/kg wwt		0.042	----	----	<0.040	----
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		----	<0.040	0.071	----	<0.040

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, North, willow twigs	D2, North, equisetum	D3, Centre, willow leaves	D3, Centre, willow twigs	D3, Centre, dwarf birch leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-027	WR2100889-028	WR2100889-029	WR2100889-030	WR2100889-031
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		----	77.0	64.8	----	63.7
moisture	----	E144-H	2.0	%		62.4	----	----	58.0	----
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		----	19.2	185	----	105
aluminum	7429-90-5	E472	5.0	mg/kg		76.2	----	----	190	----
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		----	4.42	65.2	----	38.0
aluminum	7429-90-5	E472A	1.0	mg/kg wwt		28.7	----	----	80.0	----
antimony	7440-36-0	E472	0.010	mg/kg		0.158	----	----	0.258	----
antimony	7440-36-0	E440	0.010	mg/kg		----	0.037	0.236	----	0.158
antimony	7440-36-0	E472A	0.0020	mg/kg wwt		0.0594	----	----	0.108	----
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		----	0.0086	0.0828	----	0.0575
arsenic	7440-38-2	E440	0.020	mg/kg		----	0.772	4.69	----	3.19
arsenic	7440-38-2	E472	0.030	mg/kg		2.47	----	----	5.15	----
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		----	0.178	1.65	----	1.16
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt		0.931	----	----	2.16	----
barium	7440-39-3	E472	0.050	mg/kg		44.4	----	----	85.2	----
barium	7440-39-3	E440	0.050	mg/kg		----	59.5	108	----	75.1
barium	7440-39-3	E472A	0.010	mg/kg wwt		16.7	----	----	35.8	----
barium	7440-39-3	E440A	0.010	mg/kg wwt		----	13.7	38.0	----	27.3
beryllium	7440-41-7	E472	0.010	mg/kg		<0.010	----	----	0.012	----
beryllium	7440-41-7	E440	0.010	mg/kg		----	<0.010	0.018	----	<0.010
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt		<0.0020	----	----	0.0049	----
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		----	<0.0020	0.0062	----	0.0021
bismuth	7440-69-9	E472	0.010	mg/kg		0.163	----	----	0.158	----
bismuth	7440-69-9	E440	0.010	mg/kg		----	0.028	0.118	----	0.080
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt		0.0614	----	----	0.0663	----
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		----	0.0064	0.0416	----	0.0291
boron	7440-42-8	E472	1.0	mg/kg		12.6	----	----	3.7	----
boron	7440-42-8	E440	1.0	mg/kg		----	18.1	2.7	----	7.8
boron	7440-42-8	E472A	0.20	mg/kg wwt		4.75	----	----	1.56	----
boron	7440-42-8	E440A	0.20	mg/kg wwt		----	4.17	0.94	----	2.85

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, North, willow twigs	D2, North, equisetum	D3, Centre, willow leaves	D3, Centre, willow twigs	D3, Centre, dwarf birch leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-027	WR2100889-028	WR2100889-029	WR2100889-030	WR2100889-031
						Result	Result	Result	Result	Result
Metals										
cadmium	7440-43-9	E440	0.0050	mg/kg		----	1.04	1.95	----	0.297
cadmium	7440-43-9	E472	0.010	mg/kg		3.48	----	----	1.07	----
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		----	0.239	0.686	----	0.108
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt		1.31	----	----	0.452	----
calcium	7440-70-2	E472	20	mg/kg		8230	----	----	3640	----
calcium	7440-70-2	E440	20	mg/kg		----	26600	9380	----	5830
calcium	7440-70-2	E472A	4.0	mg/kg wwt		3100	----	----	1530	----
calcium	7440-70-2	E440A	4.0	mg/kg wwt		----	6110	3300	----	2120
cesium	7440-46-2	E472	0.0050	mg/kg		0.0311	----	----	0.135	----
cesium	7440-46-2	E440	0.0050	mg/kg		----	0.111	0.145	----	0.0923
cesium	7440-46-2	E472A	0.0010	mg/kg wwt		0.0117	----	----	0.0568	----
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		----	0.0256	0.0510	----	0.0335
chromium	7440-47-3	E440	0.050	mg/kg		----	0.103	0.349	----	0.221
chromium	7440-47-3	E472	0.20	mg/kg		0.24	----	----	0.41	----
chromium	7440-47-3	E440A	0.010	mg/kg wwt		----	0.024	0.122	----	0.080
chromium	7440-47-3	E472A	0.040	mg/kg wwt		0.089	----	----	0.172	----
cobalt	7440-48-4	E472	0.020	mg/kg		0.111	----	----	1.42	----
cobalt	7440-48-4	E440	0.020	mg/kg		----	0.042	5.20	----	1.07
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt		0.0418	----	----	0.597	----
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		----	0.0098	1.83	----	0.387
copper	7440-50-8	E440	0.10	mg/kg		----	4.51	3.71	----	4.31
copper	7440-50-8	E472	0.20	mg/kg		8.00	----	----	3.48	----
copper	7440-50-8	E440A	0.020	mg/kg wwt		----	1.04	1.30	----	1.56
copper	7440-50-8	E472A	0.040	mg/kg wwt		3.01	----	----	1.46	----
iron	7439-89-6	E440	3.0	mg/kg		----	69.2	327	----	212
iron	7439-89-6	E472	5.0	mg/kg		155	----	----	298	----
iron	7439-89-6	E440A	0.60	mg/kg wwt		----	15.9	115	----	77.1
iron	7439-89-6	E472A	1.0	mg/kg wwt		58.5	----	----	125	----
lead	7439-92-1	E440	0.020	mg/kg		----	0.140	0.723	----	0.535
lead	7439-92-1	E472	0.050	mg/kg		0.395	----	----	0.722	----
lead	7439-92-1	E440A	0.0040	mg/kg wwt		----	0.0322	0.254	----	0.194

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, North, willow twigs	D2, North, equisetum	D3, Centre, willow leaves	D3, Centre, willow twigs	D3, Centre, dwarf birch leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-027	WR2100889-028	WR2100889-029	WR2100889-030	WR2100889-031
						Result	Result	Result	Result	Result
Metals										
lead	7439-92-1	E472A	0.010	mg/kg wwt		0.148	----	----	0.303	----
lithium	7439-93-2	E472	0.50	mg/kg		<0.50	----	----	<0.50	----
lithium	7439-93-2	E440	0.50	mg/kg		----	<0.50	<0.50	----	<0.50
lithium	7439-93-2	E472A	0.10	mg/kg wwt		<0.10	----	----	0.12	----
lithium	7439-93-2	E440A	0.10	mg/kg wwt		----	<0.10	<0.10	----	<0.10
magnesium	7439-95-4	E472	2.0	mg/kg		1070	----	----	1080	----
magnesium	7439-95-4	E440	2.0	mg/kg		----	7620	2890	----	2080
magnesium	7439-95-4	E472A	0.40	mg/kg wwt		404	----	----	453	----
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		----	1750	1020	----	756
manganese	7439-96-5	E472	0.050	mg/kg		83.7	----	----	175	----
manganese	7439-96-5	E440	0.050	mg/kg		----	25.8	541	----	2780
manganese	7439-96-5	E472A	0.010	mg/kg wwt		31.5	----	----	73.6	----
manganese	7439-96-5	E440A	0.010	mg/kg wwt		----	5.95	190	----	1010
mercury	7439-97-6	E511	0.0050	mg/kg		<0.0050	----	----	<0.0050	----
mercury	7439-97-6	E510	0.0050	mg/kg		----	0.0054	0.0075	----	0.0050
mercury	7439-97-6	E511A	0.0010	mg/kg wwt		<0.0010	----	----	<0.0010	----
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		----	0.0012	0.0026	----	0.0018
molybdenum	7439-98-7	E440	0.020	mg/kg		----	1.41	0.129	----	0.054
molybdenum	7439-98-7	E472	0.040	mg/kg		0.154	----	----	0.078	----
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		----	0.325	0.0454	----	0.0196
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt		0.0580	----	----	0.0326	----
nickel	7440-02-0	E472	0.20	mg/kg		1.55	----	----	8.97	----
nickel	7440-02-0	E440	0.20	mg/kg		----	0.78	15.8	----	7.18
nickel	7440-02-0	E472A	0.040	mg/kg wwt		0.582	----	----	3.77	----
nickel	7440-02-0	E440A	0.040	mg/kg wwt		----	0.179	5.54	----	2.61
phosphorus	7723-14-0	E472	10	mg/kg		1660	----	----	1810	----
phosphorus	7723-14-0	E440	10	mg/kg		----	2170	3670	----	3580
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt		626	----	----	761	----
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		----	499	1290	----	1300
potassium	7440-09-7	E472	20	mg/kg		5680	----	----	7960	----
potassium	7440-09-7	E440	20	mg/kg		----	33700	17300	----	8310

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, North, willow twigs	D2, North, equisetum	D3, Centre, willow leaves	D3, Centre, willow twigs	D3, Centre, dwarf birch leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-027	WR2100889-028	WR2100889-029	WR2100889-030	WR2100889-031
						Result	Result	Result	Result	Result
Metals										
potassium	7440-09-7	E472A	4.0	mg/kg wwt		2140	----	----	3340	----
potassium	7440-09-7	E440A	4.0	mg/kg wwt		----	7770	6090	----	3020
rubidium	7440-17-7	E472	0.050	mg/kg		0.976	----	----	18.7	----
rubidium	7440-17-7	E440	0.050	mg/kg		----	30.0	21.4	----	13.3
rubidium	7440-17-7	E472A	0.010	mg/kg wwt		0.367	----	----	7.86	----
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		----	6.90	7.51	----	4.83
selenium	7782-49-2	E440	0.050	mg/kg		----	31.1	<0.050	----	<0.050
selenium	7782-49-2	E472	0.10	mg/kg		1.94	----	----	<0.10	----
selenium	7782-49-2	E440A	0.010	mg/kg wwt		----	7.15	0.011	----	0.011
selenium	7782-49-2	E472A	0.020	mg/kg wwt		0.731	----	----	<0.020	----
silver	7440-22-4	E472.Ag	0.0050	mg/kg		0.0103	----	----	0.0115	----
silver	7440-22-4	E440.Ag	0.0050	mg/kg		----	0.0753	0.0087	----	0.0074
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt		0.0039	----	----	0.0048	----
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		----	0.0173	0.0030	----	0.0027
sodium	7440-23-5	E472	20	mg/kg		97	----	----	27	----
sodium	7440-23-5	E440	20	mg/kg		----	29	26	----	<20
sodium	7440-23-5	E472A	4.0	mg/kg wwt		36.6	----	----	11.2	----
sodium	7440-23-5	E440A	4.0	mg/kg wwt		----	6.6	9.2	----	4.1
strontium	7440-24-6	E440	0.050	mg/kg		----	76.9	90.9	----	19.1
strontium	7440-24-6	E472	0.10	mg/kg		20.6	----	----	37.8	----
strontium	7440-24-6	E440A	0.010	mg/kg wwt		----	17.7	32.0	----	6.92
strontium	7440-24-6	E472A	0.020	mg/kg wwt		7.77	----	----	15.9	----
tellurium	13494-80-9	E472	0.020	mg/kg		<0.020	----	----	<0.020	----
tellurium	13494-80-9	E440	0.020	mg/kg		----	<0.020	<0.020	----	<0.020
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt		<0.0040	----	----	<0.0040	----
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		----	<0.0040	<0.0040	----	<0.0040
thallium	7440-28-0	E472	0.0020	mg/kg		<0.0020	----	----	0.0043	----
thallium	7440-28-0	E440	0.0020	mg/kg		----	0.0029	0.0032	----	0.0023
thallium	7440-28-0	E472A	0.00040	mg/kg wwt		0.00066	----	----	0.00182	----
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		----	0.00066	0.00111	----	0.00082
tin	7440-31-5	E472	0.10	mg/kg		<0.10	----	----	<0.10	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D2, North, willow twigs	D2, North, equisetum	D3, Centre, willow leaves	D3, Centre, willow twigs	D3, Centre, dwarf birch leaves
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-027	WR2100889-028	WR2100889-029	WR2100889-030	WR2100889-031
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	0.10	mg/kg		----	<0.10	<0.10	----	<0.10
tin	7440-31-5	E472A	0.020	mg/kg wwt		<0.020	----	----	<0.020	----
tin	7440-31-5	E440A	0.020	mg/kg wwt		----	<0.020	<0.020	----	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		----	1.13	9.52	----	2.42
titanium	7440-32-6	E472.Ti	0.50	mg/kg		4.10	----	----	4.85	----
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		----	0.261	3.35	----	0.877
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt		1.54	----	----	2.04	----
uranium	7440-61-1	E472	0.0020	mg/kg		0.0118	----	----	0.0199	----
uranium	7440-61-1	E440	0.0020	mg/kg		----	0.0054	0.0244	----	0.0192
uranium	7440-61-1	E472A	0.00040	mg/kg wwt		0.00444	----	----	0.00837	----
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		----	0.00125	0.00857	----	0.00696
vanadium	7440-62-2	E472	0.10	mg/kg		0.15	----	----	0.40	----
vanadium	7440-62-2	E440	0.10	mg/kg		----	<0.10	0.34	----	0.22
vanadium	7440-62-2	E472A	0.020	mg/kg wwt		0.056	----	----	0.168	----
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		----	<0.020	0.118	----	0.082
zinc	7440-66-6	E440	0.50	mg/kg		----	25.7	62.4	----	174
zinc	7440-66-6	E472	1.0	mg/kg		102	----	----	71.9	----
zinc	7440-66-6	E440A	0.10	mg/kg wwt		----	5.93	22.0	----	63.1
zinc	7440-66-6	E472A	0.20	mg/kg wwt		38.3	----	----	30.2	----
zirconium	7440-67-7	E472	0.20	mg/kg		0.26	----	----	<0.20	----
zirconium	7440-67-7	E440	0.20	mg/kg		----	<0.20	<0.20	----	<0.20
zirconium	7440-67-7	E472A	0.040	mg/kg wwt		0.096	----	----	<0.040	----
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		----	0.042	0.055	----	<0.040

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D3, South, dwarf birch leaves	D3, East, dwarf birch leaves	D3, East, willow leaves	D3, West, willow leaves	D3, West, willow twigs
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-032	WR2100889-033	WR2100889-034	WR2100889-035	WR2100889-036
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		63.9	64.4	61.5	60.3	----
moisture	----	E144-H	2.0	%		----	----	----	----	55.6
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		62.2	103	101	161	----
aluminum	7429-90-5	E472	5.0	mg/kg		----	----	----	----	122
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		22.4	36.5	38.9	63.8	----
aluminum	7429-90-5	E472A	1.0	mg/kg wwt		----	----	----	----	54.1
antimony	7440-36-0	E472	0.010	mg/kg		----	----	----	----	0.146
antimony	7440-36-0	E440	0.010	mg/kg		0.092	0.129	0.117	0.171	----
antimony	7440-36-0	E472A	0.0020	mg/kg wwt		----	----	----	----	0.0647
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0331	0.0459	0.0450	0.0678	----
arsenic	7440-38-2	E440	0.020	mg/kg		1.70	2.48	2.27	3.48	----
arsenic	7440-38-2	E472	0.030	mg/kg		----	----	----	----	3.03
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.615	0.882	0.875	1.38	----
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt		----	----	----	----	1.34
barium	7440-39-3	E472	0.050	mg/kg		----	----	----	----	124
barium	7440-39-3	E440	0.050	mg/kg		42.6	42.2	84.4	89.0	----
barium	7440-39-3	E472A	0.010	mg/kg wwt		----	----	----	----	55.0
barium	7440-39-3	E440A	0.010	mg/kg wwt		15.4	15.0	32.5	35.3	----
beryllium	7440-41-7	E472	0.010	mg/kg		----	----	----	----	<0.010
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	<0.010	0.018	0.019	----
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt		----	----	----	----	0.0040
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		<0.0020	0.0033	0.0069	0.0077	----
bismuth	7440-69-9	E472	0.010	mg/kg		----	----	----	----	0.051
bismuth	7440-69-9	E440	0.010	mg/kg		0.047	0.061	0.065	0.080	----
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt		----	----	----	----	0.0226
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.0171	0.0216	0.0250	0.0319	----
boron	7440-42-8	E472	1.0	mg/kg		----	----	----	----	3.3
boron	7440-42-8	E440	1.0	mg/kg		4.0	4.3	7.1	1.5	----
boron	7440-42-8	E472A	0.20	mg/kg wwt		----	----	----	----	1.46
boron	7440-42-8	E440A	0.20	mg/kg wwt		1.46	1.53	2.75	0.59	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D3, South, dwarf birch leaves	D3, East, dwarf birch leaves	D3, East, willow leaves	D3, West, willow leaves	D3, West, willow twigs
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-032	WR2100889-033	WR2100889-034	WR2100889-035	WR2100889-036
						Result	Result	Result	Result	Result
Metals										
cadmium	7440-43-9	E440	0.0050	mg/kg		0.259	0.172	3.80	1.15	----
cadmium	7440-43-9	E472	0.010	mg/kg		----	----	----	----	1.20
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		0.0936	0.0610	1.46	0.456	----
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt		----	----	----	----	0.532
calcium	7440-70-2	E472	20	mg/kg		----	----	----	----	3870
calcium	7440-70-2	E440	20	mg/kg		4510	4820	8260	6180	----
calcium	7440-70-2	E472A	4.0	mg/kg wwt		----	----	----	----	1720
calcium	7440-70-2	E440A	4.0	mg/kg wwt		1630	1710	3180	2450	----
cesium	7440-46-2	E472	0.0050	mg/kg		----	----	----	----	0.135
cesium	7440-46-2	E440	0.0050	mg/kg		0.209	0.0939	0.0591	0.160	----
cesium	7440-46-2	E472A	0.0010	mg/kg wwt		----	----	----	----	0.0600
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0755	0.0334	0.0228	0.0637	----
chromium	7440-47-3	E440	0.050	mg/kg		0.120	0.229	0.367	0.340	----
chromium	7440-47-3	E472	0.20	mg/kg		----	----	----	----	0.26
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.043	0.081	0.141	0.135	----
chromium	7440-47-3	E472A	0.040	mg/kg wwt		----	----	----	----	0.116
cobalt	7440-48-4	E472	0.020	mg/kg		----	----	----	----	1.53
cobalt	7440-48-4	E440	0.020	mg/kg		0.944	1.07	7.94	6.08	----
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt		----	----	----	----	0.678
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.341	0.380	3.06	2.42	----
copper	7440-50-8	E440	0.10	mg/kg		4.97	6.13	3.89	2.82	----
copper	7440-50-8	E472	0.20	mg/kg		----	----	----	----	3.21
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.79	2.18	1.50	1.12	----
copper	7440-50-8	E472A	0.040	mg/kg wwt		----	----	----	----	1.42
iron	7439-89-6	E440	3.0	mg/kg		134	206	214	330	----
iron	7439-89-6	E472	5.0	mg/kg		----	----	----	----	205
iron	7439-89-6	E440A	0.60	mg/kg wwt		48.4	73.2	82.3	131	----
iron	7439-89-6	E472A	1.0	mg/kg wwt		----	----	----	----	91.1
lead	7439-92-1	E440	0.020	mg/kg		0.298	0.480	0.382	0.597	----
lead	7439-92-1	E472	0.050	mg/kg		----	----	----	----	0.471
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.108	0.170	0.147	0.237	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D3, South, dwarf birch leaves	D3, East, dwarf birch leaves	D3, East, willow leaves	D3, West, willow leaves	D3, West, willow twigs
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-032	WR2100889-033	WR2100889-034	WR2100889-035	WR2100889-036
						Result	Result	Result	Result	Result
Metals										
lead	7439-92-1	E472A	0.010	mg/kg wwt		----	----	----	----	0.209
lithium	7439-93-2	E472	0.50	mg/kg		----	----	----	----	<0.50
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
lithium	7439-93-2	E472A	0.10	mg/kg wwt		----	----	----	----	<0.10
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	<0.10	<0.10	----
magnesium	7439-95-4	E472	2.0	mg/kg		----	----	----	----	1220
magnesium	7439-95-4	E440	2.0	mg/kg		2110	2470	2750	2650	----
magnesium	7439-95-4	E472A	0.40	mg/kg wwt		----	----	----	----	543
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		763	876	1060	1050	----
manganese	7439-96-5	E472	0.050	mg/kg		----	----	----	----	255
manganese	7439-96-5	E440	0.050	mg/kg		1340	2190	1460	629	----
manganese	7439-96-5	E472A	0.010	mg/kg wwt		----	----	----	----	113
manganese	7439-96-5	E440A	0.010	mg/kg wwt		484	779	562	250	----
mercury	7439-97-6	E511	0.0050	mg/kg		----	----	----	----	<0.0050
mercury	7439-97-6	E510	0.0050	mg/kg		0.0056	0.0060	0.0072	<0.0050	----
mercury	7439-97-6	E511A	0.0010	mg/kg wwt		----	----	----	----	<0.0010
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0020	0.0021	0.0028	0.0019	----
molybdenum	7439-98-7	E440	0.020	mg/kg		0.039	0.048	0.184	0.140	----
molybdenum	7439-98-7	E472	0.040	mg/kg		----	----	----	----	0.122
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0139	0.0173	0.0708	0.0557	----
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt		----	----	----	----	0.0542
nickel	7440-02-0	E472	0.20	mg/kg		----	----	----	----	6.82
nickel	7440-02-0	E440	0.20	mg/kg		5.86	6.42	12.4	8.83	----
nickel	7440-02-0	E472A	0.040	mg/kg wwt		----	----	----	----	3.02
nickel	7440-02-0	E440A	0.040	mg/kg wwt		2.11	2.28	4.78	3.51	----
phosphorus	7723-14-0	E472	10	mg/kg		----	----	----	----	1910
phosphorus	7723-14-0	E440	10	mg/kg		3250	3880	5720	3780	----
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt		----	----	----	----	847
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		1170	1380	2200	1500	----
potassium	7440-09-7	E472	20	mg/kg		----	----	----	----	5960
potassium	7440-09-7	E440	20	mg/kg		10200	9860	13000	11900	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D3, South, dwarf birch leaves	D3, East, dwarf birch leaves	D3, East, willow leaves	D3, West, willow leaves	D3, West, willow twigs
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-032	WR2100889-033	WR2100889-034	WR2100889-035	WR2100889-036
						Result	Result	Result	Result	Result
Metals										
potassium	7440-09-7	E472A	4.0	mg/kg wwt		----	----	----	----	2640
potassium	7440-09-7	E440A	4.0	mg/kg wwt		3670	3510	4990	4740	----
rubidium	7440-17-7	E472	0.050	mg/kg		----	----	----	----	18.8
rubidium	7440-17-7	E440	0.050	mg/kg		22.7	21.9	13.5	24.9	----
rubidium	7440-17-7	E472A	0.010	mg/kg wwt		----	----	----	----	8.32
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		8.20	7.79	5.21	9.89	----
selenium	7782-49-2	E440	0.050	mg/kg		<0.050	<0.050	0.071	0.074	----
selenium	7782-49-2	E472	0.10	mg/kg		----	----	----	----	<0.10
selenium	7782-49-2	E440A	0.010	mg/kg wwt		<0.010	<0.010	0.027	0.029	----
selenium	7782-49-2	E472A	0.020	mg/kg wwt		----	----	----	----	<0.020
silver	7440-22-4	E472.Ag	0.0050	mg/kg		----	----	----	----	0.0096
silver	7440-22-4	E440.Ag	0.0050	mg/kg		0.0059	0.0087	0.0056	0.0054	----
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt		----	----	----	----	0.0043
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0021	0.0031	0.0022	0.0021	----
sodium	7440-23-5	E472	20	mg/kg		----	----	----	----	36
sodium	7440-23-5	E440	20	mg/kg		<20	<20	<20	<20	----
sodium	7440-23-5	E472A	4.0	mg/kg wwt		----	----	----	----	16.1
sodium	7440-23-5	E440A	4.0	mg/kg wwt		5.4	5.9	7.3	<4.0	----
strontium	7440-24-6	E440	0.050	mg/kg		14.5	14.5	85.8	68.9	----
strontium	7440-24-6	E472	0.10	mg/kg		----	----	----	----	43.2
strontium	7440-24-6	E440A	0.010	mg/kg wwt		5.24	5.15	33.0	27.4	----
strontium	7440-24-6	E472A	0.020	mg/kg wwt		----	----	----	----	19.2
tellurium	13494-80-9	E472	0.020	mg/kg		----	----	----	----	<0.020
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	----
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt		----	----	----	----	<0.0040
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	<0.0040	----
thallium	7440-28-0	E472	0.0020	mg/kg		----	----	----	----	0.0028
thallium	7440-28-0	E440	0.0020	mg/kg		<0.0020	<0.0020	<0.0020	0.0025	----
thallium	7440-28-0	E472A	0.00040	mg/kg wwt		----	----	----	----	0.00126
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00062	0.00058	0.00068	0.00100	----
tin	7440-31-5	E472	0.10	mg/kg		----	----	----	----	<0.10

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D3, South, dwarf birch leaves	D3, East, dwarf birch leaves	D3, East, willow leaves	D3, West, willow leaves	D3, West, willow twigs
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021	23-Jul-2021
						WR2100889-032	WR2100889-033	WR2100889-034	WR2100889-035	WR2100889-036
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	----
tin	7440-31-5	E472A	0.020	mg/kg wwt		----	----	----	----	<0.020
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	----
titanium	7440-32-6	E440.Ti	0.25	mg/kg		3.05	5.52	4.42	6.96	----
titanium	7440-32-6	E472.Ti	0.50	mg/kg		----	----	----	----	6.19
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		1.10	1.96	1.70	2.76	----
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt		----	----	----	----	2.74
uranium	7440-61-1	E472	0.0020	mg/kg		----	----	----	----	0.0127
uranium	7440-61-1	E440	0.0020	mg/kg		0.0123	0.0153	0.0119	0.0170	----
uranium	7440-61-1	E472A	0.00040	mg/kg wwt		----	----	----	----	0.00564
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00444	0.00546	0.00458	0.00675	----
vanadium	7440-62-2	E472	0.10	mg/kg		----	----	----	----	0.24
vanadium	7440-62-2	E440	0.10	mg/kg		0.10	0.19	0.15	0.24	----
vanadium	7440-62-2	E472A	0.020	mg/kg wwt		----	----	----	----	0.108
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		0.038	0.068	0.059	0.096	----
zinc	7440-66-6	E440	0.50	mg/kg		139	161	89.7	56.8	----
zinc	7440-66-6	E472	1.0	mg/kg		----	----	----	----	85.1
zinc	7440-66-6	E440A	0.10	mg/kg wwt		50.3	57.2	34.5	22.5	----
zinc	7440-66-6	E472A	0.20	mg/kg wwt		----	----	----	----	37.7
zirconium	7440-67-7	E472	0.20	mg/kg		----	----	----	----	<0.20
zirconium	7440-67-7	E440	0.20	mg/kg		<0.20	<0.20	<0.20	<0.20	----
zirconium	7440-67-7	E472A	0.040	mg/kg wwt		----	----	----	----	<0.040
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		<0.040	<0.040	0.049	<0.040	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D3, West, dwarf birch leaves	D3, North, willow leaves	D3, North, dwarf birch leaves	D4-B, Centre, dwarf birch leaves	D4-B, Centre, labrador tea
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-037	WR2100889-038	WR2100889-039	WR2100889-040	WR2100889-041
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		64.6	62.0	62.6	64.0	49.7
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		113	119	91.6	83.8	90.2
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		40.0	45.3	34.3	30.2	45.4
antimony	7440-36-0	E440	0.010	mg/kg		0.142	0.138	0.134	0.170	0.235
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0501	0.0526	0.0501	0.0615	0.118
arsenic	7440-38-2	E440	0.020	mg/kg		2.83	2.72	2.70	3.52	3.41
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		1.00	1.03	1.01	1.27	1.71
barium	7440-39-3	E440	0.050	mg/kg		32.8	99.8	28.6	44.8	63.0
barium	7440-39-3	E440A	0.010	mg/kg wwt		11.6	38.0	10.7	16.1	31.7
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	0.020	<0.010	<0.010	<0.010
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		0.0023	0.0078	<0.0020	<0.0020	0.0022
bismuth	7440-69-9	E440	0.010	mg/kg		0.071	0.066	0.068	0.068	0.108
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.0253	0.0250	0.0254	0.0245	0.0543
boron	7440-42-8	E440	1.0	mg/kg		8.1	2.8	5.5	17.9	12.3
boron	7440-42-8	E440A	0.20	mg/kg wwt		2.86	1.08	2.04	6.46	6.18
cadmium	7440-43-9	E440	0.0050	mg/kg		0.166	1.33	0.119	0.328	0.0076
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		0.0587	0.508	0.0446	0.118	0.0038
calcium	7440-70-2	E440	20	mg/kg		4310	6180	3910	6730	4140
calcium	7440-70-2	E440A	4.0	mg/kg wwt		1520	2350	1460	2420	2080
cesium	7440-46-2	E440	0.0050	mg/kg		0.0643	0.0740	0.0630	0.0490	0.0622
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0228	0.0281	0.0236	0.0177	0.0313
chromium	7440-47-3	E440	0.050	mg/kg		0.268	0.231	0.208	0.696	0.250
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.095	0.088	0.078	0.251	0.126
cobalt	7440-48-4	E440	0.020	mg/kg		0.606	6.37	0.684	0.280	0.081
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.214	2.42	0.256	0.101	0.0407
copper	7440-50-8	E440	0.10	mg/kg		5.33	3.02	5.42	7.38	3.94
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.88	1.15	2.03	2.66	1.98
iron	7439-89-6	E440	3.0	mg/kg		209	201	196	212	183
iron	7439-89-6	E440A	0.60	mg/kg wwt		74.0	76.4	73.4	76.2	92.1
lead	7439-92-1	E440	0.020	mg/kg		0.489	0.415	0.485	0.467	0.556

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D3, West, dwarf birch leaves	D3, North, willow leaves	D3, North, dwarf birch leaves	D4-B, Centre, dwarf birch leaves	D4-B, Centre, labrador tea
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-037	WR2100889-038	WR2100889-039	WR2100889-040	WR2100889-041
						Result	Result	Result	Result	Result
Metals										
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.173	0.158	0.182	0.168	0.280
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	<0.50
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	<0.10	<0.10	<0.10
magnesium	7439-95-4	E440	2.0	mg/kg		1690	2220	1660	2720	1310
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		599	844	621	982	661
manganese	7439-96-5	E440	0.050	mg/kg		2420	779	1460	1960	438
manganese	7439-96-5	E440A	0.010	mg/kg wwt		857	296	545	708	220
mercury	7439-97-6	E510	0.0050	mg/kg		0.0054	0.0051	0.0061	<0.0050	0.0064
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0019	0.0020	0.0023	0.0018	0.0032
molybdenum	7439-98-7	E440	0.020	mg/kg		0.053	0.155	0.042	0.064	0.028
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0189	0.0590	0.0158	0.0229	0.0140
nickel	7440-02-0	E440	0.20	mg/kg		5.65	9.02	4.97	1.79	0.42
nickel	7440-02-0	E440A	0.040	mg/kg wwt		2.00	3.43	1.86	0.645	0.212
phosphorus	7723-14-0	E440	10	mg/kg		4490	3750	3510	1620	1130
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		1590	1420	1320	585	570
potassium	7440-09-7	E440	20	mg/kg		9600	11600	8920	7630	4680
potassium	7440-09-7	E440A	4.0	mg/kg wwt		3400	4400	3340	2750	2350
rubidium	7440-17-7	E440	0.050	mg/kg		10.6	13.3	12.9	9.01	8.48
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		3.75	5.06	4.82	3.25	4.26
selenium	7782-49-2	E440	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
selenium	7782-49-2	E440A	0.010	mg/kg wwt		<0.010	<0.010	<0.010	<0.010	<0.010
silver	7440-22-4	E440.Ag	0.0050	mg/kg		0.0103	<0.0050	0.0065	0.0110	0.0154
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0036	0.0016	0.0024	0.0040	0.0077
sodium	7440-23-5	E440	20	mg/kg		<20	<20	<20	63	37
sodium	7440-23-5	E440A	4.0	mg/kg wwt		4.8	6.3	<4.0	22.6	18.5
strontium	7440-24-6	E440	0.050	mg/kg		12.3	68.2	10.7	14.3	8.22
strontium	7440-24-6	E440A	0.010	mg/kg wwt		4.36	25.9	4.01	5.16	4.13
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
thallium	7440-28-0	E440	0.0020	mg/kg		<0.0020	<0.0020	<0.0020	<0.0020	0.0189
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00070	0.00066	0.00066	0.00062	0.00951

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D3, West, dwarf birch leaves	D3, North, willow leaves	D3, North, dwarf birch leaves	D4-B, Centre, dwarf birch leaves	D4-B, Centre, labrador tea
					Client sampling date / time	23-Jul-2021	23-Jul-2021	23-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-037	WR2100889-038	WR2100889-039	WR2100889-040	WR2100889-041
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		5.86	5.08	4.14	4.57	4.40
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		2.07	1.93	1.55	1.65	2.22
uranium	7440-61-1	E440	0.0020	mg/kg		0.0172	0.0149	0.0155	0.0166	0.0161
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00608	0.00567	0.00580	0.00597	0.00809
vanadium	7440-62-2	E440	0.10	mg/kg		0.20	0.17	0.18	0.15	0.16
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		0.071	0.065	0.067	0.056	0.079
zinc	7440-66-6	E440	0.50	mg/kg		126	59.5	113	286	26.4
zinc	7440-66-6	E440A	0.10	mg/kg wwt		44.4	22.6	42.2	103	13.3
zirconium	7440-67-7	E440	0.20	mg/kg		<0.20	<0.20	<0.20	0.21	<0.20
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		<0.040	0.049	<0.040	0.077	0.068

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, West, dwarf birch leaves	D4-B, West labrador tea	D4-B, North, willow leaves	D4-B, North, willow twigs	D4-B, North, equisetum
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-042	WR2100889-043	WR2100889-044	WR2100889-045	WR2100889-046
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		62.1	49.4	61.2	----	71.9
moisture	----	E144-H	2.0	%		----	----	----	57.1	----
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		53.4	47.9	62.0	----	21.1
aluminum	7429-90-5	E472	5.0	mg/kg		----	----	----	25.0	----
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		20.2	24.2	24.0	----	5.93
aluminum	7429-90-5	E472A	1.0	mg/kg wwt		----	----	----	10.7	----
antimony	7440-36-0	E472	0.010	mg/kg		----	----	----	0.048	----
antimony	7440-36-0	E440	0.010	mg/kg		0.131	0.121	0.153	----	0.051
antimony	7440-36-0	E472A	0.0020	mg/kg wwt		----	----	----	0.0204	----
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0495	0.0610	0.0593	----	0.0144
arsenic	7440-38-2	E440	0.020	mg/kg		2.37	1.98	2.37	----	1.69
arsenic	7440-38-2	E472	0.030	mg/kg		----	----	----	0.763	----
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.899	1.00	0.918	----	0.474
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt		----	----	----	0.327	----
barium	7440-39-3	E472	0.050	mg/kg		----	----	----	13.5	----
barium	7440-39-3	E440	0.050	mg/kg		85.5	58.7	12.4	----	58.4
barium	7440-39-3	E472A	0.010	mg/kg wwt		----	----	----	5.81	----
barium	7440-39-3	E440A	0.010	mg/kg wwt		32.4	29.7	4.79	----	16.4
beryllium	7440-41-7	E472	0.010	mg/kg		----	----	----	<0.010	----
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	<0.010	<0.010	----	<0.010
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt		----	----	----	<0.0020	----
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		<0.0020	<0.0020	<0.0020	----	<0.0020
bismuth	7440-69-9	E472	0.010	mg/kg		----	----	----	0.136	----
bismuth	7440-69-9	E440	0.010	mg/kg		0.407	0.055	0.070	----	0.025
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt		----	----	----	0.0586	----
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.154	0.0280	0.0270	----	0.0070
boron	7440-42-8	E472	1.0	mg/kg		----	----	----	11.7	----
boron	7440-42-8	E440	1.0	mg/kg		12.4	4.3	12.9	----	6.7
boron	7440-42-8	E472A	0.20	mg/kg wwt		----	----	----	5.02	----
boron	7440-42-8	E440A	0.20	mg/kg wwt		4.69	2.18	4.99	----	1.89

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, West, dwarf birch leaves	D4-B, West labrador tea	D4-B, North, willow leaves	D4-B, North, willow twigs	D4-B, North, equisetum
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-042	WR2100889-043	WR2100889-044	WR2100889-045	WR2100889-046
						Result	Result	Result	Result	Result
Metals										
cadmium	7440-43-9	E440	0.0050	mg/kg		0.279	<0.0050	1.31	----	0.262
cadmium	7440-43-9	E472	0.010	mg/kg		----	----	----	1.17	----
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		0.106	0.0023	0.509	----	0.0736
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt		----	----	----	0.504	----
calcium	7440-70-2	E472	20	mg/kg		----	----	----	4360	----
calcium	7440-70-2	E440	20	mg/kg		8350	3500	9920	----	14300
calcium	7440-70-2	E472A	4.0	mg/kg wwt		----	----	----	1870	----
calcium	7440-70-2	E440A	4.0	mg/kg wwt		3160	1770	3840	----	4010
cesium	7440-46-2	E472	0.0050	mg/kg		----	----	----	0.0502	----
cesium	7440-46-2	E440	0.0050	mg/kg		0.0307	0.0675	0.0831	----	0.268
cesium	7440-46-2	E472A	0.0010	mg/kg wwt		----	----	----	0.0215	----
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0116	0.0341	0.0322	----	0.0752
chromium	7440-47-3	E440	0.050	mg/kg		0.198	0.240	0.175	----	0.108
chromium	7440-47-3	E472	0.20	mg/kg		----	----	----	<0.20	----
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.075	0.122	0.068	----	0.030
chromium	7440-47-3	E472A	0.040	mg/kg wwt		----	----	----	<0.040	----
cobalt	7440-48-4	E472	0.020	mg/kg		----	----	----	0.097	----
cobalt	7440-48-4	E440	0.020	mg/kg		0.223	0.043	0.252	----	0.069
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt		----	----	----	0.0418	----
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.0844	0.0217	0.0977	----	0.0194
copper	7440-50-8	E440	0.10	mg/kg		4.17	4.43	3.72	----	3.68
copper	7440-50-8	E472	0.20	mg/kg		----	----	----	5.87	----
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.58	2.24	1.44	----	1.03
copper	7440-50-8	E472A	0.040	mg/kg wwt		----	----	----	2.52	----
iron	7439-89-6	E440	3.0	mg/kg		173	122	158	----	76.6
iron	7439-89-6	E472	5.0	mg/kg		----	----	----	54.5	----
iron	7439-89-6	E440A	0.60	mg/kg wwt		65.5	61.4	61.3	----	21.5
iron	7439-89-6	E472A	1.0	mg/kg wwt		----	----	----	23.4	----
lead	7439-92-1	E440	0.020	mg/kg		0.372	0.297	0.350	----	0.136
lead	7439-92-1	E472	0.050	mg/kg		----	----	----	0.104	----
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.141	0.150	0.136	----	0.0381

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, West, dwarf birch leaves	D4-B, West labrador tea	D4-B, North, willow leaves	D4-B, North, willow twigs	D4-B, North, equisetum
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-042	WR2100889-043	WR2100889-044	WR2100889-045	WR2100889-046
						Result	Result	Result	Result	Result
Metals										
lead	7439-92-1	E472A	0.010	mg/kg wwt		----	----	----	0.045	----
lithium	7439-93-2	E472	0.50	mg/kg		----	----	----	<0.50	----
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	<0.50	----	<0.50
lithium	7439-93-2	E472A	0.10	mg/kg wwt		----	----	----	<0.10	----
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	<0.10	----	<0.10
magnesium	7439-95-4	E472	2.0	mg/kg		----	----	----	1160	----
magnesium	7439-95-4	E440	2.0	mg/kg		3070	1180	3780	----	4370
magnesium	7439-95-4	E472A	0.40	mg/kg wwt		----	----	----	499	----
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		1160	597	1460	----	1230
manganese	7439-96-5	E472	0.050	mg/kg		----	----	----	131	----
manganese	7439-96-5	E440	0.050	mg/kg		1080	535	245	----	53.7
manganese	7439-96-5	E472A	0.010	mg/kg wwt		----	----	----	56.2	----
manganese	7439-96-5	E440A	0.010	mg/kg wwt		410	270	94.8	----	15.1
mercury	7439-97-6	E511	0.0050	mg/kg		----	----	----	<0.0050	----
mercury	7439-97-6	E510	0.0050	mg/kg		0.0066	<0.0050	<0.0050	----	0.0055
mercury	7439-97-6	E511A	0.0010	mg/kg wwt		----	----	----	<0.0010	----
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0025	<0.0022	0.0018	----	0.0016
molybdenum	7439-98-7	E440	0.020	mg/kg		0.070	0.027	0.234	----	0.228
molybdenum	7439-98-7	E472	0.040	mg/kg		----	----	----	0.057	----
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0265	0.0135	0.0908	----	0.0640
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt		----	----	----	0.0244	----
nickel	7440-02-0	E472	0.20	mg/kg		----	----	----	0.62	----
nickel	7440-02-0	E440	0.20	mg/kg		4.10	0.49	1.42	----	0.65
nickel	7440-02-0	E472A	0.040	mg/kg wwt		----	----	----	0.267	----
nickel	7440-02-0	E440A	0.040	mg/kg wwt		1.55	0.246	0.551	----	0.183
phosphorus	7723-14-0	E472	10	mg/kg		----	----	----	1080	----
phosphorus	7723-14-0	E440	10	mg/kg		2310	1800	1240	----	1360
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt		----	----	----	462	----
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		876	909	481	----	382
potassium	7440-09-7	E472	20	mg/kg		----	----	----	7460	----
potassium	7440-09-7	E440	20	mg/kg		8160	6250	14400	----	20300

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, West, dwarf birch leaves	D4-B, West labrador tea	D4-B, North, willow leaves	D4-B, North, willow twigs	D4-B, North, equisetum
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-042	WR2100889-043	WR2100889-044	WR2100889-045	WR2100889-046
						Result	Result	Result	Result	Result
Metals										
potassium	7440-09-7	E472A	4.0	mg/kg wwt		----	----	----	3200	----
potassium	7440-09-7	E440A	4.0	mg/kg wwt		3090	3160	5590	----	5700
rubidium	7440-17-7	E472	0.050	mg/kg		----	----	----	14.9	----
rubidium	7440-17-7	E440	0.050	mg/kg		5.66	12.4	17.0	----	44.4
rubidium	7440-17-7	E472A	0.010	mg/kg wwt		----	----	----	6.40	----
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		2.14	6.30	6.61	----	12.5
selenium	7782-49-2	E440	0.050	mg/kg		0.055	<0.050	<0.050	----	<0.050
selenium	7782-49-2	E472	0.10	mg/kg		----	----	----	<0.10	----
selenium	7782-49-2	E440A	0.010	mg/kg wwt		0.021	<0.010	<0.010	----	<0.010
selenium	7782-49-2	E472A	0.020	mg/kg wwt		----	----	----	<0.020	----
silver	7440-22-4	E472.Ag	0.0050	mg/kg		----	----	----	0.0135	----
silver	7440-22-4	E440.Ag	0.0050	mg/kg		0.0066	0.0102	0.0071	----	0.0153
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt		----	----	----	0.0058	----
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0025	0.0052	0.0027	----	0.0043
sodium	7440-23-5	E472	20	mg/kg		----	----	----	32	----
sodium	7440-23-5	E440	20	mg/kg		<20	57	21	----	<20
sodium	7440-23-5	E472A	4.0	mg/kg wwt		----	----	----	13.6	----
sodium	7440-23-5	E440A	4.0	mg/kg wwt		6.6	28.9	8.2	----	5.3
strontium	7440-24-6	E440	0.050	mg/kg		26.5	6.80	33.0	----	54.0
strontium	7440-24-6	E472	0.10	mg/kg		----	----	----	18.4	----
strontium	7440-24-6	E440A	0.010	mg/kg wwt		10.0	3.44	12.8	----	15.2
strontium	7440-24-6	E472A	0.020	mg/kg wwt		----	----	----	7.91	----
tellurium	13494-80-9	E472	0.020	mg/kg		----	----	----	<0.020	----
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	----	<0.020
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt		----	----	----	<0.0040	----
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	----	<0.0040
thallium	7440-28-0	E472	0.0020	mg/kg		----	----	----	<0.0020	----
thallium	7440-28-0	E440	0.0020	mg/kg		0.0034	0.0118	<0.0020	----	0.0022
thallium	7440-28-0	E472A	0.00040	mg/kg wwt		----	----	----	0.00068	----
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00131	0.00599	0.00069	----	0.00061
tin	7440-31-5	E472	0.10	mg/kg		----	----	----	<0.10	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, West, dwarf birch leaves	D4-B, West labrador tea	D4-B, North, willow leaves	D4-B, North, willow twigs	D4-B, North, equisetum
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-042	WR2100889-043	WR2100889-044	WR2100889-045	WR2100889-046
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	----	<0.10
tin	7440-31-5	E472A	0.020	mg/kg wwt		----	----	----	<0.020	----
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	----	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		2.99	2.35	3.51	----	1.12
titanium	7440-32-6	E472.Ti	0.50	mg/kg		----	----	----	1.28	----
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		1.13	1.19	1.36	----	0.313
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt		----	----	----	0.55	----
uranium	7440-61-1	E472	0.0020	mg/kg		----	----	----	0.0032	----
uranium	7440-61-1	E440	0.0020	mg/kg		0.0118	0.0089	0.0107	----	0.0045
uranium	7440-61-1	E472A	0.00040	mg/kg wwt		----	----	----	0.00138	----
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00447	0.00451	0.00413	----	0.00126
vanadium	7440-62-2	E472	0.10	mg/kg		----	----	----	<0.10	----
vanadium	7440-62-2	E440	0.10	mg/kg		0.10	<0.10	0.12	----	<0.10
vanadium	7440-62-2	E472A	0.020	mg/kg wwt		----	----	----	<0.020	----
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		0.039	0.042	0.048	----	<0.020
zinc	7440-66-6	E440	0.50	mg/kg		275	19.3	108	----	32.0
zinc	7440-66-6	E472	1.0	mg/kg		----	----	----	108	----
zinc	7440-66-6	E440A	0.10	mg/kg wwt		104	9.78	42.0	----	9.00
zinc	7440-66-6	E472A	0.20	mg/kg wwt		----	----	----	46.5	----
zirconium	7440-67-7	E472	0.20	mg/kg		----	----	----	0.36	----
zirconium	7440-67-7	E440	0.20	mg/kg		<0.20	<0.20	0.27	----	0.28
zirconium	7440-67-7	E472A	0.040	mg/kg wwt		----	----	----	0.156	----
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		<0.040	0.076	0.104	----	0.080

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, South, willow leaves	D4-B, South, willow twigs	D4-B, East, willow leaves	D4-B, East, dwarf birch leaves	D4-B, East, labrador tea
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-047	WR2100889-048	WR2100889-049	WR2100889-050	WR2100889-051
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		60.0	----	62.6	60.9	49.4
moisture	----	E144-H	2.0	%		----	54.3	----	----	----
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		33.2	----	42.8	31.4	42.0
aluminum	7429-90-5	E472	5.0	mg/kg		----	55.1	----	----	----
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		13.3	----	16.0	12.3	21.2
aluminum	7429-90-5	E472A	1.0	mg/kg wwt		----	25.2	----	----	----
antimony	7440-36-0	E472	0.010	mg/kg		----	0.123	----	----	----
antimony	7440-36-0	E440	0.010	mg/kg		0.080	----	0.117	0.069	0.133
antimony	7440-36-0	E472A	0.0020	mg/kg wwt		----	0.0563	----	----	----
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0320	----	0.0440	0.0269	0.0675
arsenic	7440-38-2	E440	0.020	mg/kg		1.30	----	1.81	1.20	1.76
arsenic	7440-38-2	E472	0.030	mg/kg		----	1.93	----	----	----
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.522	----	0.676	0.470	0.891
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt		----	0.882	----	----	----
barium	7440-39-3	E472	0.050	mg/kg		----	12.7	----	----	----
barium	7440-39-3	E440	0.050	mg/kg		10.4	----	17.1	81.7	49.1
barium	7440-39-3	E472A	0.010	mg/kg wwt		----	5.82	----	----	----
barium	7440-39-3	E440A	0.010	mg/kg wwt		4.17	----	6.41	32.0	24.8
beryllium	7440-41-7	E472	0.010	mg/kg		----	<0.010	----	----	----
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	----	<0.010	<0.010	<0.010
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt		----	<0.0020	----	----	----
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		<0.0020	----	<0.0020	<0.0020	<0.0020
bismuth	7440-69-9	E472	0.010	mg/kg		----	0.050	----	----	----
bismuth	7440-69-9	E440	0.010	mg/kg		0.020	----	0.062	0.030	0.048
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt		----	0.0229	----	----	----
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.0079	----	0.0232	0.0117	0.0244
boron	7440-42-8	E472	1.0	mg/kg		----	9.1	----	----	----
boron	7440-42-8	E440	1.0	mg/kg		3.6	----	5.0	16.1	11.8
boron	7440-42-8	E472A	0.20	mg/kg wwt		----	4.15	----	----	----
boron	7440-42-8	E440A	0.20	mg/kg wwt		1.43	----	1.87	6.29	5.98

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, South, willow leaves	D4-B, South, willow twigs	D4-B, East, willow leaves	D4-B, East, dwarf birch leaves	D4-B, East, labrador tea
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-047	WR2100889-048	WR2100889-049	WR2100889-050	WR2100889-051
						Result	Result	Result	Result	Result
Metals										
cadmium	7440-43-9	E440	0.0050	mg/kg		0.419	----	0.876	0.0464	0.0087
cadmium	7440-43-9	E472	0.010	mg/kg		----	0.352	----	----	----
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		0.168	----	0.328	0.0182	0.0044
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt		----	0.161	----	----	----
calcium	7440-70-2	E472	20	mg/kg		----	3710	----	----	----
calcium	7440-70-2	E440	20	mg/kg		8140	----	12200	8850	4630
calcium	7440-70-2	E472A	4.0	mg/kg wwt		----	1700	----	----	----
calcium	7440-70-2	E440A	4.0	mg/kg wwt		3250	----	4580	3460	2340
cesium	7440-46-2	E472	0.0050	mg/kg		----	0.0232	----	----	----
cesium	7440-46-2	E440	0.0050	mg/kg		0.0239	----	0.0177	0.0118	0.0371
cesium	7440-46-2	E472A	0.0010	mg/kg wwt		----	0.0106	----	----	----
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0096	----	0.0066	0.0046	0.0188
chromium	7440-47-3	E440	0.050	mg/kg		0.128	----	0.175	0.315	0.242
chromium	7440-47-3	E472	0.20	mg/kg		----	<0.20	----	----	----
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.051	----	0.066	0.123	0.122
chromium	7440-47-3	E472A	0.040	mg/kg wwt		----	0.056	----	----	----
cobalt	7440-48-4	E472	0.020	mg/kg		----	0.208	----	----	----
cobalt	7440-48-4	E440	0.020	mg/kg		0.358	----	0.843	0.118	0.045
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt		----	0.0952	----	----	----
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.143	----	0.316	0.0460	0.0228
copper	7440-50-8	E440	0.10	mg/kg		2.78	----	3.25	4.67	4.80
copper	7440-50-8	E472	0.20	mg/kg		----	2.18	----	----	----
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.11	----	1.22	1.82	2.43
copper	7440-50-8	E472A	0.040	mg/kg wwt		----	0.995	----	----	----
iron	7439-89-6	E440	3.0	mg/kg		118	----	147	136	112
iron	7439-89-6	E472	5.0	mg/kg		----	127	----	----	----
iron	7439-89-6	E440A	0.60	mg/kg wwt		47.0	----	54.9	53.4	56.4
iron	7439-89-6	E472A	1.0	mg/kg wwt		----	57.9	----	----	----
lead	7439-92-1	E440	0.020	mg/kg		0.175	----	0.281	0.214	0.333
lead	7439-92-1	E472	0.050	mg/kg		----	0.272	----	----	----
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.0700	----	0.105	0.0836	0.168

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, South, willow leaves	D4-B, South, willow twigs	D4-B, East, willow leaves	D4-B, East, dwarf birch leaves	D4-B, East, labrador tea
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-047	WR2100889-048	WR2100889-049	WR2100889-050	WR2100889-051
						Result	Result	Result	Result	Result
Metals										
lead	7439-92-1	E472A	0.010	mg/kg wwt		----	0.124	----	----	----
lithium	7439-93-2	E472	0.50	mg/kg		----	<0.50	----	----	----
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	----	<0.50	<0.50	<0.50
lithium	7439-93-2	E472A	0.10	mg/kg wwt		----	<0.10	----	----	----
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	----	<0.10	<0.10	<0.10
magnesium	7439-95-4	E472	2.0	mg/kg		----	1230	----	----	----
magnesium	7439-95-4	E440	2.0	mg/kg		2890	----	3260	3140	1330
magnesium	7439-95-4	E472A	0.40	mg/kg wwt		----	560	----	----	----
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		1160	----	1220	1230	671
manganese	7439-96-5	E472	0.050	mg/kg		----	50.3	----	----	----
manganese	7439-96-5	E440	0.050	mg/kg		72.2	----	423	566	437
manganese	7439-96-5	E472A	0.010	mg/kg wwt		----	23.0	----	----	----
manganese	7439-96-5	E440A	0.010	mg/kg wwt		28.9	----	158	221	221
mercury	7439-97-6	E511	0.0050	mg/kg		----	<0.0050	----	----	----
mercury	7439-97-6	E510	0.0050	mg/kg		<0.0050	----	0.0060	0.0067	0.0052
mercury	7439-97-6	E511A	0.0010	mg/kg wwt		----	<0.0010	----	----	----
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0017	----	0.0022	0.0026	0.0026
molybdenum	7439-98-7	E440	0.020	mg/kg		0.188	----	0.353	0.070	<0.020
molybdenum	7439-98-7	E472	0.040	mg/kg		----	0.073	----	----	----
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0750	----	0.132	0.0273	0.0100
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt		----	0.0334	----	----	----
nickel	7440-02-0	E472	0.20	mg/kg		----	0.52	----	----	----
nickel	7440-02-0	E440	0.20	mg/kg		0.31	----	0.32	2.39	0.26
nickel	7440-02-0	E472A	0.040	mg/kg wwt		----	0.236	----	----	----
nickel	7440-02-0	E440A	0.040	mg/kg wwt		0.123	----	0.121	0.936	0.130
phosphorus	7723-14-0	E472	10	mg/kg		----	1010	----	----	----
phosphorus	7723-14-0	E440	10	mg/kg		1420	----	1260	1610	1330
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt		----	462	----	----	----
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		567	----	472	631	672
potassium	7440-09-7	E472	20	mg/kg		----	6270	----	----	----
potassium	7440-09-7	E440	20	mg/kg		11100	----	12800	7120	5520

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, South, willow leaves	D4-B, South, willow twigs	D4-B, East, willow leaves	D4-B, East, dwarf birch leaves	D4-B, East, labrador tea
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-047	WR2100889-048	WR2100889-049	WR2100889-050	WR2100889-051
						Result	Result	Result	Result	Result
Metals										
potassium	7440-09-7	E472A	4.0	mg/kg wwt		----	2860	----	----	----
potassium	7440-09-7	E440A	4.0	mg/kg wwt		4430	----	4810	2780	2790
rubidium	7440-17-7	E472	0.050	mg/kg		----	3.32	----	----	----
rubidium	7440-17-7	E440	0.050	mg/kg		4.77	----	3.63	2.50	8.95
rubidium	7440-17-7	E472A	0.010	mg/kg wwt		----	1.52	----	----	----
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		1.91	----	1.36	0.979	4.53
selenium	7782-49-2	E440	0.050	mg/kg		0.506	----	0.162	<0.050	<0.050
selenium	7782-49-2	E472	0.10	mg/kg		----	0.16	----	----	----
selenium	7782-49-2	E440A	0.010	mg/kg wwt		0.202	----	0.061	0.011	<0.010
selenium	7782-49-2	E472A	0.020	mg/kg wwt		----	0.075	----	----	----
silver	7440-22-4	E472.Ag	0.0050	mg/kg		----	0.0124	----	----	----
silver	7440-22-4	E440.Ag	0.0050	mg/kg		<0.0050	----	<0.0050	0.0051	0.0053
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt		----	0.0056	----	----	----
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0012	----	<0.0010	0.0020	0.0027
sodium	7440-23-5	E472	20	mg/kg		----	34	----	----	----
sodium	7440-23-5	E440	20	mg/kg		<20	----	32	24	45
sodium	7440-23-5	E472A	4.0	mg/kg wwt		----	15.4	----	----	----
sodium	7440-23-5	E440A	4.0	mg/kg wwt		5.4	----	12.0	9.2	22.8
strontium	7440-24-6	E440	0.050	mg/kg		29.5	----	46.8	27.5	6.33
strontium	7440-24-6	E472	0.10	mg/kg		----	17.2	----	----	----
strontium	7440-24-6	E440A	0.010	mg/kg wwt		11.8	----	17.5	10.8	3.20
strontium	7440-24-6	E472A	0.020	mg/kg wwt		----	7.84	----	----	----
tellurium	13494-80-9	E472	0.020	mg/kg		----	<0.020	----	----	----
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	----	<0.020	<0.020	<0.020
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt		----	<0.0040	----	----	----
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	----	<0.0040	<0.0040	<0.0040
thallium	7440-28-0	E472	0.0020	mg/kg		----	<0.0020	----	----	----
thallium	7440-28-0	E440	0.0020	mg/kg		<0.0020	----	<0.0020	<0.0020	0.0081
thallium	7440-28-0	E472A	0.00040	mg/kg wwt		----	0.00066	----	----	----
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		<0.00040	----	<0.00040	0.00066	0.00407
tin	7440-31-5	E472	0.10	mg/kg		----	<0.10	----	----	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D4-B, South, willow leaves	D4-B, South, willow twigs	D4-B, East, willow leaves	D4-B, East, dwarf birch leaves	D4-B, East, labrador tea
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-047	WR2100889-048	WR2100889-049	WR2100889-050	WR2100889-051
						Result	Result	Result	Result	Result
Metals										
tin	7440-31-5	E440	0.10	mg/kg		<0.10	----	<0.10	<0.10	<0.10
tin	7440-31-5	E472A	0.020	mg/kg wwt		----	<0.020	----	----	----
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	----	<0.020	<0.020	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		1.62	----	1.72	1.76	2.12
titanium	7440-32-6	E472.Ti	0.50	mg/kg		----	2.74	----	----	----
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		0.646	----	0.642	0.689	1.07
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt		----	1.25	----	----	----
uranium	7440-61-1	E472	0.0020	mg/kg		----	0.0091	----	----	----
uranium	7440-61-1	E440	0.0020	mg/kg		0.0093	----	0.0120	0.0105	0.0101
uranium	7440-61-1	E472A	0.00040	mg/kg wwt		----	0.00416	----	----	----
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00373	----	0.00449	0.00410	0.00509
vanadium	7440-62-2	E472	0.10	mg/kg		----	0.10	----	----	----
vanadium	7440-62-2	E440	0.10	mg/kg		<0.10	----	<0.10	<0.10	<0.10
vanadium	7440-62-2	E472A	0.020	mg/kg wwt		----	0.046	----	----	----
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		0.025	----	0.030	0.020	0.038
zinc	7440-66-6	E440	0.50	mg/kg		51.2	----	73.6	190	21.5
zinc	7440-66-6	E472	1.0	mg/kg		----	89.4	----	----	----
zinc	7440-66-6	E440A	0.10	mg/kg wwt		20.5	----	27.5	74.4	10.9
zinc	7440-66-6	E472A	0.20	mg/kg wwt		----	40.8	----	----	----
zirconium	7440-67-7	E472	0.20	mg/kg		----	0.31	----	----	----
zirconium	7440-67-7	E440	0.20	mg/kg		0.22	----	<0.20	0.23	<0.20
zirconium	7440-67-7	E472A	0.040	mg/kg wwt		----	0.140	----	----	----
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		0.087	----	<0.040	0.090	0.046

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, Centre, willow leaves	D5, Centre, equisetum	D5, East, poplar leaves	D5, East, willow leaves	D5, South, poplar leaves
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-052	WR2100889-053	WR2100889-054	WR2100889-055	WR2100889-056
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		63.4	75.9	63.3	----	70.9
moisture	----	E144-H	2.0	%		----	----	----	59.9	----
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		26.8	10.8	38.5	----	44.8
aluminum	7429-90-5	E472	5.0	mg/kg		----	----	----	55.4	----
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		9.80	2.61	14.1	----	13.0
aluminum	7429-90-5	E472A	1.0	mg/kg wwt		----	----	----	22.2	----
antimony	7440-36-0	E472	0.010	mg/kg		----	----	----	0.110	----
antimony	7440-36-0	E440	0.010	mg/kg		0.064	0.017	0.085	----	0.099
antimony	7440-36-0	E472A	0.0020	mg/kg wwt		----	----	----	0.0442	----
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0236	0.0042	0.0312	----	0.0288
arsenic	7440-38-2	E440	0.020	mg/kg		1.18	1.11	1.66	----	1.71
arsenic	7440-38-2	E472	0.030	mg/kg		----	----	----	1.83	----
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.432	0.268	0.607	----	0.497
arsenic	7440-38-2	E472A	0.0060	mg/kg wwt		----	----	----	0.734	----
barium	7440-39-3	E472	0.050	mg/kg		----	----	----	48.0	----
barium	7440-39-3	E440	0.050	mg/kg		11.1	39.0	44.8	----	12.4
barium	7440-39-3	E472A	0.010	mg/kg wwt		----	----	----	19.2	----
barium	7440-39-3	E440A	0.010	mg/kg wwt		4.08	9.40	16.4	----	3.59
beryllium	7440-41-7	E472	0.010	mg/kg		----	----	----	<0.010	----
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	<0.010	<0.010	----	<0.010
beryllium	7440-41-7	E472A	0.0020	mg/kg wwt		----	----	----	<0.0020	----
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		<0.0020	<0.0020	<0.0020	----	<0.0020
bismuth	7440-69-9	E472	0.010	mg/kg		----	----	----	0.042	----
bismuth	7440-69-9	E440	0.010	mg/kg		0.024	<0.010	0.036	----	0.041
bismuth	7440-69-9	E472A	0.0020	mg/kg wwt		----	----	----	0.0168	----
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.0090	<0.0020	0.0132	----	0.0119
boron	7440-42-8	E472	1.0	mg/kg		----	----	----	15.8	----
boron	7440-42-8	E440	1.0	mg/kg		10.9	12.3	10.8	----	12.9
boron	7440-42-8	E472A	0.20	mg/kg wwt		----	----	----	6.32	----
boron	7440-42-8	E440A	0.20	mg/kg wwt		4.01	2.96	3.98	----	3.76
cadmium	7440-43-9	E440	0.0050	mg/kg		2.97	0.382	1.04	----	1.17

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, Centre, willow leaves	D5, Centre, equisetum	D5, East, poplar leaves	D5, East, willow leaves	D5, South, poplar leaves
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-052	WR2100889-053	WR2100889-054	WR2100889-055	WR2100889-056
						Result	Result	Result	Result	Result
Metals										
cadmium	7440-43-9	E472	0.010	mg/kg		----	----	----	1.19	----
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		1.09	0.0921	0.380	----	0.341
cadmium	7440-43-9	E472A	0.0020	mg/kg wwt		----	----	----	0.478	----
calcium	7440-70-2	E472	20	mg/kg		----	----	----	20700	----
calcium	7440-70-2	E440	20	mg/kg		10900	16200	12200	----	7870
calcium	7440-70-2	E472A	4.0	mg/kg wwt		----	----	----	8320	----
calcium	7440-70-2	E440A	4.0	mg/kg wwt		4010	3900	4460	----	2290
cesium	7440-46-2	E472	0.0050	mg/kg		----	----	----	0.0194	----
cesium	7440-46-2	E440	0.0050	mg/kg		0.0187	0.404	0.0444	----	0.0238
cesium	7440-46-2	E472A	0.0010	mg/kg wwt		----	----	----	0.0078	----
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0069	0.0972	0.0163	----	0.0069
chromium	7440-47-3	E440	0.050	mg/kg		0.086	0.118	0.092	----	0.169
chromium	7440-47-3	E472	0.20	mg/kg		----	----	----	<0.20	----
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.031	0.028	0.034	----	0.049
chromium	7440-47-3	E472A	0.040	mg/kg wwt		----	----	----	0.067	----
cobalt	7440-48-4	E472	0.020	mg/kg		----	----	----	0.398	----
cobalt	7440-48-4	E440	0.020	mg/kg		0.561	0.666	1.15	----	2.69
cobalt	7440-48-4	E472A	0.0040	mg/kg wwt		----	----	----	0.159	----
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.205	0.160	0.422	----	0.783
copper	7440-50-8	E440	0.10	mg/kg		4.52	3.90	3.75	----	4.69
copper	7440-50-8	E472	0.20	mg/kg		----	----	----	3.37	----
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.65	0.940	1.37	----	1.36
copper	7440-50-8	E472A	0.040	mg/kg wwt		----	----	----	1.35	----
iron	7439-89-6	E440	3.0	mg/kg		115	53.8	115	----	131
iron	7439-89-6	E472	5.0	mg/kg		----	----	----	135	----
iron	7439-89-6	E440A	0.60	mg/kg wwt		42.1	13.0	42.2	----	38.1
iron	7439-89-6	E472A	1.0	mg/kg wwt		----	----	----	54.0	----
lead	7439-92-1	E440	0.020	mg/kg		0.146	0.062	0.227	----	0.217
lead	7439-92-1	E472	0.050	mg/kg		----	----	----	0.265	----
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.0534	0.0150	0.0832	----	0.0632
lead	7439-92-1	E472A	0.010	mg/kg wwt		----	----	----	0.106	----
lithium	7439-93-2	E472	0.50	mg/kg		----	----	----	<0.50	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, Centre, willow leaves	D5, Centre, equisetum	D5, East, poplar leaves	D5, East, willow leaves	D5, South, poplar leaves
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-052	WR2100889-053	WR2100889-054	WR2100889-055	WR2100889-056
						Result	Result	Result	Result	Result
Metals										
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	<0.50	----	<0.50
lithium	7439-93-2	E472A	0.10	mg/kg wwt		----	----	----	0.16	----
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	<0.10	----	<0.10
magnesium	7439-95-4	E472	2.0	mg/kg		----	----	----	6160	----
magnesium	7439-95-4	E440	2.0	mg/kg		4040	5040	4090	----	2390
magnesium	7439-95-4	E472A	0.40	mg/kg wwt		----	----	----	2470	----
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		1480	1210	1500	----	695
manganese	7439-96-5	E472	0.050	mg/kg		----	----	----	59.3	----
manganese	7439-96-5	E440	0.050	mg/kg		279	62.7	123	----	166
manganese	7439-96-5	E472A	0.010	mg/kg wwt		----	----	----	23.8	----
manganese	7439-96-5	E440A	0.010	mg/kg wwt		102	15.1	45.2	----	48.3
mercury	7439-97-6	E511	0.0050	mg/kg		----	----	----	<0.0050	----
mercury	7439-97-6	E510	0.0050	mg/kg		0.0051	<0.0050	0.0053	----	<0.0050
mercury	7439-97-6	E511A	0.0010	mg/kg wwt		----	----	----	0.0015	----
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0019	<0.0010	0.0019	----	0.0013
molybdenum	7439-98-7	E440	0.020	mg/kg		0.216	0.213	0.098	----	0.062
molybdenum	7439-98-7	E472	0.040	mg/kg		----	----	----	0.585	----
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0790	0.0514	0.0360	----	0.0180
molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt		----	----	----	0.234	----
nickel	7440-02-0	E472	0.20	mg/kg		----	----	----	2.51	----
nickel	7440-02-0	E440	0.20	mg/kg		3.62	1.26	1.54	----	3.30
nickel	7440-02-0	E472A	0.040	mg/kg wwt		----	----	----	1.01	----
nickel	7440-02-0	E440A	0.040	mg/kg wwt		1.32	0.304	0.563	----	0.960
phosphorus	7723-14-0	E472	10	mg/kg		----	----	----	2700	----
phosphorus	7723-14-0	E440	10	mg/kg		2610	1240	2490	----	3160
phosphorus	7723-14-0	E472A	2.0	mg/kg wwt		----	----	----	1080	----
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		958	300	913	----	918
potassium	7440-09-7	E472	20	mg/kg		----	----	----	8240	----
potassium	7440-09-7	E440	20	mg/kg		12300	43000	13300	----	32700
potassium	7440-09-7	E472A	4.0	mg/kg wwt		----	----	----	3300	----
potassium	7440-09-7	E440A	4.0	mg/kg wwt		4500	10400	4880	----	9500
rubidium	7440-17-7	E472	0.050	mg/kg		----	----	----	2.12	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, Centre, willow leaves	D5, Centre, equisetum	D5, East, poplar leaves	D5, East, willow leaves	D5, South, poplar leaves
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-052	WR2100889-053	WR2100889-054	WR2100889-055	WR2100889-056
						Result	Result	Result	Result	Result
Metals										
rubidium	7440-17-7	E440	0.050	mg/kg		11.3	91.6	7.25	----	13.3
rubidium	7440-17-7	E472A	0.010	mg/kg wwt		----	----	----	0.851	----
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		4.14	22.1	2.66	----	3.86
selenium	7782-49-2	E440	0.050	mg/kg		0.059	<0.050	0.131	----	<0.050
selenium	7782-49-2	E472	0.10	mg/kg		----	----	----	0.35	----
selenium	7782-49-2	E440A	0.010	mg/kg wwt		0.022	<0.010	0.048	----	0.014
selenium	7782-49-2	E472A	0.020	mg/kg wwt		----	----	----	0.140	----
silver	7440-22-4	E472.Ag	0.0050	mg/kg		----	----	----	0.0080	----
silver	7440-22-4	E440.Ag	0.0050	mg/kg		<0.0050	0.0240	0.0071	----	0.0068
silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt		----	----	----	0.0032	----
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0012	0.0058	0.0026	----	0.0020
sodium	7440-23-5	E472	20	mg/kg		----	----	----	28	----
sodium	7440-23-5	E440	20	mg/kg		20	64	<20	----	<20
sodium	7440-23-5	E472A	4.0	mg/kg wwt		----	----	----	11.1	----
sodium	7440-23-5	E440A	4.0	mg/kg wwt		7.5	15.4	4.6	----	<4.0
strontium	7440-24-6	E440	0.050	mg/kg		45.6	79.5	74.0	----	30.2
strontium	7440-24-6	E472	0.10	mg/kg		----	----	----	120	----
strontium	7440-24-6	E440A	0.010	mg/kg wwt		16.7	19.1	27.1	----	8.79
strontium	7440-24-6	E472A	0.020	mg/kg wwt		----	----	----	48.2	----
tellurium	13494-80-9	E472	0.020	mg/kg		----	----	----	<0.020	----
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	----	<0.020
tellurium	13494-80-9	E472A	0.0040	mg/kg wwt		----	----	----	<0.0040	----
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	----	<0.0040
thallium	7440-28-0	E472	0.0020	mg/kg		----	----	----	<0.0020	----
thallium	7440-28-0	E440	0.0020	mg/kg		0.0023	0.0085	<0.0020	----	0.0125
thallium	7440-28-0	E472A	0.00040	mg/kg wwt		----	----	----	0.00049	----
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00084	0.00205	0.00047	----	0.00364
tin	7440-31-5	E472	0.10	mg/kg		----	----	----	<0.10	----
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	----	<0.10
tin	7440-31-5	E472A	0.020	mg/kg wwt		----	----	----	<0.020	----
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	----	<0.020
titanium	7440-32-6	E440.Ti	0.25	mg/kg		1.28	0.63	1.83	----	1.94

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, Centre, willow leaves	D5, Centre, equisetum	D5, East, poplar leaves	D5, East, willow leaves	D5, South, poplar leaves
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-052	WR2100889-053	WR2100889-054	WR2100889-055	WR2100889-056
						Result	Result	Result	Result	Result
Metals										
titanium	7440-32-6	E472.Ti	0.50	mg/kg		----	----	----	2.66	----
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		0.468	0.152	0.672	----	0.563
titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt		----	----	----	1.06	----
uranium	7440-61-1	E472	0.0020	mg/kg		----	----	----	0.0101	----
uranium	7440-61-1	E440	0.0020	mg/kg		0.0083	0.0025	0.0083	----	0.0086
uranium	7440-61-1	E472A	0.00040	mg/kg wwt		----	----	----	0.00403	----
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00305	0.00060	0.00304	----	0.00249
vanadium	7440-62-2	E472	0.10	mg/kg		----	----	----	0.12	----
vanadium	7440-62-2	E440	0.10	mg/kg		<0.10	<0.10	<0.10	----	<0.10
vanadium	7440-62-2	E472A	0.020	mg/kg wwt		----	----	----	0.048	----
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		<0.020	<0.020	0.026	----	0.023
zinc	7440-66-6	E440	0.50	mg/kg		233	33.2	356	----	293
zinc	7440-66-6	E472	1.0	mg/kg		----	----	----	213	----
zinc	7440-66-6	E440A	0.10	mg/kg wwt		85.4	8.00	130	----	85.1
zinc	7440-66-6	E472A	0.20	mg/kg wwt		----	----	----	85.4	----
zirconium	7440-67-7	E472	0.20	mg/kg		----	----	----	<0.20	----
zirconium	7440-67-7	E440	0.20	mg/kg		<0.20	0.24	<0.20	----	<0.20
zirconium	7440-67-7	E472A	0.040	mg/kg wwt		----	----	----	0.077	----
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		<0.040	0.057	<0.040	----	<0.040

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, poplar twigs	D5, South, equisetum	D5, West, willow leaves	D5, West, equisetum	D5, North, willow leaves
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-057	WR2100889-058	WR2100889-059	WR2100889-060	WR2100889-061
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.50	%		66.0	75.8	55.9	74.9	64.3
Metals										
aluminum	7429-90-5	E440	2.0	mg/kg		13.7	12.4	43.3	9.2	47.7
aluminum	7429-90-5	E440A	0.40	mg/kg wwt		4.67	3.01	19.1	2.31	17.0
antimony	7440-36-0	E440	0.010	mg/kg		0.026	0.021	0.109	0.015	0.107
antimony	7440-36-0	E440A	0.0020	mg/kg wwt		0.0088	0.0051	0.0480	0.0038	0.0381
arsenic	7440-38-2	E440	0.020	mg/kg		0.510	1.08	1.96	2.56	2.28
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt		0.174	0.262	0.867	0.641	0.816
barium	7440-39-3	E440	0.050	mg/kg		18.0	38.9	9.46	50.2	9.58
barium	7440-39-3	E440A	0.010	mg/kg wwt		6.13	9.42	4.18	12.6	3.42
beryllium	7440-41-7	E440	0.010	mg/kg		<0.010	<0.010	<0.010	<0.010	<0.010
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt		<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
bismuth	7440-69-9	E440	0.010	mg/kg		<0.010	<0.010	0.044	<0.010	0.059
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt		0.0033	0.0022	0.0192	<0.0020	0.0210
boron	7440-42-8	E440	1.0	mg/kg		15.3	12.1	8.1	11.2	15.7
boron	7440-42-8	E440A	0.20	mg/kg wwt		5.20	2.92	3.58	2.81	5.61
cadmium	7440-43-9	E440	0.0050	mg/kg		0.876	0.383	2.33	0.236	3.82
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt		0.298	0.0927	1.03	0.0592	1.36
calcium	7440-70-2	E440	20	mg/kg		4060	17300	7160	16100	11000
calcium	7440-70-2	E440A	4.0	mg/kg wwt		1380	4180	3160	4050	3950
cesium	7440-46-2	E440	0.0050	mg/kg		0.0091	0.379	0.0222	0.0993	0.0297
cesium	7440-46-2	E440A	0.0010	mg/kg wwt		0.0031	0.0918	0.0098	0.0249	0.0106
chromium	7440-47-3	E440	0.050	mg/kg		0.379	0.150	0.141	0.125	0.142
chromium	7440-47-3	E440A	0.010	mg/kg wwt		0.129	0.036	0.062	0.031	0.051
cobalt	7440-48-4	E440	0.020	mg/kg		0.323	0.771	1.11	0.314	0.498
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt		0.110	0.186	0.490	0.0789	0.178
copper	7440-50-8	E440	0.10	mg/kg		5.04	3.67	2.84	5.18	4.63
copper	7440-50-8	E440A	0.020	mg/kg wwt		1.71	0.888	1.25	1.30	1.65
iron	7439-89-6	E440	3.0	mg/kg		36.1	50.0	119	69.6	153
iron	7439-89-6	E440A	0.60	mg/kg wwt		12.3	12.1	52.5	17.5	54.8
lead	7439-92-1	E440	0.020	mg/kg		0.065	0.077	0.253	0.049	0.279
lead	7439-92-1	E440A	0.0040	mg/kg wwt		0.0222	0.0186	0.112	0.0123	0.0996

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, poplar twigs	D5, South, equisetum	D5, West, willow leaves	D5, West, equisetum	D5, North, willow leaves
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-057	WR2100889-058	WR2100889-059	WR2100889-060	WR2100889-061
						Result	Result	Result	Result	Result
Metals										
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	0.55	<0.50	<0.50
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	0.24	<0.10	<0.10
magnesium	7439-95-4	E440	2.0	mg/kg		1420	5240	2440	6230	4430
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		482	1270	1080	1560	1580
manganese	7439-96-5	E440	0.050	mg/kg		49.9	50.8	401	73.6	190
manganese	7439-96-5	E440A	0.010	mg/kg wwt		17.0	12.3	177	18.5	68.1
mercury	7439-97-6	E510	0.0050	mg/kg		<0.0050	0.0052	0.0052	0.0063	0.0062
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		<0.0010	0.0013	0.0023	0.0016	0.0022
molybdenum	7439-98-7	E440	0.020	mg/kg		0.021	0.201	0.338	0.207	0.089
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0070	0.0487	0.149	0.0521	0.0317
nickel	7440-02-0	E440	0.20	mg/kg		2.25	1.27	2.67	1.08	4.80
nickel	7440-02-0	E440A	0.040	mg/kg wwt		0.765	0.307	1.18	0.270	1.72
phosphorus	7723-14-0	E440	10	mg/kg		1570	1160	2200	1800	3890
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		535	282	972	452	1390
potassium	7440-09-7	E440	20	mg/kg		12800	41000	10700	36500	18600
potassium	7440-09-7	E440A	4.0	mg/kg wwt		4360	9910	4720	9160	6640
rubidium	7440-17-7	E440	0.050	mg/kg		8.42	76.6	6.86	29.9	13.5
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		2.86	18.5	3.03	7.50	4.82
selenium	7782-49-2	E440	0.050	mg/kg		<0.050	<0.050	0.085	<0.050	<0.050
selenium	7782-49-2	E440A	0.010	mg/kg wwt		<0.010	<0.010	0.038	<0.010	0.014
silver	7440-22-4	E440.Ag	0.0050	mg/kg		0.0120	0.0256	<0.0050	0.0135	0.0051
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0041	0.0062	0.0015	0.0034	0.0018
sodium	7440-23-5	E440	20	mg/kg		<20	67	<20	57	<20
sodium	7440-23-5	E440A	4.0	mg/kg wwt		6.1	16.1	6.2	14.4	5.9
strontium	7440-24-6	E440	0.050	mg/kg		28.0	82.8	29.0	78.1	43.9
strontium	7440-24-6	E440A	0.010	mg/kg wwt		9.52	20.0	12.8	19.6	15.7
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	<0.020
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
thallium	7440-28-0	E440	0.0020	mg/kg		0.0074	0.0053	<0.0020	0.0104	0.0035
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00252	0.00128	0.00054	0.00260	0.00126
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	<0.10
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	<0.020

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, poplar twigs	D5, South, equisetum	D5, West, willow leaves	D5, West, equisetum	D5, North, willow leaves
					Client sampling date / time	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021	24-Jul-2021
						WR2100889-057	WR2100889-058	WR2100889-059	WR2100889-060	WR2100889-061
						Result	Result	Result	Result	Result
Metals										
titanium	7440-32-6	E440.Ti	0.25	mg/kg		0.83	0.68	2.03	0.54	2.34
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		0.281	0.164	0.894	0.135	0.836
uranium	7440-61-1	E440	0.0020	mg/kg		<0.0020	0.0029	0.0110	0.0028	0.0165
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00057	0.00070	0.00483	0.00069	0.00591
vanadium	7440-62-2	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	0.10
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		<0.020	<0.020	0.035	<0.020	0.036
zinc	7440-66-6	E440	0.50	mg/kg		101	35.8	89.8	22.3	329
zinc	7440-66-6	E440A	0.10	mg/kg wwt		34.4	8.66	39.6	5.60	118
zirconium	7440-67-7	E440	0.20	mg/kg		<0.80 DLM	0.52	<0.20	0.24	<0.20
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		<0.160 DLM	0.125	0.043	0.061	<0.040

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID: D5, North, equisetum	DUP-1, willow leaves	DUP-2, dwarf birch leaves	DUP-3, equisetum	----
					Client sampling date / time: 24-Jul-2021	[23-Jul-2021]	[23-Jul-2021]	[23-Jul-2021]	----
					WR2100889-062	WR2100889-063	WR2100889-064	WR2100889-065	--------
					Result	Result	Result	Result	----
Physical Tests									
moisture	----	E144	0.50	%	76.3	58.8	64.7	76.7	----
Metals									
aluminum	7429-90-5	E440	2.0	mg/kg	11.5	108	18.2	9.8	----
aluminum	7429-90-5	E440A	0.40	mg/kg wwt	2.72	44.7	6.44	2.28	----
antimony	7440-36-0	E440	0.010	mg/kg	0.016	0.132	0.027	0.020	----
antimony	7440-36-0	E440A	0.0020	mg/kg wwt	0.0038	0.0542	0.0097	0.0047	----
arsenic	7440-38-2	E440	0.020	mg/kg	1.49	2.52	0.557	1.47	----
arsenic	7440-38-2	E440A	0.0040	mg/kg wwt	0.353	1.04	0.197	0.342	----
barium	7440-39-3	E440	0.050	mg/kg	25.0	118	26.8	21.9	----
barium	7440-39-3	E440A	0.010	mg/kg wwt	5.92	48.6	9.47	5.10	----
beryllium	7440-41-7	E440	0.010	mg/kg	<0.010	0.018	<0.010	<0.010	----
beryllium	7440-41-7	E440A	0.0020	mg/kg wwt	<0.0020	0.0076	<0.0020	<0.0020	----
bismuth	7440-69-9	E440	0.010	mg/kg	<0.010	0.089	0.020	<0.010	----
bismuth	7440-69-9	E440A	0.0020	mg/kg wwt	0.0020	0.0365	0.0072	<0.0020	----
boron	7440-42-8	E440	1.0	mg/kg	14.1	2.4	11.8	11.3	----
boron	7440-42-8	E440A	0.20	mg/kg wwt	3.33	0.99	4.19	2.63	----
cadmium	7440-43-9	E440	0.0050	mg/kg	0.861	1.54	0.233	0.814	----
cadmium	7440-43-9	E440A	0.0010	mg/kg wwt	0.204	0.636	0.0825	0.190	----
calcium	7440-70-2	E440	20	mg/kg	21700	6670	4100	20500	----
calcium	7440-70-2	E440A	4.0	mg/kg wwt	5140	2750	1450	4770	----
cesium	7440-46-2	E440	0.0050	mg/kg	0.366	0.0793	0.0274	0.355	----
cesium	7440-46-2	E440A	0.0010	mg/kg wwt	0.0867	0.0326	0.0097	0.0826	----
chromium	7440-47-3	E440	0.050	mg/kg	0.210	0.236	0.122	0.186	----
chromium	7440-47-3	E440A	0.010	mg/kg wwt	0.050	0.097	0.043	0.043	----
cobalt	7440-48-4	E440	0.020	mg/kg	0.255	5.22	0.660	0.213	----
cobalt	7440-48-4	E440A	0.0040	mg/kg wwt	0.0604	2.15	0.233	0.0497	----
copper	7440-50-8	E440	0.10	mg/kg	3.82	2.68	5.18	3.71	----
copper	7440-50-8	E440A	0.020	mg/kg wwt	0.904	1.10	1.83	0.864	----
iron	7439-89-6	E440	3.0	mg/kg	51.2	189	89.8	47.2	----
iron	7439-89-6	E440A	0.60	mg/kg wwt	12.1	77.7	31.7	11.0	----
lead	7439-92-1	E440	0.020	mg/kg	0.061	0.427	0.115	0.059	----
lead	7439-92-1	E440A	0.0040	mg/kg wwt	0.0145	0.176	0.0408	0.0137	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, North, equisetum	DUP-1, willow leaves	DUP-2, dwarf birch leaves	DUP-3, equisetum	----
					Client sampling date / time	24-Jul-2021	[23-Jul-2021]	[23-Jul-2021]	[23-Jul-2021]	----
						WR2100889-062	WR2100889-063	WR2100889-064	WR2100889-065	--------
						Result	Result	Result	Result	----
Metals										
lithium	7439-93-2	E440	0.50	mg/kg		<0.50	<0.50	<0.50	<0.50	----
lithium	7439-93-2	E440A	0.10	mg/kg wwt		<0.10	<0.10	<0.10	<0.10	----
magnesium	7439-95-4	E440	2.0	mg/kg		6600	1900	1620	6310	----
magnesium	7439-95-4	E440A	0.40	mg/kg wwt		1560	784	571	1470	----
manganese	7439-96-5	E440	0.050	mg/kg		32.5	719	1600	35.2	----
manganese	7439-96-5	E440A	0.010	mg/kg wwt		7.69	296	565	8.19	----
mercury	7439-97-6	E510	0.0050	mg/kg		0.0064	<0.0050	0.0059	0.0054	----
mercury	7439-97-6	E510A	0.0010	mg/kg wwt		0.0015	0.0020	0.0021	0.0013	----
molybdenum	7439-98-7	E440	0.020	mg/kg		0.400	0.176	0.021	0.328	----
molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt		0.0946	0.0726	0.0074	0.0764	----
nickel	7440-02-0	E440	0.20	mg/kg		0.83	8.39	3.37	0.85	----
nickel	7440-02-0	E440A	0.040	mg/kg wwt		0.196	3.45	1.19	0.198	----
phosphorus	7723-14-0	E440	10	mg/kg		1180	3740	3630	1210	----
phosphorus	7723-14-0	E440A	2.0	mg/kg wwt		279	1540	1280	282	----
potassium	7440-09-7	E440	20	mg/kg		43800	11900	10200	41700	----
potassium	7440-09-7	E440A	4.0	mg/kg wwt		10400	4880	3600	9710	----
rubidium	7440-17-7	E440	0.050	mg/kg		88.7	13.9	19.3	79.8	----
rubidium	7440-17-7	E440A	0.010	mg/kg wwt		21.0	5.71	6.82	18.6	----
selenium	7782-49-2	E440	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	----
selenium	7782-49-2	E440A	0.010	mg/kg wwt		<0.010	<0.010	<0.010	<0.010	----
silver	7440-22-4	E440.Ag	0.0050	mg/kg		0.0361	0.0051	<0.0050	0.0344	----
silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt		0.0085	0.0021	0.0017	0.0080	----
sodium	7440-23-5	E440	20	mg/kg		62	28	<20	64	----
sodium	7440-23-5	E440A	4.0	mg/kg wwt		14.8	11.5	6.3	14.9	----
strontium	7440-24-6	E440	0.050	mg/kg		95.3	72.2	10.1	88.9	----
strontium	7440-24-6	E440A	0.010	mg/kg wwt		22.6	29.7	3.56	20.7	----
tellurium	13494-80-9	E440	0.020	mg/kg		<0.020	<0.020	<0.020	<0.020	----
tellurium	13494-80-9	E440A	0.0040	mg/kg wwt		<0.0040	<0.0040	<0.0040	<0.0040	----
thallium	7440-28-0	E440	0.0020	mg/kg		0.0058	<0.0020	<0.0020	0.0035	----
thallium	7440-28-0	E440A	0.00040	mg/kg wwt		0.00137	0.00069	<0.00040	0.00081	----
tin	7440-31-5	E440	0.10	mg/kg		<0.10	<0.10	<0.10	<0.10	----
tin	7440-31-5	E440A	0.020	mg/kg wwt		<0.020	<0.020	<0.020	<0.020	----

Analytical Results

Sub-Matrix: **Plant**
(Matrix: **Biota**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	D5, North, equisetum	DUP-1, willow leaves	DUP-2, dwarf birch leaves	DUP-3, equisetum	----
					Client sampling date / time	24-Jul-2021	[23-Jul-2021]	[23-Jul-2021]	[23-Jul-2021]	----
						WR2100889-062	WR2100889-063	WR2100889-064	WR2100889-065	--------
						Result	Result	Result	Result	----
Metals										
titanium	7440-32-6	E440.Ti	0.25	mg/kg		0.64	4.87	1.08	0.53	----
titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt		0.152	2.00	0.383	0.124	----
uranium	7440-61-1	E440	0.0020	mg/kg		0.0092	0.0133	0.0026	0.0088	----
uranium	7440-61-1	E440A	0.00040	mg/kg wwt		0.00218	0.00546	0.00092	0.00204	----
vanadium	7440-62-2	E440	0.10	mg/kg		<0.10	0.17	<0.10	<0.10	----
vanadium	7440-62-2	E440A	0.020	mg/kg wwt		<0.020	0.070	<0.020	<0.020	----
zinc	7440-66-6	E440	0.50	mg/kg		44.9	66.0	182	42.4	----
zinc	7440-66-6	E440A	0.10	mg/kg wwt		10.6	27.2	64.4	9.87	----
zirconium	7440-67-7	E440	0.20	mg/kg		0.23	<0.20	<0.20	<0.20	----
zirconium	7440-67-7	E440A	0.040	mg/kg wwt		0.054	0.075	0.049	0.043	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WR2100889**	Page	: 1 of 71
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: EMSAMP vegetation monitoring	Date Samples Received	: 26-Jul-2021 11:55
PO	: 22037	Issue Date	: 28-Sep-2021 16:20
C-O-C number	: ----		
Sampler	: Bonnie Burns		
Site	: Victoria Gold Corp.		
Quote number	: Q68199		
No. of samples received	: 64		
No. of samples analysed	: 64		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D4-B, North, willow twigs	E511	24-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	61 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D4-B, South, willow twigs	E511	24-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	61 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D5, East, willow leaves	E511	24-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	61 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D2, East, paper birch twigs	E511	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D2, North, willow twigs	E511	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D2, South, willow twigs	E511	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D2, West, willow twigs	E511	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D3, Centre, willow twigs	E511	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Micro)										
LDPE bag D3, West, willow twigs	E511	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, Center, Willow leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, Composite, fescue	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, East, Dwarf Birch Leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, East, Willow leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, North, dwarf birch leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, North, willow leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, North, willow twigs	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, South, dwarf birch leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, South, willow leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, West, dwarf birch leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, West, willow leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D1-B, West, willow twigs	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, Centre, equisetum	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, Centre, willow leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, Centre, willow twigs	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, South, dwarf birch	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, South, willow leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, West, equisetum	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, West, willow leaves	E510	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, Centre, dwarf birch leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, Centre, labrador tea	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, East, dwarf birch leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, East, labrador tea	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, East, willow leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, North, equisetum	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, North, willow leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, South, willow leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, West labrador tea	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D4-B, West, dwarf birch leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, Centre, equisetum	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, Centre, willow leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, East, poplar leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, North, equisetum	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, North, willow leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, poplar twigs	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, South, equisetum	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, South, poplar leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, West, equisetum	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D5, West, willow leaves	E510	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, East, paper birch leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, North, equisetum	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D2, North, willow leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, Centre, dwarf birch leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, Centre, willow leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, East, dwarf birch leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, East, willow leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, North, dwarf birch leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, North, willow leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, South, dwarf birch leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, West, dwarf birch leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag D3, West, willow leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag DUP-1, willow leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag DUP-2, dwarf birch leaves	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (DRY units, Routine)										
LDPE bag DUP-3, equisetum	E510	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D4-B, North, willow twigs	E511A	24-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	61 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D4-B, South, willow twigs	E511A	24-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	61 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D5, East, willow leaves	E511A	24-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	61 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D2, East, paper birch twigs	E511A	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D2, North, willow twigs	E511A	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D2, South, willow twigs	E511A	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D2, West, willow twigs	E511A	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D3, Centre, willow twigs	E511A	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Micro)										
LDPE bag D3, West, willow twigs	E511A	23-Jul-2021	09-Sep-2021	----	----		22-Sep-2021	365 days	62 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, Center, Willow leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, Composite, fescue	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, East, Dwarf Birch Leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, East, Willow leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, North, dwarf birch leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, North, willow leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, North, willow twigs	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, South, dwarf birch leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, South, willow leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, West, dwarf birch leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, West, willow leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D1-B, West, willow twigs	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, Centre, equisetum	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, Centre, willow leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, Centre, willow twigs	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, South, dwarf birch	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, South, willow leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, West, equisetum	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, West, willow leaves	E510A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	365 days	41 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, Centre, dwarf birch leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, Centre, labrador tea	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, East, dwarf birch leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, East, labrador tea	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, East, willow leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, North, equisetum	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, North, willow leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, South, willow leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, West labrador tea	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D4-B, West, dwarf birch leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, Centre, equisetum	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, Centre, willow leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, East, poplar leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, North, equisetum	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, North, willow leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, poplar twigs	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, South, equisetum	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, South, poplar leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, West, equisetum	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D5, West, willow leaves	E510A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	47 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, East, paper birch leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, North, equisetum	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D2, North, willow leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, Centre, dwarf birch leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, Centre, willow leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, East, dwarf birch leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, East, willow leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, North, dwarf birch leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, North, willow leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, South, dwarf birch leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, West, dwarf birch leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag D3, West, willow leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag DUP-1, willow leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag DUP-2, dwarf birch leaves	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Mercury in Biota by CVAAS (WET units, Routine)										
LDPE bag DUP-3, equisetum	E510A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	365 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D4-B, North, willow twigs	E472	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D4-B, South, willow twigs	E472	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D5, East, willow leaves	E472	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, East, paper birch twigs	E472	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, North, willow twigs	E472	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, South, willow twigs	E472	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, West, willow twigs	E472	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D3, Centre, willow twigs	E472	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D3, West, willow twigs	E472	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Center, Willow leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Composite, fescue	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, East, Dwarf Birch Leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, East, Willow leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, dwarf birch leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, willow leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, willow twigs	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, South, dwarf birch leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, South, willow leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, dwarf birch leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, willow leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, willow twigs	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, equisetum	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, willow leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, willow twigs	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, South, dwarf birch	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, South, willow leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, West, equisetum	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, West, willow leaves	E440	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, Centre, dwarf birch leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, Centre, labrador tea	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, dwarf birch leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, labrador tea	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, willow leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, North, equisetum	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, North, willow leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, South, willow leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, West labrador tea	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, West, dwarf birch leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, Centre, equisetum	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, Centre, willow leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, East, poplar leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, North, equisetum	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, North, willow leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, poplar twigs	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, South, equisetum	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, South, poplar leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, West, equisetum	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, West, willow leaves	E440	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, East, paper birch leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, North, equisetum	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, North, willow leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, Centre, dwarf birch leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, Centre, willow leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, East, dwarf birch leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, East, willow leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, North, dwarf birch leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, North, willow leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, South, dwarf birch leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, West, dwarf birch leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, West, willow leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-1, willow leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-2, dwarf birch leaves	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-3, equisetum	E440	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D4-B, North, willow twigs	E472A	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D4-B, South, willow twigs	E472A	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D5, East, willow leaves	E472A	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, East, paper birch twigs	E472A	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, North, willow twigs	E472A	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, South, willow twigs	E472A	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, West, willow twigs	E472A	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D3, Centre, willow twigs	E472A	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D3, West, willow twigs	E472A	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Center, Willow leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Composite, fescue	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, East, Dwarf Birch Leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, East, Willow leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, dwarf birch leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, willow leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, willow twigs	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, South, dwarf birch leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, South, willow leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, dwarf birch leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, willow leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, willow twigs	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, equisetum	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, willow leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, willow twigs	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, South, dwarf birch	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, South, willow leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, West, equisetum	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, West, willow leaves	E440A	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, Centre, dwarf birch leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, Centre, labrador tea	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, dwarf birch leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, labrador tea	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, willow leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, North, equisetum	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, North, willow leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, South, willow leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, West labrador tea	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, West, dwarf birch leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, Centre, equisetum	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, Centre, willow leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, East, poplar leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, North, equisetum	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, North, willow leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, poplar twigs	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, South, equisetum	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, South, poplar leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, West, equisetum	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, West, willow leaves	E440A	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, East, paper birch leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, North, equisetum	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, North, willow leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, Centre, dwarf birch leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, Centre, willow leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, East, dwarf birch leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, East, willow leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, North, dwarf birch leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, North, willow leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, South, dwarf birch leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, West, dwarf birch leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, West, willow leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-1, willow leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-2, dwarf birch leaves	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Metals in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-3, equisetum	E440A	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D4-B, North, willow twigs	E472.Ag	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D4-B, South, willow twigs	E472.Ag	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D5, East, willow leaves	E472.Ag	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, East, paper birch twigs	E472.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, North, willow twigs	E472.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, South, willow twigs	E472.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, West, willow twigs	E472.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D3, Centre, willow twigs	E472.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D3, West, willow twigs	E472.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Center, Willow leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Composite, fescue	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, East, Dwarf Birch Leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, East, Willow leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, dwarf birch leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, willow leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, willow twigs	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, South, dwarf birch leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, South, willow leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, dwarf birch leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, willow leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

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Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, willow twigs	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, equisetum	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, willow leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, willow twigs	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, South, dwarf birch	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, South, willow leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, West, equisetum	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, West, willow leaves	E440.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, Centre, dwarf birch leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, Centre, labrador tea	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, dwarf birch leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, labrador tea	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, willow leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, North, equisetum	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, North, willow leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, South, willow leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, West labrador tea	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, West, dwarf birch leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, Centre, equisetum	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, Centre, willow leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, East, poplar leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, North, equisetum	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, North, willow leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, poplar twigs	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, South, equisetum	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, South, poplar leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
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LDPE bag D5, West, willow leaves	E440.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, East, paper birch leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, North, equisetum	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, North, willow leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, Centre, dwarf birch leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, Centre, willow leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, East, dwarf birch leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
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LDPE bag D3, East, willow leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
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LDPE bag D3, North, willow leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, South, dwarf birch leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
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LDPE bag D3, West, dwarf birch leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, West, willow leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-1, willow leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-2, dwarf birch leaves	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-3, equisetum	E440.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D4-B, North, willow twigs	E472A.Ag	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D4-B, South, willow twigs	E472A.Ag	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓

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			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D5, East, willow leaves	E472A.Ag	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, East, paper birch twigs	E472A.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, North, willow twigs	E472A.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, South, willow twigs	E472A.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, West, willow twigs	E472A.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D3, Centre, willow twigs	E472A.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D3, West, willow twigs	E472A.Ag	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Center, Willow leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Composite, fescue	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, East, Dwarf Birch Leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, East, Willow leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, dwarf birch leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, willow leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, willow twigs	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, South, dwarf birch leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, South, willow leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, dwarf birch leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, willow leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, willow twigs	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, equisetum	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, willow leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, willow twigs	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, South, dwarf birch	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, South, willow leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, West, equisetum	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, West, willow leaves	E440A.Ag	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, Centre, dwarf birch leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, Centre, labrador tea	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, dwarf birch leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, labrador tea	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, willow leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, North, equisetum	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, North, willow leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, South, willow leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, West labrador tea	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, West, dwarf birch leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, Centre, equisetum	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, Centre, willow leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, East, poplar leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, North, equisetum	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, North, willow leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, poplar twigs	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, South, equisetum	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, South, poplar leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, West, equisetum	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, West, willow leaves	E440A.Ag	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, East, paper birch leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, North, equisetum	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, North, willow leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, Centre, dwarf birch leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, Centre, willow leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, East, dwarf birch leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, East, willow leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, North, dwarf birch leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, North, willow leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, South, dwarf birch leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, West, dwarf birch leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, West, willow leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-1, willow leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-2, dwarf birch leaves	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Silver in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-3, equisetum	E440A.Ag	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D4-B, North, willow twigs	E472.Ti	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D4-B, South, willow twigs	E472.Ti	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D5, East, willow leaves	E472.Ti	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, East, paper birch twigs	E472.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, North, willow twigs	E472.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, South, willow twigs	E472.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D2, West, willow twigs	E472.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D3, Centre, willow twigs	E472.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Micro)										
LDPE bag D3, West, willow twigs	E472.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Center, Willow leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, Composite, fescue	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, East, Dwarf Birch Leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, East, Willow leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, dwarf birch leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, willow leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, North, willow twigs	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, South, dwarf birch leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, South, willow leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, dwarf birch leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, willow leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D1-B, West, willow twigs	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, equisetum	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, willow leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, Centre, willow twigs	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, South, dwarf birch	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, South, willow leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, West, equisetum	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, West, willow leaves	E440.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, Centre, dwarf birch leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, Centre, labrador tea	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, dwarf birch leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, labrador tea	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, East, willow leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, North, equisetum	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, North, willow leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, South, willow leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, West labrador tea	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D4-B, West, dwarf birch leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, Centre, equisetum	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, Centre, willow leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, East, poplar leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, North, equisetum	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, North, willow leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, poplar twigs	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, South, equisetum	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, South, poplar leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, West, equisetum	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D5, West, willow leaves	E440.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, East, paper birch leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, North, equisetum	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D2, North, willow leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, Centre, dwarf birch leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, Centre, willow leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, East, dwarf birch leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, East, willow leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, North, dwarf birch leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, North, willow leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, South, dwarf birch leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, West, dwarf birch leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag D3, West, willow leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-1, willow leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-2, dwarf birch leaves	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (DRY units, Routine)										
LDPE bag DUP-3, equisetum	E440.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D4-B, North, willow twigs	E472A.Ti	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D4-B, South, willow twigs	E472A.Ti	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D5, East, willow leaves	E472A.Ti	24-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, East, paper birch twigs	E472A.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, North, willow twigs	E472A.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, South, willow twigs	E472A.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D2, West, willow twigs	E472A.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D3, Centre, willow twigs	E472A.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Micro)										
LDPE bag D3, West, willow twigs	E472A.Ti	23-Jul-2021	09-Sep-2021	----	----		09-Sep-2021	730 days	49 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Center, Willow leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, Composite, fescue	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, East, Dwarf Birch Leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, East, Willow leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, dwarf birch leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, willow leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, North, willow twigs	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, South, dwarf birch leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, South, willow leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, dwarf birch leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, willow leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D1-B, West, willow twigs	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, equisetum	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, willow leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, Centre, willow twigs	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, South, dwarf birch	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, South, willow leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓

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			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, West, equisetum	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, West, willow leaves	E440A.Ti	23-Jul-2021	01-Sep-2021	----	----		01-Sep-2021	730 days	41 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, Centre, dwarf birch leaves	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, Centre, labrador tea	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, dwarf birch leaves	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, labrador tea	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, East, willow leaves	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, North, equisetum	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
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LDPE bag D4-B, North, willow leaves	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

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			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, South, willow leaves	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, West labrador tea	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D4-B, West, dwarf birch leaves	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
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LDPE bag D5, Centre, equisetum	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
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LDPE bag D5, Centre, willow leaves	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, East, poplar leaves	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D5, North, equisetum	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓
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LDPE bag D5, poplar twigs	E440A.Ti	24-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	47 days	✓

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Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
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Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, East, paper birch leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D2, North, equisetum	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
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Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, Centre, willow leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓

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LDPE bag D3, East, dwarf birch leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, East, willow leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
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LDPE bag D3, North, dwarf birch leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, North, willow leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, South, dwarf birch leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag D3, West, dwarf birch leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
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Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-1, willow leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-2, dwarf birch leaves	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Metals : Titanium in Biota by CRC ICPMS (WET units, Routine)										
LDPE bag DUP-3, equisetum	E440A.Ti	23-Jul-2021	08-Sep-2021	----	----		08-Sep-2021	730 days	48 days	✓
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D2, East, paper birch twigs	E144-H	23-Jul-2021	----	----	----		26-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D2, North, willow twigs	E144-H	23-Jul-2021	----	----	----		26-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D2, South, willow twigs	E144-H	23-Jul-2021	----	----	----		26-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D2, West, willow twigs	E144-H	23-Jul-2021	----	----	----		26-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D3, Centre, willow twigs	E144-H	23-Jul-2021	----	----	----		26-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D3, West, willow twigs	E144-H	23-Jul-2021	----	----	----		26-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D4-B, North, willow twigs	E144-H	24-Jul-2021	----	----	----		26-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D4-B, South, willow twigs	E144-H	24-Jul-2021	----	----	----		26-Aug-2021	----	----	

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry (Micro)										
LDPE bag D5, East, willow leaves	E144-H	24-Jul-2021	----	----	----		26-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, Center, Willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, Centre, Dwarf Birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, Composite, fescue	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, East, Dwarf Birch Leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, East, Willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, North, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, North, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, North, willow twigs	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, South, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, South, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, West, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, West, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D1-B, West, willow twigs	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, Centre, equisetum	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, Centre, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, Centre, willow twigs	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, East, paper birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, North, equisetum	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, North, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, South, dwarf birch	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, South, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, West, equisetum	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D2, West, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, Centre, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, Centre, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, East, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, East, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, North, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, North, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, South, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, West, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D3, West, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, Centre, dwarf birch leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, Centre, labrador tea	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, East, dwarf birch leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, East, labrador tea	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, East, willow leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, North, equisetum	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, North, willow leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, South, willow leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, West labrador tea	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D4-B, West, dwarf birch leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, Centre, equisetum	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, Centre, willow leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, East, poplar leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, North, equisetum	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, North, willow leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, poplar twigs	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, South, equisetum	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, South, poplar leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, West, equisetum	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag D5, West, willow leaves	E144	24-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag DUP-1, willow leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	

Matrix: **Biota**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag										
DUP-2, dwarf birch leaves	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag										
DUP-3, equisetum	E144	23-Jul-2021	----	----	----		24-Aug-2021	----	----	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Biota**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Mercury in Biota by CVAAS (DRY units, Micro)	E511	276624	1	9	11.1	5.0	✓
Mercury in Biota by CVAAS (DRY units, Routine)	E510	280607	3	55	5.4	5.0	✓
Mercury in Biota by CVAAS (WET units, Micro)	E511A	276625	1	9	11.1	5.0	✓
Mercury in Biota by CVAAS (WET units, Routine)	E510A	280604	3	55	5.4	5.0	✓
Metals in Biota by CRC ICPMS (DRY units, Micro)	E472	276626	1	9	11.1	5.0	✓
Metals in Biota by CRC ICPMS (DRY units, Routine)	E440	280606	3	55	5.4	5.0	✓
Metals in Biota by CRC ICPMS (WET units, Micro)	E472A	276619	1	9	11.1	5.0	✓
Metals in Biota by CRC ICPMS (WET units, Routine)	E440A	280605	3	55	5.4	5.0	✓
Moisture Content by Gravimetry	E144	274640	3	55	5.4	5.0	✓
Moisture Content by Gravimetry (Micro)	E144-H	276613	1	9	11.1	5.0	✓
Silver in Biota by CRC ICPMS (DRY units, Micro)	E472.Ag	276622	1	9	11.1	5.0	✓
Silver in Biota by CRC ICPMS (DRY units, Routine)	E440.Ag	280601	3	55	5.4	5.0	✓
Silver in Biota by CRC ICPMS (WET units, Micro)	E472A.Ag	276620	1	9	11.1	5.0	✓
Silver in Biota by CRC ICPMS (WET units, Routine)	E440A.Ag	280602	3	55	5.4	5.0	✓
Titanium in Biota by CRC ICPMS (DRY units, Micro)	E472.Ti	276623	1	9	11.1	5.0	✓
Titanium in Biota by CRC ICPMS (DRY units, Routine)	E440.Ti	280600	3	55	5.4	5.0	✓
Titanium in Biota by CRC ICPMS (WET units, Micro)	E472A.Ti	276621	1	9	11.1	5.0	✓
Titanium in Biota by CRC ICPMS (WET units, Routine)	E440A.Ti	280603	3	55	5.4	5.0	✓
Laboratory Control Samples (LCS)							
Mercury in Biota by CVAAS (DRY units, Micro)	E511	276624	2	9	22.2	10.0	✓
Mercury in Biota by CVAAS (DRY units, Routine)	E510	280607	6	55	10.9	10.0	✓
Mercury in Biota by CVAAS (WET units, Micro)	E511A	276625	2	9	22.2	10.0	✓
Mercury in Biota by CVAAS (WET units, Routine)	E510A	280604	6	55	10.9	10.0	✓
Metals in Biota by CRC ICPMS (DRY units, Micro)	E472	276626	2	9	22.2	10.0	✓
Metals in Biota by CRC ICPMS (DRY units, Routine)	E440	280606	6	55	10.9	10.0	✓
Metals in Biota by CRC ICPMS (WET units, Micro)	E472A	276619	2	9	22.2	10.0	✓
Metals in Biota by CRC ICPMS (WET units, Routine)	E440A	280605	6	55	10.9	10.0	✓
Moisture Content by Gravimetry	E144	274640	3	55	5.4	5.0	✓
Moisture Content by Gravimetry (Micro)	E144-H	276613	1	9	11.1	5.0	✓
Silver in Biota by CRC ICPMS (DRY units, Micro)	E472.Ag	276622	2	9	22.2	10.0	✓
Silver in Biota by CRC ICPMS (DRY units, Routine)	E440.Ag	280601	6	55	10.9	10.0	✓
Silver in Biota by CRC ICPMS (WET units, Micro)	E472A.Ag	276620	2	9	22.2	10.0	✓
Silver in Biota by CRC ICPMS (WET units, Routine)	E440A.Ag	280602	6	55	10.9	10.0	✓
Titanium in Biota by CRC ICPMS (DRY units, Micro)	E472.Ti	276623	2	9	22.2	10.0	✓
Titanium in Biota by CRC ICPMS (DRY units, Routine)	E440.Ti	280600	6	55	10.9	10.0	✓
Titanium in Biota by CRC ICPMS (WET units, Micro)	E472A.Ti	276621	2	9	22.2	10.0	✓
Titanium in Biota by CRC ICPMS (WET units, Routine)	E440A.Ti	280603	6	55	10.9	10.0	✓

Matrix: **Biota**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB)							
Mercury in Biota by CVAAS (DRY units, Micro)	E511	276624	1	9	11.1	5.0	✓
Mercury in Biota by CVAAS (DRY units, Routine)	E510	280607	3	55	5.4	5.0	✓
Mercury in Biota by CVAAS (WET units, Micro)	E511A	276625	1	9	11.1	5.0	✓
Mercury in Biota by CVAAS (WET units, Routine)	E510A	280604	3	55	5.4	5.0	✓
Metals in Biota by CRC ICPMS (DRY units, Micro)	E472	276626	1	9	11.1	5.0	✓
Metals in Biota by CRC ICPMS (DRY units, Routine)	E440	280606	3	55	5.4	5.0	✓
Metals in Biota by CRC ICPMS (WET units, Micro)	E472A	276619	1	9	11.1	5.0	✓
Metals in Biota by CRC ICPMS (WET units, Routine)	E440A	280605	3	55	5.4	5.0	✓
Moisture Content by Gravimetry	E144	274640	3	55	5.4	5.0	✓
Moisture Content by Gravimetry (Micro)	E144-H	276613	1	9	11.1	5.0	✓
Silver in Biota by CRC ICPMS (DRY units, Micro)	E472.Ag	276622	1	9	11.1	5.0	✓
Silver in Biota by CRC ICPMS (DRY units, Routine)	E440.Ag	280601	3	55	5.4	5.0	✓
Silver in Biota by CRC ICPMS (WET units, Micro)	E472A.Ag	276620	1	9	11.1	5.0	✓
Silver in Biota by CRC ICPMS (WET units, Routine)	E440A.Ag	280602	3	55	5.4	5.0	✓
Titanium in Biota by CRC ICPMS (DRY units, Micro)	E472.Ti	276623	1	9	11.1	5.0	✓
Titanium in Biota by CRC ICPMS (DRY units, Routine)	E440.Ti	280600	3	55	5.4	5.0	✓
Titanium in Biota by CRC ICPMS (WET units, Micro)	E472A.Ti	276621	1	9	11.1	5.0	✓
Titanium in Biota by CRC ICPMS (WET units, Routine)	E440A.Ti	280603	3	55	5.4	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 Vancouver - Environmental	Biota	Puget Sound Water Quality Authority/CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Moisture Content by Gravimetry (Micro)	E144-H Vancouver - Environmental	Biota	Puget Sound Water Quality Authority/BC MOE Lab Manual	Moisture is measured gravimetrically by drying the sample at <60°C for a minimum of 3 days to constant weight. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of soil, expressed as a percentage.
Metals in Biota by CRC ICPMS (DRY units, Routine)	E440 Vancouver - Environmental	Biota	EPA 200.3/6020B	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Silver in Biota by CRC ICPMS (DRY units, Routine)	E440.Ag Vancouver - Environmental	Biota	EPA 200.3/6020B	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Titanium in Biota by CRC ICPMS (DRY units, Routine)	E440.Ti Vancouver - Environmental	Biota	EPA 200.3/6020B	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Metals in Biota by CRC ICPMS (WET units, Routine)	E440A Vancouver - Environmental	Biota	EPA 200.3/6020B	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Silver in Biota by CRC ICPMS (WET units, Routine)	E440A.Ag Vancouver - Environmental	Biota	EPA 200.3/6020B	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Titanium in Biota by CRC ICPMS (WET units, Routine)	E440A.Ti Vancouver - Environmental	Biota	EPA 200.3/6020B	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Metals in Biota by CRC ICPMS (DRY units, Micro)	E472 Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Silver in Biota by CRC ICPMS (DRY units, Micro)	E472.Ag Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Titanium in Biota by CRC ICPMS (DRY units, Micro)	E472.Ti Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Metals in Biota by CRC ICPMS (WET units, Micro)	E472A Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Silver in Biota by CRC ICPMS (WET units, Micro)	E472A.Ag Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by Collision/Reaction Cell ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Titanium in Biota by CRC ICPMS (WET units, Micro)	E472A.Ti Vancouver - Environmental	Biota	EPA 200.3/6020B (mod)	Tissue samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by High Resolution ICPMS. Method Limitation: This method employs a strong acid/peroxide digestion, and is intended to provide a conservative estimate of bio-available metals. Near complete recoveries are achieved for most toxicologically important metals, but elements associated with recalcitrant minerals may be only partially recovered.
Mercury in Biota by CVAAS (DRY units, Routine)	E510 Vancouver - Environmental	Biota	EPA 200.3/1631 Appendix (mod)	Samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by CVAAS.
Mercury in Biota by CVAAS (WET units, Routine)	E510A Vancouver - Environmental	Biota	EPA 200.3/1631 Appendix (mod)	Samples are homogenized and sub-sampled prior to hotblock digestion with HNO3, HCl, and H2O2. Analysis is by CVAAS.
Mercury in Biota by CVAAS (DRY units, Micro)	E511 Vancouver - Environmental	Biota	EPA 200.3/1631E (mod)	Samples are homogenized and sub-sampled prior to hotblock digestion with nitric acid, hydrochloric acid, and hydrogen peroxide. Analysis is by CVAAS.
Mercury in Biota by CVAAS (WET units, Micro)	E511A Vancouver - Environmental	Biota	EPA 200.3/1631E (mod)	Samples are homogenized and sub-sampled prior to hotblock digestion with nitric acid, hydrochloric acid, and hydrogen peroxide. Analysis is by CVAAS.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals and Mercury Biota Digestion	EP440 Vancouver - Environmental	Biota	EPA 200.3	This method uses a heated strong acid digestion with HNO3, HCl, and H2O2 and is intended to provide a conservative estimate of bio-available metals.
Metals and Mercury Biota Digestion (Micro)	EP472 Vancouver - Environmental	Biota	EPA 200.3	This method, designed for small sample amounts, uses a heated strong acid digestion with HNO3, HCl, and H2O2 and is intended to provide a conservative estimate of bio-available metals.

ALS Environmental

QUALITY CONTROL REPORT

Work Order	: **WR2100889**	Page	: 1 of 40
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: EMSAMP vegetation monitoring	Date Samples Received	: 26-Jul-2021 11:55
PO	: 22037	Date Analysis Commenced	: 24-Aug-2021
C-O-C number	: ----	Issue Date	: 28-Sep-2021 16:20
Sampler	: Bonnie Burns		
Site	: Victoria Gold Corp.		
Quote number	: Q68199		
No. of samples received	: 64		
No. of samples analysed	: 64		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Salimah Khimani	Lab Assistant	Metals, Burnaby, British Columbia
Shaneel Dayal	Analyst	Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 274640)											
WR2100889-015	D2, Centre, willow leaves	moisture	----	E144	0.50	%	74.3	74.6	0.402%	20%	----
Physical Tests (QC Lot: 274641)											
WR2100889-024	D2, East, paper birch leaves	moisture	----	E144	0.50	%	74.6	73.9	0.844%	20%	----
Physical Tests (QC Lot: 274642)											
WR2100889-056	D5, South, poplar leaves	moisture	----	E144	0.50	%	70.9	71.0	0.141%	20%	----
Physical Tests (QC Lot: 276613)											
WR2100889-055	D5, East, willow leaves	moisture	----	E144-H	2.0	%	59.9	59.9	0.0891%	20%	----
Metals (QC Lot: 276619)											
WR2100889-055	D5, East, willow leaves	aluminum	7429-90-5	E472A	1.0	mg/kg wwt	22.2	19.3	13.9%	40%	----
		antimony	7440-36-0	E472A	0.0020	mg/kg wwt	0.0442	0.0402	9.52%	40%	----
		arsenic	7440-38-2	E472A	0.0060	mg/kg wwt	0.734	0.627	15.7%	40%	----
		barium	7440-39-3	E472A	0.010	mg/kg wwt	19.2	16.5	15.2%	40%	----
		beryllium	7440-41-7	E472A	0.0020	mg/kg wwt	<0.0020	<0.0020	0	Diff <2x LOR	----
		bismuth	7440-69-9	E472A	0.0020	mg/kg wwt	0.0168	0.0206	20.5%	40%	----
		boron	7440-42-8	E472A	0.20	mg/kg wwt	6.32	5.29	17.7%	40%	----
		cadmium	7440-43-9	E472A	0.0020	mg/kg wwt	0.478	0.400	17.8%	40%	----
		calcium	7440-70-2	E472A	4.0	mg/kg wwt	8320	7130	15.3%	60%	----
		cesium	7440-46-2	E472A	0.0010	mg/kg wwt	0.0078	0.0068	13.4%	40%	----
		chromium	7440-47-3	E472A	0.040	mg/kg wwt	0.067	0.071	0.005	Diff <2x LOR	----
		cobalt	7440-48-4	E472A	0.0040	mg/kg wwt	0.159	0.138	14.6%	40%	----
		copper	7440-50-8	E472A	0.040	mg/kg wwt	1.35	1.18	13.3%	40%	----
		iron	7439-89-6	E472A	1.0	mg/kg wwt	54.0	45.9	16.3%	40%	----
		lead	7439-92-1	E472A	0.010	mg/kg wwt	0.106	0.087	19.7%	40%	----
		lithium	7439-93-2	E472A	0.10	mg/kg wwt	0.16	0.14	0.02	Diff <2x LOR	----
		magnesium	7439-95-4	E472A	0.40	mg/kg wwt	2470	2180	12.4%	40%	----
		manganese	7439-96-5	E472A	0.010	mg/kg wwt	23.8	20.9	12.9%	40%	----
		molybdenum	7439-98-7	E472A	0.0080	mg/kg wwt	0.234	0.210	11.1%	40%	----
		nickel	7440-02-0	E472A	0.040	mg/kg wwt	1.01	0.877	13.7%	40%	----
		phosphorus	7723-14-0	E472A	2.0	mg/kg wwt	1080	941	13.8%	40%	----
		potassium	7440-09-7	E472A	4.0	mg/kg wwt	3300	2920	12.1%	40%	----
		rubidium	7440-17-7	E472A	0.010	mg/kg wwt	0.851	0.756	11.8%	40%	----

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 276619) - continued											
WR2100889-055	D5, East, willow leaves	selenium	7782-49-2	E472A	0.020	mg/kg wwt	0.140	0.122	14.3%	40%	----
		sodium	7440-23-5	E472A	4.0	mg/kg wwt	11.1	9.9	1.2	Diff <2x LOR	----
		strontium	7440-24-6	E472A	0.020	mg/kg wwt	48.2	42.5	12.6%	60%	----
		tellurium	13494-80-9	E472A	0.0040	mg/kg wwt	<0.0040	<0.0040	0	Diff <2x LOR	----
		thallium	7440-28-0	E472A	0.00040	mg/kg wwt	0.00049	0.00048	0.000009	Diff <2x LOR	----
		tin	7440-31-5	E472A	0.020	mg/kg wwt	<0.020	<0.020	0	Diff <2x LOR	----
		uranium	7440-61-1	E472A	0.00040	mg/kg wwt	0.00403	0.00381	5.81%	40%	----
		vanadium	7440-62-2	E472A	0.020	mg/kg wwt	0.048	0.043	0.005	Diff <2x LOR	----
		zinc	7440-66-6	E472A	0.20	mg/kg wwt	85.4	75.4	12.4%	40%	----
		zirconium	7440-67-7	E472A	0.040	mg/kg wwt	0.077	0.083	0.005	Diff <2x LOR	----
Metals (QC Lot: 276620)											
WR2100889-055	D5, East, willow leaves	silver	7440-22-4	E472A.Ag	0.0010	mg/kg wwt	0.0032	0.0030	0.0002	Diff <2x LOR	----
Metals (QC Lot: 276621)											
WR2100889-055	D5, East, willow leaves	titanium	7440-32-6	E472A.Ti	0.10	mg/kg wwt	1.06	0.89	17.8%	40%	----
Metals (QC Lot: 276622)											
WR2100889-055	D5, East, willow leaves	silver	7440-22-4	E472.Ag	0.0050	mg/kg	0.0080	0.0074	0.0006	Diff <2x LOR	----
Metals (QC Lot: 276623)											
WR2100889-055	D5, East, willow leaves	titanium	7440-32-6	E472.Ti	0.50	mg/kg	2.66	2.22	0.43	Diff <2x LOR	----
Metals (QC Lot: 276624)											
WR2100889-055	D5, East, willow leaves	mercury	7439-97-6	E511	0.0050	mg/kg	<0.0050	0.0055	0.0005	Diff <2x LOR	----
Metals (QC Lot: 276625)											
WR2100889-055	D5, East, willow leaves	mercury	7439-97-6	E511A	0.0010	mg/kg wwt	0.0015	0.0022	0.0007	Diff <2x LOR	----
Metals (QC Lot: 276626)											
WR2100889-055	D5, East, willow leaves	aluminum	7429-90-5	E472	5.0	mg/kg	55.4	48.2	13.9%	40%	----
		antimony	7440-36-0	E472	0.010	mg/kg	0.110	0.100	9.52%	40%	----
		arsenic	7440-38-2	E472	0.030	mg/kg	1.83	1.56	15.7%	40%	----
		barium	7440-39-3	E472	0.050	mg/kg	48.0	41.2	15.2%	40%	----
		beryllium	7440-41-7	E472	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		bismuth	7440-69-9	E472	0.010	mg/kg	0.042	0.052	0.010	Diff <2x LOR	----
		boron	7440-42-8	E472	1.0	mg/kg	15.8	13.2	17.7%	40%	----
		cadmium	7440-43-9	E472	0.010	mg/kg	1.19	0.997	17.8%	40%	----
		calcium	7440-70-2	E472	20	mg/kg	20700	17800	15.3%	60%	----
		cesium	7440-46-2	E472	0.0050	mg/kg	0.0194	0.0170	0.0024	Diff <2x LOR	----
		chromium	7440-47-3	E472	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		cobalt	7440-48-4	E472	0.020	mg/kg	0.398	0.344	14.6%	40%	----

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 276626) - continued											
WR2100889-055	D5, East, willow leaves	copper	7440-50-8	E472	0.20	mg/kg	3.37	2.95	13.3%	40%	----
		iron	7439-89-6	E472	5.0	mg/kg	135	114	16.3%	40%	----
		lead	7439-92-1	E472	0.050	mg/kg	0.265	0.217	0.048	Diff <2x LOR	----
		lithium	7439-93-2	E472	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		magnesium	7439-95-4	E472	2.0	mg/kg	6160	5440	12.4%	40%	----
		manganese	7439-96-5	E472	0.050	mg/kg	59.3	52.1	12.9%	40%	----
		molybdenum	7439-98-7	E472	0.040	mg/kg	0.585	0.523	11.1%	40%	----
		nickel	7440-02-0	E472	0.20	mg/kg	2.51	2.19	13.7%	40%	----
		phosphorus	7723-14-0	E472	10	mg/kg	2700	2350	13.8%	40%	----
		potassium	7440-09-7	E472	20	mg/kg	8240	7300	12.1%	40%	----
		rubidium	7440-17-7	E472	0.050	mg/kg	2.12	1.88	11.8%	40%	----
		selenium	7782-49-2	E472	0.10	mg/kg	0.35	0.30	0.05	Diff <2x LOR	----
		sodium	7440-23-5	E472	20	mg/kg	28	25	3	Diff <2x LOR	----
		strontium	7440-24-6	E472	0.10	mg/kg	120	106	12.6%	60%	----
		tellurium	13494-80-9	E472	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		thallium	7440-28-0	E472	0.0020	mg/kg	<0.0020	<0.0020	0	Diff <2x LOR	----
		tin	7440-31-5	E472	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		uranium	7440-61-1	E472	0.0020	mg/kg	0.0101	0.0095	0.0006	Diff <2x LOR	----
		vanadium	7440-62-2	E472	0.10	mg/kg	0.12	0.11	0.01	Diff <2x LOR	----
		zinc	7440-66-6	E472	1.0	mg/kg	213	188	12.4%	40%	----
		zirconium	7440-67-7	E472	0.20	mg/kg	<0.20	0.21	0.006	Diff <2x LOR	----
Metals (QC Lot: 280600)											
WR2100889-006	D1-B, South, dwarf birch leaves	titanium	7440-32-6	E440.Ti	0.25	mg/kg	0.47	0.48	0.01	Diff <2x LOR	----
Metals (QC Lot: 280601)											
WR2100889-006	D1-B, South, dwarf birch leaves	silver	7440-22-4	E440.Ag	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
Metals (QC Lot: 280602)											
WR2100889-006	D1-B, South, dwarf birch leaves	silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt	0.0014	0.0016	0.0001	Diff <2x LOR	----
Metals (QC Lot: 280603)											
WR2100889-006	D1-B, South, dwarf birch leaves	titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt	0.176	0.181	0.005	Diff <2x LOR	----
Metals (QC Lot: 280604)											
WR2100889-006	D1-B, South, dwarf birch leaves	mercury	7439-97-6	E510A	0.0010	mg/kg wwt	0.0020	0.0018	0.0002	Diff <2x LOR	----
Metals (QC Lot: 280605)											
WR2100889-006	D1-B, South, dwarf birch leaves	aluminum	7429-90-5	E440A	0.40	mg/kg wwt	3.78	3.98	5.15%	40%	----

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 280605) - continued											
WR2100889-006	D1-B, South, dwarf birch leaves	antimony	7440-36-0	E440A	0.0020	mg/kg wwt	0.0054	0.0054	0.00003	Diff <2x LOR	----
		arsenic	7440-38-2	E440A	0.0040	mg/kg wwt	0.0576	0.0632	9.23%	40%	----
		barium	7440-39-3	E440A	0.010	mg/kg wwt	8.25	8.33	1.04%	40%	----
		beryllium	7440-41-7	E440A	0.0020	mg/kg wwt	<0.0020	<0.0020	0	Diff <2x LOR	----
		bismuth	7440-69-9	E440A	0.0020	mg/kg wwt	<0.0020	0.0020	0.00004	Diff <2x LOR	----
		boron	7440-42-8	E440A	0.20	mg/kg wwt	2.58	2.59	0.290%	40%	----
		cadmium	7440-43-9	E440A	0.0010	mg/kg wwt	0.0812	0.0797	1.83%	40%	----
		calcium	7440-70-2	E440A	4.0	mg/kg wwt	1570	1580	0.407%	60%	----
		cesium	7440-46-2	E440A	0.0010	mg/kg wwt	0.0099	0.0103	4.04%	40%	----
		chromium	7440-47-3	E440A	0.010	mg/kg wwt	0.017	0.018	0.0006	Diff <2x LOR	----
		cobalt	7440-48-4	E440A	0.0040	mg/kg wwt	0.171	0.174	1.65%	40%	----
		copper	7440-50-8	E440A	0.020	mg/kg wwt	1.94	1.96	1.14%	40%	----
		iron	7439-89-6	E440A	0.60	mg/kg wwt	20.4	20.3	0.266%	40%	----
		lead	7439-92-1	E440A	0.0040	mg/kg wwt	0.0202	0.0196	0.0006	Diff <2x LOR	----
		lithium	7439-93-2	E440A	0.10	mg/kg wwt	<0.10	<0.10	0	Diff <2x LOR	----
		magnesium	7439-95-4	E440A	0.40	mg/kg wwt	867	878	1.27%	40%	----
		manganese	7439-96-5	E440A	0.010	mg/kg wwt	1040	1070	2.71%	40%	----
		molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt	0.0042	0.0045	0.0004	Diff <2x LOR	----
		nickel	7440-02-0	E440A	0.040	mg/kg wwt	1.64	1.64	0.176%	40%	----
		phosphorus	7723-14-0	E440A	2.0	mg/kg wwt	1060	1080	1.85%	40%	----
		potassium	7440-09-7	E440A	4.0	mg/kg wwt	2350	2440	4.05%	40%	----
		rubidium	7440-17-7	E440A	0.010	mg/kg wwt	3.98	4.07	2.20%	40%	----
		selenium	7782-49-2	E440A	0.010	mg/kg wwt	<0.010	<0.010	0	Diff <2x LOR	----
		sodium	7440-23-5	E440A	4.0	mg/kg wwt	<4.0	4.4	0.4	Diff <2x LOR	----
		strontium	7440-24-6	E440A	0.010	mg/kg wwt	4.28	4.17	2.55%	60%	----
		tellurium	13494-80-9	E440A	0.0040	mg/kg wwt	<0.0040	<0.0040	0	Diff <2x LOR	----
		thallium	7440-28-0	E440A	0.00040	mg/kg wwt	<0.00040	<0.00040	0	Diff <2x LOR	----
		tin	7440-31-5	E440A	0.020	mg/kg wwt	<0.020	<0.020	0	Diff <2x LOR	----
		uranium	7440-61-1	E440A	0.00040	mg/kg wwt	0.00059	0.00053	0.00006	Diff <2x LOR	----
		vanadium	7440-62-2	E440A	0.020	mg/kg wwt	<0.020	<0.020	0	Diff <2x LOR	----
		zinc	7440-66-6	E440A	0.10	mg/kg wwt	53.7	54.1	0.614%	40%	----
		zirconium	7440-67-7	E440A	0.040	mg/kg wwt	<0.040	<0.040	0	Diff <2x LOR	----
Metals (QC Lot: 280606)											
WR2100889-006	D1-B, South, dwarf birch leaves	aluminum	7429-90-5	E440	2.0	mg/kg	10.1	10.6	5.15%	40%	----
		antimony	7440-36-0	E440	0.010	mg/kg	0.014	0.014	0.00008	Diff <2x LOR	----

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 280606) - continued											
WR2100889-006	D1-B, South, dwarf birch leaves	arsenic	7440-38-2	E440	0.020	mg/kg	0.153	0.168	9.23%	40%	----
		barium	7440-39-3	E440	0.050	mg/kg	21.9	22.2	1.04%	40%	----
		beryllium	7440-41-7	E440	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		bismuth	7440-69-9	E440	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		boron	7440-42-8	E440	1.0	mg/kg	6.9	6.9	0.290%	40%	----
		cadmium	7440-43-9	E440	0.0050	mg/kg	0.216	0.212	1.83%	40%	----
		calcium	7440-70-2	E440	20	mg/kg	4190	4210	0.407%	60%	----
		cesium	7440-46-2	E440	0.0050	mg/kg	0.0263	0.0274	4.04%	40%	----
		chromium	7440-47-3	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		cobalt	7440-48-4	E440	0.020	mg/kg	0.456	0.464	1.65%	40%	----
		copper	7440-50-8	E440	0.10	mg/kg	5.15	5.21	1.14%	40%	----
		iron	7439-89-6	E440	3.0	mg/kg	54.2	54.0	0.266%	40%	----
		lead	7439-92-1	E440	0.020	mg/kg	0.054	0.052	0.002	Diff <2x LOR	----
		lithium	7439-93-2	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		magnesium	7439-95-4	E440	2.0	mg/kg	2310	2340	1.27%	40%	----
		manganese	7439-96-5	E440	0.050	mg/kg	2770	2850	2.71%	40%	----
		molybdenum	7439-98-7	E440	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		nickel	7440-02-0	E440	0.20	mg/kg	4.36	4.36	0.176%	40%	----
		phosphorus	7723-14-0	E440	10	mg/kg	2820	2880	1.85%	40%	----
		potassium	7440-09-7	E440	20	mg/kg	6250	6510	4.05%	40%	----
		rubidium	7440-17-7	E440	0.050	mg/kg	10.6	10.8	2.20%	40%	----
		selenium	7782-49-2	E440	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
		sodium	7440-23-5	E440	20	mg/kg	<20	<20	0	Diff <2x LOR	----
		strontium	7440-24-6	E440	0.050	mg/kg	11.4	11.1	2.55%	60%	----
		tellurium	13494-80-9	E440	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.0020	mg/kg	<0.0020	<0.0020	0	Diff <2x LOR	----
		tin	7440-31-5	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.0020	mg/kg	<0.0020	<0.0020	0	Diff <2x LOR	----
		vanadium	7440-62-2	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		zinc	7440-66-6	E440	0.50	mg/kg	143	144	0.614%	40%	----
		zirconium	7440-67-7	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
Metals (QC Lot: 280607)											
WR2100889-006	D1-B, South, dwarf birch leaves	mercury	7439-97-6	E510	0.0050	mg/kg	0.0053	<0.0050	0.0003	Diff <2x LOR	----
Metals (QC Lot: 285407)											

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 285407) - continued											
WR2100889-047	D4-B, South, willow leaves	titanium	7440-32-6	E440.Ti	0.25	mg/kg	1.62	1.70	5.32%	40%	----
Metals (QC Lot: 285408)											
WR2100889-047	D4-B, South, willow leaves	silver	7440-22-4	E440.Ag	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
Metals (QC Lot: 285409)											
WR2100889-047	D4-B, South, willow leaves	silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt	0.0012	0.0015	0.0004	Diff <2x LOR	----
Metals (QC Lot: 285410)											
WR2100889-047	D4-B, South, willow leaves	titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt	0.646	0.681	5.32%	40%	----
Metals (QC Lot: 285411)											
WR2100889-047	D4-B, South, willow leaves	mercury	7439-97-6	E510A	0.0012	mg/kg wwt	0.0017	0.0014	0.0003	Diff <2x LOR	----
Metals (QC Lot: 285412)											
WR2100889-047	D4-B, South, willow leaves	aluminum	7429-90-5	E440A	0.40	mg/kg wwt	13.3	13.8	4.22%	40%	----
		antimony	7440-36-0	E440A	0.0020	mg/kg wwt	0.0320	0.0301	6.03%	40%	----
		arsenic	7440-38-2	E440A	0.0040	mg/kg wwt	0.522	0.504	3.40%	40%	----
		barium	7440-39-3	E440A	0.010	mg/kg wwt	4.17	4.35	4.34%	40%	----
		beryllium	7440-41-7	E440A	0.0020	mg/kg wwt	<0.0020	<0.0020	0	Diff <2x LOR	----
		bismuth	7440-69-9	E440A	0.0020	mg/kg wwt	0.0079	0.0087	0.0008	Diff <2x LOR	----
		boron	7440-42-8	E440A	0.20	mg/kg wwt	1.43	1.48	3.41%	40%	----
		cadmium	7440-43-9	E440A	0.0010	mg/kg wwt	0.168	0.172	2.31%	40%	----
		calcium	7440-70-2	E440A	4.0	mg/kg wwt	3250	3410	4.62%	60%	----
		cesium	7440-46-2	E440A	0.0010	mg/kg wwt	0.0096	0.0106	10.8%	40%	----
		chromium	7440-47-3	E440A	0.010	mg/kg wwt	0.051	0.069	30.0%	40%	----
		cobalt	7440-48-4	E440A	0.0040	mg/kg wwt	0.143	0.146	2.08%	40%	----
		copper	7440-50-8	E440A	0.020	mg/kg wwt	1.11	1.11	0.115%	40%	----
		iron	7439-89-6	E440A	0.60	mg/kg wwt	47.0	49.0	4.15%	40%	----
		lead	7439-92-1	E440A	0.0040	mg/kg wwt	0.0700	0.0768	9.18%	40%	----
		lithium	7439-93-2	E440A	0.10	mg/kg wwt	<0.10	<0.10	0	Diff <2x LOR	----
		magnesium	7439-95-4	E440A	0.40	mg/kg wwt	1160	1190	3.25%	40%	----
		manganese	7439-96-5	E440A	0.010	mg/kg wwt	28.9	29.9	3.33%	40%	----
		molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt	0.0750	0.0786	4.72%	40%	----
		nickel	7440-02-0	E440A	0.040	mg/kg wwt	0.123	0.130	0.007	Diff <2x LOR	----
		phosphorus	7723-14-0	E440A	2.0	mg/kg wwt	567	579	2.00%	40%	----
		potassium	7440-09-7	E440A	4.0	mg/kg wwt	4430	4550	2.65%	40%	----
		rubidium	7440-17-7	E440A	0.010	mg/kg wwt	1.91	1.93	0.970%	40%	----
		selenium	7782-49-2	E440A	0.010	mg/kg wwt	0.202	0.201	0.721%	40%	----
		sodium	7440-23-5	E440A	4.0	mg/kg wwt	5.4	5.4	0.004	Diff <2x LOR	----

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 285412) - continued											
WR2100889-047	D4-B, South, willow leaves	strontium	7440-24-6	E440A	0.010	mg/kg wwt	11.8	11.9	1.19%	60%	----
		tellurium	13494-80-9	E440A	0.0040	mg/kg wwt	<0.0040	<0.0040	0	Diff <2x LOR	----
		thallium	7440-28-0	E440A	0.00040	mg/kg wwt	<0.00040	<0.00040	0	Diff <2x LOR	----
		tin	7440-31-5	E440A	0.020	mg/kg wwt	<0.020	<0.020	0	Diff <2x LOR	----
		uranium	7440-61-1	E440A	0.00040	mg/kg wwt	0.00373	0.00396	6.07%	40%	----
		vanadium	7440-62-2	E440A	0.020	mg/kg wwt	0.025	0.025	0.0001	Diff <2x LOR	----
		zinc	7440-66-6	E440A	0.10	mg/kg wwt	20.5	21.3	4.16%	40%	----
		zirconium	7440-67-7	E440A	0.040	mg/kg wwt	0.087	0.095	0.008	Diff <2x LOR	----
Metals (QC Lot: 285413)											
WR2100889-047	D4-B, South, willow leaves	aluminum	7429-90-5	E440	2.0	mg/kg	33.2	34.6	4.22%	40%	----
		antimony	7440-36-0	E440	0.010	mg/kg	0.080	0.075	6.03%	40%	----
		arsenic	7440-38-2	E440	0.020	mg/kg	1.30	1.26	3.40%	40%	----
		barium	7440-39-3	E440	0.050	mg/kg	10.4	10.9	4.34%	40%	----
		beryllium	7440-41-7	E440	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		bismuth	7440-69-9	E440	0.010	mg/kg	0.020	0.022	0.002	Diff <2x LOR	----
		boron	7440-42-8	E440	1.0	mg/kg	3.6	3.7	0.1	Diff <2x LOR	----
		cadmium	7440-43-9	E440	0.0050	mg/kg	0.419	0.429	2.31%	40%	----
		calcium	7440-70-2	E440	20	mg/kg	8140	8520	4.62%	60%	----
		cesium	7440-46-2	E440	0.0050	mg/kg	0.0239	0.0266	10.8%	40%	----
		chromium	7440-47-3	E440	0.050	mg/kg	0.128	0.173	0.045	Diff <2x LOR	----
		cobalt	7440-48-4	E440	0.020	mg/kg	0.358	0.366	2.08%	40%	----
		copper	7440-50-8	E440	0.10	mg/kg	2.78	2.78	0.115%	40%	----
		iron	7439-89-6	E440	3.0	mg/kg	118	122	4.15%	40%	----
		lead	7439-92-1	E440	0.020	mg/kg	0.175	0.192	9.18%	40%	----
		lithium	7439-93-2	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		magnesium	7439-95-4	E440	2.0	mg/kg	2890	2990	3.25%	40%	----
		manganese	7439-96-5	E440	0.050	mg/kg	72.2	74.7	3.33%	40%	----
		molybdenum	7439-98-7	E440	0.020	mg/kg	0.188	0.197	4.72%	40%	----
		nickel	7440-02-0	E440	0.20	mg/kg	0.31	0.32	0.02	Diff <2x LOR	----
		phosphorus	7723-14-0	E440	10	mg/kg	1420	1450	2.00%	40%	----
		potassium	7440-09-7	E440	20	mg/kg	11100	11400	2.65%	40%	----
		rubidium	7440-17-7	E440	0.050	mg/kg	4.77	4.82	0.970%	40%	----
		selenium	7782-49-2	E440	0.050	mg/kg	0.506	0.502	0.721%	40%	----
		sodium	7440-23-5	E440	20	mg/kg	<20	<20	0	Diff <2x LOR	----
		strontium	7440-24-6	E440	0.050	mg/kg	29.5	29.9	1.19%	60%	----

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 285413) - continued											
WR2100889-047	D4-B, South, willow leaves	tellurium	13494-80-9	E440	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.0020	mg/kg	<0.0020	<0.0020	0	Diff <2x LOR	----
		tin	7440-31-5	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.0020	mg/kg	0.0093	0.0099	0.0006	Diff <2x LOR	----
		vanadium	7440-62-2	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		zinc	7440-66-6	E440	0.50	mg/kg	51.2	53.4	4.16%	40%	----
		zirconium	7440-67-7	E440	0.20	mg/kg	0.22	0.24	0.02	Diff <2x LOR	----
Metals (QC Lot: 285414)											
WR2100889-047	D4-B, South, willow leaves	mercury	7439-97-6	E510	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----
Metals (QC Lot: 285618)											
WR2100889-056	D5, South, poplar leaves	titanium	7440-32-6	E440.Ti	0.25	mg/kg	1.94	1.98	1.99%	40%	----
Metals (QC Lot: 285619)											
WR2100889-056	D5, South, poplar leaves	silver	7440-22-4	E440.Ag	0.0050	mg/kg	0.0068	0.0076	0.0008	Diff <2x LOR	----
Metals (QC Lot: 285620)											
WR2100889-056	D5, South, poplar leaves	silver	7440-22-4	E440A.Ag	0.0010	mg/kg wwt	0.0020	0.0022	0.0002	Diff <2x LOR	----
Metals (QC Lot: 285621)											
WR2100889-056	D5, South, poplar leaves	titanium	7440-32-6	E440A.Ti	0.050	mg/kg wwt	0.563	0.574	1.99%	40%	----
Metals (QC Lot: 285622)											
WR2100889-056	D5, South, poplar leaves	mercury	7439-97-6	E510A	0.0010	mg/kg wwt	0.0013	0.0012	0.00002	Diff <2x LOR	----
Metals (QC Lot: 285623)											
WR2100889-056	D5, South, poplar leaves	aluminum	7429-90-5	E440A	0.40	mg/kg wwt	13.0	12.9	1.04%	40%	----
		antimony	7440-36-0	E440A	0.0020	mg/kg wwt	0.0288	0.0270	6.60%	40%	----
		arsenic	7440-38-2	E440A	0.0040	mg/kg wwt	0.497	0.539	8.06%	40%	----
		barium	7440-39-3	E440A	0.010	mg/kg wwt	3.59	3.60	0.147%	40%	----
		beryllium	7440-41-7	E440A	0.0020	mg/kg wwt	<0.0020	<0.0020	0	Diff <2x LOR	----
		bismuth	7440-69-9	E440A	0.0020	mg/kg wwt	0.0119	0.0128	7.03%	40%	----
		boron	7440-42-8	E440A	0.20	mg/kg wwt	3.76	3.87	2.84%	40%	----
		cadmium	7440-43-9	E440A	0.0010	mg/kg wwt	0.341	0.342	0.363%	40%	----
		calcium	7440-70-2	E440A	4.0	mg/kg wwt	2290	2330	1.88%	60%	----
		cesium	7440-46-2	E440A	0.0010	mg/kg wwt	0.0069	0.0070	0.711%	40%	----
		chromium	7440-47-3	E440A	0.010	mg/kg wwt	0.049	0.045	0.004	Diff <2x LOR	----
		cobalt	7440-48-4	E440A	0.0040	mg/kg wwt	0.783	0.802	2.45%	40%	----
		copper	7440-50-8	E440A	0.020	mg/kg wwt	1.36	1.38	1.41%	40%	----
		iron	7439-89-6	E440A	0.60	mg/kg wwt	38.1	39.2	2.93%	40%	----
		lead	7439-92-1	E440A	0.0040	mg/kg wwt	0.0632	0.0645	2.18%	40%	----

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 285623) - continued											
WR2100889-056	D5, South, poplar leaves	lithium	7439-93-2	E440A	0.10	mg/kg wwt	<0.10	<0.10	0	Diff <2x LOR	----
		magnesium	7439-95-4	E440A	0.40	mg/kg wwt	695	705	1.37%	40%	----
		manganese	7439-96-5	E440A	0.010	mg/kg wwt	48.3	48.5	0.481%	40%	----
		molybdenum	7439-98-7	E440A	0.0040	mg/kg wwt	0.0180	0.0178	0.0001	Diff <2x LOR	----
		nickel	7440-02-0	E440A	0.040	mg/kg wwt	0.960	0.979	1.98%	40%	----
		phosphorus	7723-14-0	E440A	2.0	mg/kg wwt	918	944	2.78%	40%	----
		potassium	7440-09-7	E440A	4.0	mg/kg wwt	9500	9620	1.24%	40%	----
		rubidium	7440-17-7	E440A	0.010	mg/kg wwt	3.86	3.90	1.06%	40%	----
		selenium	7782-49-2	E440A	0.010	mg/kg wwt	0.014	0.015	0.0008	Diff <2x LOR	----
		sodium	7440-23-5	E440A	4.0	mg/kg wwt	<4.0	<4.0	0	Diff <2x LOR	----
		strontium	7440-24-6	E440A	0.010	mg/kg wwt	8.79	9.08	3.27%	60%	----
		tellurium	13494-80-9	E440A	0.0040	mg/kg wwt	<0.0040	<0.0040	0	Diff <2x LOR	----
		thallium	7440-28-0	E440A	0.00040	mg/kg wwt	0.00364	0.00378	3.60%	40%	----
		tin	7440-31-5	E440A	0.020	mg/kg wwt	<0.020	<0.020	0	Diff <2x LOR	----
		uranium	7440-61-1	E440A	0.00040	mg/kg wwt	0.00249	0.00289	14.9%	40%	----
		vanadium	7440-62-2	E440A	0.020	mg/kg wwt	0.023	0.024	0.0009	Diff <2x LOR	----
		zinc	7440-66-6	E440A	0.10	mg/kg wwt	85.1	86.6	1.75%	40%	----
		zirconium	7440-67-7	E440A	0.040	mg/kg wwt	<0.040	<0.040	0	Diff <2x LOR	----
Metals (QC Lot: 285624)											
WR2100889-056	D5, South, poplar leaves	aluminum	7429-90-5	E440	2.0	mg/kg	44.8	44.3	1.04%	40%	----
		antimony	7440-36-0	E440	0.010	mg/kg	0.099	0.093	6.60%	40%	----
		arsenic	7440-38-2	E440	0.020	mg/kg	1.71	1.85	8.06%	40%	----
		barium	7440-39-3	E440	0.050	mg/kg	12.4	12.4	0.147%	40%	----
		beryllium	7440-41-7	E440	0.010	mg/kg	<0.010	<0.010	0	Diff <2x LOR	----
		bismuth	7440-69-9	E440	0.010	mg/kg	0.041	0.044	0.003	Diff <2x LOR	----
		boron	7440-42-8	E440	1.0	mg/kg	12.9	13.3	2.84%	40%	----
		cadmium	7440-43-9	E440	0.0050	mg/kg	1.17	1.18	0.363%	40%	----
		calcium	7440-70-2	E440	20	mg/kg	7870	8020	1.88%	60%	----
		cesium	7440-46-2	E440	0.0050	mg/kg	0.0238	0.0240	0.0002	Diff <2x LOR	----
		chromium	7440-47-3	E440	0.050	mg/kg	0.169	0.156	0.013	Diff <2x LOR	----
		cobalt	7440-48-4	E440	0.020	mg/kg	2.69	2.76	2.45%	40%	----
		copper	7440-50-8	E440	0.10	mg/kg	4.69	4.75	1.41%	40%	----
		iron	7439-89-6	E440	3.0	mg/kg	131	135	2.93%	40%	----
		lead	7439-92-1	E440	0.020	mg/kg	0.217	0.222	2.18%	40%	----
		lithium	7439-93-2	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----

Sub-Matrix: **Biota**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 285624) - continued											
WR2100889-056	D5, South, poplar leaves	magnesium	7439-95-4	E440	2.0	mg/kg	2390	2420	1.37%	40%	----
		manganese	7439-96-5	E440	0.050	mg/kg	166	167	0.481%	40%	----
		molybdenum	7439-98-7	E440	0.020	mg/kg	0.062	0.061	0.0005	Diff <2x LOR	----
		nickel	7440-02-0	E440	0.20	mg/kg	3.30	3.37	1.98%	40%	----
		phosphorus	7723-14-0	E440	10	mg/kg	3160	3240	2.78%	40%	----
		potassium	7440-09-7	E440	20	mg/kg	32700	33100	1.24%	40%	----
		rubidium	7440-17-7	E440	0.050	mg/kg	13.3	13.4	1.06%	40%	----
		selenium	7782-49-2	E440	0.050	mg/kg	<0.050	0.052	0.002	Diff <2x LOR	----
		sodium	7440-23-5	E440	20	mg/kg	<20	<20	0	Diff <2x LOR	----
		strontium	7440-24-6	E440	0.050	mg/kg	30.2	31.2	3.27%	60%	----
		tellurium	13494-80-9	E440	0.020	mg/kg	<0.020	<0.020	0	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.0020	mg/kg	0.0125	0.0130	3.60%	40%	----
		tin	7440-31-5	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.0020	mg/kg	0.0086	0.0100	0.0014	Diff <2x LOR	----
		vanadium	7440-62-2	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		zinc	7440-66-6	E440	0.50	mg/kg	293	298	1.75%	40%	----
		zirconium	7440-67-7	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
Metals (QC Lot: 285625)											
WR2100889-056	D5, South, poplar leaves	mercury	7439-97-6	E510	0.0050	mg/kg	<0.0050	<0.0050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 274640)						
moisture	----	E144	0.5	%	<0.50	----
Physical Tests (QCLot: 274641)						
moisture	----	E144	0.5	%	<0.50	----
Physical Tests (QCLot: 274642)						
moisture	----	E144	0.5	%	<0.50	----
Physical Tests (QCLot: 276613)						
moisture	----	E144-H	2	%	<2.0	----
Metals (QCLot: 276619)						
aluminum	7429-90-5	E472A	1	mg/kg wwt	<1.0	----
antimony	7440-36-0	E472A	0.002	mg/kg wwt	<0.0020	----
arsenic	7440-38-2	E472A	0.006	mg/kg wwt	<0.0060	----
barium	7440-39-3	E472A	0.01	mg/kg wwt	<0.010	----
beryllium	7440-41-7	E472A	0.002	mg/kg wwt	<0.0020	----
bismuth	7440-69-9	E472A	0.002	mg/kg wwt	<0.0020	----
boron	7440-42-8	E472A	0.2	mg/kg wwt	<0.20	----
cadmium	7440-43-9	E472A	0.002	mg/kg wwt	<0.0020	----
calcium	7440-70-2	E472A	4	mg/kg wwt	<4.0	----
cesium	7440-46-2	E472A	0.001	mg/kg wwt	<0.0010	----
chromium	7440-47-3	E472A	0.04	mg/kg wwt	<0.040	----
cobalt	7440-48-4	E472A	0.004	mg/kg wwt	<0.0040	----
copper	7440-50-8	E472A	0.04	mg/kg wwt	<0.040	----
iron	7439-89-6	E472A	1	mg/kg wwt	<1.0	----
lead	7439-92-1	E472A	0.01	mg/kg wwt	<0.010	----
lithium	7439-93-2	E472A	0.1	mg/kg wwt	<0.10	----
magnesium	7439-95-4	E472A	0.4	mg/kg wwt	<0.40	----
manganese	7439-96-5	E472A	0.01	mg/kg wwt	<0.010	----
molybdenum	7439-98-7	E472A	0.008	mg/kg wwt	<0.0080	----
nickel	7440-02-0	E472A	0.04	mg/kg wwt	<0.040	----
phosphorus	7723-14-0	E472A	2	mg/kg wwt	<2.0	----
potassium	7440-09-7	E472A	4	mg/kg wwt	<4.0	----
rubidium	7440-17-7	E472A	0.01	mg/kg wwt	<0.010	----
selenium	7782-49-2	E472A	0.02	mg/kg wwt	<0.020	----
sodium	7440-23-5	E472A	4	mg/kg wwt	<4.0	----

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 276619) - continued						
strontium	7440-24-6	E472A	0.02	mg/kg wwt	<0.020	----
tellurium	13494-80-9	E472A	0.004	mg/kg wwt	<0.0040	----
thallium	7440-28-0	E472A	0.0004	mg/kg wwt	<0.00040	----
tin	7440-31-5	E472A	0.02	mg/kg wwt	<0.020	----
uranium	7440-61-1	E472A	0.0004	mg/kg wwt	<0.00040	----
vanadium	7440-62-2	E472A	0.02	mg/kg wwt	<0.020	----
zinc	7440-66-6	E472A	0.2	mg/kg wwt	<0.20	----
zirconium	7440-67-7	E472A	0.04	mg/kg wwt	<0.040	----
Metals (QCLot: 276620)						
silver	7440-22-4	E472A.Ag	0.001	mg/kg wwt	<0.0010	----
Metals (QCLot: 276621)						
titanium	7440-32-6	E472A.Ti	0.1	mg/kg wwt	<0.10	----
Metals (QCLot: 276622)						
silver	7440-22-4	E472.Ag	0.005	mg/kg	<0.0050	----
Metals (QCLot: 276623)						
titanium	7440-32-6	E472.Ti	0.5	mg/kg	<0.50	----
Metals (QCLot: 276624)						
mercury	7439-97-6	E511	0.005	mg/kg	<0.0050	----
Metals (QCLot: 276625)						
mercury	7439-97-6	E511A	0.001	mg/kg wwt	<0.0010	----
Metals (QCLot: 276626)						
aluminum	7429-90-5	E472	5	mg/kg	<5.0	----
antimony	7440-36-0	E472	0.01	mg/kg	<0.010	----
arsenic	7440-38-2	E472	0.03	mg/kg	<0.030	----
barium	7440-39-3	E472	0.05	mg/kg	<0.050	----
beryllium	7440-41-7	E472	0.01	mg/kg	<0.010	----
bismuth	7440-69-9	E472	0.01	mg/kg	<0.010	----
boron	7440-42-8	E472	1	mg/kg	<1.0	----
cadmium	7440-43-9	E472	0.01	mg/kg	<0.010	----
calcium	7440-70-2	E472	20	mg/kg	<20	----
cesium	7440-46-2	E472	0.005	mg/kg	<0.0050	----
chromium	7440-47-3	E472	0.2	mg/kg	<0.20	----
cobalt	7440-48-4	E472	0.02	mg/kg	<0.020	----
copper	7440-50-8	E472	0.2	mg/kg	<0.20	----
iron	7439-89-6	E472	5	mg/kg	<5.0	----
lead	7439-92-1	E472	0.05	mg/kg	<0.050	----

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 276626) - continued						
lithium	7439-93-2	E472	0.5	mg/kg	<0.50	----
magnesium	7439-95-4	E472	2	mg/kg	<2.0	----
manganese	7439-96-5	E472	0.05	mg/kg	<0.050	----
molybdenum	7439-98-7	E472	0.04	mg/kg	<0.040	----
nickel	7440-02-0	E472	0.2	mg/kg	<0.20	----
phosphorus	7723-14-0	E472	10	mg/kg	<10	----
potassium	7440-09-7	E472	20	mg/kg	<20	----
rubidium	7440-17-7	E472	0.05	mg/kg	<0.050	----
selenium	7782-49-2	E472	0.1	mg/kg	<0.10	----
sodium	7440-23-5	E472	20	mg/kg	<20	----
strontium	7440-24-6	E472	0.1	mg/kg	<0.10	----
tellurium	13494-80-9	E472	0.02	mg/kg	<0.020	----
thallium	7440-28-0	E472	0.002	mg/kg	<0.0020	----
tin	7440-31-5	E472	0.1	mg/kg	<0.10	----
uranium	7440-61-1	E472	0.002	mg/kg	<0.0020	----
vanadium	7440-62-2	E472	0.1	mg/kg	<0.10	----
zinc	7440-66-6	E472	1	mg/kg	<1.0	----
zirconium	7440-67-7	E472	0.2	mg/kg	<0.20	----
Metals (QCLot: 280600)						
titanium	7440-32-6	E440.Ti	0.25	mg/kg	<0.25	----
Metals (QCLot: 280601)						
silver	7440-22-4	E440.Ag	0.005	mg/kg	<0.0050	----
Metals (QCLot: 280602)						
silver	7440-22-4	E440A.Ag	0.001	mg/kg wwt	<0.0010	----
Metals (QCLot: 280603)						
titanium	7440-32-6	E440A.Ti	0.05	mg/kg wwt	<0.050	----
Metals (QCLot: 280604)						
mercury	7439-97-6	E510A	0.001	mg/kg wwt	<0.0010	----
Metals (QCLot: 280605)						
aluminum	7429-90-5	E440A	0.4	mg/kg wwt	<0.40	----
antimony	7440-36-0	E440A	0.002	mg/kg wwt	<0.0020	----
arsenic	7440-38-2	E440A	0.004	mg/kg wwt	<0.0040	----
barium	7440-39-3	E440A	0.01	mg/kg wwt	<0.010	----
beryllium	7440-41-7	E440A	0.002	mg/kg wwt	<0.0020	----
bismuth	7440-69-9	E440A	0.002	mg/kg wwt	<0.0020	----
boron	7440-42-8	E440A	0.2	mg/kg wwt	<0.20	----

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 280605) - continued						
cadmium	7440-43-9	E440A	0.001	mg/kg wwt	<0.0010	----
calcium	7440-70-2	E440A	4	mg/kg wwt	<4.0	----
cesium	7440-46-2	E440A	0.001	mg/kg wwt	<0.0010	----
chromium	7440-47-3	E440A	0.01	mg/kg wwt	<0.010	----
cobalt	7440-48-4	E440A	0.004	mg/kg wwt	<0.0040	----
copper	7440-50-8	E440A	0.02	mg/kg wwt	<0.020	----
iron	7439-89-6	E440A	0.6	mg/kg wwt	<0.60	----
lead	7439-92-1	E440A	0.004	mg/kg wwt	<0.0040	----
lithium	7439-93-2	E440A	0.1	mg/kg wwt	<0.10	----
magnesium	7439-95-4	E440A	0.4	mg/kg wwt	<0.40	----
manganese	7439-96-5	E440A	0.01	mg/kg wwt	<0.010	----
molybdenum	7439-98-7	E440A	0.004	mg/kg wwt	<0.0040	----
nickel	7440-02-0	E440A	0.04	mg/kg wwt	<0.040	----
phosphorus	7723-14-0	E440A	2	mg/kg wwt	<2.0	----
potassium	7440-09-7	E440A	4	mg/kg wwt	<4.0	----
rubidium	7440-17-7	E440A	0.01	mg/kg wwt	<0.010	----
selenium	7782-49-2	E440A	0.01	mg/kg wwt	<0.010	----
sodium	7440-23-5	E440A	4	mg/kg wwt	<4.0	----
strontium	7440-24-6	E440A	0.01	mg/kg wwt	<0.010	----
tellurium	13494-80-9	E440A	0.004	mg/kg wwt	<0.0040	----
thallium	7440-28-0	E440A	0.0004	mg/kg wwt	<0.00040	----
tin	7440-31-5	E440A	0.02	mg/kg wwt	<0.020	----
uranium	7440-61-1	E440A	0.0004	mg/kg wwt	<0.00040	----
vanadium	7440-62-2	E440A	0.02	mg/kg wwt	<0.020	----
zinc	7440-66-6	E440A	0.1	mg/kg wwt	<0.10	----
zirconium	7440-67-7	E440A	0.04	mg/kg wwt	<0.040	----
Metals (QCLot: 280606)						
aluminum	7429-90-5	E440	2	mg/kg	<2.0	----
antimony	7440-36-0	E440	0.01	mg/kg	<0.010	----
arsenic	7440-38-2	E440	0.02	mg/kg	<0.020	----
barium	7440-39-3	E440	0.05	mg/kg	<0.050	----
beryllium	7440-41-7	E440	0.01	mg/kg	<0.010	----
bismuth	7440-69-9	E440	0.01	mg/kg	<0.010	----
boron	7440-42-8	E440	1	mg/kg	<1.0	----
cadmium	7440-43-9	E440	0.005	mg/kg	<0.0050	----
calcium	7440-70-2	E440	20	mg/kg	<20	----

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 280606) - continued						
cesium	7440-46-2	E440	0.005	mg/kg	<0.0050	----
chromium	7440-47-3	E440	0.05	mg/kg	<0.050	----
cobalt	7440-48-4	E440	0.02	mg/kg	<0.020	----
copper	7440-50-8	E440	0.1	mg/kg	<0.10	----
iron	7439-89-6	E440	3	mg/kg	<3.0	----
lead	7439-92-1	E440	0.02	mg/kg	<0.020	----
lithium	7439-93-2	E440	0.5	mg/kg	<0.50	----
magnesium	7439-95-4	E440	2	mg/kg	<2.0	----
manganese	7439-96-5	E440	0.05	mg/kg	<0.050	----
molybdenum	7439-98-7	E440	0.02	mg/kg	<0.020	----
nickel	7440-02-0	E440	0.2	mg/kg	<0.20	----
phosphorus	7723-14-0	E440	10	mg/kg	<10	----
potassium	7440-09-7	E440	20	mg/kg	<20	----
rubidium	7440-17-7	E440	0.05	mg/kg	<0.050	----
selenium	7782-49-2	E440	0.05	mg/kg	<0.050	----
sodium	7440-23-5	E440	20	mg/kg	<20	----
strontium	7440-24-6	E440	0.05	mg/kg	<0.050	----
tellurium	13494-80-9	E440	0.02	mg/kg	<0.020	----
thallium	7440-28-0	E440	0.002	mg/kg	<0.0020	----
tin	7440-31-5	E440	0.1	mg/kg	<0.10	----
uranium	7440-61-1	E440	0.002	mg/kg	<0.0020	----
vanadium	7440-62-2	E440	0.1	mg/kg	<0.10	----
zinc	7440-66-6	E440	0.5	mg/kg	<0.50	----
zirconium	7440-67-7	E440	0.2	mg/kg	<0.20	----
Metals (QCLot: 280607)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 285407)						
titanium	7440-32-6	E440.Ti	0.25	mg/kg	<0.25	----
Metals (QCLot: 285408)						
silver	7440-22-4	E440.Ag	0.005	mg/kg	<0.0050	----
Metals (QCLot: 285409)						
silver	7440-22-4	E440A.Ag	0.001	mg/kg wwt	<0.0010	----
Metals (QCLot: 285410)						
titanium	7440-32-6	E440A.Ti	0.05	mg/kg wwt	<0.050	----
Metals (QCLot: 285411)						
mercury	7439-97-6	E510A	0.001	mg/kg wwt	<0.0010	----

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 285412)						
aluminum	7429-90-5	E440A	0.4	mg/kg wwt	<0.40	----
antimony	7440-36-0	E440A	0.002	mg/kg wwt	<0.0020	----
arsenic	7440-38-2	E440A	0.004	mg/kg wwt	<0.0040	----
barium	7440-39-3	E440A	0.01	mg/kg wwt	<0.010	----
beryllium	7440-41-7	E440A	0.002	mg/kg wwt	<0.0020	----
bismuth	7440-69-9	E440A	0.002	mg/kg wwt	<0.0020	----
boron	7440-42-8	E440A	0.2	mg/kg wwt	<0.20	----
cadmium	7440-43-9	E440A	0.001	mg/kg wwt	<0.0010	----
calcium	7440-70-2	E440A	4	mg/kg wwt	<4.0	----
cesium	7440-46-2	E440A	0.001	mg/kg wwt	<0.0010	----
chromium	7440-47-3	E440A	0.01	mg/kg wwt	<0.010	----
cobalt	7440-48-4	E440A	0.004	mg/kg wwt	<0.0040	----
copper	7440-50-8	E440A	0.02	mg/kg wwt	<0.020	----
iron	7439-89-6	E440A	0.6	mg/kg wwt	<0.60	----
lead	7439-92-1	E440A	0.004	mg/kg wwt	<0.0040	----
lithium	7439-93-2	E440A	0.1	mg/kg wwt	<0.10	----
magnesium	7439-95-4	E440A	0.4	mg/kg wwt	<0.40	----
manganese	7439-96-5	E440A	0.01	mg/kg wwt	<0.010	----
molybdenum	7439-98-7	E440A	0.004	mg/kg wwt	<0.0040	----
nickel	7440-02-0	E440A	0.04	mg/kg wwt	<0.040	----
phosphorus	7723-14-0	E440A	2	mg/kg wwt	<2.0	----
potassium	7440-09-7	E440A	4	mg/kg wwt	<4.0	----
rubidium	7440-17-7	E440A	0.01	mg/kg wwt	<0.010	----
selenium	7782-49-2	E440A	0.01	mg/kg wwt	<0.010	----
sodium	7440-23-5	E440A	4	mg/kg wwt	<4.0	----
strontium	7440-24-6	E440A	0.01	mg/kg wwt	<0.010	----
tellurium	13494-80-9	E440A	0.004	mg/kg wwt	<0.0040	----
thallium	7440-28-0	E440A	0.0004	mg/kg wwt	<0.00040	----
tin	7440-31-5	E440A	0.02	mg/kg wwt	<0.020	----
uranium	7440-61-1	E440A	0.0004	mg/kg wwt	<0.00040	----
vanadium	7440-62-2	E440A	0.02	mg/kg wwt	<0.020	----
zinc	7440-66-6	E440A	0.1	mg/kg wwt	<0.10	----
zirconium	7440-67-7	E440A	0.04	mg/kg wwt	<0.040	----
Metals (QCLot: 285413)						
aluminum	7429-90-5	E440	2	mg/kg	<2.0	----
antimony	7440-36-0	E440	0.01	mg/kg	<0.010	----

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 285413) - continued						
arsenic	7440-38-2	E440	0.02	mg/kg	<0.020	----
barium	7440-39-3	E440	0.05	mg/kg	<0.050	----
beryllium	7440-41-7	E440	0.01	mg/kg	<0.010	----
bismuth	7440-69-9	E440	0.01	mg/kg	<0.010	----
boron	7440-42-8	E440	1	mg/kg	<1.0	----
cadmium	7440-43-9	E440	0.005	mg/kg	<0.0050	----
calcium	7440-70-2	E440	20	mg/kg	<20	----
cesium	7440-46-2	E440	0.005	mg/kg	<0.0050	----
chromium	7440-47-3	E440	0.05	mg/kg	<0.050	----
cobalt	7440-48-4	E440	0.02	mg/kg	<0.020	----
copper	7440-50-8	E440	0.1	mg/kg	<0.10	----
iron	7439-89-6	E440	3	mg/kg	<3.0	----
lead	7439-92-1	E440	0.02	mg/kg	<0.020	----
lithium	7439-93-2	E440	0.5	mg/kg	<0.50	----
magnesium	7439-95-4	E440	2	mg/kg	<2.0	----
manganese	7439-96-5	E440	0.05	mg/kg	<0.050	----
molybdenum	7439-98-7	E440	0.02	mg/kg	<0.020	----
nickel	7440-02-0	E440	0.2	mg/kg	<0.20	----
phosphorus	7723-14-0	E440	10	mg/kg	<10	----
potassium	7440-09-7	E440	20	mg/kg	<20	----
rubidium	7440-17-7	E440	0.05	mg/kg	<0.050	----
selenium	7782-49-2	E440	0.05	mg/kg	<0.050	----
sodium	7440-23-5	E440	20	mg/kg	<20	----
strontium	7440-24-6	E440	0.05	mg/kg	<0.050	----
tellurium	13494-80-9	E440	0.02	mg/kg	<0.020	----
thallium	7440-28-0	E440	0.002	mg/kg	<0.0020	----
tin	7440-31-5	E440	0.1	mg/kg	<0.10	----
uranium	7440-61-1	E440	0.002	mg/kg	<0.0020	----
vanadium	7440-62-2	E440	0.1	mg/kg	<0.10	----
zinc	7440-66-6	E440	0.5	mg/kg	<0.50	----
zirconium	7440-67-7	E440	0.2	mg/kg	<0.20	----
Metals (QCLot: 285414)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----
Metals (QCLot: 285618)						
titanium	7440-32-6	E440.Ti	0.25	mg/kg	<0.25	----
Metals (QCLot: 285619)						

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 285619) - continued						
silver	7440-22-4	E440.Ag	0.005	mg/kg	<0.0050	----
Metals (QCLot: 285620)						
silver	7440-22-4	E440A.Ag	0.001	mg/kg wwt	<0.0010	----
Metals (QCLot: 285621)						
titanium	7440-32-6	E440A.Ti	0.05	mg/kg wwt	<0.050	----
Metals (QCLot: 285622)						
mercury	7439-97-6	E510A	0.001	mg/kg wwt	<0.0010	----
Metals (QCLot: 285623)						
aluminum	7429-90-5	E440A	0.4	mg/kg wwt	<0.40	----
antimony	7440-36-0	E440A	0.002	mg/kg wwt	<0.0020	----
arsenic	7440-38-2	E440A	0.004	mg/kg wwt	<0.0040	----
barium	7440-39-3	E440A	0.01	mg/kg wwt	<0.010	----
beryllium	7440-41-7	E440A	0.002	mg/kg wwt	<0.0020	----
bismuth	7440-69-9	E440A	0.002	mg/kg wwt	<0.0020	----
boron	7440-42-8	E440A	0.2	mg/kg wwt	<0.20	----
cadmium	7440-43-9	E440A	0.001	mg/kg wwt	<0.0010	----
calcium	7440-70-2	E440A	4	mg/kg wwt	<4.0	----
cesium	7440-46-2	E440A	0.001	mg/kg wwt	<0.0010	----
chromium	7440-47-3	E440A	0.01	mg/kg wwt	<0.010	----
cobalt	7440-48-4	E440A	0.004	mg/kg wwt	<0.0040	----
copper	7440-50-8	E440A	0.02	mg/kg wwt	<0.020	----
iron	7439-89-6	E440A	0.6	mg/kg wwt	<0.60	----
lead	7439-92-1	E440A	0.004	mg/kg wwt	<0.0040	----
lithium	7439-93-2	E440A	0.1	mg/kg wwt	<0.10	----
magnesium	7439-95-4	E440A	0.4	mg/kg wwt	<0.40	----
manganese	7439-96-5	E440A	0.01	mg/kg wwt	<0.010	----
molybdenum	7439-98-7	E440A	0.004	mg/kg wwt	<0.0040	----
nickel	7440-02-0	E440A	0.04	mg/kg wwt	<0.040	----
phosphorus	7723-14-0	E440A	2	mg/kg wwt	<2.0	----
potassium	7440-09-7	E440A	4	mg/kg wwt	<4.0	----
rubidium	7440-17-7	E440A	0.01	mg/kg wwt	<0.010	----
selenium	7782-49-2	E440A	0.01	mg/kg wwt	<0.010	----
sodium	7440-23-5	E440A	4	mg/kg wwt	<4.0	----
strontium	7440-24-6	E440A	0.01	mg/kg wwt	<0.010	----
tellurium	13494-80-9	E440A	0.004	mg/kg wwt	<0.0040	----
thallium	7440-28-0	E440A	0.0004	mg/kg wwt	<0.00040	----

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 285623) - continued						
tin	7440-31-5	E440A	0.02	mg/kg wwt	<0.020	----
uranium	7440-61-1	E440A	0.0004	mg/kg wwt	<0.00040	----
vanadium	7440-62-2	E440A	0.02	mg/kg wwt	<0.020	----
zinc	7440-66-6	E440A	0.1	mg/kg wwt	<0.10	----
zirconium	7440-67-7	E440A	0.04	mg/kg wwt	<0.040	----
Metals (QCLot: 285624)						
aluminum	7429-90-5	E440	2	mg/kg	<2.0	----
antimony	7440-36-0	E440	0.01	mg/kg	<0.010	----
arsenic	7440-38-2	E440	0.02	mg/kg	<0.020	----
barium	7440-39-3	E440	0.05	mg/kg	<0.050	----
beryllium	7440-41-7	E440	0.01	mg/kg	<0.010	----
bismuth	7440-69-9	E440	0.01	mg/kg	<0.010	----
boron	7440-42-8	E440	1	mg/kg	<1.0	----
cadmium	7440-43-9	E440	0.005	mg/kg	<0.0050	----
calcium	7440-70-2	E440	20	mg/kg	<20	----
cesium	7440-46-2	E440	0.005	mg/kg	<0.0050	----
chromium	7440-47-3	E440	0.05	mg/kg	<0.050	----
cobalt	7440-48-4	E440	0.02	mg/kg	<0.020	----
copper	7440-50-8	E440	0.1	mg/kg	<0.10	----
iron	7439-89-6	E440	3	mg/kg	<3.0	----
lead	7439-92-1	E440	0.02	mg/kg	<0.020	----
lithium	7439-93-2	E440	0.5	mg/kg	<0.50	----
magnesium	7439-95-4	E440	2	mg/kg	<2.0	----
manganese	7439-96-5	E440	0.05	mg/kg	<0.050	----
molybdenum	7439-98-7	E440	0.02	mg/kg	<0.020	----
nickel	7440-02-0	E440	0.2	mg/kg	<0.20	----
phosphorus	7723-14-0	E440	10	mg/kg	<10	----
potassium	7440-09-7	E440	20	mg/kg	<20	----
rubidium	7440-17-7	E440	0.05	mg/kg	<0.050	----
selenium	7782-49-2	E440	0.05	mg/kg	<0.050	----
sodium	7440-23-5	E440	20	mg/kg	<20	----
strontium	7440-24-6	E440	0.05	mg/kg	<0.050	----
tellurium	13494-80-9	E440	0.02	mg/kg	<0.020	----
thallium	7440-28-0	E440	0.002	mg/kg	<0.0020	----
tin	7440-31-5	E440	0.1	mg/kg	<0.10	----
uranium	7440-61-1	E440	0.002	mg/kg	<0.0020	----

Sub-Matrix: **Biota**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 285624) - continued						
vanadium	7440-62-2	E440	0.1	mg/kg	<0.10	----
zinc	7440-66-6	E440	0.5	mg/kg	<0.50	----
zirconium	7440-67-7	E440	0.2	mg/kg	<0.20	----
Metals (QCLot: 285625)						
mercury	7439-97-6	E510	0.005	mg/kg	<0.0050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 274640)									
moisture	----	E144	0.5	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 274641)									
moisture	----	E144	0.5	%	50 %	101	90.0	110	----
Physical Tests (QCLot: 274642)									
moisture	----	E144	0.5	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 276613)									
moisture	----	E144-H	2	%	100 %	100	90.0	110	----
Metals (QCLot: 276619)									
aluminum	7429-90-5	E472A	1	mg/kg wwt	10 mg/kg wwt	103	80.0	120	----
antimony	7440-36-0	E472A	0.002	mg/kg wwt	5 mg/kg wwt	110	80.0	120	----
arsenic	7440-38-2	E472A	0.006	mg/kg wwt	5 mg/kg wwt	104	80.0	120	----
barium	7440-39-3	E472A	0.01	mg/kg wwt	1.25 mg/kg wwt	101	80.0	120	----
beryllium	7440-41-7	E472A	0.002	mg/kg wwt	0.5 mg/kg wwt	102	80.0	120	----
bismuth	7440-69-9	E472A	0.002	mg/kg wwt	5 mg/kg wwt	101	80.0	120	----
boron	7440-42-8	E472A	0.2	mg/kg wwt	5 mg/kg wwt	95.6	80.0	120	----
cadmium	7440-43-9	E472A	0.002	mg/kg wwt	0.5 mg/kg wwt	102	80.0	120	----
calcium	7440-70-2	E472A	4	mg/kg wwt	250 mg/kg wwt	104	80.0	120	----
cesium	7440-46-2	E472A	0.001	mg/kg wwt	0.25 mg/kg wwt	104	80.0	120	----
chromium	7440-47-3	E472A	0.04	mg/kg wwt	1.25 mg/kg wwt	101	80.0	120	----
cobalt	7440-48-4	E472A	0.004	mg/kg wwt	1.25 mg/kg wwt	103	80.0	120	----
copper	7440-50-8	E472A	0.04	mg/kg wwt	1.25 mg/kg wwt	99.0	80.0	120	----
iron	7439-89-6	E472A	1	mg/kg wwt	5 mg/kg wwt	102	80.0	120	----
lead	7439-92-1	E472A	0.01	mg/kg wwt	2.5 mg/kg wwt	102	80.0	120	----
lithium	7439-93-2	E472A	0.1	mg/kg wwt	1.25 mg/kg wwt	103	80.0	120	----
magnesium	7439-95-4	E472A	0.4	mg/kg wwt	250 mg/kg wwt	100	80.0	120	----
manganese	7439-96-5	E472A	0.01	mg/kg wwt	1.25 mg/kg wwt	101	80.0	120	----
molybdenum	7439-98-7	E472A	0.008	mg/kg wwt	1.25 mg/kg wwt	108	80.0	120	----
nickel	7440-02-0	E472A	0.04	mg/kg wwt	2.5 mg/kg wwt	100	80.0	120	----
phosphorus	7723-14-0	E472A	2	mg/kg wwt	50 mg/kg wwt	103	80.0	120	----
potassium	7440-09-7	E472A	4	mg/kg wwt	250 mg/kg wwt	102	80.0	120	----
rubidium	7440-17-7	E472A	0.01	mg/kg wwt	0.5 mg/kg wwt	105	80.0	120	----
selenium	7782-49-2	E472A	0.02	mg/kg wwt	5 mg/kg wwt	104	80.0	120	----
sodium	7440-23-5	E472A	4	mg/kg wwt	250 mg/kg wwt	105	80.0	120	----

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 276619) - continued									
strontium	7440-24-6	E472A	0.02	mg/kg wwt	1.25 mg/kg wwt	108	80.0	120	----
tellurium	13494-80-9	E472A	0.004	mg/kg wwt	0.5 mg/kg wwt	105	80.0	120	----
thallium	7440-28-0	E472A	0.0004	mg/kg wwt	5 mg/kg wwt	105	80.0	120	----
tin	7440-31-5	E472A	0.02	mg/kg wwt	2.5 mg/kg wwt	105	80.0	120	----
uranium	7440-61-1	E472A	0.0004	mg/kg wwt	0.025 mg/kg wwt	103	80.0	120	----
vanadium	7440-62-2	E472A	0.02	mg/kg wwt	2.5 mg/kg wwt	105	80.0	120	----
zinc	7440-66-6	E472A	0.2	mg/kg wwt	2.5 mg/kg wwt	100	80.0	120	----
zirconium	7440-67-7	E472A	0.04	mg/kg wwt	0.5 mg/kg wwt	107	80.0	120	----
Metals (QCLot: 276620)									
silver	7440-22-4	E472A.Ag	0.001	mg/kg wwt	0.5 mg/kg wwt	103	80.0	120	----
Metals (QCLot: 276621)									
titanium	7440-32-6	E472A.Ti	0.1	mg/kg wwt	1.25 mg/kg wwt	96.1	80.0	120	----
Metals (QCLot: 276622)									
silver	7440-22-4	E472.Ag	0.005	mg/kg	0.5 mg/kg	103	80.0	120	----
Metals (QCLot: 276623)									
titanium	7440-32-6	E472.Ti	0.5	mg/kg	1.25 mg/kg	96.1	80.0	120	----
Metals (QCLot: 276624)									
mercury	7439-97-6	E511	0.005	mg/kg	0.02 mg/kg	118	80.0	120	----
Metals (QCLot: 276625)									
mercury	7439-97-6	E511A	0.001	mg/kg wwt	0.02 mg/kg wwt	118	80.0	120	----
Metals (QCLot: 276626)									
aluminum	7429-90-5	E472	5	mg/kg	10 mg/kg	103	80.0	120	----
antimony	7440-36-0	E472	0.01	mg/kg	5 mg/kg	110	80.0	120	----
arsenic	7440-38-2	E472	0.03	mg/kg	5 mg/kg	104	80.0	120	----
barium	7440-39-3	E472	0.05	mg/kg	1.25 mg/kg	101	80.0	120	----
beryllium	7440-41-7	E472	0.01	mg/kg	0.5 mg/kg	102	80.0	120	----
bismuth	7440-69-9	E472	0.01	mg/kg	5 mg/kg	101	80.0	120	----
boron	7440-42-8	E472	1	mg/kg	5 mg/kg	95.6	80.0	120	----
cadmium	7440-43-9	E472	0.01	mg/kg	0.5 mg/kg	102	80.0	120	----
calcium	7440-70-2	E472	20	mg/kg	250 mg/kg	104	80.0	120	----
cesium	7440-46-2	E472	0.005	mg/kg	0.25 mg/kg	104	80.0	120	----
chromium	7440-47-3	E472	0.2	mg/kg	1.25 mg/kg	101	80.0	120	----
cobalt	7440-48-4	E472	0.02	mg/kg	1.25 mg/kg	103	80.0	120	----
copper	7440-50-8	E472	0.2	mg/kg	1.25 mg/kg	99.0	80.0	120	----
iron	7439-89-6	E472	5	mg/kg	5 mg/kg	102	80.0	120	----
lead	7439-92-1	E472	0.05	mg/kg	2.5 mg/kg	102	80.0	120	----
lithium	7439-93-2	E472	0.5	mg/kg	1.25 mg/kg	103	80.0	120	----

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 276626) - continued									
magnesium	7439-95-4	E472	2	mg/kg	250 mg/kg	100	80.0	120	----
manganese	7439-96-5	E472	0.05	mg/kg	1.25 mg/kg	101	80.0	120	----
molybdenum	7439-98-7	E472	0.04	mg/kg	1.25 mg/kg	108	80.0	120	----
nickel	7440-02-0	E472	0.2	mg/kg	2.5 mg/kg	100	80.0	120	----
phosphorus	7723-14-0	E472	10	mg/kg	50 mg/kg	103	80.0	120	----
potassium	7440-09-7	E472	20	mg/kg	250 mg/kg	102	80.0	120	----
rubidium	7440-17-7	E472	0.05	mg/kg	0.5 mg/kg	105	80.0	120	----
selenium	7782-49-2	E472	0.1	mg/kg	5 mg/kg	104	80.0	120	----
sodium	7440-23-5	E472	20	mg/kg	250 mg/kg	105	80.0	120	----
strontium	7440-24-6	E472	0.1	mg/kg	1.25 mg/kg	108	80.0	120	----
tellurium	13494-80-9	E472	0.02	mg/kg	0.5 mg/kg	105	80.0	120	----
thallium	7440-28-0	E472	0.002	mg/kg	5 mg/kg	105	80.0	120	----
tin	7440-31-5	E472	0.1	mg/kg	2.5 mg/kg	105	80.0	120	----
uranium	7440-61-1	E472	0.002	mg/kg	0.025 mg/kg	103	80.0	120	----
vanadium	7440-62-2	E472	0.1	mg/kg	2.5 mg/kg	105	80.0	120	----
zinc	7440-66-6	E472	1	mg/kg	2.5 mg/kg	100	80.0	120	----
zirconium	7440-67-7	E472	0.2	mg/kg	0.5 mg/kg	107	80.0	120	----
Metals (QCLot: 280600)									
titanium	7440-32-6	E440.Ti	0.25	mg/kg	2.5 mg/kg	98.9	80.0	120	----
Metals (QCLot: 280601)									
silver	7440-22-4	E440.Ag	0.005	mg/kg	1 mg/kg	92.8	80.0	120	----
Metals (QCLot: 280602)									
silver	7440-22-4	E440A.Ag	0.001	mg/kg wwt	1 mg/kg wwt	92.8	80.0	120	----
Metals (QCLot: 280603)									
titanium	7440-32-6	E440A.Ti	0.05	mg/kg wwt	2.5 mg/kg wwt	98.9	80.0	120	----
Metals (QCLot: 280604)									
mercury	7439-97-6	E510A	0.001	mg/kg wwt	0.02 mg/kg wwt	94.0	80.0	120	----
Metals (QCLot: 280605)									
aluminum	7429-90-5	E440A	0.4	mg/kg wwt	20 mg/kg wwt	104	80.0	120	----
antimony	7440-36-0	E440A	0.002	mg/kg wwt	10 mg/kg wwt	106	80.0	120	----
arsenic	7440-38-2	E440A	0.004	mg/kg wwt	10 mg/kg wwt	103	80.0	120	----
barium	7440-39-3	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	106	80.0	120	----
beryllium	7440-41-7	E440A	0.002	mg/kg wwt	1 mg/kg wwt	99.5	80.0	120	----
bismuth	7440-69-9	E440A	0.002	mg/kg wwt	10 mg/kg wwt	99.4	80.0	120	----
boron	7440-42-8	E440A	0.2	mg/kg wwt	10 mg/kg wwt	97.7	80.0	120	----
cadmium	7440-43-9	E440A	0.001	mg/kg wwt	1 mg/kg wwt	95.9	80.0	120	----
calcium	7440-70-2	E440A	4	mg/kg wwt	500 mg/kg wwt	95.9	80.0	120	----

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 280605) - continued									
cesium	7440-46-2	E440A	0.001	mg/kg wwt	0.5 mg/kg wwt	93.6	80.0	120	----
chromium	7440-47-3	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	98.7	80.0	120	----
cobalt	7440-48-4	E440A	0.004	mg/kg wwt	2.5 mg/kg wwt	103	80.0	120	----
copper	7440-50-8	E440A	0.02	mg/kg wwt	2.5 mg/kg wwt	102	80.0	120	----
iron	7439-89-6	E440A	0.6	mg/kg wwt	10 mg/kg wwt	97.2	80.0	120	----
lead	7439-92-1	E440A	0.004	mg/kg wwt	5 mg/kg wwt	99.8	80.0	120	----
lithium	7439-93-2	E440A	0.1	mg/kg wwt	2.5 mg/kg wwt	104	80.0	120	----
magnesium	7439-95-4	E440A	0.4	mg/kg wwt	500 mg/kg wwt	102	80.0	120	----
manganese	7439-96-5	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	101	80.0	120	----
molybdenum	7439-98-7	E440A	0.004	mg/kg wwt	2.5 mg/kg wwt	102	80.0	120	----
nickel	7440-02-0	E440A	0.04	mg/kg wwt	5 mg/kg wwt	98.3	80.0	120	----
phosphorus	7723-14-0	E440A	2	mg/kg wwt	100 mg/kg wwt	111	80.0	120	----
potassium	7440-09-7	E440A	4	mg/kg wwt	500 mg/kg wwt	102	80.0	120	----
rubidium	7440-17-7	E440A	0.01	mg/kg wwt	1 mg/kg wwt	107	80.0	120	----
selenium	7782-49-2	E440A	0.01	mg/kg wwt	10 mg/kg wwt	96.2	80.0	120	----
sodium	7440-23-5	E440A	4	mg/kg wwt	500 mg/kg wwt	110	80.0	120	----
strontium	7440-24-6	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	95.4	80.0	120	----
tellurium	13494-80-9	E440A	0.004	mg/kg wwt	1 mg/kg wwt	95.5	80.0	120	----
thallium	7440-28-0	E440A	0.0004	mg/kg wwt	10 mg/kg wwt	98.9	80.0	120	----
tin	7440-31-5	E440A	0.02	mg/kg wwt	5 mg/kg wwt	97.6	80.0	120	----
uranium	7440-61-1	E440A	0.0004	mg/kg wwt	0.05 mg/kg wwt	97.8	80.0	120	----
vanadium	7440-62-2	E440A	0.02	mg/kg wwt	5 mg/kg wwt	103	80.0	120	----
zinc	7440-66-6	E440A	0.1	mg/kg wwt	5 mg/kg wwt	106	80.0	120	----
zirconium	7440-67-7	E440A	0.04	mg/kg wwt	1 mg/kg wwt	93.6	80.0	120	----
Metals (QCLot: 280606)									
aluminum	7429-90-5	E440	2	mg/kg	20 mg/kg	104	80.0	120	----
antimony	7440-36-0	E440	0.01	mg/kg	10 mg/kg	106	80.0	120	----
arsenic	7440-38-2	E440	0.02	mg/kg	10 mg/kg	103	80.0	120	----
barium	7440-39-3	E440	0.05	mg/kg	2.5 mg/kg	106	80.0	120	----
beryllium	7440-41-7	E440	0.01	mg/kg	1 mg/kg	99.5	80.0	120	----
bismuth	7440-69-9	E440	0.01	mg/kg	10 mg/kg	99.4	80.0	120	----
boron	7440-42-8	E440	1	mg/kg	10 mg/kg	97.7	80.0	120	----
cadmium	7440-43-9	E440	0.005	mg/kg	1 mg/kg	95.9	80.0	120	----
calcium	7440-70-2	E440	20	mg/kg	500 mg/kg	95.9	80.0	120	----
cesium	7440-46-2	E440	0.005	mg/kg	0.5 mg/kg	93.6	80.0	120	----
chromium	7440-47-3	E440	0.05	mg/kg	2.5 mg/kg	98.7	80.0	120	----
cobalt	7440-48-4	E440	0.02	mg/kg	2.5 mg/kg	103	80.0	120	----

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 280606) - continued									
copper	7440-50-8	E440	0.1	mg/kg	2.5 mg/kg	102	80.0	120	----
iron	7439-89-6	E440	3	mg/kg	10 mg/kg	97.2	80.0	120	----
lead	7439-92-1	E440	0.02	mg/kg	5 mg/kg	99.8	80.0	120	----
lithium	7439-93-2	E440	0.5	mg/kg	2.5 mg/kg	104	80.0	120	----
magnesium	7439-95-4	E440	2	mg/kg	500 mg/kg	102	80.0	120	----
manganese	7439-96-5	E440	0.05	mg/kg	2.5 mg/kg	101	80.0	120	----
molybdenum	7439-98-7	E440	0.02	mg/kg	2.5 mg/kg	102	80.0	120	----
nickel	7440-02-0	E440	0.2	mg/kg	5 mg/kg	98.3	80.0	120	----
phosphorus	7723-14-0	E440	10	mg/kg	100 mg/kg	111	80.0	120	----
potassium	7440-09-7	E440	20	mg/kg	500 mg/kg	102	80.0	120	----
rubidium	7440-17-7	E440	0.05	mg/kg	1 mg/kg	107	80.0	120	----
selenium	7782-49-2	E440	0.05	mg/kg	10 mg/kg	96.2	80.0	120	----
sodium	7440-23-5	E440	20	mg/kg	500 mg/kg	110	80.0	120	----
strontium	7440-24-6	E440	0.05	mg/kg	2.5 mg/kg	95.4	80.0	120	----
tellurium	13494-80-9	E440	0.02	mg/kg	1 mg/kg	95.5	80.0	120	----
thallium	7440-28-0	E440	0.002	mg/kg	10 mg/kg	98.9	80.0	120	----
tin	7440-31-5	E440	0.1	mg/kg	5 mg/kg	97.6	80.0	120	----
uranium	7440-61-1	E440	0.002	mg/kg	0.05 mg/kg	97.8	80.0	120	----
vanadium	7440-62-2	E440	0.1	mg/kg	5 mg/kg	103	80.0	120	----
zinc	7440-66-6	E440	0.5	mg/kg	5 mg/kg	106	80.0	120	----
zirconium	7440-67-7	E440	0.2	mg/kg	1 mg/kg	93.6	80.0	120	----
Metals (QCLot: 280607)									
mercury	7439-97-6	E510	0.005	mg/kg	0.02 mg/kg	94.0	80.0	120	----
Metals (QCLot: 285407)									
titanium	7440-32-6	E440.Ti	0.25	mg/kg	2.5 mg/kg	96.6	80.0	120	----
Metals (QCLot: 285408)									
silver	7440-22-4	E440.Ag	0.005	mg/kg	1 mg/kg	99.7	80.0	120	----
Metals (QCLot: 285409)									
silver	7440-22-4	E440A.Ag	0.001	mg/kg wwt	1 mg/kg wwt	99.7	80.0	120	----
Metals (QCLot: 285410)									
titanium	7440-32-6	E440A.Ti	0.05	mg/kg wwt	2.5 mg/kg wwt	96.6	80.0	120	----
Metals (QCLot: 285411)									
mercury	7439-97-6	E510A	0.001	mg/kg wwt	0.02 mg/kg wwt	97.2	80.0	120	----
Metals (QCLot: 285412)									
aluminum	7429-90-5	E440A	0.4	mg/kg wwt	20 mg/kg wwt	105	80.0	120	----
antimony	7440-36-0	E440A	0.002	mg/kg wwt	10 mg/kg wwt	103	80.0	120	----
arsenic	7440-38-2	E440A	0.004	mg/kg wwt	10 mg/kg wwt	100	80.0	120	----

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 285412) - continued									
barium	7440-39-3	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	104	80.0	120	----
beryllium	7440-41-7	E440A	0.002	mg/kg wwt	1 mg/kg wwt	99.9	80.0	120	----
bismuth	7440-69-9	E440A	0.002	mg/kg wwt	10 mg/kg wwt	99.0	80.0	120	----
boron	7440-42-8	E440A	0.2	mg/kg wwt	10 mg/kg wwt	94.8	80.0	120	----
cadmium	7440-43-9	E440A	0.001	mg/kg wwt	1 mg/kg wwt	97.8	80.0	120	----
calcium	7440-70-2	E440A	4	mg/kg wwt	500 mg/kg wwt	97.4	80.0	120	----
cesium	7440-46-2	E440A	0.001	mg/kg wwt	0.5 mg/kg wwt	103	80.0	120	----
chromium	7440-47-3	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	102	80.0	120	----
cobalt	7440-48-4	E440A	0.004	mg/kg wwt	2.5 mg/kg wwt	103	80.0	120	----
copper	7440-50-8	E440A	0.02	mg/kg wwt	2.5 mg/kg wwt	98.0	80.0	120	----
iron	7439-89-6	E440A	0.6	mg/kg wwt	10 mg/kg wwt	102	80.0	120	----
lead	7439-92-1	E440A	0.004	mg/kg wwt	5 mg/kg wwt	99.5	80.0	120	----
lithium	7439-93-2	E440A	0.1	mg/kg wwt	2.5 mg/kg wwt	101	80.0	120	----
magnesium	7439-95-4	E440A	0.4	mg/kg wwt	500 mg/kg wwt	101	80.0	120	----
manganese	7439-96-5	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	102	80.0	120	----
molybdenum	7439-98-7	E440A	0.004	mg/kg wwt	2.5 mg/kg wwt	105	80.0	120	----
nickel	7440-02-0	E440A	0.04	mg/kg wwt	5 mg/kg wwt	100.0	80.0	120	----
phosphorus	7723-14-0	E440A	2	mg/kg wwt	100 mg/kg wwt	106	80.0	120	----
potassium	7440-09-7	E440A	4	mg/kg wwt	500 mg/kg wwt	97.5	80.0	120	----
rubidium	7440-17-7	E440A	0.01	mg/kg wwt	1 mg/kg wwt	102	80.0	120	----
selenium	7782-49-2	E440A	0.01	mg/kg wwt	10 mg/kg wwt	98.6	80.0	120	----
sodium	7440-23-5	E440A	4	mg/kg wwt	500 mg/kg wwt	110	80.0	120	----
strontium	7440-24-6	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	106	80.0	120	----
tellurium	13494-80-9	E440A	0.004	mg/kg wwt	1 mg/kg wwt	103	80.0	120	----
thallium	7440-28-0	E440A	0.0004	mg/kg wwt	10 mg/kg wwt	99.0	80.0	120	----
tin	7440-31-5	E440A	0.02	mg/kg wwt	5 mg/kg wwt	100	80.0	120	----
uranium	7440-61-1	E440A	0.0004	mg/kg wwt	0.05 mg/kg wwt	102	80.0	120	----
vanadium	7440-62-2	E440A	0.02	mg/kg wwt	5 mg/kg wwt	102	80.0	120	----
zinc	7440-66-6	E440A	0.1	mg/kg wwt	5 mg/kg wwt	100	80.0	120	----
zirconium	7440-67-7	E440A	0.04	mg/kg wwt	1 mg/kg wwt	102	80.0	120	----
Metals (QCLot: 285413)									
aluminum	7429-90-5	E440	2	mg/kg	20 mg/kg	105	80.0	120	----
antimony	7440-36-0	E440	0.01	mg/kg	10 mg/kg	103	80.0	120	----
arsenic	7440-38-2	E440	0.02	mg/kg	10 mg/kg	100	80.0	120	----
barium	7440-39-3	E440	0.05	mg/kg	2.5 mg/kg	104	80.0	120	----
beryllium	7440-41-7	E440	0.01	mg/kg	1 mg/kg	99.9	80.0	120	----
bismuth	7440-69-9	E440	0.01	mg/kg	10 mg/kg	99.0	80.0	120	----

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 285413) - continued									
boron	7440-42-8	E440	1	mg/kg	10 mg/kg	94.8	80.0	120	----
cadmium	7440-43-9	E440	0.005	mg/kg	1 mg/kg	97.8	80.0	120	----
calcium	7440-70-2	E440	20	mg/kg	500 mg/kg	97.4	80.0	120	----
cesium	7440-46-2	E440	0.005	mg/kg	0.5 mg/kg	103	80.0	120	----
chromium	7440-47-3	E440	0.05	mg/kg	2.5 mg/kg	102	80.0	120	----
cobalt	7440-48-4	E440	0.02	mg/kg	2.5 mg/kg	103	80.0	120	----
copper	7440-50-8	E440	0.1	mg/kg	2.5 mg/kg	98.0	80.0	120	----
iron	7439-89-6	E440	3	mg/kg	10 mg/kg	102	80.0	120	----
lead	7439-92-1	E440	0.02	mg/kg	5 mg/kg	99.5	80.0	120	----
lithium	7439-93-2	E440	0.5	mg/kg	2.5 mg/kg	101	80.0	120	----
magnesium	7439-95-4	E440	2	mg/kg	500 mg/kg	101	80.0	120	----
manganese	7439-96-5	E440	0.05	mg/kg	2.5 mg/kg	102	80.0	120	----
molybdenum	7439-98-7	E440	0.02	mg/kg	2.5 mg/kg	105	80.0	120	----
nickel	7440-02-0	E440	0.2	mg/kg	5 mg/kg	100.0	80.0	120	----
phosphorus	7723-14-0	E440	10	mg/kg	100 mg/kg	106	80.0	120	----
potassium	7440-09-7	E440	20	mg/kg	500 mg/kg	97.5	80.0	120	----
rubidium	7440-17-7	E440	0.05	mg/kg	1 mg/kg	102	80.0	120	----
selenium	7782-49-2	E440	0.05	mg/kg	10 mg/kg	98.6	80.0	120	----
sodium	7440-23-5	E440	20	mg/kg	500 mg/kg	110	80.0	120	----
strontium	7440-24-6	E440	0.05	mg/kg	2.5 mg/kg	106	80.0	120	----
tellurium	13494-80-9	E440	0.02	mg/kg	1 mg/kg	103	80.0	120	----
thallium	7440-28-0	E440	0.002	mg/kg	10 mg/kg	99.0	80.0	120	----
tin	7440-31-5	E440	0.1	mg/kg	5 mg/kg	100	80.0	120	----
uranium	7440-61-1	E440	0.002	mg/kg	0.05 mg/kg	102	80.0	120	----
vanadium	7440-62-2	E440	0.1	mg/kg	5 mg/kg	102	80.0	120	----
zinc	7440-66-6	E440	0.5	mg/kg	5 mg/kg	100	80.0	120	----
zirconium	7440-67-7	E440	0.2	mg/kg	1 mg/kg	102	80.0	120	----
Metals (QCLot: 285414)									
mercury	7439-97-6	E510	0.005	mg/kg	0.02 mg/kg	97.2	80.0	120	----
Metals (QCLot: 285618)									
titanium	7440-32-6	E440.Ti	0.25	mg/kg	2.5 mg/kg	101	80.0	120	----
Metals (QCLot: 285619)									
silver	7440-22-4	E440.Ag	0.005	mg/kg	1 mg/kg	97.7	80.0	120	----
Metals (QCLot: 285620)									
silver	7440-22-4	E440A.Ag	0.001	mg/kg wwt	1 mg/kg wwt	97.7	80.0	120	----
Metals (QCLot: 285621)									
titanium	7440-32-6	E440A.Ti	0.05	mg/kg wwt	2.5 mg/kg wwt	101	80.0	120	----

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 285622)									
mercury	7439-97-6	E510A	0.001	mg/kg wwt	0.02 mg/kg wwt	97.0	80.0	120	----
Metals (QCLot: 285623)									
aluminum	7429-90-5	E440A	0.4	mg/kg wwt	20 mg/kg wwt	101	80.0	120	----
antimony	7440-36-0	E440A	0.002	mg/kg wwt	10 mg/kg wwt	104	80.0	120	----
arsenic	7440-38-2	E440A	0.004	mg/kg wwt	10 mg/kg wwt	101	80.0	120	----
barium	7440-39-3	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	102	80.0	120	----
beryllium	7440-41-7	E440A	0.002	mg/kg wwt	1 mg/kg wwt	97.8	80.0	120	----
bismuth	7440-69-9	E440A	0.002	mg/kg wwt	10 mg/kg wwt	101	80.0	120	----
boron	7440-42-8	E440A	0.2	mg/kg wwt	10 mg/kg wwt	93.9	80.0	120	----
cadmium	7440-43-9	E440A	0.001	mg/kg wwt	1 mg/kg wwt	98.5	80.0	120	----
calcium	7440-70-2	E440A	4	mg/kg wwt	500 mg/kg wwt	97.6	80.0	120	----
cesium	7440-46-2	E440A	0.001	mg/kg wwt	0.5 mg/kg wwt	101	80.0	120	----
chromium	7440-47-3	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	100	80.0	120	----
cobalt	7440-48-4	E440A	0.004	mg/kg wwt	2.5 mg/kg wwt	104	80.0	120	----
copper	7440-50-8	E440A	0.02	mg/kg wwt	2.5 mg/kg wwt	101	80.0	120	----
iron	7439-89-6	E440A	0.6	mg/kg wwt	10 mg/kg wwt	103	80.0	120	----
lead	7439-92-1	E440A	0.004	mg/kg wwt	5 mg/kg wwt	104	80.0	120	----
lithium	7439-93-2	E440A	0.1	mg/kg wwt	2.5 mg/kg wwt	101	80.0	120	----
magnesium	7439-95-4	E440A	0.4	mg/kg wwt	500 mg/kg wwt	102	80.0	120	----
manganese	7439-96-5	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	103	80.0	120	----
molybdenum	7439-98-7	E440A	0.004	mg/kg wwt	2.5 mg/kg wwt	104	80.0	120	----
nickel	7440-02-0	E440A	0.04	mg/kg wwt	5 mg/kg wwt	101	80.0	120	----
phosphorus	7723-14-0	E440A	2	mg/kg wwt	100 mg/kg wwt	104	80.0	120	----
potassium	7440-09-7	E440A	4	mg/kg wwt	500 mg/kg wwt	104	80.0	120	----
rubidium	7440-17-7	E440A	0.01	mg/kg wwt	1 mg/kg wwt	103	80.0	120	----
selenium	7782-49-2	E440A	0.01	mg/kg wwt	10 mg/kg wwt	102	80.0	120	----
sodium	7440-23-5	E440A	4	mg/kg wwt	500 mg/kg wwt	108	80.0	120	----
strontium	7440-24-6	E440A	0.01	mg/kg wwt	2.5 mg/kg wwt	108	80.0	120	----
tellurium	13494-80-9	E440A	0.004	mg/kg wwt	1 mg/kg wwt	100	80.0	120	----
thallium	7440-28-0	E440A	0.0004	mg/kg wwt	10 mg/kg wwt	103	80.0	120	----
tin	7440-31-5	E440A	0.02	mg/kg wwt	5 mg/kg wwt	99.8	80.0	120	----
uranium	7440-61-1	E440A	0.0004	mg/kg wwt	0.05 mg/kg wwt	103	80.0	120	----
vanadium	7440-62-2	E440A	0.02	mg/kg wwt	5 mg/kg wwt	104	80.0	120	----
zinc	7440-66-6	E440A	0.1	mg/kg wwt	5 mg/kg wwt	101	80.0	120	----
zirconium	7440-67-7	E440A	0.04	mg/kg wwt	1 mg/kg wwt	99.9	80.0	120	----
Metals (QCLot: 285624)									
aluminum	7429-90-5	E440	2	mg/kg	20 mg/kg	101	80.0	120	----

Sub-Matrix: **Biota**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 285624) - continued									
antimony	7440-36-0	E440	0.01	mg/kg	10 mg/kg	104	80.0	120	----
arsenic	7440-38-2	E440	0.02	mg/kg	10 mg/kg	101	80.0	120	----
barium	7440-39-3	E440	0.05	mg/kg	2.5 mg/kg	102	80.0	120	----
beryllium	7440-41-7	E440	0.01	mg/kg	1 mg/kg	97.8	80.0	120	----
bismuth	7440-69-9	E440	0.01	mg/kg	10 mg/kg	101	80.0	120	----
boron	7440-42-8	E440	1	mg/kg	10 mg/kg	93.9	80.0	120	----
cadmium	7440-43-9	E440	0.005	mg/kg	1 mg/kg	98.5	80.0	120	----
calcium	7440-70-2	E440	20	mg/kg	500 mg/kg	97.6	80.0	120	----
cesium	7440-46-2	E440	0.005	mg/kg	0.5 mg/kg	101	80.0	120	----
chromium	7440-47-3	E440	0.05	mg/kg	2.5 mg/kg	100	80.0	120	----
cobalt	7440-48-4	E440	0.02	mg/kg	2.5 mg/kg	104	80.0	120	----
copper	7440-50-8	E440	0.1	mg/kg	2.5 mg/kg	101	80.0	120	----
iron	7439-89-6	E440	3	mg/kg	10 mg/kg	103	80.0	120	----
lead	7439-92-1	E440	0.02	mg/kg	5 mg/kg	104	80.0	120	----
lithium	7439-93-2	E440	0.5	mg/kg	2.5 mg/kg	101	80.0	120	----
magnesium	7439-95-4	E440	2	mg/kg	500 mg/kg	102	80.0	120	----
manganese	7439-96-5	E440	0.05	mg/kg	2.5 mg/kg	103	80.0	120	----
molybdenum	7439-98-7	E440	0.02	mg/kg	2.5 mg/kg	104	80.0	120	----
nickel	7440-02-0	E440	0.2	mg/kg	5 mg/kg	101	80.0	120	----
phosphorus	7723-14-0	E440	10	mg/kg	100 mg/kg	104	80.0	120	----
potassium	7440-09-7	E440	20	mg/kg	500 mg/kg	104	80.0	120	----
rubidium	7440-17-7	E440	0.05	mg/kg	1 mg/kg	103	80.0	120	----
selenium	7782-49-2	E440	0.05	mg/kg	10 mg/kg	102	80.0	120	----
sodium	7440-23-5	E440	20	mg/kg	500 mg/kg	108	80.0	120	----
strontium	7440-24-6	E440	0.05	mg/kg	2.5 mg/kg	108	80.0	120	----
tellurium	13494-80-9	E440	0.02	mg/kg	1 mg/kg	100	80.0	120	----
thallium	7440-28-0	E440	0.002	mg/kg	10 mg/kg	103	80.0	120	----
tin	7440-31-5	E440	0.1	mg/kg	5 mg/kg	99.8	80.0	120	----
uranium	7440-61-1	E440	0.002	mg/kg	0.05 mg/kg	103	80.0	120	----
vanadium	7440-62-2	E440	0.1	mg/kg	5 mg/kg	104	80.0	120	----
zinc	7440-66-6	E440	0.5	mg/kg	5 mg/kg	101	80.0	120	----
zirconium	7440-67-7	E440	0.2	mg/kg	1 mg/kg	99.9	80.0	120	----
Metals (QCLot: 285625)									
mercury	7439-97-6	E510	0.005	mg/kg	0.02 mg/kg	97.0	80.0	120	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 276619)									
QC-276619-003	RM	aluminum	7429-90-5	E472A	1280 mg/kg wwt	96.3	70.0	130	----
QC-276619-003	RM	arsenic	7440-38-2	E472A	6.87 mg/kg wwt	87.7	70.0	130	----
QC-276619-003	RM	barium	7440-39-3	E472A	4.4 mg/kg wwt	90.5	70.0	130	----
QC-276619-003	RM	boron	7440-42-8	E472A	9.24 mg/kg wwt	78.6	70.0	130	----
QC-276619-003	RM	cadmium	7440-43-9	E472A	0.299 mg/kg wwt	89.9	70.0	130	----
QC-276619-003	RM	calcium	7440-70-2	E472A	2360 mg/kg wwt	86.2	70.0	130	----
QC-276619-003	RM	cesium	7440-46-2	E472A	0.078 mg/kg wwt	87.7	70.0	130	----
QC-276619-003	RM	chromium	7440-47-3	E472A	1.58 mg/kg wwt	108	70.0	130	----
QC-276619-003	RM	cobalt	7440-48-4	E472A	0.25 mg/kg wwt	95.5	70.0	130	----
QC-276619-003	RM	copper	7440-50-8	E472A	15.7 mg/kg wwt	85.7	70.0	130	----
QC-276619-003	RM	iron	7439-89-6	E472A	318 mg/kg wwt	94.5	70.0	130	----
QC-276619-003	RM	lead	7439-92-1	E472A	0.231 mg/kg wwt	92.9	70.0	130	----
QC-276619-003	RM	lithium	7439-93-2	E472A	1.21 mg/kg wwt	79.4	50.0	150	----
QC-276619-003	RM	magnesium	7439-95-4	E472A	910 mg/kg wwt	87.8	70.0	130	----
QC-276619-003	RM	manganese	7439-96-5	E472A	3.17 mg/kg wwt	85.6	70.0	130	----
QC-276619-003	RM	molybdenum	7439-98-7	E472A	0.29 mg/kg wwt	90.4	70.0	130	----
QC-276619-003	RM	nickel	7440-02-0	E472A	1.34 mg/kg wwt	87.2	70.0	130	----
QC-276619-003	RM	phosphorus	7723-14-0	E472A	8000 mg/kg wwt	85.7	70.0	130	----
QC-276619-003	RM	potassium	7440-09-7	E472A	12840 mg/kg wwt	91.2	70.0	130	----
QC-276619-003	RM	rubidium	7440-17-7	E472A	5.59 mg/kg wwt	91.3	70.0	130	----
QC-276619-003	RM	selenium	7782-49-2	E472A	3.45 mg/kg wwt	94.8	70.0	130	----
QC-276619-003	RM	sodium	7440-23-5	E472A	14000 mg/kg wwt	92.0	70.0	130	----
QC-276619-003	RM	strontium	7440-24-6	E472A	10.1 mg/kg wwt	86.2	70.0	130	----
QC-276619-003	RM	thallium	7440-28-0	E472A	0.0093 mg/kg wwt	94.8	70.0	130	----
QC-276619-003	RM	uranium	7440-61-1	E472A	0.0481 mg/kg wwt	88.3	70.0	130	----
QC-276619-003	RM	vanadium	7440-62-2	E472A	1.48 mg/kg wwt	91.4	70.0	130	----
QC-276619-003	RM	zinc	7440-66-6	E472A	46.2 mg/kg wwt	97.0	70.0	130	----

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 276619) - continued									
QC-276619-003	RM	zirconium	7440-67-7	E472A	0.254 mg/kg wwt	116	70.0	130	----
Metals (QCLot: 276620)									
QC-276620-003	RM	silver	7440-22-4	E472A.Ag	0.0252 mg/kg wwt	94.2	70.0	130	----
Metals (QCLot: 276621)									
QC-276621-003	RM	titanium	7440-32-6	E472A.Ti	5.88 mg/kg wwt	76.7	70.0	130	----
Metals (QCLot: 276622)									
QC-276622-003	RM	silver	7440-22-4	E472.Ag	0.0252 mg/kg	94.2	70.0	130	----
Metals (QCLot: 276623)									
QC-276623-003	RM	titanium	7440-32-6	E472.Ti	5.88 mg/kg	76.7	70.0	130	----
Metals (QCLot: 276624)									
QC-276624-003	RM	mercury	7439-97-6	E511	0.322 mg/kg	108	70.0	130	----
Metals (QCLot: 276625)									
QC-276625-003	RM	mercury	7439-97-6	E511A	0.322 mg/kg wwt	108	70.0	130	----
Metals (QCLot: 276626)									
QC-276626-003	RM	aluminum	7429-90-5	E472	1280 mg/kg	96.3	70.0	130	----
QC-276626-003	RM	arsenic	7440-38-2	E472	6.87 mg/kg	87.7	70.0	130	----
QC-276626-003	RM	barium	7440-39-3	E472	4.4 mg/kg	90.5	70.0	130	----
QC-276626-003	RM	boron	7440-42-8	E472	9.24 mg/kg	78.6	70.0	130	----
QC-276626-003	RM	cadmium	7440-43-9	E472	0.299 mg/kg	89.9	70.0	130	----
QC-276626-003	RM	calcium	7440-70-2	E472	2360 mg/kg	86.2	70.0	130	----
QC-276626-003	RM	cesium	7440-46-2	E472	0.078 mg/kg	87.7	70.0	130	----
QC-276626-003	RM	chromium	7440-47-3	E472	1.58 mg/kg	108	70.0	130	----
QC-276626-003	RM	cobalt	7440-48-4	E472	0.25 mg/kg	95.5	70.0	130	----
QC-276626-003	RM	copper	7440-50-8	E472	15.7 mg/kg	85.7	70.0	130	----
QC-276626-003	RM	iron	7439-89-6	E472	318 mg/kg	94.5	70.0	130	----
QC-276626-003	RM	lead	7439-92-1	E472	0.231 mg/kg	92.9	70.0	130	----
QC-276626-003	RM	lithium	7439-93-2	E472	1.21 mg/kg	79.4	50.0	150	----
QC-276626-003	RM	magnesium	7439-95-4	E472	910 mg/kg	87.8	70.0	130	----
QC-276626-003	RM	manganese	7439-96-5	E472	3.17 mg/kg	85.6	70.0	130	----
QC-276626-003	RM	molybdenum	7439-98-7	E472	0.29 mg/kg	90.4	70.0	130	----
QC-276626-003	RM	nickel	7440-02-0	E472	1.34 mg/kg	87.2	70.0	130	----
QC-276626-003	RM	phosphorus	7723-14-0	E472	8000 mg/kg	85.7	70.0	130	----

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 276626) - continued									
QC-276626-003	RM	potassium	7440-09-7	E472	12840 mg/kg	91.2	70.0	130	----
QC-276626-003	RM	rubidium	7440-17-7	E472	5.59 mg/kg	91.3	70.0	130	----
QC-276626-003	RM	selenium	7782-49-2	E472	3.45 mg/kg	94.8	70.0	130	----
QC-276626-003	RM	sodium	7440-23-5	E472	14000 mg/kg	92.0	70.0	130	----
QC-276626-003	RM	strontium	7440-24-6	E472	10.1 mg/kg	86.2	70.0	130	----
QC-276626-003	RM	thallium	7440-28-0	E472	0.0093 mg/kg	94.8	70.0	130	----
QC-276626-003	RM	uranium	7440-61-1	E472	0.0481 mg/kg	88.3	70.0	130	----
QC-276626-003	RM	vanadium	7440-62-2	E472	1.48 mg/kg	91.4	70.0	130	----
QC-276626-003	RM	zinc	7440-66-6	E472	46.2 mg/kg	97.0	70.0	130	----
Metals (QCLot: 280600)									
QC-280600-003	RM	titanium	7440-32-6	E440.Ti	5.88 mg/kg	118	70.0	130	----
Metals (QCLot: 280601)									
QC-280601-003	RM	silver	7440-22-4	E440.Ag	0.0252 mg/kg	105	70.0	130	----
Metals (QCLot: 280602)									
QC-280602-003	RM	silver	7440-22-4	E440A.Ag	0.0252 mg/kg wwt	105	70.0	130	----
Metals (QCLot: 280603)									
QC-280603-003	RM	titanium	7440-32-6	E440A.Ti	5.88 mg/kg wwt	118	70.0	130	----
Metals (QCLot: 280604)									
QC-280604-003	RM	mercury	7439-97-6	E510A	0.322 mg/kg wwt	100	70.0	130	----
Metals (QCLot: 280605)									
QC-280605-003	RM	aluminum	7429-90-5	E440A	1280 mg/kg wwt	107	70.0	130	----
QC-280605-003	RM	arsenic	7440-38-2	E440A	6.87 mg/kg wwt	101	70.0	130	----
QC-280605-003	RM	barium	7440-39-3	E440A	4.4 mg/kg wwt	109	70.0	130	----
QC-280605-003	RM	boron	7440-42-8	E440A	9.24 mg/kg wwt	94.9	70.0	130	----
QC-280605-003	RM	cadmium	7440-43-9	E440A	0.299 mg/kg wwt	105	70.0	130	----
QC-280605-003	RM	calcium	7440-70-2	E440A	2360 mg/kg wwt	97.3	70.0	130	----
QC-280605-003	RM	cesium	7440-46-2	E440A	0.078 mg/kg wwt	93.4	70.0	130	----
QC-280605-003	RM	chromium	7440-47-3	E440A	1.58 mg/kg wwt	119	70.0	130	----
QC-280605-003	RM	cobalt	7440-48-4	E440A	0.25 mg/kg wwt	106	70.0	130	----
QC-280605-003	RM	copper	7440-50-8	E440A	15.7 mg/kg wwt	102	70.0	130	----
QC-280605-003	RM	iron	7439-89-6	E440A	318 mg/kg wwt	106	70.0	130	----
QC-280605-003	RM	lead	7439-92-1	E440A	0.231 mg/kg wwt	106	70.0	130	----

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 280605) - continued									
QC-280605-003	RM	lithium	7439-93-2	E440A	1.21 mg/kg wwt	93.8	50.0	150	----
QC-280605-003	RM	magnesium	7439-95-4	E440A	910 mg/kg wwt	99.0	70.0	130	----
QC-280605-003	RM	manganese	7439-96-5	E440A	3.17 mg/kg wwt	99.8	70.0	130	----
QC-280605-003	RM	molybdenum	7439-98-7	E440A	0.29 mg/kg wwt	103	70.0	130	----
QC-280605-003	RM	nickel	7440-02-0	E440A	1.34 mg/kg wwt	126	70.0	130	----
QC-280605-003	RM	phosphorus	7723-14-0	E440A	8000 mg/kg wwt	101	70.0	130	----
QC-280605-003	RM	potassium	7440-09-7	E440A	12840 mg/kg wwt	98.6	70.0	130	----
QC-280605-003	RM	rubidium	7440-17-7	E440A	5.59 mg/kg wwt	105	70.0	130	----
QC-280605-003	RM	selenium	7782-49-2	E440A	3.45 mg/kg wwt	104	70.0	130	----
QC-280605-003	RM	sodium	7440-23-5	E440A	14000 mg/kg wwt	108	70.0	130	----
QC-280605-003	RM	strontium	7440-24-6	E440A	10.1 mg/kg wwt	88.4	70.0	130	----
QC-280605-003	RM	thallium	7440-28-0	E440A	0.0093 mg/kg wwt	110	70.0	130	----
QC-280605-003	RM	uranium	7440-61-1	E440A	0.0481 mg/kg wwt	100	70.0	130	----
QC-280605-003	RM	vanadium	7440-62-2	E440A	1.48 mg/kg wwt	103	70.0	130	----
QC-280605-003	RM	zinc	7440-66-6	E440A	46.2 mg/kg wwt	118	70.0	130	----
Metals (QCLot: 280606)									
QC-280606-003	RM	aluminum	7429-90-5	E440	1280 mg/kg	107	70.0	130	----
QC-280606-003	RM	arsenic	7440-38-2	E440	6.87 mg/kg	101	70.0	130	----
QC-280606-003	RM	barium	7440-39-3	E440	4.4 mg/kg	109	70.0	130	----
QC-280606-003	RM	boron	7440-42-8	E440	9.24 mg/kg	94.9	70.0	130	----
QC-280606-003	RM	cadmium	7440-43-9	E440	0.299 mg/kg	105	70.0	130	----
QC-280606-003	RM	calcium	7440-70-2	E440	2360 mg/kg	97.3	70.0	130	----
QC-280606-003	RM	cesium	7440-46-2	E440	0.078 mg/kg	93.4	70.0	130	----
QC-280606-003	RM	chromium	7440-47-3	E440	1.58 mg/kg	119	70.0	130	----
QC-280606-003	RM	cobalt	7440-48-4	E440	0.25 mg/kg	106	70.0	130	----
QC-280606-003	RM	copper	7440-50-8	E440	15.7 mg/kg	102	70.0	130	----
QC-280606-003	RM	iron	7439-89-6	E440	318 mg/kg	106	70.0	130	----
QC-280606-003	RM	lead	7439-92-1	E440	0.231 mg/kg	106	70.0	130	----
QC-280606-003	RM	lithium	7439-93-2	E440	1.21 mg/kg	93.8	50.0	150	----
QC-280606-003	RM	magnesium	7439-95-4	E440	910 mg/kg	99.0	70.0	130	----
QC-280606-003	RM	manganese	7439-96-5	E440	3.17 mg/kg	99.8	70.0	130	----
QC-280606-003	RM	molybdenum	7439-98-7	E440	0.29 mg/kg	103	70.0	130	----

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 280606) - continued									
QC-280606-003	RM	nickel	7440-02-0	E440	1.34 mg/kg	126	70.0	130	----
QC-280606-003	RM	phosphorus	7723-14-0	E440	8000 mg/kg	101	70.0	130	----
QC-280606-003	RM	potassium	7440-09-7	E440	12840 mg/kg	98.6	70.0	130	----
QC-280606-003	RM	rubidium	7440-17-7	E440	5.59 mg/kg	105	70.0	130	----
QC-280606-003	RM	selenium	7782-49-2	E440	3.45 mg/kg	104	70.0	130	----
QC-280606-003	RM	sodium	7440-23-5	E440	14000 mg/kg	108	70.0	130	----
QC-280606-003	RM	strontium	7440-24-6	E440	10.1 mg/kg	88.4	70.0	130	----
QC-280606-003	RM	thallium	7440-28-0	E440	0.0093 mg/kg	110	70.0	130	----
QC-280606-003	RM	uranium	7440-61-1	E440	0.0481 mg/kg	100	70.0	130	----
QC-280606-003	RM	vanadium	7440-62-2	E440	1.48 mg/kg	103	70.0	130	----
QC-280606-003	RM	zinc	7440-66-6	E440	46.2 mg/kg	118	70.0	130	----
Metals (QCLot: 280607)									
QC-280607-003	RM	mercury	7439-97-6	E510	0.322 mg/kg	100	70.0	130	----
Metals (QCLot: 285407)									
QC-285407-003	RM	titanium	7440-32-6	E440.Ti	5.88 mg/kg	101	70.0	130	----
Metals (QCLot: 285408)									
QC-285408-003	RM	silver	7440-22-4	E440.Ag	0.0252 mg/kg	107	70.0	130	----
Metals (QCLot: 285409)									
QC-285409-003	RM	silver	7440-22-4	E440A.Ag	0.0252 mg/kg wwt	107	70.0	130	----
Metals (QCLot: 285410)									
QC-285410-003	RM	titanium	7440-32-6	E440A.Ti	5.88 mg/kg wwt	101	70.0	130	----
Metals (QCLot: 285411)									
QC-285411-003	RM	mercury	7439-97-6	E510A	0.322 mg/kg wwt	102	70.0	130	----
Metals (QCLot: 285412)									
QC-285412-003	RM	aluminum	7429-90-5	E440A	1280 mg/kg wwt	106	70.0	130	----
QC-285412-003	RM	arsenic	7440-38-2	E440A	6.87 mg/kg wwt	95.8	70.0	130	----
QC-285412-003	RM	barium	7440-39-3	E440A	4.4 mg/kg wwt	100	70.0	130	----
QC-285412-003	RM	boron	7440-42-8	E440A	9.24 mg/kg wwt	93.9	70.0	130	----
QC-285412-003	RM	cadmium	7440-43-9	E440A	0.299 mg/kg wwt	95.5	70.0	130	----
QC-285412-003	RM	calcium	7440-70-2	E440A	2360 mg/kg wwt	97.3	70.0	130	----
QC-285412-003	RM	cesium	7440-46-2	E440A	0.078 mg/kg wwt	94.5	70.0	130	----
QC-285412-003	RM	chromium	7440-47-3	E440A	1.58 mg/kg wwt	107	70.0	130	----

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 285412) - continued									
QC-285412-003	RM	cobalt	7440-48-4	E440A	0.25 mg/kg wwt	102	70.0	130	----
QC-285412-003	RM	copper	7440-50-8	E440A	15.7 mg/kg wwt	96.9	70.0	130	----
QC-285412-003	RM	iron	7439-89-6	E440A	318 mg/kg wwt	102	70.0	130	----
QC-285412-003	RM	lead	7439-92-1	E440A	0.231 mg/kg wwt	108	70.0	130	----
QC-285412-003	RM	lithium	7439-93-2	E440A	1.21 mg/kg wwt	88.8	50.0	150	----
QC-285412-003	RM	magnesium	7439-95-4	E440A	910 mg/kg wwt	96.7	70.0	130	----
QC-285412-003	RM	manganese	7439-96-5	E440A	3.17 mg/kg wwt	96.4	70.0	130	----
QC-285412-003	RM	molybdenum	7439-98-7	E440A	0.29 mg/kg wwt	95.8	70.0	130	----
QC-285412-003	RM	nickel	7440-02-0	E440A	1.34 mg/kg wwt	95.6	70.0	130	----
QC-285412-003	RM	phosphorus	7723-14-0	E440A	8000 mg/kg wwt	95.5	70.0	130	----
QC-285412-003	RM	potassium	7440-09-7	E440A	12840 mg/kg wwt	96.9	70.0	130	----
QC-285412-003	RM	rubidium	7440-17-7	E440A	5.59 mg/kg wwt	98.0	70.0	130	----
QC-285412-003	RM	selenium	7782-49-2	E440A	3.45 mg/kg wwt	102	70.0	130	----
QC-285412-003	RM	sodium	7440-23-5	E440A	14000 mg/kg wwt	103	70.0	130	----
QC-285412-003	RM	strontium	7440-24-6	E440A	10.1 mg/kg wwt	94.3	70.0	130	----
QC-285412-003	RM	thallium	7440-28-0	E440A	0.0093 mg/kg wwt	94.3	70.0	130	----
QC-285412-003	RM	uranium	7440-61-1	E440A	0.0481 mg/kg wwt	102	70.0	130	----
QC-285412-003	RM	vanadium	7440-62-2	E440A	1.48 mg/kg wwt	101	70.0	130	----
QC-285412-003	RM	zinc	7440-66-6	E440A	46.2 mg/kg wwt	109	70.0	130	----
Metals (QCLot: 285413)									
QC-285413-003	RM	aluminum	7429-90-5	E440	1280 mg/kg	106	70.0	130	----
QC-285413-003	RM	arsenic	7440-38-2	E440	6.87 mg/kg	95.8	70.0	130	----
QC-285413-003	RM	barium	7440-39-3	E440	4.4 mg/kg	100	70.0	130	----
QC-285413-003	RM	boron	7440-42-8	E440	9.24 mg/kg	93.9	70.0	130	----
QC-285413-003	RM	cadmium	7440-43-9	E440	0.299 mg/kg	95.5	70.0	130	----
QC-285413-003	RM	calcium	7440-70-2	E440	2360 mg/kg	97.3	70.0	130	----
QC-285413-003	RM	cesium	7440-46-2	E440	0.078 mg/kg	94.5	70.0	130	----
QC-285413-003	RM	chromium	7440-47-3	E440	1.58 mg/kg	107	70.0	130	----
QC-285413-003	RM	cobalt	7440-48-4	E440	0.25 mg/kg	102	70.0	130	----
QC-285413-003	RM	copper	7440-50-8	E440	15.7 mg/kg	96.9	70.0	130	----
QC-285413-003	RM	iron	7439-89-6	E440	318 mg/kg	102	70.0	130	----
QC-285413-003	RM	lead	7439-92-1	E440	0.231 mg/kg	108	70.0	130	----

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 285413) - continued									
QC-285413-003	RM	lithium	7439-93-2	E440	1.21 mg/kg	88.8	50.0	150	----
QC-285413-003	RM	magnesium	7439-95-4	E440	910 mg/kg	96.7	70.0	130	----
QC-285413-003	RM	manganese	7439-96-5	E440	3.17 mg/kg	96.4	70.0	130	----
QC-285413-003	RM	molybdenum	7439-98-7	E440	0.29 mg/kg	95.8	70.0	130	----
QC-285413-003	RM	nickel	7440-02-0	E440	1.34 mg/kg	95.6	70.0	130	----
QC-285413-003	RM	phosphorus	7723-14-0	E440	8000 mg/kg	95.5	70.0	130	----
QC-285413-003	RM	potassium	7440-09-7	E440	12840 mg/kg	96.9	70.0	130	----
QC-285413-003	RM	rubidium	7440-17-7	E440	5.59 mg/kg	98.0	70.0	130	----
QC-285413-003	RM	selenium	7782-49-2	E440	3.45 mg/kg	102	70.0	130	----
QC-285413-003	RM	sodium	7440-23-5	E440	14000 mg/kg	103	70.0	130	----
QC-285413-003	RM	strontium	7440-24-6	E440	10.1 mg/kg	94.3	70.0	130	----
QC-285413-003	RM	thallium	7440-28-0	E440	0.0093 mg/kg	94.3	70.0	130	----
QC-285413-003	RM	uranium	7440-61-1	E440	0.0481 mg/kg	102	70.0	130	----
QC-285413-003	RM	vanadium	7440-62-2	E440	1.48 mg/kg	101	70.0	130	----
QC-285413-003	RM	zinc	7440-66-6	E440	46.2 mg/kg	109	70.0	130	----
Metals (QCLot: 285414)									
QC-285414-003	RM	mercury	7439-97-6	E510	0.322 mg/kg	102	70.0	130	----
Metals (QCLot: 285618)									
QC-285618-003	RM	titanium	7440-32-6	E440.Ti	5.88 mg/kg	108	70.0	130	----
Metals (QCLot: 285619)									
QC-285619-003	RM	silver	7440-22-4	E440.Ag	0.0252 mg/kg	110	70.0	130	----
Metals (QCLot: 285620)									
QC-285620-003	RM	silver	7440-22-4	E440A.Ag	0.0252 mg/kg wwt	110	70.0	130	----
Metals (QCLot: 285621)									
QC-285621-003	RM	titanium	7440-32-6	E440A.Ti	5.88 mg/kg wwt	108	70.0	130	----
Metals (QCLot: 285622)									
QC-285622-003	RM	mercury	7439-97-6	E510A	0.322 mg/kg wwt	101	70.0	130	----
Metals (QCLot: 285623)									
QC-285623-003	RM	aluminum	7429-90-5	E440A	1280 mg/kg wwt	103	70.0	130	----
QC-285623-003	RM	arsenic	7440-38-2	E440A	6.87 mg/kg wwt	95.3	70.0	130	----
QC-285623-003	RM	barium	7440-39-3	E440A	4.4 mg/kg wwt	101	70.0	130	----
QC-285623-003	RM	boron	7440-42-8	E440A	9.24 mg/kg wwt	91.4	70.0	130	----

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 285623) - continued									
QC-285623-003	RM	cadmium	7440-43-9	E440A	0.299 mg/kg wwt	97.5	70.0	130	----
QC-285623-003	RM	calcium	7440-70-2	E440A	2360 mg/kg wwt	102	70.0	130	----
QC-285623-003	RM	cesium	7440-46-2	E440A	0.078 mg/kg wwt	96.7	70.0	130	----
QC-285623-003	RM	chromium	7440-47-3	E440A	1.58 mg/kg wwt	103	70.0	130	----
QC-285623-003	RM	cobalt	7440-48-4	E440A	0.25 mg/kg wwt	102	70.0	130	----
QC-285623-003	RM	copper	7440-50-8	E440A	15.7 mg/kg wwt	95.6	70.0	130	----
QC-285623-003	RM	iron	7439-89-6	E440A	318 mg/kg wwt	106	70.0	130	----
QC-285623-003	RM	lead	7439-92-1	E440A	0.231 mg/kg wwt	103	70.0	130	----
QC-285623-003	RM	lithium	7439-93-2	E440A	1.21 mg/kg wwt	87.4	50.0	150	----
QC-285623-003	RM	magnesium	7439-95-4	E440A	910 mg/kg wwt	94.7	70.0	130	----
QC-285623-003	RM	manganese	7439-96-5	E440A	3.17 mg/kg wwt	98.5	70.0	130	----
QC-285623-003	RM	molybdenum	7439-98-7	E440A	0.29 mg/kg wwt	97.3	70.0	130	----
QC-285623-003	RM	nickel	7440-02-0	E440A	1.34 mg/kg wwt	94.8	70.0	130	----
QC-285623-003	RM	phosphorus	7723-14-0	E440A	8000 mg/kg wwt	94.3	70.0	130	----
QC-285623-003	RM	potassium	7440-09-7	E440A	12840 mg/kg wwt	97.1	70.0	130	----
QC-285623-003	RM	rubidium	7440-17-7	E440A	5.59 mg/kg wwt	100	70.0	130	----
QC-285623-003	RM	selenium	7782-49-2	E440A	3.45 mg/kg wwt	102	70.0	130	----
QC-285623-003	RM	sodium	7440-23-5	E440A	14000 mg/kg wwt	103	70.0	130	----
QC-285623-003	RM	strontium	7440-24-6	E440A	10.1 mg/kg wwt	99.0	70.0	130	----
QC-285623-003	RM	thallium	7440-28-0	E440A	0.0093 mg/kg wwt	95.8	70.0	130	----
QC-285623-003	RM	uranium	7440-61-1	E440A	0.0481 mg/kg wwt	98.1	70.0	130	----
QC-285623-003	RM	vanadium	7440-62-2	E440A	1.48 mg/kg wwt	98.9	70.0	130	----
QC-285623-003	RM	zinc	7440-66-6	E440A	46.2 mg/kg wwt	110	70.0	130	----
Metals (QCLot: 285624)									
QC-285624-003	RM	aluminum	7429-90-5	E440	1280 mg/kg	103	70.0	130	----
QC-285624-003	RM	arsenic	7440-38-2	E440	6.87 mg/kg	95.3	70.0	130	----
QC-285624-003	RM	barium	7440-39-3	E440	4.4 mg/kg	101	70.0	130	----
QC-285624-003	RM	boron	7440-42-8	E440	9.24 mg/kg	91.4	70.0	130	----
QC-285624-003	RM	cadmium	7440-43-9	E440	0.299 mg/kg	97.5	70.0	130	----
QC-285624-003	RM	calcium	7440-70-2	E440	2360 mg/kg	102	70.0	130	----
QC-285624-003	RM	cesium	7440-46-2	E440	0.078 mg/kg	96.7	70.0	130	----
QC-285624-003	RM	chromium	7440-47-3	E440	1.58 mg/kg	103	70.0	130	----

Sub-Matrix: **Biota**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 285624) - continued									
QC-285624-003	RM	cobalt	7440-48-4	E440	0.25 mg/kg	102	70.0	130	----
QC-285624-003	RM	copper	7440-50-8	E440	15.7 mg/kg	95.6	70.0	130	----
QC-285624-003	RM	iron	7439-89-6	E440	318 mg/kg	106	70.0	130	----
QC-285624-003	RM	lead	7439-92-1	E440	0.231 mg/kg	103	70.0	130	----
QC-285624-003	RM	lithium	7439-93-2	E440	1.21 mg/kg	87.4	50.0	150	----
QC-285624-003	RM	magnesium	7439-95-4	E440	910 mg/kg	94.7	70.0	130	----
QC-285624-003	RM	manganese	7439-96-5	E440	3.17 mg/kg	98.5	70.0	130	----
QC-285624-003	RM	molybdenum	7439-98-7	E440	0.29 mg/kg	97.3	70.0	130	----
QC-285624-003	RM	nickel	7440-02-0	E440	1.34 mg/kg	94.8	70.0	130	----
QC-285624-003	RM	phosphorus	7723-14-0	E440	8000 mg/kg	94.3	70.0	130	----
QC-285624-003	RM	potassium	7440-09-7	E440	12840 mg/kg	97.1	70.0	130	----
QC-285624-003	RM	rubidium	7440-17-7	E440	5.59 mg/kg	100	70.0	130	----
QC-285624-003	RM	selenium	7782-49-2	E440	3.45 mg/kg	102	70.0	130	----
QC-285624-003	RM	sodium	7440-23-5	E440	14000 mg/kg	103	70.0	130	----
QC-285624-003	RM	strontium	7440-24-6	E440	10.1 mg/kg	99.0	70.0	130	----
QC-285624-003	RM	thallium	7440-28-0	E440	0.0093 mg/kg	95.8	70.0	130	----
QC-285624-003	RM	uranium	7440-61-1	E440	0.0481 mg/kg	98.1	70.0	130	----
QC-285624-003	RM	vanadium	7440-62-2	E440	1.48 mg/kg	98.9	70.0	130	----
QC-285624-003	RM	zinc	7440-66-6	E440	46.2 mg/kg	110	70.0	130	----
Metals (QCLot: 285625)									
QC-285625-003	RM	mercury	7439-97-6	E510	0.322 mg/kg	101	70.0	130	----

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

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COC # _____

Page 1 of 5

Environmental Division
Whitehorse
Work Order Reference
WR2100889

Telephone : +1 867 000 0000

Report To		Report Format / Distribution			
Company:	StrataGold Corporation	☑ Standard	☐ Other		
Contact:	Hugh Coyle	☑ PDF	☑ Excel	☑ Digital	☐ Fax
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@strataldcorp.com		
	Vancouver, BC V6E 3S7	Email 2:	bonnieburns@northwestel.net		
Phone:	604-696-6600 Fax:	Email 3:	jhoos@strataldcorp.com		
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information			
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Eagle Gold		
Company:		PO / AFE:			
Contact:		LSD:	Victoria Gold Corp.		
Address:					
Phone:	Fax:	Quote #:	Dublin Gulch Tissue Samples		
Lab Work Order # (lab use only)		ALS Contact:	Heather Mackenzie	Sampler:	Bonnie Burns

Service Requested (Rush for routine analysis s

- ◉ Regular (Standard Turnaround Times - Business Days)
- ○ Priority (2-4 Business Days) - 50% Surcharge - Contac
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Conta
- ○ Same Day or Weekend Emergency - Contact ALS to C

Analysis Request

Please indicate below Filtered, Preserved or

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue	Number of Conta
	D1-B, Centre, Willow leaves	23-Jul-21			X	X	1
	D1-B, Centre, Dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, East, Willow leaves	23-Jul-21			X	X	1
	D1-B, East, Dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, South, willow leaves	23-Jul-21			X	X	1
	D1-B, South, dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, West, willow leaves	23-Jul-21			X	X	1
	D1-B, West, willow twigs	23-Jul-21			X	X	1
	D1-B, West, dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, North, willow leaves	23-Jul-21			X	X	1
	D1-B, North, willow twigs	23-Jul-21			X	X	1
	D1-B, North dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, Composite, fescue	23-Jul-21			X	X	1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

DO NOT RINSE THE TISSUE SAMPLES. WE WANT THE ANALYSIS TO INCLUDE THE DUST ON THE LEAVES ETC AS WELL AS INCLUDING THE UPTAKE OF METALS IN THE PLANTS.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a seperate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Bonnie Burns			JR	July 26	1055	1/ °C				

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1: hcoyle@stratagold.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2: bonnie.burns@landwestel.net	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3: jkaye@stratagold.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Eagle Gold	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD: Victoria Gold Corp	
Address:			
Phone:	Fax:	Quote #: Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact: Heather Mackenzie	Sampler: Bonnie Burns

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue	Number of Containers
	D2, Centre, willow leaves	23-Jul-21			X	X	1
	D2, Centre, willow twigs	23-Jul-21			X	X	1
	D2,Centre, equisetum	23-Jul-21			X	X	1
	D2, South, willow leaves	23-Jul-21			X	X	1
	D2, South, willow twigs	23-Jul-21			X	X	1
	D2, South, dwarf birch	23-Jul-21			X	X	1
	D2, West, willow leaves	23-Jul-21			X	X	1
	D2, West, willow twigs	23-Jul-21			X	X	1
	D2, West, equisetum	23-Jul-21			X	X	1
	D2, East, paper birch leaves	23-Jul-21			X	X	1
	D2, East, paper birch twigs	23-Jul-21			X	X	1
	D2, Nroth, willow leaves	23-Jul-21			X	X	1
	D2, North, willow twigs	23-Jul-21			X	X	1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

DO NOT RINSE THE TISSUE SAMPLES. WE WANT THE ANALYSIS TO INCLUDE THE DUST ON THE LEAVES ETC AS WELL AS INCLUDING THE UPTAKE OF METALS IN THE PLANTS.

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Bonnie Burns						°C				

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1: hcoyle@stratagold.com		○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2: kmiskelly@stratagold.com		○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3: jkoch@victoriagold.com		
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Eagle Gold	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:	Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact:	Heather Mackenzie	Sampler: Bonnie Burns

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue	Number of Containers
	D2, North, equisetum	23-Jul-21			X	X	1
	D3, Centre, willow leaves	23-Jul-21			X	X	1
	D3, Centre,willow twigs	23-Jul-21			X	X	1
	D3, Centre, dwarf birch leaves	23-Jul-21			X	X	1
	D3, South, dwarf birch leaves	23-Jul-21			X	X	1
	D3, East, dwarf birch leaves	23-Jul-21			X	X	1
	D3, East, willow leaves	23-Jul-21			X	X	1
	D3, West, willow leaves	23-Jul-21			X	X	1
	D3, West, willow twigs,	23-Jul-21			X	X	1
	D3, West, dwarf birch leaves	23-Jul-21			X	X	1
	D3, North, willow leaves	23-Jul-21			X	X	1
	D3, North dwarf birch leaves	23-Jul-21			X	X	1
	D4-B, Centre, dwarf birch leaves	24-Jul-21			X	X	1

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Bonnie Burns						°C				

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1: hcoyle@strataldcorp.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2: bonnieburns@northwestel.net	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3: Rgoodall@goldcorp.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Eagle Gold	
Company:		PO / AFE:	
Contact:		LSD: Victoria Gold Corp.	
Address:			
Phone:	Fax:	Quote #: Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact: Heather Mackenzie	Sampler: Bonnie Burns

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue	Number of Containers
	D4-B, Centre, labrador tea	24-Jul-21			X	X	1
	D4-B, West, dwarf birch leaves	24-Jul-21			X	X	1
	D4-B, West labrador tea	24-Jul-21			X	X	1
	D4-B, North, willow leaves	24-Jul-21			X	X	1
	D4-B, North, willow twigs	24-Jul-21			X	X	1
	D4-B, North, equisetum	24-Jul-21			X	X	1
	D4-B, South, willow leaves	24-Jul-21			X	X	1
	D4-B, South, willow twigs	24-Jul-21			X	X	1
	D4-B, East, willow leaves	24-Jul-21			X	X	1
	D4-B, East, dwarf birch leaves	24-Jul-21			X	X	1
	D4-B, East, labrador tea	24-Jul-21			X	X	1
	D5, Centre, willow leaves	24-Jul-21			X	X	1
	D5, Centre, equisetum	24-Jul-21			X	X	1

Analysis Request — Please indicate below Filtered, Preserved or both (F, P, F/P)

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Bonnie Burns						°C				

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COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	StrataGold Corporation	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1: hcoyle@stratagold.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2: bonnieburns@northwestel.net	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3: jbo@bytecoldcorp.com	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Eagle Gold	
Company:		PO / AFE:	
Contact:		LSD: Victoria Gold Corp.	
Address:			
Phone:	Fax:	Quote #: Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact: Heather Mackenzie	Sampler: Bonnie Burns

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue										Number of Containers
	D5, East, poplar leaves	24-Jul-21			X	X										1
	D5, East, willow leaves	24-Jul-21			X	X										1
	D5, South, poplar leaves	24-Jul-21			X	X										1
	D5, South, poplar twigs	24-Jul-21			X	X										1
	D5, South, equisetum	24-Jul-21			X	X										1
	D5, West, willow leaves	24-Jul-21			X	X										1
	D5, West, equisetum	24-Jul-21			X	X										1
	D5, Noth, willow leaves	24-Jul-21			X	X										1
	D5, North, equisetum	24-Jul-21			X	X										1
	DUP-1, willow leaves				X	X										1
	DUP-2, dwarf birch leaves				X	X										1
	DUP-3, equisetum															

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Bonnie Burns	July 26/21					°C				

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COC # _____

Environmental Division Whitehorse

Work Order Reference

WR2100889

Telephone : +1 867 668 6689

Report To		Report Format / Distribution		Service Requested (Rush for routine analysis s
Company:	StrataGold Corporation	☑ Standard ☐ Other		◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contac
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@vitgoldcorp.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Conta
	Vancouver, BC V6E 3S7	Email 2:	bonnieburns@northwestel.net	○ Same Day or Weekend Emergency - Contact ALS to C
Phone:	604-696-6600 Fax:	Email 3:	Jknox@vitgoldcorp.com,	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Eagle Gold	Please indicate below Filtered, Preserved or
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:	Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact:	Heather Mackenzie	Sampler: Bonnie Burns

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue	Number of Conta
	D1-B, Centre, Willow leaves	23-Jul-21			X	X	1
	D1-B, Centre, Dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, East, Willow leaves	23-Jul-21			X	X	1
	D1-B, East, Dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, South, willow leaves	23-Jul-21			X	X	1
	D1-B, South, dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, West, willow leaves	23-Jul-21			X	X	1
	D1-B, West, willow twigs	23-Jul-21			X	X	1
	D1-B, West, dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, North, willow leaves	23-Jul-21			X	X	1
	D1-B, North, willow twigs	23-Jul-21			X	X	1
	D1-B, North dwarf birch leaves	23-Jul-21			X	X	1
	D1-B, Composite, fescue	23-Jul-21			X	X	1

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use o		
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:
Bonnie Burns			JL	July 26	1055	11 °C			JUL 27 2021

1 COOLER

GEN

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Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
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Address:	1000 - 1050 West Pender Street	Email 1: hcoyle@vitgoldcorp.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2: bonnieburns@northwestel.net	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3: jknox@vitgoldcorp.com,	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Eagle Gold	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD: Victoria Gold Corp.	
Address:			
Phone:	Fax:	Quote #: Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact: Heather Mackenzie	Sampler: Bonnie Burns

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue										Number of Containers
	D2, Centre, willow leaves	23-Jul-21			X	X										1
	D2, Centre, willow twigs	23-Jul-21			X	X										1
	D2,Centre, equisetum	23-Jul-21			X	X										1
	D2, South, willow leaves	23-Jul-21			X	X										1
	D2, South, willow twigs	23-Jul-21			X	X										1
	D2, South, dwarf birch	23-Jul-21			X	X										1
	D2, West, willow leaves	23-Jul-21			X	X										1
	D2, West, willow twigs	23-Jul-21			X	X										1
	D2, West, equisetum	23-Jul-21			X	X										1
	D2, East, paper birch leaves	23-Jul-21			X	X										1
	D2, East, paper birch twigs	23-Jul-21			X	X										1
	D2, Nroth, willow leaves	23-Jul-21			X	X										1
	D2, North, willow twigs	23-Jul-21			X	X										1

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Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date: JUL 27 2021	Time:	Observations: Yes / No ? If Yes add SIF
Bonnie Burns						°C				

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Contact:	Hugh Coyle	☑ PDF ☑ Excel ☑ Digital ☐ Fax		○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	1000 - 1050 West Pender Street	Email 1:	hcoyle@vitgoldcorp.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Vancouver, BC V6E 3S7	Email 2:	bonnieburns@northwestel.net	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	604-696-6600 Fax:	Email 3:	Jknox@vitgoldcorp.com,	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Eagle Gold	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:	Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact:	Heather Mackenzie	Sampler: Bonnie Burns

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue										Number of Containers
	D2, North, equisetum	23-Jul-21			X	X										1
	D3, Centre, willow leaves	23-Jul-21			X	X										1
	D3, Centre,willow twigs	23-Jul-21			X	X										1
	D3, Centre, dwarf birch leaves	23-Jul-21			X	X										1
	D3, South, dwarf birch leaves	23-Jul-21			X	X										1
	D3, East, dwarf birch leaves	23-Jul-21			X	X										1
	D3, East, willow leaves	23-Jul-21			X	X										1
	D3, West, willow leaves	23-Jul-21			X	X										1
	D3, West, willow twigs,	23-Jul-21			X	X										1
	D3, West, dwarf birch leaves	23-Jul-21			X	X										1
	D3, North, willow leaves	23-Jul-21			X	X										1
	D3, North dwarf birch leaves	23-Jul-21			X	X										1
	D4-B, Centre, dwarf birch leaves	24-Jul-21			X	X										1

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Bonnie Burns						°C		21 2021		

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	Vancouver, BC V6E 3S7	Email 2:	bonnieburns@northwestel.net	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
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Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information		
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #:	Eagle Gold	
Company:		PO / AFE:		
Contact:		LSD:	Victoria Gold Corp.	
Address:				
Phone:	Fax:	Quote #:	Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact:	Heather Mackenzie	Sampler: Bonnie Burns

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue	Number of Containers
	D4-B, Centre, labrador tea	24-Jul-21			X	X	1
	D4-B, West, dwarf birch leaves	24-Jul-21			X	X	1
	D4-B, West labrador tea	24-Jul-21			X	X	1
	D4-B, North, willow leaves	24-Jul-21			X	X	1
	D4-B, North, willow twigs	24-Jul-21			X	X	1
	D4-B, North, equisetum	24-Jul-21			X	X	1
	D4-B, South, willow leaves	24-Jul-21			X	X	1
	D4-B, South, willow twigs	24-Jul-21			X	X	1
	D4-B, East, willow leaves	24-Jul-21			X	X	1
	D4-B, East, dwarf birch leaves	24-Jul-21			X	X	1
	D4-B, East, labrador tea	24-Jul-21			X	X	1
	D5, Centre, willow leaves	24-Jul-21			X	X	1
	D5, Centre, equisetum	24-Jul-21			X	X	1

Analysis Request — Please indicate below Filtered, Preserved or both (F, P, F/P)

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Bonnie Burns						°C		JUL 2 1 2021		

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Phone:	604-696-6600 Fax:	Email 3: Jknox@vitgoldcorp.com,	
Invoice To	Same as Report ? ☑ Yes ☐ No	Client / Project Information	
Hardcopy of Invoice with Report?	☐ Yes ☑ No	Job #: Eagle Gold	
Company:		PO / AFE:	
Contact:		LSD: Victoria Gold Corp.	
Address:			
Phone:	Fax:	Quote #: Dublin Gulch Tissue Samples	
Lab Work Order # (lab use only)		ALS Contact: Heather Mackenzie	Sampler: Bonnie Burns

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Mercury in tissue	Metals in tissue										Number of Containers
	D5, East, poplar leaves	24-Jul-21			X	X										1
	D5, East, willow leaves	24-Jul-21			X	X										1
	D5, South, poplar leaves	24-Jul-21			X	X										1
	D5, South, poplar twigs	24-Jul-21			X	X										1
	D5, South, equisetum	24-Jul-21			X	X										1
	D5, West, willow leaves	24-Jul-21			X	X										1
	D5, West, equisetum	24-Jul-21			X	X										1
	D5, Noth, willow leaves	24-Jul-21			X	X										1
	D5, North, equisetum	24-Jul-21			X	X										1
	DUP-1, willow leaves				X	X										1
	DUP-2, dwarf birch leaves				X	X										1
	DUP-3, equisetum															

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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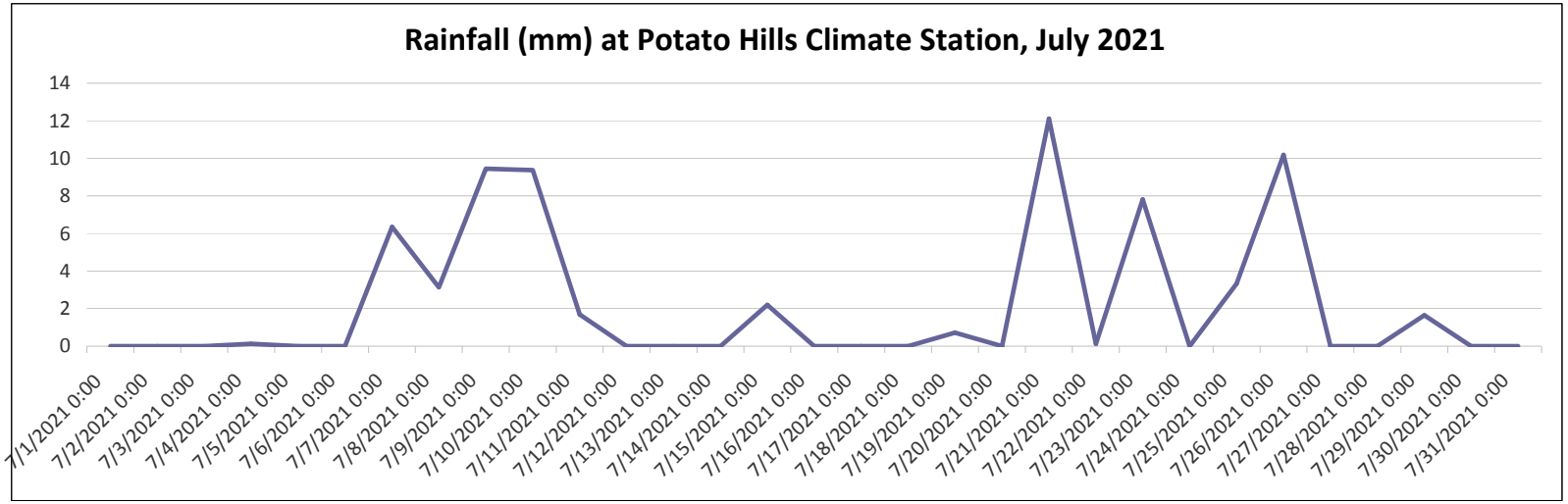
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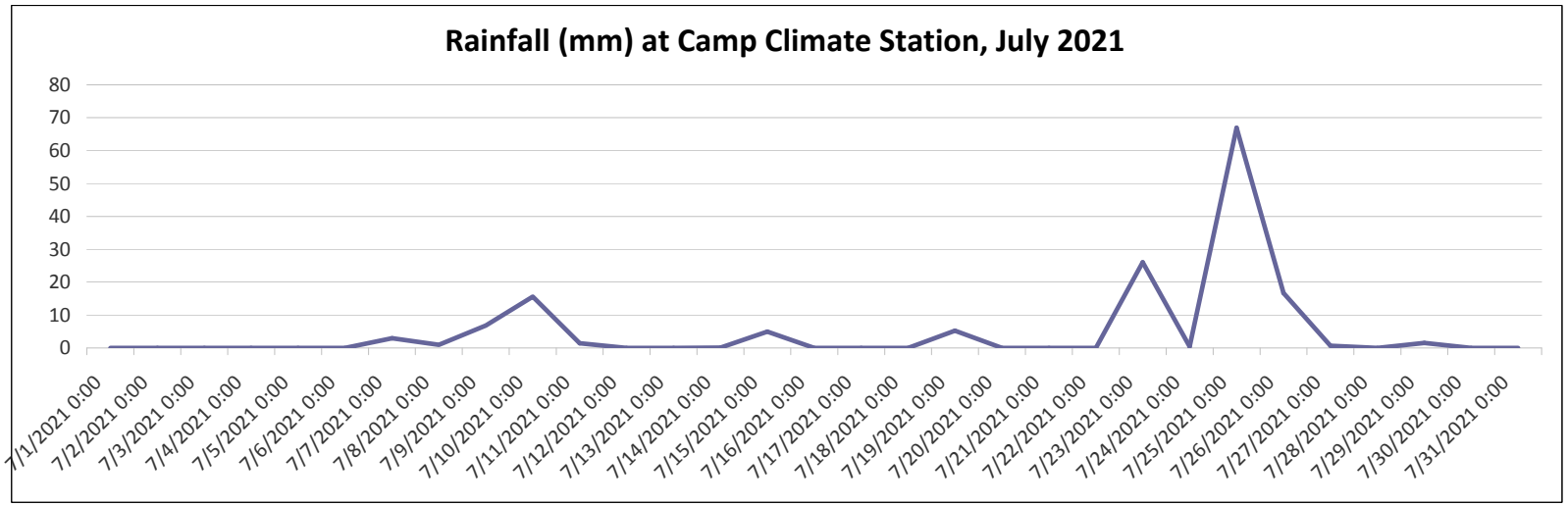
SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Bonnie Burns	July 26/21					°C		JUL 27 2021		

APPENDIX C

RAINFALL DATA, JULY 2021

FIGURE C-1 JULY 2021 RAINFALL, EAGLE GOLD PROJECT CLIMATE STATIONS





APPENDIX N

Year 1 Seeding Trials Technical Memorandum

#4 – 25 Pilgrim Place
Whitehorse, Y.T.
Y1A 0M7
867-668-6838

TECHNICAL MEMO

To: Bill Bowden
Victoria Gold

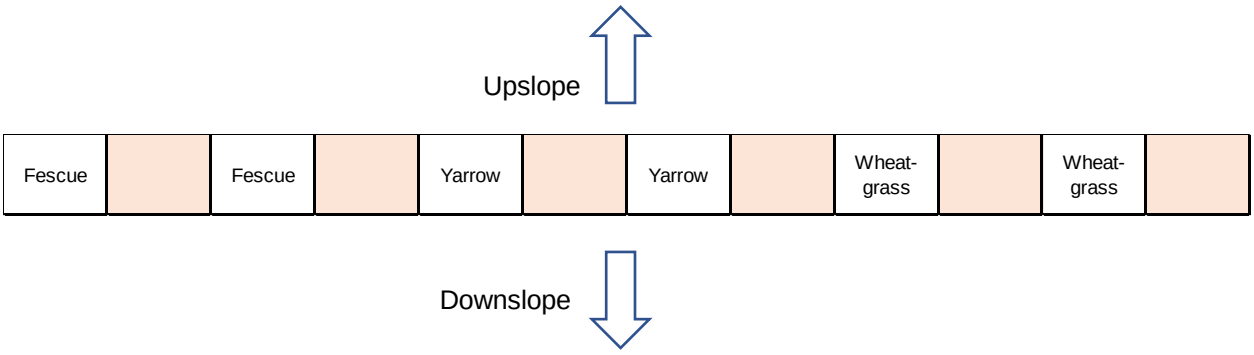
Date: August 18th, 2021

From: Bonnie Burns
Laberge Environmental Services

Re: **YEAR 1:**
SEEDING TRIALS WITH SEEDS SOURCED FROM YUKON SEED AND RESTORATION PLANTED SEPTEMBER 2020

Yukon Seed and Restoration of Mayo Yukon provided Victoria Gold (VG) with three species of locally sourced seeds for trial testing. It is the intent of VG to hopefully purchase local seeds in the future for their reclamation needs.

Three species that have erosion control potential were seeded on trial plots in September 2020. Included were yarrow (*Achillea millefolium*), Altai fescue (*Festuca altaica*) and wheatgrass (*Elymus sp*.). In collaboration with Katie Babin of VG, two sites were chosen that will likely remain undisturbed in the long term, on slopes at the KM 43 laydown area south of the security gate (See Figure 1). The plots were laid out in a linear fashion perpendicular to the slope. Duplicate plots were seeded per species at each site. Each plot was one square meter with a buffer plot between the seeded plots. The layout is depicted below.



The objective was to apply 500 pure live seeds (PLS) per plot. Since the purity or the germination rate of the supplied local seed was unknown, and the seeds were not completely clean (some chaff etc was present) the amount of seed was doubled. Weights of each species of seed were determined and then an appropriate amount weighed to achieve the approximate number of seeds per plot. This worked out to 0.3 g/plot for yarrow, 1.3 g/plot for fescue and 2.0 g/plot for wheatgrass.

Plots were prepared by scarifying to a depth of approximately 15 cm and any existing vegetation and large rocks were removed. Once the plots were prepared the seeds (500 pure live seeds per plots) were scattered evenly throughout the square meter. The seeds were then gently tamped down to ensure good seed/soil contact. A buffer was left between each seeded plot.

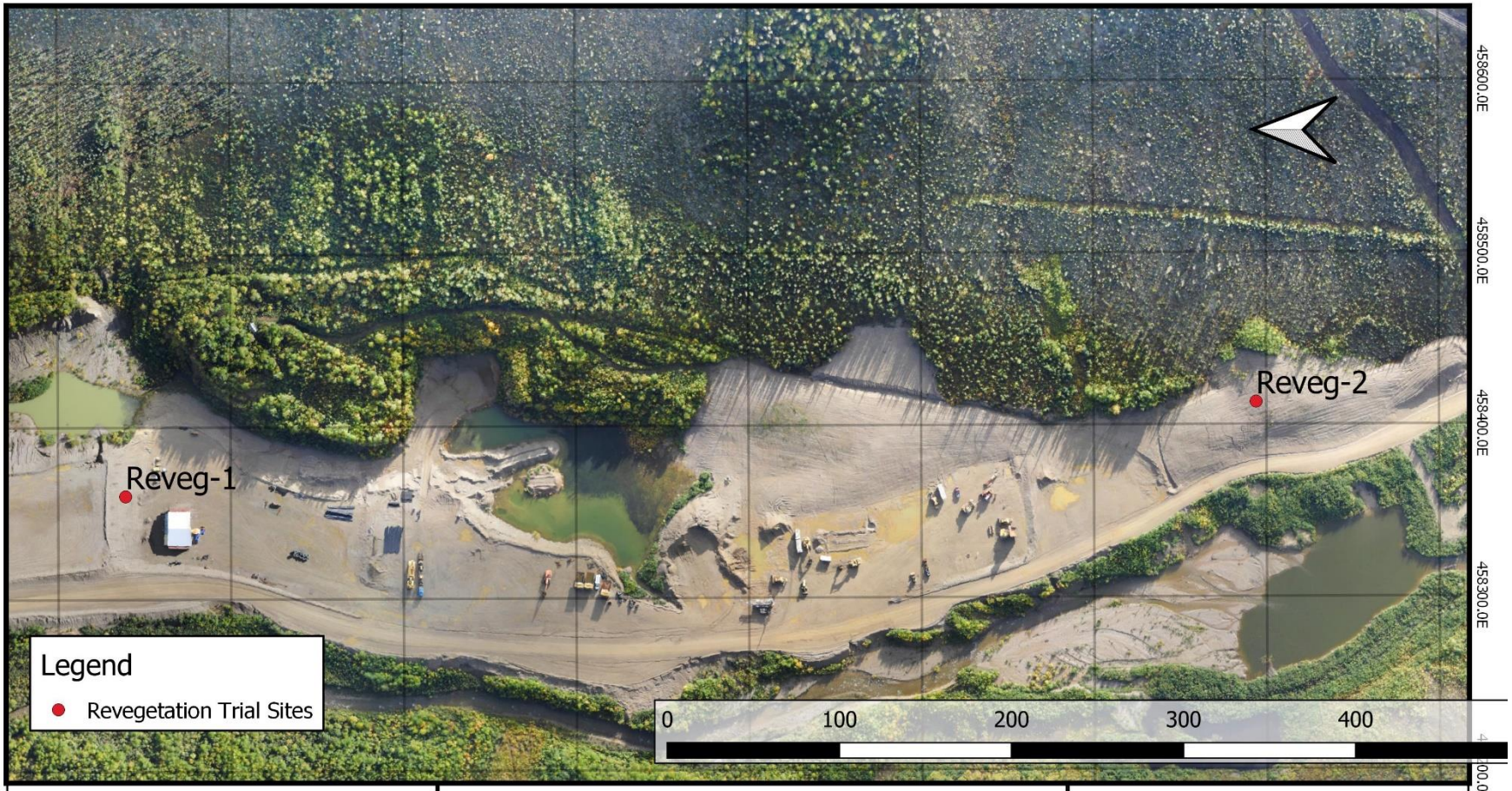


Figure 1: Locations of the Seeding Trial Plots

The plots were assessed for the first time on July 24th, 2021. Observations are detailed below.

Site #1:

The plots were assessed from left to right and details are provided in the table below.

TABLE 1 OBSERVATIONS AT SITE #1		
Plot Type	% Cover	Vegetation Present
First Fescue plot	<1	1 small stressed tuft of grass
Buffer	na	2 volunteer willows
Second Fescue plot	1	1 tuft of grass (Photo 2), 1 volunteer willow
Buffer	na	1 volunteer willow
First Yarrow Plot	<1	No yarrow present, 5 small clumps of grass
Buffer	na	1 volunteer willow
Second Yarrow plot	<1	1 yarrow leaf, 3 small clumps of grass, 1 volunteer willow
Buffer	na	2 volunteer willow
1st wheatgrass plot	2	Grass growing throughout plot
Buffer	na	Foxtail, 2 clumps of grass, 6 volunteer willow
2nd wheatgrass plot	3 - 5	Healthy grass starting to grow throughout plot, 1 willow

Site #2:

The plots were assessed from left to right and details are provided in the Table 2.

TABLE 2 OBSERVATIONS AT SITE #2		
Plot Type	% Cover	Vegetation Present
First Fescue plot	5	1 tuft of grass, 2 willows, some ground cover of *Spergularia rubra**
Buffer	na	5 common dandelion, 7 volunteer willows
Second Fescue plot	1 - 2	1 small tuft of immature grass, 1 hawksbeard, some *Spergularia rubra* (Photo #5)
Buffer	na	7 volunteer willows, *Spergularia rubra*
First Yarrow Plot	5	25 small and healthy plants (non flowering), 4 volunteer willows, 2 tufts of grass, *Spergularia rubra* (Photos 6 & 7)
Buffer	na	1 hawksbeard, 1 dandelion, 1 tuft of grass, 3 volunteer willows
Second Yarrow plot		Several very small yarrow plants, 1 volunteer willow
Buffer	na	4 volunteer willow, 1 hawksbeard, 1 dandelion, significant amount of *Spergularia rubra*
1st wheatgrass plot	3 - 5	Healthy tufts of immature plants
Buffer	na	2 volunteer willows, 3 dandelion, some *Spergularia rubra*
2nd wheatgrass plot	3 - 5	Healthy tufts of immature plants, I volunteer willow (Photo #8)

*this plant was observed in several patches at the Pelly Laydown last year.

Note that the data represents the germination of the plants and since they have not reached maturity precise identification, especially with grasses, is not always evident. It is recommended that if time allows during the fall seeding and bioengineering program, that Krystal Isbister conducts another assessment when some of the grasses may have reached maturity allowing accurate identification.

It should also be noted that the native species tickle grass (Agrostis scabra) has readily colonized parts of the Pelly laydown and this species would be a good candidate for future revegetation programs.

Photographs of each site are presented below.

Site #1



Photo #1: Overview of the site looking upslope.



Photo #2: Tuft of grass, presumably fescue, in second fescue plot.



Photo #3: Looking along the length of Site 1 with the second wheatgrass plot in the foreground.

Site #2:



Photo #4: Looking upslope to Site #2.



Photo #5: Second Fescue plot showing Hawksbeard and grass (presumably fescue).



Photo #6: First yarrow plot, numerous yarrow plants and a few willows.



Photo #7: Close up of some of the yarrow plants in the first yarrow plot.



Photo #8: Grass growth in second wheatgrass plot.



Photo #9: Close up of grasses in second wheatgrass plot, also a volunteer willow.



Photo #10: Looking along the length of Site 2 with the second wheatgrass plot in the foreground.

APPENDIX O

Seeding and Erosion Control Installations Technical Memorandum

Laberge Environmental Services

#4 – 25 Pilgrim Place
Whitehorse, Y.T.
Y1A 0M7
867-668-6838

TECHNICAL MEMO

To: Bill Bowden
Victoria Gold

Date: October 22nd, 2021

From: Bonnie Burns
Laberge Environmental Services

Re: **SEEDING AND EROSION CONTROL INSTALLATIONS AT SPECIFIC SITES, EAGLE GOLD PROJECT, 2021**

Krystal Isbister and David Krug conducted the fall seeding program and installed the bioengineering structures near Haggart Creek from September 22nd to 27th, 2021. On-site staff who participated in the seeding programs as their other duties allowed, included Sommer Moses, Fiona Lazzarotto, Bill Bowden and Cascia Krolczyk. Photographs of the activities are provided in Appendix A.

A custom reclamation seed mix was ordered, and the composition of pure live seed (PLS) is presented in Table 1. Due to their small size, alpine bluegrass, Rocky Mountain fescue and tufted hairgrass seeds were shipped premixed in bags. Slender wheatgrass seeds were shipped in individual bags and applied separately due to their much larger size.

TABLE 1 SEED MIX FOR EROSION CONTROL AT EAGLE GOLD PROJECT

Common Name	Scientific Name	Percent Composition (PLS)
Alpine bluegrass	*Poa alpinus*	11
Rocky Mountain fescue	*Festuca saximontana*	9
Tufted hairgrass	*Deschampsia caespitosa*	70
Slender wheatgrass	*Elymus trachycaulus*	10

Fall Seeding Program

After site orientation and job hazard analysis, the crew was escorted around the site and priority areas were identified. Eleven areas plus along Ditch A were hand seeded for the fall program (Table 2 and Figure 1).

TABLE 2 DESCRIPTIONS OF SITES SEEDED, SEPT 23rd to 25th, 2021

Site #	Location	Area (ha)	Crew	Rate (kg/ha)	Notes
1	LDSP Northeast	0.3	DK, KI, SM, FL	20.1	Seeded where limited or no sign of 2019 seeding; gravelly soil looked like it had been scraped vertically with an excavator - not sure it was helpful as created little rills, 1 m area of bank sloughed and started spewing water during seeding
2	LDSP Southeast	0.4	DK, KI	20.1	2019 seeding had been smothered by sediment, so seeded again along the slope; unlikely to be successfully until erosion higher up stabilized
3	LDSP West	0.3	DK, KI, FL,	12.1	Compact fill, not prepped, signs of

TABLE 2 DESCRIPTIONS OF SITES SEEDED, SEPT 23rd to 25th, 2021					
Site #	**Location**	**Area (ha)**	**Crew**	**Rate (kg/ha)**	**Notes**
			SM		previous seeding in 2019 but snow makes it tricky to tell how well established it is, mostly wheatgrass I think, very smooth surface
4	Overburden Stockpile south of LDSP	0.5	DK, KI, SM, FL	20.1	Relatively loose, but graded and ripped, an adjacent eroding slope looked previously seeded and actively eroding so we avoided it.
5	Overburden Stockpile across from quonsets	0.7	DK, KI	12.1	Loosely dumped soil with lots of topography, somewhat mounded, natural regeneration with willow, tickle grass, polar grass, did the top and gently graded sides, did not go down steep slope face
6	Dublin culvert west side	0.1	DK, KI	20.1	Seeded along banks of Dublin, upper slopes very steep with large and medium size rock emerging, did not seed very steep areas (unlikely to succeed and dangerous to access).
7	Dublin culvert east side	0.1	DK, KI	20.1	Rocky material with very steep slopes, seeded at high rate along the banks of Dublin and some areas where the slope was less steep; places where riparian woody species have been smothered should be re-established
8	Overburden stockpile by Dublin Creek	0.5	DK, KI, FL, SM	20.1	Very loose, silty with organics (MUD), did not go down steep slope towards Dublin, too wet with signs of instability,
	Ditch A	?	SM, FL	20.1	Seeded from LDSP to Truck Shop
9	Ditch B	0.6	SM, FL, KI	20.1	Seeded from LDSP to Conveyor; stony with no prep, fairly smooth, seeded both sides if not liner not interfering,
10	Road on N bank of Dublin Creek	1.2	DK, KI, FL, SM	20.1	Seeded cutbank and ditch on both sides of the road and both sides of the culvert at the east end
11	Road on S bank of Dublin Creek	1.2	DK, FL, KI	20.1	Seeded ditch and prepped overburden along south bank of Dublin Creek; banks were mostly stony and somewhat smooth; large prepped section was muddy and soft, silty with some organics, some volunteer shrubs and one spruce



Notes:
- Details of seeded areas can be found in corresponding table
- Ditch A from LDSP to truck shop also seeded, but not shown

Seeding Areas Sept. 2021

Prepared by: Krystal Isbister

Coordinate System: UTM Zone 8N

Imagery: 2020-09-02 Site Flight Ortho Photo 30cm

Mapping Software: QGIS 3.2.2

Date: October 18, 2021

Bioengineering Program

Once on site, the crew was requested to evaluate options for treatment of a landslide/slump near Haggart Creek to be designed and implemented during the visit. After examining the site (which was somewhat difficult to do as it was covered in several inches of snow) a combination prescription of seeding and bioengineering was devised.

Willows were harvested from the donor area near W29. Note that this area should now be left to recover for a few years and the other previously identified donor sites should be used in future years. Additional willows and balsam poplar were collected near Eagle Creek.

A fascine was installed along Haggart Creek (64°02'37.2" N, 135°51'05.8"W). A 30 m trench was hand dug in the partially frozen ground approximately one meter back from the creek bank. Bundles of 2.5 cm diameter willow stakes, with branches attached to assist in trapping sediment, were placed into the trench. Five-centimetre diameter anchor posts were pounded into the trench beside the fascine every two meters and one inch diameter posts were installed every 0.5 m. In addition, miscellaneous smaller diameter stakes were added randomly to increase stability. The trench was backfilled with frozen soil which should melt and fill in the gaps. The intent is to leave the upper part (20%) of the fascine exposed.

Additional stakes were added upstream of the fascine where natural hollows would facilitate sediment collection. Four small living silt fences were installed within a channel that had formed in the sediment. Stakes with woody debris woven between them and packed with straw were constructed throughout a section. Photos of the above installations are presented in Appendix A.

The majority of the willow stakes were little tree willow (*Salix arbusculoides*) with some Alaska willow (*S. alaxensis*) and balsam poplar (*Populus balsamifera*).

To increase stability over time, the area was also seeded at a rate of 20 kg/ha with the small seed mix using the following composition:

- Alpine bluegrass, 9% PLS
- Tufted hairgrass, 87% PLS
- Rocky Mountain fescue, 4% PLS

Additionally, seeds from bluejoint reedgrass (*Calamagrostis canadensis*), Siberian yarrow (*Achillea sibirica*), common yarrow (*Achillea millefolium*), bear root (*Hedysaurm alpinum*), spike trisetum (*Trisetum spicatum*) bluegrass (*Poa sp.*), green alder (*Alnus viridis* subsp. *crispa*) and grey willow (*Salix glauca*) were hand collected and spread over a two metre wide area closest to the creek.

Recommendations for 2022

- Any areas requiring seeding should be prepped beforehand. This includes decompaction by roughening and loosening the surface, and if possible the application of a layer of topsoil from one of the stockpiles. The success of the growth of grass on the heap leach embankment, which was seeded in 2019, is mainly due to the fact that topsoil was applied to the slope prior to seeding. To date, this is the only site where this has been done.

- If topsoil is unavailable, soil nutrients can also be improved by planting nitrogen fixing species such as green alder, soapberries (*Shepherdia canadensis*), yellow mountain avens (*Dryas drummondii*), bear root, locoweeds (*Oxytropis* spp.) and arctic lupine (*Lupinus arcticus*) and/or scattering woody debris.

- Two seed mixes should be on hand for seeding next year; one mix specifically for the drier areas and also a wet site mix (i.e. for use near creek and pond areas).

- Several places along Dublin where the alders, willows and poplar had been smothered with fill from the roadway should be re-established. Intact riparian areas are highly important as they provide bank stability and erosion control.

- Set up permanent monitoring plots within the seeded areas to assess the success of the seeding programs and adjust treatments accordingly. Conduct annual assessments in mid summer (mid July to early August). This will also assist in the identification of any areas missed or newly eroded which should then be included in the fall seeding program.

- Inspect the bioengineered structures and upgrade or repair as necessary in the fall.

- Only use the annual rye grass from late July onwards to ensure that they do not produce seed and thus they remain an annual grass.

APPENDIX A

PHOTOGRAPHS, SEPTEMBER 2021



Photo #1: Willows prepped and ready at the Haggart Creek site.



Photo #2: Bundles and stakes laid out ready for tying into a bundle.



Photo #3: View of the site from the other side of Haggart Creek.



Photo #4: The fascine is in place and backfilling has commenced.



Photo #5: Looking upstream at the fascines in place, note the stakes.



Photo #6: Constructed live silt fences in the small active channel.

APPENDIX P

Alder Planting July 2021 Technical Memorandum

Laberge Environmental Services

#4 – 25 Pilgrim Place
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867-668-6838

TECHNICAL MEMO

To: Bill Bowden
Victoria Gold

Date: July 14th, 2021

From: Bonnie Burns
Laberge Environmental Services

Re: **ALDER PLANTING, JULY 2021**

Since Victoria Gold is a sponsor of the PhD project currently being undertaken by post graduate student, Krystal Isbister, 1000 alder seedlings that were not needed for her project, were supplied for erosion control at the Eagle Gold Property. The frozen seedlings were kept cool under a silvicool tarp for transportation to Eagle Gold and then allowed to gradually thaw prior to planting. Although the Yukon experienced an unprecedented long spell of hot temperatures (25°C to 30°C) during the period before and during planting, no alders were lost due to rot or mold and all plants were very cool prior to planting.

Potential sites were ground truthed on June 30th, 2021, and two main areas were selected. The majority of alders were planted at three areas of Ditch A with the majority of these at the lower portion of the 90 day pipe area (Figure 1), and at the Stewart Gulch and Dublin Creek culverts on the ROM road (Figure 2) on July 1st and 2nd. Descriptions are provided in Table 1.

TABLE 1 LOCATIONS OF ALDER PLANTED SITES

Area	Description	No. of Alders planted
1	Base of 90 day pipe and along road	729
2	Ditch A in runoff area before corner	60
3	Top of Ditch A below waste rock dump	91, volunteer alder growing here
4	Stewart Gulch	40 upstream, 50 downstream
5	Dublin Gulch	30 total

The upper dry portion of Area 1 was planted sporadically with well spaced alders. As progression was made toward the road and into the wetter areas, the trees were generally planted one/m^2. The increased density should absorb more of the moisture and slow down erosion. The other areas were generally planted at the 1/m^2 density.

At most sites the substrate was loose enough that planting using tree planting shovels was not an issue. The trees were carefully placed within the prepared holes, back filled to the root flare and tamped down to ensure there were no air pockets.

Note that due to further construction of the culvert installation at Dublin Creek, the alders planted upstream on July 2nd were destroyed (pers. Comm. Ken Nordin, July 5th, 2021). Also some alders may have been destroyed when power poles along the base of the 90 day pipe were proposed to be straightened and stablilized over the next few days. This was brought to the crews attention by an onsite maintenance team during the planting. However, we had already planted alders in the potentially affected area.



Figure 1: Areas planted with alders near Ditch A.

(Section of original Figure 202020909 2020 Revegetation Planning. The hatched yellow lines indicate future seeding areas.)

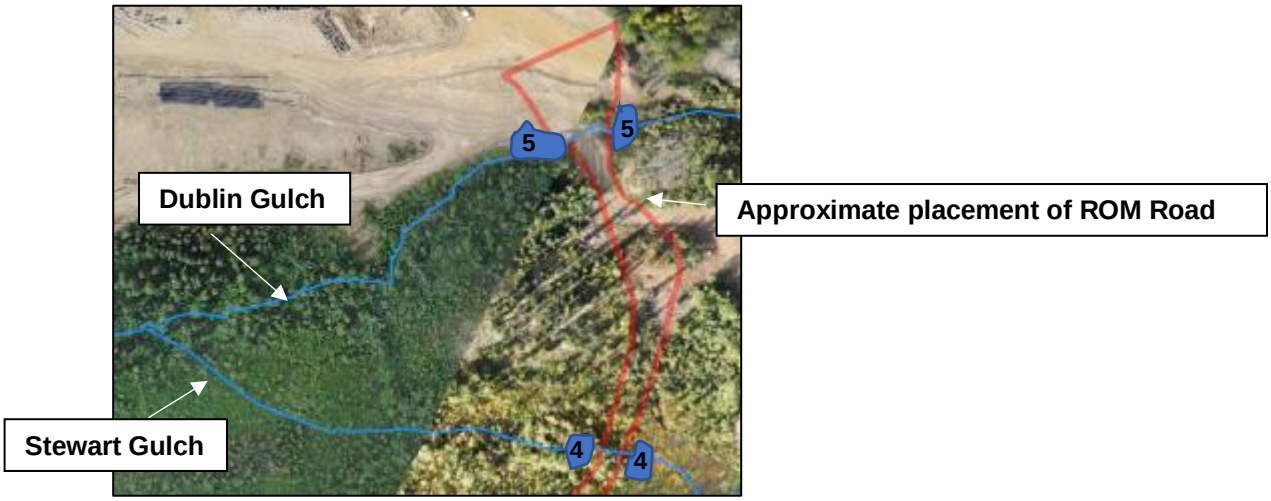


Figure 2: Areas 4 and 5.

PHOTOGRAPHS



Area 1: Looking from near where the beginning of the alders were planted.



Area 1: Alders have been planted in the wet and flowing water section of the lower portion.



Area 1: Alders were planted both above and below the silt fencing.



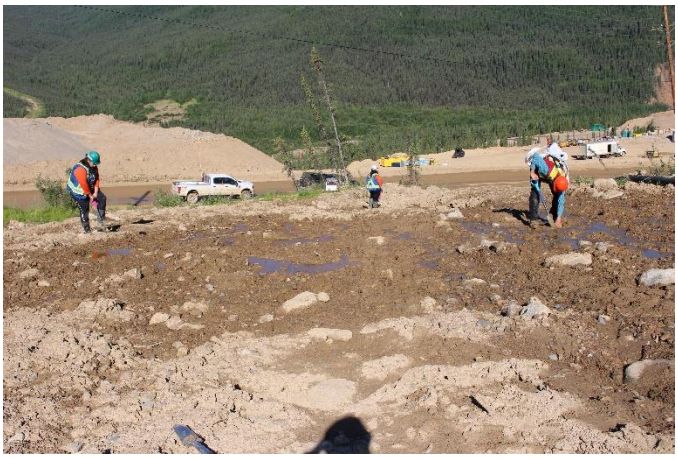
Area 1: Eroded area towards base of area.



Area 1: Planting alders.



Area 1: Gullied section near base of area.



Area 1: Planting alders.



Area 1: Planting alders in the gully.



Area 2.



Area 1: Planting alders downslope from the silt fencing.



Area 3.



Area 2.



Area 3: Natural regeneration of alders, grasses and forbs.



Planted alder.



Planted alder seedling starting to leaf out.



Bundles of alder seedlings ready to be planted.

Note that no pictures of alders at Areas 4 and 5 are included. The environment staff, Helaina and Sommer, planted these areas and photos were not obtained from them in time for this memo.

Many thanks to the following tree planters:

David Krug	Laberge Environmental Services
Helaina Moses	Victoria Gold
Sommer Mervin	Victoria Gold
Jen Roberston	Victoria Gold
Cascia Krolczyk	Victoria Gold

APPENDIX Q

2021 Annual Inspection of Eagle Gold HLF

VICTORIA GOLD CORP

Project No. 109005
2021 Annual Inspection of Eagle Gold HLF
Document No. 109005-51100-HSE-RP-0001



Prepared by:

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Revision	Date	Status	Prepared By	Checked By	Approved By
REV 0	25 MAR 2022	Issued for Use	J. Burke	W. Reinhardt C. Green R. Morlan	B. Carlson

Statement of Report

The report enclosed entitled “2021 EOR Annual Inspection Report” has been prepared for the exclusive use of Victoria Gold Corp. (VGC). No third party shall be entitled to use of this report without written consent of VGC and Forte Dynamics, Inc (Forte). The use of any and all information contained herein shall be at the sole risk of the user regardless of any fault or negligence of VGC or Forte.

This report has been prepared under the direct supervision of Barry Carlson, P. Eng. of Forte, with the assistance of Clint Green, P.E., Roy Morlan P.G., and Will Reinhardt, P.E. of Forte. The 2021 annual inspection was completed by Mr. Clint Green, P.E. of Forte Dynamics in August, 2021. The annual inspection was conducted in accordance with the Eagle Gold Project Heap Leach Facility Operations, Maintenance and Surveillance Manual and the findings presented in this report are accurate to the best of our knowledge.



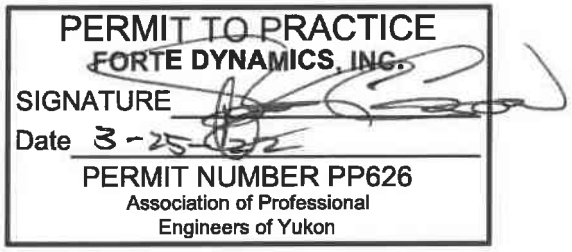


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1. Introduction

1.1 General

Forte Dynamics Inc. (Forte) was retained by Victoria Gold Corp. (VGC) to carry out an annual geotechnical inspection of the Heap Leach Facility (HLF) at the Eagle Gold Mine located in Yukon Territory, Canada. The general site layout of the HLF is shown in Appendix A.

The 2021 inspection of the HLF was conducted in August, 2021. The inspection took place on site and was in general conformance with the monitoring plan outlined in the Operations, Maintenance, and Surveillance (OMS) Manual [Ref 2]. The scope of this annual dam inspection work was limited to:

- Visual inspection of the HLF and dam by the EoR, including taking appropriate Photographs of the observed conditions;
- Review of routine inspection records prepared by operating personnel in the past year;
- Review whether or not recommendations from previous year's inspection had been addressed, and any incidents or actions arising from those previous recommendations;
- Review of instrumentation and monitoring data;
- Review of the previous year's operations including reports of any incidents (and remedial measures) that may have occurred;
- Evaluation of the structural performance of the embankment and related components and identify any potential safety deficiencies or recommended items that need to be addressed in the coming year;
- Review of construction records, quality assurance and quality control (QA/QC) data and as-built information on facility construction; and
- Evaluation of the OMS Manual to assess the need for updating.

During the site reconnaissance, check list type inspection forms were completed, documenting the visible condition of each of the above noted structures at the time of the site visit. The inspection forms are included in Appendix B. In addition, several photographs were taken of each of the above-mentioned structures, a selection of which are presented in Appendix C. The approximate location of the photos taken are shown in Appendix A. The inspection record includes recommendations for follow-up actions, where required.

1.2 Background

The Eagle Gold Mine is an open pit gold mine and heap leach operation. The Eagle Gold Heap Leach Facility (HLF) consists of an embankment that lies across the Ann Gulch valley about 200m upstream of the confluence with Dublin Gulch. The ore is stacked behind an embankment within Ann Gulch. The embankment provides confinement of the ore and creates an In-Heap Pond for temporary storage of pregnant solution, which is pumped to the recovery plant.

The major design components for the HLF include the following: the embankment; a composite liner system; the In-Heap Pond; solution recovery wells; associated piping network for solution collection and distribution; a leak detection and recovery system (LDRS); and a downstream Event Pond to contain excess solution that could result from extreme precipitation or emergency events. An overflow spillway connects the HLF In-Heap Pond to the Event Pond and an emergency spillway allows overflow from the Event Pond to environment. Appendix A presents aerial photographs of the site provided by VGC and taken August 30, 2021.

The Eagle Gold Mine HLF will occupy an area of 106 ha and contain approximately 86 MT of crushed ore at the end of the facility life. The HLF is being developed in phases: construction of Phase 1A was completed during initial construction (pre-mining) in September 2019 with initial operations starting in July 2019. Phase 1B HLF was completed in September 2020 extending the liner from the 990m elevation to the Phase 1 interceptor ditch at approximate elevation 1050m. Surface preparation of Phase 2 began in Summer of 2021 and construction is anticipated to be completed in H2 2022.

The HLF pad consists of two liner systems, the up-gradient liner system and the In-Heap Pond liner system. The single composite liner system in the upper portion of the pad (above the In-Heap solution storage area) is comprised of a double-side textured 80 mil linear low-density, polyethylene (LLDPE) liner over a geosynthetic clay liner (GCL) system. The double composite liner system in the lower portion of the pad (forming the In-Heap solution storage area) is comprised of two discrete layers of LLDPE liner, separated by a layer of geonet material to form the LDRS, over GCL.

The In-Heap Pond (essentially a saturated zone within the lower extent of the HLF ore pile) at the spillway invert elevation of 937.5 m) contains up to 117,141 m3 of solution within the pore spaces of the stacked ore. Typical In-Heap Pond operational volume will be about 57,763 m3. Storage of PLS in the In-Heap Pond is a cold-weather mitigation and has the added benefit that PLS will not be exposed during normal operations.

Process (barren) solution containing cyanide is applied to the ore via a drip irrigation system (buried during winter). The resultant PLS is captured in the solution collection system and flow to the In-Heap Pond. The PLS is recovered via a well system using pumps and standpipes. The PLS is transferred to the ADR plant for gold recovery.

The heap leach pad is constructed with a network of pipes that is distributed throughout the limits of the facility at the base of the ore pile. This pipe network collects and conveys PLS and any infiltrated stormwater to the In-Heap Pond area where it is pumped to the process plant via the solution collection wells. The pipe network was designed to accommodate stormwater volume from a 100-year, 24-hour storm event in addition to 150 percent of the design capacity of the anticipated PLS solution flow (150 percent PLS flow + 100-year, 24-hour storm event).

The downstream Events Pond serves as an overflow containment area that provides additional solution storage in case the In-Heap Pond capacity is exceeded. The Events Pond is sized to provide containment storage for the

Probable Maximum Flood (PMF) Event which is assumed to contribute entirely over the ultimate HLF pad footprint. As designed, the Events Pond has an operational storage capacity of approximately 299,900 m3 to the spillway invert at elevation 894.5m. Additional capacity, above what is necessary to contain the full PMF, allows for seasonal accumulation of fluid and/or additional draindown volume equivalent to 28-47 hours of operational flow (BGC 2018). As a condition of the Water Use License, QZ14-041-1, a Desired Available Storage (DAS) shall be maintained within the Event Pond and the unoccupied pore spaces in the in-heap pond. The DAS is defined as the minimum volume of Available Storage required to capture the full volume of a 1 in 100 year, 24-hour rainfall volume on the plan area of the HLF, exclusive of the Adsorption, Desorption and Recovery Plant watershed area diverted by the Adsorption, Desorption and Recovery Plant pad ditch, plus 72 hours of draindown at a rate of 2,070 cubic meters per hour, plus the volume of the Event Pond between the elevation of the Event Pond spillway invert and 0.5 m below the elevation of the Event Pond spillway invert for the HLF.

Inspection and monitoring systems are included in the HLF to assess the ongoing performance of the facility. The In-Heap Pond fluid levels are monitored using a network of vibrating wire piezometers. The Events Pond fluid levels are monitored visually with level gauges or survey.

Liner Integrity is monitored by regular inspection flows into the LDRS monitoring sumps for both the In-Heap Pond and the Events Pond. The HLF design includes an underdrain system for the collection and drainage of subsurface water beneath the lined facility to limit upward pressure on the HLF liner. The underdrain system conveys subsurface flows to a monitoring vault. Flows reporting to the monitoring vault can either be released to the environment or pumped back to the facility for make-up water.

The HLF confining embankment has been classified as a high hazard dam. A full description of the HLF design criteria and the currently defined monitoring approach is presented in the Operation, Surveillance and Maintenance (OMS) manual (VGC 2020). Embankment integrity is to be monitored using a network of survey monuments (to be installed) and inclinometers. Dam safety inspections are required annually by the EoR and more comprehensive dam safety review is required by a qualified third-party every five years.

The parameters and criteria presented in Table 1-1 below form the basis of design for the HLF taken from the OMS Manual (VGC 2020).

Table 1-1 Engineering Design Criteria

General	Quantity/Criteria
Heap ore capacity	45,847,770 m^3
Ore processing	Estimated 10.8 Mt/a of crushed ore over p.a. Three-stage crushing - primary crushing 365 days, secondary/tertiary 275 days per year.
Leach pad type	Permanent, multiple lift
Stacking Rate	Approximately 40,000-45,000 tpd
Stacking method	Conveyor-stacker or alternate
Stacked dry density of ore	Initial 1.72 t/m^3 (Varies)
Stack/lift height	Nominal 10-12 m lifts
Overall slope angle of stacked ore	2.5:1 (H:V), 22 degrees
Ore Setback	5 m from perimeter road 10 m from dam
Leach schedule	365 days per year
Solution application method	Drip emitters (buried during cold weather)
Solution application rate	10 $L/hr/m^2$ (7 L/hr/m2 nominal operations application rate)
Leach cycle time	90-day primary leach (45-day primary leach planned for operations)
Solution application flow	1,500 m3/hour nominal operations rate, additional capacity available for additional dynamic storage purposes
Geotechnical Stability	**Quantity/Criteria**
Design Basis Earthquake (DBE)	PGA = 0.25g (1 in 2475-year return period; applies to the operation condition of the HLF only; does not apply to the confining embankment
Maximum Design Earthquake (MDE)	PGA = 0.35g (corresponds to the Maximum Credible Earthquake or MCE event); applies to the confining embankment and long-term stability of the post-closure heap pile
Minimum Embankment and Ore Pile Factor of Safety	Static Loading - 1.5 (impounding),1.3 (non-impounding), Seismic Loading - 1.0 (pseudo-static methods) Post-Earthquake – 1.2
Permafrost	Ice-rich materials encountered in the embankment foundation will be removed; ice-rich material in the pad or pond, if thaw unstable, will be removed.

Confining Embankment	Quantity/Criteria
General	To provide stable confinement of the ore and create an In-Heap Pond
Overflow spillway	Sized to pass the PMF peak flow with 0.5 m of freeboard assuming heap storage is at capacity at the start of the event.
Groundwater	**Quantity/Criteria**
General	A drainage system is required beneath the liner system to control groundwater pressures. The system is to collect and monitor groundwater in a controlled manner before discharge downslope of the containment embankment if discharge criteria from permit requirements are met.
Pad Liner System	**Quantity/Criteria**
Overliner Drain Fill (ODF)	Crushed clean rock to provide a free draining layer under the placed ore and to protect the lining system from damage by ore placement while not impacting the conveyance of solution to the recovery wells. ODF will consist of a minimum 1.0-meter thickness (within the In-Heap Pond, minimum of 0.6 m otherwise). Hydraulic conductivity and collection pipe spacing adequate to keep phreatic surface to 0.6 m.
Geosynthetic (geomembrane) liner	Suitable liner material to provide required puncture resistance, elastic strain range and resistance to solution attack and chemical breakdown along with cold weather performance for the Project's climate conditions (refer to LLDPE project standard specifications).
Geosynthetic Clay Liner (GCL)	Geosynthetic clay liner below the geosynthetic liner to provide a composite liner to minimize leakage. Objective maximum permeability 1×10^{-5} cm/s or 1×10^{-6} cm/s in the absence of a leachate detection and removal system.
Leachate collection and recovery system	A system to collect leachate and convey it to solution recovery wells. System to comprise ODF and a network of collection pipes to convey solution to the In-Heap Pond area while limiting solution head on liner.
Leak detection and recovery system (LDRS)	A system within the In-Heap Pond and Events Pond to collect leakage through the composite liner and convey it to monitoring points. The system to comprise geonet or similar synthetic drainage product to collect and convey any leaked solution to a gravel filled sump and pumping system.
LDRS monitoring	Monitoring of the flow into the LDRS to ensure that allowable rates (determined by permitting authorities) are not exceeded.
Solution Recovery Wells	**Quantity/Criteria**
General	Solution is to be recovered from the heap through inclined well casings equipped with submersible pumps installed in the In-Heap Pond solution storage area along the upstream dam slope. Adequate access for installing and recovering pumps from well casings will be provided on the dam crest.

Events Pond	Quantity/Criteria
General	The purpose of the Events Pond (constructed downstream of the embankment) is to temporarily store excess inflows that cannot be stored in the In-Heap Pond. Any overflow into the events pond will be evacuated, and used as make-up water, as fresh ore is added to the HLF. During the initial heap operation, the Events Pond may also be used as temporary storage for make-up water. Otherwise, the Events Pond will be kept dry.
Overflow spillway	Sized for routed PMF peak flow with 0.5 m of freeboard.
Storage Capacity	Sized to contain the runoff volume from the PMF event assuming the In-Heap Pond is full.
Liner system	Lining to comprise a double composite geosynthetic liner system with LDRS

2. 2021 Annual Inspection

2.1 Construction Follow Up Items

2.1.1 Phase 1A HLF

As part of the 2021 annual inspection, the construction follow up items listed in the 2020 annual inspection were examined by Forte Dynamics and reviewed with VGC personnel on site. The remaining PLS pipework and ODF placement in Phase 1A has now been completed. In March 2022, Forte Dynamics produced a ROC report for the remaining PLS pipework and ODF (generally above the 938m elevation) (Forte 2022) that was not included in BGC's report dated September 2019 (BGC 2019a).

2.1.2 Phase 1B HLF

Phase 1B HLF construction was managed by JDS Energy and Mining (JDS) with the work completed by various contractors and sub-contractors. Tetra Tech performed on-site QA during construction of Phase 1B of the HLF. These services were performed between February 2020 and September 2020. Off-site engineering support was performed by Forte Dynamics throughout this period. All documentation related to this work was captured in a ROC report produced by Forte Dynamics in March 2021 (Forte 2021b). Similar to Phase 1A, the PLS pipework and ODF was advanced ahead of the ore pile and VGC accepted the responsibility of construction oversight and quality assurance (QA). No additional construction follow-up items were identified at the time of inspection. The ROC report produced by Forte in March 2022 included the PLS pipework and ODF in Phase 1B up to approximately the 1030m elevation (Forte 2022). Upon completion of the remaining PLS pipework and ODF placement in Phase 1B an additional ROC report will be submitted by Forte Dynamics.

2.2 Site Reconnaissance

The 2021 annual inspection was completed by Mr. Clint Green, P.E. of Forte Dynamics in mid-August, 2021.

2.2.1 Heap Leach Facility

The HLF site inspection included walking along the embankment crest, downhill toe, and portions of the pad area, as well as observing the respective abutments, spillway, runoff interceptor ditch and outlets of the underdrain pipelines.

The downhill slope of the embankment was smooth and the layer of growth planted in 2019 had sparse mature growth (Photo # 2021_ 24). The top liner in Phase 1B was almost entirely covered with ODF (Photo # 2021_ 4) and loading and leaching of ore had continued on the 1017m elevation (Photo # 2021_ 10). A surficial slope sluff of ore had occurred upstream of the HLP crest prior to arrival on site. At that time, excavators were working to reassemble the lift at the location of the sluff. A crushed ore transport system consisting of mobile "grasshopper" conveyors and a radial stacker was utilized for the stacking operations. Operation of the conveyers have caused significant encroachment on the HLP setback and liner extents, which could result in a potential loss of containment. This was specifically an issue at CV-23, (Photo # 2021_50). Cleaner boundaries and permanent drainages will need to be incorporated for an appropriate remediation. The Phase 2 area was still in the process of foundation preparation. Dozers and articulating trucks were being used for the excavation of unsuitable foundation material (Photo # 2021_ 5 and 2021_ 6). It was noted that liner damage had occurred near the western perimeter berm from embankment to ¼ way up Phase 1A, (Photo # 2021_49). This should be repaired and documented prior to any addition ODF placement in that area.

At the time of the visual inspection, water was not being discharged to the environment from the HLF underdrain flows but was being pumped back into the process circuit (Photo # 2021_30). The underdrain monitoring vault pump was observed turning on and off in frequent intervals that could create operability issues since the pump is not designed to be operated in such a manner. This is discussed further in Section 2.3.3. Gullies along the crest of the underdrain containment area that appeared to be caused by rainfall runoff were also observed (Photo # 2021_ 17, 2021_ 19 and 2021_20). The gullies were noted in last year's inspection but appeared to have worsened since then, and therefore Forte maintains the recommendation that VGC place additional coarse fill on the dam toe to limit ponding and construct a small riprap lined ditch along the crest of the underdrain containment area to direct surface water flows to the west edge of the monitoring vault area (Appendix D).

The PLS pipeline was observed along the HLF dam crest in the same location as noted in last year's inspection (Photo # 2021_ 57). From discussions with VGC personnel, the plan is to place a large HDPE half-pipe shell around the PLS pipeline to provide containment in the event of a PLS pipeline leak. The barren pipeline was observed along the eastern and western edges of the HLF inside containment (Photo # 2021_ 56). Crossings for trucks and other light equipment were observed in the PLS pipeline channel, creating restricted water pathways. These crossings should be removed or, at a minimum, culverts or drainage pathways need to be installed to provide adequate flow.

It is understood that three spills were reported by VGC since our previous inspection. In March 2021, a spill occurred on the southeast perimeter of the HLF and embankment road (VGC 2021a). Remedial measures were performed by VGC personnel at site to excavate all potential contaminated material including surficial road material, ice and snow. The rapid response and cold temperatures are believed to have prevented seepage of contaminants downstream. In June of 2021, it was reported that there was spill of solution out the southeast bay door of the ADR facility due to a clogged filter (VGC 2021b). Response to the spill began immediately and involved the excavation of the contaminated soil on the ADR/HLF access road the next morning. It is also understood that in July 2021, a spill occurred on the west perimeter of the HLF Barren Distribution Line (VGC 2021c). The spill occurred at a capped-line flange, and guards have since been installed to mitigate a reoccurrence of this event.

In the 2019 year's inspection, moderate cracking was observed on the HLF spillway access road. The cracks were up to 2 cm wide and about 10 m long. The cracks noted at the time did not pose a threat to the HLF embankment but could affect the HLF access road and possibly the HLF spillway if not mitigated. In VGC's annual update report, it was noted that the spillway access road creep was being monitored during routine HLF inspections by site personnel, however no inspections forms were provided to Forte to review, and snow on the ground obscured the ability to verify cracks in the location in 2020 inspection. In the 2021 inspection, no tension cracks were found along the HLF spillway access road (Photo # 2021_ 40). Additionally, a berm was put in place blocking access to the HLF spillway (Photo # 2021_ 23).

During Forte's inspection, there appeared to be shallow rills created by rainfall runoff where the HLF spillway access road downstream face meets the downstream face of HLF embankment (Photo # 2021_ 18). Rills at this location were identified in the previous year's inspection. Forte agrees with BGC's previous recommendation to excavate a trench along the toe of the access road fill down to competent frost-free material and placing imported fill (structural or rock fill) into the trench and onto at least the bottom half of the access road slope to form a buttress. Additionally, placement of riprap along the groin to mitigate further rill or gullies from forming would be recommended. VGC should document this work and report back to Forte and this area should be monitored during routine HLF inspections by VGC personnel. Additionally, rills appeared on the slope between the Process Plant and the Event Pond (Photo # 2021_26 and 2021_ 2633). Forte recommends placement of additional fill along the berm on the south side of the Process Plant to divert runoff and regrading the spillway access road to drain into the HLF Spillway. VGC should document this work and report back to Forte and this area should be monitored during routine HLF inspections by VGC personnel.

Other than the observations indicated above, the dam, spillway, and the outlets of the discharge pipelines, based on the visual inspection, were observed to be functional and in good condition. A summary of recommended maintenance and monitoring action items is presented in Section 2.5.

2.2.2 Event Pond

The Event Pond was inspected by walking along the south embankment toe, up the emergency spillway and around the pond crest. The Event Pond is currently being used for temporary water storage. Ballasting of the Event Pond is required to prevent liner uplift. If using water as a ballast, Forte recommends a minimum of 0.6m of water depth always remain in the pond for wind ballasting. The level indicator records indicate that this minimum depth is being maintained.

In the previous year's inspection, minor cracking and settlement was observed along the Event Pond access road adjacent to the emergency spillway outfall. In VGC's annual update report, it was noted that the access road cracking was mitigated during access road improvements and no cracks were identified during Forte's visual inspection. Additionally, the underdrain outlet needed to be located and clearly marked with signage. In this year's inspection, Forte observed correct location and proper signage of the Event Pond underdrain (Photo # 2021_ 21).

During this year's Event Pond inspection, Forte observed that the emergency spillway weir had been filled with a crushed gravel. Explanations for this action were to create an access for trucks and other light equipment to cross the spillway. Forte recommends that this material be removed entirely to maintain functionality of the spillway, (Photo # 2021_31 and Photo # 2021_32).

2.3 Monitoring

2.3.1 In-Heap Pond Solution Inventory

The In-Heap Pond fluid level is tracked by a vibrating wire piezometer (VWP) installed in the inclined PLS riser pipe (Photo # 2021_ 45). Figure 1 below illustrates the In-Heap Pond level from data provided by the site team. It was observed that the In-Heap Pond level stayed below the spillway invert and never discharged to the HLF spillway. There were several instances where the In-Heap Pond crossed the Orange Alert threshold, and once crossed the Red Alert threshold. It appears Operations reacted appropriately by reducing the In-Heap Pond level before reaching the Spillway elevation in accordance with the OMS Manual [Ref 2].

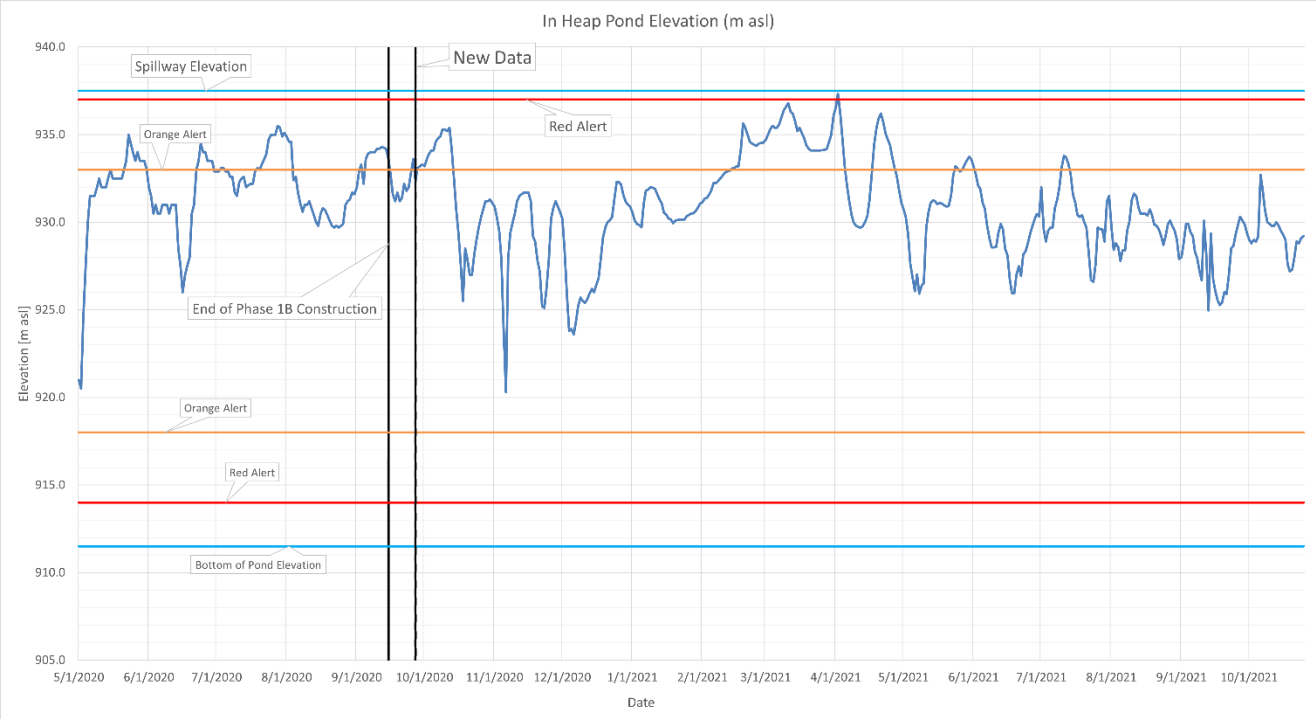


Figure 1: In-Heap Pond Elevation

2.3.2 HLF LDRS

The HLF LDRS sump level as of May 24, 2020 is being tracked via VWP in the LDRS sump and LDRS pump is activated manually to evacuate any leakage and total volume pumped recorded via a local totalizer. Figure 2 shows the recorded leakage rates compared to the allowable leakage rates which affirms that the HLF liner system is functioning as designed.

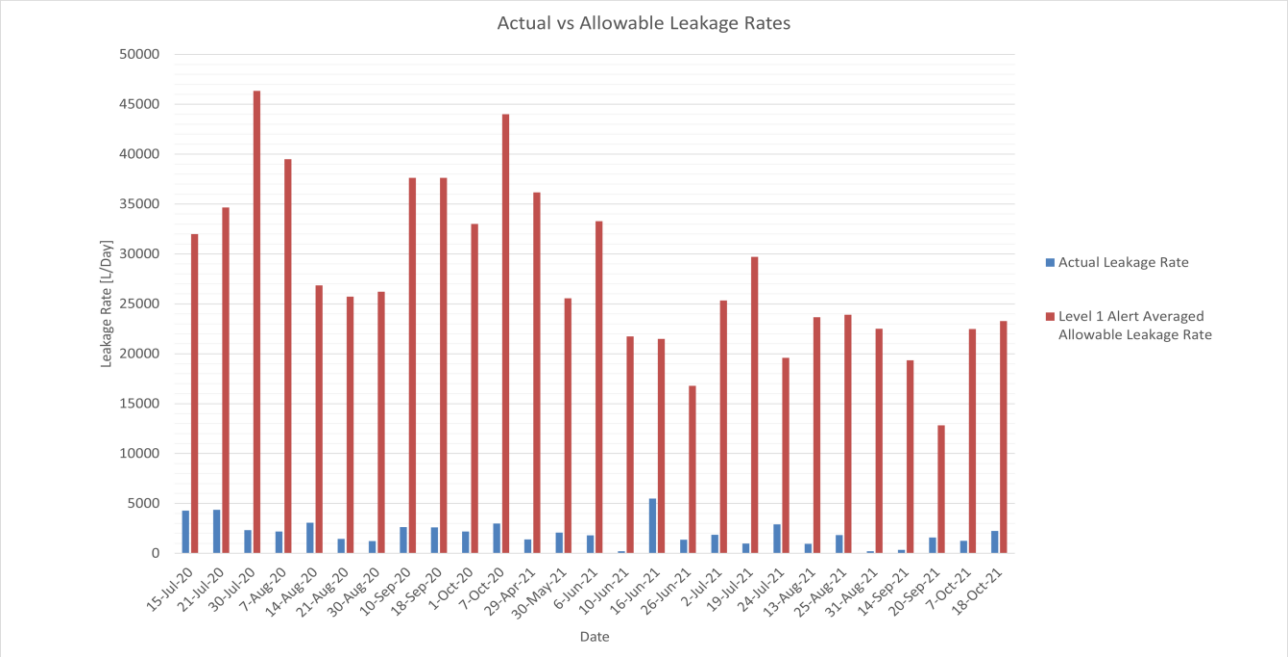


Figure 2: HLF LDRS Actual vs Allowable Leakage Rates

Forte recommends the HLF LDRS sump be evacuated by a level-actuated pumping system to automate the evacuation of the LDRS sump. Generally, sumps should be pumped prior to the water level reaching 0.5 m above the bottom of the LDRS end of pipe elevation. This will limit the hydraulic head on the bottom liner. Pumped flow volumes and water level readings should be recorded per the OMS manual [Ref 2].

2.3.3 Underdrain Monitoring Vault

The underdrain monitoring vault seepage and flow pumped back to the process circuit is being tracked daily by VGC site personnel. Figure 3 below illustrates the groundwater seepage that was pumped from the UMV to the Event Pond (Photo # 2021_30). Groundwater seepage is typically greater in the Springtime during freshet and lower in the Fall, but due to the liner installed during Phase 1, this appears to have created a lag in response time for when seepage is seen at the UMV. Continued data collection and analysis through 2022 should confirm these assertions.

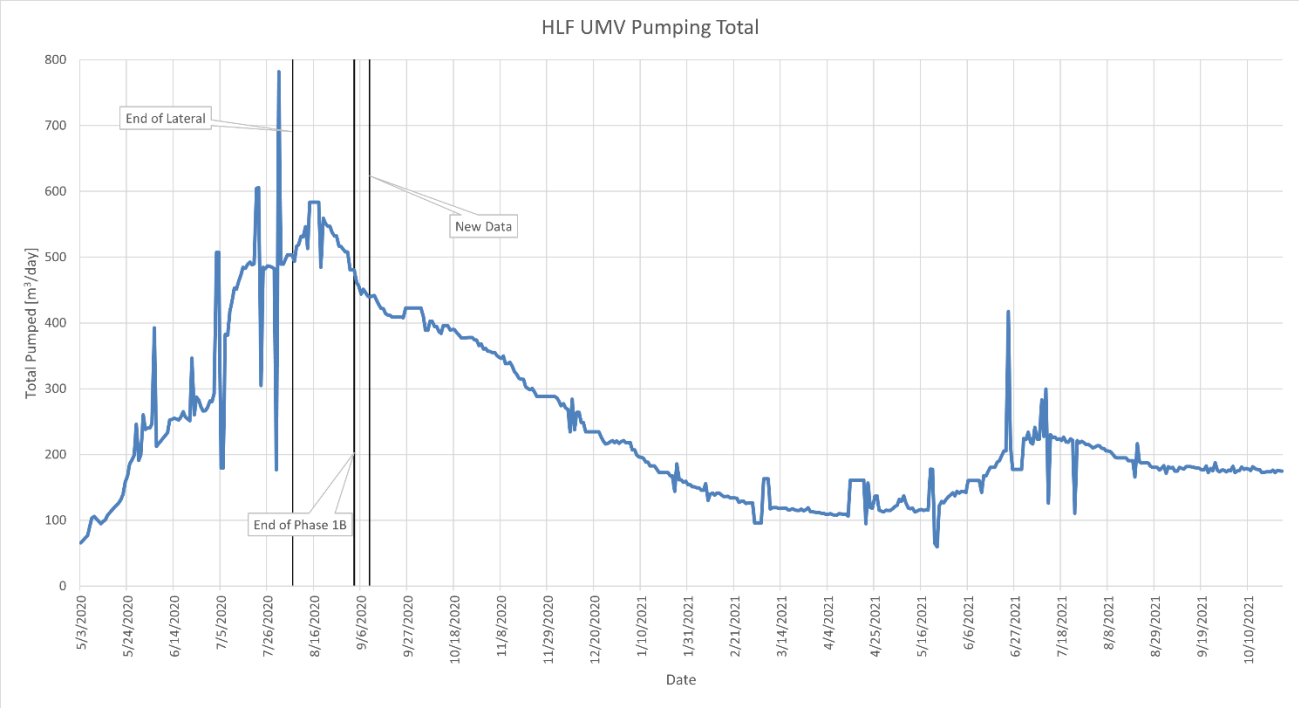


Figure 3: HLF UMV Pumped Daily

Figure 4 below shows the UMV average daily pumping rate to the Event Pond which ranged between 2 m^3/hr and 42.8 m^3/hr. The pump data provided showed the pump has a maximum pumping capacity of 150 m^3/hr putting the operating point outside recommended operating envelope and explains why the pump was observed turning on and off frequently during the inspection. As a near term solution, Forte recommends procuring a spare pump to reduce downtime if the UMV pump were to fail. As a long-term solution, Forte recommends implementing a surge tank or other means of reducing the pumps cycling is needed, or procuring a new pump better suited for the application.

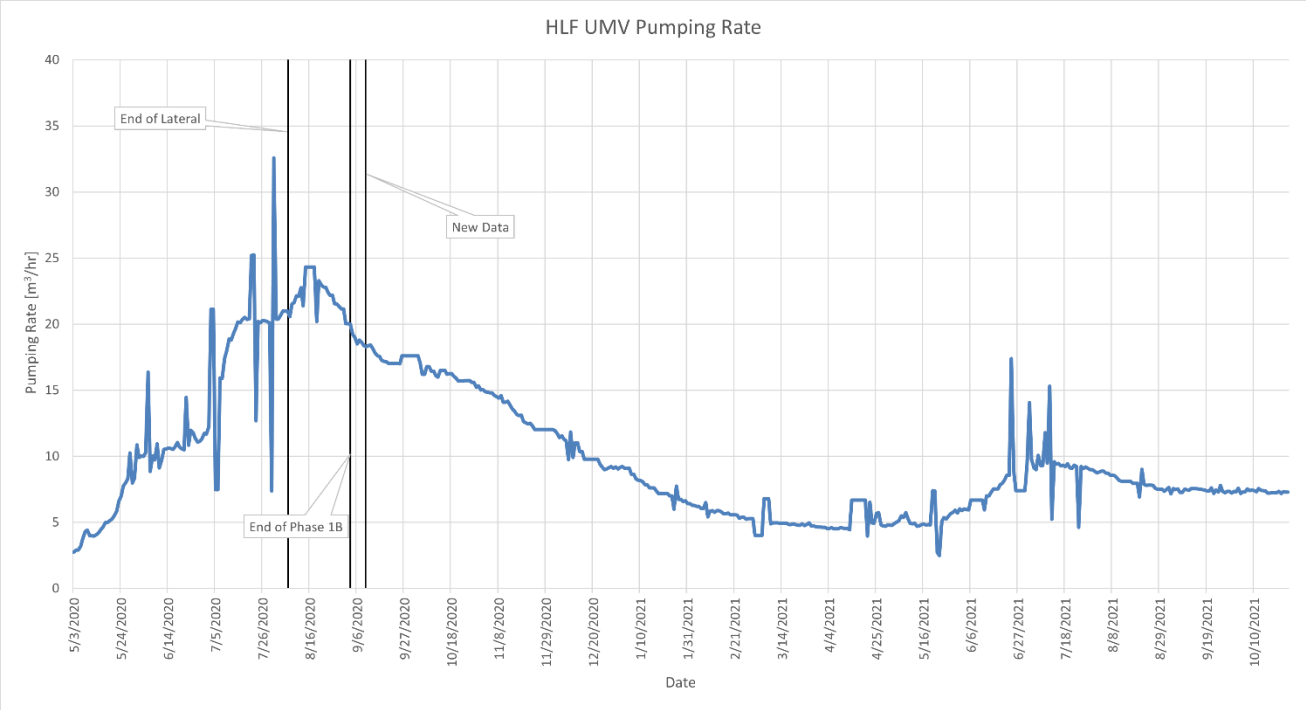


Figure 4: UMV Pumping Rate

2.3.4 Event Pond Storage

The Event Pond level was at an approximate elevation of 887.6m, based on data provided by VGC at the time of the inspection (Photo # 2021_ 25). This elevation is approximately 6.9m below the Event Pond emergency spillway invert. Event Pond level monitoring data collected from the site team was analyzed and Figure 5 presents the Event Pond and In-Heap Pond available storage compared to the DAS that is required to be maintained. The actual available storage was less than the DAS for some time during mid-late summer of 2020 and 2021. The volume stored in the Event Pond is non-contact water that was either collected from precipitation or a small amount pumped from the underdrain monitoring vault or contact water pumped from the Lower Dublin South Pond (LDSP). Figure 1 above shows that the In-Heap Pond level never reached the elevation of the spillway invert and therefore no PLS solution was conveyed to the Event Pond. Forte recommends utilizing the available water for HLF make-up water demands and maintain the desired available storage.

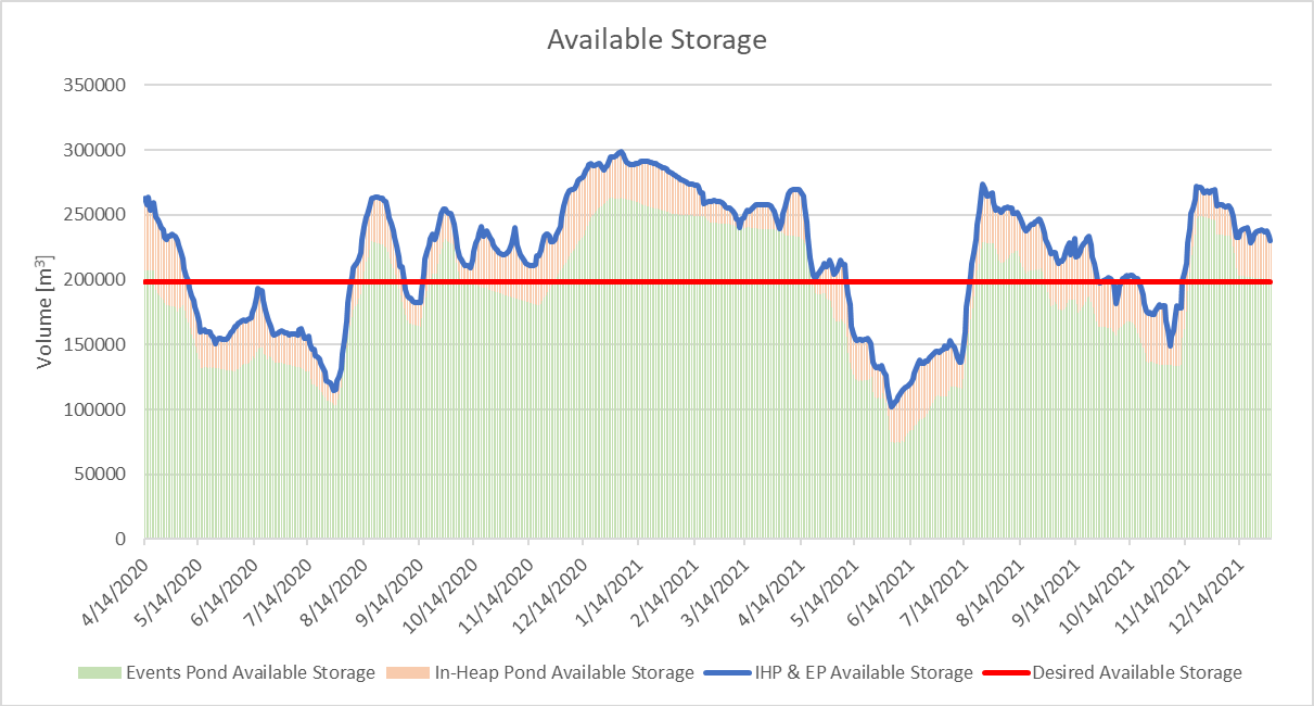


Figure 5: Events Pond and In-Heap Pond Available Storage

2.3.5 Event Pond LDRS

The water level in the Event Pond LDRS sump was approximately 879.3m at the time of inspection. It is understood that the level was not being actively tracked, however, hydraulic head inside the LDRS sump is being monitored using a VWP. Between September 20, 2019 and June 24, 2020, the VWP shows no data for the Events Pond LDRS, and the entire data sample collected from the VWP has not been calibrated. Therefore, some conservative assumptions were made to identify when the sump was empty (minimum data point in the dataset) and when the sump was full (maximum data point in the data set). Using these assumptions, the data was analysed after each pumping event to determine the rate at which the sump recharged from potential liner leakage and compared to the allowable leakage rates for Alert Level 1 (the lowest alert level stage) as stated in the Operations, Maintenance & Surveillance (OMS) manual (VGC 2020). Like the HLF LDRS, Forte recommends the Event Pond LDRS sump be evacuated based on observation of LDRS sump water level readings with a level switch installed that turns the pump on and off. Pumped flow volumes and water level readings should be recorded per the OMS manual.

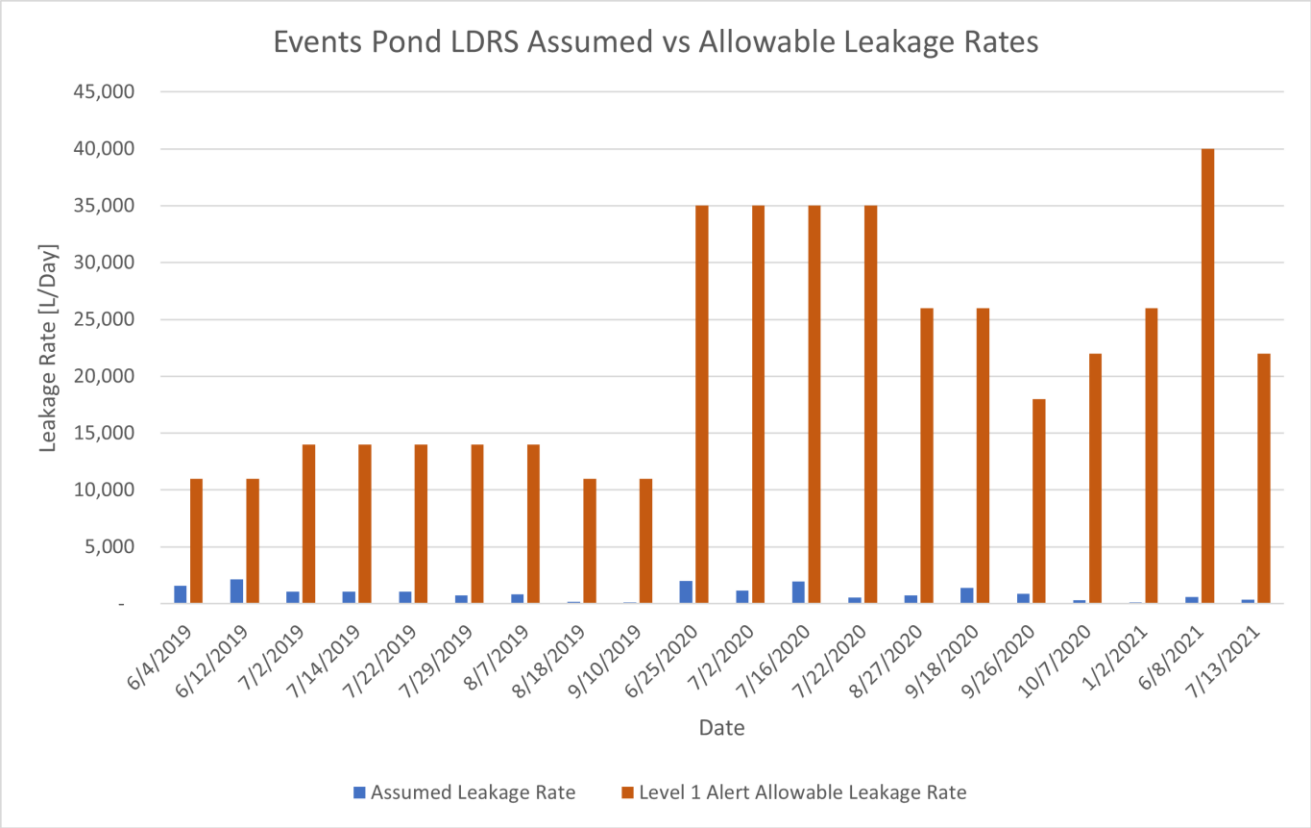


Figure 6: Event Pond LDRS Level

2.3.6 HLF Embankment Integrity

Three standpipes with VWPs are installed through the HLF dam crest. Piezometer P1 was installed into the dam foundation bedrock and Piezometers P2 and P3 were installed in the dam fill just above the western and eastern underdrains, respectively. The piezometer readings for P1, P2, and P3 are provided in Figure 7,Figure 8, and Figure 9 respectively. The P1 level data appears to have remained relatively static when compared to previous readings taken during the 2020 annual inspection. The P2 and P3 sensors still appear to be dry and small fluctuations are likely attributed to the changes in barometric pressure. The reported P2 VWP sensor elevation may be incorrect as the water level measured is below the reported sensor elevation. All three vibrating wire piezometers were installed by hanging them in 2-inch pvc standpipes. The depth of P2 should be verified and its tip elevation updated for future readings. If water level readings continue to report below the P2 tip the VWP may require repair, calibration, or replacement. Additionally, the P3 VWP hole may have a small amount of mud that has collected at bottom where sensor is installed. Both sensors should be further investigated by the site team.

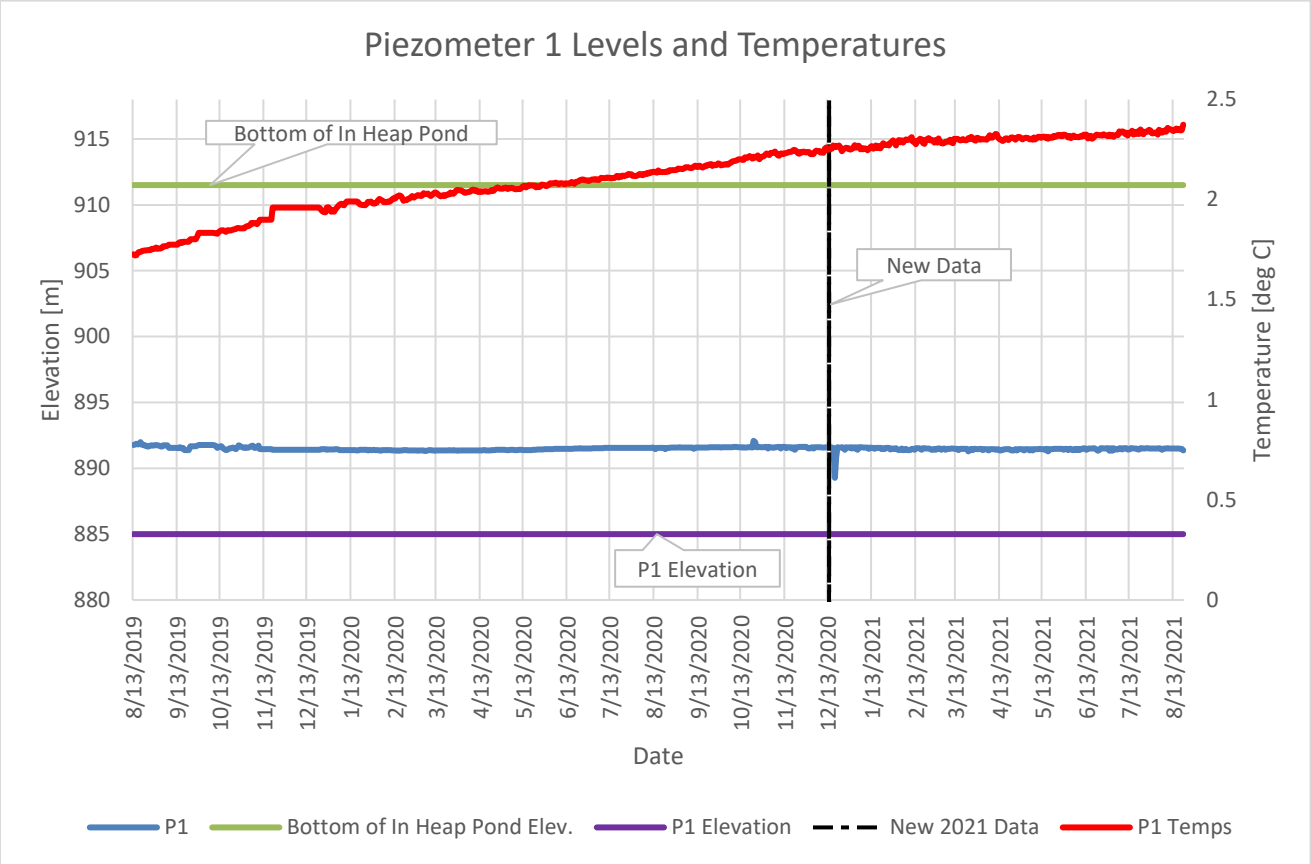


Figure 7: P1 Piezo Level and Temperatures

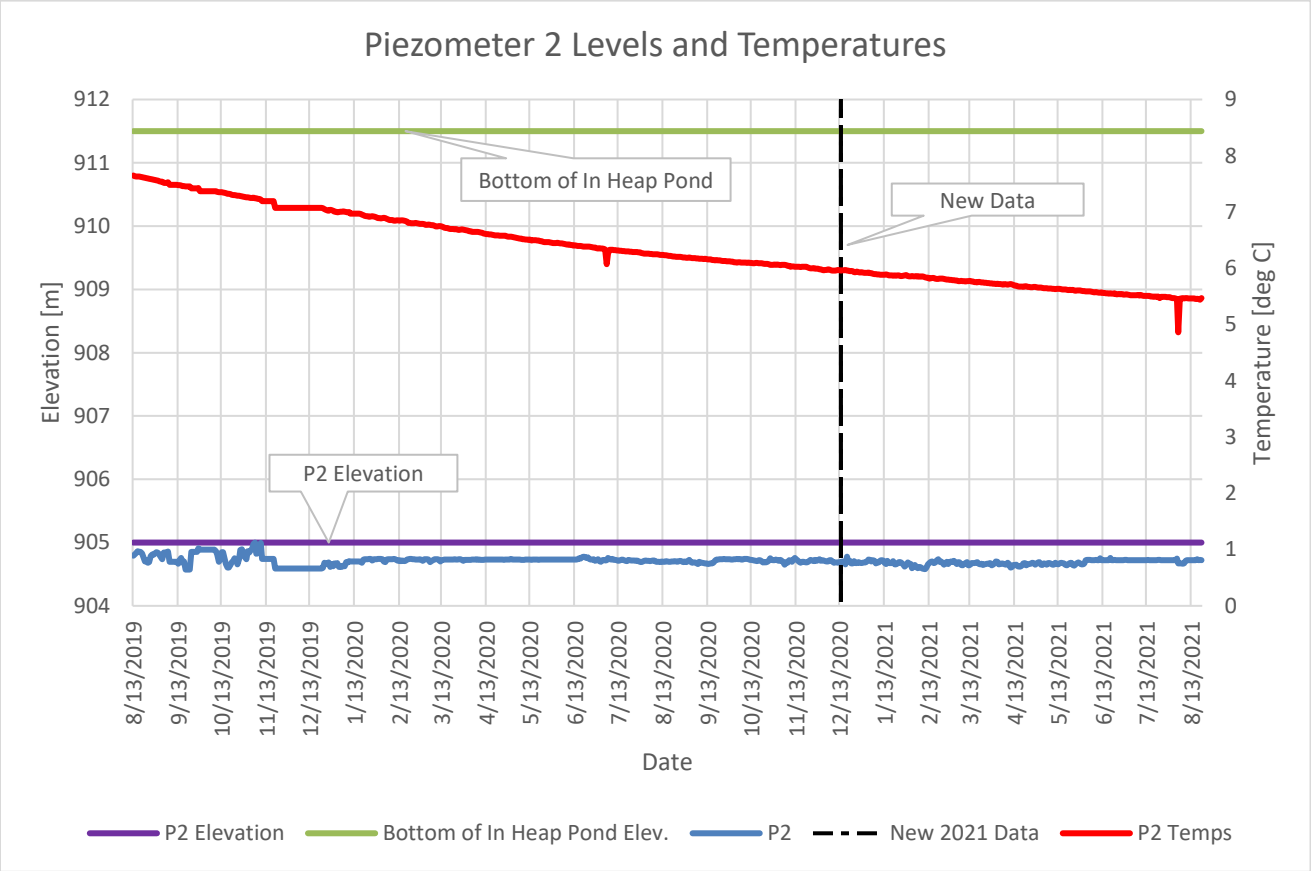


Figure 8: P2 Piezo Level and Temperatures

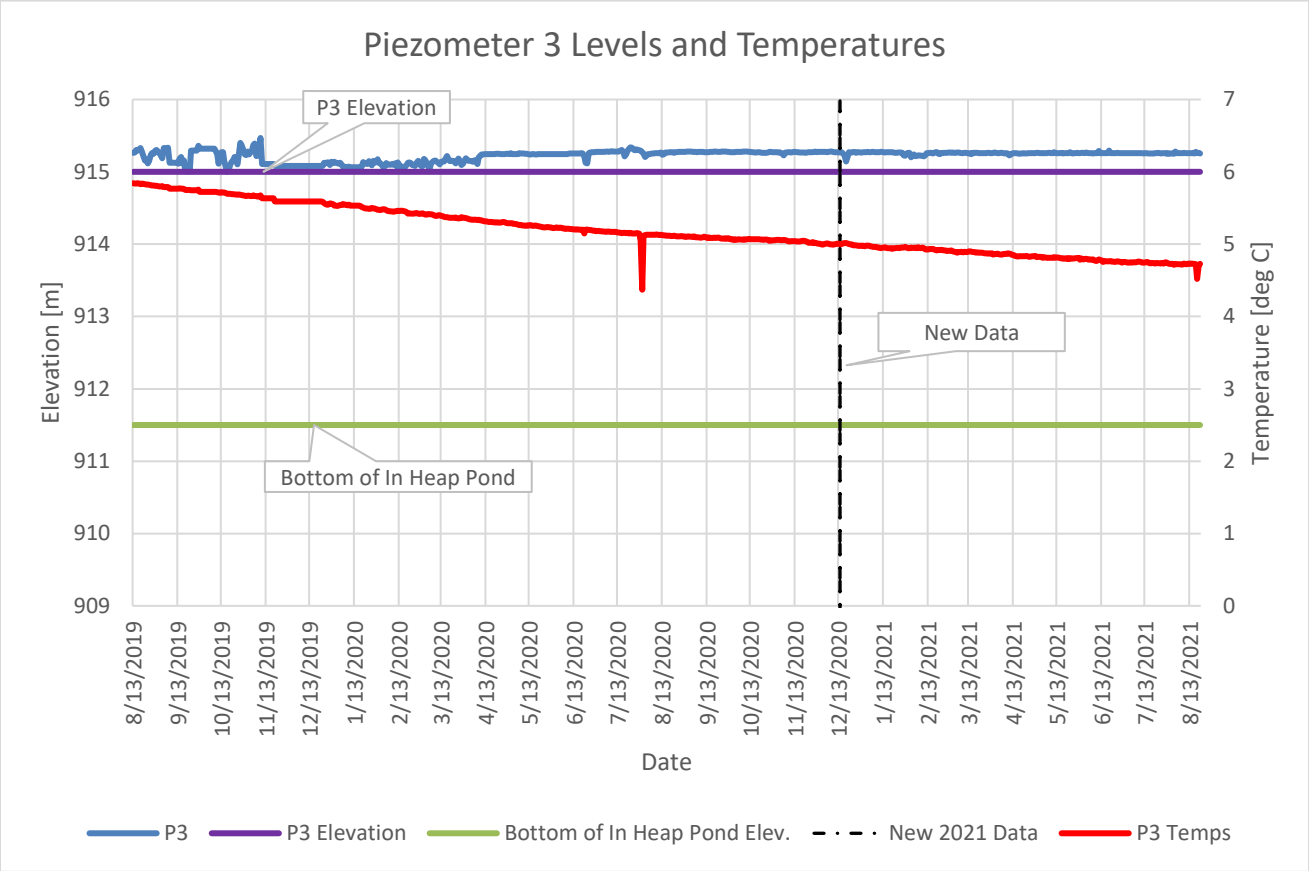


Figure 9: P3 Piezo Level and Temperatures

An RST MEMS Digital Inclinometer system was procured by VGC to measure lateral movements of the HLF embankment dam. This probe has been used for all reading taken in this inclinometer since its installation. The initial readings taken on the embankment began on June 26, 2020 with additional readings taken ahead of the annual inspection in July and August. The inclinometer takes measurements along two different axes; the A axis which is oriented perpendicular to the embankment alignment and the B axis in parallel to the embankment alignment. The inclinometer casing was completed to a depth of 54m within the embankment and measurements were taken every 0.5m from the bottom of the hole back to the surface.

The cumulative displacement plots show a maximum of approximately 4mm of movement along the A axis. Displacement observed on the A axis has accelerated between the December 2020 reading and June 2021 reading, reporting an approximately 2.5mm of displacement in that period. The cumulative displacement plots show a maximum of approximately 3.5mm of movement along the B axis. Displacement observed on the B axis has accelerated slightly between the December 2020 reading and June 2021 reading, reporting an approximately 1.5mm of displacement in that period. The amount of cumulative displacement observed is considered minor. Minor shearing (less than 1.5 mm) was also observed in the contact between bedrock and fill along both the A and B axis. Minor shearing is also typical for embankment dams at the bedrock contact. Cumulative displacement plots are included in ***Figure 12***.

Quality assurance checks performed for the inclinometers included checksum calculations between the axis^{+} and axis^{-} readings. The mean deviation reported for the June 2021 readings was consistent with all other post-initial readings and showed a deviation of up to 12 mm. Consistent deviations may be the results of deformation of the inclinometer at couplings. Checksum readings should also be provided by Eagle Gold to determine if and where issues exist with the inclinometer, probe, or reading method. Mean deviation plots are included in ***Figure 10***.

Plots showing incremental displacement are included in ***Figure 11*** and maximum displacement per axis over time is included in ***Figure 13***.

The inclinometer provides the ability to provide the horizontal (X and Z components) of deformation tracking. Vertical deformation (settlement along the Y axis) tracking is required to fully understand the deformation pattern of the embankment as vertical settlement is typically larger in magnitude comparted to horizontal movement. The OMS and instrumentation plan calls for eight (8) survey monuments to be installed at the completion of construction and prior to operation. The locations and installation details for the survey monuments can be found on drawings EGHLF-XD-09-01 and EGHLF-XD-09-02 [Ref 4]. The survey monuments were planned to be placed at 50m intervals along the embankment crest to monitor settlement and/or horizontal movements. These survey monuments have not been installed and therefore embankment settlement and deformation cannot be accurately monitored.

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RST Instruments Ltd.

CHECKSUM

Inclinalysis v. 2.48.7

Borehole : INC-1
Project : VGC
Location :
Northing :
Easting :
Collar :

Spiral Correction : N/A
Collar Elevation : 0.00 meters
Reading Depth : 54.0 meters
A+ Groove Azimuth :
Base Reading : 2020 Jun 26 11:24
Applied Azimuth : 0.0 degrees

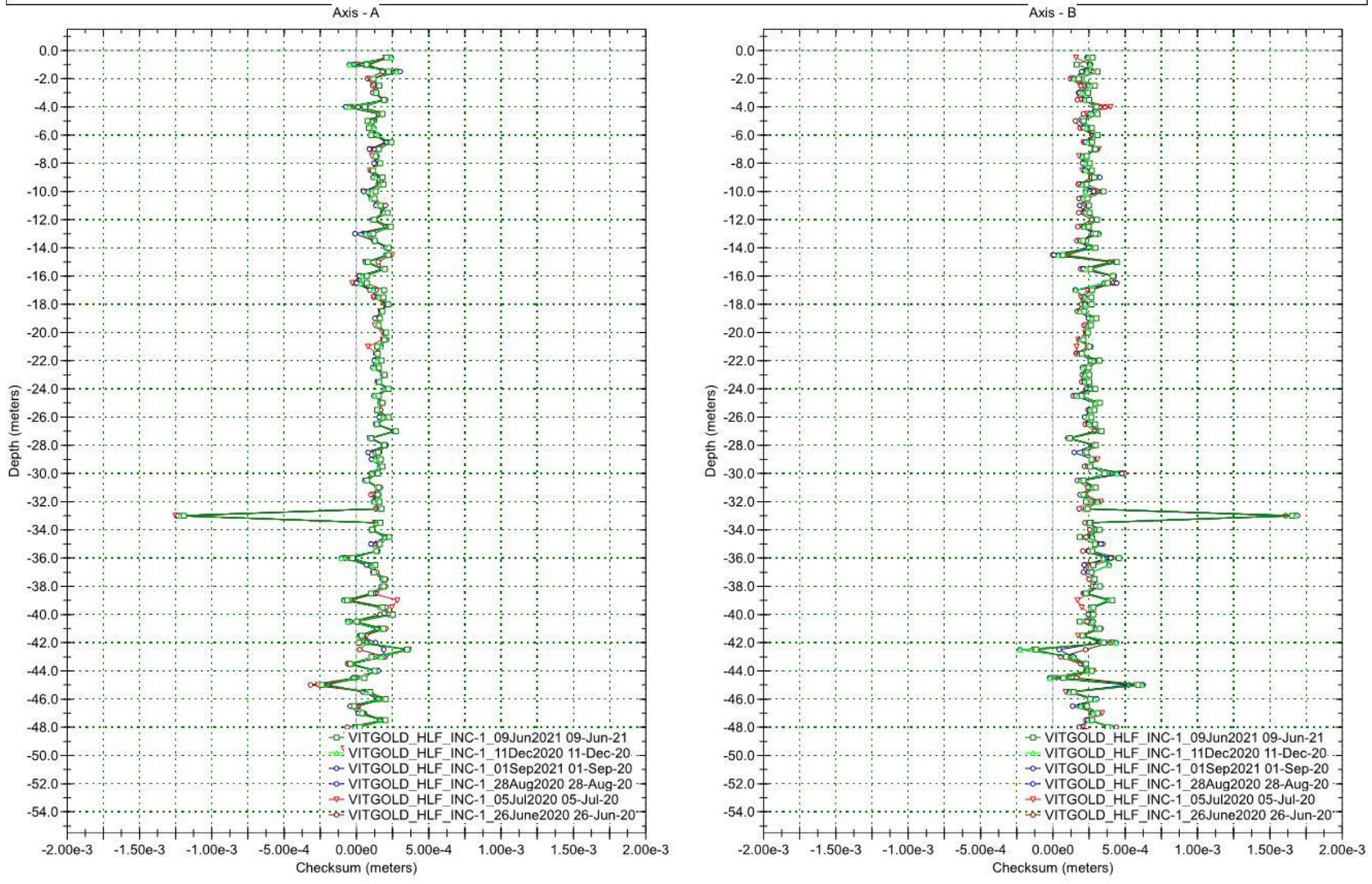


Figure10: INC-1 Checksum

RST Instruments Ltd.

INCREMENTAL DISPLACEMENT

Inclinalysis v. 2.48.7

Borehole : INC-1
Project : VGC
Location :
Northing :
Easting :
Collar :

Spiral Correction : N/A
Collar Elevation : 0.00 meters
Reading Depth : 54.0 meters
A+ Groove Azimuth :
Base Reading : 2020 Jun 26 11:24
Applied Azimuth : 0.0 degrees

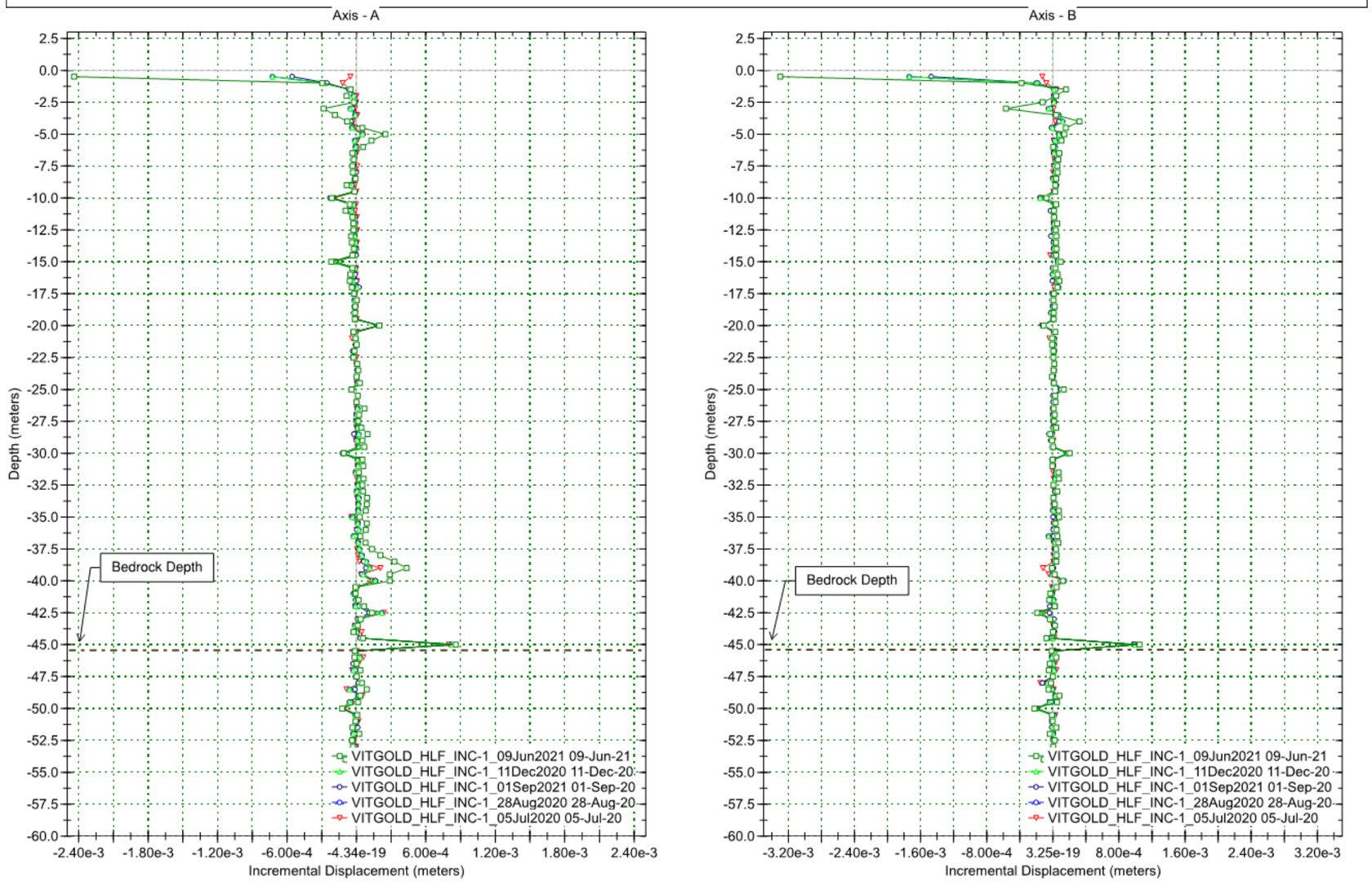


Figure 11: INC-1 Incremental Displacement

RST Instruments Ltd.

CUMULATIVE DISPLACEMENT

Inclinalysis v. 2.48.7

Borehole : INC-1
Project : VGC
Location :
Northing :
Easting :
Collar :

Spiral Correction : N/A
Collar Elevation : 0.00 meters
Reading Depth : 54.0 meters
A+ Groove Azimuth :
Base Reading : 2020 Jun 26 11:24
Applied Azimuth : 0.0 degrees

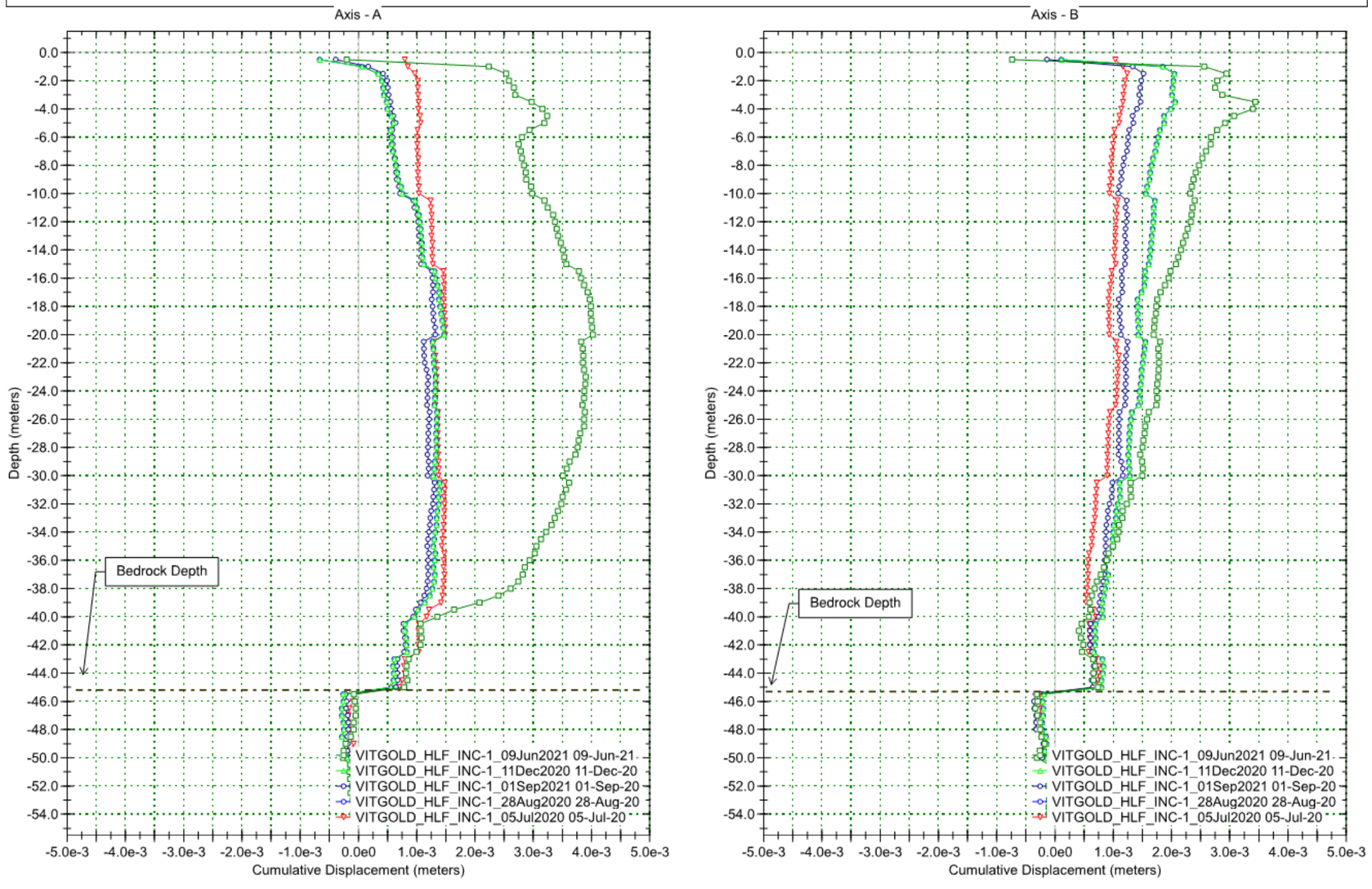


Figure 12: INC-1 Cumulative Displacement

RST Instruments Ltd.

Borehole : INC-1
Project : VGC
Location :
Northing :
Easting :
Collar :
Collar Elev : 0.00 meters

TIME PLOT
Displacement vs. Time

Inclinalysis v. 2.48.7

Spiral Correction : N/A
Movement Depth : 0.5 - 54.0 meters
Reading Depth : 54.0 meters
A+ Groove Azimuth :
Latest Reading : 2021 Jun 09 06:04
Initial Reading : 2020 Jun 26 11:24
Applied Azimuth : 0.0 degrees

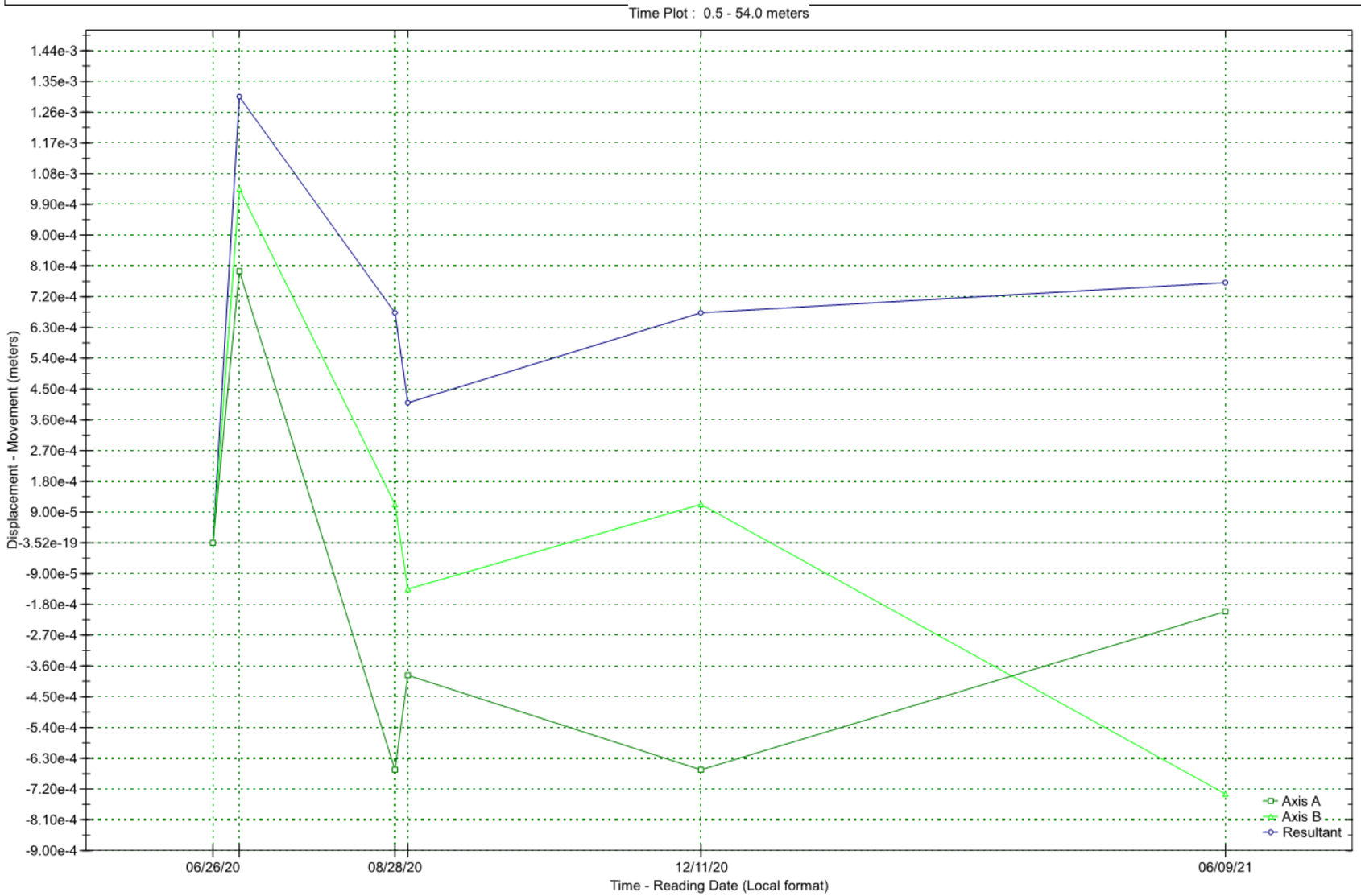


Figure 13: INC-1 Time Plot

2.3.7 Horizontal ODF Piezometers

Three VWPs are installed in conduit pipes through the phase 1 leach pad overliner layer upgradient of the In-Heap Pond. These three piezometers were installed horizontally atop the pad geomembrane and extend 25 m, 50 m, and 100 m from the heap toe limit. The purpose of these piezometers is to monitor phreatic head above liner. The phreatic head levels of all three piezometers had correlating levels and fluctuations throughout the monitoring period, showing a maximum phreatic head level of 0.29 m and a minimum of -0.14 m. Thermistor data shows that temperatures never dipped below 4 degrees Celsius during the monitoring period. It should be noted that piezometer data was not recorded from October 14th, 2021, to December 18th, 2021, and thermistor data was not recorded after December 18th, 2021. At this moment it is unclear why this data was not reported. Aside from the apparent data gap, it appears that the piezometers are functioning properly and the measured phreatic head level is within the design criteria.

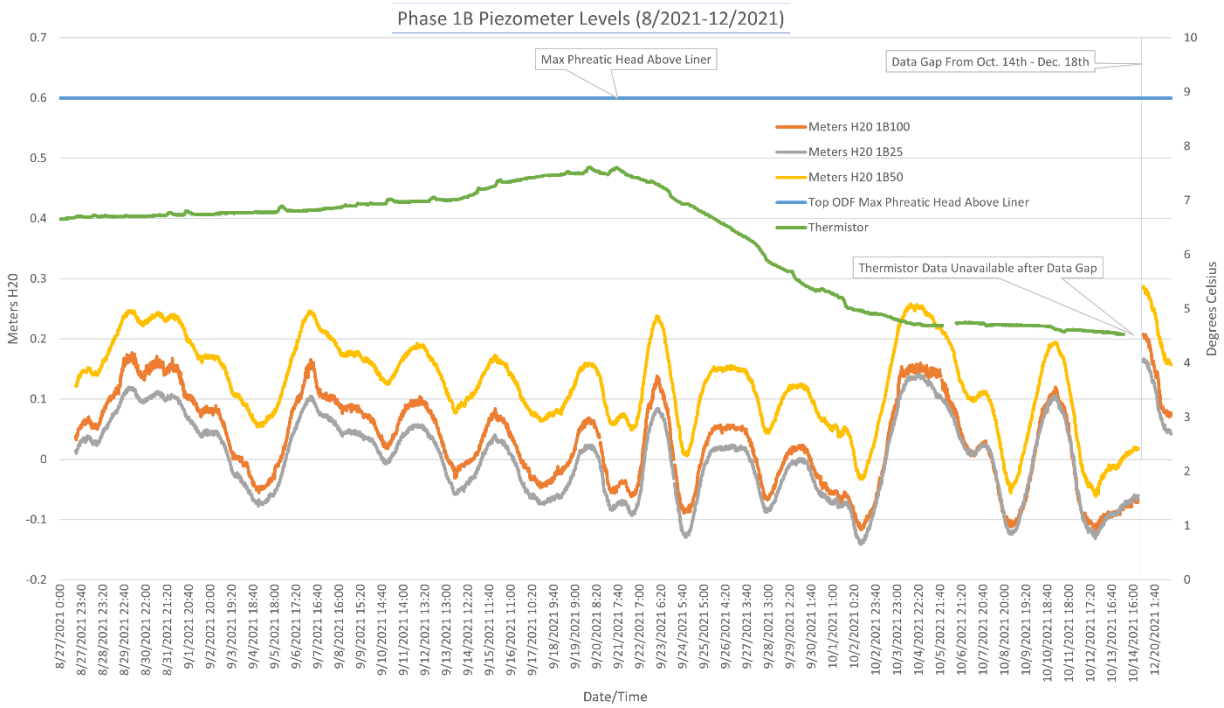


Figure 14: Phase 1B Horizontal ODF Piezometer Levels

2.4 HLF Operations, Maintenance and Surveillance Manual

An updated Operation, Maintenance and Surveillance (OMS) Manual dated January 2020 was prepared by VGC and presents roles and responsibilities, reference documents and reports, HLF description, operation, design basis, maintenance, dam surveillance program, emergency identification and evaluation, and emergency planning and response [Ref 2]. The OMS Manual accounts for the initial construction phase and start-up operations and includes the details of the facility layout, current VGC personnel, and the HLF

operational plan. Forte reviewed the OMS Manual and have provided our required actions and recommendations in Table 2-1 below.

Table 2-1: OMS Manual Review Items

Item	Description	Action or Recommendation
Table 2.1-3	Update Contact Info for Process Manager	Action Required
Figure 4.3-1	Update Heap Leach Facility Cross-Section to Remove 55m bench at EL. 985.0m	Action Required
Table 6.3-1	Update Heap Ore Capacity based on volumetric capacity rather than tonnage	Recommendation
Table 6.3-1	Stacked dry density of ore – note that this parameter is variable	Recommendation
Table 6.3-1	Overliner Drain Fill (ODF) – update spec based on criteria used on Phase 1B construction	Action Required
Section 7.3.3	Update In-Heap Pond available storage capacity, operational volume, and combined storage volume of In-Heap Pond and Event Pond	Action Required
Table 7.3-1	Update Table based on Forte modeling input	Action Required
Table 7.4-1	Remove Table from OMS as the leaching plan should be updated with each mine plan update	Recommendation
Table 9.1-1	Revise frequency of inclinometer and survey monuments to quarterly	Action Required

Table 2-2: Recommended maintenance and monitoring action items – 2021 Annual HLF Inspection

Name of Structures	Maintenance/Monitoring Actions Required				
	Routine Monitoring/ Maintenance	Increased Monitoring/ Maintenance	Remediation and Engineering Review Necessary	Priority Level	Recommendations
Heap Leach Facility (HLF)	Yes	-	Yes	3	Continue the routine inspection and monitoring of the dam, abutments, emergency spillway, discharge outlet areas, LDRS sump, PLS sump, pad liner, PLS and barren pipes, monitoring wells (P-1, P-2, P-3), and pond level as per the current OMS manual.
				2	Document using routine inspection forms all unusual/adverse conditions observed, as well as maintenance work undertaken.
				3	Continue collecting inclinometer readings in casing INC-1 quarterly per OMS.
				1	Evacuate the LDRS sump based on water level readings (no greater than 0.5m above bottom end of LDRS pipe should be allowed).
				1	Construct a small swale along the crest of the underdrain containment area to direct surface water flows to the west edge of the monitoring vault area, (EoR_2021_17).
				2	Relocate signage to the HLF east underdrain outlet. – Note primary outlet for underdrain seepage as water is pumped back to process, however the underdrain outlet still requires marking, (EoR_2021_20).
				1	Southwest corner of HLF, an access crossing for light and small equipment just upstream of spillway, and downstream of barren and preg. pipes, creates an impasse for flows along west side to reach spillway. The current culvert under the crossing is insufficient to accommodate large meteoric events. At a minimum a drainage pathway/larger culvert required under crossing, (EoR_2021_55).
				1	Western perimeter berm from embankment to ¼ way up Phase 1A, spotted liner damage occurred in exposed liner on slope of perimeter berm. The damage was marked by mine personnel prior to site trip to be repaired. Discuss with liner installer on appropriate repair. Continue discussion with site on procedures for liner repairs including self-perform (EoR_2021_49).
				1	Setback from perimeter berm to toe of ore encroached on, and crossings with potentially inadequate culverts or drainage paths. Culverts at crossings should discharge further away from liner extents. The critical area is at CV-23, that will require both site and Forte to develop permanent drainage pathway along perimeter, (EoR_2021_50 and EoR_2021_51).
				1	ADR ditch northwest of Carbon super sacks and conex containers has been filled in with earth material, (EoR_2021_1 and EoR_2021_2). Clean ADR ditch to allow for proper water diversion.
				1	Shallow pooling on crest of embankment. Placement of fill and proper grading to allow for rainwater to runoff the access road along crest of embankment. Document once remediation is complete, (EoR_2021_43).
				1	Buttress toe recommended for ODF washout. Do not extend ODF up slope higher than 1 lift height in advance of ore being stacked on steep slopes. Have spotters visually observing haul trucks as they dump ODF to prevent damage to the liner, (EoR_2021_53).
				2	Install data collection and source from ADR waterline, (EoR_2021_26).
				1	Submit grain size analysis for any Phase 2 borrow sites proposed.
				1	Recommend taking out piezometer P3, cleaning it, and hanging it about 0.25m from the bottom. Verify the tip depth when lowering it back down and update the depth for the subsequent readings. Also recommend hanging VWP tip for P2 about 25 cm off the bottom as well.

				1	Install survey monuments along embankment crest and take initial readings
Event Pond (EP)	Yes	-	-	3	Continue the routine inspection and monitoring of the embankment, abutments, pond liner, LDRS sump, and pond level as per the current OMS manual.
				2	LDRS level instrumentation setup for continuous data download
				2	Document using routine inspection forms all unusual/adverse conditions observed, as well as maintenance work undertaken.
				1	Evacuate the LDRS sump based on water level readings (no greater than 0.5m above bottom end of LDRS pipe should be allowed).
HLF Spillway	Yes	-	Yes	3	Continue the routine inspection and monitoring of the spillway armoring, adjacent access road, seepage collection pipe outlet as per the current OMS manual.
				2	Document using routine inspection forms all unusual/adverse conditions observed, as well as maintenance work undertaken.
				2	Spillway has damage in concrete liner at crest of channel. Soil and rocks in channel, most unlikely to impede large flows and capacity and max design, but downstream liner and event pond capacity at risk. Document once remediation is complete, (EoR_2021_35 and EoR_2021_37).
				1	Remediation of the significant surface erosion along the downstream face of the HLF spillway access road. Implement water management along HLF spillway to discourage additional erosion, (EoR_2021_36).
				1	Placement of riprap along the groin between HLF spillway access road and HLF embankment to mitigate further rill or gullies from forming, (EoR_2021_18).
Emergency Spillway	Yes	-	-	3	Continue the routine inspection and monitoring of the spillway armoring, adjacent access road, seepage collection pipe outlet as per the current OMS manual.
				1	The spillway at the crest has crushed gravel in it for temporary access around crest. Material required to be removed, (EoR_2021_30, EoR_2021_31 and EoR_2021_32).
				2	Document using routine inspection forms all unusual/adverse conditions observed, as well as maintenance work undertaken.

3. Closure

Forte Dynamics Inc. (Forte) prepared this document for the account of Victoria Gold Corp. The material in it reflects the judgment of Forte staff considering the information available to Forte at the time of document preparation. Any use which a third party makes of this document or any reliance on decisions to be based on it is the responsibility of such third parties. Forte accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this document.

As a mutual protection to our client, the public, and ourselves, all documents and drawings are submitted for the confidential information of our client for a specific project. This document has been authorized for use as part of VGC's publicly available annual permit reports. A record copy of this document is on file at Forte. That copy takes precedence over any other copy or reproduction of this document.

Note the conclusions provided herein will change as the recommended maintenance measures are undertaken.

We trust the above satisfies your requirements at this time. Should you have any questions or comments, please do not hesitate to contact us.

Yours sincerely,

Forte Dynamics Inc.
per:

Barry Carlson, P.Eng.

Principal Engineer

4. References

BGC Engineering, Inc. (2018). Eagle Gold Project Heap Leach Facility Detailed Design Report. January 8, 2018.

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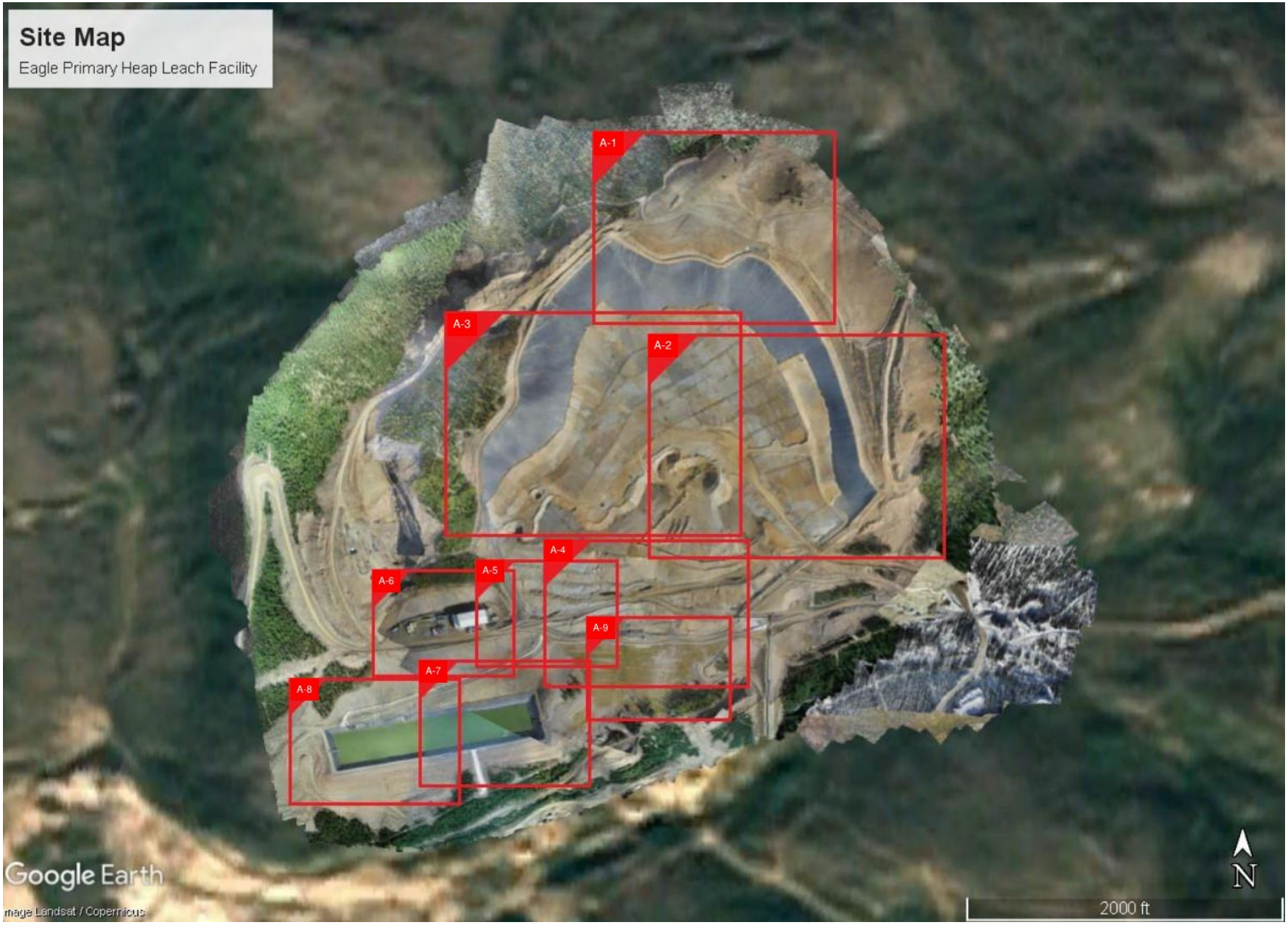
Victoria Gold Corp. (2021a). Additional Spill Information. VGC Spill # VGC21-012. Yukon Government # 21-013. Heap Leach Pad / Embankment Road. March 15, 2021.

Victoria Gold Corp. (2021b). Eagle Gold Project Spill Report ADR Process Solution Release- June 22, 2021. July 2, 2021.

Victoria Gold Corp. (2021c). Additional Spill Information. VGC Spill # VGC21-028. Yukon Government # 21-082. Heap Leach Pad West Distribution Line. July 30, 2021.

APPENDIX A

SITE LAYOUT - AERIAL PHOTOGRAPH FIGURES


Site Map
Eagle Primary Heap Leach Facility
A-1
A-2
A-3
A-4
A-5
A-6
A-7
A-8
A-9
Google Earth
Image Landsat / Copernicus
2000 ft
N


Eagle HLF
Figure A-1: Heap Leach Pand and Northern Perimeter Access
Legend
EoR_2021_Photo#
EoR_2021_09
EoR_2021_04
EoR_2021_08
EoR_2021_06
EoR_2021_05
EoR_2021_15
EoR_2021_14
EoR_2021_13
EoR_2021_12
EoR_2021_11
Google Earth
Image Landsat / Copernicus
500 ft
N


Eagle HLF
Figure A-2: Heap Leach Pand and Eastern Perimeter Access
Legend
EoR_2021_Photo#
EoR_2021_53
EoR_2021_10
EoR_2021_51
EoR_2021_50
EoR_2021_07
Google Earth
Image Landsat / Copernicus
700 ft
N


Eagle HLF
Figure A-3: Heap Leach Pand and Western Perimeter Access
Legend
EoR_2021_Photo#
EoR_2021_53
EoR_2021_52
EoR_2021_48
EoR_2021_49
Google Earth
Image Landsat / Copernicus
700 ft
N


Eagle HLF
Figure A-4: PLS Recovery Piping from In-Heap Pond and HLF Embankment
Legend
EoR_2021_Photo#
EoR_2021_07
EoR_2021_54
EoR_2021_45
EoR_2021_43
EoR_2021_42
EoR_2021_16
EoR_2021_44
EoR_2021_24
Google Earth
Image Landsat / Copernicus
400 ft
N


Eagle HLF
Figure A-5: PLS Recovery Piping and HLF Spillway
Legend
EoR_2021_Photo#
EoR_2021_56
EoR_2021_55
EoR_2021_59
EoR_2021_58
EoR_2021_57
EoR_2021_41
EoR_2021_23
EoR_2021_40
EoR_2021_39
EoR_2021_24
Google Earth
Image Landsat / Copernicus
200 ft
N


Eagle HLF
Figure A-6: ADR Process Area
Legend
EoR_2021_Photo#
EoR_2021_48
EoR_2021_49
EoR_2021_02
EoR_2021_03
EoR_2021_01
EoR_2021_47
EoR_2021_46
EoR_2021_37
EoR_2021_38
Google Earth
Image Landsat / Copernicus
N
300 ft


Eagle HLF
Figure A-7: HLF Spillway, Event Pond, and Event Pond Spillway
Legend
EoR_2021_Photo#
EoR_2021_37
EoR_2021_38
EoR_2021_25
EoR_2021_26
EoR_2021_28
EoR_2021_27
EoR_2021_29
EoR_2021_30
EoR_2021_32
EoR_2021_31
Google Earth
Image Landsat / Copernicus
300 ft
N


Eagle HLF
Figure A-8: HLF Spillway, Event Pond, and Underdrain Outlet
Legend
EoR_2021_Photo#
EoR_2021_36
EoR_2021_35
EoR_2021_34
EoR_2021_33
EoR_2021_22
EoR_2021_21
Google Earth
Image Landsat / Copernicus
300 ft
N


Eagle HLF
Figure A-9: Underdrain Monitoring Vault
Legend
EoR_2021_Photo#
EoR_2021_17
EoR_2021_18
EoR_2021_19
EoR_2021_20
Google Earth
Image Landsat / Copernicus
200 ft
N

APPENDIX B

INSPECTION FORMS

2021 Annual Inspection
Eagle Gold Mine Heap Leach Facility
Victoria Gold Corporation

Project Number: 109005

Forte Representative: Clint Green
Date: August 14, 2021
Structure Designation: Heap Leach Facility
Crest Elevation: 940 m
Pond Bottom (Sump): 911.5
Spillway Invert El: 937.5 m
Downstream Pond Elevation: 895.5
Notes:

OBSERVATIONS

					Action Required
CREST					
Cracking:	X not apparent	apparent	Notes:		N
Settlement/Uneven:	not apparent	X apparent	Notes:	Surficial slope sloughing of initial ore lift above crest of embankment.	Y
Erosion:	not apparent	X apparent	Notes:	Soil and rocks in heap perimeter channel.	Y
Sinkholes:	X not apparent	apparent	Notes:		N
Other Movement:	not apparent	X apparent	Notes:	Setback from perimeter berm to toe of ore encroached on, and crossings with potentially inadequate culverts or drainage paths.	Y
Crest Vegetation:	not apparent	X apparent	Notes:		N

Comments: Overall condition of HLF crest has encountered spillover from ore and encountered soil erosion. Remidiation needed to maintain intengrity of ore setbacks, perimeter berm and perimeter channel. — Y

DOWNSTREAM SLOPE AND TOE AREA			Approximate Slope Angle: 2.5H:1V		N
Slope Visually Uniform	X yes	no	Notes:		N
Erosion:	not apparent	X apparent	Notes:	Rilling occuring most significantly along the west intersection of embankment fill & Spillway Access Road embankment, and along toe of HLF embankment- above underground monitoring vault.	Y
Settlement/Uneven:	X not apparent	apparent	Notes:		N
Bulging/Cracking:	X not apparent	apparent	Notes:		N
Sloughing:	X not apparent	apparent	Notes:		N
Slope Protection:	X not apparent	apparent	Notes:		N
Animal Burrows:	X not apparent	apparent	Notes:		N
Slope Vegetation:	not apparent	X apparent	X sparse ☐ moderate ☐ heavy		N
			Notes:	Growth of more vegitaion will naturally reduce erosion and rilling.	
Seepage:	X not apparent	apparent			N

Location of Seepage: **1** Notes:
Estimated Rate: ☐ damp ☐ trickle ☐ steady estimated flow ☐ l/s
Apparent Clarity: ☐ clear ☐ muddy Sample taken: ☐ yes ☐ no

Location of Seepage: **2** Notes:
Estimated Rate: ☐ damp ☐ trickle ☐ steady estimated flow ☐ l/s

Project Number: 109005
Structure Designation: Heap Leach Facility Date: August 14, 2021

Apparent Clarity: [ ] clear [ ] muddy Sample taken: [ ] yes [ ] no

Location of Seepage: **3** Notes:
Estimated Rate: [ ] damp [ ] trickle [ ] steady estimated flow [ ] l/s
Apparent Clarity: [ ] clear [ ] muddy Sample taken: [ ] yes [ ] no

Location of Seepage: **4** Notes:
Estimated Rate: [ ] damp [ ] trickle [ ] steady estimated flow [ ] l/s
Apparent Clarity: [ ] clear [ ] muddy Sample taken: [ ] yes [ ] no

Toe Vegetation: [X] not apparent [ ] apparent [ ] sparse [ ] moderate [ ] heavy N

Soft Ground at Toe: [X] not apparent [ ] apparent Notes: N

Comments: As noted in Forte's 2020 annual inspection, gullies are forming upstream of the UMV and have since worsened. Remidiation of gullies, as well as implimentation of a rip-rap lined ditch should be considered to divert runoff away from UMV.

UPSTREAM AREA

Erosion: [X] not apparent [ ] apparent Notes: N

Degree: [ ] minor [ ] severe Type: [ ] waves [ ] runoff [ ] flow from discharge
Slope Visually Uniform [X] yes [ ] no Notes: N
Settlement/Uneven: [X] not apparent [ ] apparent Notes: N
Bulging/Cracking: [X] not apparent [ ] apparent Notes: N
Sloughing: [X] not apparent [ ] apparent Notes: N
Slope Protection: [ ] not apparent [X] apparent Notes: Slope is covered with double geomembrane liner and gravel. N
Slope Vegetation: [X] not apparent [ ] apparent [ ] sparse [ ] moderate [ ] heavy N
Notes:
Animal Burrows: [X] not apparent [ ] apparent Notes: N
Sinkholes: [X] not apparent [ ] apparent Notes: N
Upstream Surface: [X] ore [ ] apparent Notes: Ore has been stacked to within 2.5m of the crest elevation. N

Comments: Y

Project Number: 109005
Structure Designation: Heap Leach Facility Date: August 14, 2021

SPILLWAY/FLOW CONTROL STRUCTURE

Type: [ ] none [X] spillway dimensions
[ ] decant [ ] weir invert 937.5 m
[ ] wing walls

Notes: Concrete lined channel damaged near overflow culverts. Soil and rock debris in lined channel. Routine cleanouts are recommended to reduce potential damage to receiving lined event pond.

Flow: Estimated Rate: [ ] L/s [ ] Measured [ ] Estimated [X] None
Apparent Clarity: [ ] Clear [ ] Muddy [ ] Ice
Gauge in Place: [ ] Reading [ ] Apparent [ ] Not Apparent

Comments: The concrete liner of the HLF spillway shows considerable damage throughout. Routine maintenece and clearing of debris are recommended. [Y]

DIVERSION/DISCHARGE STRUCTURE

Type: [ ] None [X] Diversion [ ] Discharge Notes:

Blockage: [X] not apparent [ ] apparent [N]
Location: **1** Notes:
Type: [ ] Debris [ ] Beaver Activity [ ] Siltation
Degree: [ ] Minor [ ] Severe
Location: **2** Notes: [N]
Type: [ ] Debris [ ] Beaver Activity [ ] Siltation
Degree: [ ] Minor [ ] Severe

Erosion: [X] not apparent [ ] apparent [N]
Location: **1** Notes:
Degree: [ ] Minor [ ] Severe
Location: **2** Notes:
Degree: [ ] Minor [ ] Severe
Location: **3** Notes:
Degree: [ ] Minor [ ] Severe

Comments: Continue routine monitoring of spillway. [Y]

Project Number: 109005
Structure Designation: Heap Leach Facility Date: August 14, 2021

PIPELINES

[X] In Use [ ] Not in Use

Comments: Barren solution pipe installed along western permiter berm and PLS pipe on dam crest. Electrical cable installed approximately one meter below the crest of the embankment.

INSTRUMENTATION

None	[ ]		Notes:		
Piezometers	[ ] not apparent	[X] apparent	Notes:	P1, P2, and P3 VWPs in standpipes through dam	Y
Monitoring Wells	[X] not apparent	[ ] apparent	Notes:		N
Inclinometers	[ ] not apparent	[X] apparent	Notes:	Probe installed and data collected per recommendations	Y
Survery Stakes	[X] not apparent	[ ] apparent	Notes:	Installation and monitoring of these are required	Y
Other	[ ] not apparent	[X] apparent	Notes:	LDRS is being read manually. Automation of pumping and metering of the LDRS is required to be implemented	Y

Were readings taken while on site? [X] Yes [ ] No

Comments: Continue routing monitoring of VWPs. See above comments on installation of survey monuments and automation of LDRS pump. Y

CHANGES FROM PREVIOUS YEAR [ ] Not Applicable [X] Applicable

[ ] Repairs [ ] Construction [ ] Maintenance [ ] Seepage [ ] Other

Comments:

Project Number: 109005
Structure Designation: Heap Leach Facility Date: August 14, 2021

RECOMMENDATIONS

Continue routine inspection and monitoring of the dam, spillway, instrumentation and pond level as per the current HLF management plan and OMS manual. See above comments.

MONITORING/ACTIONS REQUIRED

- [ ] None Required
- [X] Routine Monitoring/Maintenance
- [ ] Increased Monitoring/Maintenance
- [X] Remediation and Engineering Review Necessary

ATTACHMENTS

Plan or Sketch Attached:

Photographs Taken: August 14, 2021
Photographs: Yes

Forte Representative: Clint Green Date: August 14, 2021

Project Number: 109005

Forte Representative: Clint Green | Date: August 14, 2021

Structure Designation: Event Pond | Crest Elevation: 939.5 m

Pond Bottom (Sump): 886.5 m | Spillway Invert El: 894.5 m

Downstream Pond Elevation: - | Notes:

OBSERVATIONS

						Action Required
CREST						
Cracking:	X not apparent		apparent	Notes:		N
Settlement/Uneven:	X not apparent		apparent	Notes:		N
Erosion:	X not apparent		apparent	Notes:		N
Sinkholes:	X not apparent		apparent	Notes:		N
Other Movement:	X not apparent		apparent	Notes:		N
Crest Vegetation:	X not apparent		apparent	Notes:		N
Comments: Continue routine monitoring						Y
DOWNSTREAM SLOPE AND TOE AREA				Approximate Slope Angle: 2H:1V		N
Slope Visually Uniform	X yes		no	Notes:		N
Erosion:	X not apparent		apparent	Notes:		N
Settlement/Uneven:	X not apparent		apparent	Notes:		N
Bulging/Cracking:	X not apparent		apparent	Notes:		N
Sloughing:	X not apparent		apparent	Notes:		N
Slope Protection:	not apparent	X	apparent	Notes:	Concrete cloth armouring on the emergency spillway	N
Animal Burrows:	X not apparent		apparent	Notes:		N
Slope Vegetation:	not apparent	X	apparent	X sparse	moderate heavy	N
				Notes:	Growth of more vegitaion will naturally reduce erosion and rilling.	
Seepage:	X not apparent		apparent			N

Location of Seepage: **1** | Notes:

Estimated Rate: damp | trickle | steady | estimated flow | l/s

Apparent Clarity: clear | muddy | Sample taken: yes | no

Location of Seepage: **2** | Notes:

Estimated Rate: damp | trickle | steady | estimated flow | l/s

Apparent Clarity: clear | muddy | Sample taken: yes | no

Location of Seepage: **3** | Notes:

Estimated Rate: damp | trickle | steady | estimated flow | l/s

Apparent Clarity: clear | muddy | Sample taken: yes | no

Project Number: 109005
Structure Designation: Event Pond Date: August 14, 2021

Apparent Clarity: [ ] clear [ ] muddy Sample taken: [ ] yes [ ] no

Toe Vegetation: [ ] not apparent [X] apparent [X] sparse [ ] moderate [ ] heavy N

Soft Ground at Toe: [X] not apparent [ ] apparent Notes: N

Comments:

UPSTREAM AREA Approximate Slope Angle: 2H:1V N

Erosion: [ ] not apparent [X] apparent Notes: Significant rilling on north slope cut between Event Pond and ADR facility. Y

Degree: [X] minor [ ] severe Type: [ ] waves [X] runoff [ ] flow from discharge

Slope Visually Uniform [ ] yes [X] no Notes: Some uneven ground above northeast corner of Event Pond below the HLF spillway. Y

Settlement/Uneven: [ ] not apparent [X] apparent Notes: Upper access road along HLF spillway shows some settlement. Y

Bulging/Cracking: [X] not apparent [ ] apparent Notes: N

Sloughing: [X] not apparent [ ] apparent Notes: N

Slope Protection: [X] not apparent [ ] apparent Notes: N

Slope Vegetation: [X] not apparent [ ] apparent [ ] sparse [ ] moderate [ ] heavy N

Notes:

Animal Burrows: [X] not apparent [ ] apparent Notes: N

Sinkholes: [X] not apparent [ ] apparent Notes: N

Upstream Surface: [ ] Tailings [X] Water Notes: Water in double lined pond. N

Comments: Monitoring of access road along upper HLF spillway should continue. Event Pond should maintain a minimum water depth of 0.6 meters per updated ballast design. Y

SPILLWAY/FLOW CONTROL STRUCTURE

Type: [ ] none [X] spillway dimensions
[ ] decant [ ] weir invert 894.5 m
[ ] wing walls

Notes: Event Pond emergency spillway invert has been filled in by crushed gravel to serve as access road. Removal of material required.

Flow: Estimated Rate: [ ] L/s [ ] Measured [ ] Estimated [ ] None
Apparent Clarity: [ ] Clear [ ] Muddy [ ] Ice
Gauge in Place: [ ] Reading [ ] Apparent [X] Not Apparent

Comments: Remove material from the Event Pond emergency spillway. Continue routine monitoring. Y

Project Number: 109005
Structure Designation: Event Pond Date: August 14, 2021

DIVERSION/DISCHARGE STRUCTURE

Type: [X] None [ ] Diversion [ ] Discharge Notes:

Blockage: [X] not apparent [ ] apparent N
Location: **1** Notes:
Type: [ ] Debris [ ] Beaver Activity [ ] Siltation
Degree: [ ] Minor [ ] Severe
Location: **2** Notes: N
Type: [ ] Debris [ ] Beaver Activity [ ] Siltation
Degree: [ ] Minor [ ] Severe

Erosion: [X] not apparent [ ] apparent
Location: **1** Notes: N
Degree: [ ] Minor [ ] Severe
Location: **2** Notes: N
Degree: [ ] Minor [ ] Severe

Comments: Continue routine monitoring of diversion/discharge structure. Y

INSTRUMENTATION

None	[ ]		Notes:	
Piezometers	[ ] not apparent	[X] apparent	Notes:	VWP installed in inclined riser pipe to monitor LDRS in lined pond — Y
Monitoring Wells	[X] not apparent	[ ] apparent	Notes:	— Y
Inclinometers	[X] not apparent	[ ] apparent	Notes:	
Survery Stakes	[X] not apparent	[ ] apparent	Notes:	Installation and monitoring of these are required — Y
Other	[X] not apparent	[ ] apparent	Notes:	

Were readings taken while on site? [ ] Yes [X] No Y

Comments: Continue routine monitoring of VWPs. See above comments on automation of LDRS sump

CHANGES FROM PREVIOUS YEAR [X] Not Applicable [ ] Applicable

[ ] Repairs [ ] Construction [ ] Maintenance [ ] Seepage [ ] Other

Comments: See above comments

Project Number: 109005

Structure Designation: Event Pond Date: August 14, 2021

RECOMMENDATIONS

Removal of all material from the Event Pond emergency spillway required. The Event Pond underdrain outlet should be surveyed and properly marked with signage. The Event Pond LDRS sump should be monitored . Automation of pumping and metering of the LDRS is required to be implemented. Continue to monitor the Event Pond per the latest OMS plan. Document all unusual/adverse conditions observed, as well as maintenance work undertaken.

MONITORING/ACTIONS REQUIRED

- [ ] None Required
- [X] Routine Monitoring/Maintenance
- [ ] Increased Monitoring/Maintenance
- [X] Remediation and Engineering Review Necessary

ATTACHMENTS

Plan or Sketch Attached:

Photographs Taken: August 14, 2021

Photographs: Yes

Forte Representative: Clint Green Date: August 14, 2021

APPENDIX C

PHOTOGRAPHS



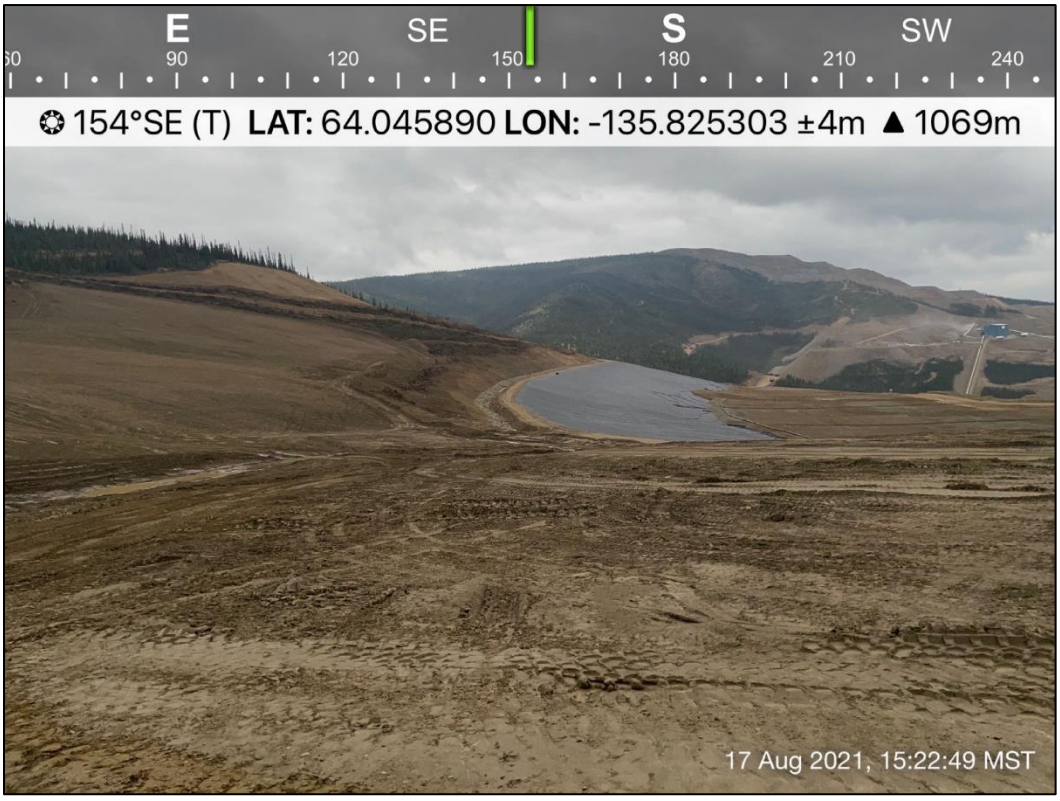
2021_ 1: ADR Ditch



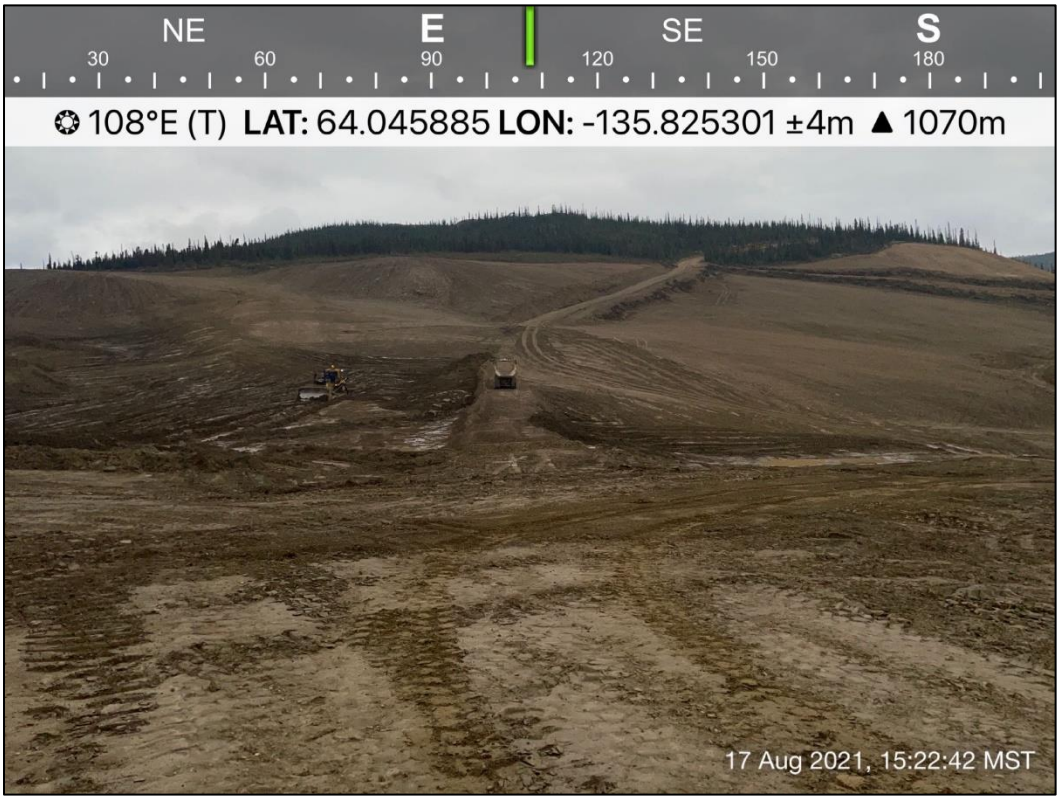
2021_ 2: ADR Ditch



2021_ 3: Process Area



2021_ 4: Top of Phase 1B



2021_ 5: Phase 2 Excavation



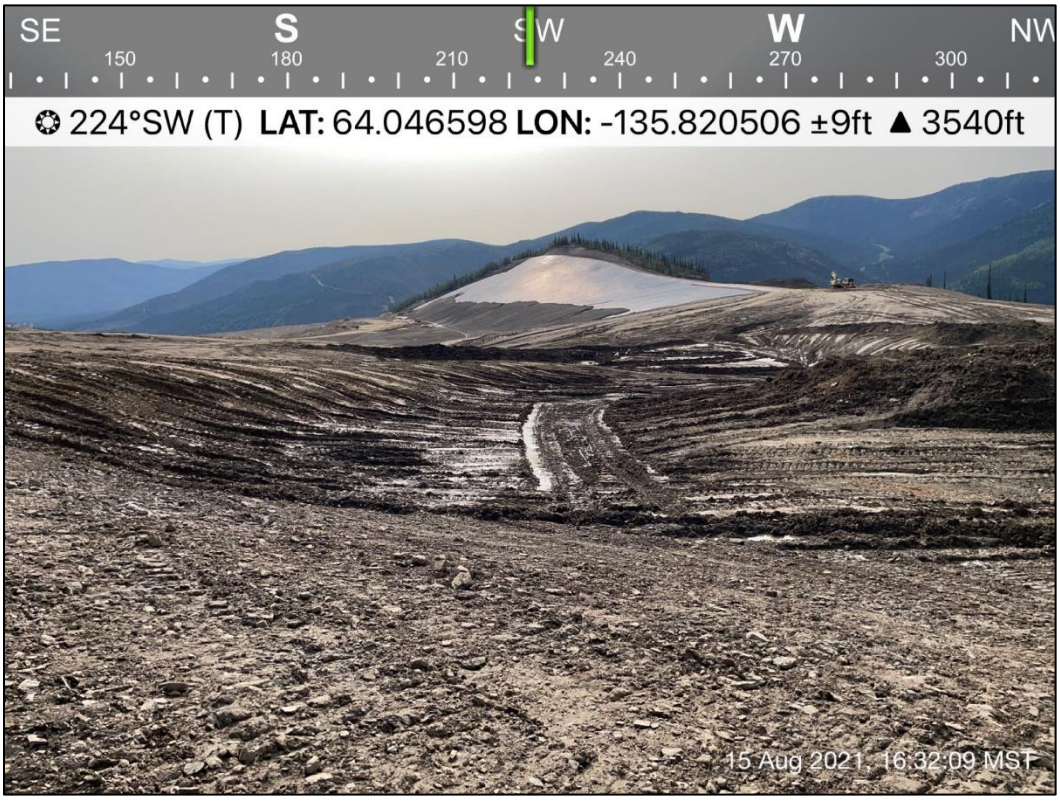
2021_ 6: Phase 2 Excavation



2021_ 7: East Perimeter of Heap



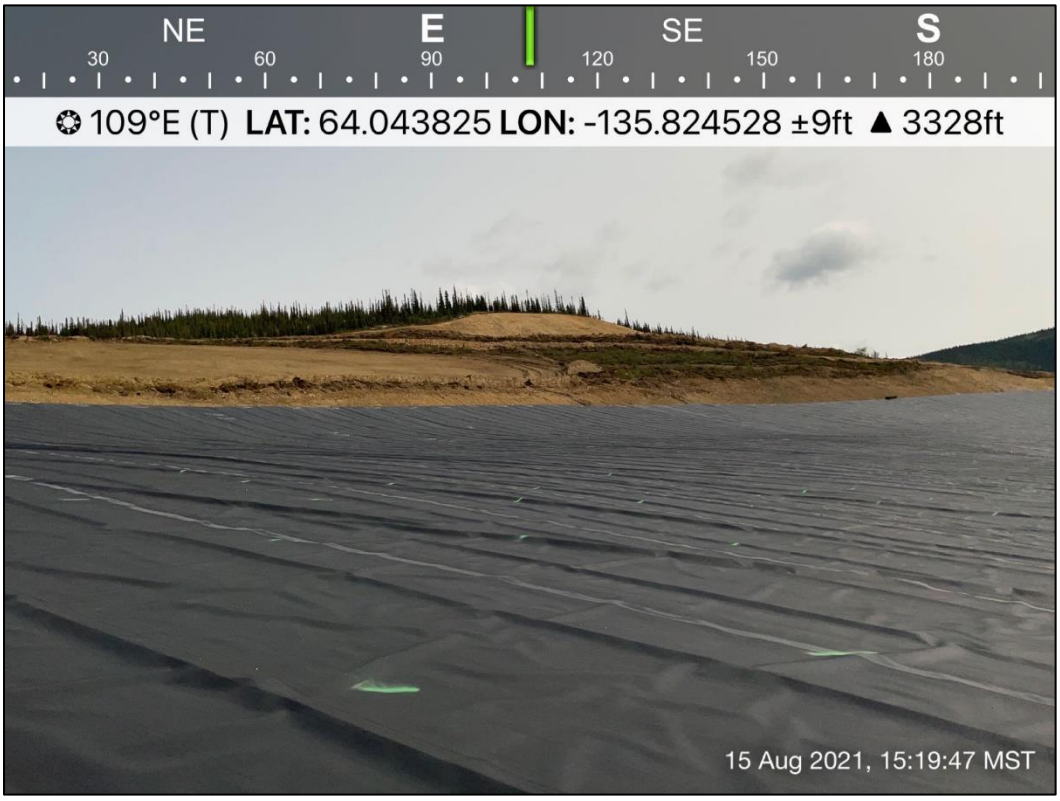
2021_ 8: Phase 2 Foundation Preparation



2021_ 9: Top of Phase 1B



2021_ 10: Loading and Leaching of 1017m Lift



2021_ 11: Phase 2 Clear and Grub Conditions (Background)



2021_ 12: ODF Placement Phase 1B



2021_ 13: Phase 1B Interceptor Ditch



2021_ 14: Phase 1B Interceptor Ditch



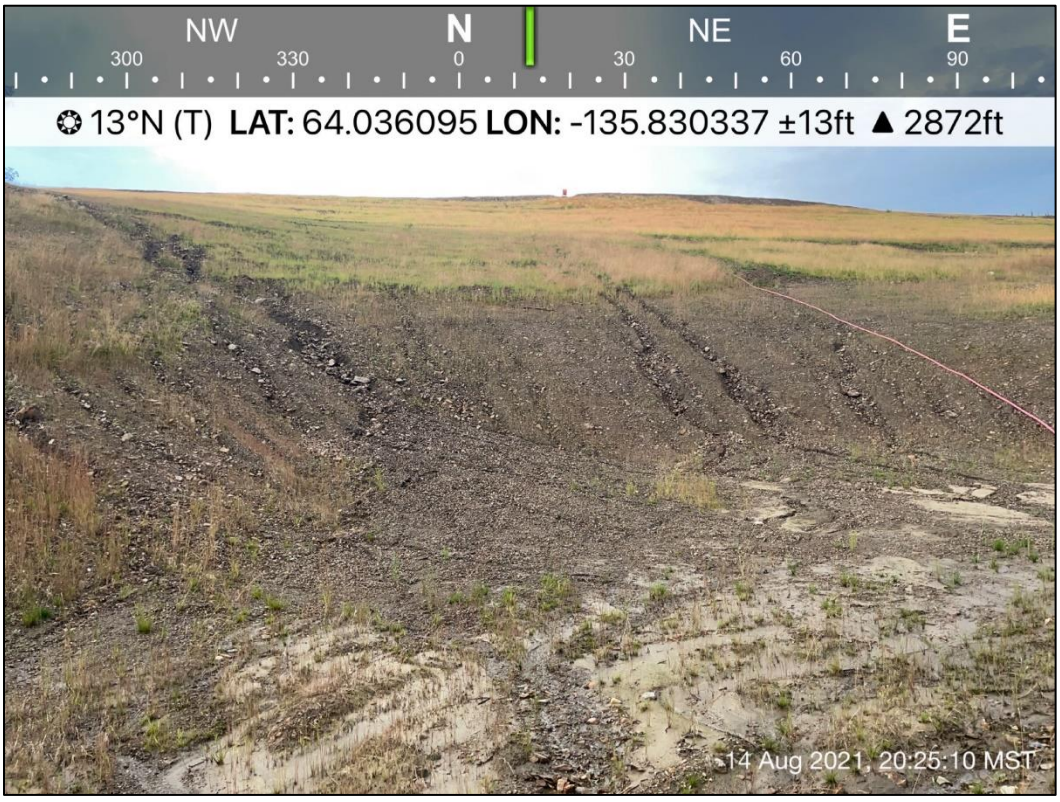
2021_ 15: RAP Outfall of Phase 1B Interceptor



2021_ 16: East Perimeter Berm



2021_ 17: UMV



2021_ 18: Toe of HLF Embankment



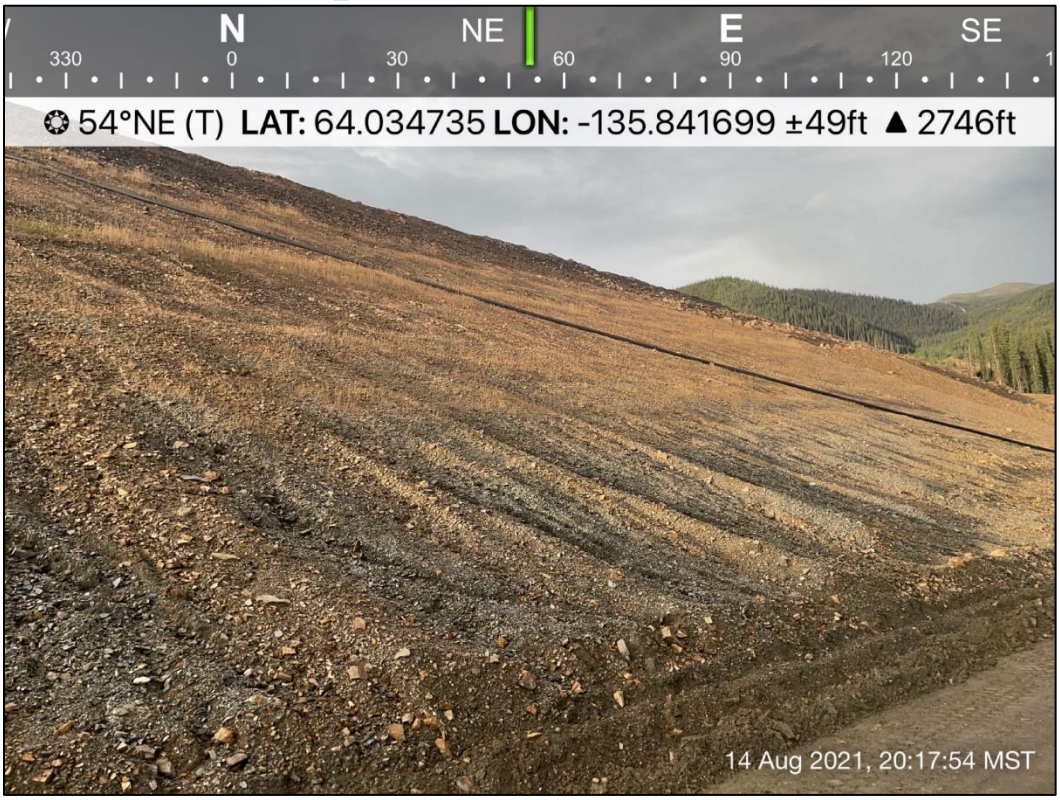
2021_ 19: Erosion at UMV



2021_ 20: Underdrain Outlet



2021_ 21: Event Pond Underdrain Outlet



2021_ 22: Event Pond Fill Slope



2021_ 23: HLF Spillway Access Berm



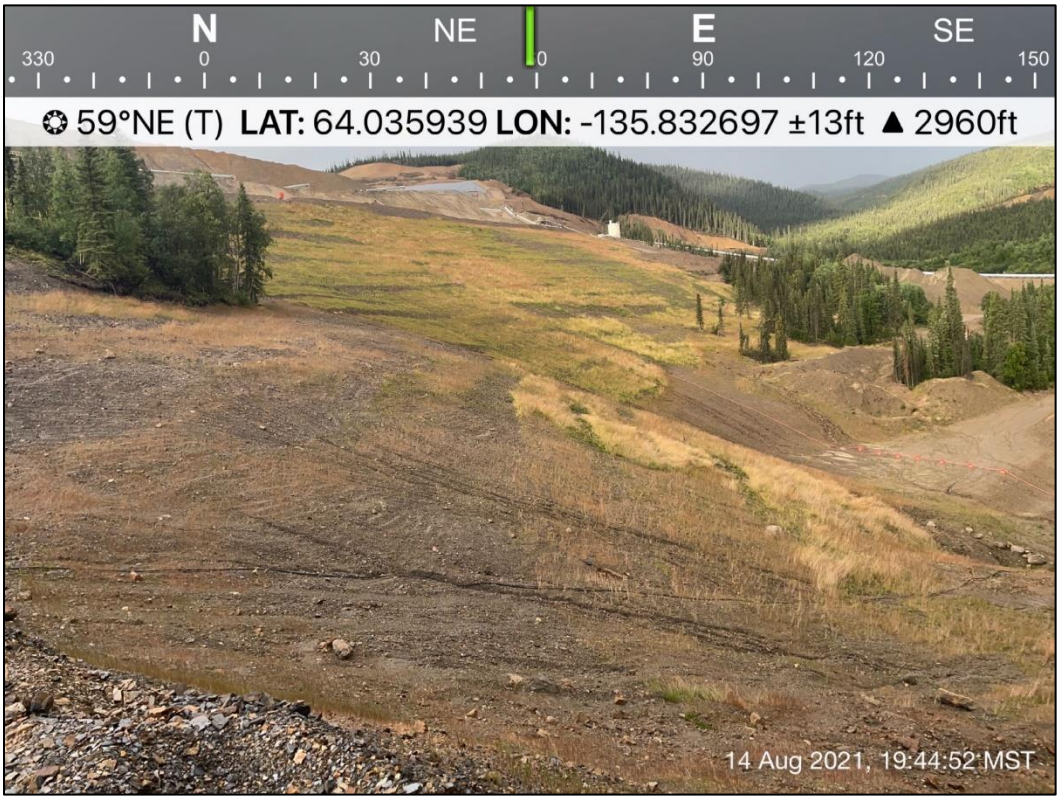
2021_ 24: Downhill Face of HLF Embankment



2021_ 25: Event Pond



2021_ 26: Rills Along North End of Event Pond and New ADR Water Line



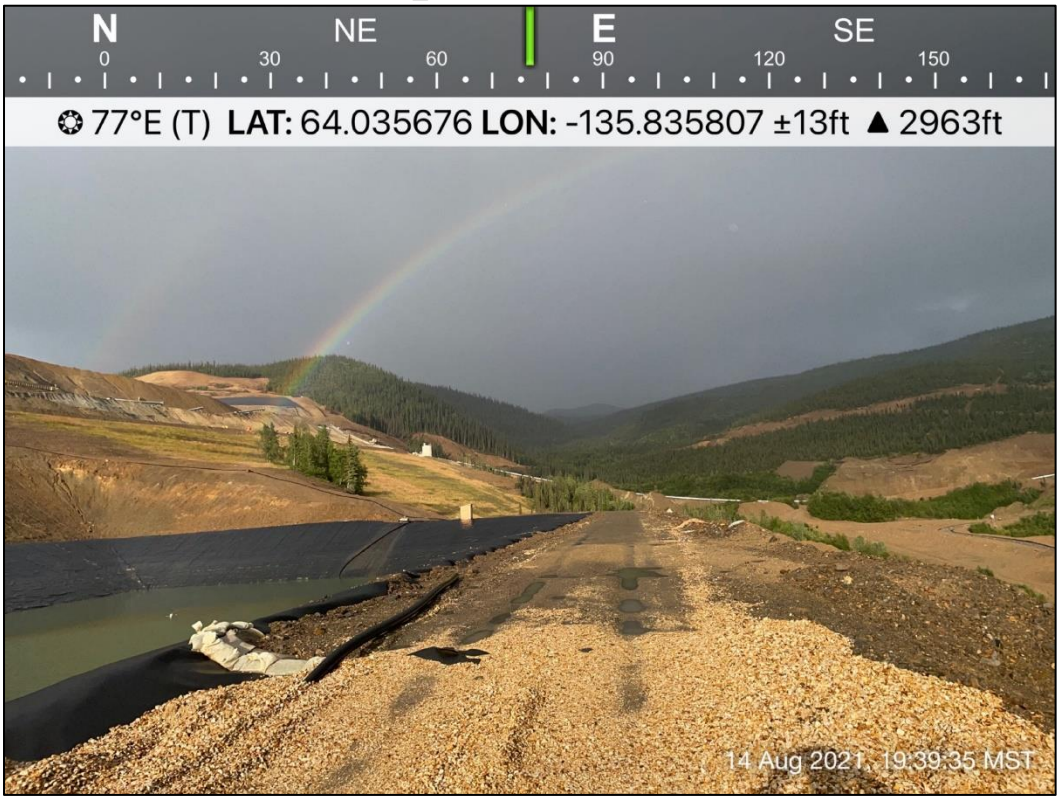
2021_ 27: HLF Embankment



2021_ 28: Unsuitable Material from Phase 1A Stockpile



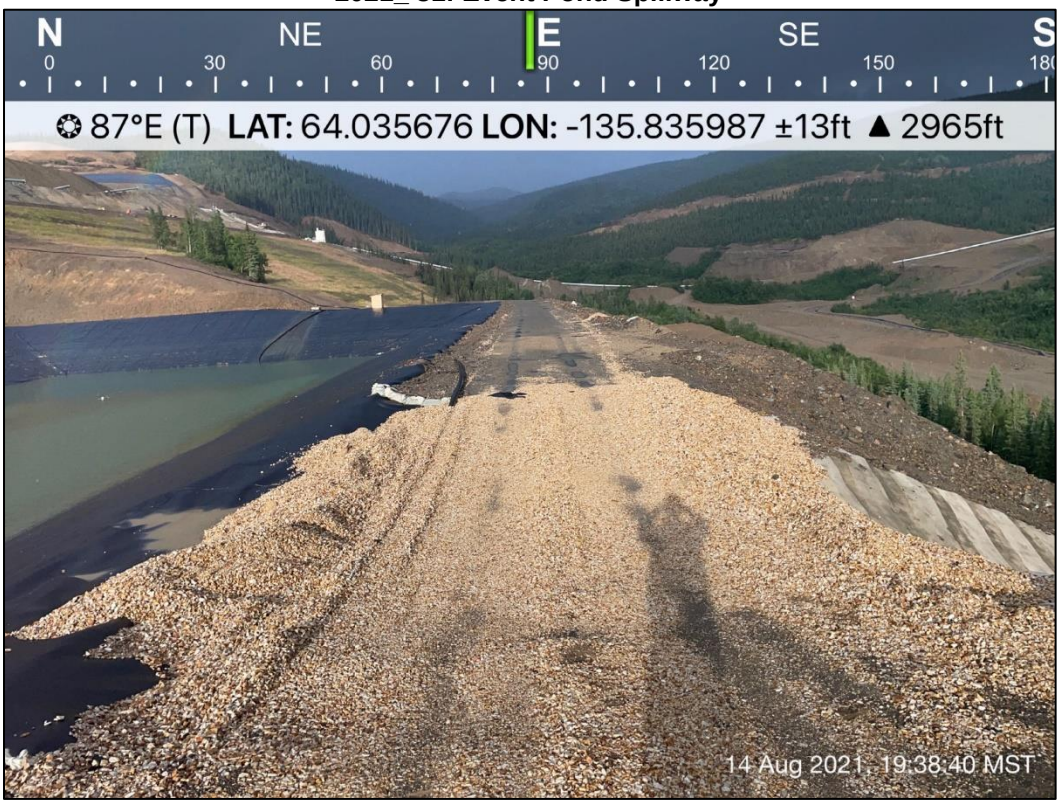
2021_ 29: Event Pond Crest



2021_ 30: Event Pond, Event Pond Spillway and HLF UMV Transfer Pipe on Eastern Bank



2021_ 31: Event Pond Spillway



2021_ 32: Event Pond Spillway



2021_ 33: Rills on Upstream Cut of Event Pond



2021_ 34: Event Pond LDRS



2021_ 35: HLF Spillway



2021_ 36: HLF Spillway Erosion



2021_ 37: HLF Spillway Channel



2021_ 38: HLF Spillway Access Road



2021_ 39: HLF Spillway Culverts



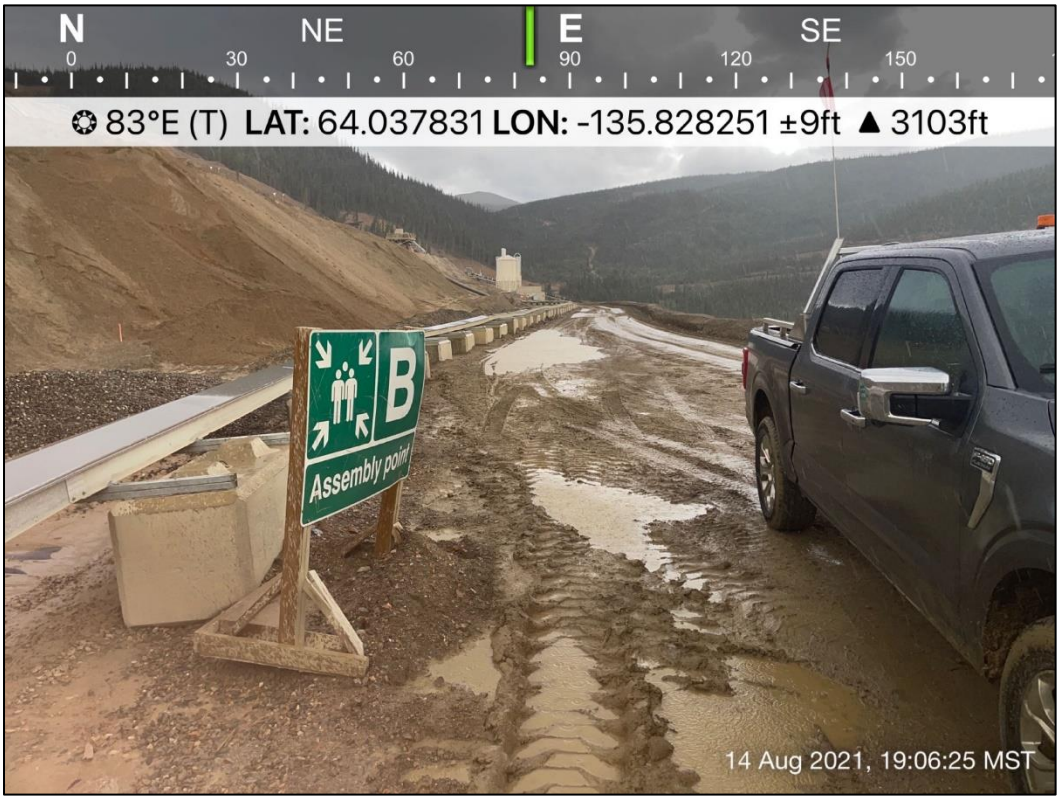
2021_ 40: HLF Spillway Access Road



2021_ 41: HLF Spillway Inlet



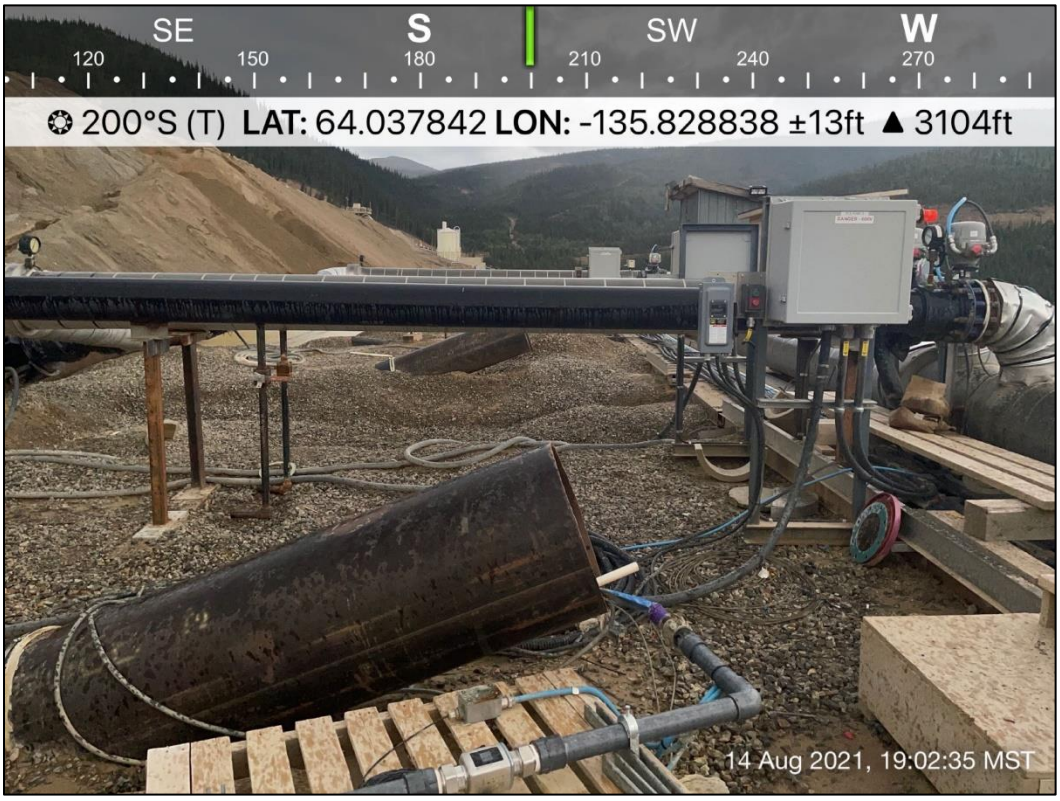
2021_ 42: HLF Embankment Crest



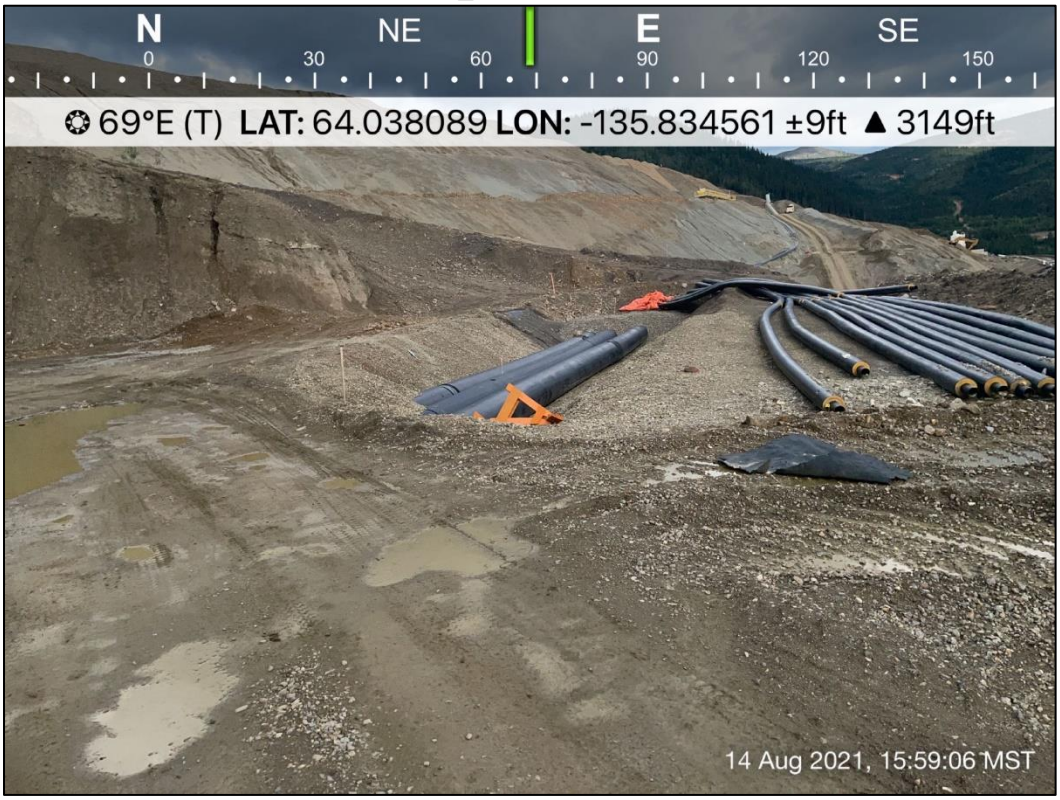
2021_ 43: Assembly Point at HLF Embankment Crest



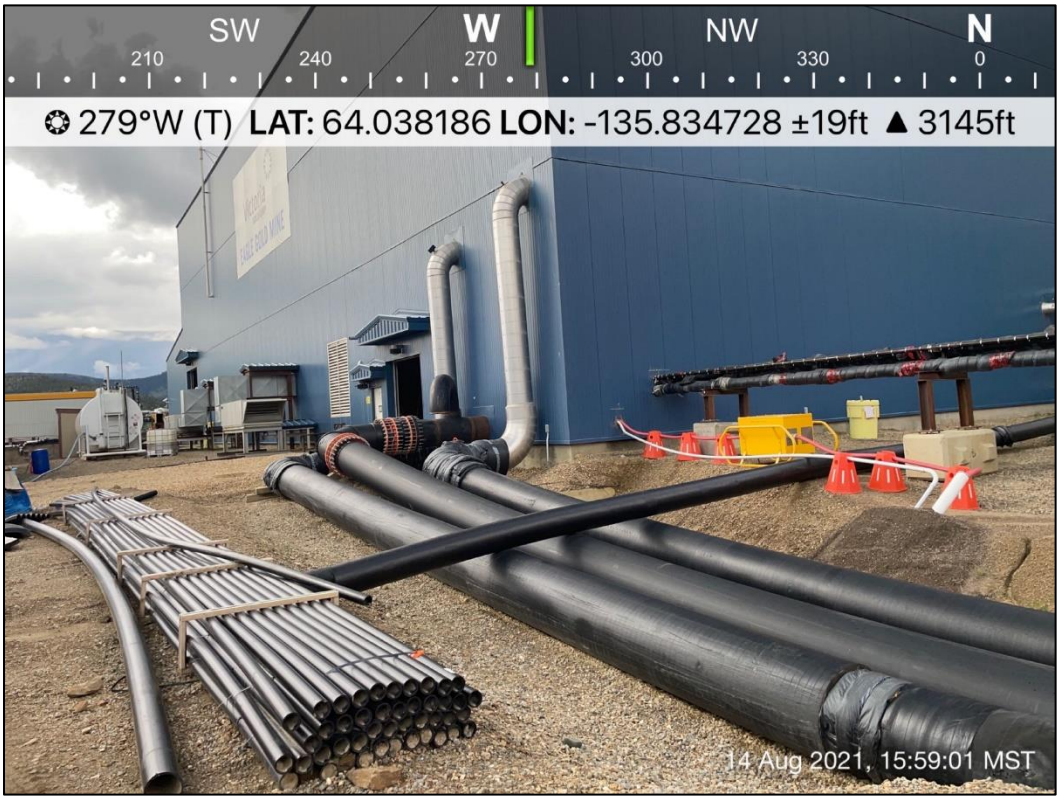
2021_ 44: Piezometers



2021_ 45: HLF LDRS



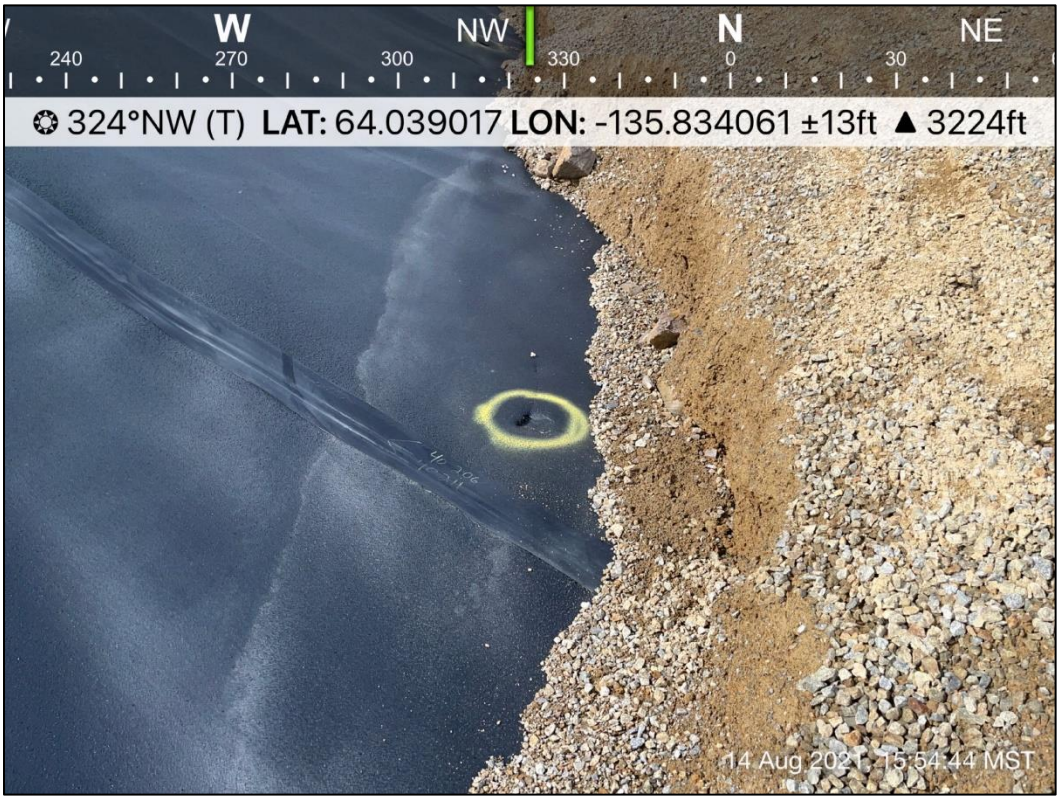
2021_ 46: Pregnant and Barren Solution Lines from ADR to HLF in Containment Ditch



2021_ 47: Pregnant and Barren Lines from Process Facility



2021_ 48: West Perimeter of Heap



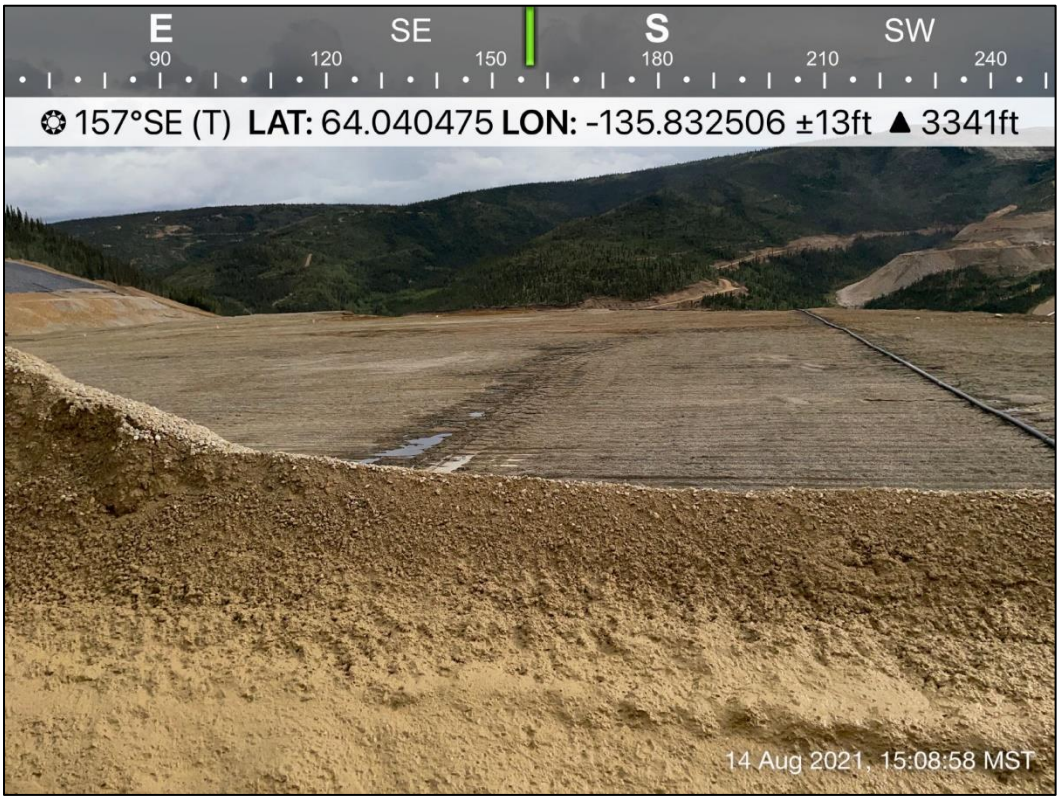
2021_ 49: Required Liner Repair Along West Perimeter



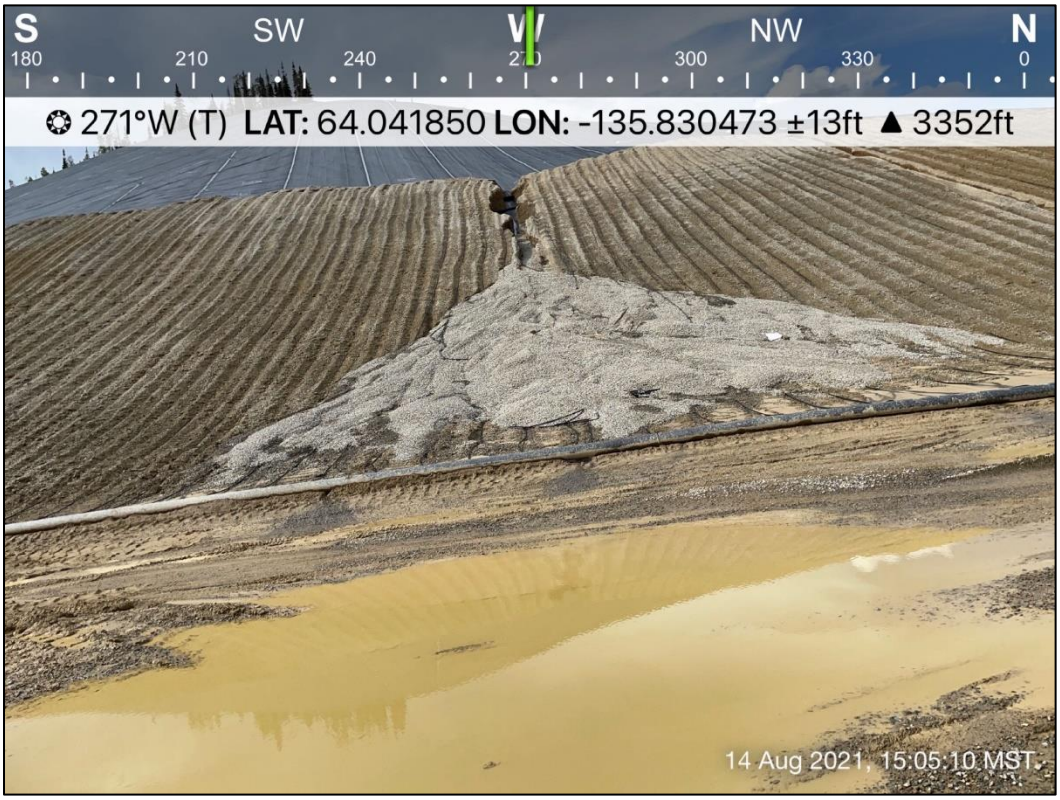
2021_ 50: East Heap Perimeter Encroachment of Ore Over Liner



2021_ 51: East Heap Perimeter Encroachment of Ore Over Liner



2021_ 52: Leaching of 1005 Lift



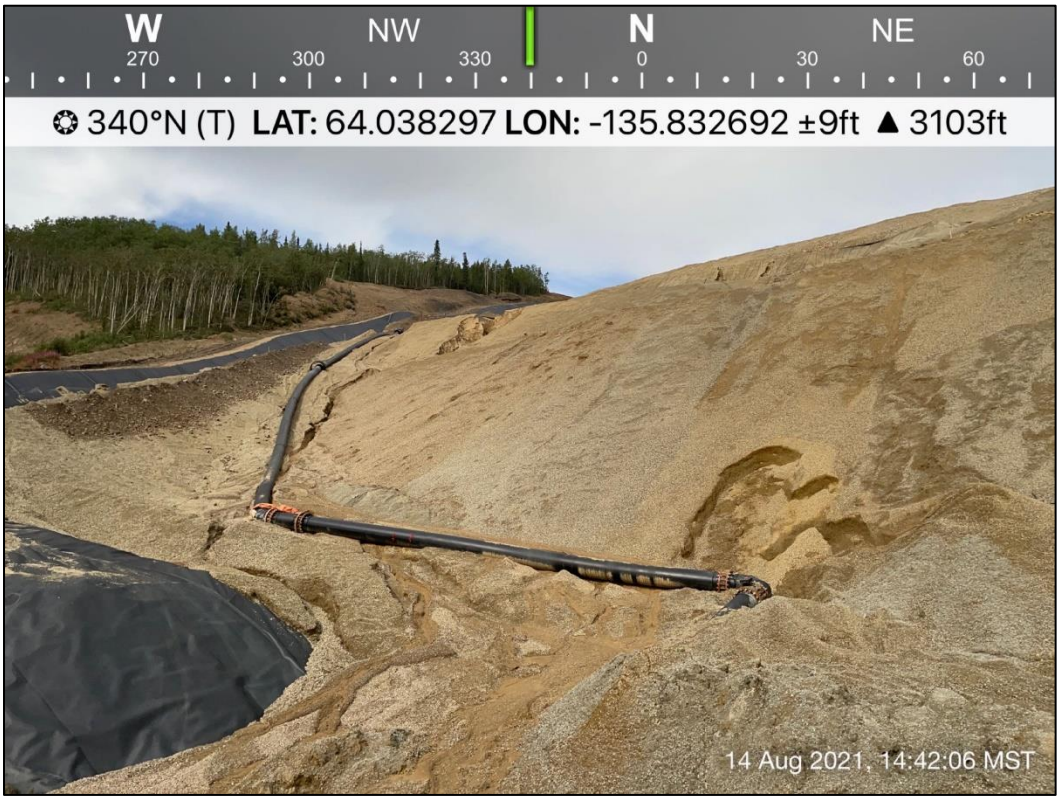
2021_ 53: ODF Washout on West Side of Phase 1B



2021_ 54: Surficial Slough of Ore



2021_ 55: Lines to ADR



2021_ 56: Barren Leach Solution Piping and Toe of Heap



2021_ 57: In-Heap Pond Spillway Culverts and PLS Pipe



2021_ 58: Barren Leach Solution Piping and Toe of Heap

APPENDIX D

HLF Embankment and Event Pond Erosion Control Plan Exhibit

75 0 75

(In Meters)
1 cm = 25 M
(1 : 2,500)

PROCESS PLANT

HEAD OF IN-HEAP POND SPILLWAY

EMBANKMENT CREST

AS-BUILT UNDERDRAIN LINES

IN-HEAP POND SPILLWAY

RIPRAP FOR EROSION CONTROL

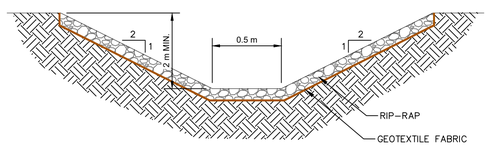
EVENT POND

AS-BUILT MONITORING VAULT

DIVERSION CHANNEL AROUND MONITORING VAULT (SEE DETAIL A THIS SHEET)

EMERGENCY SPILLWAY

EVENT POND UNDERDRAIN OUTLET



DIVERSION CHANNEL TYPICAL SECTION

A
-

SCALE: NTS

ISSUE	DATE	DESCRIPTION	DRAWN	DSGN	CHKD	APPD
	092920		SMC			

COORD SYSTEM: NAD 83 UTM ZONE 8

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FIELD DEVIATIONS FROM THIS DESIGN ARE NOT PERMITTED WITHOUT DOCUMENTED APPROVAL BY THE ENGINEER.

FDI PROJECT NO: 1090505

PREPARED BY:

FORTE DYNAMICS
120 COMMERCE DRIVE, UNITS 3 & 4
FORT COLLINS, CO 80524

VICTORIA EAGLE GOLD, PHLF

PHLF EMBANKMENT AND EVENT POND EROSION CONTROL PLAN

YUKON, CANADA

DRAWING NUMBER:

EXH-F000

[scrank] [Nov 17, 2020 – 8:23am] [C:\Users\Scrank\Documents\Work from Home\Victoria\CAD\DRAWINGS\WORKING–TEMPORARY\Geology Maps.dwg]



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FORTE DYNAMICS

APPENDIX R

2021 Reportable Spill Details

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	Summit Catering Limited		
Date Observed:	January 13 202[illegible]	**Time Observed:** 15:00	
Location of Spill:	F dorm lift station	**VGC Tracking Number:** 001	
Distance to Waterbody:	350m	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	150L	**Reported to:** CB, RA	

PERSON/DEPT. RESPONSIBLE FOR SPILL	
Supervisor/Investigator:	Rob Andres
Date of Spill:	January 13 202[illegible], 15:00
Substance Spilled:	Sewage
Equipment Involved:	Lift station, high limit float
Volume of Contaminated Material:	N/A- liquid on top of ice sucked up with vaccum truck- bleach solution applied
Personnel Contacted for Disposal (Name):	N/A
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	January 13th, 202[illegible], a sewage release occurred from the F dorm lift station. After initial investigation, it was determined that the high level float inside the lift station failed to operate. The float was removed, evaluated and replaced in working order. The cause of the of float failure was due to it becoming jammed with an excessive amount of paper products.
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Camp Manager was immediately notified of the sewage release. The water to the dormitory was shut off. The lift station was sucked down by vacuum truck, accessed, and the float repaired upon determining the cause of the spill. The released sewage was contained to the adjacent pad and a bleach solution applied to the affected area.

ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	21-002	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Reported to Cam at the Spill hotline on January 13 20:00		
Disposal Container Labelled?	☐ Yes ☑ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	Camp Pad		
Method of Disposal & Further Remediation Required:	Bleach solution was used to disinfect the area after clean up was performed.		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:**	

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	ROB ANDRES	**Signature:**	Rob Andres
Safety:		**Signature:**	
Environment:	Bill Bowden	**Signature:**	Bill Bowden

Victoria GOLD CORP	**Additional Spill Information**		
Spill Date:	January 13, 2021	VGC Spill #	VGC20-001
Volume (L):	150L	Yukon Government #	21-002
Substance	Sewage	Location	F dorm camp pad



Photo 1: Initial sewage release from the F dormitory lift station situated on the accommodations pad prior to spill clean-up.

Victoria GOLD CORP	Additional Spill Information		
Spill Date:	January 13, 2021	VGC Spill #	VGC20-001
Volume (L):	150L	Yukon Government #	21-002
Substance	Sewage	Location	F dorm camp pad



Photo 2: F dormitory lift station situated on the accommodations pad following spill cleanup and bleach solution application.

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	Victoria Gold (Yukon) Corp.		
Date Observed:	March 15, 2021	**Time Observed:** ~4:30 AM	
Location of Spill:	Heap Leach Pad / Road	**VGC Tracking Number:** VGC21-012	
Distance to Waterbody:	~250m	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	70 Litres	**Reported to:** Process	
PERSON/DEPT. RESPONSIBLE FOR SPILL			
Supervisor/Investigator:	Corey Hancock		
Date of Spill:	March 15, 2021		
Substance Spilled:	Process Solution		
Equipment Involved:	N/A		
Volume of Contaminated Material:	~3 m3 of potentially contaminated snow, soils and over excavated materials		
Personnel Contacted for Disposal (Name):	Process Operations		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	A pipeline which had been distributing barren solution to a new leaching area within the HLF froze. This resulted in localized pooling of barren solution on the ore pile. The pooled solution created channelized flows within the ore stack. The flows bypassed a french drain on the east side of the Heap (previously installed to mitigate this potential) resulting in solution seeping through mounded ore and snow at the base of the transfer tower onto the embankment road.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Application of solution to the area was immediately shut down which halted the release. Solution that had migrated out of containment onto the road was contained with the use of an earthen berm. Potentially contaminated road material, snow, ice and finally the berm were excavated with all material placed within the lined HLF.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	21-013	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	N/A		
Disposal Container Labelled?	☐ Yes ☐ No	**Samples taken?**	☑ Yes ☐ No
Environmental areas affected: (Watercourse, soil, etc.):	Heap Leach embankment road		
Method of Disposal & Further Remediation Required:	Potentially contaminated material was placed within the lined HLF. Remediation done		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:**	
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	Tyler Christian	**Signature:**	
Safety:		**Signature:**	
Environment:	Bill Bowden	**Signature:**	

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	March 15, 2021	VGC Spill #	VGC21-012
Volume (L):	70L	Yukon Government #	21-013
Substance	Process Solution	Location	Heap Leach Pad / Embankment Road

Additional Information:

Following the identification and prompt containment of the minor Process Solution release on March 15, potentially contaminated ice, snow and frozen surficial road material was excavated and deposited into the lined containment of the Heap Leach Pad.

Photos 1 to 5 provide an overview of the seepage location, the solution capture point and the extent of the potentially impacted materials which were removed.

Photos 6 shows the long-term mitigation measure to ensure that a release due to these circumstances is not experienced again. The HLF liner edge is to remain fully exposed so that no ore or snow build up can provide a potential flow path.

The rapid response, clean-up and cold temperatures (-30°C) are believed to have prevented solution from seeping into the embankment roadway or interacting with potential downstream receiving environments. Despite this assumption, and as discussed herein, excavation of the surficial material was undertaken. Soil samples were taken along the floor of the excavated road and road fill slope to ensure that potentially contaminated material was retrieved for proper disposal in the lined containment of the HLF. The results of these samples and details of any further remediation efforts that may be necessary based on those results will be provided to the inspector as soon as they are available.

Additionally, water samples were taken from the following surface water monitoring locations:

- Two stations on Dublin Gulch (W1, W21)
- Three stations on Haggart Creek (W22, W4, W29)

Final ALS laboratory results for the above surface water quality monitoring locations are attached and show no detection of cyanide or any potential daughter products.

A secondary French drain that will run North to South (Photo 1) is currently being excavated into the ore pile within the HLF on the southeast side of the Heap Leach Pad where the release occurred. This will support the existing French drain that is installed traveling East to West. The Heap Leach embankment liner is currently being excavated and exposed for future monitoring of the area (Photo 7).

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	March 15, 2021	VGC Spill #	VGC21-012
Volume (L):	70L	Yukon Government #	21-013
Substance	Process Solution	Location	Heap Leach Pad / Embankment Road

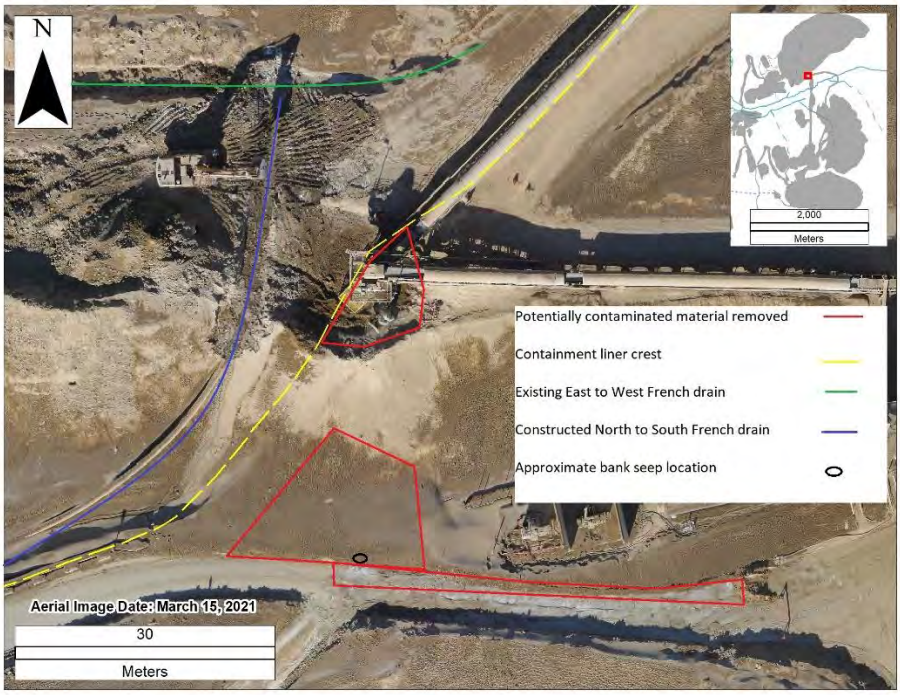


Photo 1: Overview of Process Solution release area



Photo 2: Initial location of Process Solution release, viewing south (March 15 ~06:00)

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	March 15, 2021	VGC Spill #	VGC21-012
Volume (L):	70L	Yukon Government #	21-013
Substance	Process Solution	Location	Heap Leach Pad / Embankment Road



Photo 3: Process Solution flow path contained with earthen berm on HLF embankment road, viewing west (March 15 ~07:00)



Photo 4: HLF embankment road following removal of potentially contaminated surficial ice, viewing east (March 16)

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	March 15, 2021	VGC Spill #	VGC21-012
Volume (L):	70L	Yukon Government #	21-013
Substance	Process Solution	Location	Heap Leach Pad / Embankment Road



Photo 5: HLF embankment road during secondary excavation of potentially contaminated road material (following surficial ice removal), viewing east (March 16)



Photo 6: The HLF embankment road fill slope undergoing removal of potentially contaminated material for relocation onto the Heap Leach Pad (March 17)

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	March 15, 2021	VGC Spill #	VGC21-012
Volume (L):	70L	Yukon Government #	21-013
Substance	Process Solution	Location	Heap Leach Pad / Embankment Road



Photo 7: The HLF liner edge being excavated and exposed for further monitoring of the release location (March 17)

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA21A4964**	Page	: 1 of 6
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: Spill Confirmation	Date Samples Received	: 17-Mar-2021 16:30
PO	: 22036	Date Analysis Commenced	: 19-Mar-2021
C-O-C number	: 20210316a	Issue Date	: 25-Mar-2021 11:18
Sampler	: KP/PE		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 6		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Clarie Tejano	Laboratory Assistant	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Gloria Chan	Lab Analyst	Metals, Burnaby, British Columbia
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Inorganics, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
%	percent
µS/cm	Microsiemens per centimetre
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W29	W4	W22	W21	W1
					Client sampling date / time	15-Mar-2021 13:25	15-Mar-2021 13:50	15-Mar-2021 14:20	15-Mar-2021 15:00	15-Mar-2021 15:30
						VA21A4964-001	VA21A4964-002	VA21A4964-003	VA21A4964-004	VA21A4964-005
						Result	Result	Result	Result	Result
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		131	116	116	72.3	50.4
conductivity	----	E100	2.0	µS/cm		426	394	397	239	152
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		218	195	202	110	67.8
hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L		215	194	202	112	68.2
pH	----	E108	0.10	pH units		8.17	8.02	8.06	8.05	7.84
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L		272	247	253	151	100
solids, total suspended [TSS]	----	E160-H	3.0	mg/L		<3.0	<3.0	<3.0	<3.0	<3.0
turbidity	----	E121	0.10	NTU		1.01	1.04	1.05	1.29	0.62
pH @ 15°C (WSER)	----	E108A	0.10	pH units		7.76	7.59	7.67	7.90	7.69
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
ammonia, un-ionized (as N), 15C (WSER)	7664-41-7	EC298	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
cyanate	88402-73-7	E343	0.20	mg/L		<0.20	<0.20	<0.20	<0.20	<0.20
fluoride	16984-48-8	E235.F	0.020	mg/L		0.132	0.126	0.126	0.111	0.104
Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L		<0.050	<0.050	<0.050	0.052	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		0.156	0.170	0.166	0.203	0.180
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
nitrogen, total	7727-37-9	E366	0.030	mg/L		0.193	0.188	0.183	0.232	0.231
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L		<0.0010	<0.0010	<0.0010	0.0030	0.0041
phosphorus, total	7723-14-0	E372-U	0.0020	mg/L		<0.0020	<0.0020	0.0048	0.0053	0.0075
phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L		<0.0020	<0.0020	<0.0020	0.0044	0.0050
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		102	95.3	98.6	47.8	23.9
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cyanide, weak acid dissociable	----	E336	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
thiocyanate	302-04-5	E344	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		1.60	0.97	1.15	1.32	1.24

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W29	W4	W22	W21	W1
					Client sampling date / time	15-Mar-2021 13:25	15-Mar-2021 13:50	15-Mar-2021 14:20	15-Mar-2021 15:00	15-Mar-2021 15:30
						VA21A4964-001	VA21A4964-002	VA21A4964-003	VA21A4964-004	VA21A4964-005
						Result	Result	Result	Result	Result
Organic / Inorganic Carbon										
carbon, total organic [TOC]	----	E355-L	0.50	mg/L		1.29	1.05	0.90	1.34	0.97
Ion Balance										
anion sum	----	EC101	0.10	meq/L		4.76	4.32	4.39	2.46	1.52
cation sum	----	EC101	0.10	meq/L		4.50	4.02	4.17	2.33	1.46
ion balance (cation-anion difference)	----	EC101	0.010	%		2.81	3.60	2.57	2.71	2.01
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.0074	0.0184	0.0140	0.0636	0.0511
antimony, total	7440-36-0	E420	0.00010	mg/L		0.00050	0.00031	0.00023	0.00156	0.00120
arsenic, total	7440-38-2	E420	0.00010	mg/L		0.00247	0.00190	0.00073	0.0342	0.0323
barium, total	7440-39-3	E420	0.00010	mg/L		0.0474	0.0448	0.0449	0.0608	0.0569
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000215	0.0000257	0.0000260	0.0000087	0.0000092
calcium, total	7440-70-2	E420	0.050	mg/L		50.6	45.6	47.3	28.4	19.2
chromium, total	7440-47-3	E420.Cr-L	0.00010	mg/L		<0.00010	<0.00010	<0.00010	0.00014	0.00015
cobalt, total	7440-48-4	E420	0.00010	mg/L		0.00021	0.00029	0.00034	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L		0.050	0.159	0.183	0.112	0.079
lead, total	7439-92-1	E420	0.000050	mg/L		<0.000050	0.000062	<0.000050	0.000208	0.000140
lithium, total	7439-93-2	E420	0.0010	mg/L		0.0083	0.0080	0.0084	0.0086	0.0031
magnesium, total	7439-95-4	E420	0.100	mg/L		21.5	19.5	20.4	9.93	4.93
manganese, total	7439-96-5	E420	0.00010	mg/L		0.0978	0.0841	0.0968	0.0126	0.00234
mercury, total	7439-97-6	E508	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.000165	0.000136	<0.000050	0.00162	0.00209
nickel, total	7440-02-0	E420	0.00050	mg/L		0.00184	0.00198	0.00223	0.00072	<0.00050
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.100	mg/L		1.42	1.38	1.29	1.29	0.953
selenium, total	7782-49-2	E420	0.000050	mg/L		0.000247	0.000273	0.000214	0.000308	0.000246
silicon, total	7440-21-3	E420	0.10	mg/L		4.71	4.76	4.80	7.15	6.82
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W29	W4	W22	W21	W1
					Client sampling date / time	15-Mar-2021 13:25	15-Mar-2021 13:50	15-Mar-2021 14:20	15-Mar-2021 15:00	15-Mar-2021 15:30
						VA21A4964-001	VA21A4964-002	VA21A4964-003	VA21A4964-004	VA21A4964-005
						Result	Result	Result	Result	Result
Total Metals										
sodium, total	17341-25-2	E420	0.050	mg/L		2.56	2.42	2.29	2.25	1.90
strontium, total	7440-24-6	E420	0.00020	mg/L		0.272	0.244	0.244	0.172	0.108
sulfur, total	7704-34-9	E420	0.50	mg/L		34.4	31.5	33.8	15.8	7.97
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		<0.00030	0.00052	0.00039	0.00298	0.00355
uranium, total	7440-61-1	E420	0.000010	mg/L		0.00194	0.00153	0.00148	0.00152	0.000762
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		0.0037	0.0051	0.0058	<0.0030	<0.0030
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0024	0.0014	0.0050	0.0022	0.0051
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		0.00046	0.00027	0.00021	0.00142	0.00106
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.00223	0.00158	0.00050	0.0309	0.0304
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.0462	0.0444	0.0441	0.0609	0.0533
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000215	0.0000216	0.0000242	0.0000079	0.0000069
calcium, dissolved	7440-70-2	E421	0.050	mg/L		49.3	44.0	44.5	26.1	18.5
chromium, dissolved	7440-47-3	E421.Cr-L	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		0.00019	0.00024	0.00030	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L		0.00025	<0.00020	<0.00020	0.00023	<0.00020
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.010	0.013	0.015	<0.010	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		0.0076	0.0074	0.0074	0.0072	0.0026
magnesium, dissolved	7439-95-4	E421	0.100	mg/L		23.0	20.6	22.0	10.8	5.26
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.0940	0.0769	0.0886	0.00991	0.00014
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.000142	0.000118	0.000066	0.00153	0.00190
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		0.00177	0.00193	0.00206	0.00061	<0.00050

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W29	W4	W22	W21	W1
					Client sampling date / time	15-Mar-2021 13:25	15-Mar-2021 13:50	15-Mar-2021 14:20	15-Mar-2021 15:00	15-Mar-2021 15:30
						VA21A4964-001	VA21A4964-002	VA21A4964-003	VA21A4964-004	VA21A4964-005
						Result	Result	Result	Result	Result
Dissolved Metals										
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L		1.36	1.24	1.23	1.24	0.902
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.000294	0.000330	0.000226	0.000281	0.000243
silicon, dissolved	7440-21-3	E421	0.050	mg/L		4.62	4.59	4.52	6.36	6.36
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		2.50	2.22	2.32	2.40	1.89
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.260	0.233	0.247	0.168	0.103
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		33.1	30.6	32.0	14.9	7.10
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.00194	0.00150	0.00144	0.00150	0.000724
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		0.0034	0.0042	0.0046	0.0021	<0.0010
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA21A4964**	Page	: 1 of 27
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: Spill Confirmation	Date Samples Received	: 17-Mar-2021 16:30
PO	: 22036	Issue Date	: 25-Mar-2021 11:18
C-O-C number	: 20210316a		
Sampler	: KP/PE		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 6		
No. of samples analysed	: 5		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 15:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 15:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) W1	E298	15-Mar-2021	19-Mar-2021	28 days	3 days	✓	19-Mar-2021	24 days	0 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) W21	E298	15-Mar-2021	19-Mar-2021	28 days	3 days	✓	19-Mar-2021	24 days	0 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) W22	E298	15-Mar-2021	19-Mar-2021	28 days	3 days	✓	19-Mar-2021	24 days	0 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) W29	E298	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	19-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) W4	E298	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	19-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W1	E235.Br-L	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W21	E235.Br-L	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W22	E235.Br-L	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W29	E235.Br-L	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W4	E235.Br-L	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W1	E235.Cl	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W21	E235.Cl	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W22	E235.Cl	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W29	E235.Cl	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W4	E235.Cl	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E343	15-Mar-2021	----	----	----		24-Mar-2021	----	----	

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E343	15-Mar-2021	----	----	----		24-Mar-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E343	15-Mar-2021	----	----	----		24-Mar-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E343	15-Mar-2021	----	----	----		24-Mar-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W4	E343	15-Mar-2021	----	----	----		24-Mar-2021	----	----	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W1	E378-U	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W21	E378-U	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W22	E378-U	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W29	E378-U	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W4	E378-U	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE W1	E235.F	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W21	E235.F	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W22	E235.F	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W29	E235.F	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W4	E235.F	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W1	E235.NO3-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W21	E235.NO3-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W22	E235.NO3-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W29	E235.NO3-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W4	E235.NO3-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W1	E235.NO2-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W21	E235.NO2-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W22	E235.NO2-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W29	E235.NO2-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W4	E235.NO2-L	15-Mar-2021	----	----	----		20-Mar-2021	3 days	4 days	× EHTL
Anions and Nutrients : Sulfate in Water by IC										
HDPE W1	E235.SO4	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE W21	E235.SO4	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE W22	E235.SO4	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W29	E235.SO4	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W4	E235.SO4	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W21	E375-T	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W22	E375-T	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W29	E375-T	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W4	E375-T	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W1	E375-T	15-Mar-2021	21-Mar-2021	28 days	5 days	✓	22-Mar-2021	22 days	0 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W21	E318	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	22-Mar-2021	23 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W22	E318	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	22-Mar-2021	23 days	2 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) W29	E318	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	22-Mar-2021	23 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) W4	E318	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	22-Mar-2021	23 days	2 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid) W1	E318	15-Mar-2021	21-Mar-2021	28 days	5 days	✓	23-Mar-2021	22 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) W21	E366	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	22-Mar-2021	23 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) W22	E366	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	22-Mar-2021	23 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) W29	E366	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	22-Mar-2021	23 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) W4	E366	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	22-Mar-2021	23 days	2 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid) W1	E366	15-Mar-2021	21-Mar-2021	28 days	5 days	✓	23-Mar-2021	22 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid) W21	E372-U	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W22	E372-U	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W29	E372-U	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W4	E372-U	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W1	E372-U	15-Mar-2021	21-Mar-2021	28 days	5 days	✓	22-Mar-2021	22 days	0 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W1	E344	15-Mar-2021	----	----	----		22-Mar-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W21	E344	15-Mar-2021	----	----	----		22-Mar-2021	14 days	7 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W22	E344	15-Mar-2021	----	----	----		22-Mar-2021	14 days	7 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W29	E344	15-Mar-2021	----	----	----		22-Mar-2021	14 days	7 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W4	E344	15-Mar-2021	----	----	----		22-Mar-2021	14 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E333	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E333	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E333	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E333	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W4	E333	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E336	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E336	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E336	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E336	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W4	E336	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Dissolved Metals : Dissolved Chromium in Water by CRC ICPMS (Low Level)										
HDPE dissolved (nitric acid) W1	E421.Cr-L	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Chromium in Water by CRC ICPMS (Low Level)										
HDPE dissolved (nitric acid) W21	E421.Cr-L	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Chromium in Water by CRC ICPMS (Low Level)										
HDPE dissolved (nitric acid) W22	E421.Cr-L	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Chromium in Water by CRC ICPMS (Low Level)										
HDPE dissolved (nitric acid) W29	E421.Cr-L	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Chromium in Water by CRC ICPMS (Low Level)										
HDPE dissolved (nitric acid) W4	E421.Cr-L	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W1	E509	15-Mar-2021	20-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W21	E509	15-Mar-2021	20-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W22	E509	15-Mar-2021	20-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓

Matrix: **Water**

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W29	E509	15-Mar-2021	20-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W4	E509	15-Mar-2021	20-Mar-2021	28 days	4 days	✓	20-Mar-2021	23 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W1	E421	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W21	E421	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W22	E421	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W29	E421	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W4	E421	15-Mar-2021	19-Mar-2021	180 days	4 days	✓	19-Mar-2021	175 days	0 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W21	E358-L	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	21-Mar-2021	23 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W22	E358-L	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	21-Mar-2021	23 days	1 days	✓

Matrix: **Water**

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W29	E358-L	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	21-Mar-2021	23 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W4	E358-L	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	21-Mar-2021	23 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W1	E358-L	15-Mar-2021	21-Mar-2021	28 days	5 days	✓	21-Mar-2021	22 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W21	E355-L	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	19-Mar-2021	23 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W22	E355-L	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	19-Mar-2021	23 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W29	E355-L	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	19-Mar-2021	23 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W4	E355-L	15-Mar-2021	19-Mar-2021	28 days	4 days	✓	19-Mar-2021	23 days	0 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W1	E355-L	15-Mar-2021	21-Mar-2021	28 days	5 days	✓	21-Mar-2021	22 days	0 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W1	E290	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓

Matrix: **Water**

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE W21	E290	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W22	E290	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W29	E290	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W4	E290	15-Mar-2021	----	----	----		20-Mar-2021	14 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE W1	E100	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE W21	E100	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE W22	E100	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE W29	E100	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE W4	E100	15-Mar-2021	----	----	----		20-Mar-2021	28 days	4 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter at 15C (WSER)										
HDPE W1	E108A	15-Mar-2021	----	----	----		19-Mar-2021	5 days	3 days	✓
Physical Tests : pH by Meter at 15C (WSER)										
HDPE W21	E108A	15-Mar-2021	----	----	----		19-Mar-2021	5 days	3 days	✓
Physical Tests : pH by Meter at 15C (WSER)										
HDPE W22	E108A	15-Mar-2021	----	----	----		19-Mar-2021	5 days	4 days	✓
Physical Tests : pH by Meter at 15C (WSER)										
HDPE W29	E108A	15-Mar-2021	----	----	----		19-Mar-2021	5 days	4 days	✓
Physical Tests : pH by Meter at 15C (WSER)										
HDPE W4	E108A	15-Mar-2021	----	----	----		19-Mar-2021	5 days	4 days	✓
Physical Tests : pH by Meter										
HDPE W1	E108	15-Mar-2021	----	----	----		20-Mar-2021	0.25 hrs	115 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W21	E108	15-Mar-2021	----	----	----		20-Mar-2021	0.25 hrs	116 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W22	E108	15-Mar-2021	----	----	----		20-Mar-2021	0.25 hrs	116 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W29	E108	15-Mar-2021	----	----	----		20-Mar-2021	0.25 hrs	117 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE W4	E108	15-Mar-2021	----	----	----		20-Mar-2021	0.25 hrs	117 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE W1	E160-H	15-Mar-2021	----	----	----		19-Mar-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W21	E160-H	15-Mar-2021	----	----	----		19-Mar-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W22	E160-H	15-Mar-2021	----	----	----		19-Mar-2021	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W29	E160-H	15-Mar-2021	----	----	----		19-Mar-2021	7 days	4 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W4	E160-H	15-Mar-2021	----	----	----		19-Mar-2021	7 days	4 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W1	E121	15-Mar-2021	----	----	----		19-Mar-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W21	E121	15-Mar-2021	----	----	----		19-Mar-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W22	E121	15-Mar-2021	----	----	----		19-Mar-2021	3 days	4 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Turbidity by Nephelometry										
HDPE W29	E121	15-Mar-2021	----	----	----		19-Mar-2021	3 days	4 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE W4	E121	15-Mar-2021	----	----	----		19-Mar-2021	3 days	4 days	× EHTL
Total Metals : Total Chromium in Water by CRC ICPMS (Low Level)										
HDPE total (nitric acid) W1	E420.Cr-L	15-Mar-2021	----	----	----		20-Mar-2021	180 days	4 days	✓
Total Metals : Total Chromium in Water by CRC ICPMS (Low Level)										
HDPE total (nitric acid) W21	E420.Cr-L	15-Mar-2021	----	----	----		20-Mar-2021	180 days	4 days	✓
Total Metals : Total Chromium in Water by CRC ICPMS (Low Level)										
HDPE total (nitric acid) W22	E420.Cr-L	15-Mar-2021	----	----	----		20-Mar-2021	180 days	5 days	✓
Total Metals : Total Chromium in Water by CRC ICPMS (Low Level)										
HDPE total (nitric acid) W29	E420.Cr-L	15-Mar-2021	----	----	----		20-Mar-2021	180 days	5 days	✓
Total Metals : Total Chromium in Water by CRC ICPMS (Low Level)										
HDPE total (nitric acid) W4	E420.Cr-L	15-Mar-2021	----	----	----		20-Mar-2021	180 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W1	E508	15-Mar-2021	----	----	----		23-Mar-2021	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W21	E508	15-Mar-2021	----	----	----		23-Mar-2021	28 days	7 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W22	E508	15-Mar-2021	----	----	----		23-Mar-2021	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W29	E508	15-Mar-2021	----	----	----		23-Mar-2021	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W4	E508	15-Mar-2021	----	----	----		23-Mar-2021	28 days	7 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W1	E420	15-Mar-2021	----	----	----		20-Mar-2021	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W21	E420	15-Mar-2021	----	----	----		20-Mar-2021	180 days	4 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W22	E420	15-Mar-2021	----	----	----		20-Mar-2021	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W29	E420	15-Mar-2021	----	----	----		20-Mar-2021	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W4	E420	15-Mar-2021	----	----	----		20-Mar-2021	180 days	5 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	166457	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	166226	1	5	20.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	166461	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	166460	1	10	10.0	5.0	✓
Conductivity in Water	E100	166458	1	13	7.6	5.0	✓
Cyanate by Ion Selective Electrode	E343	168521	1	12	8.3	5.0	✓
Dissolved Chromium in Water by CRC ICPMS (Low Level)	E421.Cr-L	166340	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	166652	1	9	11.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	166341	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	166316	2	28	7.1	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	166465	1	5	20.0	5.0	✓
Fluoride in Water by IC	E235.F	166459	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	166462	1	13	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	166463	1	13	7.6	5.0	✓
pH by Meter	E108	166456	1	20	5.0	5.0	✓
pH by Meter at 15C (WSER)	E108A	166294	1	5	20.0	5.0	✓
Sulfate in Water by IC	E235.SO4	166464	1	13	7.6	5.0	✓
Thiocyanate by Colourimetry	E344	167340	1	19	5.2	5.0	✓
Total Chromium in Water by CRC ICPMS (Low Level)	E420.Cr-L	166404	1	20	5.0	5.0	✓
Total Cyanide by CFA	E333	166632	1	5	20.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	166320	2	21	9.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	166315	2	5	40.0	5.0	✓
Total Mercury in Water by CVAAS	E508	167497	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	166405	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	166318	2	5	40.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	166317	2	5	40.0	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	166319	2	12	16.6	5.0	✓
TSS by Gravimetry	E160-H	166288	1	5	20.0	5.0	✓
Turbidity by Nephelometry	E121	166301	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	166631	1	5	20.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	166457	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	166226	1	5	20.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	166461	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	166460	1	10	10.0	5.0	✓
Conductivity in Water	E100	166458	1	13	7.6	5.0	✓
Cyanate by Ion Selective Electrode	E343	168521	1	12	8.3	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Chromium in Water by CRC ICPMS (Low Level)	E421.Cr-L	166340	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	166652	1	9	11.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	166341	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	166316	2	28	7.1	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	166465	1	5	20.0	5.0	✓
Fluoride in Water by IC	E235.F	166459	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	166462	1	13	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	166463	1	13	7.6	5.0	✓
pH by Meter	E108	166456	1	20	5.0	5.0	✓
pH by Meter at 15C (WSER)	E108A	166294	1	5	20.0	5.0	✓
Sulfate in Water by IC	E235.SO4	166464	1	13	7.6	5.0	✓
Thiocyanate by Colourimetry	E344	167340	1	19	5.2	5.0	✓
Total Chromium in Water by CRC ICPMS (Low Level)	E420.Cr-L	166404	1	20	5.0	5.0	✓
Total Cyanide by CFA	E333	166632	1	5	20.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	166320	2	21	9.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	166315	2	5	40.0	5.0	✓
Total Mercury in Water by CVAAS	E508	167497	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	166405	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	166318	2	5	40.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	166317	2	5	40.0	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	166319	2	12	16.6	5.0	✓
TSS by Gravimetry	E160-H	166288	1	5	20.0	5.0	✓
Turbidity by Nephelometry	E121	166301	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	166631	1	5	20.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	166457	1	11	9.0	5.0	✓
Ammonia by Fluorescence	E298	166226	1	5	20.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	166461	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	166460	1	10	10.0	5.0	✓
Conductivity in Water	E100	166458	1	13	7.6	5.0	✓
Cyanate by Ion Selective Electrode	E343	168521	1	12	8.3	5.0	✓
Dissolved Chromium in Water by CRC ICPMS (Low Level)	E421.Cr-L	166340	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	166652	1	9	11.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	166341	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	166316	2	28	7.1	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	166465	1	5	20.0	5.0	✓
Fluoride in Water by IC	E235.F	166459	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	166462	1	13	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	166463	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	166464	1	13	7.6	5.0	✓
Thiocyanate by Colourimetry	E344	167340	1	19	5.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Chromium in Water by CRC ICPMS (Low Level)	E420.Cr-L	166404	1	20	5.0	5.0	✓
Total Cyanide by CFA	E333	166632	1	5	20.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	166320	2	21	9.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	166315	2	5	40.0	5.0	✓
Total Mercury in Water by CVAAS	E508	167497	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	166405	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	166318	2	5	40.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	166317	2	5	40.0	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	166319	2	12	16.6	5.0	✓
TSS by Gravimetry	E160-H	166288	1	5	20.0	5.0	✓
Turbidity by Nephelometry	E121	166301	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	166631	1	5	20.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	166226	1	5	20.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	166461	1	10	10.0	5.0	✓
Chloride in Water by IC	E235.Cl	166460	1	10	10.0	5.0	✓
Cyanate by Ion Selective Electrode	E343	168521	1	12	8.3	5.0	✓
Dissolved Chromium in Water by CRC ICPMS (Low Level)	E421.Cr-L	166340	1	18	5.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	166652	1	9	11.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	166341	1	18	5.5	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	166316	2	28	7.1	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	166465	1	5	20.0	5.0	✓
Fluoride in Water by IC	E235.F	166459	1	10	10.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	166462	1	13	7.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	166463	1	13	7.6	5.0	✓
Sulfate in Water by IC	E235.SO4	166464	1	13	7.6	5.0	✓
Thiocyanate by Colourimetry	E344	167340	1	19	5.2	5.0	✓
Total Chromium in Water by CRC ICPMS (Low Level)	E420.Cr-L	166404	1	20	5.0	5.0	✓
Total Cyanide by CFA	E333	166632	1	5	20.0	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	166320	2	21	9.5	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	166315	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	167497	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	166405	1	20	5.0	5.0	✓
Total Nitrogen by Colourimetry	E366	166318	1	5	20.0	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	166317	1	5	20.0	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	166319	2	12	16.6	5.0	✓
WAD Cyanide by CFA	E336	166631	1	5	20.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
pH by Meter at 15C (WSER)	E108A Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at 15 ± 1°C, and is used to calculate Un-Ionized Ammonia for the federal Wastewater Systems Effluent Regulation.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160-H Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Bromide in Water by IC (Low Level)	E235.Br-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4 Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Alkalinity Species by Titration	E290 Vancouver - Environmental	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthaldialdehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Cyanide by CFA	E333 Vancouver - Environmental	Water	ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Cyanate by Ion Selective Electrode	E343 Waterloo - Environmental	Water	APHA 4500-CN L (mod)	This analysis is carried out using procedures adapted from APHA method 4500-CN "Cyanide". Cyanate is determined by the Cyanate hydrolysis method using an ammonia selective electrode
Thiocyanate by Colourimetry	E344 Vancouver - Environmental	Water	APHA 4500-CN M (mod)	Thiocyanate is determined by the ferric nitrate colourimetric method. Water samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).
Total Nitrogen by Colourimetry	E366 Vancouver - Environmental	Water	APHA 4500-P J (mod)	Total Nitrogen is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U Vancouver - Environmental	Water	APHA 4500-P E (mod)	Dissolved Orthophosphate is determined colourimetrically on a water sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Chromium in Water by CRC ICPMS (Low Level)	E420.Cr-L Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Chromium in Water by CRC ICPMS (Low Level)	E421.Cr-L Vancouver - Environmental	Water	APHA 3030 B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS
Total Mercury in Water by CVAAS	E508 Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury in Water by CVAAS	E509 Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A Vancouver - Environmental	Water	APHA 2340B	"Hardness (as CaCO3), from total Ca/Mg" is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.
Ion Balance using Dissolved Metals	EC101 Vancouver - Environmental	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.
Un-ionized Ammonia at 15°C, WSER	EC298 Vancouver - Environmental	Water	WSER 29June2012	Un-ionized Ammonia at 15C is calculated from test results for Total Ammonia and for pH at 15C, as per the federal Wastewater Systems Effluent Regulation, and is expressed in units of mg/L "as N".

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent.
Preparation for Total Organic Carbon by Combustion	EP355 Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Digestion for Total Nitrogen in water	EP366 Vancouver - Environmental	Water	APHA 4500-P J (mod)	Samples are heated with a persulfate digestion reagent.
Digestion for Total Phosphorus in water	EP372 Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

QUALITY CONTROL REPORT

Work Order	: **VA21A4964**	Page	: 1 of 18
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: Spill Confirmation	Date Samples Received	: 17-Mar-2021 16:30
PO	: 22036	Date Analysis Commenced	: 19-Mar-2021
C-O-C number	: 20210316a	Issue Date	: 25-Mar-2021 11:18
Sampler	: KP/PE		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 6		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Clarie Tejano	Laboratory Assistant	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Gloria Chan	Lab Analyst	Metals, Burnaby, British Columbia
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Inorganics, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 166288)											
VA21A4964-001	W29	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 166294)											
VA21A4964-001	W29	pH @ 15°C (WSER)	----	E108A	0.10	pH units	7.76	7.75	0.129%	4%	----
Physical Tests (QC Lot: 166301)											
FJ2100123-001	Anonymous	turbidity	----	E121	0.10	NTU	1730	1750	1.26%	15%	----
Physical Tests (QC Lot: 166456)											
VA21A4964-003	W22	pH	----	E108	0.10	pH units	8.06	8.05	0.124%	4%	----
Physical Tests (QC Lot: 166457)											
VA21A4964-003	W22	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	116	116	0.345%	20%	----
Physical Tests (QC Lot: 166458)											
VA21A4964-003	W22	conductivity	----	E100	2.0	µS/cm	397	399	0.502%	10%	----
Anions and Nutrients (QC Lot: 166226)											
VA21A4964-001	W29	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166315)											
VA21A4964-001	W29	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166318)											
VA21A4964-001	W29	nitrogen, total	7727-37-9	E366	0.030	mg/L	0.193	0.191	0.002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166319)											
VA21A4964-001	W29	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166320)											
VA21A4964-001	W29	phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166459)											
VA21A4964-001	W29	fluoride	16984-48-8	E235.F	0.020	mg/L	0.132	0.132	0.0002	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166460)											
VA21A4964-001	W29	chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166461)											
VA21A4964-001	W29	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166462)											
VA21A4964-001	W29	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.156	0.157	0.224%	20%	----
Anions and Nutrients (QC Lot: 166463)											
VA21A4964-001	W29	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 166464)											
VA21A4964-001	W29	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	102	102	0.0121%	20%	----
Anions and Nutrients (QC Lot: 166465)											
VA21A4964-001	W29	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166933)											
VA21A4964-005	W1	phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0050	0.0046	0.0003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166948)											
VA21A5279-002	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0251	0.0247	1.54%	20%	----
Anions and Nutrients (QC Lot: 166949)											
VA21A4964-005	W1	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	<0.050	0.055	0.005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 166951)											
VA21A4964-005	W1	nitrogen, total	7727-37-9	E366	0.030	mg/L	0.231	0.224	0.006	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 168521)											
VA21A4728-001	Anonymous	cyanate	88402-73-7	E343	2.00	mg/L	35.7	33.0	7.86%	20%	----
Cyanides (QC Lot: 166631)											
VA21A4964-001	W29	cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 166632)											
VA21A4964-001	W29	cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 167340)											
KS2100797-001	Anonymous	thiocyanate	302-04-5	E344	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 166316)											
VA21A4964-001	W29	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.60	1.42	0.18	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 166317)											
VA21A4964-001	W29	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.29	1.07	0.22	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 166932)											
VA21A4964-005	W1	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	1.24	1.04	0.19	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 166950)											
VA21A4964-005	W1	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	0.97	1.16	0.19	Diff <2x LOR	----
Total Metals (QC Lot: 166404)											
CG2100407-001	Anonymous	chromium, total	7440-47-3	E420.Cr-L	0.00020	mg/L	0.00045	0.00041	0.00003	Diff <2x LOR	----
Total Metals (QC Lot: 166405)											
CG2100407-001	Anonymous	aluminum, total	7429-90-5	E420	0.0060	mg/L	0.212	0.215	1.15%	20%	----
		antimony, total	7440-36-0	E420	0.00020	mg/L	0.00140	0.00136	0.00004	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00020	mg/L	0.00296	0.00298	0.750%	20%	----
		barium, total	7440-39-3	E420	0.00020	mg/L	0.00992	0.00979	1.30%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 166405) - continued											
CG2100407-001	Anonymous	beryllium, total	7440-41-7	E420	0.040	mg/L	0.365 µg/L	0.000347	0.000018	Diff <2x LOR	----
		bismuth, total	7440-69-9	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		boron, total	7440-42-8	E420	0.020	mg/L	0.154	0.139	0.015	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0100	mg/L	0.674 µg/L	0.000647	4.11%	20%	----
		calcium, total	7440-70-2	E420	0.100	mg/L	396	400	0.803%	20%	----
		cobalt, total	7440-48-4	E420	0.20	mg/L	79.8 µg/L	0.0804	0.665%	20%	----
		copper, total	7440-50-8	E420	0.00100	mg/L	0.00185	0.00184	0.000005	Diff <2x LOR	----
		iron, total	7439-89-6	E420	0.020	mg/L	3.48	3.57	2.34%	20%	----
		lead, total	7439-92-1	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		lithium, total	7439-93-2	E420	0.0020	mg/L	0.133	0.130	2.58%	20%	----
		magnesium, total	7439-95-4	E420	0.0100	mg/L	180	183	1.28%	20%	----
		manganese, total	7439-96-5	E420	0.00020	mg/L	0.538	0.542	0.803%	20%	----
		molybdenum, total	7439-98-7	E420	0.000100	mg/L	0.00393	0.00376	4.38%	20%	----
		nickel, total	7440-02-0	E420	0.00100	mg/L	0.329	0.332	0.996%	20%	----
		phosphorus, total	7723-14-0	E420	0.100	mg/L	0.331	0.278	0.053	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	0.100	mg/L	7.92	7.93	0.105%	20%	----
		selenium, total	7782-49-2	E420	0.100	mg/L	1.92 µg/L	0.00199	3.36%	20%	----
		silicon, total	7440-21-3	E420	0.20	mg/L	2.99	3.02	1.21%	20%	----
		silver, total	7440-22-4	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E420	0.100	mg/L	82.7	83.5	0.983%	20%	----
		strontium, total	7440-24-6	E420	0.00040	mg/L	1.61	1.56	3.18%	20%	----
		sulfur, total	7704-34-9	E420	1.00	mg/L	512	515	0.475%	20%	----
		thallium, total	7440-28-0	E420	0.000020	mg/L	0.000114	0.000121	0.000007	Diff <2x LOR	----
		tin, total	7440-31-5	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000020	mg/L	0.0144	0.0146	1.09%	20%	----
		vanadium, total	7440-62-2	E420	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	----
		zinc, total	7440-66-6	E420	0.0060	mg/L	0.121	0.122	0.778%	20%	----
		zirconium, total	7440-67-7	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	----
Total Metals (QC Lot: 167497)											
VA21A4832-001	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	0.0000050	0.00000001	Diff <2x LOR	----
Dissolved Metals (QC Lot: 166340)											
CG2100402-001	Anonymous	chromium, dissolved	7440-47-3	E421.Cr-L	0.00010	mg/L	0.00012	0.00011	0.000009	Diff <2x LOR	----
Dissolved Metals (QC Lot: 166341)											
CG2100402-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 166341) - continued											
CG2100402-001	Anonymous	antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00014	0.00017	0.00003	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.113	0.111	1.62%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	0.010	mg/L	0.012	0.013	0.0008	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0050	mg/L	0.0283 µg/L	0.0000273	0.0000010	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	81.3	85.3	4.78%	20%	----
		cobalt, dissolved	7440-48-4	E421	0.10	mg/L	0.14 µg/L	0.00013	0.000005	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0197	0.0208	5.72%	20%	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	36.9	36.3	1.74%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00290	0.00293	1.04%	20%	----
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00143	0.00147	2.86%	20%	----
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00168	0.00171	0.00003	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	1.17	1.17	0.371%	20%	----
		selenium, dissolved	7782-49-2	E421	0.050	mg/L	14.1 µg/L	0.0148	5.32%	20%	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.40	2.46	2.64%	20%	----
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	6.76	6.89	1.95%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.208	0.208	0.0184%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	54.3	54.6	0.585%	20%	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00167	0.00162	3.04%	20%	----
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 166652)											
KS2100781-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	0.0000055	0.0000057	0.0000002	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 166288)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 166301)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 166457)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 166458)						
conductivity	----	E100	1	µS/cm	<1.0	----
Anions and Nutrients (QCLot: 166226)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 166315)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 166318)						
nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 166319)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 166320)						
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 166459)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 166460)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 166461)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 166462)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 166463)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 166464)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 166465)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 166933)						
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 166948)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 166949)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 166951)						
nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 168521)						
cyanate	88402-73-7	E343	0.2	mg/L	<0.20	----
Cyanides (QCLot: 166631)						
cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 166632)						
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 167340)						
thiocyanate	302-04-5	E344	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 166316)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 166317)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 166932)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 166950)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 166404)						
chromium, total	7440-47-3	E420.Cr-L	0.0001	mg/L	<0.00010	----
Total Metals (QCLot: 166405)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 166405) - continued						
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	----
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 167497)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 166340)						
chromium, dissolved	7440-47-3	E421.Cr-L	0.0001	mg/L	<0.00010	----
Dissolved Metals (QCLot: 166341)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 166341) - continued						
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 166652)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 166288)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	93.8	85.0	115	----
Physical Tests (QCLot: 166294)									
pH @ 15°C (WSER)	----	E108A	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 166301)									
turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Physical Tests (QCLot: 166456)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 166457)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	101	85.0	115	----
Physical Tests (QCLot: 166458)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	98.9	90.0	110	----
Anions and Nutrients (QCLot: 166226)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.8	85.0	115	----
Anions and Nutrients (QCLot: 166315)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	95.6	75.0	125	----
Anions and Nutrients (QCLot: 166318)									
nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 166319)									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	97.8	80.0	120	----
Anions and Nutrients (QCLot: 166320)									
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	97.8	80.0	120	----
Anions and Nutrients (QCLot: 166459)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.6	90.0	110	----
Anions and Nutrients (QCLot: 166460)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 166461)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	104	85.0	115	----
Anions and Nutrients (QCLot: 166462)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 166463)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	101	90.0	110	----
Anions and Nutrients (QCLot: 166464)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 166464) - continued									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 166465)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	97.9	80.0	120	----
Anions and Nutrients (QCLot: 166933)									
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	95.7	80.0	120	----
Anions and Nutrients (QCLot: 166948)									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	93.8	80.0	120	----
Anions and Nutrients (QCLot: 166949)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	100.0	75.0	125	----
Anions and Nutrients (QCLot: 166951)									
nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 168521)									
cyanate	88402-73-7	E343	0.2	mg/L	1 mg/L	106	85.0	115	----
Cyanides (QCLot: 166631)									
cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	102	80.0	120	----
Cyanides (QCLot: 166632)									
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	0.25 mg/L	91.2	80.0	120	----
Cyanides (QCLot: 167340)									
thiocyanate	302-04-5	E344	0.5	mg/L	10 mg/L	98.7	85.0	115	----
Organic / Inorganic Carbon (QCLot: 166316)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	99.5	80.0	120	----
Organic / Inorganic Carbon (QCLot: 166317)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Organic / Inorganic Carbon (QCLot: 166932)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	96.6	80.0	120	----
Organic / Inorganic Carbon (QCLot: 166950)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	98.7	80.0	120	----
Total Metals (QCLot: 166404)									
chromium, total	7440-47-3	E420.Cr-L	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
Total Metals (QCLot: 166405)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	99.5	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	110	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 166405) - continued									
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	104	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	108	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	93.2	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	103	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	102	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	105	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	106	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	98.2	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	101	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	114	80.0	120	----
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	105	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	80.0	120	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	101	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	103	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	102	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	106	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	105	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	104	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	104	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	108	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.5	80.0	120	----
Total Metals (QCLot: 167497)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	97.2	80.0	120	----
Dissolved Metals (QCLot: 166340)									
chromium, dissolved	7440-47-3	E421.Cr-L	0.0001	mg/L	0.25 mg/L	99.7	80.0	120	----
Dissolved Metals (QCLot: 166341)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	97.6	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	99.9	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 166341) - continued									
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	97.9	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	89.1	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	98.8	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	89.0	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	99.6	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	93.2	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.5	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	95.8	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	96.8	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	97.4	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	91.2	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.7	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	97.6	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.4	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	98.5	70.0	130	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.3	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	100	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	99.8	80.0	120	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	96.0	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.1	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	94.8	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	98.5	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	92.5	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	102	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	94.2	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.2	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	104	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 166226)										
VA21A4964-002	W4	ammonia, total (as N)	7664-41-7	E298	0.203 mg/L	0.2 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 166315)										
VA21A4964-002	W4	Kjeldahl nitrogen, total [TKN]	----	E318	2.53 mg/L	2.5 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 166318)										
VA21A4964-002	W4	nitrogen, total	7727-37-9	E366	0.411 mg/L	0.4 mg/L	103	70.0	130	----
Anions and Nutrients (QCLot: 166319)										
VA21A4964-002	W4	phosphorus, total	7723-14-0	E372-U	0.0502 mg/L	0.05 mg/L	100	70.0	130	----
Anions and Nutrients (QCLot: 166320)										
VA21A4964-002	W4	phosphorus, total dissolved	7723-14-0	E375-T	0.0472 mg/L	0.05 mg/L	94.4	70.0	130	----
Anions and Nutrients (QCLot: 166459)										
VA21A4964-002	W4	fluoride	16984-48-8	E235.F	0.979 mg/L	1 mg/L	97.9	75.0	125	----
Anions and Nutrients (QCLot: 166460)										
VA21A4964-002	W4	chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 166461)										
VA21A4964-002	W4	bromide	24959-67-9	E235.Br-L	0.522 mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 166462)										
VA21A4964-002	W4	nitrate (as N)	14797-55-8	E235.NO3-L	2.58 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 166463)										
VA21A4964-002	W4	nitrite (as N)	14797-65-0	E235.NO2-L	0.495 mg/L	0.5 mg/L	99.0	75.0	125	----
Anions and Nutrients (QCLot: 166464)										
VA21A4964-002	W4	sulfate (as SO4)	14808-79-8	E235.SO4	99.6 mg/L	100 mg/L	99.6	75.0	125	----
Anions and Nutrients (QCLot: 166465)										
VA21A4964-002	W4	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0304 mg/L	0.03 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 166933)										
VA21A5129-001	Anonymous	phosphorus, total dissolved	7723-14-0	E375-T	0.0476 mg/L	0.05 mg/L	95.1	70.0	130	----
Anions and Nutrients (QCLot: 166948)										
VA21A5279-001	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0493 mg/L	0.05 mg/L	98.7	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 168521)										
VA21A4728-001	Anonymous	cyanate	88402-73-7	E343	ND mg/L	2 mg/L	ND	70.0	130	----
Cyanides (QCLot: 166631)										
VA21A4964-002	W4	cyanide, weak acid dissociable	----	E336	0.130 mg/L	0.125 mg/L	104	75.0	125	----
Cyanides (QCLot: 166632)										
VA21A4964-002	W4	cyanide, strong acid dissociable (total)	----	E333	0.220 mg/L	0.25 mg/L	88.2	75.0	125	----
Cyanides (QCLot: 167340)										
KS2100797-002	Anonymous	thiocyanate	302-04-5	E344	9.92 mg/L	10 mg/L	99.2	75.0	125	----
Organic / Inorganic Carbon (QCLot: 166316)										
VA21A4964-002	W4	carbon, dissolved organic [DOC]	----	E358-L	5.30 mg/L	5 mg/L	106	70.0	130	----
Organic / Inorganic Carbon (QCLot: 166317)										
VA21A4964-002	W4	carbon, total organic [TOC]	----	E355-L	5.22 mg/L	5 mg/L	104	70.0	130	----
Organic / Inorganic Carbon (QCLot: 166932)										
VA21A5129-001	Anonymous	carbon, dissolved organic [DOC]	----	E358-L	ND mg/L	5 mg/L	ND	70.0	130	----
Total Metals (QCLot: 166404)										
CG2100407-001	Anonymous	chromium, total	7440-47-3	E420.Cr-L	0.0779 mg/L	0.08 mg/L	97.3	70.0	130	----
Total Metals (QCLot: 166405)										
CG2100407-001	Anonymous	aluminum, total	7429-90-5	E420	0.359 mg/L	0.4 mg/L	89.8	70.0	130	----
		antimony, total	7440-36-0	E420	0.0419 mg/L	0.04 mg/L	105	70.0	130	----
		arsenic, total	7440-38-2	E420	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		barium, total	7440-39-3	E420	0.0390 mg/L	0.04 mg/L	97.4	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0791 mg/L	0.08 mg/L	98.8	70.0	130	----
		bismuth, total	7440-69-9	E420	0.0188 mg/L	0.02 mg/L	94.2	70.0	130	----
		boron, total	7440-42-8	E420	0.166 mg/L	0.2 mg/L	82.8	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00742 mg/L	0.008 mg/L	92.7	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	8 mg/L	ND	70.0	130	----
		cobalt, total	7440-48-4	E420	ND mg/L	0.04 mg/L	ND	70.0	130	----
		copper, total	7440-50-8	E420	0.0349 mg/L	0.04 mg/L	87.3	70.0	130	----
		iron, total	7439-89-6	E420	3.74 mg/L	4 mg/L	93.5	70.0	130	----
		lead, total	7439-92-1	E420	0.0368 mg/L	0.04 mg/L	92.0	70.0	130	----
		lithium, total	7439-93-2	E420	0.181 mg/L	0.2 mg/L	90.3	70.0	130	----
		magnesium, total	7439-95-4	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E420	ND mg/L	0.04 mg/L	ND	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0418 mg/L	0.04 mg/L	104	70.0	130	----
		nickel, total	7440-02-0	E420	ND mg/L	0.08 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 166405) - continued										
CG2100407-001	Anonymous	phosphorus, total	7723-14-0	E420	22.0 mg/L	20 mg/L	110	70.0	130	----
		potassium, total	7440-09-7	E420	7.37 mg/L	8 mg/L	92.1	70.0	130	----
		selenium, total	7782-49-2	E420	0.0897 mg/L	0.08 mg/L	112	70.0	130	----
		silicon, total	7440-21-3	E420	19.0 mg/L	20 mg/L	95.2	70.0	130	----
		silver, total	7440-22-4	E420	0.00774 mg/L	0.008 mg/L	96.7	70.0	130	----
		sodium, total	17341-25-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		strontium, total	7440-24-6	E420	ND mg/L	0.04 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E420	ND mg/L	40 mg/L	ND	70.0	130	----
		thallium, total	7440-28-0	E420	0.00750 mg/L	0.008 mg/L	93.7	70.0	130	----
		tin, total	7440-31-5	E420	0.0394 mg/L	0.04 mg/L	98.5	70.0	130	----
		titanium, total	7440-32-6	E420	0.0799 mg/L	0.08 mg/L	99.9	70.0	130	----
		uranium, total	7440-61-1	E420	ND mg/L	0.008 mg/L	ND	70.0	130	----
		vanadium, total	7440-62-2	E420	0.200 mg/L	0.2 mg/L	100	70.0	130	----
		zinc, total	7440-66-6	E420	0.743 mg/L	0.8 mg/L	92.8	70.0	130	----
		zirconium, total	7440-67-7	E420	0.0824 mg/L	0.08 mg/L	103	70.0	130	----
Total Metals (QCLot: 167497)										
VA21A4832-002	Anonymous	mercury, total	7439-97-6	E508	0.0000978 mg/L	0.0001 mg/L	97.8	70.0	130	----
Dissolved Metals (QCLot: 166340)										
CG2100402-001	Anonymous	chromium, dissolved	7440-47-3	E421.Cr-L	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
Dissolved Metals (QCLot: 166341)										
CG2100402-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.196 mg/L	0.2 mg/L	98.1	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.0210 mg/L	0.02 mg/L	105	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.0209 mg/L	0.02 mg/L	105	70.0	130	----
		barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0358 mg/L	0.04 mg/L	89.4	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.00855 mg/L	0.01 mg/L	85.5	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.094 mg/L	0.1 mg/L	94.6	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00409 mg/L	0.004 mg/L	102	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0189 mg/L	0.02 mg/L	94.7	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.0186 mg/L	0.02 mg/L	92.9	70.0	130	----
		iron, dissolved	7439-89-6	E421	1.84 mg/L	2 mg/L	91.9	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.0992 mg/L	0.1 mg/L	99.2	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 166341) - continued										
CG2100402-001	Anonymous	molybdenum, dissolved	7439-98-7	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0377 mg/L	0.04 mg/L	94.4	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	10.9 mg/L	10 mg/L	109	70.0	130	----
		potassium, dissolved	7440-09-7	E421	3.95 mg/L	4 mg/L	98.9	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0458 mg/L	0.04 mg/L	114	70.0	130	----
		silicon, dissolved	7440-21-3	E421	9.65 mg/L	10 mg/L	96.5	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.00398 mg/L	0.004 mg/L	99.4	70.0	130	----
		sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	ND mg/L	20 mg/L	ND	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.00372 mg/L	0.004 mg/L	92.9	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0207 mg/L	0.02 mg/L	104	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0393 mg/L	0.04 mg/L	98.3	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00404 mg/L	0.004 mg/L	101	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.102 mg/L	0.1 mg/L	102	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.374 mg/L	0.4 mg/L	93.4	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0437 mg/L	0.04 mg/L	109	70.0	130	----
Dissolved Metals (QCLot: 166652)										
KS2100781-002	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000950 mg/L	0.0001 mg/L	95.0	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210316a

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	Lindsay Rear / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Invoice To		
	Same as Report To	☐ YES ☑ NO
	Copy of Invoice with Report	☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA	
Contact:		

Project Information	
ALS Account # / Quote #:	STRG100 Q68199
Job #:	Spill Confirmations
PO / AFE:	22036
LSD:	

ALS Lab Work Order # (lab use only):

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	accountspayable@vitgoldcorp.com
Email 2	bbowden@vgcx.com; lrear@vgcx.com

Oil and Gas Required Fields (client use)			
AFE/Cost Center:		PO#	22036
Major/Minor Code:		Routing Code:	
Requisitioner:			
Location:			

ALS Contact: Hilary Woods **Sampler:** KP/PE

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☑ | 2 day [P2-50%] ☐

EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	ESW	CN1	NH3											SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
	W29	15-Mar-21	13:25	Water	R	R	R													12
	W4	15-Mar-21	13:50	Water	R	R	R													12
	W22	15-Mar-21	14:20	Water	R	R	R													12
	W21	15-Mar-21	15:00	Water	R	R	R													12
	W1	15-Mar-21	15:30	Water	R	R	R													12
	VGC21-012	15-Mar-21	10:00	Water		R													Y	4

Environmental Division Vancouver
Work Order Reference
VA21A4964

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ ☑ NO

Are samples for human consumption/ use? ☐ ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please note that VGC21-012 samples contain a high amount of cyanide solution

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☑	SIF Observations	Yes ☐	No	☐
Ice Packs	☑	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				7	C	AD90	62

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: KP/PE	Date: 16-Mar-2021	Time: 13:00	Received by:	Date:	Time:	Received by: JCR	Date: 17 March	Time: 9:30AM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

VICTORIA GOLD CORP	**Spill 21-013** **Addendum**

Spill Date:	March 15, 2021	VGC Spill #	VGC21-028
Volume (L):	70 L	Yukon Government #	21-013
Substance	Process Solution	Location	Heap Leach Pad

The following information is being provided by Victoria Gold (Yukon) Corp. as an addendum to the report relating to spill 21-013, filed by Victoria on Waterline on March 25, 2021, at the request of the Inspector from Energy, Mines and Resources - Client Services and Partnerships to ensure that the record for the spill is complete.

The report relating to spill 21-013 references soil samples taken at the time of the incident. The results from the analysis of the soil samples had not been received by Victoria at the time the report was filed and as such Victoria had committed to providing the results to the Inspector as soon as they were available. The results for the soil samples referenced in the report were provided to the Inspector on April 8, 2021. The Certificate of Analysis for these samples is provided herein. The relevant analytes were below the industrial soil standards specified in Schedule 1 of the *Contaminated Sites Regulations.*

Victoria also collected an additional soil sample on April 5, 2021. The results of this sample were also provided to the Inspector. The Certificate of Analysis for this sample is also provided herein. The relevant analytes were also below the industrial soil standards specified in Schedule 1 of the *Contaminated Sites Regulations.*

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WR2100248**	Page	: 1 of 2
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Lindsay Rear	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse YT Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: ----	Date Samples Received	: 23-Mar-2021 16:15
PO	: 15673	Date Analysis Commenced	: 26-Mar-2021
C-O-C number	: 20210323	Issue Date	: 29-Mar-2021 17:14
Sampler	: JW BM		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
%	percent
mg/kg	milligrams per kilogram

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Soil** (Matrix: **Soil/Solid**)				*Client sample ID*	**HLF SPILL LOWER**	**HLF SPILL ROAD**	**----**	**----**	**----**
				Client sampling date / time	20-Mar-2021 11:50	21-Mar-2021 16:30	----	----	----
Analyte	*CAS Number*	*Method*	*LOR*	*Unit*	**WR2100248-001**	**WR2100248-002**	--------	--------	--------
					Result	Result	----	----	----
Physical Tests									
moisture	----	E144	0.25	%	13.4	42.3	----	----	----
Cyanides									
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	0.173	2.21	----	----	----
cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	1.92	----	----	----
thiocyanate	302-04-5	E344	1.00	mg/kg	<1.00	1.91	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WR2100248**	Page	: 1 of 6
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Lindsay Rear	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: ----	Date Samples Received	: 23-Mar-2021 16:15
PO	: 15673	Issue Date	: 29-Mar-2021 17:14
C-O-C number	: 20210323		
Sampler	: JW BM		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 15:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 15:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap HLF SPILL ROAD	E344	21-Mar-2021	28-Mar-2021	14 days	6 days	✓	29-Mar-2021	7 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap HLF SPILL LOWER	E344	20-Mar-2021	28-Mar-2021	14 days	8 days	✓	29-Mar-2021	5 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap HLF SPILL ROAD	E333	21-Mar-2021	26-Mar-2021	14 days	5 days	✓	28-Mar-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap HLF SPILL LOWER	E333	20-Mar-2021	26-Mar-2021	14 days	6 days	✓	28-Mar-2021	14 days	1 days	✓
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap HLF SPILL LOWER	E336	20-Mar-2021	26-Mar-2021	----	----		28-Mar-2021	1 days	1 days	✓
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap HLF SPILL ROAD	E336	21-Mar-2021	26-Mar-2021	----	----		28-Mar-2021	1 days	1 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap HLF SPILL LOWER	E144	20-Mar-2021	----	----	----		26-Mar-2021	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
HLF SPILL ROAD	E144	21-Mar-2021	----	----	----		26-Mar-2021	----	----	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Moisture Content by Gravimetry	E144	169894	1	6	16.6	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	169737	1	2	50.0	5.0	✓
Total Cyanide by CFA	E333	169735	1	2	50.0	5.0	✓
WAD Cyanide by CFA	E336	169736	1	2	50.0	5.0	✓
Laboratory Control Samples (LCS)							
Moisture Content by Gravimetry	E144	169894	1	6	16.6	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	169737	1	2	50.0	5.0	✓
Total Cyanide by CFA	E333	169735	1	2	50.0	5.0	✓
WAD Cyanide by CFA	E336	169736	1	2	50.0	5.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	169894	1	6	16.6	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	169737	1	2	50.0	5.0	✓
Total Cyanide by CFA	E333	169735	1	2	50.0	5.0	✓
WAD Cyanide by CFA	E336	169736	1	2	50.0	5.0	✓
Matrix Spikes (MS)							
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	169737	1	2	50.0	5.0	✓
Total Cyanide by CFA	E333	169735	1	2	50.0	5.0	✓
WAD Cyanide by CFA	E336	169736	1	2	50.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 Vancouver - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Cyanide by CFA	E333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344 Vancouver - Environmental	Soil/Solid	In-house	A dried soil is leached with DI water at a ratio of 1:5. Thiocyanate is determined by the ferric nitrate colourimetric method. Soil samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:5 Soil:Water for Anions	EP237 Vancouver - Environmental	Soil/Solid	EPA 300.1 (mod)	This analysis is carried out using a leaching procedure which involves the gentle tumbling of the sample in a specified leaching solution (typically deionized water) for a specific length of time.
Cyanide Extraction for CFA	EP333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

QUALITY CONTROL REPORT

Work Order	: **WR2100248**	Page	: 1 of 4
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Whitehorse - Environmental
Contact	: Lindsay Rear	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: ----	Date Samples Received	: 23-Mar-2021 16:15
PO	: 15673	Date Analysis Commenced	: 26-Mar-2021
C-O-C number	: 20210323	Issue Date	: 29-Mar-2021 17:14
Sampler	: JW BM		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 169894)											
VA21A5672-001	Anonymous	moisture	----	E144	0.25	%	0.71	0.70	0.01	Diff <2x LOR	----
Cyanides (QC Lot: 169735)											
WR2100248-001	HLF SPILL LOWER	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	0.173	0.208	0.035	Diff <2x LOR	----
Cyanides (QC Lot: 169736)											
WR2100248-001	HLF SPILL LOWER	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0.00004	Diff <2x LOR	----
Cyanides (QC Lot: 169737)											
WR2100248-001	HLF SPILL LOWER	thiocyanate	302-04-5	E344	1.00	mg/kg	<1.00	<1.00	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 169894)						
moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 169735)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 169736)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 169737)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 169894)									
moisture	----	E144	0.25	%	50 %	101	90.0	110	----
Cyanides (QCLot: 169735)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	98.4	80.0	120	----
Cyanides (QCLot: 169736)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	104	80.0	120	----
Cyanides (QCLot: 169737)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	98.1	85.0	115	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 169735)										
WR2100248-002	HLF SPILL ROAD	cyanide, strong acid dissociable (total)	----	E333	2.39 mg/kg	2.5 mg/kg	96.7	75.0	125	----
Cyanides (QCLot: 169736)										
WR2100248-002	HLF SPILL ROAD	cyanide, weak acid dissociable	----	E336	1.24 mg/kg	1.25 mg/kg	101	75.0	125	----
Cyanides (QCLot: 169737)										
WR2100248-002	HLF SPILL ROAD	thiocyanate	302-04-5	E344	49.9 mg/kg	50 mg/kg	99.3	75.0	125	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here (lab use only)

COC Number: 20210323

Page 1 of 1

Environmental Division Whitehorse

Work Order Reference WR2100248

Telephone : +1 867 668 6689

Report To	Contact and company name below will appear on the final report
Company:	StrataGold Corporation
Contact:	Lindsay Rear
Phone:	604-696-6603
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, V6E 3S7
Postal Code:	

Report Format / Distribution	
Select Report Format:	☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Select Service Level Below - Contact your AM to co

Regular [R] ☑ Standard TAT if received by 3 pm

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☑

EMERGENCY: 1 Business d | Same Day, W | (Laboratory c

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selec

Analysis Re

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☐ YES ☑ NO
Company:	
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; lrear@vgcx.com

Project Information	
ALS Account # / Quote #:	
Job #:	HLF SOIL March
PO / AFE:	15673
LSD:	

Oil and Gas Required Fields (client use)			
AFE/Cost Center:		PO#	15673
Major/Minor Code:		Routing Code:	
Requisitioner:			
Location:			

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods **Sampler:** JW BM

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Indicate Filtered (F), Preserved (P) or Filtered &													Number of Contain	SUSPECTED HAZARD (see Special Ins
							CN1		P	F/P	F/P	P	F/P	P						
	HLF SPILL LOWER	20-Mar-21	11:50	Soil			P2											2	
	HLF SPILL ROAD	21-Mar-21	16:30	Soil			P2											2	

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☑ NO

Are samples for human consumption/ use? ☐ YES ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
7							

SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	B.Bowden	Date: 3/23/2021	Time: 10:00	Received by:	Date: 24 MAR 23	Time: 915	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Affix ALS barcode label here
(lab use only)

COC Number: 20210323

Page 1 of 1

Environmental Division Whitehorse
Work Order Reference
WR2100248

Telephone : +1 867 668 6689

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Contact your AM to co
Company:	StrataGold Corporation	Select Report Format: ☑ PDF ☑ EXCEL ☑ EDD (DIGITAL)	Regular [R] ☑ Standard TAT if received by 3 pm
Contact:	Lindsay Rear	Quality Control (QC) Report with Report ☐ YES ☐ NO	PRIORITY (Business Days): 4 day [P4-20%] ☐ / 3 day [P3-25%] ☐ / 2 day [P2-50%] ☑ — EMERGENCY: 1 Business d / Same Day, W / (Laboratory c
Phone:	604-696-6603	☐ Compare Results to Criteria on Report - provide details below if box checked	
	Company address below will appear on the final report	Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX	
Street:	100-1050 West Pender Street	Email 1 or Fax DLEnvironmentalLabResults@vgcx.com	Date and Time Required for all E&P TATs:
City/Province:	Vancouver, V6E 3S7	Email 2 importer@victoriagold.ehsdata.com	For tests that can not be performed according to the service level selec
		Email 3	
Postal Code:		Email 4	Analysis Re
Invoice To	Same as Report To ☐ YES ☑ NO	**Invoice Distribution**	Indicate Filtered (F), Preserved (P) or Filtered a
	Copy of Invoice with Report ☐ YES ☑ NO	Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX	
Company:		Email 1 or Fax invoices@vgcx.com	
Contact:		Email 2 bbowden@vgcx.com; lrear@vgcx.com	

Project Information		Oil and Gas Required Fields (client use)		
ALS Account # / Quote #:		AFE/Cost Center:	PO#	15673
Job #:	HLF SOIL March	Major/Minor Code:	Routing Code:	
PO / AFE:	15673	Requisitioner:		
LSD:		Location:		

ALS Lab Work Order # (lab use only):	ALS Contact: Hilary Woods	Sampler: JW BM

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN1	P	F/P	F/P	P	F/P	P	Number of Contain	SUSPECTED HAZARD (see Special Ins
	HLF SPILL LOWER	20-Mar-21	11:50	Soil	P2							2	
	HLF SPILL ROAD	21-Mar-21	16:30	Soil	P2							2	

P2 RUSH

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☐ YES ☑ NO	
Are samples for human consumption/ use? ☐ YES ☑ NO	

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen	☐	SIF Observations	Yes ☐	No	☐
Ice Packs	☑ Ice Cubes ☐	Custody seal intact	Yes ☐	No	☐
Cooling Initiated	☐				

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
7					6°C		

SHIPMENT RELEASE (client use)				INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	B.Bowden	Date: 3/23/2021	Time: 10:00	Received by:	Date: MAR 23	Time: 915	Received by: PD	Date: Mar 26	Time: 11:50 am

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

JUNE 2018 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WR2100300**	Page	: 1 of 2
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Lindsay Rear	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse YT Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: HLF SOIL April	Date Samples Received	: 08-Apr-2021 10:00
PO	: 22037	Date Analysis Commenced	: 09-Apr-2021
C-O-C number	: 20210406b	Issue Date	: 13-Apr-2021 14:34
Sampler	: HM, JJ, KH		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
%	percent
mg/kg	milligrams per kilogram

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Soil** (Matrix: **Soil/Solid**)					*Client sample ID*	**HLF LOWER ROAD 1**	**----**	**----**	**----**	**----**
					Client sampling date / time	05-Apr-2021 15:15	----	----	----	----
Analyte	*CAS Number*	*Method*	*LOR*	*Unit*	**WR2100300-001**	--------	--------	--------	--------	
					Result	----	----	----	----	
Physical Tests										
moisture	----	E144	0.25	%	29.0	----	----	----	----	
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	1.16	----	----	----	----	
cyanide, weak acid dissociable	----	E336	0.050	mg/kg	0.710	----	----	----	----	
thiocyanate	302-04-5	E344	1.00	mg/kg	1.57	----	----	----	----	

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WR2100300**	Page	: 1 of 5
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Lindsay Rear	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: HLF SOIL April	Date Samples Received	: 08-Apr-2021 10:00
PO	: 22037	Issue Date	: 13-Apr-2021 14:34
C-O-C number	: 20210406b		
Sampler	: HM, JJ, KH		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- Quality Control Sample Frequency Outliers occur - please see following pages for full details.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 15:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 15:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap [BC/Dried HT]										
HLF LOWER ROAD 1	E344	05-Apr-2021	10-Apr-2021	14 days	4 days	✓	11-Apr-2021	9 days	0 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap [BC/Dried HT]										
HLF LOWER ROAD 1	E333	05-Apr-2021	09-Apr-2021	14 days	4 days	✓	11-Apr-2021	14 days	1 days	✓
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap [BC/Dried HT]										
HLF LOWER ROAD 1	E336	05-Apr-2021	09-Apr-2021	----	----		11-Apr-2021	1 days	1 days	✓
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap [BC/Dried HT]										
HLF LOWER ROAD 1	E144	05-Apr-2021	----	----	----		09-Apr-2021	----	----	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Moisture Content by Gravimetry	E144	176380	1	1	100.0	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	176379	1	1	100.0	5.0	✓
Total Cyanide by CFA	E333	176377	1	1	100.0	5.0	✓
WAD Cyanide by CFA	E336	176378	1	1	100.0	5.0	✓
Laboratory Control Samples (LCS)							
Moisture Content by Gravimetry	E144	176380	1	1	100.0	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	176379	1	1	100.0	5.0	✓
Total Cyanide by CFA	E333	176377	1	1	100.0	5.0	✓
WAD Cyanide by CFA	E336	176378	1	1	100.0	5.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	176380	1	1	100.0	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	176379	1	1	100.0	5.0	✓
Total Cyanide by CFA	E333	176377	1	1	100.0	5.0	✓
WAD Cyanide by CFA	E336	176378	1	1	100.0	5.0	✓
Matrix Spikes (MS)							
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	176379	0	1	0.0	5.0	×
Total Cyanide by CFA	E333	176377	0	1	0.0	5.0	×
WAD Cyanide by CFA	E336	176378	0	1	0.0	5.0	×

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 Vancouver - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Cyanide by CFA	E333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344 Vancouver - Environmental	Soil/Solid	In-house	A dried soil is leached with DI water at a ratio of 1:5. Thiocyanate is determined by the ferric nitrate colourimetric method. Soil samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:5 Soil:Water for Anions	EP237 Vancouver - Environmental	Soil/Solid	EPA 300.1 (mod)	This analysis is carried out using a leaching procedure which involves the gentle tumbling of the sample in a specified leaching solution (typically deionized water) for a specific length of time.
Cyanide Extraction for CFA	EP333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

QUALITY CONTROL REPORT

Work Order	: **WR2100300**	Page	: 1 of 3
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Whitehorse - Environmental
Contact	: Lindsay Rear	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: HLF SOIL April	Date Samples Received	: 08-Apr-2021 10:00
PO	: 22037	Date Analysis Commenced	: 09-Apr-2021
C-O-C number	: 20210406b	Issue Date	: 13-Apr-2021 14:34
Sampler	: HM, JJ, KH		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 176380)											
WR2100300-001	HLF LOWER ROAD 1	moisture	----	E144	0.25	%	29.0	28.3	2.44%	20%	----
Cyanides (QC Lot: 176377)											
WR2100300-001	HLF LOWER ROAD 1	cyanide, strong acid dissociable (total)	----	E333	0.125	mg/kg	1.16	1.09	6.56%	35%	----
Cyanides (QC Lot: 176378)											
WR2100300-001	HLF LOWER ROAD 1	cyanide, weak acid dissociable	----	E336	0.125	mg/kg	0.710	0.611	0.099	Diff <2x LOR	----
Cyanides (QC Lot: 176379)											
WR2100300-001	HLF LOWER ROAD 1	thiocyanate	302-04-5	E344	1.00	mg/kg	1.57	2.25	0.68	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 176380)						
moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 176377)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 176378)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 176379)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 176380)									
moisture	----	E144	0.25	%	50 %	99.6	90.0	110	----
Cyanides (QCLot: 176377)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	95.7	80.0	120	----
Cyanides (QCLot: 176378)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	107	80.0	120	----
Cyanides (QCLot: 176379)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	97.1	85.0	115	----

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	Robert King VGCX		
Date Observed:	06/19/2021	**Time Observed:** 19:50	
Location of Spill:	1125 bench phase 1	**VGC Tracking Number:** VGC21-022	
Distance to Waterbody:	~1km	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	10L	**Reported to:** Mine Ops	
PERSON/DEPT. RESPONSIBLE FOR SPILL			
Supervisor/Investigator:	Tom Cochrane Mine ops.		
Date of Spill:	06/19/2021		
Substance Spilled:	coolant		
Equipment Involved:	602 shovel		
Volume of Contaminated Material:	N/A		
Personnel Contacted for Disposal (Name):	N/A		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	On June 19th at 19:50 the 602 shovel experienced a failure on a coolant line. The break in the coolant line resulted in a release of approximately 10L of coolant to the adjacent pit surface.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	The 602 shovel was shut down immediately to arrest the pressure and leak. A spill kit was deployed and a spill tray and absorbent pads captured the majority of the coolant. A lube truck vacuumed out the remaining coolant and the line was repaired. No material was generated for the LTF due to rapid response and hard rock surface.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	21-068	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Reported to Spill Line June 20 4:30pm		
Disposal Container Labelled?	☐ Yes ☑ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	Rock/ open pit		
Method of Disposal & Further Remediation Required:	Spill tray and spill pads were applied to the release. No material generated for the LTF		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:** June 29	
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	Chad Erb	**Signature:**	
Safety:		**Signature:**	
Environment:	Bill Bowden	**Signature:**	

FINAL REPORT
SPILL CLOSED

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	June 19, 2021	VGC Spill #	VGC21-022
Volume (L):	10L	Yukon Government #	21-068
Substance	Coolant	Location	1125 bench in Pit

Photos:



Photo 1: Initial release of coolant illustrating spill tray mitigation

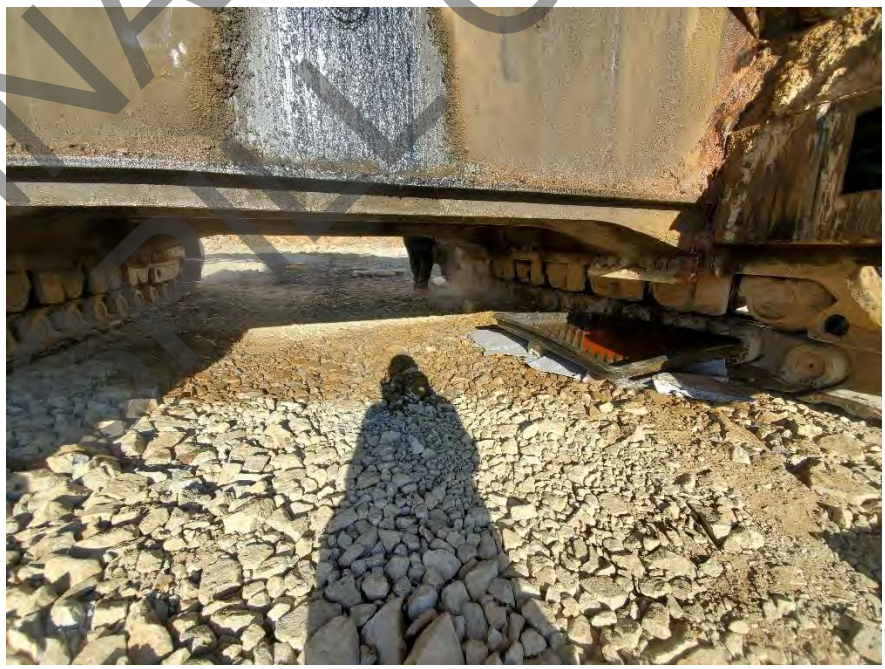


Photo 2: Initial release of coolant area of impact

FINAL REPORT
APPROVED

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	June 19, 2021	VGC Spill #	VGC21-022
Volume (L):	10L	Yukon Government #	21-068
Substance	Coolant	Location	1125 bench in Pit



Photo 3: Area of coolant release following spill remediation efforts

FINAL REPORT
SPILL CLOSED

EAGLE GOLD PROJECT

SPILL REPORT

ADR PROCESS SOLUTION RELEASE – JUNE 22, 2021

JULY 2, 2021

Prepared By:
Victoria Gold (Yukon) Corp.
Eagle Gold Project

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Appendix A External Laboratory Surface Water Quality Results
Appendix B External Laboratory Soil Quality Results

1 INTRODUCTION

This report summarizes the events that occurred during the night of June 22, 2021 that resulted in a release of approximately 30 m^3 of process solution from the lined footprint of the Adsorption Desorption Recovery Facility (ADR) to soils outside of containment. This report also summarizes the subsequent responses implemented to mitigate this release and to prevent possible reoccurrence.

During the release and follow up incident investigations, process solution was not observed to enter the Event Pond or potential freshwater receiving environments downgradient.

Following the release, there has been no detection of total or WAD cyanide in monitored surface water downgradient of the HLF. 78 soil samples were collected along the release flow path to evaluate potential residual cyanide residency as per Contaminated Site Regulations (CSR). Final results of soil sampling and analysis demonstrate that total cyanide (or strong acid dissociable – SAD) and weak acid dissociable (WAD) cyanide were below Industrial CSR soil standards for all samples collected from excavated and unexcavated zones of the release flow path.

1.1 INCIDENT SUMMARY

On June 22, 2021 at ~20:42, a pressure drop in the barren solution flow return was detected by the operator working in the control room of the ADR; the operator became concerned that a distribution line on the Heap may have failed. Upon immediate investigation, no failures of the distribution lines in the Heap were identified. With no reports of line failure on the Heap, the ADR control room operator inspected the ADR Facility; whereupon it was observed at the south Carbon-In-Column (CIC) train that process solution was overtopping a safety screen onto the ADR main floor. It was then observed that the safety screen panels (used to filter out small carbon particles from solution flowing back out to the Heap) were partially clogged by precipitates formed through an unanticipated chemical reaction. At ~20:47, the ADR operator temporarily shut down the feed pumps to the CIC train which served to cease all outgoing flow to the Heap and all incoming flow to the ADR. By ~20:49, after all flow from the ADR was temporarily shut down, it was evident that solution was no longer overtopping the screen containment box.

Spill response began immediately after the incident was identified and reported to the night shift supervisor. Emergency management response protocols as per the Cyanide Management Plan (CMP) and associated SOPs were followed and the Emergency Management Team was activated. Inspection, evaluation and delineation of the release occurred in the early hours of June 23. Excavation of the ADR/HLF main access road began later that same morning of June 23. Onsite analyses of the concentration of solution measured at ~220ppm of CN.

The solution that reported to the ADR main floor exceeded the containment capacity of the plant floor and flowed out of the ADR south east bay door. The solution then migrated downgradient. The main proportion of the release flowed along the ADR/HLF main access road terminating approximately 180m down the HLF embankment road. Minor amounts of the solution migrated through a small cut in a road berm and down a rivulet on the ADR/Events Pond cut bank, as well as down the HLF spillway service road, ultimately terminating its flow path at the northern berm of the Events Pond berm. All the affected areas along the flow paths were delineated the night of the event to assist with effective remediation evaluation and planning.

Investigations during and since the incident indicate that the release was initiated from an unforeseen chemical reaction after the plant piping configurations were modified to improve efficiencies within the gold recovery process circuit. Further, road material build up and grading contributed to the extent of solution migration down gradient.

Based on observations of the flow path and from the samples collected the morning after the event, there is no evidence that any potential receiving water bodies were affected by process solution. Haggart Creek and Dublin Gulch returned non-detect results for Total and WAD cyanide.

On June 23, 2021, notification was provided to regulators and the First Nation of Nacho Nyak Dun (FNNND) regarding the incident. The following were notified:

- Natural Resource Officer, Inspector Major Mines - Compliance Monitoring and Inspection, Department of Energy, Mines and Resources (EMR)
- Enforcement Officer - Enforcement Branch, Environment and Climate Change Canada (ECCC), and
- FNNND Lands and Resources Manager.

This report provides a detailed chronological event summary, release details, site factors that led to the incident, concurrent and post-incident responses, and reporting.

2 CHRONOLOGICAL EVENT SUMMARY

2.1 RELEASE RECOGNITION AND IMMEDIATE RESPONSES

Features relevant to this event summary are provided in Figure 2-1 and Figure 2-2.

June 22, 2021

Leading up to the night of the Event, warm and dry conditions were consistent throughout the day. On the day shift of June 23, as per operational objectives a plan was initiated by the ADR operator to increase gold recovery. The plan involved re-routing the Carbon-In-Columns (CIC) sump pump to transfer strip solution to the tail end of the south CIC train. The piping configuration change would direct solution flow to the carbon safety screen located on the eastern side of the ADR building.

June 22, 2021 Event Timeline

22:30 When the re-routing was completed, the ADR operator started to bleed barren strip solution from the stripping circuit to the CIC area sump pump. The barren strip solution contains around 2% caustic and has a temperature of ~75 degrees Celsius.

22:30 – 22:42 The sump level began to rise as intended which then activated the sump pump and conveyed barren strip solution via the re-routed piping to the tail end of the south CIC column train. An unexpected caustic precipitation occurred when the warm strip solution contacted cold (4.5°C) barren solution. The precipitate rapidly began to build up on the 75 micron screen mesh panels at the tail end of the south CIC column train. This resulted in the screen panels being semi-sealed with precipitate resulting in the impediment of solution flow through the screen panels and out to the Heap. As a result, solution started to report to the screen oversize discharge, and subsequently overtopped to the ADR main floor.

22:42- 22:47 The ADR operator observed a drop in pressure on the barren solution pumps and became concerned that a distribution line on the heap may have failed. The Process night shift supervisor was called to investigate the distribution lines on the Heap. The ADR control room is on the opposite side of the CIC screen panels and at this point in time no solution on the ADR floor was visible from that position. An alarm alerted the ADR operator that the barren solution tank level had dropped significantly. With no reports of line failure on the Heap, the ADR operator vacated the control room and inspected the ADR floor. The south CIC train at the carbon safety screens were observed to be overtopping.

22:47 –22:49 The ADR operator immediately shut down the feed pumps to the CIC train and stopped all flow outgoing to the Heap and incoming into the ADR. Directly following this action, the carbon safety screen by-pass valve was opened so the solution could report directly into the barren solution holding tank. The 24” by-pass valve was fully open by 22:49.

22:49 The carbon safety screen overflow to the south east ADR floor was fully arrested. The Solution that reported to the ADR floor exceeded the ADR containment holding capacity and migrated

through the south east ADR bay door located close to the carbon safety screen. The night shift supervisor arrived on scene at ~22:55 and was debriefed while observing the release.

23:00-01:00 The Process Manager, Site General Manager and the Emergency Management Team was awakened. The Emergency Operations Centre (EOC) was activated and the Emergency Response Plan and Cyanide Management Plan was initiated. Offsite Senior Management was notified.

June 23, 2021

01:00 – 04:00 Inspections of the incident area were undertaken by the General Manager, and managers/superintendents from the Environment, Process, and Health and Safety Departments. During the inspection:

- Solution was observed to have migrated out of the south east bay door onto the main ADR/HLF access road (Photo 2-1).



Photo 2-1: ADR South East Bay Door Flow Path

- The main flow path of solution migrated ~180m to the east downgradient along the main ADR access and HLF embankment road. Photo 2-2 shows the eastern extent of the surface flow from the release along the HLF embankment road.



Photo 2-2: Termination Point of Main Solution Flow Path from ADR Access Road to HLF Embankment Road

- Two secondary solution flow paths were observed: 1) through a cut out in the ADR road berm and then down a rivulet on the ADR/Events Pond cut bank; this flow terminated just short of the HLF spillway; and 2) from the HLF embankment road, this flow migrated down the HLF spillway service road and then down a rivulet on the ADR/Event Pond cut bank; this flow terminated and pooled in a small area adjacent to and behind the berm constructed along the north side of the Events Pond (Photo 2-3).



Photo 2-3: Termination Point of Flow Path on North Side of Events Pond

- The extents of all flow paths were delineated the night of the event with spray paint so that effective remediation could be evaluated and planned. The majority of solution was contained to road infrastructure. The minor amounts that did travel down the HLF spillway service road and the cut banks terminated on the infrastructure and no solution was observed entering into the Events Pond.
- The internal ADR infrastructure was inspected to ensure no further releases were occurring.
- The ADR perimeter was inspected to ensure no solution had exited the building from other exits or bay doors. No secondary release flow paths were observed from the building.
- Liner, electrical and piping infrastructure as-built documentation was referenced to safely plan remedial efforts
- The flow paths were surveyed by hand with a GPS Trimble unit by Underhill Geomatics

04:15 Direction was given to commence excavation of soils along the flow path once initial documentation was complete and all the flow paths were delineated. Resources for excavation were procured from internal departments and transported to the ADR main access road.

05:00-24:00 Excavation of soils from the delineated area along the main ADR/HLF access road continued throughout the day. Affected areas along the cut bank rivulets, the HLF spillway access road and the pooled area adjacent to the Events Pond were not excavated due to potential geotechnical stability concerns, with an ultimate decision regarding these areas postponed until final results of lab analysis of soil samples were received.

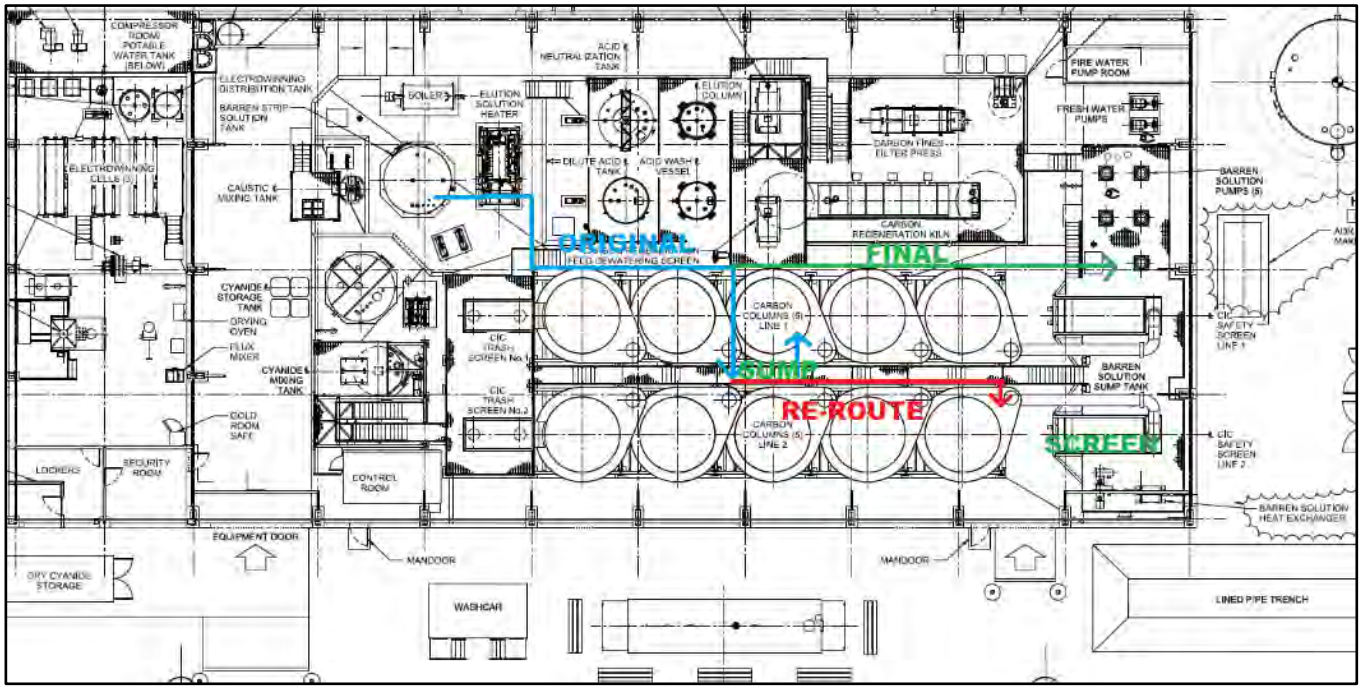


Figure 2-1: Piping Configuration



Legend:

- Flow Path
- HLF Liner Perimeter
- Poetentially Impacted Area
- Excavation Complete
- Not Excavated

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Flow Path, Potentially Impacted Area & Extent of Excavations
2021/07/02	2-2	

2.2 FOLLOW-UP REMEDIAL MEASURES

As described above, work commenced early in the following morning of the event on June 23 to mitigate the potential impacts of the release. Surveys were conducted to plan soil excavation efforts in the affected areas. Following as-built infrastructure reference, excavation began along the main flow path. The excavation efforts continued throughout June 23 and were completed that night. Photo 2-4 depicts the excavation works at the junction of the ADR Road and the HLF Embankment Road.



Photo 2-4: Roadway Excavation of Potentially Impacted Materials

Potentially affected soil was transported to the Heap and deposited within containment of the liner as shown in Photo 2-5. Approximately 682m^3 of potentially affected material was removed from the main ADR/HLF access road.



Photo 2-5: Excavated Material Pile on Heap

The morning of June 23, the sump pump discharge piping was switched back to its original transfer point. The strip solution transfer line was re-piped so that it would transfer directly into the barren solution tank circumventing the ability of strip solution to come in contact with the screen panels. The caustic solution stream has now been re-routed directly into the barren solution tank. These two piping configuration changes will eliminate potential chemical precipitates from interacting or forming on the carbon safety screens.

Further, as part of the Cyanide Management Plan (specifically the Environmental (Soil/Water Quality) Monitoring Procedures SOP), water quality samples were collected the morning of June 23 at standard Environmental Monitoring, Surveillance and Adaptive Management Plan locations (Figure 2-3) above and downgradient of the incident area including:

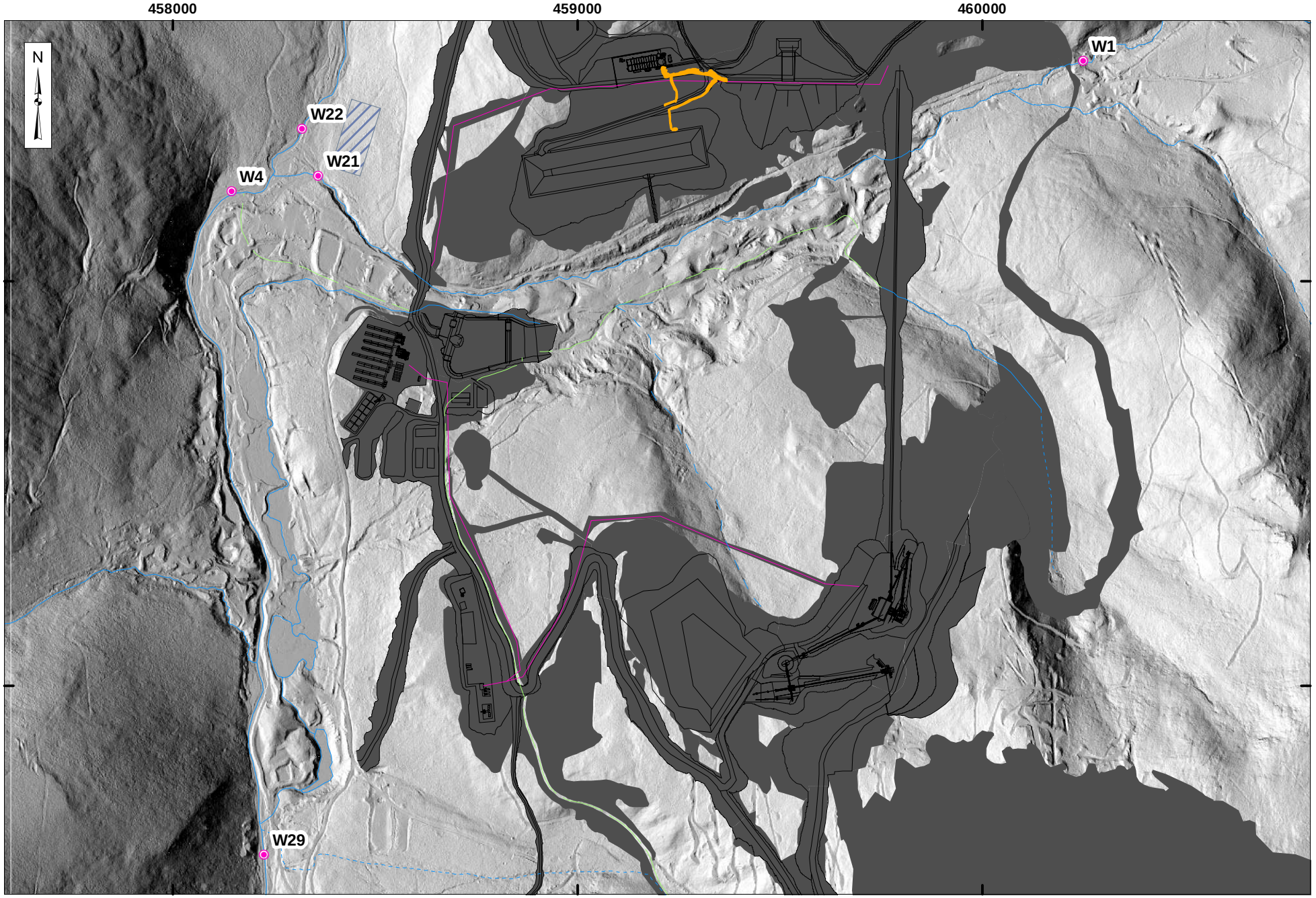
- Two stations on Dublin Gulch; W1, W21
- Three stations on Haggart Creek, W22, W4, W29

Soil Samples, as per CSR requirements, were collected on June 24 along the excavated main ADR/HLF flow path and the non-excavated flow paths along the HLF spillway service road and along the rivulets on the ADR/Events Pond cut bank. These soil samples will be utilised to assess whether any additional remedial work is needed as per CSR soil standards for Cyanide on Industrial land.

Regrading and ditching of the main ADR/HLF access road to convey any potential future process solution release of this nature to containment within the lined HLF area was initiated on June 29th.



Photo 2-6: Regraded HLF Embankment Road



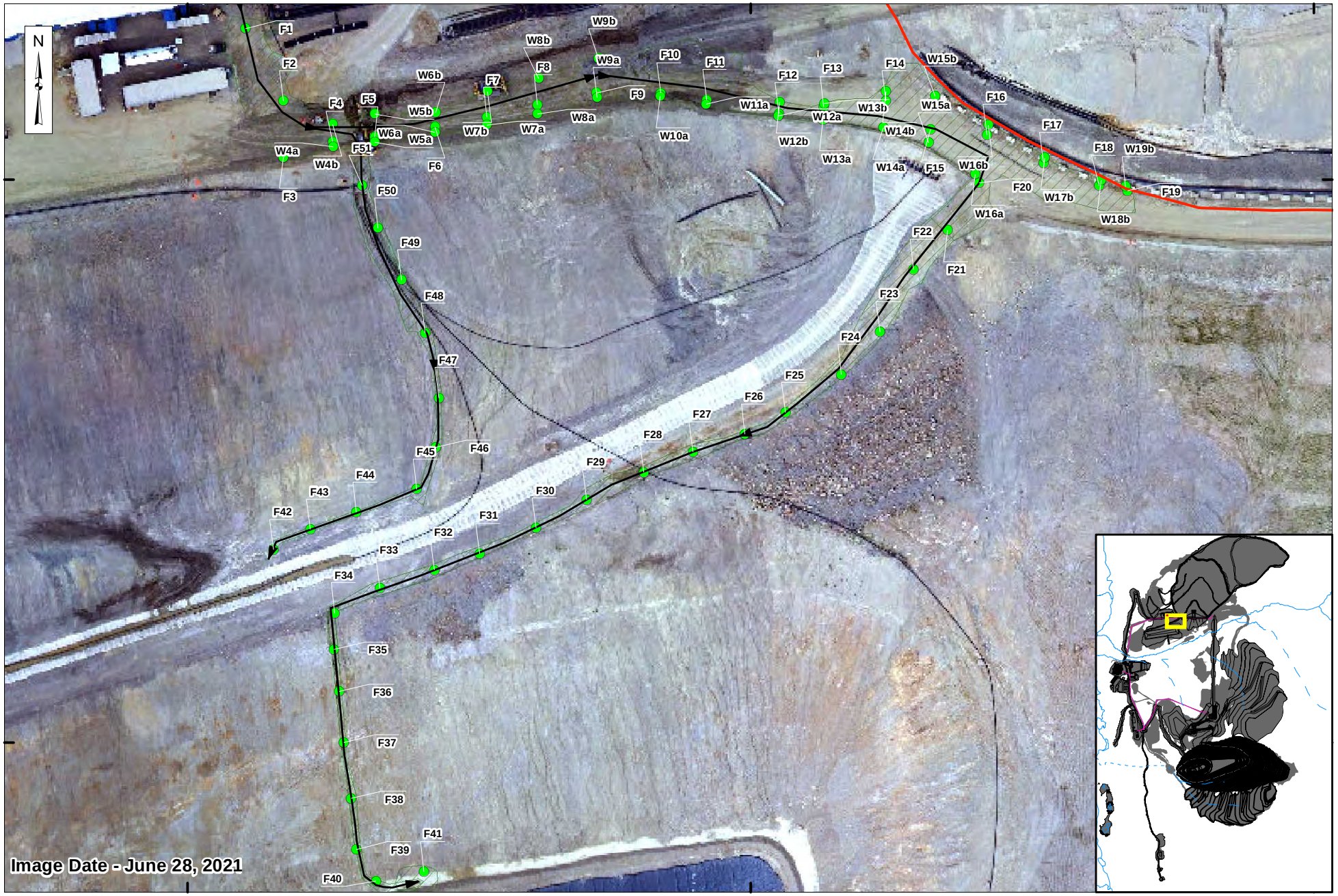
Legend:

- Surface Water Samples - No Detection
- Main Ditches
- Potentially Impacted Area
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent
- Other Mining and Construction Area
- Reserved Area

VICTORIA GOLD CORP

0 100 200 400
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Surface Water Sampling
2021/07/02	2-3	



Legend:

- Soil Samples
- Potentially Impacted Area
- Flow Path
- HLF Liner Perimeter

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Soil Sampling
2021/07/02	2-4	

3 RELEASE DETAILS

3.1 FLOW AND VOLUME ESTIMATE

Flow from the process circuit within the ADR is monitored in the ADR control room. The night of the event, solution was flowing out to the Heap at a rate of 1,235m^3/hr with a concentration of 220 ppm CN. As the carbon safety screens began to blind with precipitate a portion of this flow could no longer pass through the screens and out to the Heap, which resulted in a loss of flow delivered to the barren solution tank. The volume loss within the barren solution tank during the 7-minute downtime was used to estimate the volume of solution released to the ADR concrete containment floor and sumps. The tank lost ~14.1% of volume between 22:42 and 22:49. The barren solution tank has a capacity of 320m^3 correlating to an approximate loss of 45m^3 of solution from the ADR process circuit. The CIC and carbon area floor and sumps together have the capacity of approximately 15m^3. Based on these values, approximately 30m^3 of solution is estimated to have migrated out of ADR containment through the south east ADR bay doors.

3.2 RELEASE EXTENT

As part of the emergency response action during the early morning of June 23, the flow path of the release was delineated using spray paint and then subsequently surveyed by Underhill Geomatics using a handheld high resolution Trimble GPS unit. The main flow path terminated on road infrastructure ~180m to the east of the ADR on the ADR/HLF access road (Figure 2-2). Two additional flow paths were delineated; one travelling down a rivulet on the ADR/Event Pond cut bank and terminated just short of the HLF spillway and second flow path that travelled down the HLF spillway service road and ultimately terminated behind the Events Pond north berm. No solution was observed to enter the Events Pond or potential freshwater receiving environments downgradient of the release.

3.3 RECEIVING ENVIRONMENT MONITORING

3.3.1 Surface Water Quality Sampling

The receiving water body related to the Project is Haggart Creek, and the major tributary to Haggart Creek flowing the project area is Dublin Gulch. The Type A Water Use Licence (WUL), and Victoria Gold monitoring programs under the EMSAMP has established monitoring locations on Haggart Creek and Dublin Gulch and water quality objectives on Haggart Creek. The following locations considered in the WUL and the EMSAMP as shown on Figure 2-3 were sampled the morning after the event on June 23:

- Upstream of the release on Dublin Gulch at W1;
- On Haggart Creek upstream of Dublin Gulch at W22;
- Downstream of the release on Dublin Gulch at W21;
- On Haggart Creek downstream of Dublin Gulch at W4; and,

- On Haggart Creek further downstream at W29.

There was no detection of SAD or WAD cyanide in surface water quality samples. The COA from ALS is provided as Appendix A.



Photo 3-1: Surface Water Quality Sampling

3.3.2 Groundwater Quality Sampling

Groundwater monitoring of wells downgradient of the ADR and Event Pond are planned to be sampled on a monthly basis commencing in July and continuing through to end of September. This frequency is increased from the normal WUL quarterly monitoring requirements. The supplementary sample program will consist of four groundwater well pairings, (MW19-EVP2a/b, MW10-DG6Ra/b, MW19-EVP1a/b and MW19 HLF-1a/b - Figure 3-1), which are located downgradient of the affected area.

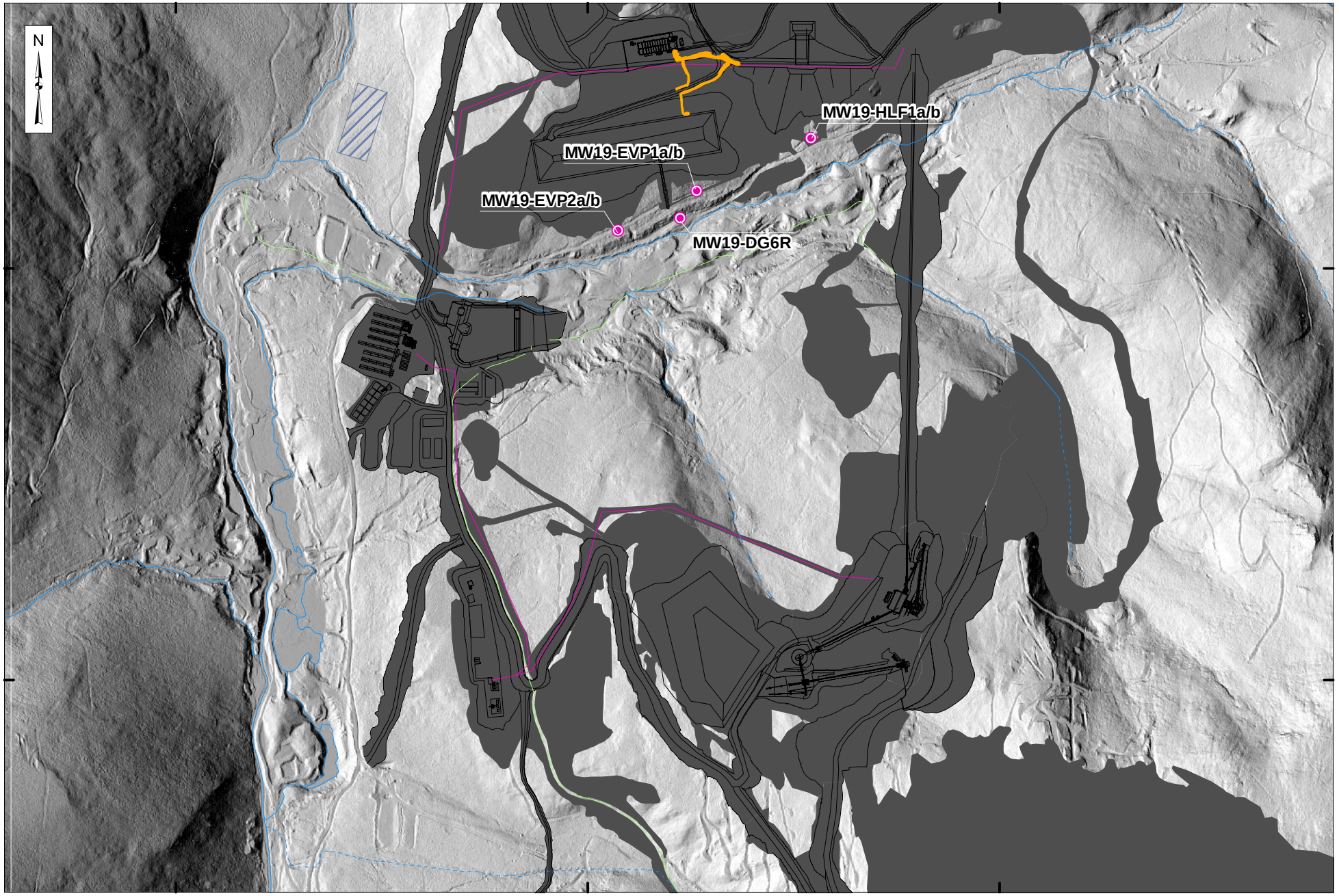
3.3.3 Soil Sampling

On June 24, 2020, soil samples were collected as per CSR requirements to evaluate cyanide concentrations in soils in the affected area (Figure 3-2 and Figure 3-3). A total of 78 soil samples were collected and analyzed. All wall samples (Wx a/b) and floor samples (F1-F22) were within the excavated zone. The remainder of the floor

samples were taken from the non-excavated zones. The samples were analyzed for the presence of SAD and WAD cyanide. Final laboratory cyanide concentrations were evaluated against Industrial CSR soil standards for SAD and WAD cyanide. All soil samples were well below industrial CSR soil standards; no further excavations are planned. The COA from ALS is provided as Appendix B.



Photo 3-2: Soil Sampling



Legend:

- Planned Groundwater Samples
- Main Ditches
- Potentially Impacted Area
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent
- Other Mining and Construction Area
- Reserved Area

VICTORIA GOLD CORP

0 100 200 400
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Planned Groundwater Sampling
2021/07/02	3-1	



Legend:

- Excavated Zone Sample - No Detection
- Excavated Zone Sample - ND to 10 mg/kg
- Non-Excavated Zone Sample - No Detection
- Non-Excavated Zone Sample - ND to 10 mg/kg
- Non-Excavated Zone Sample - 21.6 mg/kg
- Excavation Complete
- Not Excavated

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Soil Sampling CN WAD
2021/07/02	3-2	



Legend:

- Excavated Zone Sample - ND to 6.92 mg/kg
- Excavated Zone Sample - No Detection
- Non-Excavated Zone Sample - ND to 24.8 mg/kg
- Non-Excavated Zone Sample - No Detection
- Excavation Complete
- Not Excavated

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection:	Drawn By:
NAD 83 Zone 8N	HC
Date:	Figure:
2021/07/02	3-3

EAGLE GOLD MINE
YUKON TERRITORY

ADR Solution Release
Soil Sampling
CN SAD

4 IMPORTANT FACTORS FOR CAUSING RELEASE (ROOT CAUSE)

4.1 ROOT CAUSE

The primary root cause behind this solution release was a physical change in the routing of process solution, which enabled the introduction of warm caustic barren strip solution to the tail end of the south CIC train with the resident cool barren solution. The mixing of the two process solutions resulted in precipitate forming in the CIC carbon safety screen holding tanks. The precipitate rapidly blinded the 75 micron screen mesh panels. As a result, the flow of the solution (1,235m^3/hr) being directed towards the carbon safety screens, overwhelmed the capacity of the semi blinded screens resulting in a large portion of the outgoing solution to overflow onto the ADR plant floor.

Figure 4-1 depicts the piping configuration changes, CIC, carbon safety screen layout within the ADR.

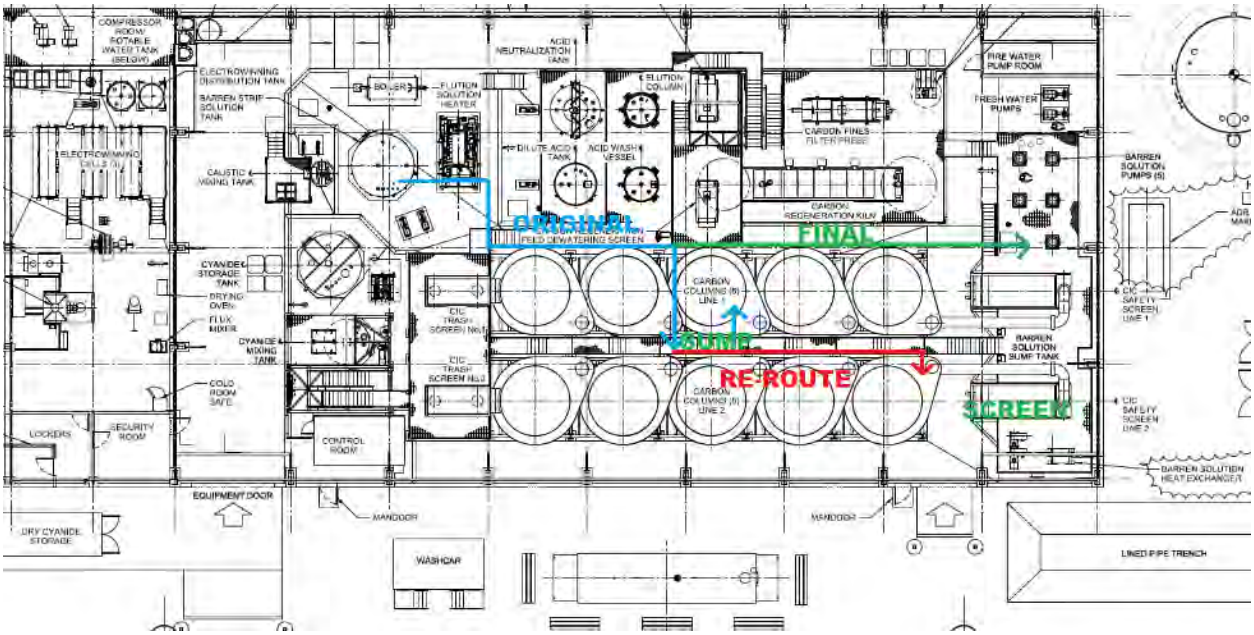


Figure 4-1: ADR Infrastructure Layout

4.2 CONTRIBUTING FACTORS TO THE EXTENT OF THE RELEASE

Two main site factors have been identified that contributed to the subsequent release of process solution outside of ADR containment: 1) ADR containment design considers only overflows from defect or damage to the tankage within the ADR (as is common for secondary containment design), 2) pad and road grading allowed process solution to escape containment rather than flow to the heap pad.

The ADR design considers minor potential solution overflow and release points within the process circuit. The ADR floor has a designed containment capacity and two resident sumps equipped with pumps to address small

volume releases, but not CIC overflows. Major CIC overflows would be expected to flow within containment eventually to the lined heap pad. In this case, the release flow rate rapidly used up the containment capacity within the ADR. Approximately 15m^3 of solution was captured within the ADR containment sumps and concrete floor as depicted in Photo 4-1. Although this solution was rapidly pumped back into the process circuit, containment within the ADR facility was consumed allowing solution to migrate outside of the south east ADR bay door.



Photo 4-1: Solution Contained Within the ADR

The major contributing factor to allow the full extent of the release was due to the existing grading on the ADR pad and access road which directed the release away from the heap lined containment area. Solution then migrated down the south side of the ADR/HLF main access road outside of lined containment and along the other flow paths identified above.



Photo 4-2: Main ADR/HLF Access Road Flow Path – Pad Grading Directing Surface Flow Along Road

5 SPILL REPORTING

5.1 YUKON GOVERNMENT AND FNNND

On June 23, 2020, the day following the solution release, notification was provided to regulators and the FNNND of the release of process solution from ADR containment. The following people and/or agencies were included in these notifications:

- Yukon Spill Reporting hotline
- Natural Resource Officer, Inspector Major Mines - Compliance Monitoring and Inspection, Department of Energy, Mines and Resources (EMR)
- Enforcement Officer - Enforcement Branch, Environment and Climate Change Canada (ECCC), and
- FNNND Lands and Resources Manager.

A copy of this report will be provided to all parties contacted during the preliminary event.

6 FINAL REMEDIATION MEASURES

To mitigate the potential for a recurrence of a release from the ADR of this nature and extent, multiple corrective actions were developed and implemented post incident. These included changing the piping arrangements as discussed in Section 2.2. The piping configuration was reverted back to the original transfer point on the morning of June 23. The strip solution transfer line was re-piped so that it would transfer directly into the barren solution tank. This measure circumvents the ability for strip solution to come in contact with the screen panels and the caustic solution stream, which will now be piped back to the barren solution tank. These two piping configuration changes are intended to eliminate potential chemical precipitates from forming on the carbon safety screens.

Following the excavation of the main ADR/HLF access roads an EMR-CMI Major Mines inspector was on site on June 24 following the release and took four soil samples in the affected areas.

Following completion of the planned excavation and soil sampling work, corrective actions to address the grade of the road were initiated. On June 28, road maintenance began on the main ADR/HLF access road. The road was crowned and sloped towards the north where a ditch was constructed to convey flows into the lined area of the Heap. This remedial work was observed by an EMR-CMI inspector on June 30. All remedial work was completed on July 1 (Photo 6-1)



Photo 6-1: ADR/HLF Main Access Road Regraded and Ditched Towards Heap

As discussed in Section 3.3.3 all soil samples taken along the excavated and non excavated flow paths of the release yielded SAD and WAD cyanide concentrations below CSR industrial soil standards. No further excavation is currently planned. Groundwater wells which are located downgradient of the affected area will continue to be monitored from July to September 2021.

APPENDIX A

External Laboratory Surface Water Quality Results

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA21B2915**	Page	: 1 of 6
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: SWQ (JUNE Spill Confirmatory)	Date Samples Received	: 24-Jun-2021 15:10
PO	: 22037	Date Analysis Commenced	: 25-Jun-2021
C-O-C number	: 20210623e	Issue Date	: 28-Jun-2021 17:51
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Annabelle Prasad	Analyst	Metals, Burnaby, British Columbia
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
%	percent
µS/cm	Microsiemens per centimetre
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
HTD	*Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W22	W29
					Client sampling date / time	23-Jun-2021 13:00	23-Jun-2021 12:35	23-Jun-2021 12:00	23-Jun-2021 12:15	23-Jun-2021 11:40
						VA21B2915-001	VA21B2915-002	VA21B2915-003	VA21B2915-004	VA21B2915-005
						Result	Result	Result	Result	Result
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		32.8	44.4	72.8	78.5	80.6
conductivity	----	E100	2.0	µS/cm		89.9	130	268	289	289
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		41.7	58.6	126	137	137
hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L		40.5	59.8	124	130	135
pH	----	E108	0.10	pH units		7.67	7.84	8.01	8.01	8.08
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L		63.8	85.1	160	173	174
solids, total suspended [TSS]	----	E160-H	3.0	mg/L		7.5	3.5	<3.0	<3.0	<3.0
turbidity	----	E121	0.10	NTU		0.97	1.23	0.55	0.53	0.32
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
cyanate	88402-73-7	E343	0.20	mg/L		0.26	<0.20	<0.20	<0.20	<0.20
fluoride	16984-48-8	E235.F	0.020	mg/L		0.082	0.088	0.089	0.089	0.091
Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L		0.094	0.082	0.084	0.076	0.090
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		0.0372 HTD	0.0419 HTD	0.0781	0.0852	0.0786
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010 HTD	<0.0010 HTD	<0.0010	<0.0010	<0.0010
nitrogen, total	7727-37-9	E366	0.030	mg/L		0.144	0.109	0.137	0.143	0.142
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L		0.0025	0.0019	<0.0010	<0.0010	<0.0010
phosphorus, total	7723-14-0	E372-U	0.0020	mg/L		0.0353	0.0081	0.0027	0.0030	0.0030
phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L		0.0040	0.0034	<0.0020	<0.0020	0.0049
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		10.1	18.6	57.7	64.1	63.0
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cyanide, weak acid dissociable	----	E336	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
thiocyanate	302-04-5	E344	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		2.34	2.48	2.83	2.92	2.93
carbon, total organic [TOC]	----	E355-L	0.50	mg/L		2.53	2.58	2.76	2.82	2.71
Ion Balance										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W22	W29
					Client sampling date / time	23-Jun-2021 13:00	23-Jun-2021 12:35	23-Jun-2021 12:00	23-Jun-2021 12:15	23-Jun-2021 11:40
						VA21B2915-001	VA21B2915-002	VA21B2915-003	VA21B2915-004	VA21B2915-005
						Result	Result	Result	Result	Result
Ion Balance										
anion sum	----	EC101	0.10	meq/L		0.87	1.28	2.67	2.91	2.93
cation sum	----	EC101	0.10	meq/L		0.92	1.26	2.61	2.83	2.84
ion balance (cation-anion difference)	----	EC101	0.010	%		2.79	0.787	1.14	1.39	1.56
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.380	0.0764	0.0348	0.0288	0.0269
antimony, total	7440-36-0	E420	0.00010	mg/L		0.00120	0.00125	0.00037	0.00023	0.00046
arsenic, total	7440-38-2	E420	0.00010	mg/L		0.0447	0.0342	0.00491	0.00072	0.00451
barium, total	7440-39-3	E420	0.00010	mg/L		0.0429	0.0419	0.0366	0.0352	0.0383
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000135	0.0000057	0.0000108	0.0000133	0.0000113
calcium, total	7440-70-2	E420	0.050	mg/L		11.7	15.8	32.0	32.6	34.6
chromium, total	7440-47-3	E420	0.00050	mg/L		0.00067	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L		0.00026	<0.00010	0.00013	0.00014	0.00011
copper, total	7440-50-8	E420	0.00050	mg/L		0.00069	0.00053	0.00056	0.00054	0.00058
iron, total	7439-89-6	E420	0.010	mg/L		0.547	0.105	0.115	0.133	0.097
lead, total	7439-92-1	E420	0.000050	mg/L		0.000850	0.000209	0.000074	<0.000050	0.000064
lithium, total	7439-93-2	E420	0.0010	mg/L		0.0025	0.0041	0.0052	0.0053	0.0052
magnesium, total	7439-95-4	E420	0.100	mg/L		2.75	4.95	10.8	11.7	11.8
manganese, total	7439-96-5	E420	0.00010	mg/L		0.0157	0.00406	0.0285	0.0362	0.0334
mercury, total	7439-97-6	E508	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.00186	0.00170	0.000297	0.000052	0.000243
nickel, total	7440-02-0	E420	0.00050	mg/L		0.00068	<0.00050	0.00088	0.00090	0.00086
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.100	mg/L		0.776	0.910	0.932	0.918	0.991
selenium, total	7782-49-2	E420	0.000050	mg/L		0.000147	0.000128	0.000151	0.000199	0.000156
silicon, total	7440-21-3	E420	0.10	mg/L		6.54	5.89	3.97	3.54	3.80
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	17341-25-2	E420	0.050	mg/L		1.69	1.72	1.61	1.58	1.70
strontium, total	7440-24-6	E420	0.00020	mg/L		0.0679	0.0968	0.170	0.180	0.181

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W22	W29
					Client sampling date / time	23-Jun-2021 13:00	23-Jun-2021 12:35	23-Jun-2021 12:00	23-Jun-2021 12:15	23-Jun-2021 11:40
						VA21B2915-001	VA21B2915-002	VA21B2915-003	VA21B2915-004	VA21B2915-005
						Result	Result	Result	Result	Result
Total Metals										
sulfur, total	7704-34-9	E420	0.50	mg/L		3.24	6.13	18.6	19.8	19.9
thallium, total	7440-28-0	E420	0.000010	mg/L		0.000010	<0.000010	<0.000010	<0.000010	<0.000010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		0.0248	0.00291	0.00074	0.00045	0.00062
uranium, total	7440-61-1	E420	0.000010	mg/L		0.000553	0.000614	0.000775	0.000783	0.000932
vanadium, total	7440-62-2	E420	0.00050	mg/L		0.00130	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0141	0.0107	0.0128	0.0132	0.0116
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		0.00092	0.00111	0.00034	0.00022	0.00044
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.0356	0.0317	0.00452	0.00063	0.00407
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.0345	0.0384	0.0343	0.0338	0.0355
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000056	0.0000072	0.0000087	0.0000114	0.0000115
calcium, dissolved	7440-70-2	E421	0.050	mg/L		12.4	15.6	32.2	34.8	34.2
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	0.00010	0.00012	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L		0.00031	0.00040	0.00045	0.00046	0.00056
iron, dissolved	7439-89-6	E421	0.010	mg/L		0.013	<0.010	0.049	0.074	0.043
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		0.0018	0.0037	0.0053	0.0053	0.0052
magnesium, dissolved	7439-95-4	E421	0.100	mg/L		2.60	4.78	11.0	12.1	12.6
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.00107	0.00195	0.0258	0.0352	0.0318
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.00171	0.00161	0.000262	0.000056	0.000241
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	<0.00050	0.00095	0.00109	0.00099
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L		0.679	0.840	0.898	0.899	0.996

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W22	W29
					Client sampling date / time	23-Jun-2021 13:00	23-Jun-2021 12:35	23-Jun-2021 12:00	23-Jun-2021 12:15	23-Jun-2021 11:40
						VA21B2915-001	VA21B2915-002	VA21B2915-003	VA21B2915-004	VA21B2915-005
						Result	Result	Result	Result	Result
Dissolved Metals										
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.000107	0.000134	0.000184	0.000192	0.000192
silicon, dissolved	7440-21-3	E421	0.050	mg/L		5.22	5.27	3.69	3.37	3.73
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		1.61	1.62	1.56	1.55	1.68
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.0683	0.101	0.167	0.185	0.191
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		3.06	6.14	19.2	21.4	21.1
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000376	0.000562	0.000736	0.000797	0.000932
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0010	0.0013	0.0011	0.0012	0.0012
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA21B2915**	Page	: 1 of 25
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: SWQ (JUNE Spill Confirmatory)	Date Samples Received	: 24-Jun-2021 15:10
PO	: 22037	Issue Date	: 28-Jun-2021 17:51
C-O-C number	: 20210623e		
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W1	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W21	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W22	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W29	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W4	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W1	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W21	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W22	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W29	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W4	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W1	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W21	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W22	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W29	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W4	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W4	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W1	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W21	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W22	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W29	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W4	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W1	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W21	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W22	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W29	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W4	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W1	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W21	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W22	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W29	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W4	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W1	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W21	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W22	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W29	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W4	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W1	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W21	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W22	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W29	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W4	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W1	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W21	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W22	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W29	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W4	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W1	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W21	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W22	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W29	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W4	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W1	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W21	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W22	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W29	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W4	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W1	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W21	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W22	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W29	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W4	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W1	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W21	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W22	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W29	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W4	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W4	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W4	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W1	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W21	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W22	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W29	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W4	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W1	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W21	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W22	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W29	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W4	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W1	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W21	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W22	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W29	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W4	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
W1	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
W21	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W22	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W29	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W4	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W1	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W21	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W22	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W29	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W4	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE W1	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE W21	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE W22	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE W29	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE W4	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Physical Tests : pH by Meter										
HDPE W1	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	49 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W21	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	49 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W22	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	49 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W29	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	50 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W4	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	50 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE W1	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W21	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W22	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W29	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W4	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W1	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W21	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W22	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W29	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Turbidity by Nephelometry										
HDPE										
W4	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W1	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W21	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W22	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W29	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W4	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W1	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W21	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W22	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W29	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W4	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	230120	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	230136	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	230123	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	230122	1	15	6.6	5.0	✓
Conductivity in Water	E100	230119	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	231877	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	230591	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	230191	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	230205	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	230127	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	230121	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	230124	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	230125	1	16	6.2	5.0	✓
pH by Meter	E108	230118	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	230126	1	15	6.6	5.0	✓
Thiocyanate by Colourimetry	E344	231993	1	5	20.0	5.0	✓
Total Cyanide by CFA	E333	230885	1	16	6.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	230206	1	5	20.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	230138	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	230555	2	36	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	230182	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	230134	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	230137	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	230135	1	17	5.8	5.0	✓
TSS by Gravimetry	E160-H	230426	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	230932	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	230886	1	6	16.6	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	230120	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	230136	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	230123	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	230122	1	15	6.6	5.0	✓
Conductivity in Water	E100	230119	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	231877	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	230591	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	230191	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	230205	1	5	20.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	230127	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	230121	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	230124	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	230125	1	16	6.2	5.0	✓
pH by Meter	E108	230118	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	230126	1	15	6.6	5.0	✓
Thiocyanate by Colourimetry	E344	231993	1	5	20.0	5.0	✓
Total Cyanide by CFA	E333	230885	1	16	6.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	230206	1	5	20.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	230138	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	230555	2	36	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	230182	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	230134	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	230137	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	230135	1	17	5.8	5.0	✓
TSS by Gravimetry	E160-H	230426	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	230932	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	230886	1	6	16.6	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	230120	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	230136	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	230123	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	230122	1	15	6.6	5.0	✓
Conductivity in Water	E100	230119	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	231877	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	230591	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	230191	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	230205	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	230127	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	230121	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	230124	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	230125	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	230126	1	15	6.6	5.0	✓
Thiocyanate by Colourimetry	E344	231993	1	5	20.0	5.0	✓
Total Cyanide by CFA	E333	230885	1	16	6.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	230206	1	5	20.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	230138	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	230555	2	36	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	230182	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	230134	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	230137	1	7	14.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	230135	1	17	5.8	5.0	✓
TSS by Gravimetry	E160-H	230426	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	230932	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	230886	1	6	16.6	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	230136	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	230123	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	230122	1	15	6.6	5.0	✓
Cyanate by Ion Selective Electrode	E343	231877	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	230591	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	230191	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	230205	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	230127	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	230121	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	230124	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	230125	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	230126	1	15	6.6	5.0	✓
Thiocyanate by Colourimetry	E344	231993	1	5	20.0	5.0	✓
Total Cyanide by CFA	E333	230885	1	16	6.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	230206	1	5	20.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	230138	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	230555	2	36	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	230182	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	230134	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	230137	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	230135	1	17	5.8	5.0	✓
WAD Cyanide by CFA	E336	230886	1	6	16.6	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160-H Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Bromide in Water by IC (Low Level)	E235.Br-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 Vancouver - Environmental	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthaldialdehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Cyanide by CFA	E333 Vancouver - Environmental	Water	ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Cyanate by Ion Selective Electrode	E343 Waterloo - Environmental	Water	APHA 4500-CN L (mod)	This analysis is carried out using procedures adapted from APHA method 4500-CN "Cyanide". Cyanate is determined by the Cyanate hydrolysis method using an ammonia selective electrode
Thiocyanate by Colourimetry	E344 Vancouver - Environmental	Water	APHA 4500-CN M (mod)	Thiocyanate is determined by the ferric nitrate colourimetric method. Water samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Nitrogen by Colourimetry	E366 Vancouver - Environmental	Water	APHA 4500-P J (mod)	Total Nitrogen is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U Vancouver - Environmental	Water	APHA 4500-P E (mod)	Dissolved Orthophosphate is determined colourimetrically on a water sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A Vancouver - Environmental	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ion Balance using Dissolved Metals	EC101 Vancouver - Environmental	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent.
Preparation for Total Organic Carbon by Combustion	EP355 Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 Vancouver - Environmental	Water	APHA 4500-P J (mod)	Samples are heated with a persulfate digestion reagent.
Digestion for Total Phosphorus in water	EP372 Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	Vancouver - Environmental			

QUALITY CONTROL REPORT

Work Order	: **VA21B2915**	Page	: 1 of 18
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: SWQ (JUNE Spill Confirmatory)	Date Samples Received	: 24-Jun-2021 15:10
PO	: 22037	Date Analysis Commenced	: 25-Jun-2021
C-O-C number	: 20210623e	Issue Date	: 28-Jun-2021 17:51
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Annabelle Prasad	Analyst	Metals, Burnaby, British Columbia
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 230118)											
VA21B2897-001	Anonymous	pH	----	E108	0.10	pH units	8.05	8.06	0.124%	4%	----
Physical Tests (QC Lot: 230119)											
VA21B2897-001	Anonymous	conductivity	----	E100	2.0	µS/cm	808	807	0.124%	10%	----
Physical Tests (QC Lot: 230120)											
VA21B2897-001	Anonymous	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	88.2	89.2	1.13%	20%	----
Physical Tests (QC Lot: 230426)											
FJ2100467-001	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 230932)											
VA21B2915-001	W1	turbidity	----	E121	0.10	NTU	0.97	1.04	0.07	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230121)											
VA21B2897-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.278	0.278	0.0525%	20%	----
Anions and Nutrients (QC Lot: 230122)											
VA21B2897-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	75.8	76.2	0.608%	20%	----
Anions and Nutrients (QC Lot: 230123)											
VA21B2897-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	0.061	0.066	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230124)											
VA21B2897-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	3.69	3.71	0.501%	20%	----
Anions and Nutrients (QC Lot: 230125)											
VA21B2897-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0105	0.0108	2.40%	20%	----
Anions and Nutrients (QC Lot: 230126)											
VA21B2897-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	181	182	0.690%	20%	----
Anions and Nutrients (QC Lot: 230127)											
VA21B2897-001	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230134)											
FJ2100440-001	Anonymous	nitrogen, total	7727-37-9	E366	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230135)											
FJ2100440-001	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230136)											
FJ2100440-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230138)											
VA21B2915-001	W1	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.094	0.098	0.005	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 230206)											
VA21B2915-001	W1	phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0040	0.0035	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 231877)											
WT2100122-004	Anonymous	cyanate	88402-73-7	E343	0.20	mg/L	2.40	2.31	3.82%	20%	----
Cyanides (QC Lot: 230885)											
VA21B2847-001	Anonymous	cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 230886)											
VA21B2847-001	Anonymous	cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 231993)											
VA21B2915-001	W1	thiocyanate	302-04-5	E344	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 230137)											
VA21B2915-001	W1	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.53	2.52	0.004	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 230205)											
VA21B2915-001	W1	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.34	2.39	0.05	Diff <2x LOR	----
Total Metals (QC Lot: 230182)											
CG2102161-001	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0775	0.0688	11.9%	20%	----
		antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00026	0.00027	0.00001	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0650	0.0624	4.00%	20%	----
		beryllium, total	7440-41-7	E420	0.020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0050	mg/L	0.0358 µg/L	0.0000327	0.0000031	Diff <2x LOR	----
		calcium, total	7440-70-2	E420	0.050	mg/L	32.6	32.3	0.676%	20%	----
		chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E420	0.10	mg/L	0.12 µg/L	0.00012	0.000003	Diff <2x LOR	----
		copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E420	0.010	mg/L	0.077	0.074	0.004	Diff <2x LOR	----
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000069	0.000062	0.000007	Diff <2x LOR	----
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0037	0.0036	0.00010	Diff <2x LOR	----
		magnesium, total	7439-95-4	E420	0.0050	mg/L	10.2	9.77	4.35%	20%	----
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00326	0.00316	3.04%	20%	----
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000601	0.000578	3.97%	20%	----
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00154	0.00155	0.00002	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	0.050	mg/L	0.540	0.532	1.63%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 230182) - continued											
CG2102161-001	Anonymous	selenium, total	7782-49-2	E420	0.050	mg/L	1.09 µg/L	0.00124	12.4%	20%	----
		silicon, total	7440-21-3	E420	0.10	mg/L	1.86	1.88	1.51%	20%	----
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E420	0.050	mg/L	2.07	2.06	0.646%	20%	----
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.0992	0.0962	3.11%	20%	----
		sulfur, total	7704-34-9	E420	0.50	mg/L	10.8	10.9	1.46%	20%	----
		thallium, total	7440-28-0	E420	0.000010	mg/L	0.000012	0.000011	0.000001	Diff <2x LOR	----
		tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00030	mg/L	0.00151	0.00112	0.00040	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.000438	0.000428	2.52%	20%	----
		vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00074	0.00056	0.00018	Diff <2x LOR	----
		zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 230555)											
VA21B2851-001	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 230556)											
VA21B2915-004	W22	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 230191)											
KS2101954-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0611	0.0595	2.68%	20%	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00253	0.00260	2.73%	20%	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0392	0.0426	8.11%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000150	mg/L	<0.0000150	<0.0000150	0	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	56.6	57.1	0.954%	20%	----
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00141	0.00143	0.00002	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00086	0.00088	0.00002	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00037	0.00039	0.00002	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	0.010	mg/L	5.64	5.70	1.13%	20%	----
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000095	0.000096	0.0000002	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	6.10	6.32	3.40%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.569	0.588	3.28%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 230191) - continued											
KS2101954-001	Anonymous	molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00826	0.00824	0.250%	20%	----
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00184	0.00191	0.00007	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	0.051	0.0007	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	3.72	3.76	1.07%	20%	----
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000098	0.000122	0.000024	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	7.91	7.94	0.361%	20%	----
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	16.1	16.2	0.316%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.251	0.247	1.77%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	6.77	6.93	2.34%	20%	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00748	0.00734	1.85%	20%	----
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000785	0.000780	0.637%	20%	----
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00357	0.00360	0.00003	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0018	0.0016	0.0002	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	0.00142	0.00140	0.00002	Diff <2x LOR	----
Dissolved Metals (QC Lot: 230591)											
CG2102194-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 230119)						
conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 230120)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.2	----
Physical Tests (QCLot: 230426)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 230932)						
turbidity	----	E121	0.1	NTU	<0.10	----
Anions and Nutrients (QCLot: 230121)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 230122)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 230123)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 230124)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 230125)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 230126)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 230127)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 230134)						
nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 230135)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 230136)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 230138)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 230206)						
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 231877)						
cyanate	88402-73-7	E343	0.2	mg/L	<0.20	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Cyanides (QCLot: 230885)						
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 230886)						
cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 231993)						
thiocyanate	302-04-5	E344	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 230137)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 230205)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 230182)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	----
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 230182) - continued						
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 230555)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 230556)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 230191)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 230191) - continued						
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 230591)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 230118)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 230119)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 230120)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	101	85.0	115	----
Physical Tests (QCLot: 230426)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	100	85.0	115	----
Physical Tests (QCLot: 230932)									
turbidity	----	E121	0.1	NTU	200 NTU	98.0	85.0	115	----
Anions and Nutrients (QCLot: 230121)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.2	90.0	110	----
Anions and Nutrients (QCLot: 230122)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 230123)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 230124)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 230125)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.2	90.0	110	----
Anions and Nutrients (QCLot: 230126)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 230127)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	103	80.0	120	----
Anions and Nutrients (QCLot: 230134)									
nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 230135)									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	96.0	80.0	120	----
Anions and Nutrients (QCLot: 230136)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 230138)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 230206)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Anions and Nutrients (QCLot: 230206) - continued									
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	94.2	80.0	120	----
Anions and Nutrients (QCLot: 231877)									
cyanate	88402-73-7	E343	0.2	mg/L	1 mg/L	94.8	85.0	115	----
Cyanides (QCLot: 230885)									
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	0.25 mg/L	89.5	80.0	120	----
Cyanides (QCLot: 230886)									
cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	98.4	80.0	120	----
Cyanides (QCLot: 231993)									
thiocyanate	302-04-5	E344	0.5	mg/L	10 mg/L	101	85.0	115	----
Organic / Inorganic Carbon (QCLot: 230137)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Organic / Inorganic Carbon (QCLot: 230205)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Metals (QCLot: 230182)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	102	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.2	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	95.8	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.3	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.7	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	100.0	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.0	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	97.5	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	96.6	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	98.8	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	110	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 230182) - continued									
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	103	80.0	120	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	104	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	102	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.2	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	96.7	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	95.4	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.2	80.0	120	----
Total Metals (QCLot: 230555)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	98.6	80.0	120	----
Total Metals (QCLot: 230556)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	99.2	80.0	120	----
Dissolved Metals (QCLot: 230191)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	95.7	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.8	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	96.2	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.8	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	93.9	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	97.3	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	92.0	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.3	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	98.0	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.8	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.4	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	101	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.8	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	98.1	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	94.1	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 230191) - continued									
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	97.5	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	94.5	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.0	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.0	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	92.9	80.0	120	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	97.2	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	94.0	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	92.8	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.6	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	95.7	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.3	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	95.9	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	97.7	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.8	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	100	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 230121)										
VA21B2897-002	Anonymous	fluoride	16984-48-8	E235.F	5.06 mg/L	5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 230122)										
VA21B2897-002	Anonymous	chloride	16887-00-6	E235.Cl	524 mg/L	500 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 230123)										
VA21B2897-002	Anonymous	bromide	24959-67-9	E235.Br-L	2.60 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 230124)										
VA21B2897-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	13.1 mg/L	12.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 230125)										
VA21B2897-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	2.54 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 230126)										
VA21B2897-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	500 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 230127)										
VA21B2897-002	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0310 mg/L	0.03 mg/L	103	70.0	130	----
Anions and Nutrients (QCLot: 230134)										
VA21B2915-001	W1	nitrogen, total	7727-37-9	E366	0.419 mg/L	0.4 mg/L	105	70.0	130	----
Anions and Nutrients (QCLot: 230135)										
VA21B2712-001	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0495 mg/L	0.05 mg/L	99.0	70.0	130	----
Anions and Nutrients (QCLot: 230136)										
VA21B2915-001	W1	ammonia, total (as N)	7664-41-7	E298	0.103 mg/L	0.1 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 230138)										
VA21B2915-002	W21	Kjeldahl nitrogen, total [TKN]	----	E318	2.54 mg/L	2.5 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 230206)										
VA21B2915-002	W21	phosphorus, total dissolved	7723-14-0	E375-T	0.0519 mg/L	0.05 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 231877)										
WT2100122-004	Anonymous	cyanate	88402-73-7	E343	ND mg/L	2 mg/L	ND	70.0	130	----
Cyanides (QCLot: 230885)										
VA21B2915-001	W1	cyanide, strong acid dissociable (total)	----	E333	1.33 mg/L	1.25 mg/L	106	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 230886)										
VA21B2915-001	W1	cyanide, weak acid dissociable	----	E336	0.728 mg/L	0.625 mg/L	116	75.0	125	----
Cyanides (QCLot: 231993)										
VA21B2915-002	W21	thiocyanate	302-04-5	E344	9.72 mg/L	10 mg/L	97.2	75.0	125	----
Organic / Inorganic Carbon (QCLot: 230137)										
VA21B2915-002	W21	carbon, total organic [TOC]	----	E355-L	5.41 mg/L	5 mg/L	108	70.0	130	----
Organic / Inorganic Carbon (QCLot: 230205)										
VA21B2915-002	W21	carbon, dissolved organic [DOC]	----	E358-L	5.30 mg/L	5 mg/L	106	70.0	130	----
Total Metals (QCLot: 230182)										
CG2102161-001	Anonymous	aluminum, total	7429-90-5	E420	0.178 mg/L	0.2 mg/L	89.1	70.0	130	----
		antimony, total	7440-36-0	E420	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		arsenic, total	7440-38-2	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		bismuth, total	7440-69-9	E420	0.00983 mg/L	0.01 mg/L	98.3	70.0	130	----
		boron, total	7440-42-8	E420	0.093 mg/L	0.1 mg/L	92.8	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, total	7440-47-3	E420	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	----
		cobalt, total	7440-48-4	E420	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	----
		copper, total	7440-50-8	E420	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		iron, total	7439-89-6	E420	1.96 mg/L	2 mg/L	97.8	70.0	130	----
		lead, total	7439-92-1	E420	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		lithium, total	7439-93-2	E420	0.0977 mg/L	0.1 mg/L	97.7	70.0	130	----
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		nickel, total	7440-02-0	E420	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		phosphorus, total	7723-14-0	E420	10.4 mg/L	10 mg/L	104	70.0	130	----
		potassium, total	7440-09-7	E420	3.97 mg/L	4 mg/L	99.2	70.0	130	----
		selenium, total	7782-49-2	E420	0.0419 mg/L	0.04 mg/L	105	70.0	130	----
		silicon, total	7440-21-3	E420	8.88 mg/L	10 mg/L	88.8	70.0	130	----
		silver, total	7440-22-4	E420	0.00406 mg/L	0.004 mg/L	102	70.0	130	----
		sodium, total	17341-25-2	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E420	19.4 mg/L	20 mg/L	96.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 230182) - continued										
CG2102161-001	Anonymous	thallium, total	7440-28-0	E420	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	----
		tin, total	7440-31-5	E420	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		titanium, total	7440-32-6	E420	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	----
		uranium, total	7440-61-1	E420	0.00379 mg/L	0.004 mg/L	94.6	70.0	130	----
		vanadium, total	7440-62-2	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		zinc, total	7440-66-6	E420	0.378 mg/L	0.4 mg/L	94.5	70.0	130	----
		zirconium, total	7440-67-7	E420	0.0393 mg/L	0.04 mg/L	98.3	70.0	130	----
Total Metals (QCLot: 230555)										
VA21B2851-002	Anonymous	mercury, total	7439-97-6	E508	0.0000963 mg/L	0.0001 mg/L	96.3	70.0	130	----
Total Metals (QCLot: 230556)										
VA21B2915-005	W29	mercury, total	7439-97-6	E508	0.000101 mg/L	0.0001 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 230191)										
KS2101954-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.195 mg/L	0.2 mg/L	97.5	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0421 mg/L	0.04 mg/L	105	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.00898 mg/L	0.01 mg/L	89.8	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.095 mg/L	0.1 mg/L	95.2	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00390 mg/L	0.004 mg/L	97.5	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		iron, dissolved	7439-89-6	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.0992 mg/L	0.1 mg/L	99.2	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	10.8 mg/L	10 mg/L	108	70.0	130	----
		potassium, dissolved	7440-09-7	E421	4.21 mg/L	4 mg/L	105	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0446 mg/L	0.04 mg/L	111	70.0	130	----
		silicon, dissolved	7440-21-3	E421	8.49 mg/L	10 mg/L	84.9	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.00364 mg/L	0.004 mg/L	90.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 230191) - continued										
KS2101954-001	Anonymous	sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	20.7 mg/L	20 mg/L	103	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.00375 mg/L	0.004 mg/L	93.7	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0185 mg/L	0.02 mg/L	92.6	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00379 mg/L	0.004 mg/L	94.7	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.0999 mg/L	0.1 mg/L	99.9	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 230591)										
CG2102196-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000978 mg/L	0.0001 mg/L	97.8	70.0	130	----

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210623e

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days):
- 4 day [P4-20%] ☐
- 3 day [P3-25%] ☐
- 2 day [P2-50%] ☑

EMERGENCY:
- 1 Business day [E1 - 100%] ☐
- Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; Jjackson@vgcx.com

Project Information

ALS Account # / Quote #: STRG100 Q68199
Job #: SWQ (JUNE Spill Confirmatory)
PO / AFE: 22037
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods **Sampler:** KP, BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	F/P ESW	P CN1	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	W1	23-Jun-21	13:00	Water	P2	P2			12
	W21	23-Jun-21	12:35	Water	P2	P2			12
	W4	23-Jun-21	12:00	Water	P2	P2			12
	W22	23-Jun-21	12:15	Water	P2	P2			12
	W29	23-Jun-21	11:40	Water	P2	P2			12

Environmental Division
Vancouver
Work Order Reference
VA21B2915

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO
Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format
~~Please send preliminary results~~; note that all metals bottles are preserved

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				11°C (AVG OF 7)			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Kris P.	Date: 23-Jun-2021	Time: 12:00	Received by:	Date:	Time:	Received by: JC	Date: 24 June	Time: 3:10 PM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

APPENDIX B

External Laboratory Soil Quality Results

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA21B3063**	Page	: 1 of 10
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: ADR Spill Confirmatory	Date Samples Received	: 26-Jun-2021 14:30
PO	: 22037	Date Analysis Commenced	: 27-Jun-2021
C-O-C number	: 20210625	Issue Date	: 02-Jul-2021 12:13
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 78		
No. of samples analysed	: 78		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
David Stewart	Analyst - Chemistry	Inorganics, Burnaby, British Columbia
Harsha Attanayake	Laboratory Analyst	Inorganics, Burnaby, British Columbia
Harsha Attanayake	Laboratory Analyst	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
%	percent
mg/kg	milligrams per kilogram

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F1	YG21-070-F2	YG21-070-F3	YG21-070-F4	YG21-070-W4a
					Client sampling date / time	24-Jun-2021 16:42	24-Jun-2021 16:45	24-Jun-2021 16:50	24-Jun-2021 16:57	24-Jun-2021 16:59
						VA21B3063-001	VA21B3063-002	VA21B3063-003	VA21B3063-004	VA21B3063-005
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.15	1.94	4.48	3.95	5.09
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.162	0.393	<0.050	<0.050	0.148
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	0.205	<0.050	<0.050	0.052
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00	1.54	<1.00	<1.00	<1.00

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W4b	YG21-070-F5	YG21-070-W5a	YG21-070-W5b	YG21-070-F6
					Client sampling date / time	24-Jun-2021 17:01	24-Jun-2021 17:03	24-Jun-2021 17:05	24-Jun-2021 17:07	24-Jun-2021 17:10
						VA21B3063-006	VA21B3063-007	VA21B3063-008	VA21B3063-009	VA21B3063-010
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		4.71	3.09	6.27	4.89	4.07
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.262	0.138	<0.050	<0.050	0.085
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		0.128	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00	<1.00	<1.00	<1.00	<1.00

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W6a	YG21-070-W6b	YG21-070-F7	YG21-070-W7a	YG21-070-W7b
					Client sampling date / time	24-Jun-2021 17:13	24-Jun-2021 17:15	24-Jun-2021 17:19	24-Jun-2021 17:21	24-Jun-2021 17:23
						VA21B3063-011	VA21B3063-012	VA21B3063-013	VA21B3063-014	VA21B3063-015
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		6.19	7.74	4.57	5.95	8.93
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	0.144	0.072	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00	<1.00	<1.00	<1.00	<1.00

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F8	YG21-070-W8a	YG21-070-W8b	YG21-070-F9	YG21-070-W9a
					Client sampling date / time	24-Jun-2021 17:28	24-Jun-2021 17:29	24-Jun-2021 17:30	24-Jun-2021 17:33	24-Jun-2021 17:34
						VA21B3063-016	VA21B3063-017	VA21B3063-018	VA21B3063-019	VA21B3063-020
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		5.35	5.92	6.80	4.95	2.38
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.068	<0.050	<0.050	0.121	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00	<1.00	<1.00	<1.00	<1.00

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W9b	YG21-070-F10	YG21-070-W10 a	YG21-070-F11	YG21-070-W11 a
					Client sampling date / time	24-Jun-2021 17:36	24-Jun-2021 17:40	24-Jun-2021 17:42	24-Jun-2021 17:44	24-Jun-2021 17:46
						VA21B3063-021	VA21B3063-022	VA21B3063-023	VA21B3063-024	VA21B3063-025
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		6.74	3.79	6.33	4.01	5.87
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	<0.050	0.052	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		1.50	1.36	1.48	1.77	1.40

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F12	YG21-070-W12 a	YG21-070-W12 b	YG21-070-F13	YG21-070-W13 a
					Client sampling date / time	24-Jun-2021 17:51	24-Jun-2021 17:53	24-Jun-2021 17:55	24-Jun-2021 18:00	24-Jun-2021 18:02
						VA21B3063-026	VA21B3063-027	VA21B3063-028	VA21B3063-029	VA21B3063-030
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.88	5.86	5.87	2.72	5.12
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	0.231	<0.050	0.281
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	0.073	<0.050	0.119
thiocyanate	302-04-5	E344	1.00	mg/kg		1.26	1.34	1.67	1.48	2.03

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W13 b	YG21-070-F14	YG21-070-W14 a	YG21-070-W14 b	YG21-070-F15
					Client sampling date / time	24-Jun-2021 18:04	24-Jun-2021 18:12	24-Jun-2021 18:14	24-Jun-2021 18:16	24-Jun-2021 18:20
						VA21B3063-031	VA21B3063-032	VA21B3063-033	VA21B3063-034	VA21B3063-035
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		4.41	2.47	4.73	4.46	3.63
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.075	<0.050	0.205	0.152	0.142
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		1.22	1.17	1.83	1.73	1.54

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W15 a	YG21-070-W15 b	YG21-070-F16	YG21-070-W16 a	YG21-070-W16 b
					Client sampling date / time	24-Jun-2021 18:22	24-Jun-2021 18:24	24-Jun-2021 18:32	24-Jun-2021 18:36	24-Jun-2021 18:38
						VA21B3063-036	VA21B3063-037	VA21B3063-038	VA21B3063-039	VA21B3063-040
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.12	5.12	8.27	3.42	3.68
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.229	6.92	0.100	0.260	2.66
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	5.49	<0.050	<0.050	2.00
thiocyanate	302-04-5	E344	1.00	mg/kg		1.41	1.97	17.9	1.40	1.47

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F17	YG21-070-W17 b	YG21-070-F18	YG21-070-W18 b	YG21-070-F19
					Client sampling date / time	24-Jun-2021 18:40	24-Jun-2021 18:41	24-Jun-2021 18:42	24-Jun-2021 18:43	24-Jun-2021 18:46
						VA21B3063-041	VA21B3063-042	VA21B3063-043	VA21B3063-044	VA21B3063-045
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		4.68	4.50	6.82	3.17	3.14
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	0.052	0.062	0.077	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		1.79	9.05	1.26	1.40	1.43

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W19 b	YG21-070-F20	YG21-070-F21	YG21-070-F22	YG21-070-F23
					Client sampling date / time	24-Jun-2021 18:48	24-Jun-2021 18:53	24-Jun-2021 18:55	24-Jun-2021 18:56	25-Jun-2021 11:12
						VA21B3063-046	VA21B3063-047	VA21B3063-048	VA21B3063-049	VA21B3063-050
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.82	4.07	4.29	4.85	3.10
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.115	0.087	<0.050	2.78	1.89
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	0.056	<0.050	2.09	1.20
thiocyanate	302-04-5	E344	1.00	mg/kg		1.90	1.65	1.54	6.78	6.15

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F24	YG21-070-F25	YG21-070-F26	YG21-070-F27	YG21-070-F28
					Client sampling date / time	25-Jun-2021 11:15	25-Jun-2021 11:18	25-Jun-2021 11:20	25-Jun-2021 11:22	25-Jun-2021 11:25
						VA21B3063-051	VA21B3063-052	VA21B3063-053	VA21B3063-054	VA21B3063-055
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.89	4.24	4.29	4.80	4.92
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.074	2.32	3.01	5.46	0.764
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		0.053	1.10	1.72	3.89	0.405
thiocyanate	302-04-5	E344	1.00	mg/kg		2.84	9.46	11.8	19.3	4.22

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F29	YG21-070-F30	YG21-070-F31	YG21-070-F32	YG21-070-F33
					Client sampling date / time	25-Jun-2021 11:28	25-Jun-2021 11:31	25-Jun-2021 11:34	25-Jun-2021 11:36	25-Jun-2021 11:40
						VA21B3063-056	VA21B3063-057	VA21B3063-058	VA21B3063-059	VA21B3063-060
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		4.47	3.46	4.67	3.31	4.26
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		3.53	3.07	1.72	2.65	2.52
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		2.16	1.48	1.18	1.28	1.23
thiocyanate	302-04-5	E344	1.00	mg/kg		13.5	13.5	6.96	12.0	12.6

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F34	YG21-070-F35	YG21-070-F36	YG21-070-F37	YG21-070-F38
					Client sampling date / time	25-Jun-2021 11:43	25-Jun-2021 11:50	25-Jun-2021 11:52	25-Jun-2021 11:56	25-Jun-2021 12:00
						VA21B3063-061	VA21B3063-062	VA21B3063-063	VA21B3063-064	VA21B3063-065
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.62	8.06	4.55	5.96	2.68
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	3.18	<0.050	<0.050	0.930
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	2.26	<0.050	<0.050	0.342
thiocyanate	302-04-5	E344	1.00	mg/kg		1.24	11.1	<1.00	<1.00	6.48

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F39	YG21-070-F40	YG21-070-F41	YG21-070-F42	YG21-070-F43
					Client sampling date / time	25-Jun-2021 12:03	25-Jun-2021 12:06	25-Jun-2021 12:18	25-Jun-2021 12:19	25-Jun-2021 12:21
						VA21B3063-066	VA21B3063-067	VA21B3063-068	VA21B3063-069	VA21B3063-070
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.90	4.04	17.8	4.23	3.26
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		6.31	3.59	11.5	<0.050	0.418
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		2.68	2.18	9.33	<0.050	0.200
thiocyanate	302-04-5	E344	1.00	mg/kg		14.2	10.6	20.4	1.74	2.75

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F44	YG21-070-F45	YG21-070-F46	YG21-070-F47	YG21-070-F48
					Client sampling date / time	25-Jun-2021 12:23	25-Jun-2021 12:26	25-Jun-2021 12:32	25-Jun-2021 12:35	25-Jun-2021 12:39
						VA21B3063-071	VA21B3063-072	VA21B3063-073	VA21B3063-074	VA21B3063-075
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		5.01	3.65	7.33	4.69	3.81
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		1.29	2.80	2.04	1.50	1.28
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		0.531	1.53	1.52	0.613	0.378
thiocyanate	302-04-5	E344	1.00	mg/kg		7.68	8.91	5.18	10.5	8.56

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F49	YG21-070-F50	YG21-070-F51	----	----
					Client sampling date / time	25-Jun-2021 12:42	25-Jun-2021 12:45	25-Jun-2021 12:48	----	----
						VA21B3063-076	VA21B3063-077	VA21B3063-078	--------	--------
						Result	Result	Result	----	----
Physical Tests										
moisture	----	E144	0.25	%		7.14	4.42	8.36	----	----
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		1.64	6.88	24.8	----	----
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		1.09	4.31	21.6	----	----
thiocyanate	302-04-5	E344	1.00	mg/kg		5.46	22.5	77.9	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA21B3063**	Page	: 1 of 39
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: ADR Spill Confirmatory	Date Samples Received	: 26-Jun-2021 14:30
PO	: 22037	Issue Date	: 02-Jul-2021 12:13
C-O-C number	: 20210625		
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 78		
No. of samples analysed	: 78		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Cyanides	VA21B3063-056	YG21-070-F29	thiocyanate	302-04-5	E344	35.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F1	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F2	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F23	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F24	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F25	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F26	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F27	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F28	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F3	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F4	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F5	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F6	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F7	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F8	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F9	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W4a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W4b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W5a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W5b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W6a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W6b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W7a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W7b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W8a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W8b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W9a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F10	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F11	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F12	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F13	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F14	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F15	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F16	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F17	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F18	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F19	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F20	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F21	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F22	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F44	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F45	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F46	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F47	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F48	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F49	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F50	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F51	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W10a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W11a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W12a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W12b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W13a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W13b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W14a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W14b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W15a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W15b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W16a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W16b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W17b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W18b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W19b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W9b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F29	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F30	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F31	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F32	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F33	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F34	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F35	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F36	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F37	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F38	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F39	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F40	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F41	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F42	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F43	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F1	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F2	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F3	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F4	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F5	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F6	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F7	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F8	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F9	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W4a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W4b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W5a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W5b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W6a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W6b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W7a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W7b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W8a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W8b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W9a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F17	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F18	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F19	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F20	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F21	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F22	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F23	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F24	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F25	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F26	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F27	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F28	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F29	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F30	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F31	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F32	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F33	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F34	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F35	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F36	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F37	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F38	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F39	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F40	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F41	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F42	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F43	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W17b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W18b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W19b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F10	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F11	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F12	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F13	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F14	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F15	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F16	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W10a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W11a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W12a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W12b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W13a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W13b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W14a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W14b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W15a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W15b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W16a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W16b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W9b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F44	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F45	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F46	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F47	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F48	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F49	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F50	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F51	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F1	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F17	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F18	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F19	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F2	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F20	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F21	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F22	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F23	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F24	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F25	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F26	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F27	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F28	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F29	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F3	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F30	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F31	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F32	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F33	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F34	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F35	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F36	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F37	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F38	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F39	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F4	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F40	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F41	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F42	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F43	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F44	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F45	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F46	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F47	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F48	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F49	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F5	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F50	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F51	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F6	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F7	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F8	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F9	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W17b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W18b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W19b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W4a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W4b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W5a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W5b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W6a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W6b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W7a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W7b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W8a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W8b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W9a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F10	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F11	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F12	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F13	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F14	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F15	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F16	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W10a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W11a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W12a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W12b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W13a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W13b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W14a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W14b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W15a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W15b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W16a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W16b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W9b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F1	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F10	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F11	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F12	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F13	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F14	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F15	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F16	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F17	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F18	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F19	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F2	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F20	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F21	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F22	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F23	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F24	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F25	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F26	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F27	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F28	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F29	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F3	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F30	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F31	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F32	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F33	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F34	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F35	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F36	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F37	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F38	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F39	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F4	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F40	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F41	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F42	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F43	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F44	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F45	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F46	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F47	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F48	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F49	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F5	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F50	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F51	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F6	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F7	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F8	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F9	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W10a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W11a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W12a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W12b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W13a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W13b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W14a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W14b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W15a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W15b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W16a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W16b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W17b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W18b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W19b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W4a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W4b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W5a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W5b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W6a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W6b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W7a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W7b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W8a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W8b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W9a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W9b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Moisture Content by Gravimetry	E144	231275	5	78	6.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	231274	5	78	6.4	5.0	✓
Total Cyanide by CFA	E333	231273	5	78	6.4	5.0	✓
WAD Cyanide by CFA	E336	231272	5	78	6.4	5.0	✓
Laboratory Control Samples (LCS)							
Moisture Content by Gravimetry	E144	231275	5	78	6.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	231274	5	78	6.4	5.0	✓
Total Cyanide by CFA	E333	231273	5	78	6.4	5.0	✓
WAD Cyanide by CFA	E336	231272	5	78	6.4	5.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	231275	5	78	6.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	231274	5	78	6.4	5.0	✓
Total Cyanide by CFA	E333	231273	5	78	6.4	5.0	✓
WAD Cyanide by CFA	E336	231272	5	78	6.4	5.0	✓
Matrix Spikes (MS)							
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	231274	5	78	6.4	5.0	✓
Total Cyanide by CFA	E333	231273	5	78	6.4	5.0	✓
WAD Cyanide by CFA	E336	231272	5	78	6.4	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 Vancouver - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Cyanide by CFA	E333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344 Vancouver - Environmental	Soil/Solid	In-house	A dried soil is leached with DI water at a ratio of 1:5. Thiocyanate is determined by the ferric nitrate colourimetric method. Soil samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:5 Soil:Water for Anions	EP237 Vancouver - Environmental	Soil/Solid	EPA 300.1 (mod)	This analysis is carried out using a leaching procedure which involves the gentle tumbling of the sample in a specified leaching solution (typically deionized water) for a specific length of time.
Cyanide Extraction for CFA	EP333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

QUALITY CONTROL REPORT

Work Order	: **VA21B3063**	Page	: 1 of 10
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: ADR Spill Confirmatory	Date Samples Received	: 26-Jun-2021 14:30
PO	: 22037	Date Analysis Commenced	: 27-Jun-2021
C-O-C number	: 20210625	Issue Date	: 02-Jul-2021 12:13
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 78		
No. of samples analysed	: 78		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
David Stewart	Analyst - Chemistry	Inorganics, Burnaby, British Columbia
Harsha Attanayake	Laboratory Analyst	Inorganics, Burnaby, British Columbia
Harsha Attanayake	Laboratory Analyst	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 231275)											
VA21B3063-001	YG21-070-F1	moisture	----	E144	0.25	%	2.15	2.37	0.22	Diff <2x LOR	----
Physical Tests (QC Lot: 231701)											
VA21B3063-021	YG21-070-W9b	moisture	----	E144	0.25	%	6.74	7.04	4.27%	20%	----
Physical Tests (QC Lot: 231709)											
VA21B3063-041	YG21-070-F17	moisture	----	E144	0.25	%	4.68	4.80	2.40%	20%	----
Physical Tests (QC Lot: 231713)											
VA21B3063-056	YG21-070-F29	moisture	----	E144	0.25	%	4.47	4.36	2.45%	20%	----
Physical Tests (QC Lot: 231717)											
VA21B3063-071	YG21-070-F44	moisture	----	E144	0.25	%	5.01	4.93	1.58%	20%	----
Cyanides (QC Lot: 231272)											
VA21B3063-001	YG21-070-F1	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0.0002	Diff <2x LOR	----
Cyanides (QC Lot: 231273)											
VA21B3063-001	YG21-070-F1	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	0.162	0.186	0.024	Diff <2x LOR	----
Cyanides (QC Lot: 231274)											
VA21B3063-001	YG21-070-F1	thiocyanate	302-04-5	E344	1.00	mg/kg	<1.00	<1.00	0	Diff <2x LOR	----
Cyanides (QC Lot: 231698)											
VA21B3063-021	YG21-070-W9b	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	<0.050	<0.050	0.00003	Diff <2x LOR	----
Cyanides (QC Lot: 231699)											
VA21B3063-021	YG21-070-W9b	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0.00003	Diff <2x LOR	----
Cyanides (QC Lot: 231700)											
VA21B3063-021	YG21-070-W9b	thiocyanate	302-04-5	E344	1.00	mg/kg	1.50	2.24	0.75	Diff <2x LOR	----
Cyanides (QC Lot: 231706)											
VA21B3063-041	YG21-070-F17	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Cyanides (QC Lot: 231707)											
VA21B3063-041	YG21-070-F17	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Cyanides (QC Lot: 231708)											
VA21B3063-041	YG21-070-F17	thiocyanate	302-04-5	E344	1.00	mg/kg	1.79	1.40	0.38	Diff <2x LOR	----
Cyanides (QC Lot: 231710)											
VA21B3063-056	YG21-070-F29	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	3.53	4.26	18.8%	35%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Cyanides (QC Lot: 231711)											
VA21B3063-056	YG21-070-F29	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	2.16	2.54	16.2%	35%	----
Cyanides (QC Lot: 231712)											
VA21B3063-056	YG21-070-F29	thiocyanate	302-04-5	E344	1.00	mg/kg	13.5	9.49	35.2%	30%	DUP-H
Cyanides (QC Lot: 231714)											
VA21B3063-071	YG21-070-F44	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	1.29	1.15	11.2%	35%	----
Cyanides (QC Lot: 231715)											
VA21B3063-071	YG21-070-F44	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	0.531	0.410	25.6%	35%	----
Cyanides (QC Lot: 231716)											
VA21B3063-071	YG21-070-F44	thiocyanate	302-04-5	E344	1.00	mg/kg	7.68	7.96	3.60%	30%	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 231275)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 231701)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 231709)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 231713)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 231717)						
moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 231272)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231273)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231274)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----
Cyanides (QCLot: 231698)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231699)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231700)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----
Cyanides (QCLot: 231706)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231707)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231708)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----
Cyanides (QCLot: 231710)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231711)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231712)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Cyanides (QCLot: 231714)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 231715)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 231716)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 231275)									
moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 231701)									
moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 231709)									
moisture	----	E144	0.25	%	50 %	101	90.0	110	----
Physical Tests (QCLot: 231713)									
moisture	----	E144	0.25	%	50 %	99.9	90.0	110	----
Physical Tests (QCLot: 231717)									
moisture	----	E144	0.25	%	50 %	98.9	90.0	110	----
Cyanides (QCLot: 231272)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	85.3	80.0	120	----
Cyanides (QCLot: 231273)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	87.0	80.0	120	----
Cyanides (QCLot: 231274)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	99.8	85.0	115	----
Cyanides (QCLot: 231698)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	87.4	80.0	120	----
Cyanides (QCLot: 231699)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	97.7	80.0	120	----
Cyanides (QCLot: 231700)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	103	85.0	115	----
Cyanides (QCLot: 231706)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	82.6	80.0	120	----
Cyanides (QCLot: 231707)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	91.2	80.0	120	----
Cyanides (QCLot: 231708)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	102	85.0	115	----
Cyanides (QCLot: 231710)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	92.6	80.0	120	----
Cyanides (QCLot: 231711)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	97.1	80.0	120	----
Cyanides (QCLot: 231712)									

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Cyanides (QCLot: 231712) - continued									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	101	85.0	115	----
Cyanides (QCLot: 231714)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	89.1	80.0	120	----
Cyanides (QCLot: 231715)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	95.8	80.0	120	----
Cyanides (QCLot: 231716)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	101	85.0	115	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 231272)										
VA21B3063-002	YG21-070-F2	cyanide, weak acid dissociable	----	E336	1.22 mg/kg	1.25 mg/kg	97.8	75.0	125	----
Cyanides (QCLot: 231273)										
VA21B3063-002	YG21-070-F2	cyanide, strong acid dissociable (total)	----	E333	5.31 mg/kg	6.25 mg/kg	85.3	75.0	125	----
Cyanides (QCLot: 231274)										
VA21B3063-002	YG21-070-F2	thiocyanate	302-04-5	E344	56.0 mg/kg	50 mg/kg	113	75.0	125	----
Cyanides (QCLot: 231698)										
VA21B3063-022	YG21-070-F10	cyanide, strong acid dissociable (total)	----	E333	5.64 mg/kg	6.25 mg/kg	91.1	75.0	125	----
Cyanides (QCLot: 231699)										
VA21B3063-022	YG21-070-F10	cyanide, weak acid dissociable	----	E336	3.10 mg/kg	3.125 mg/kg	100.0	75.0	125	----
Cyanides (QCLot: 231700)										
VA21B3063-022	YG21-070-F10	thiocyanate	302-04-5	E344	50.4 mg/kg	50 mg/kg	101	75.0	125	----
Cyanides (QCLot: 231706)										
VA21B3063-042	YG21-070-W17b	cyanide, strong acid dissociable (total)	----	E333	4.83 mg/kg	6.25 mg/kg	78.2	75.0	125	----
Cyanides (QCLot: 231707)										
VA21B3063-042	YG21-070-W17b	cyanide, weak acid dissociable	----	E336	2.69 mg/kg	3.125 mg/kg	87.0	75.0	125	----
Cyanides (QCLot: 231708)										
VA21B3063-042	YG21-070-W17b	thiocyanate	302-04-5	E344	45.2 mg/kg	50 mg/kg	90.7	75.0	125	----
Cyanides (QCLot: 231710)										
VA21B3063-057	YG21-070-F30	cyanide, strong acid dissociable (total)	----	E333	21.7 mg/kg	25 mg/kg	87.1	75.0	125	----
Cyanides (QCLot: 231711)										
VA21B3063-057	YG21-070-F30	cyanide, weak acid dissociable	----	E336	ND mg/kg	1.25 mg/kg	ND	75.0	125	----
Cyanides (QCLot: 231712)										
VA21B3063-057	YG21-070-F30	thiocyanate	302-04-5	E344	50.9 mg/kg	50 mg/kg	102	75.0	125	----
Cyanides (QCLot: 231714)										
VA21B3063-072	YG21-070-F45	cyanide, strong acid dissociable (total)	----	E333	5.36 mg/kg	6.25 mg/kg	85.9	75.0	125	----
Cyanides (QCLot: 231715)										
VA21B3063-072	YG21-070-F45	cyanide, weak acid dissociable	----	E336	3.17 mg/kg	3.125 mg/kg	101	75.0	125	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 231716)										
VA21B3063-072	YG21-070-F45	thiocyanate	302-04-5	E344	52.6 mg/kg	50 mg/kg	105	75.0	125	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 jmporter@victoriagold.ehsdata.com
Email 3
Email 4

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)
4 day [P4-20%] ☐
3 day [P3-25%] ☐
2 day [P2-50%] ☑

EMERGENCY
1 Business day [E1 - 100%] ☐
Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:
For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; Jjackson@vgcx.com

Project Information

ALS Account # / Quote #: STRG100 Q68199
Job #: ADR Spill Confirmatory
PO / AFE: 22037
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	YG21-070-F1	24-Jun-21	16:42	Soil	P2			1
	YG21-070-F2	24-Jun-21	16:45	Soil	P2			1
	YG21-070-F3	24-Jun-21	16:50	Soil	P2			1
	YG21-070-F4	24-Jun-21	16:57	Soil	P2			1
	YG21-070-W4a	24-Jun-21	16:59	Soil	P2			1
	YG21-070-W4b	24-Jun-21	17:01	Soil	P2			1
	YG21-070-F5	24-Jun-21	17:03	Soil	P2			1
	YG21-070-W5a	24-Jun-21	17:05	Soil	P2			1
	YG21-070-W5b	24-Jun-21	17:07	Soil	P2			1
	YG21-070-F6	24-Jun-21	17:10	Soil	P2			1
	YG21-070-W6a	24-Jun-21	17:13	Soil	P2			1
	YG21-070-W6b	24-Jun-21	17:15	Soil	P2			1
	YG21-070-F7	24-Jun-21	17:19	Soil	P2			1

Environmental Division
Vancouver
Work Order Reference
VA21B3063

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO
Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C			
						13

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Kris Poitras	Date: 25-Jun-2021	Time: 16:00	Received by:	Date:	Time:	Received by: HA	Date: 6/26	Time: 2:30P

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution	
Select Report Format:	☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	☐ Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☑		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; Jjackson@vgcx.com

Project Information	
ALS Account # / Quote #:	STRG100 Q68199
Job #:	ADR Spill Confirmatory
PO / AFE:	22037
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	YG21-070-W7a	24-Jun-21	17:21	Soil	P2			1
	YG21-070-W7b	24-Jun-21	17:23	Soil	P2			1
	YG21-070-F8	24-Jun-21	17:28	Soil	P2			1
	YG21-070-W8a	24-Jun-21	17:29	Soil	P2			1
	YG21-070-W8b	24-Jun-21	17:30	Soil	P2			1
	YG21-070-F9	24-Jun-21	17:33	Soil	P2			1
	YG21-070-W9a	24-Jun-21	17:34	Soil	P2			1
	YG21-070-W9b	24-Jun-21	17:36	Soil	P2			1
	YG21-070-F10	24-Jun-21	17:40	Soil	P2			1
	YG21-070-W10a	24-Jun-21	17:42	Soil	P2			1
	YG21-070-F11	24-Jun-21	17:44	Soil	P2			1
	YG21-070-W11a	24-Jun-21	17:46	Soil	P2			1
	YG21-070-F12	24-Jun-21	17:51	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☑ NO	
Are samples for human consumption/ use? ☑ NO	Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution	
Select Report Format:	☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	☐ Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☑		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; jjackson@vgcx.com

Project Information	
ALS Account # / Quote #:	STRG100 Q68199
Job #:	ADR Spill Confirmatory
PO / AFE:	22037
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods **Sampler:** KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
	YG21-070-W12a	24-Jun-21	17:53	Soil	P2			1
	YG21-070-W12b	24-Jun-21	17:55	Soil	P2			1
	YG21-070-F13	24-Jun-21	18:00	Soil	P2			1
	YG21-070-W13a	24-Jun-21	18:02	Soil	P2			1
	YG21-070-W13b	24-Jun-21	18:04	Soil	P2			1
	YG21-070-F14	24-Jun-21	18:12	Soil	P2			1
	YG21-070-W14a	24-Jun-21	18:14	Soil	P2			1
	YG21-070-W14b	24-Jun-21	18:16	Soil	P2			1
	YG21-070-F15	24-Jun-21	18:20	Soil	P2			1
	YG21-070-W15a	24-Jun-21	18:22	Soil	P2			1
	YG21-070-W15b	24-Jun-21	18:24	Soil	P2			1
	YG21-070-F16	24-Jun-21	18:32	Soil	P2			1
	YG21-070-W16a	24-Jun-21	18:36	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☑ NO

Are samples for human consumption/ use? ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; jjackson@vgcx.com

Project Information

ALS Account # / Quote #:	STRG100 Q68199
Job #:	ADR Spill Confirmatory
PO / AFE:	22037
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☑

EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
	YG21-070-W16b	24-Jun-21	18:38	Soil	P2			1
	YG21-070-F17	24-Jun-21	18:40	Soil	P2			1
	YG21-070-W17b	24-Jun-21	18:41	Soil	P2			1
	YG21-070-F18	24-Jun-21	18:42	Soil	P2			1
	YG21-070-W18b	24-Jun-21	18:43	Soil	P2			1
	YG21-070-F19	24-Jun-21	18:46	Soil	P2			1
	YG21-070-W19b	24-Jun-21	18:48	Soil	P2			1
	YG21-070-F20	24-Jun-21	18:53	Soil	P2			1
	YG21-070-F21	24-Jun-21	18:55	Soil	P2			1
	YG21-070-F22	24-Jun-21	18:56	Soil	P2			1
	YG21-070-F23	25-Jun-21	11:12	Soil	P2			1
	YG21-070-F24	25-Jun-21	11:15	Soil	P2			1
	YG21-070-F25	25-Jun-21	11:18	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☑ NO

Are samples for human consumption/ use? ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

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ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☑
EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; Jjackson@vgcx.com

Project Information

ALS Account # / Quote #: STRG100 Q68199
Job #: ADR Spill Confirmatory
PO / AFE: 22037
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods **Sampler:** KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
	YG21-070-F26	25-Jun-21	11:20	Soil	P2			1
	YG21-070-F27	25-Jun-21	11:22	Soil	P2			1
	YG21-070-F28	25-Jun-21	11:25	Soil	P2			1
	YG21-070-F29	25-Jun-21	11:28	Soil	P2			1
	YG21-070-F30	25-Jun-21	11:31	Soil	P2			1
	YG21-070-F31	25-Jun-21	11:34	Soil	P2			1
	YG21-070-F32	25-Jun-21	11:36	Soil	P2			1
	YG21-070-F33	25-Jun-21	11:40	Soil	P2			1
	YG21-070-F34	25-Jun-21	11:43	Soil	P2			1
	YG21-070-F35	25-Jun-21	11:50	Soil	P2			1
	YG21-070-F36	25-Jun-21	11:52	Soil	P2			1
	YG21-070-F37	25-Jun-21	11:56	Soil	P2			1
	YG21-070-F38	25-Jun-21	12:00	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☑ NO
Are samples for human consumption/ use? ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: KP	Date: 25 JUN 2021	Time: 1600	Received by:	Date:	Time:	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; jjackson@vgcx.com

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)
- 4 day [P4-20%] ☐
- 3 day [P3-25%] ☐
- 2 day [P2-50%] ☑

EMERGENCY
- 1 Business day [E1 - 100%] ☐
- Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	STRG100 Q68199
Job #:	ADR Spill Confirmatory
PO / AFE:	22037
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample Is hazardous (please provide further detail	NUMBER OF CONTAINERS
	YG21-070-F39	25-Jun-21	12:03	Soil	P2			1
	YG21-070-F40	25-Jun-21	12:06	Soil	P2			1
	YG21-070-F41	25-Jun-21	12:18	Soil	P2			1
	YG21-070-F42	25-Jun-21	12:19	Soil	P2			1
	YG21-070-F43	25-Jun-21	12:21	Soil	P2			1
	YG21-070-F44	25-Jun-21	12:23	Soil	P2			1
	YG21-070-F45	25-Jun-21	12:26	Soil	P2			1
	YG21-070-F46	25-Jun-21	12:32	Soil	P2			1
								1
								1
								1
								1
								1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO

Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please **submit** using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution	
Select Report Format:	☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply			
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☑		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; Jjackson@vgcx.com

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	STRG100 Q68199	AFE/Cost Center:	PO#:
Job #:	ADR Spill Confirmatory	Major/Minor Code:	Routing Code:
PO / AFE:	22037	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	YG21-070-F39	25-Jun-21	12:03	Soil	P2			1
	YG21-070-F40	25-Jun-21	12:06	Soil	P2			1
	YG21-070-F41	25-Jun-21	12:18	Soil	P2			1
	YG21-070-F42	25-Jun-21	12:19	Soil	P2			1
	YG21-070-F43	25-Jun-21	12:21	Soil	P2			1
	YG21-070-F44	25-Jun-21	12:23	Soil	P2			1
	YG21-070-F45	25-Jun-21	12:26	Soil	P2			1
	YG21-070-F46	25-Jun-21	12:32	Soil	P2			1
	YG21-070-F47	25-Jun-21	12:35	Soil	P2			1
	YG21-070-F48	25-Jun-21	12:39	Soil	P2			1
	YG21-070-F49	25-Jun-21	12:42	Soil	P2			1
	YG21-070-F50	25-Jun-21	12:45	Soil	P2			1
	YG21-070-F51	25-Jun-21	12:48	Soil	P2			1

Environmental Division
Vancouver
Work Order Reference
VA21B3063

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☑ NO	
Are samples for human consumption/ use? ☑ NO	Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐		SIF Observations	Yes ☐	No ☐	
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

EAGLE GOLD PROJECT

SPILL REPORT

ADR PROCESS SOLUTION RELEASE – JUNE 22, 2021

JULY 2, 2021

Prepared By:
Victoria Gold (Yukon) Corp.
Eagle Gold Project

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1 INTRODUCTION

This report summarizes the events that occurred during the night of June 22, 2021 that resulted in a release of approximately 30 m^3 of process solution from the lined footprint of the Adsorption Desorption Recovery Facility (ADR) to soils outside of containment. This report also summarizes the subsequent responses implemented to mitigate this release and to prevent possible reoccurrence.

During the release and follow up incident investigations, process solution was not observed to enter the Event Pond or potential freshwater receiving environments downgradient.

Following the release, there has been no detection of total or WAD cyanide in monitored surface water downgradient of the HLF. 78 soil samples were collected along the release flow path to evaluate potential residual cyanide residency as per Contaminated Site Regulations (CSR). Final results of soil sampling and analysis demonstrate that total cyanide (or strong acid dissociable – SAD) and weak acid dissociable (WAD) cyanide were below Industrial CSR soil standards for all samples collected from excavated and unexcavated zones of the release flow path.

1.1 INCIDENT SUMMARY

On June 22, 2021 at ~20:42, a pressure drop in the barren solution flow return was detected by the operator working in the control room of the ADR; the operator became concerned that a distribution line on the Heap may have failed. Upon immediate investigation, no failures of the distribution lines in the Heap were identified. With no reports of line failure on the Heap, the ADR control room operator inspected the ADR Facility; whereupon it was observed at the south Carbon-In-Column (CIC) train that process solution was overtopping a safety screen onto the ADR main floor. It was then observed that the safety screen panels (used to filter out small carbon particles from solution flowing back out to the Heap) were partially clogged by precipitates formed through an unanticipated chemical reaction. At ~20:47, the ADR operator temporarily shut down the feed pumps to the CIC train which served to cease all outgoing flow to the Heap and all incoming flow to the ADR. By ~20:49, after all flow from the ADR was temporarily shut down, it was evident that solution was no longer overtopping the screen containment box.

Spill response began immediately after the incident was identified and reported to the night shift supervisor. Emergency management response protocols as per the Cyanide Management Plan (CMP) and associated SOPs were followed and the Emergency Management Team was activated. Inspection, evaluation and delineation of the release occurred in the early hours of June 23. Excavation of the ADR/HLF main access road began later that same morning of June 23. Onsite analyses of the concentration of solution measured at ~220ppm of CN.

The solution that reported to the ADR main floor exceeded the containment capacity of the plant floor and flowed out of the ADR south east bay door. The solution then migrated downgradient. The main proportion of the release flowed along the ADR/HLF main access road terminating approximately 180m down the HLF embankment road. Minor amounts of the solution migrated through a small cut in a road berm and down a rivulet on the ADR/Events Pond cut bank, as well as down the HLF spillway service road, ultimately terminating its flow path at the northern berm of the Events Pond berm. All the affected areas along the flow paths were delineated the night of the event to assist with effective remediation evaluation and planning.

Investigations during and since the incident indicate that the release was initiated from an unforeseen chemical reaction after the plant piping configurations were modified to improve efficiencies within the gold recovery process circuit. Further, road material build up and grading contributed to the extent of solution migration down gradient.

Based on observations of the flow path and from the samples collected the morning after the event, there is no evidence that any potential receiving water bodies were affected by process solution. Haggart Creek and Dublin Gulch returned non-detect results for Total and WAD cyanide.

On June 23, 2021, notification was provided to regulators and the First Nation of Nacho Nyak Dun (FNNND) regarding the incident. The following were notified:

- Natural Resource Officer, Inspector Major Mines - Compliance Monitoring and Inspection, Department of Energy, Mines and Resources (EMR)
- Enforcement Officer - Enforcement Branch, Environment and Climate Change Canada (ECCC), and
- FNNND Lands and Resources Manager.

This report provides a detailed chronological event summary, release details, site factors that led to the incident, concurrent and post-incident responses, and reporting.

2 CHRONOLOGICAL EVENT SUMMARY

2.1 RELEASE RECOGNITION AND IMMEDIATE RESPONSES

Features relevant to this event summary are provided in Figure 2-1 and Figure 2-2.

June 22, 2021

Leading up to the night of the Event, warm and dry conditions were consistent throughout the day. On the day shift of June 23, as per operational objectives a plan was initiated by the ADR operator to increase gold recovery. The plan involved re-routing the Carbon-In-Columns (CIC) sump pump to transfer strip solution to the tail end of the south CIC train. The piping configuration change would direct solution flow to the carbon safety screen located on the eastern side of the ADR building.

June 22, 2021 Event Timeline

22:30 When the re-routing was completed, the ADR operator started to bleed barren strip solution from the stripping circuit to the CIC area sump pump. The barren strip solution contains around 2% caustic and has a temperature of ~75 degrees Celsius.

22:30 – 22:42 The sump level began to rise as intended which then activated the sump pump and conveyed barren strip solution via the re-routed piping to the tail end of the south CIC column train. An unexpected caustic precipitation occurred when the warm strip solution contacted cold (4.5°C) barren solution. The precipitate rapidly began to build up on the 75 micron screen mesh panels at the tail end of the south CIC column train. This resulted in the screen panels being semi-sealed with precipitate resulting in the impediment of solution flow through the screen panels and out to the Heap. As a result, solution started to report to the screen oversize discharge, and subsequently overtopped to the ADR main floor.

22:42- 22:47 The ADR operator observed a drop in pressure on the barren solution pumps and became concerned that a distribution line on the heap may have failed. The Process night shift supervisor was called to investigate the distribution lines on the Heap. The ADR control room is on the opposite side of the CIC screen panels and at this point in time no solution on the ADR floor was visible from that position. An alarm alerted the ADR operator that the barren solution tank level had dropped significantly. With no reports of line failure on the Heap, the ADR operator vacated the control room and inspected the ADR floor. The south CIC train at the carbon safety screens were observed to be overtopping.

22:47 –22:49 The ADR operator immediately shut down the feed pumps to the CIC train and stopped all flow outgoing to the Heap and incoming into the ADR. Directly following this action, the carbon safety screen by-pass valve was opened so the solution could report directly into the barren solution holding tank. The 24” by-pass valve was fully open by 22:49.

22:49 The carbon safety screen overflow to the south east ADR floor was fully arrested. The Solution that reported to the ADR floor exceeded the ADR containment holding capacity and migrated

through the south east ADR bay door located close to the carbon safety screen. The night shift supervisor arrived on scene at ~22:55 and was debriefed while observing the release.

23:00-01:00 The Process Manager, Site General Manager and the Emergency Management Team was awakened. The Emergency Operations Centre (EOC) was activated and the Emergency Response Plan and Cyanide Management Plan was initiated. Offsite Senior Management was notified.

June 23, 2021

01:00 – 04:00 Inspections of the incident area were undertaken by the General Manager, and managers/superintendents from the Environment, Process, and Health and Safety Departments. During the inspection:

- Solution was observed to have migrated out of the south east bay door onto the main ADR/HLF access road (Photo 2-1).



Photo 2-1: ADR South East Bay Door Flow Path

- The main flow path of solution migrated ~180m to the east downgradient along the main ADR access and HLF embankment road. Photo 2-2 shows the eastern extent of the surface flow from the release along the HLF embankment road.



Photo 2-2: Termination Point of Main Solution Flow Path from ADR Access Road to HLF Embankment Road

- Two secondary solution flow paths were observed: 1) through a cut out in the ADR road berm and then down a rivulet on the ADR/Events Pond cut bank; this flow terminated just short of the HLF spillway; and 2) from the HLF embankment road, this flow migrated down the HLF spillway service road and then down a rivulet on the ADR/Event Pond cut bank; this flow terminated and pooled in a small area adjacent to and behind the berm constructed along the north side of the Events Pond (Photo 2-3).



Photo 2-3: Termination Point of Flow Path on North Side of Events Pond

- The extents of all flow paths were delineated the night of the event with spray paint so that effective remediation could be evaluated and planned. The majority of solution was contained to road infrastructure. The minor amounts that did travel down the HLF spillway service road and the cut banks terminated on the infrastructure and no solution was observed entering into the Events Pond.
- The internal ADR infrastructure was inspected to ensure no further releases were occurring.
- The ADR perimeter was inspected to ensure no solution had exited the building from other exits or bay doors. No secondary release flow paths were observed from the building.
- Liner, electrical and piping infrastructure as-built documentation was referenced to safely plan remedial efforts
- The flow paths were surveyed by hand with a GPS Trimble unit by Underhill Geomatics

04:15 Direction was given to commence excavation of soils along the flow path once initial documentation was complete and all the flow paths were delineated. Resources for excavation were procured from internal departments and transported to the ADR main access road.

05:00-24:00 Excavation of soils from the delineated area along the main ADR/HLF access road continued throughout the day. Affected areas along the cut bank rivulets, the HLF spillway access road and the pooled area adjacent to the Events Pond were not excavated due to potential geotechnical stability concerns, with an ultimate decision regarding these areas postponed until final results of lab analysis of soil samples were received.

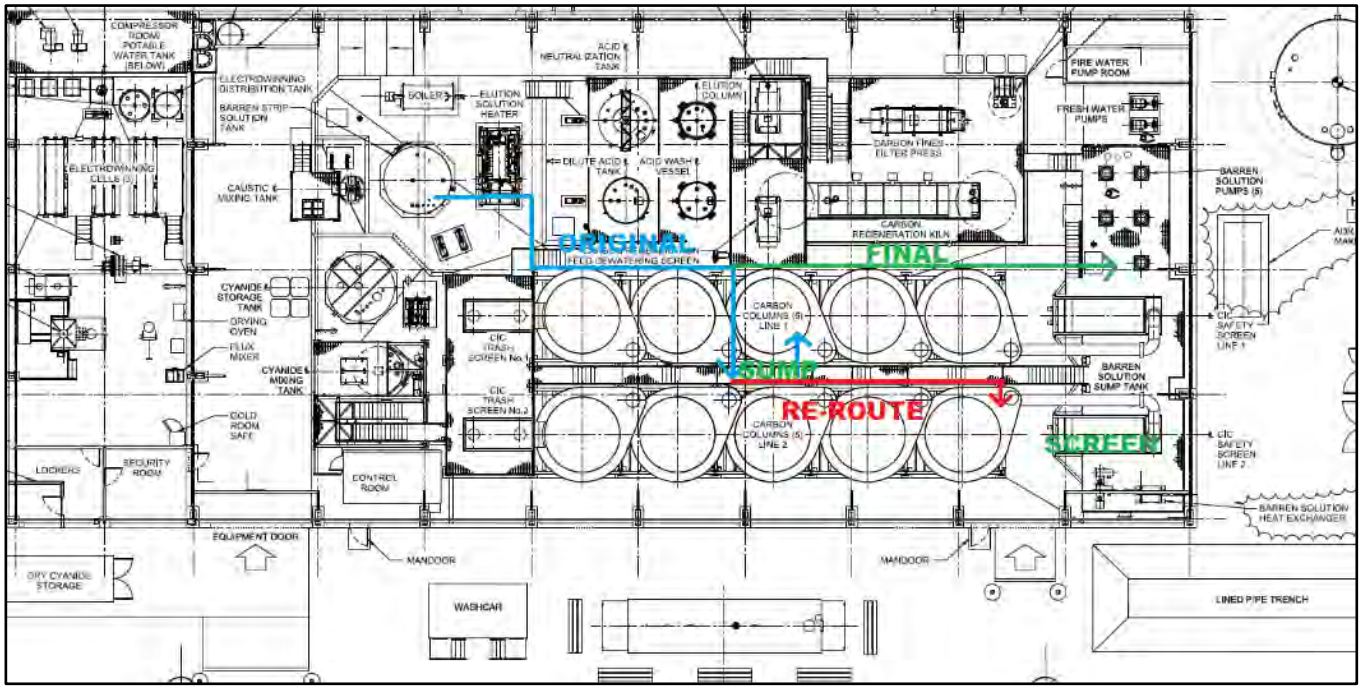


Figure 2-1: Piping Configuration



Legend:

- Flow Path
- HLF Liner Perimeter
- Poetentially Impacted Area
- Excavation Complete
- Not Excavated

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Flow Path, Potentially Impacted Area & Extent of Excavations
2021/07/02	2-2	

2.2 FOLLOW-UP REMEDIAL MEASURES

As described above, work commenced early in the following morning of the event on June 23 to mitigate the potential impacts of the release. Surveys were conducted to plan soil excavation efforts in the affected areas. Following as-built infrastructure reference, excavation began along the main flow path. The excavation efforts continued throughout June 23 and were completed that night. Photo 2-4 depicts the excavation works at the junction of the ADR Road and the HLF Embankment Road.



Photo 2-4: Roadway Excavation of Potentially Impacted Materials

Potentially affected soil was transported to the Heap and deposited within containment of the liner as shown in Photo 2-5. Approximately 682m^3 of potentially affected material was removed from the main ADR/HLF access road.



Photo 2-5: Excavated Material Pile on Heap

The morning of June 23, the sump pump discharge piping was switched back to its original transfer point. The strip solution transfer line was re-piped so that it would transfer directly into the barren solution tank circumventing the ability of strip solution to come in contact with the screen panels. The caustic solution stream has now been re-routed directly into the barren solution tank. These two piping configuration changes will eliminate potential chemical precipitates from interacting or forming on the carbon safety screens.

Further, as part of the Cyanide Management Plan (specifically the Environmental (Soil/Water Quality) Monitoring Procedures SOP), water quality samples were collected the morning of June 23 at standard Environmental Monitoring, Surveillance and Adaptive Management Plan locations (Figure 2-3) above and downgradient of the incident area including:

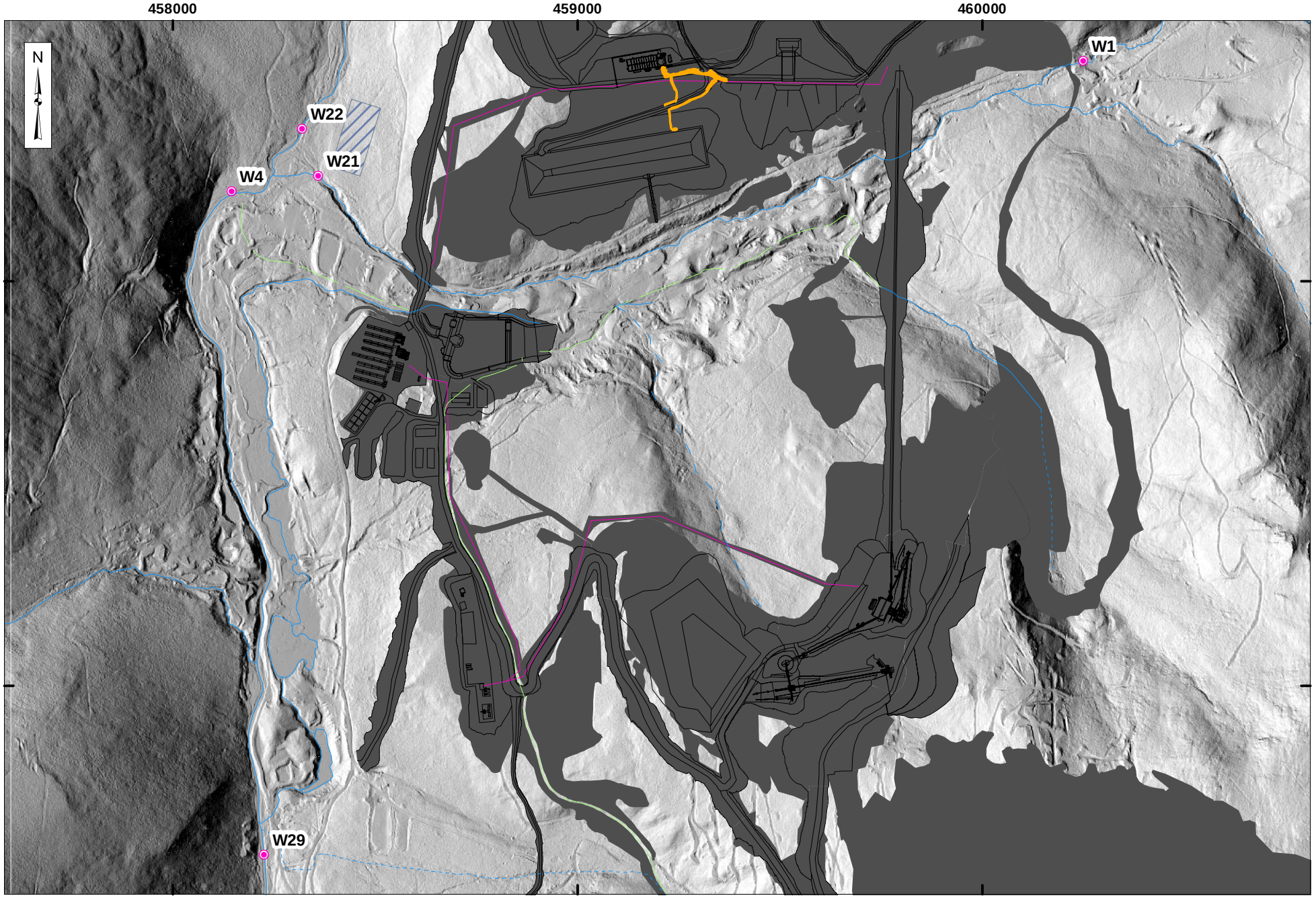
- Two stations on Dublin Gulch; W1, W21
- Three stations on Haggart Creek, W22, W4, W29

Soil Samples, as per CSR requirements, were collected on June 24 along the excavated main ADR/HLF flow path and the non-excavated flow paths along the HLF spillway service road and along the rivulets on the ADR/Events Pond cut bank. These soil samples will be utilised to assess whether any additional remedial work is needed as per CSR soil standards for Cyanide on Industrial land.

Regrading and ditching of the main ADR/HLF access road to convey any potential future process solution release of this nature to containment within the lined HLF area was initiated on June 29th.



Photo 2-6: Regraded HLF Embankment Road



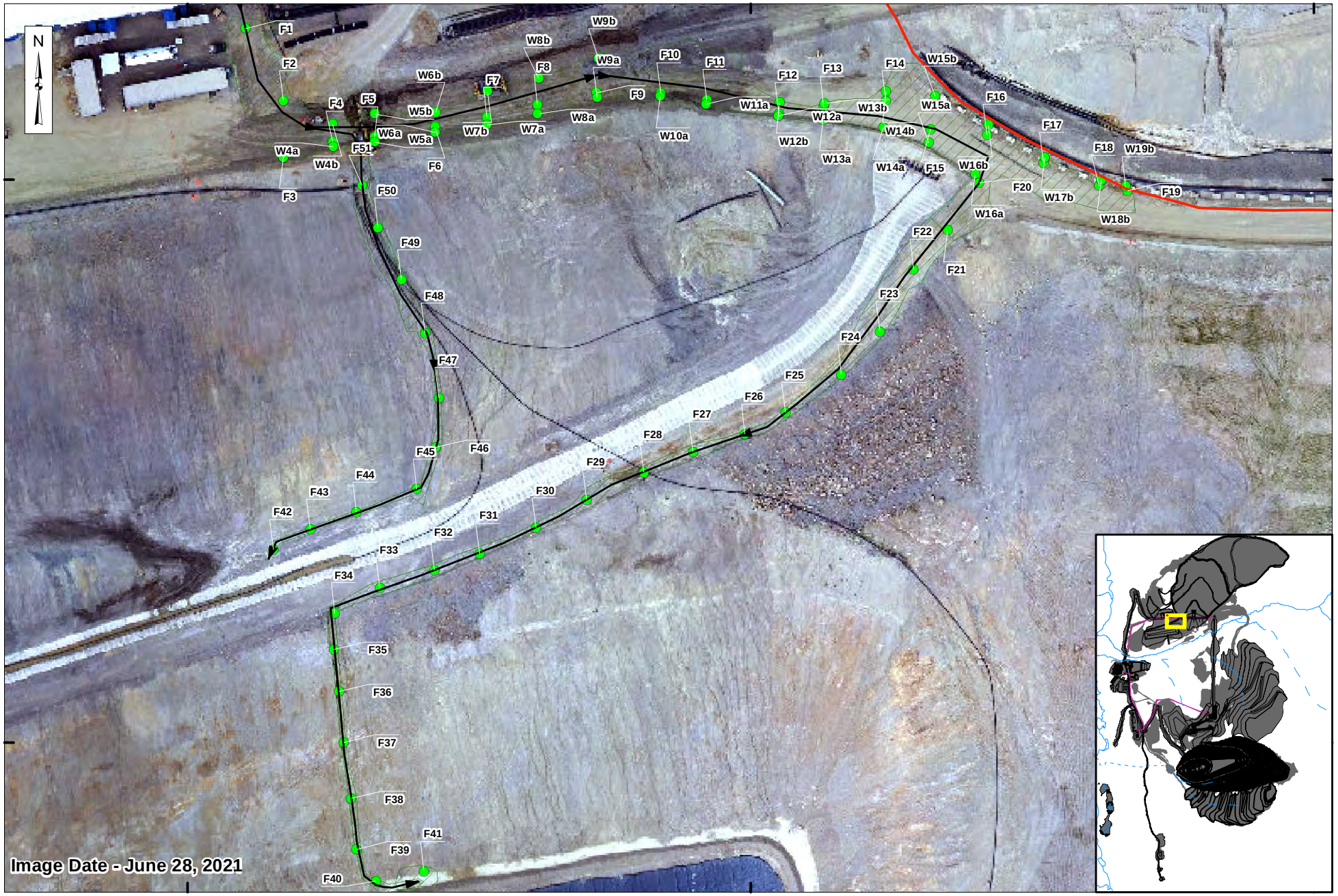
Legend:

- Surface Water Samples - No Detection
- Main Ditches
- Potentially Impacted Area
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent
- Other Mining and Construction Area
- Reserved Area

VICTORIA GOLD CORP

0 100 200 400
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Surface Water Sampling
2021/07/02	2-3	



Legend:

- Soil Samples
- Potentially Impacted Area
- Flow Path
- HLF Liner Perimeter

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Soil Sampling
2021/07/02	2-4	

3 RELEASE DETAILS

3.1 FLOW AND VOLUME ESTIMATE

Flow from the process circuit within the ADR is monitored in the ADR control room. The night of the event, solution was flowing out to the Heap at a rate of 1,235m^3/hr with a concentration of 220 ppm CN. As the carbon safety screens began to blind with precipitate a portion of this flow could no longer pass through the screens and out to the Heap, which resulted in a loss of flow delivered to the barren solution tank. The volume loss within the barren solution tank during the 7-minute downtime was used to estimate the volume of solution released to the ADR concrete containment floor and sumps. The tank lost ~14.1% of volume between 22:42 and 22:49. The barren solution tank has a capacity of 320m^3 correlating to an approximate loss of 45m^3 of solution from the ADR process circuit. The CIC and carbon area floor and sumps together have the capacity of approximately 15m^3. Based on these values, approximately 30m^3 of solution is estimated to have migrated out of ADR containment through the south east ADR bay doors.

3.2 RELEASE EXTENT

As part of the emergency response action during the early morning of June 23, the flow path of the release was delineated using spray paint and then subsequently surveyed by Underhill Geomatics using a handheld high resolution Trimble GPS unit. The main flow path terminated on road infrastructure ~180m to the east of the ADR on the ADR/HLF access road (Figure 2-2). Two additional flow paths were delineated; one travelling down a rivulet on the ADR/Event Pond cut bank and terminated just short of the HLF spillway and second flow path that travelled down the HLF spillway service road and ultimately terminated behind the Events Pond north berm. No solution was observed to enter the Events Pond or potential freshwater receiving environments downgradient of the release.

3.3 RECEIVING ENVIRONMENT MONITORING

3.3.1 Surface Water Quality Sampling

The receiving water body related to the Project is Haggart Creek, and the major tributary to Haggart Creek flowing the project area is Dublin Gulch. The Type A Water Use Licence (WUL), and Victoria Gold monitoring programs under the EMSAMP has established monitoring locations on Haggart Creek and Dublin Gulch and water quality objectives on Haggart Creek. The following locations considered in the WUL and the EMSAMP as shown on Figure 2-3 were sampled the morning after the event on June 23:

- Upstream of the release on Dublin Gulch at W1;
- On Haggart Creek upstream of Dublin Gulch at W22;
- Downstream of the release on Dublin Gulch at W21;
- On Haggart Creek downstream of Dublin Gulch at W4; and,

- On Haggart Creek further downstream at W29.

There was no detection of SAD or WAD cyanide in surface water quality samples. The COA from ALS is provided as Appendix A.



Photo 3-1: Surface Water Quality Sampling

3.3.2 Groundwater Quality Sampling

Groundwater monitoring of wells downgradient of the ADR and Event Pond are planned to be sampled on a monthly basis commencing in July and continuing through to end of September. This frequency is increased from the normal WUL quarterly monitoring requirements. The supplementary sample program will consist of four groundwater well pairings, (MW19-EVP2a/b, MW10-DG6Ra/b, MW19-EVP1a/b and MW19 HLF-1a/b - Figure 3-1), which are located downgradient of the affected area.

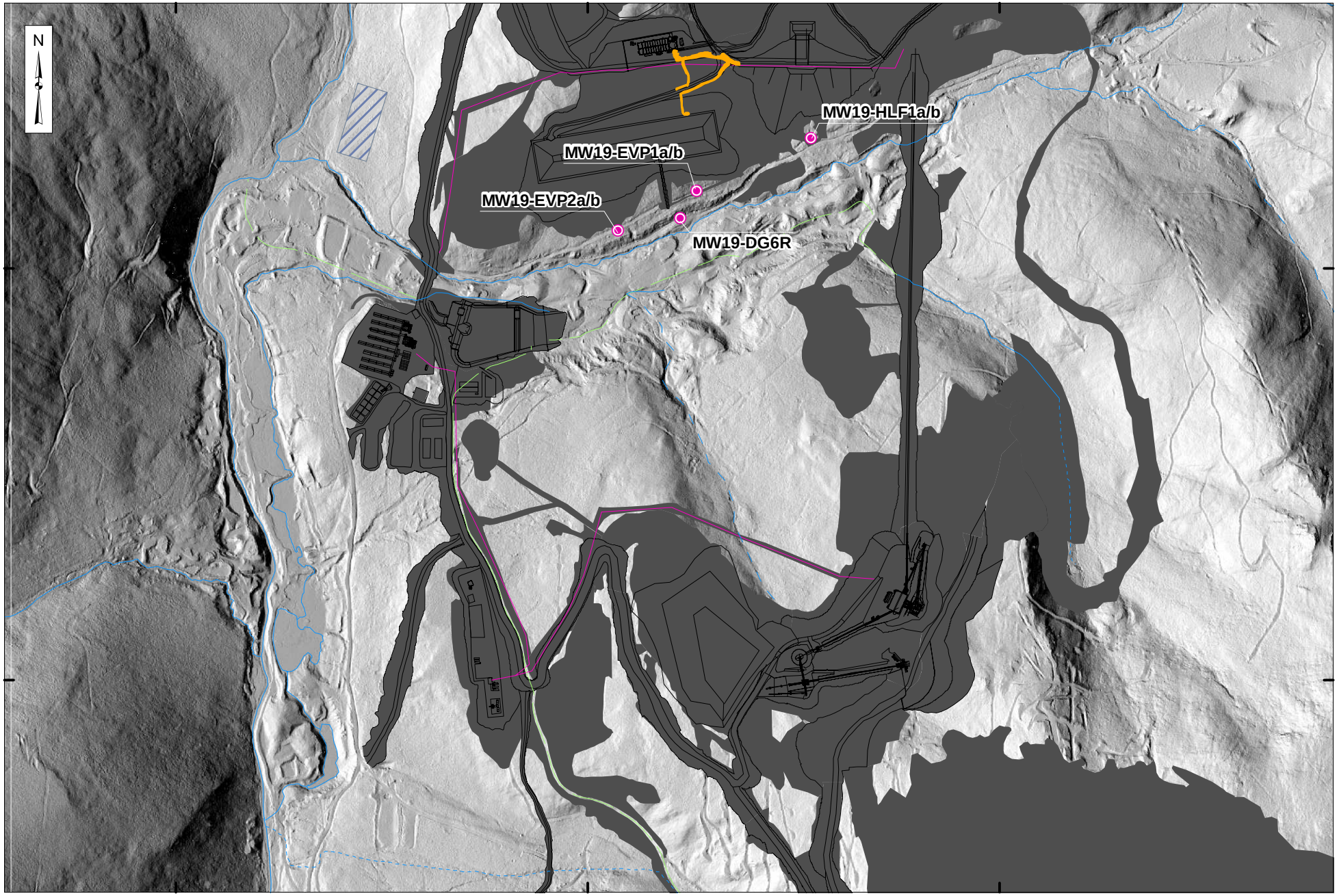
3.3.3 Soil Sampling

On June 24, 2020, soil samples were collected as per CSR requirements to evaluate cyanide concentrations in soils in the affected area (Figure 3-2 and Figure 3-3). A total of 78 soil samples were collected and analyzed. All wall samples (Wx a/b) and floor samples (F1-F22) were within the excavated zone. The remainder of the floor

samples were taken from the non-excavated zones. The samples were analyzed for the presence of SAD and WAD cyanide. Final laboratory cyanide concentrations were evaluated against Industrial CSR soil standards for SAD and WAD cyanide. All soil samples were well below industrial CSR soil standards; no further excavations are planned. The COA from ALS is provided as Appendix B.



Photo 3-2: Soil Sampling



Legend:

- Planned Groundwater Samples
- Main Ditches
- Potentially Impacted Area
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent
- Other Mining and Construction Area
- Reserved Area

VICTORIA GOLD CORP

0 100 200 400
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Planned Groundwater Sampling
2021/07/02	3-1	



Legend:

- Excavated Zone Sample - No Detection
- Excavated Zone Sample - ND to 10 mg/kg
- Non-Excavated Zone Sample - No Detection
- Non-Excavated Zone Sample - ND to 10 mg/kg
- Non-Excavated Zone Sample - 21.6 mg/kg
- Excavation Complete
- Not Excavated

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection:	Drawn By:	EAGLE GOLD MINE YUKON TERRITORY
NAD 83 Zone 8N	HC	
Date:	Figure:	ADR Solution Release Soil Sampling CN WAD
2021/07/02	3-2	



Legend:

- Excavated Zone Sample - ND to 6.92 mg/kg
- Excavated Zone Sample - No Detection
- Non-Excavated Zone Sample - ND to 24.8 mg/kg
- Non-Excavated Zone Sample - No Detection
- Excavation Complete
- Not Excavated

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection:	Drawn By:
NAD 83 Zone 8N	HC
Date:	Figure:
2021/07/02	3-3

EAGLE GOLD MINE
YUKON TERRITORY

ADR Solution Release
Soil Sampling
CN SAD

4 IMPORTANT FACTORS FOR CAUSING RELEASE (ROOT CAUSE)

4.1 ROOT CAUSE

The primary root cause behind this solution release was a physical change in the routing of process solution, which enabled the introduction of warm caustic barren strip solution to the tail end of the south CIC train with the resident cool barren solution. The mixing of the two process solutions resulted in precipitate forming in the CIC carbon safety screen holding tanks. The precipitate rapidly blinded the 75 micron screen mesh panels. As a result, the flow of the solution (1,235m^3/hr) being directed towards the carbon safety screens, overwhelmed the capacity of the semi blinded screens resulting in a large portion of the outgoing solution to overflow onto the ADR plant floor.

Figure 4-1 depicts the piping configuration changes, CIC, carbon safety screen layout within the ADR.

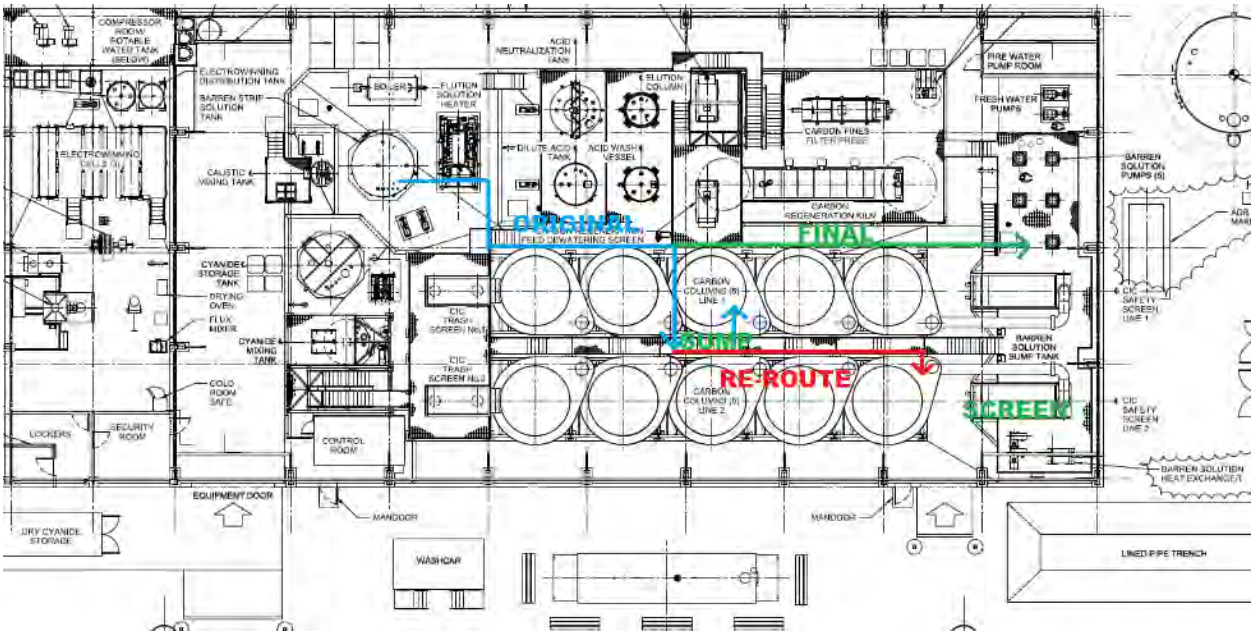


Figure 4-1: ADR Infrastructure Layout

4.2 CONTRIBUTING FACTORS TO THE EXTENT OF THE RELEASE

Two main site factors have been identified that contributed to the subsequent release of process solution outside of ADR containment: 1) ADR containment design considers only overflows from defect or damage to the tankage within the ADR (as is common for secondary containment design), 2) pad and road grading allowed process solution to escape containment rather than flow to the heap pad.

The ADR design considers minor potential solution overflow and release points within the process circuit. The ADR floor has a designed containment capacity and two resident sumps equipped with pumps to address small

volume releases, but not CIC overflows. Major CIC overflows would be expected to flow within containment eventually to the lined heap pad. In this case, the release flow rate rapidly used up the containment capacity within the ADR. Approximately 15m^3 of solution was captured within the ADR containment sumps and concrete floor as depicted in Photo 4-1. Although this solution was rapidly pumped back into the process circuit, containment within the ADR facility was consumed allowing solution to migrate outside of the south east ADR bay door.



Photo 4-1: Solution Contained Within the ADR

The major contributing factor to allow the full extent of the release was due to the existing grading on the ADR pad and access road which directed the release away from the heap lined containment area. Solution then migrated down the south side of the ADR/HLF main access road outside of lined containment and along the other flow paths identified above.



Photo 4-2: Main ADR/HLF Access Road Flow Path – Pad Grading Directing Surface Flow Along Road

5 SPILL REPORTING

5.1 YUKON GOVERNMENT AND FNNND

On June 23, 2020, the day following the solution release, notification was provided to regulators and the FNNND of the release of process solution from ADR containment. The following people and/or agencies were included in these notifications:

- Yukon Spill Reporting hotline
- Natural Resource Officer, Inspector Major Mines - Compliance Monitoring and Inspection, Department of Energy, Mines and Resources (EMR)
- Enforcement Officer - Enforcement Branch, Environment and Climate Change Canada (ECCC), and
- FNNND Lands and Resources Manager.

A copy of this report will be provided to all parties contacted during the preliminary event.

6 FINAL REMEDIATION MEASURES

To mitigate the potential for a recurrence of a release from the ADR of this nature and extent, multiple corrective actions were developed and implemented post incident. These included changing the piping arrangements as discussed in Section 2.2. The piping configuration was reverted back to the original transfer point on the morning of June 23. The strip solution transfer line was re-piped so that it would transfer directly into the barren solution tank. This measure circumvents the ability for strip solution to come in contact with the screen panels and the caustic solution stream, which will now be piped back to the barren solution tank. These two piping configuration changes are intended to eliminate potential chemical precipitates from forming on the carbon safety screens.

Following the excavation of the main ADR/HLF access roads an EMR-CMI Major Mines inspector was on site on June 24 following the release and took four soil samples in the affected areas.

Following completion of the planned excavation and soil sampling work, corrective actions to address the grade of the road were initiated. On June 28, road maintenance began on the main ADR/HLF access road. The road was crowned and sloped towards the north where a ditch was constructed to convey flows into the lined area of the Heap. This remedial work was observed by an EMR-CMI inspector on June 30. All remedial work was completed on July 1 (Photo 6-1)



Photo 6-1: ADR/HLF Main Access Road Regraded and Ditched Towards Heap

As discussed in Section 3.3.3 all soil samples taken along the excavated and non excavated flow paths of the release yielded SAD and WAD cyanide concentrations below CSR industrial soil standards. No further excavation is currently planned. Groundwater wells which are located downgradient of the affected area will continue to be monitored from July to September 2021.

APPENDIX A

External Laboratory Surface Water Quality Results

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA21B2915**	Page	: 1 of 6
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: SWQ (JUNE Spill Confirmatory)	Date Samples Received	: 24-Jun-2021 15:10
PO	: 22037	Date Analysis Commenced	: 25-Jun-2021
C-O-C number	: 20210623e	Issue Date	: 28-Jun-2021 17:51
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Annabelle Prasad	Analyst	Metals, Burnaby, British Columbia
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
%	percent
µS/cm	Microsiemens per centimetre
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
HTD	*Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W22	W29
					Client sampling date / time	23-Jun-2021 13:00	23-Jun-2021 12:35	23-Jun-2021 12:00	23-Jun-2021 12:15	23-Jun-2021 11:40
						VA21B2915-001	VA21B2915-002	VA21B2915-003	VA21B2915-004	VA21B2915-005
						Result	Result	Result	Result	Result
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		32.8	44.4	72.8	78.5	80.6
conductivity	----	E100	2.0	µS/cm		89.9	130	268	289	289
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		41.7	58.6	126	137	137
hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L		40.5	59.8	124	130	135
pH	----	E108	0.10	pH units		7.67	7.84	8.01	8.01	8.08
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L		63.8	85.1	160	173	174
solids, total suspended [TSS]	----	E160-H	3.0	mg/L		7.5	3.5	<3.0	<3.0	<3.0
turbidity	----	E121	0.10	NTU		0.97	1.23	0.55	0.53	0.32
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
cyanate	88402-73-7	E343	0.20	mg/L		0.26	<0.20	<0.20	<0.20	<0.20
fluoride	16984-48-8	E235.F	0.020	mg/L		0.082	0.088	0.089	0.089	0.091
Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L		0.094	0.082	0.084	0.076	0.090
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		0.0372 HTD	0.0419 HTD	0.0781	0.0852	0.0786
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010 HTD	<0.0010 HTD	<0.0010	<0.0010	<0.0010
nitrogen, total	7727-37-9	E366	0.030	mg/L		0.144	0.109	0.137	0.143	0.142
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L		0.0025	0.0019	<0.0010	<0.0010	<0.0010
phosphorus, total	7723-14-0	E372-U	0.0020	mg/L		0.0353	0.0081	0.0027	0.0030	0.0030
phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L		0.0040	0.0034	<0.0020	<0.0020	0.0049
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		10.1	18.6	57.7	64.1	63.0
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
cyanide, weak acid dissociable	----	E336	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
thiocyanate	302-04-5	E344	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		2.34	2.48	2.83	2.92	2.93
carbon, total organic [TOC]	----	E355-L	0.50	mg/L		2.53	2.58	2.76	2.82	2.71
Ion Balance										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W22	W29
					Client sampling date / time	23-Jun-2021 13:00	23-Jun-2021 12:35	23-Jun-2021 12:00	23-Jun-2021 12:15	23-Jun-2021 11:40
						VA21B2915-001	VA21B2915-002	VA21B2915-003	VA21B2915-004	VA21B2915-005
						Result	Result	Result	Result	Result
Ion Balance										
anion sum	----	EC101	0.10	meq/L		0.87	1.28	2.67	2.91	2.93
cation sum	----	EC101	0.10	meq/L		0.92	1.26	2.61	2.83	2.84
ion balance (cation-anion difference)	----	EC101	0.010	%		2.79	0.787	1.14	1.39	1.56
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.380	0.0764	0.0348	0.0288	0.0269
antimony, total	7440-36-0	E420	0.00010	mg/L		0.00120	0.00125	0.00037	0.00023	0.00046
arsenic, total	7440-38-2	E420	0.00010	mg/L		0.0447	0.0342	0.00491	0.00072	0.00451
barium, total	7440-39-3	E420	0.00010	mg/L		0.0429	0.0419	0.0366	0.0352	0.0383
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000135	0.0000057	0.0000108	0.0000133	0.0000113
calcium, total	7440-70-2	E420	0.050	mg/L		11.7	15.8	32.0	32.6	34.6
chromium, total	7440-47-3	E420	0.00050	mg/L		0.00067	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L		0.00026	<0.00010	0.00013	0.00014	0.00011
copper, total	7440-50-8	E420	0.00050	mg/L		0.00069	0.00053	0.00056	0.00054	0.00058
iron, total	7439-89-6	E420	0.010	mg/L		0.547	0.105	0.115	0.133	0.097
lead, total	7439-92-1	E420	0.000050	mg/L		0.000850	0.000209	0.000074	<0.000050	0.000064
lithium, total	7439-93-2	E420	0.0010	mg/L		0.0025	0.0041	0.0052	0.0053	0.0052
magnesium, total	7439-95-4	E420	0.100	mg/L		2.75	4.95	10.8	11.7	11.8
manganese, total	7439-96-5	E420	0.00010	mg/L		0.0157	0.00406	0.0285	0.0362	0.0334
mercury, total	7439-97-6	E508	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.00186	0.00170	0.000297	0.000052	0.000243
nickel, total	7440-02-0	E420	0.00050	mg/L		0.00068	<0.00050	0.00088	0.00090	0.00086
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.100	mg/L		0.776	0.910	0.932	0.918	0.991
selenium, total	7782-49-2	E420	0.000050	mg/L		0.000147	0.000128	0.000151	0.000199	0.000156
silicon, total	7440-21-3	E420	0.10	mg/L		6.54	5.89	3.97	3.54	3.80
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	17341-25-2	E420	0.050	mg/L		1.69	1.72	1.61	1.58	1.70
strontium, total	7440-24-6	E420	0.00020	mg/L		0.0679	0.0968	0.170	0.180	0.181

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W22	W29
					Client sampling date / time	23-Jun-2021 13:00	23-Jun-2021 12:35	23-Jun-2021 12:00	23-Jun-2021 12:15	23-Jun-2021 11:40
						VA21B2915-001	VA21B2915-002	VA21B2915-003	VA21B2915-004	VA21B2915-005
						Result	Result	Result	Result	Result
Total Metals										
sulfur, total	7704-34-9	E420	0.50	mg/L		3.24	6.13	18.6	19.8	19.9
thallium, total	7440-28-0	E420	0.000010	mg/L		0.000010	<0.000010	<0.000010	<0.000010	<0.000010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		0.0248	0.00291	0.00074	0.00045	0.00062
uranium, total	7440-61-1	E420	0.000010	mg/L		0.000553	0.000614	0.000775	0.000783	0.000932
vanadium, total	7440-62-2	E420	0.00050	mg/L		0.00130	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0141	0.0107	0.0128	0.0132	0.0116
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		0.00092	0.00111	0.00034	0.00022	0.00044
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.0356	0.0317	0.00452	0.00063	0.00407
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.0345	0.0384	0.0343	0.0338	0.0355
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000056	0.0000072	0.0000087	0.0000114	0.0000115
calcium, dissolved	7440-70-2	E421	0.050	mg/L		12.4	15.6	32.2	34.8	34.2
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	0.00010	0.00012	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L		0.00031	0.00040	0.00045	0.00046	0.00056
iron, dissolved	7439-89-6	E421	0.010	mg/L		0.013	<0.010	0.049	0.074	0.043
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		0.0018	0.0037	0.0053	0.0053	0.0052
magnesium, dissolved	7439-95-4	E421	0.100	mg/L		2.60	4.78	11.0	12.1	12.6
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.00107	0.00195	0.0258	0.0352	0.0318
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.00171	0.00161	0.000262	0.000056	0.000241
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	<0.00050	0.00095	0.00109	0.00099
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L		0.679	0.840	0.898	0.899	0.996

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W22	W29
					Client sampling date / time	23-Jun-2021 13:00	23-Jun-2021 12:35	23-Jun-2021 12:00	23-Jun-2021 12:15	23-Jun-2021 11:40
						VA21B2915-001	VA21B2915-002	VA21B2915-003	VA21B2915-004	VA21B2915-005
						Result	Result	Result	Result	Result
Dissolved Metals										
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.000107	0.000134	0.000184	0.000192	0.000192
silicon, dissolved	7440-21-3	E421	0.050	mg/L		5.22	5.27	3.69	3.37	3.73
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		1.61	1.62	1.56	1.55	1.68
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.0683	0.101	0.167	0.185	0.191
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		3.06	6.14	19.2	21.4	21.1
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000376	0.000562	0.000736	0.000797	0.000932
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0010	0.0013	0.0011	0.0012	0.0012
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA21B2915**	Page	: 1 of 25
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
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Project	: SWQ (JUNE Spill Confirmatory)	Date Samples Received	: 24-Jun-2021 15:10
PO	: 22037	Issue Date	: 28-Jun-2021 17:51
C-O-C number	: 20210623e		
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W1	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W21	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W22	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W29	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W4	E298	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W1	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W21	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W22	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W29	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
W4	E235.Br-L	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W1	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W21	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W22	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W29	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W4	E235.Cl	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W4	E343	23-Jun-2021	----	----	----		28-Jun-2021	----	----	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W1	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W21	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W22	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W29	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W4	E378-U	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W1	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W21	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W22	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W29	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
W4	E235.F	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W1	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W21	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W22	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W29	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
W4	E235.NO3-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W1	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W21	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W22	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W29	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
W4	E235.NO2-L	23-Jun-2021	----	----	----		25-Jun-2021	3 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W1	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W21	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W22	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W29	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W4	E235.SO4	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W1	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W21	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W22	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W29	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W4	E375-T	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W1	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W21	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W22	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W29	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W4	E318	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W1	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W21	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W22	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W29	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W4	E366	23-Jun-2021	25-Jun-2021	----	3 days	✓	28-Jun-2021	28 days	3 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W1	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W21	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W22	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W29	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W4	E372-U	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W1	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W21	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W22	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W29	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W4	E344	23-Jun-2021	----	----	----		28-Jun-2021	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W4	E333	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W4	E336	23-Jun-2021	----	----	----		26-Jun-2021	14 days	3 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W1	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W21	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W22	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W29	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) W4	E509	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	0 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W1	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W21	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W22	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W29	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W4	E421	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	180 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W1	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W21	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W22	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W29	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid)										
W4	E358-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	25-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
W1	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid)										
W21	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W22	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W29	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W4	E355-L	23-Jun-2021	25-Jun-2021	----	3 days	✓	26-Jun-2021	28 days	1 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W1	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W21	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W22	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W29	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W4	E290	23-Jun-2021	----	----	----		25-Jun-2021	14 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE W1	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE W21	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE W22	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE W29	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE W4	E100	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Physical Tests : pH by Meter										
HDPE W1	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	49 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W21	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	49 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W22	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	49 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W29	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	50 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W4	E108	23-Jun-2021	----	----	----		25-Jun-2021	0.25 hrs	50 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : TSS by Gravimetry										
HDPE W1	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W21	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W22	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W29	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W4	E160-H	23-Jun-2021	----	----	----		25-Jun-2021	7 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W1	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W21	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W22	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W29	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Turbidity by Nephelometry										
HDPE										
W4	E121	23-Jun-2021	----	----	----		26-Jun-2021	3 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W1	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W21	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W22	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W29	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
W4	E508	23-Jun-2021	----	----	----		25-Jun-2021	28 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W1	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W21	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W22	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W29	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W4	E420	23-Jun-2021	----	----	----		25-Jun-2021	180 days	3 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	230120	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	230136	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	230123	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	230122	1	15	6.6	5.0	✓
Conductivity in Water	E100	230119	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	231877	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	230591	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	230191	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	230205	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	230127	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	230121	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	230124	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	230125	1	16	6.2	5.0	✓
pH by Meter	E108	230118	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	230126	1	15	6.6	5.0	✓
Thiocyanate by Colourimetry	E344	231993	1	5	20.0	5.0	✓
Total Cyanide by CFA	E333	230885	1	16	6.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	230206	1	5	20.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	230138	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	230555	2	36	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	230182	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	230134	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	230137	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	230135	1	17	5.8	5.0	✓
TSS by Gravimetry	E160-H	230426	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	230932	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	230886	1	6	16.6	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	230120	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	230136	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	230123	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	230122	1	15	6.6	5.0	✓
Conductivity in Water	E100	230119	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	231877	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	230591	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	230191	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	230205	1	5	20.0	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	230127	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	230121	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	230124	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	230125	1	16	6.2	5.0	✓
pH by Meter	E108	230118	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	230126	1	15	6.6	5.0	✓
Thiocyanate by Colourimetry	E344	231993	1	5	20.0	5.0	✓
Total Cyanide by CFA	E333	230885	1	16	6.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	230206	1	5	20.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	230138	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	230555	2	36	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	230182	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	230134	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	230137	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	230135	1	17	5.8	5.0	✓
TSS by Gravimetry	E160-H	230426	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	230932	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	230886	1	6	16.6	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	230120	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	230136	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	230123	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	230122	1	15	6.6	5.0	✓
Conductivity in Water	E100	230119	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	231877	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	230591	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	230191	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	230205	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	230127	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	230121	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	230124	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	230125	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	230126	1	15	6.6	5.0	✓
Thiocyanate by Colourimetry	E344	231993	1	5	20.0	5.0	✓
Total Cyanide by CFA	E333	230885	1	16	6.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	230206	1	5	20.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	230138	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	230555	2	36	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	230182	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	230134	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	230137	1	7	14.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	230135	1	17	5.8	5.0	✓
TSS by Gravimetry	E160-H	230426	1	20	5.0	5.0	✓
Turbidity by Nephelometry	E121	230932	1	20	5.0	5.0	✓
WAD Cyanide by CFA	E336	230886	1	6	16.6	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	230136	1	9	11.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	230123	1	15	6.6	5.0	✓
Chloride in Water by IC	E235.Cl	230122	1	15	6.6	5.0	✓
Cyanate by Ion Selective Electrode	E343	231877	1	7	14.2	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	230591	1	19	5.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	230191	1	12	8.3	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	230205	1	5	20.0	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	230127	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	230121	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	230124	1	16	6.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	230125	1	16	6.2	5.0	✓
Sulfate in Water by IC	E235.SO4	230126	1	15	6.6	5.0	✓
Thiocyanate by Colourimetry	E344	231993	1	5	20.0	5.0	✓
Total Cyanide by CFA	E333	230885	1	16	6.2	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	230206	1	5	20.0	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	230138	1	5	20.0	5.0	✓
Total Mercury in Water by CVAAS	E508	230555	2	36	5.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	230182	1	16	6.2	5.0	✓
Total Nitrogen by Colourimetry	E366	230134	1	6	16.6	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	230137	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	230135	1	17	5.8	5.0	✓
WAD Cyanide by CFA	E336	230886	1	6	16.6	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160-H Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Bromide in Water by IC (Low Level)	E235.Br-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 Vancouver - Environmental	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthaldialdehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Cyanide by CFA	E333 Vancouver - Environmental	Water	ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Cyanate by Ion Selective Electrode	E343 Waterloo - Environmental	Water	APHA 4500-CN L (mod)	This analysis is carried out using procedures adapted from APHA method 4500-CN "Cyanide". Cyanate is determined by the Cyanate hydrolysis method using an ammonia selective electrode
Thiocyanate by Colourimetry	E344 Vancouver - Environmental	Water	APHA 4500-CN M (mod)	Thiocyanate is determined by the ferric nitrate colourimetric method. Water samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Nitrogen by Colourimetry	E366 Vancouver - Environmental	Water	APHA 4500-P J (mod)	Total Nitrogen is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U Vancouver - Environmental	Water	APHA 4500-P E (mod)	Dissolved Orthophosphate is determined colourimetrically on a water sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A Vancouver - Environmental	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ion Balance using Dissolved Metals	EC101 Vancouver - Environmental	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent.
Preparation for Total Organic Carbon by Combustion	EP355 Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 Vancouver - Environmental	Water	APHA 4500-P J (mod)	Samples are heated with a persulfate digestion reagent.
Digestion for Total Phosphorus in water	EP372 Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	Vancouver - Environmental			

QUALITY CONTROL REPORT

Work Order	: **VA21B2915**	Page	: 1 of 18
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: SWQ (JUNE Spill Confirmatory)	Date Samples Received	: 24-Jun-2021 15:10
PO	: 22037	Date Analysis Commenced	: 25-Jun-2021
C-O-C number	: 20210623e	Issue Date	: 28-Jun-2021 17:51
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 5		
No. of samples analysed	: 5		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Annabelle Prasad	Analyst	Metals, Burnaby, British Columbia
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Jon Fisher	Department Manager - Inorganics	Inorganics, Waterloo, Ontario
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Robin Weeks	Team Leader - Metals	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 230118)											
VA21B2897-001	Anonymous	pH	----	E108	0.10	pH units	8.05	8.06	0.124%	4%	----
Physical Tests (QC Lot: 230119)											
VA21B2897-001	Anonymous	conductivity	----	E100	2.0	µS/cm	808	807	0.124%	10%	----
Physical Tests (QC Lot: 230120)											
VA21B2897-001	Anonymous	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	88.2	89.2	1.13%	20%	----
Physical Tests (QC Lot: 230426)											
FJ2100467-001	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 230932)											
VA21B2915-001	W1	turbidity	----	E121	0.10	NTU	0.97	1.04	0.07	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230121)											
VA21B2897-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.278	0.278	0.0525%	20%	----
Anions and Nutrients (QC Lot: 230122)											
VA21B2897-001	Anonymous	chloride	16887-00-6	E235.Cl	0.50	mg/L	75.8	76.2	0.608%	20%	----
Anions and Nutrients (QC Lot: 230123)											
VA21B2897-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	0.061	0.066	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230124)											
VA21B2897-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	3.69	3.71	0.501%	20%	----
Anions and Nutrients (QC Lot: 230125)											
VA21B2897-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0105	0.0108	2.40%	20%	----
Anions and Nutrients (QC Lot: 230126)											
VA21B2897-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	181	182	0.690%	20%	----
Anions and Nutrients (QC Lot: 230127)											
VA21B2897-001	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230134)											
FJ2100440-001	Anonymous	nitrogen, total	7727-37-9	E366	0.030	mg/L	<0.030	<0.030	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230135)											
FJ2100440-001	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230136)											
FJ2100440-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 230138)											
VA21B2915-001	W1	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.094	0.098	0.005	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 230206)											
VA21B2915-001	W1	phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0040	0.0035	0.0004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 231877)											
WT2100122-004	Anonymous	cyanate	88402-73-7	E343	0.20	mg/L	2.40	2.31	3.82%	20%	----
Cyanides (QC Lot: 230885)											
VA21B2847-001	Anonymous	cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 230886)											
VA21B2847-001	Anonymous	cyanide, weak acid dissociable	----	E336	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Cyanides (QC Lot: 231993)											
VA21B2915-001	W1	thiocyanate	302-04-5	E344	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 230137)											
VA21B2915-001	W1	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	2.53	2.52	0.004	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 230205)											
VA21B2915-001	W1	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.34	2.39	0.05	Diff <2x LOR	----
Total Metals (QC Lot: 230182)											
CG2102161-001	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0775	0.0688	11.9%	20%	----
		antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00026	0.00027	0.00001	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0650	0.0624	4.00%	20%	----
		beryllium, total	7440-41-7	E420	0.020	mg/L	<0.020 µg/L	<0.000020	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0050	mg/L	0.0358 µg/L	0.0000327	0.0000031	Diff <2x LOR	----
		calcium, total	7440-70-2	E420	0.050	mg/L	32.6	32.3	0.676%	20%	----
		chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E420	0.10	mg/L	0.12 µg/L	0.00012	0.000003	Diff <2x LOR	----
		copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E420	0.010	mg/L	0.077	0.074	0.004	Diff <2x LOR	----
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000069	0.000062	0.000007	Diff <2x LOR	----
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0037	0.0036	0.00010	Diff <2x LOR	----
		magnesium, total	7439-95-4	E420	0.0050	mg/L	10.2	9.77	4.35%	20%	----
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00326	0.00316	3.04%	20%	----
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000601	0.000578	3.97%	20%	----
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00154	0.00155	0.00002	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	0.050	mg/L	0.540	0.532	1.63%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 230182) - continued											
CG2102161-001	Anonymous	selenium, total	7782-49-2	E420	0.050	mg/L	1.09 µg/L	0.00124	12.4%	20%	----
		silicon, total	7440-21-3	E420	0.10	mg/L	1.86	1.88	1.51%	20%	----
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E420	0.050	mg/L	2.07	2.06	0.646%	20%	----
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.0992	0.0962	3.11%	20%	----
		sulfur, total	7704-34-9	E420	0.50	mg/L	10.8	10.9	1.46%	20%	----
		thallium, total	7440-28-0	E420	0.000010	mg/L	0.000012	0.000011	0.000001	Diff <2x LOR	----
		tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00030	mg/L	0.00151	0.00112	0.00040	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.000438	0.000428	2.52%	20%	----
		vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00074	0.00056	0.00018	Diff <2x LOR	----
		zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 230555)											
VA21B2851-001	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Total Metals (QC Lot: 230556)											
VA21B2915-004	W22	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 230191)											
KS2101954-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0611	0.0595	2.68%	20%	----
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00253	0.00260	2.73%	20%	----
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0392	0.0426	8.11%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0000150	mg/L	<0.0000150	<0.0000150	0	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	56.6	57.1	0.954%	20%	----
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00141	0.00143	0.00002	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00086	0.00088	0.00002	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00037	0.00039	0.00002	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	0.010	mg/L	5.64	5.70	1.13%	20%	----
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000095	0.000096	0.0000002	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	6.10	6.32	3.40%	20%	----
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.569	0.588	3.28%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 230191) - continued											
KS2101954-001	Anonymous	molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00826	0.00824	0.250%	20%	----
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00184	0.00191	0.00007	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	0.051	0.0007	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	3.72	3.76	1.07%	20%	----
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000098	0.000122	0.000024	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	7.91	7.94	0.361%	20%	----
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	16.1	16.2	0.316%	20%	----
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.251	0.247	1.77%	20%	----
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	6.77	6.93	2.34%	20%	----
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.00030	mg/L	0.00748	0.00734	1.85%	20%	----
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000785	0.000780	0.637%	20%	----
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00357	0.00360	0.00003	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0018	0.0016	0.0002	Diff <2x LOR	----
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	0.00142	0.00140	0.00002	Diff <2x LOR	----
Dissolved Metals (QC Lot: 230591)											
CG2102194-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 230119)						
conductivity	----	E100	1	µS/cm	<1.0	----
Physical Tests (QCLot: 230120)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	1.2	----
Physical Tests (QCLot: 230426)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 230932)						
turbidity	----	E121	0.1	NTU	<0.10	----
Anions and Nutrients (QCLot: 230121)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 230122)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 230123)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 230124)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 230125)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 230126)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 230127)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 230134)						
nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 230135)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 230136)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 230138)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 230206)						
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 231877)						
cyanate	88402-73-7	E343	0.2	mg/L	<0.20	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Cyanides (QCLot: 230885)						
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 230886)						
cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 231993)						
thiocyanate	302-04-5	E344	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 230137)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 230205)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 230182)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	----
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 230182) - continued						
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 230555)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Total Metals (QCLot: 230556)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 230191)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 230191) - continued						
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 230591)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 230118)									
pH	----	E108	----	pH units	7 pH units	100	98.0	102	----
Physical Tests (QCLot: 230119)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	101	90.0	110	----
Physical Tests (QCLot: 230120)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	101	85.0	115	----
Physical Tests (QCLot: 230426)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	100	85.0	115	----
Physical Tests (QCLot: 230932)									
turbidity	----	E121	0.1	NTU	200 NTU	98.0	85.0	115	----
Anions and Nutrients (QCLot: 230121)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	97.2	90.0	110	----
Anions and Nutrients (QCLot: 230122)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	102	90.0	110	----
Anions and Nutrients (QCLot: 230123)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	105	85.0	115	----
Anions and Nutrients (QCLot: 230124)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 230125)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.2	90.0	110	----
Anions and Nutrients (QCLot: 230126)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 230127)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	103	80.0	120	----
Anions and Nutrients (QCLot: 230134)									
nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 230135)									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	96.0	80.0	120	----
Anions and Nutrients (QCLot: 230136)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	103	85.0	115	----
Anions and Nutrients (QCLot: 230138)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 230206)									

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report: Spike Concentration	Recovery (%): LCS	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Anions and Nutrients (QCLot: 230206) - continued									
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	94.2	80.0	120	----
Anions and Nutrients (QCLot: 231877)									
cyanate	88402-73-7	E343	0.2	mg/L	1 mg/L	94.8	85.0	115	----
Cyanides (QCLot: 230885)									
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	0.25 mg/L	89.5	80.0	120	----
Cyanides (QCLot: 230886)									
cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	98.4	80.0	120	----
Cyanides (QCLot: 231993)									
thiocyanate	302-04-5	E344	0.5	mg/L	10 mg/L	101	85.0	115	----
Organic / Inorganic Carbon (QCLot: 230137)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	106	80.0	120	----
Organic / Inorganic Carbon (QCLot: 230205)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	103	80.0	120	----
Total Metals (QCLot: 230182)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	102	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	104	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.2	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	95.8	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	99.3	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.7	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	100.0	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.0	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	97.5	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	96.6	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	98.8	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	101	80.0	120	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	110	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 230182) - continued									
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	106	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	102	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	103	80.0	120	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	104	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	102	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.2	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	96.7	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	95.4	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.2	80.0	120	----
Total Metals (QCLot: 230555)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	98.6	80.0	120	----
Total Metals (QCLot: 230556)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	99.2	80.0	120	----
Dissolved Metals (QCLot: 230191)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	95.7	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.8	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	96.2	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.8	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	93.9	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	97.3	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	92.0	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.3	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	98.0	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.8	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.4	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	101	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.8	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	98.1	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	94.1	80.0	120	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 230191) - continued									
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	97.5	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	94.5	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	106	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.0	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.0	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	92.9	80.0	120	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	97.2	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	94.0	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	92.8	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	96.6	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	95.7	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.3	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	95.9	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	97.7	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.8	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	97.6	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	100	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 230121)										
VA21B2897-002	Anonymous	fluoride	16984-48-8	E235.F	5.06 mg/L	5 mg/L	101	75.0	125	----
Anions and Nutrients (QCLot: 230122)										
VA21B2897-002	Anonymous	chloride	16887-00-6	E235.Cl	524 mg/L	500 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 230123)										
VA21B2897-002	Anonymous	bromide	24959-67-9	E235.Br-L	2.60 mg/L	2.5 mg/L	104	75.0	125	----
Anions and Nutrients (QCLot: 230124)										
VA21B2897-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	13.1 mg/L	12.5 mg/L	105	75.0	125	----
Anions and Nutrients (QCLot: 230125)										
VA21B2897-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	2.54 mg/L	2.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 230126)										
VA21B2897-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	ND mg/L	500 mg/L	ND	75.0	125	----
Anions and Nutrients (QCLot: 230127)										
VA21B2897-002	Anonymous	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0310 mg/L	0.03 mg/L	103	70.0	130	----
Anions and Nutrients (QCLot: 230134)										
VA21B2915-001	W1	nitrogen, total	7727-37-9	E366	0.419 mg/L	0.4 mg/L	105	70.0	130	----
Anions and Nutrients (QCLot: 230135)										
VA21B2712-001	Anonymous	phosphorus, total	7723-14-0	E372-U	0.0495 mg/L	0.05 mg/L	99.0	70.0	130	----
Anions and Nutrients (QCLot: 230136)										
VA21B2915-001	W1	ammonia, total (as N)	7664-41-7	E298	0.103 mg/L	0.1 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 230138)										
VA21B2915-002	W21	Kjeldahl nitrogen, total [TKN]	----	E318	2.54 mg/L	2.5 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 230206)										
VA21B2915-002	W21	phosphorus, total dissolved	7723-14-0	E375-T	0.0519 mg/L	0.05 mg/L	104	70.0	130	----
Anions and Nutrients (QCLot: 231877)										
WT2100122-004	Anonymous	cyanate	88402-73-7	E343	ND mg/L	2 mg/L	ND	70.0	130	----
Cyanides (QCLot: 230885)										
VA21B2915-001	W1	cyanide, strong acid dissociable (total)	----	E333	1.33 mg/L	1.25 mg/L	106	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 230886)										
VA21B2915-001	W1	cyanide, weak acid dissociable	----	E336	0.728 mg/L	0.625 mg/L	116	75.0	125	----
Cyanides (QCLot: 231993)										
VA21B2915-002	W21	thiocyanate	302-04-5	E344	9.72 mg/L	10 mg/L	97.2	75.0	125	----
Organic / Inorganic Carbon (QCLot: 230137)										
VA21B2915-002	W21	carbon, total organic [TOC]	----	E355-L	5.41 mg/L	5 mg/L	108	70.0	130	----
Organic / Inorganic Carbon (QCLot: 230205)										
VA21B2915-002	W21	carbon, dissolved organic [DOC]	----	E358-L	5.30 mg/L	5 mg/L	106	70.0	130	----
Total Metals (QCLot: 230182)										
CG2102161-001	Anonymous	aluminum, total	7429-90-5	E420	0.178 mg/L	0.2 mg/L	89.1	70.0	130	----
		antimony, total	7440-36-0	E420	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		arsenic, total	7440-38-2	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0391 mg/L	0.04 mg/L	97.7	70.0	130	----
		bismuth, total	7440-69-9	E420	0.00983 mg/L	0.01 mg/L	98.3	70.0	130	----
		boron, total	7440-42-8	E420	0.093 mg/L	0.1 mg/L	92.8	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, total	7440-47-3	E420	0.0386 mg/L	0.04 mg/L	96.6	70.0	130	----
		cobalt, total	7440-48-4	E420	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	----
		copper, total	7440-50-8	E420	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	----
		iron, total	7439-89-6	E420	1.96 mg/L	2 mg/L	97.8	70.0	130	----
		lead, total	7439-92-1	E420	0.0189 mg/L	0.02 mg/L	94.5	70.0	130	----
		lithium, total	7439-93-2	E420	0.0977 mg/L	0.1 mg/L	97.7	70.0	130	----
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, total	7439-96-5	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0198 mg/L	0.02 mg/L	99.2	70.0	130	----
		nickel, total	7440-02-0	E420	0.0392 mg/L	0.04 mg/L	98.1	70.0	130	----
		phosphorus, total	7723-14-0	E420	10.4 mg/L	10 mg/L	104	70.0	130	----
		potassium, total	7440-09-7	E420	3.97 mg/L	4 mg/L	99.2	70.0	130	----
		selenium, total	7782-49-2	E420	0.0419 mg/L	0.04 mg/L	105	70.0	130	----
		silicon, total	7440-21-3	E420	8.88 mg/L	10 mg/L	88.8	70.0	130	----
		silver, total	7440-22-4	E420	0.00406 mg/L	0.004 mg/L	102	70.0	130	----
		sodium, total	17341-25-2	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E420	19.4 mg/L	20 mg/L	96.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 230182) - continued										
CG2102161-001	Anonymous	thallium, total	7440-28-0	E420	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	----
		tin, total	7440-31-5	E420	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		titanium, total	7440-32-6	E420	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	----
		uranium, total	7440-61-1	E420	0.00379 mg/L	0.004 mg/L	94.6	70.0	130	----
		vanadium, total	7440-62-2	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		zinc, total	7440-66-6	E420	0.378 mg/L	0.4 mg/L	94.5	70.0	130	----
		zirconium, total	7440-67-7	E420	0.0393 mg/L	0.04 mg/L	98.3	70.0	130	----
Total Metals (QCLot: 230555)										
VA21B2851-002	Anonymous	mercury, total	7439-97-6	E508	0.0000963 mg/L	0.0001 mg/L	96.3	70.0	130	----
Total Metals (QCLot: 230556)										
VA21B2915-005	W29	mercury, total	7439-97-6	E508	0.000101 mg/L	0.0001 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 230191)										
KS2101954-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.195 mg/L	0.2 mg/L	97.5	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0421 mg/L	0.04 mg/L	105	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.00898 mg/L	0.01 mg/L	89.8	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.095 mg/L	0.1 mg/L	95.2	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00390 mg/L	0.004 mg/L	97.5	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.0189 mg/L	0.02 mg/L	94.4	70.0	130	----
		iron, dissolved	7439-89-6	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.0992 mg/L	0.1 mg/L	99.2	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	10.8 mg/L	10 mg/L	108	70.0	130	----
		potassium, dissolved	7440-09-7	E421	4.21 mg/L	4 mg/L	105	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0446 mg/L	0.04 mg/L	111	70.0	130	----
		silicon, dissolved	7440-21-3	E421	8.49 mg/L	10 mg/L	84.9	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.00364 mg/L	0.004 mg/L	90.9	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 230191) - continued										
KS2101954-001	Anonymous	sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	20.7 mg/L	20 mg/L	103	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.00375 mg/L	0.004 mg/L	93.7	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0185 mg/L	0.02 mg/L	92.6	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00379 mg/L	0.004 mg/L	94.7	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.0999 mg/L	0.1 mg/L	99.9	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.389 mg/L	0.4 mg/L	97.3	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 230591)										
CG2102196-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000978 mg/L	0.0001 mg/L	97.8	70.0	130	----

ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210623e

Page 1 of 1

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days):
- 4 day [P4-20%] ☐
- 3 day [P3-25%] ☐
- 2 day [P2-50%] ☑

EMERGENCY:
- 1 Business day [E1 - 100%] ☐
- Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; Jjackson@vgcx.com

Project Information

ALS Account # / Quote #: STRG100 Q68199
Job #: SWQ (JUNE Spill Confirmatory)
PO / AFE: 22037
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods **Sampler:** KP, BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	F/P ESW	P CN1	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	W1	23-Jun-21	13:00	Water	P2	P2			12
	W21	23-Jun-21	12:35	Water	P2	P2			12
	W4	23-Jun-21	12:00	Water	P2	P2			12
	W22	23-Jun-21	12:15	Water	P2	P2			12
	W29	23-Jun-21	11:40	Water	P2	P2			12

Environmental Division
Vancouver
Work Order Reference
VA21B2915

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO
Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format
~~Please send preliminary results~~; note that all metals bottles are preserved

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
				11°C (AVG OF 7)			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Kris P.	Date: 23-Jun-2021	Time: 12:00	Received by:	Date:	Time:	Received by: JC	Date: 24 June	Time: 3:10 PM

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

APPENDIX B

External Laboratory Soil Quality Results

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **VA21B3063**	Page	: 1 of 10
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: ADR Spill Confirmatory	Date Samples Received	: 26-Jun-2021 14:30
PO	: 22037	Date Analysis Commenced	: 27-Jun-2021
C-O-C number	: 20210625	Issue Date	: 02-Jul-2021 12:13
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 78		
No. of samples analysed	: 78		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
David Stewart	Analyst - Chemistry	Inorganics, Burnaby, British Columbia
Harsha Attanayake	Laboratory Analyst	Inorganics, Burnaby, British Columbia
Harsha Attanayake	Laboratory Analyst	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
%	percent
mg/kg	milligrams per kilogram

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F1	YG21-070-F2	YG21-070-F3	YG21-070-F4	YG21-070-W4a
					Client sampling date / time	24-Jun-2021 16:42	24-Jun-2021 16:45	24-Jun-2021 16:50	24-Jun-2021 16:57	24-Jun-2021 16:59
						VA21B3063-001	VA21B3063-002	VA21B3063-003	VA21B3063-004	VA21B3063-005
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.15	1.94	4.48	3.95	5.09
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.162	0.393	<0.050	<0.050	0.148
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	0.205	<0.050	<0.050	0.052
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00	1.54	<1.00	<1.00	<1.00

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W4b	YG21-070-F5	YG21-070-W5a	YG21-070-W5b	YG21-070-F6
					Client sampling date / time	24-Jun-2021 17:01	24-Jun-2021 17:03	24-Jun-2021 17:05	24-Jun-2021 17:07	24-Jun-2021 17:10
						VA21B3063-006	VA21B3063-007	VA21B3063-008	VA21B3063-009	VA21B3063-010
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		4.71	3.09	6.27	4.89	4.07
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.262	0.138	<0.050	<0.050	0.085
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		0.128	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00	<1.00	<1.00	<1.00	<1.00

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W6a	YG21-070-W6b	YG21-070-F7	YG21-070-W7a	YG21-070-W7b
					Client sampling date / time	24-Jun-2021 17:13	24-Jun-2021 17:15	24-Jun-2021 17:19	24-Jun-2021 17:21	24-Jun-2021 17:23
						VA21B3063-011	VA21B3063-012	VA21B3063-013	VA21B3063-014	VA21B3063-015
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		6.19	7.74	4.57	5.95	8.93
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	0.144	0.072	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00	<1.00	<1.00	<1.00	<1.00

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F8	YG21-070-W8a	YG21-070-W8b	YG21-070-F9	YG21-070-W9a
					Client sampling date / time	24-Jun-2021 17:28	24-Jun-2021 17:29	24-Jun-2021 17:30	24-Jun-2021 17:33	24-Jun-2021 17:34
						VA21B3063-016	VA21B3063-017	VA21B3063-018	VA21B3063-019	VA21B3063-020
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		5.35	5.92	6.80	4.95	2.38
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.068	<0.050	<0.050	0.121	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00	<1.00	<1.00	<1.00	<1.00

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W9b	YG21-070-F10	YG21-070-W10 a	YG21-070-F11	YG21-070-W11 a
					Client sampling date / time	24-Jun-2021 17:36	24-Jun-2021 17:40	24-Jun-2021 17:42	24-Jun-2021 17:44	24-Jun-2021 17:46
						VA21B3063-021	VA21B3063-022	VA21B3063-023	VA21B3063-024	VA21B3063-025
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		6.74	3.79	6.33	4.01	5.87
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	<0.050	0.052	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		1.50	1.36	1.48	1.77	1.40

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F12	YG21-070-W12 a	YG21-070-W12 b	YG21-070-F13	YG21-070-W13 a
					Client sampling date / time	24-Jun-2021 17:51	24-Jun-2021 17:53	24-Jun-2021 17:55	24-Jun-2021 18:00	24-Jun-2021 18:02
						VA21B3063-026	VA21B3063-027	VA21B3063-028	VA21B3063-029	VA21B3063-030
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.88	5.86	5.87	2.72	5.12
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	0.231	<0.050	0.281
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	0.073	<0.050	0.119
thiocyanate	302-04-5	E344	1.00	mg/kg		1.26	1.34	1.67	1.48	2.03

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W13 b	YG21-070-F14	YG21-070-W14 a	YG21-070-W14 b	YG21-070-F15
					Client sampling date / time	24-Jun-2021 18:04	24-Jun-2021 18:12	24-Jun-2021 18:14	24-Jun-2021 18:16	24-Jun-2021 18:20
						VA21B3063-031	VA21B3063-032	VA21B3063-033	VA21B3063-034	VA21B3063-035
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		4.41	2.47	4.73	4.46	3.63
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.075	<0.050	0.205	0.152	0.142
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		1.22	1.17	1.83	1.73	1.54

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W15 a	YG21-070-W15 b	YG21-070-F16	YG21-070-W16 a	YG21-070-W16 b
					Client sampling date / time	24-Jun-2021 18:22	24-Jun-2021 18:24	24-Jun-2021 18:32	24-Jun-2021 18:36	24-Jun-2021 18:38
						VA21B3063-036	VA21B3063-037	VA21B3063-038	VA21B3063-039	VA21B3063-040
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.12	5.12	8.27	3.42	3.68
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.229	6.92	0.100	0.260	2.66
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	5.49	<0.050	<0.050	2.00
thiocyanate	302-04-5	E344	1.00	mg/kg		1.41	1.97	17.9	1.40	1.47

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F17	YG21-070-W17 b	YG21-070-F18	YG21-070-W18 b	YG21-070-F19
					Client sampling date / time	24-Jun-2021 18:40	24-Jun-2021 18:41	24-Jun-2021 18:42	24-Jun-2021 18:43	24-Jun-2021 18:46
						VA21B3063-041	VA21B3063-042	VA21B3063-043	VA21B3063-044	VA21B3063-045
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		4.68	4.50	6.82	3.17	3.14
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	0.052	0.062	0.077	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		1.79	9.05	1.26	1.40	1.43

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-W19 b	YG21-070-F20	YG21-070-F21	YG21-070-F22	YG21-070-F23
					Client sampling date / time	24-Jun-2021 18:48	24-Jun-2021 18:53	24-Jun-2021 18:55	24-Jun-2021 18:56	25-Jun-2021 11:12
						VA21B3063-046	VA21B3063-047	VA21B3063-048	VA21B3063-049	VA21B3063-050
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.82	4.07	4.29	4.85	3.10
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.115	0.087	<0.050	2.78	1.89
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	0.056	<0.050	2.09	1.20
thiocyanate	302-04-5	E344	1.00	mg/kg		1.90	1.65	1.54	6.78	6.15

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F24	YG21-070-F25	YG21-070-F26	YG21-070-F27	YG21-070-F28
					Client sampling date / time	25-Jun-2021 11:15	25-Jun-2021 11:18	25-Jun-2021 11:20	25-Jun-2021 11:22	25-Jun-2021 11:25
						VA21B3063-051	VA21B3063-052	VA21B3063-053	VA21B3063-054	VA21B3063-055
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.89	4.24	4.29	4.80	4.92
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.074	2.32	3.01	5.46	0.764
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		0.053	1.10	1.72	3.89	0.405
thiocyanate	302-04-5	E344	1.00	mg/kg		2.84	9.46	11.8	19.3	4.22

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F29	YG21-070-F30	YG21-070-F31	YG21-070-F32	YG21-070-F33
					Client sampling date / time	25-Jun-2021 11:28	25-Jun-2021 11:31	25-Jun-2021 11:34	25-Jun-2021 11:36	25-Jun-2021 11:40
						VA21B3063-056	VA21B3063-057	VA21B3063-058	VA21B3063-059	VA21B3063-060
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		4.47	3.46	4.67	3.31	4.26
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		3.53	3.07	1.72	2.65	2.52
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		2.16	1.48	1.18	1.28	1.23
thiocyanate	302-04-5	E344	1.00	mg/kg		13.5	13.5	6.96	12.0	12.6

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F34	YG21-070-F35	YG21-070-F36	YG21-070-F37	YG21-070-F38
					Client sampling date / time	25-Jun-2021 11:43	25-Jun-2021 11:50	25-Jun-2021 11:52	25-Jun-2021 11:56	25-Jun-2021 12:00
						VA21B3063-061	VA21B3063-062	VA21B3063-063	VA21B3063-064	VA21B3063-065
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.62	8.06	4.55	5.96	2.68
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	3.18	<0.050	<0.050	0.930
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	2.26	<0.050	<0.050	0.342
thiocyanate	302-04-5	E344	1.00	mg/kg		1.24	11.1	<1.00	<1.00	6.48

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F39	YG21-070-F40	YG21-070-F41	YG21-070-F42	YG21-070-F43
					Client sampling date / time	25-Jun-2021 12:03	25-Jun-2021 12:06	25-Jun-2021 12:18	25-Jun-2021 12:19	25-Jun-2021 12:21
						VA21B3063-066	VA21B3063-067	VA21B3063-068	VA21B3063-069	VA21B3063-070
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.90	4.04	17.8	4.23	3.26
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		6.31	3.59	11.5	<0.050	0.418
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		2.68	2.18	9.33	<0.050	0.200
thiocyanate	302-04-5	E344	1.00	mg/kg		14.2	10.6	20.4	1.74	2.75

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F44	YG21-070-F45	YG21-070-F46	YG21-070-F47	YG21-070-F48
					Client sampling date / time	25-Jun-2021 12:23	25-Jun-2021 12:26	25-Jun-2021 12:32	25-Jun-2021 12:35	25-Jun-2021 12:39
						VA21B3063-071	VA21B3063-072	VA21B3063-073	VA21B3063-074	VA21B3063-075
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		5.01	3.65	7.33	4.69	3.81
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		1.29	2.80	2.04	1.50	1.28
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		0.531	1.53	1.52	0.613	0.378
thiocyanate	302-04-5	E344	1.00	mg/kg		7.68	8.91	5.18	10.5	8.56

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-070-F49	YG21-070-F50	YG21-070-F51	----	----
					Client sampling date / time	25-Jun-2021 12:42	25-Jun-2021 12:45	25-Jun-2021 12:48	----	----
						VA21B3063-076	VA21B3063-077	VA21B3063-078	--------	--------
						Result	Result	Result	----	----
Physical Tests										
moisture	----	E144	0.25	%		7.14	4.42	8.36	----	----
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		1.64	6.88	24.8	----	----
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		1.09	4.31	21.6	----	----
thiocyanate	302-04-5	E344	1.00	mg/kg		5.46	22.5	77.9	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA21B3063**	Page	: 1 of 39
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: ADR Spill Confirmatory	Date Samples Received	: 26-Jun-2021 14:30
PO	: 22037	Issue Date	: 02-Jul-2021 12:13
C-O-C number	: 20210625		
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 78		
No. of samples analysed	: 78		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Cyanides	VA21B3063-056	YG21-070-F29	thiocyanate	302-04-5	E344	35.2 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	Description
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F1	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F2	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F23	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F24	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F25	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F26	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F27	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F28	E344	25-Jun-2021	29-Jun-2021	----	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F3	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F4	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F5	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F6	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F7	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F8	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F9	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W4a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W4b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W5a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W5b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W6a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W6b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W7a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W7b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W8a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W8b	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W9a	E344	24-Jun-2021	28-Jun-2021	----	4 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F10	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F11	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F12	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F13	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F14	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F15	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F16	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F17	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F18	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F19	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F20	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F21	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F22	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F44	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F45	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F46	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F47	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F48	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F49	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F50	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F51	E344	25-Jun-2021	30-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W10a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W11a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W12a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W12b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W13a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W13b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W14a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W14b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W15a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W15b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W16a	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W16b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W17b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W18b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W19b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-W9b	E344	24-Jun-2021	29-Jun-2021	----	5 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F29	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F30	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F31	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F32	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F33	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F34	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F35	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F36	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F37	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F38	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F39	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F40	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F41	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F42	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-070-F43	E344	25-Jun-2021	29-Jun-2021	----	5 days	✓	30-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F1	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F2	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F3	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F4	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F5	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F6	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F7	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F8	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F9	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W4a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W4b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W5a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W5b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W6a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W6b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W7a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W7b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W8a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W8b	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W9a	E333	24-Jun-2021	27-Jun-2021	14 days	3 days	✓	28-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F17	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F18	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F19	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F20	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F21	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F22	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F23	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F24	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F25	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F26	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F27	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F28	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F29	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F30	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F31	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F32	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F33	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F34	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F35	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F36	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F37	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F38	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F39	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F40	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F41	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F42	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F43	E333	25-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W17b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W18b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W19b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F10	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F11	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F12	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F13	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F14	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F15	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F16	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W10a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W11a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W12a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W12b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W13a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W13b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W14a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W14b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W15a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W15b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W16a	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W16b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W9b	E333	24-Jun-2021	28-Jun-2021	14 days	4 days	✓	29-Jun-2021	14 days	2 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F44	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F45	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F46	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F47	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F48	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F49	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F50	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F51	E333	25-Jun-2021	29-Jun-2021	14 days	5 days	✓	30-Jun-2021	14 days	1 days	✓
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F1	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F17	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F18	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F19	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F2	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F20	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F21	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F22	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F23	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F24	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F25	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F26	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F27	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F28	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F29	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F3	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F30	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F31	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F32	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F33	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F34	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F35	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F36	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F37	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F38	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F39	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F4	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F40	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F41	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F42	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F43	E336	25-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F44	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F45	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F46	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F47	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F48	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F49	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F5	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F50	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F51	E336	25-Jun-2021	29-Jun-2021	----	----		30-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F6	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F7	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F8	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-F9	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W17b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W18b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W19b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W4a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W4b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W5a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W5b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W6a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W6b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W7a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W7b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W8a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W8b	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W9a	E336	24-Jun-2021	27-Jun-2021	----	----		28-Jun-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F10	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F11	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F12	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F13	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F14	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F15	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-F16	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W10a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W11a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W12a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W12b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W13a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W13b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W14a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W14b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W15a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W15b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-070-W16a	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W16b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-070-W9b	E336	24-Jun-2021	28-Jun-2021	----	----		29-Jun-2021	----	2 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F1	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F10	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F11	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F12	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F13	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F14	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-070-F15	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F16	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F17	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F18	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F19	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F2	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F20	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F21	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F22	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F23	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F24	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F25	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F26	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F27	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F28	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F29	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F3	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F30	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F31	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F32	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F33	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F34	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F35	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F36	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F37	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F38	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F39	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F4	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F40	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F41	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F42	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F43	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F44	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F45	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F46	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F47	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F48	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F49	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F5	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F50	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F51	E144	25-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F6	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F7	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F8	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-F9	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W10a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W11a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W12a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W12b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W13a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W13b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W14a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W14b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W15a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W15b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W16a	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W16b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W17b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W18b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W19b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W4a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W4b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W5a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W5b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W6a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W6b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W7a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W7b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W8a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W8b	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W9a	E144	24-Jun-2021	----	----	----		27-Jun-2021	0.00 hrs	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-070-W9b	E144	24-Jun-2021	----	----	----		28-Jun-2021	0.00 hrs	----	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Moisture Content by Gravimetry	E144	231275	5	78	6.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	231274	5	78	6.4	5.0	✓
Total Cyanide by CFA	E333	231273	5	78	6.4	5.0	✓
WAD Cyanide by CFA	E336	231272	5	78	6.4	5.0	✓
Laboratory Control Samples (LCS)							
Moisture Content by Gravimetry	E144	231275	5	78	6.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	231274	5	78	6.4	5.0	✓
Total Cyanide by CFA	E333	231273	5	78	6.4	5.0	✓
WAD Cyanide by CFA	E336	231272	5	78	6.4	5.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	231275	5	78	6.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	231274	5	78	6.4	5.0	✓
Total Cyanide by CFA	E333	231273	5	78	6.4	5.0	✓
WAD Cyanide by CFA	E336	231272	5	78	6.4	5.0	✓
Matrix Spikes (MS)							
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	231274	5	78	6.4	5.0	✓
Total Cyanide by CFA	E333	231273	5	78	6.4	5.0	✓
WAD Cyanide by CFA	E336	231272	5	78	6.4	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 Vancouver - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Cyanide by CFA	E333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344 Vancouver - Environmental	Soil/Solid	In-house	A dried soil is leached with DI water at a ratio of 1:5. Thiocyanate is determined by the ferric nitrate colourimetric method. Soil samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:5 Soil:Water for Anions	EP237 Vancouver - Environmental	Soil/Solid	EPA 300.1 (mod)	This analysis is carried out using a leaching procedure which involves the gentle tumbling of the sample in a specified leaching solution (typically deionized water) for a specific length of time.
Cyanide Extraction for CFA	EP333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

QUALITY CONTROL REPORT

Work Order	: **VA21B3063**	Page	: 1 of 10
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Vancouver - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 604 253 4188
Project	: ADR Spill Confirmatory	Date Samples Received	: 26-Jun-2021 14:30
PO	: 22037	Date Analysis Commenced	: 27-Jun-2021
C-O-C number	: 20210625	Issue Date	: 02-Jul-2021 12:13
Sampler	: BB, KP		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 78		
No. of samples analysed	: 78		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
David Stewart	Analyst - Chemistry	Inorganics, Burnaby, British Columbia
Harsha Attanayake	Laboratory Analyst	Inorganics, Burnaby, British Columbia
Harsha Attanayake	Laboratory Analyst	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 231275)											
VA21B3063-001	YG21-070-F1	moisture	----	E144	0.25	%	2.15	2.37	0.22	Diff <2x LOR	----
Physical Tests (QC Lot: 231701)											
VA21B3063-021	YG21-070-W9b	moisture	----	E144	0.25	%	6.74	7.04	4.27%	20%	----
Physical Tests (QC Lot: 231709)											
VA21B3063-041	YG21-070-F17	moisture	----	E144	0.25	%	4.68	4.80	2.40%	20%	----
Physical Tests (QC Lot: 231713)											
VA21B3063-056	YG21-070-F29	moisture	----	E144	0.25	%	4.47	4.36	2.45%	20%	----
Physical Tests (QC Lot: 231717)											
VA21B3063-071	YG21-070-F44	moisture	----	E144	0.25	%	5.01	4.93	1.58%	20%	----
Cyanides (QC Lot: 231272)											
VA21B3063-001	YG21-070-F1	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0.0002	Diff <2x LOR	----
Cyanides (QC Lot: 231273)											
VA21B3063-001	YG21-070-F1	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	0.162	0.186	0.024	Diff <2x LOR	----
Cyanides (QC Lot: 231274)											
VA21B3063-001	YG21-070-F1	thiocyanate	302-04-5	E344	1.00	mg/kg	<1.00	<1.00	0	Diff <2x LOR	----
Cyanides (QC Lot: 231698)											
VA21B3063-021	YG21-070-W9b	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	<0.050	<0.050	0.00003	Diff <2x LOR	----
Cyanides (QC Lot: 231699)											
VA21B3063-021	YG21-070-W9b	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0.00003	Diff <2x LOR	----
Cyanides (QC Lot: 231700)											
VA21B3063-021	YG21-070-W9b	thiocyanate	302-04-5	E344	1.00	mg/kg	1.50	2.24	0.75	Diff <2x LOR	----
Cyanides (QC Lot: 231706)											
VA21B3063-041	YG21-070-F17	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Cyanides (QC Lot: 231707)											
VA21B3063-041	YG21-070-F17	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Cyanides (QC Lot: 231708)											
VA21B3063-041	YG21-070-F17	thiocyanate	302-04-5	E344	1.00	mg/kg	1.79	1.40	0.38	Diff <2x LOR	----
Cyanides (QC Lot: 231710)											
VA21B3063-056	YG21-070-F29	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	3.53	4.26	18.8%	35%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Cyanides (QC Lot: 231711)											
VA21B3063-056	YG21-070-F29	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	2.16	2.54	16.2%	35%	----
Cyanides (QC Lot: 231712)											
VA21B3063-056	YG21-070-F29	thiocyanate	302-04-5	E344	1.00	mg/kg	13.5	9.49	35.2%	30%	DUP-H
Cyanides (QC Lot: 231714)											
VA21B3063-071	YG21-070-F44	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	1.29	1.15	11.2%	35%	----
Cyanides (QC Lot: 231715)											
VA21B3063-071	YG21-070-F44	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	0.531	0.410	25.6%	35%	----
Cyanides (QC Lot: 231716)											
VA21B3063-071	YG21-070-F44	thiocyanate	302-04-5	E344	1.00	mg/kg	7.68	7.96	3.60%	30%	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 231275)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 231701)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 231709)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 231713)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 231717)						
moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 231272)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231273)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231274)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----
Cyanides (QCLot: 231698)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231699)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231700)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----
Cyanides (QCLot: 231706)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231707)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231708)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----
Cyanides (QCLot: 231710)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231711)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.125	----
Cyanides (QCLot: 231712)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Cyanides (QCLot: 231714)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 231715)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 231716)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 231275)									
moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 231701)									
moisture	----	E144	0.25	%	50 %	100	90.0	110	----
Physical Tests (QCLot: 231709)									
moisture	----	E144	0.25	%	50 %	101	90.0	110	----
Physical Tests (QCLot: 231713)									
moisture	----	E144	0.25	%	50 %	99.9	90.0	110	----
Physical Tests (QCLot: 231717)									
moisture	----	E144	0.25	%	50 %	98.9	90.0	110	----
Cyanides (QCLot: 231272)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	85.3	80.0	120	----
Cyanides (QCLot: 231273)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	87.0	80.0	120	----
Cyanides (QCLot: 231274)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	99.8	85.0	115	----
Cyanides (QCLot: 231698)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	87.4	80.0	120	----
Cyanides (QCLot: 231699)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	97.7	80.0	120	----
Cyanides (QCLot: 231700)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	103	85.0	115	----
Cyanides (QCLot: 231706)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	82.6	80.0	120	----
Cyanides (QCLot: 231707)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	91.2	80.0	120	----
Cyanides (QCLot: 231708)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	102	85.0	115	----
Cyanides (QCLot: 231710)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	92.6	80.0	120	----
Cyanides (QCLot: 231711)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	97.1	80.0	120	----
Cyanides (QCLot: 231712)									

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Cyanides (QCLot: 231712) - continued									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	101	85.0	115	----
Cyanides (QCLot: 231714)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	89.1	80.0	120	----
Cyanides (QCLot: 231715)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	95.8	80.0	120	----
Cyanides (QCLot: 231716)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	101	85.0	115	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 231272)										
VA21B3063-002	YG21-070-F2	cyanide, weak acid dissociable	----	E336	1.22 mg/kg	1.25 mg/kg	97.8	75.0	125	----
Cyanides (QCLot: 231273)										
VA21B3063-002	YG21-070-F2	cyanide, strong acid dissociable (total)	----	E333	5.31 mg/kg	6.25 mg/kg	85.3	75.0	125	----
Cyanides (QCLot: 231274)										
VA21B3063-002	YG21-070-F2	thiocyanate	302-04-5	E344	56.0 mg/kg	50 mg/kg	113	75.0	125	----
Cyanides (QCLot: 231698)										
VA21B3063-022	YG21-070-F10	cyanide, strong acid dissociable (total)	----	E333	5.64 mg/kg	6.25 mg/kg	91.1	75.0	125	----
Cyanides (QCLot: 231699)										
VA21B3063-022	YG21-070-F10	cyanide, weak acid dissociable	----	E336	3.10 mg/kg	3.125 mg/kg	100.0	75.0	125	----
Cyanides (QCLot: 231700)										
VA21B3063-022	YG21-070-F10	thiocyanate	302-04-5	E344	50.4 mg/kg	50 mg/kg	101	75.0	125	----
Cyanides (QCLot: 231706)										
VA21B3063-042	YG21-070-W17b	cyanide, strong acid dissociable (total)	----	E333	4.83 mg/kg	6.25 mg/kg	78.2	75.0	125	----
Cyanides (QCLot: 231707)										
VA21B3063-042	YG21-070-W17b	cyanide, weak acid dissociable	----	E336	2.69 mg/kg	3.125 mg/kg	87.0	75.0	125	----
Cyanides (QCLot: 231708)										
VA21B3063-042	YG21-070-W17b	thiocyanate	302-04-5	E344	45.2 mg/kg	50 mg/kg	90.7	75.0	125	----
Cyanides (QCLot: 231710)										
VA21B3063-057	YG21-070-F30	cyanide, strong acid dissociable (total)	----	E333	21.7 mg/kg	25 mg/kg	87.1	75.0	125	----
Cyanides (QCLot: 231711)										
VA21B3063-057	YG21-070-F30	cyanide, weak acid dissociable	----	E336	ND mg/kg	1.25 mg/kg	ND	75.0	125	----
Cyanides (QCLot: 231712)										
VA21B3063-057	YG21-070-F30	thiocyanate	302-04-5	E344	50.9 mg/kg	50 mg/kg	102	75.0	125	----
Cyanides (QCLot: 231714)										
VA21B3063-072	YG21-070-F45	cyanide, strong acid dissociable (total)	----	E333	5.36 mg/kg	6.25 mg/kg	85.9	75.0	125	----
Cyanides (QCLot: 231715)										
VA21B3063-072	YG21-070-F45	cyanide, weak acid dissociable	----	E336	3.17 mg/kg	3.125 mg/kg	101	75.0	125	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 231716)										
VA21B3063-072	YG21-070-F45	thiocyanate	302-04-5	E344	52.6 mg/kg	50 mg/kg	105	75.0	125	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 jmporter@victoriagold.ehsdata.com
Email 3
Email 4

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)
4 day [P4-20%] ☐
3 day [P3-25%] ☐
2 day [P2-50%] ☑

EMERGENCY
1 Business day [E1 - 100%] ☐
Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:
For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; Jjackson@vgcx.com

Project Information

ALS Account # / Quote #: STRG100 Q68199
Job #: ADR Spill Confirmatory
PO / AFE: 22037
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	YG21-070-F1	24-Jun-21	16:42	Soil	P2			1
	YG21-070-F2	24-Jun-21	16:45	Soil	P2			1
	YG21-070-F3	24-Jun-21	16:50	Soil	P2			1
	YG21-070-F4	24-Jun-21	16:57	Soil	P2			1
	YG21-070-W4a	24-Jun-21	16:59	Soil	P2			1
	YG21-070-W4b	24-Jun-21	17:01	Soil	P2			1
	YG21-070-F5	24-Jun-21	17:03	Soil	P2			1
	YG21-070-W5a	24-Jun-21	17:05	Soil	P2			1
	YG21-070-W5b	24-Jun-21	17:07	Soil	P2			1
	YG21-070-F6	24-Jun-21	17:10	Soil	P2			1
	YG21-070-W6a	24-Jun-21	17:13	Soil	P2			1
	YG21-070-W6b	24-Jun-21	17:15	Soil	P2			1
	YG21-070-F7	24-Jun-21	17:19	Soil	P2			1

Environmental Division
Vancouver
Work Order Reference
VA21B3063

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO
Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C			
						13

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Kris Poitras	Date: 25-Jun-2021	Time: 16:00	Received by:	Date:	Time:	Received by: HA	Date: 6/26	Time: 2:30P

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution	
Select Report Format:	☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	☐ Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☑		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; Jjackson@vgcx.com

Project Information	
ALS Account # / Quote #:	STRG100 Q68199
Job #:	ADR Spill Confirmatory
PO / AFE:	22037
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Analysis Request — Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	YG21-070-W7a	24-Jun-21	17:21	Soil	P2			1
	YG21-070-W7b	24-Jun-21	17:23	Soil	P2			1
	YG21-070-F8	24-Jun-21	17:28	Soil	P2			1
	YG21-070-W8a	24-Jun-21	17:29	Soil	P2			1
	YG21-070-W8b	24-Jun-21	17:30	Soil	P2			1
	YG21-070-F9	24-Jun-21	17:33	Soil	P2			1
	YG21-070-W9a	24-Jun-21	17:34	Soil	P2			1
	YG21-070-W9b	24-Jun-21	17:36	Soil	P2			1
	YG21-070-F10	24-Jun-21	17:40	Soil	P2			1
	YG21-070-W10a	24-Jun-21	17:42	Soil	P2			1
	YG21-070-F11	24-Jun-21	17:44	Soil	P2			1
	YG21-070-W11a	24-Jun-21	17:46	Soil	P2			1
	YG21-070-F12	24-Jun-21	17:51	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☑ NO	
Are samples for human consumption/ use? ☑ NO	Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution	
Select Report Format:	☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	☐ Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☑		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; jjackson@vgcx.com

Project Information	
ALS Account # / Quote #:	STRG100 Q68199
Job #:	ADR Spill Confirmatory
PO / AFE:	22037
LSD:	

Oil and Gas Required Fields (client use)	
AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods **Sampler:** KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
	YG21-070-W12a	24-Jun-21	17:53	Soil	P2			1
	YG21-070-W12b	24-Jun-21	17:55	Soil	P2			1
	YG21-070-F13	24-Jun-21	18:00	Soil	P2			1
	YG21-070-W13a	24-Jun-21	18:02	Soil	P2			1
	YG21-070-W13b	24-Jun-21	18:04	Soil	P2			1
	YG21-070-F14	24-Jun-21	18:12	Soil	P2			1
	YG21-070-W14a	24-Jun-21	18:14	Soil	P2			1
	YG21-070-W14b	24-Jun-21	18:16	Soil	P2			1
	YG21-070-F15	24-Jun-21	18:20	Soil	P2			1
	YG21-070-W15a	24-Jun-21	18:22	Soil	P2			1
	YG21-070-W15b	24-Jun-21	18:24	Soil	P2			1
	YG21-070-F16	24-Jun-21	18:32	Soil	P2			1
	YG21-070-W16a	24-Jun-21	18:36	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☑ NO

Are samples for human consumption/ use? ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)		
Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

FINAL SHIPMENT RECEPTION (lab use only)		
Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; jjackson@vgcx.com

Project Information

ALS Account # / Quote #:	STRG100 Q68199
Job #:	ADR Spill Confirmatory
PO / AFE:	22037
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☑

EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
	YG21-070-W16b	24-Jun-21	18:38	Soil	P2			1
	YG21-070-F17	24-Jun-21	18:40	Soil	P2			1
	YG21-070-W17b	24-Jun-21	18:41	Soil	P2			1
	YG21-070-F18	24-Jun-21	18:42	Soil	P2			1
	YG21-070-W18b	24-Jun-21	18:43	Soil	P2			1
	YG21-070-F19	24-Jun-21	18:46	Soil	P2			1
	YG21-070-W19b	24-Jun-21	18:48	Soil	P2			1
	YG21-070-F20	24-Jun-21	18:53	Soil	P2			1
	YG21-070-F21	24-Jun-21	18:55	Soil	P2			1
	YG21-070-F22	24-Jun-21	18:56	Soil	P2			1
	YG21-070-F23	25-Jun-21	11:12	Soil	P2			1
	YG21-070-F24	25-Jun-21	11:15	Soil	P2			1
	YG21-070-F25	25-Jun-21	11:18	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☑ NO

Are samples for human consumption/ use? ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

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ALS Environmental
www.alsglobal.com

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

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Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☑
EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; Jjackson@vgcx.com

Project Information

ALS Account # / Quote #: STRG100 Q68199
Job #: ADR Spill Confirmatory
PO / AFE: 22037
LSD:

Oil and Gas Required Fields (client use)

AFE/Cost Center: PO#
Major/Minor Code: Routing Code:
Requisitioner:
Location:

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods **Sampler:** KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail	NUMBER OF CONTAINERS
	YG21-070-F26	25-Jun-21	11:20	Soil	P2			1
	YG21-070-F27	25-Jun-21	11:22	Soil	P2			1
	YG21-070-F28	25-Jun-21	11:25	Soil	P2			1
	YG21-070-F29	25-Jun-21	11:28	Soil	P2			1
	YG21-070-F30	25-Jun-21	11:31	Soil	P2			1
	YG21-070-F31	25-Jun-21	11:34	Soil	P2			1
	YG21-070-F32	25-Jun-21	11:36	Soil	P2			1
	YG21-070-F33	25-Jun-21	11:40	Soil	P2			1
	YG21-070-F34	25-Jun-21	11:43	Soil	P2			1
	YG21-070-F35	25-Jun-21	11:50	Soil	P2			1
	YG21-070-F36	25-Jun-21	11:52	Soil	P2			1
	YG21-070-F37	25-Jun-21	11:56	Soil	P2			1
	YG21-070-F38	25-Jun-21	12:00	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☑ NO
Are samples for human consumption/ use? ☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: KP	Date: 25 JUN 2021	Time: 1600	Received by:	Date:	Time:	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; jjackson@vgcx.com

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days)
- 4 day [P4-20%] ☐
- 3 day [P3-25%] ☐
- 2 day [P2-50%] ☑

EMERGENCY
- 1 Business day [E1 - 100%] ☐
- Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	STRG100 Q68199
Job #:	ADR Spill Confirmatory
PO / AFE:	22037
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample Is hazardous (please provide further detail	NUMBER OF CONTAINERS
	YG21-070-F39	25-Jun-21	12:03	Soil	P2			1
	YG21-070-F40	25-Jun-21	12:06	Soil	P2			1
	YG21-070-F41	25-Jun-21	12:18	Soil	P2			1
	YG21-070-F42	25-Jun-21	12:19	Soil	P2			1
	YG21-070-F43	25-Jun-21	12:21	Soil	P2			1
	YG21-070-F44	25-Jun-21	12:23	Soil	P2			1
	YG21-070-F45	25-Jun-21	12:26	Soil	P2			1
	YG21-070-F46	25-Jun-21	12:32	Soil	P2			1
								1
								1
								1
								1
								1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO

Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐
Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

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1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please **submit** using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210625

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution	
Select Report Format:	☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply			
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐
	2 day [P2-50%] ☑		
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level selected, you will be contacted.			

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; Jjackson@vgcx.com

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	STRG100 Q68199	AFE/Cost Center:	PO#:
Job #:	ADR Spill Confirmatory	Major/Minor Code:	Routing Code:
PO / AFE:	22037	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
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	YG21-070-F40	25-Jun-21	12:06	Soil	P2			1
	YG21-070-F41	25-Jun-21	12:18	Soil	P2			1
	YG21-070-F42	25-Jun-21	12:19	Soil	P2			1
	YG21-070-F43	25-Jun-21	12:21	Soil	P2			1
	YG21-070-F44	25-Jun-21	12:23	Soil	P2			1
	YG21-070-F45	25-Jun-21	12:26	Soil	P2			1
	YG21-070-F46	25-Jun-21	12:32	Soil	P2			1
	YG21-070-F47	25-Jun-21	12:35	Soil	P2			1
	YG21-070-F48	25-Jun-21	12:39	Soil	P2			1
	YG21-070-F49	25-Jun-21	12:42	Soil	P2			1
	YG21-070-F50	25-Jun-21	12:45	Soil	P2			1
	YG21-070-F51	25-Jun-21	12:48	Soil	P2			1

Environmental Division
Vancouver
Work Order Reference
VA21B3063

Telephone : +1 604 253 4188

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☑ NO	
Are samples for human consumption/ use? ☑ NO	Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐		SIF Observations	Yes ☐	No ☐	
Ice Packs ☐	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	Victoria Gold (Yukon) Corp.		
Date Observed:	July 30, 2021	**Time Observed:** 04:00	
Location of Spill:	HLF- West solution line	**VGC Tracking Number:** VGC21-028	
Distance to Waterbody:	~500m	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	17m3	**Reported to:** Process Dept.	

PERSON/DEPT. RESPONSIBLE FOR SPILL	
Supervisor/Investigator:	Dave Stewart/ Tyler Christian
Date of Spill:	July 30, 2021
Substance Spilled:	Process solution
Equipment Involved:	West process solution distribution line gasket
Volume of Contaminated Material:	176m3
Personnel Contacted for Disposal (Name):	Tyler Christian
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	At ~4:00 am on July 30, the gasket on the blind flange that caps the west process solution main distribution line from the ADR to the Heap Leach Pad (HLP) failed allowing a pin hole high pressure spray of solution to be released from the end of the capped line. The distribution line is located entirely within the lined area of the heap, however the spray impacted the west embankment berm roadway outside of lined containment.
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	The distribution line was isolated upon discovery and flow shut down. The solution had traveled down the west HLP roadway and was captured by previously installed ditching that direct it back into containment within the HLP. The flow path was excavated and the impacted material deposited within the lined HLP.

ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	YG21-082	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Reported to Jeff H at 19:30 July 30		
Disposal Container Labelled?	☐ Yes ☑ No	**Samples taken?**	☑ Yes ☐ No
Environmental areas affected: (Watercourse, soil, etc.):	HLP west roadway		
Method of Disposal & Further Remediation Required:	Impacted material excavated & deposited in HLP; soil samples taken. See attached.		
Follow Up Required?	☐ Yes ☒ No	**Follow Up Date:**	

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:	Dave Stewart	**Signature:**	
Supervisor:	Tyler Christian	**Signature:**	
Safety:		**Signature:**	
Environment:	Bill Bowden	**Signature:**	

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	17m^3	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line

Additional Information:

Following the process solution release on July 30, the flow path was delineated by Underhill Geomatics. Solution was not observed to travel towards or enter the Event Pond or potential freshwater receiving environments downgradient of the release. Water quality samples were taken on the afternoon of July 30 to evaluate Dublin Gulch and Haggart Creek to ensure that our observations were accurate. Preliminary water quality results attached show no detection of total cyanide or weak acid dissociable (WAD) cyanide.

The impacted material on the western edge of the HLP berm and roadway ditch below was excavated from July 30 to August 1. Upon completion of the excavation, 37 soil samples were taken on August 2 following CSR requirements and returned results well below Industrial CSR standards for both WAD and strong acid dissociable cyanide.

Guards have now been installed on the distribution line caps and flanges to mitigate a reoccurrence of this event.

Photos:



Photo 1: Initial release of process solution from Heap West distribution line cap (note distribution pipe is entirely within the lined portion of the HLP)

VICTORIA GOLD CORP	**Additional Spill Information**		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	$17m^3$	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line

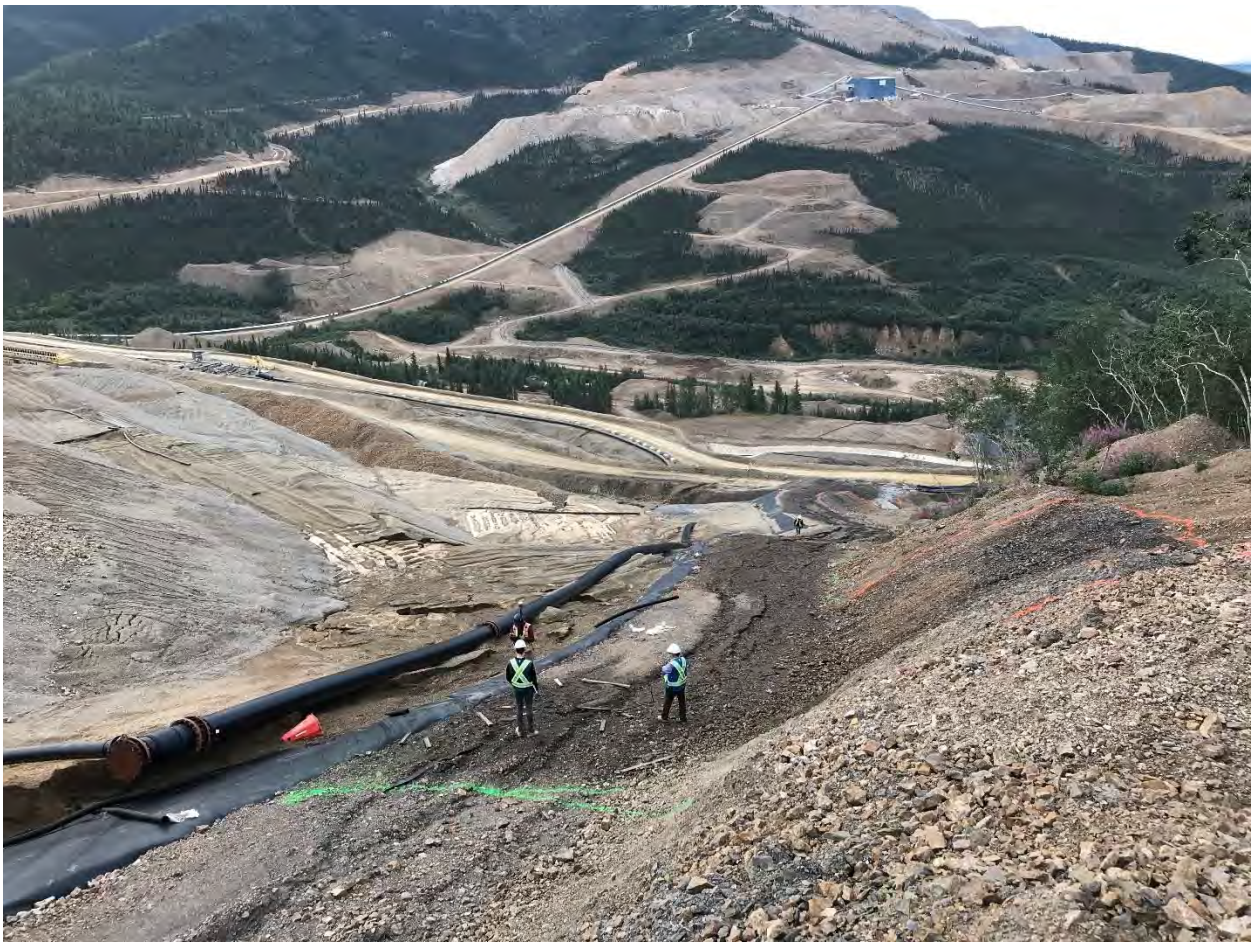


Photo 2: Process solution release flow path on west HLP road.

VICTORIA GOLD CORP	**Additional Spill Information**		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	$17m^3$	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line



Photo 3: Terminus of process solution flow path on west HLP road.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	$17m^3$	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line



Photo 4: Previously installed graded ditch below west HLP road directing solution back into containment within the HLP.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	$17m^3$	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line



Photo 5: Water quality monitoring on July 30 on Haggart Creek at W4 downgradient of the release.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	$17m^3$	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line



Photo 6: Excavation of the release flow path from July 30 to August 1.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	$17m^3$	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line



Photo 7: Excavation of the release flow path from July 30 to August 1. Contaminated material shown deposited back within lined containment.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	$17m^3$	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line



Photo 8: Soil Sampling of the release flow path following excavation on August 2.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	July 30, 2021	VGC Spill #	VGC21-028
Volume (L):	$17m^3$	Yukon Government #	21-082
Substance	Process Solution	Location	Heap Leach Pad West Distribution Line



Photo 9: Installation of guards on the west distribution line on Heap perimeter adjacent flanges.



Legend:

- Project Feature
- Potentially Impacted Area
- Confirmation Soil Sample
- Water Quality Sample
- Watercourse - Perennial
- Watercourse - Ephemeral
- Watercourse - Intermittent

VICTORIA GOLD CORP

0 5 10 20
Meters

Projection: NAD 83 Zone 8N	Drawn By: HC	**EAGLE GOLD MINE YUKON TERRITORY**	
Date: 2021/08/09	Figure: 1	**Western Distribution Line Pinhole Rupture**	

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WR2100964**	Page	: 1 of 6
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse YT Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: Heap Leach Spill Confirmatory	Date Samples Received	: 05-Aug-2021 10:30
PO	: 22038	Date Analysis Commenced	: 06-Aug-2021
C-O-C number	: 20210803	Issue Date	: 09-Aug-2021 15:56
Sampler	: KP/BB		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 37		
No. of samples analysed	: 37		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
%	percent
mg/kg	milligrams per kilogram

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
SP	*Sample was preserved at the laboratory.*

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-082-F1	YG21-082-W1a	YG21-082-W1b	YG21-082-F2	YG21-082-W2a
					Client sampling date / time	02-Aug-2021 15:23	02-Aug-2021 15:26	02-Aug-2021 15:28	02-Aug-2021 15:32	02-Aug-2021 15:38
						WR2100964-001	WR2100964-002	WR2100964-003	WR2100964-004	WR2100964-005
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.07	0.50	2.55	0.28	3.55
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	0.063	<0.050	<0.050	1.45
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	0.334
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00 SP	<1.00 SP	<1.00 SP	<1.00 SP	9.28 SP

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-082-W2b	YG21-082-F3	YG21-082-W3a	YG21-082-W3b	YG21-082-F4
					Client sampling date / time	02-Aug-2021 15:40	02-Aug-2021 15:46	02-Aug-2021 15:48	02-Aug-2021 15:50	02-Aug-2021 15:56
						WR2100964-006	WR2100964-007	WR2100964-008	WR2100964-009	WR2100964-010
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.43	1.13	1.53	5.93	3.42
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00 SP	<1.00 SP	<1.00 SP	<1.00 SP	<1.00 SP

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-082-W4a	YG21-082-W4b	YG21-082-F5	YG21-082-W5a	YG21-082-W5b
					Client sampling date / time	02-Aug-2021 15:58	02-Aug-2021 16:00	02-Aug-2021 16:03	02-Aug-2021 16:05	02-Aug-2021 16:07
						WR2100964-011	WR2100964-012	WR2100964-013	WR2100964-014	WR2100964-015
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		6.17	6.38	3.70	4.42	4.96
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		0.843	<0.050	<0.050	0.537	0.156
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		0.551	<0.050	<0.050	<0.050	0.064
thiocyanate	302-04-5	E344	1.00	mg/kg		4.29 SP	<1.00 SP	<1.00 SP	2.74 SP	<1.00 SP

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-082-F6	YG21-082-F7	YG21-082-F8	YG21-082-F9	YG21-082-F10
					Client sampling date / time	02-Aug-2021 16:11	02-Aug-2021 16:18	02-Aug-2021 16:20	02-Aug-2021 16:25	02-Aug-2021 16:29
						WR2100964-016	WR2100964-017	WR2100964-018	WR2100964-019	WR2100964-020
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.27	3.42	2.58	2.57	3.38
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	3.08	<0.050	0.147	0.096
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	0.688	<0.050	0.087	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00 SP	10.0 SP	<1.00 SP	5.69 SP	<1.00 SP

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-082-F11	YG21-082-F12	YG21-082-F13	YG21-082-F14	YG21-082-F15
					Client sampling date / time	02-Aug-2021 16:31	02-Aug-2021 16:36	02-Aug-2021 16:40	02-Aug-2021 16:45	02-Aug-2021 16:48
						WR2100964-021	WR2100964-022	WR2100964-023	WR2100964-024	WR2100964-025
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.99	3.72	2.98	3.86	2.32
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	0.272	<0.050	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	<0.050	<0.050	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00 SP	<1.00 SP	<1.00 SP	<1.00 SP	<1.00 SP

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-082-F16	YG21-082-F17	YG21-082-F18	YG21-082-F19	YG21-082-F20
					Client sampling date / time	02-Aug-2021 16:51	02-Aug-2021 16:58	02-Aug-2021 17:30	02-Aug-2021 17:32	02-Aug-2021 17:33
						WR2100964-026	WR2100964-027	WR2100964-028	WR2100964-029	WR2100964-030
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		2.36	2.11	5.82	3.65	4.13
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		<0.050	<0.050	4.25	0.152	<0.050
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		<0.050	<0.050	2.97	0.062	<0.050
thiocyanate	302-04-5	E344	1.00	mg/kg		<1.00 SP	<1.00 SP	28.5 SP	2.84 SP	<1.00 SP

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-082-F21	YG21-082-F22	YG21-082-F23	YG21-082-F24	YG21-082-F25
					Client sampling date / time	02-Aug-2021 17:35	02-Aug-2021 17:39	02-Aug-2021 17:43	02-Aug-2021 17:46	02-Aug-2021 17:48
						WR2100964-031	WR2100964-032	WR2100964-033	WR2100964-034	WR2100964-035
						Result	Result	Result	Result	Result
Physical Tests										
moisture	----	E144	0.25	%		3.95	4.04	4.29	5.46	11.5
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		1.24	1.18	0.624	2.41	11.2
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		0.227	0.855	0.359	1.29	8.68
thiocyanate	302-04-5	E344	1.00	mg/kg		6.08 SP	9.01 SP	4.70 SP	18.8 SP	121 SP

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	YG21-082-F26	YG21-082-F27	----	----	----
					Client sampling date / time	02-Aug-2021 17:53	02-Aug-2021 17:55	----	----	----
						WR2100964-036	WR2100964-037	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
moisture	----	E144	0.25	%		19.8	19.5	----	----	----
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg		12.0	10.6	----	----	----
cyanide, weak acid dissociable	----	E336	0.050	mg/kg		8.41	7.22	----	----	----
thiocyanate	302-04-5	E344	1.00	mg/kg		38.1 SP	34.1 SP	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WR2100964**	Page	: 1 of 20
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: Heap Leach Spill Confirmatory	Date Samples Received	: 05-Aug-2021 10:30
PO	: 22038	Issue Date	: 09-Aug-2021 15:56
C-O-C number	: 20210803		
Sampler	: KP/BB		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 37		
No. of samples analysed	: 37		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F1	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F10	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F11	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F12	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F13	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F14	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F15	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F16	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F17	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F18	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F19	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F2	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F20	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F21	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F22	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F23	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F24	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F25	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F26	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F27	E344	02-Aug-2021	09-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F3	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F4	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F5	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F6	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap										
YG21-082-F7	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F8	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-F9	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W1a	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W1b	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W2a	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W2b	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W3a	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W3b	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W4a	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W4b	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W5a	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Thiocyanate in soil by 1:5 DI water leach and colourimetric detection										
Glass soil jar/Teflon lined cap YG21-082-W5b	E344	02-Aug-2021	08-Aug-2021	----	----		09-Aug-2021	14 days	7 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F1	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F10	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F11	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F12	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F13	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F14	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F15	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F16	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F17	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F18	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F19	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F2	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F20	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F21	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F22	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F23	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F24	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F25	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F26	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F27	E333	02-Aug-2021	07-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F3	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F4	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F5	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F6	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F7	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F8	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F9	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W1a	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W1b	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W2a	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W2b	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W3a	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W3b	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W4a	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W4b	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W5a	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : Total Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-W5b	E333	02-Aug-2021	06-Aug-2021	14 days	4 days	✓	08-Aug-2021	14 days	1 days	✓
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F1	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F10	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F11	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F12	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap YG21-082-F13	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F14	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F15	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F16	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F17	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F18	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F19	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F2	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F20	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F21	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F22	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F23	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F24	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F25	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F26	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F27	E336	02-Aug-2021	07-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F3	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F4	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F5	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F6	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F7	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F8	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-F9	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W1a	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W1b	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W2a	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W2b	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W3a	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W3b	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W4a	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W4b	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W5a	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Cyanides : WAD Cyanide by CFA										
Glass soil jar/Teflon lined cap										
YG21-082-W5b	E336	02-Aug-2021	06-Aug-2021	----	----		08-Aug-2021	----	1 days	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F1	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F10	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F11	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F12	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F13	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F14	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F15	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F16	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F17	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F18	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F19	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F2	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F20	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F21	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F22	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F23	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F24	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F25	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F26	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F27	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F3	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F4	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F5	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F6	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F7	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F8	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-F9	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-W1a	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-W1b	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-W2a	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap										
YG21-082-W2b	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-082-W3a	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-082-W3b	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-082-W4a	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-082-W4b	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-082-W5a	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	
Physical Tests : Moisture Content by Gravimetry										
Glass soil jar/Teflon lined cap YG21-082-W5b	E144	02-Aug-2021	----	----	----		06-Aug-2021	0 days	----	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Moisture Content by Gravimetry	E144	260821	2	37	5.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	260863	2	37	5.4	5.0	✓
Total Cyanide by CFA	E333	260820	2	37	5.4	5.0	✓
WAD Cyanide by CFA	E336	260774	2	37	5.4	5.0	✓
Laboratory Control Samples (LCS)							
Moisture Content by Gravimetry	E144	260821	2	37	5.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	260863	2	37	5.4	5.0	✓
Total Cyanide by CFA	E333	260820	2	37	5.4	5.0	✓
WAD Cyanide by CFA	E336	260774	2	37	5.4	5.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	260821	2	37	5.4	5.0	✓
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	260863	2	37	5.4	5.0	✓
Total Cyanide by CFA	E333	260820	2	37	5.4	5.0	✓
WAD Cyanide by CFA	E336	260774	2	37	5.4	5.0	✓
Matrix Spikes (MS)							
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344	260863	2	37	5.4	5.0	✓
Total Cyanide by CFA	E333	260820	2	37	5.4	5.0	✓
WAD Cyanide by CFA	E336	260774	2	37	5.4	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 Vancouver - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
Total Cyanide by CFA	E333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Soil/Solid	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Thiocyanate in soil by 1:5 DI water leach and colourimetric detection	E344 Vancouver - Environmental	Soil/Solid	In-house	A dried soil is leached with DI water at a ratio of 1:5. Thiocyanate is determined by the ferric nitrate colourimetric method. Soil samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Leach 1:5 Soil:Water for Anions	EP237 Vancouver - Environmental	Soil/Solid	EPA 300.1 (mod)	This analysis is carried out using a leaching procedure which involves the gentle tumbling of the sample in a specified leaching solution (typically deionized water) for a specific length of time.
Cyanide Extraction for CFA	EP333 Vancouver - Environmental	Soil/Solid	BC MOE Lab Manual/ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by rotary extraction of the soil with 0.04M Sodium Hydroxide, followed by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

QUALITY CONTROL REPORT

Work Order	: **WR2100964**	Page	: 1 of 6
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: Heap Leach Spill Confirmatory	Date Samples Received	: 05-Aug-2021 10:30
PO	: 22038	Date Analysis Commenced	: 06-Aug-2021
C-O-C number	: 20210803	Issue Date	: 09-Aug-2021 15:56
Sampler	: KP/BB		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 37		
No. of samples analysed	: 37		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 260776)											
WR2100964-001	YG21-082-F1	moisture	----	E144	0.25	%	2.07	1.98	0.09	Diff <2x LOR	----
Physical Tests (QC Lot: 260821)											
WR2100964-021	YG21-082-F11	moisture	----	E144	0.25	%	2.99	3.04	1.52%	20%	----
Cyanides (QC Lot: 260774)											
WR2100964-001	YG21-082-F1	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0.00001	Diff <2x LOR	----
Cyanides (QC Lot: 260775)											
WR2100964-001	YG21-082-F1	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	<0.050	<0.050	0.00001	Diff <2x LOR	----
Cyanides (QC Lot: 260819)											
WR2100964-021	YG21-082-F11	cyanide, weak acid dissociable	----	E336	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Cyanides (QC Lot: 260820)											
WR2100964-021	YG21-082-F11	cyanide, strong acid dissociable (total)	----	E333	0.050	mg/kg	<0.050	<0.050	0	Diff <2x LOR	----
Cyanides (QC Lot: 260862)											
WR2100964-001	YG21-082-F1	thiocyanate	302-04-5	E344	1.00	mg/kg	<1.00	<1.00	0	Diff <2x LOR	----
Cyanides (QC Lot: 260863)											
WR2100964-020	YG21-082-F10	thiocyanate	302-04-5	E344	1.00	mg/kg	<1.00	<1.00	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 260776)						
moisture	----	E144	0.25	%	<0.25	----
Physical Tests (QCLot: 260821)						
moisture	----	E144	0.25	%	<0.25	----
Cyanides (QCLot: 260774)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 260775)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 260819)						
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 260820)						
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	<0.050	----
Cyanides (QCLot: 260862)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----
Cyanides (QCLot: 260863)						
thiocyanate	302-04-5	E344	1	mg/kg	<1.00	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 260776)									
moisture	----	E144	0.25	%	50 %	99.6	90.0	110	----
Physical Tests (QCLot: 260821)									
moisture	----	E144	0.25	%	50 %	99.7	90.0	110	----
Cyanides (QCLot: 260774)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	96.0	80.0	120	----
Cyanides (QCLot: 260775)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	87.2	80.0	120	----
Cyanides (QCLot: 260819)									
cyanide, weak acid dissociable	----	E336	0.05	mg/kg	1.25 mg/kg	99.1	80.0	120	----
Cyanides (QCLot: 260820)									
cyanide, strong acid dissociable (total)	----	E333	0.05	mg/kg	2.5 mg/kg	89.4	80.0	120	----
Cyanides (QCLot: 260862)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	102	85.0	115	----
Cyanides (QCLot: 260863)									
thiocyanate	302-04-5	E344	1	mg/kg	50 mg/kg	102	85.0	115	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 260774)										
WR2100964-002	YG21-082-W1a	cyanide, weak acid dissociable	----	E336	1.24 mg/kg	1.25 mg/kg	99.7	75.0	125	----
Cyanides (QCLot: 260775)										
WR2100964-002	YG21-082-W1a	cyanide, strong acid dissociable (total)	----	E333	2.24 mg/kg	2.5 mg/kg	89.9	75.0	125	----
Cyanides (QCLot: 260819)										
WR2100964-022	YG21-082-F12	cyanide, weak acid dissociable	----	E336	1.24 mg/kg	1.25 mg/kg	99.1	75.0	125	----
Cyanides (QCLot: 260820)										
WR2100964-022	YG21-082-F12	cyanide, strong acid dissociable (total)	----	E333	2.25 mg/kg	2.5 mg/kg	90.0	75.0	125	----
Cyanides (QCLot: 260862)										
WR2100964-002	YG21-082-W1a	thiocyanate	302-04-5	E344	52.3 mg/kg	50 mg/kg	105	75.0	125	----
Cyanides (QCLot: 260863)										
WR2100964-021	YG21-082-F11	thiocyanate	302-04-5	E344	53.7 mg/kg	50 mg/kg	108	75.0	125	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210803

G64

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7

Report Format / Distribution	
Select Report Format:	☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)			
Regular [R]	☐ Standard TAT if received by 3 pm - business days - no surcharges apply		
PRIORITY (Business Days)	4 day [P4-20%] ☐	EMERGENCY	1 Business day [E1 - 100%] ☐
	3 day [P3-25%] ☐		Same Da ☐
	2 day [P2-50%] ☑		(Laborato
Date and Time Required for all E&P TATs:			
For tests that can not be performed according to the service level			

Environmental Division
Whitehorse
Work Order Reference
WR2100964

Hilary

Telephone : +1 867 668 6689

Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; Jjackson@vgcx.com

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	STRG100 Q68199	AFE/Cost Center:	PO#:
Job #:	Heap Leach Spill Confirmatory	Major/Minor Code:	Routing Code:
PO / AFE:	22038	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods | Sampler: KP/BB

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (f	NUMBER OF CONTAIN
	YG21-082-F1	2-Aug-21	15:23	Soil	P2			1
	YG21-082-W1a	2-Aug-21	15:26	Soil	P2			1
	YG21-082-W1b	2-Aug-21	15:28	Soil	P2			1
	YG21-082-F2	2-Aug-21	15:32	Soil	P2			1
	YG21-082-W2a	2-Aug-21	15:38	Soil	P2			1
	YG21-082-W2b	2-Aug-21	15:40	Soil	P2			1
	YG21-082-F3	2-Aug-21	15:46	Soil	P2			1
	YG21-082-W3a	2-Aug-21	15:48	Soil	P2			1
	YG21-082-W3b	2-Aug-21	15:50	Soil	P2			1
	YG21-082-F4	2-Aug-21	15:56	Soil	P2			1
	YG21-082-W4a	2-Aug-21	15:58	Soil	P2			1
	YG21-082-W4b	2-Aug-21	16:00	Soil	P2			1
	YG21-082-F5	2-Aug-21	16:03	Soil	P2			1

P2 RUSH

Drinking Water (DW) Samples (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System? ☑ NO	
Are samples for human consumption/ use? ☑ NO	Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐		SIF Observations	Yes ☐	No ☐	
Ice Packs ☑	Ice Cubes ☐	Custody seal intact	Yes ☐	No ☐	
Cooling Initiated ☐					

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
2°	2°						12

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Kris Poitras	Date: 2-Aug-2021	Time: 8:00	Received by:	Date: AUG 5/21	Time: 10:30	Received by:	Date: 8/6	Time: 2140

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210803

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; Jjackson@vgcx.com

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☑
EMERGENCY: 1 Business day [E1 - 100%] ☐ | Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Project Information

ALS Account # / Quote #:	STRG100 Q68199
Job #:	Heap Leach Spill Confirmatory
PO / AFE:	22038
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods | Sampler: KP/BB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	YG21-082-W5a	2-Aug-21	16:05	Soil	P2			1
	YG21-082-W5b	2-Aug-21	16:07	Soil	P2			1
	YG21-082-F6	2-Aug-21	16:11	Soil	P2			1
	YG21-082-F7	2-Aug-21	16:18	Soil	P2			1
	YG21-082-F8	2-Aug-21	16:20	Soil	P2			1
	YG21-082-F9	2-Aug-21	16:25	Soil	P2			1
	YG21-082-F10	2-Aug-21	16:29	Soil	P2			1
	YG21-082-F11	2-Aug-21	16:31	Soil	P2			1
	YG21-082-F12	2-Aug-21	16:36	Soil	P2			1
	YG21-082-F13	2-Aug-21	16:40	Soil	P2			1
	YG21-082-F14	2-Aug-21	16:45	Soil	P2			1
	YG21-082-F15	2-Aug-21	16:48	Soil	P2			1
	YG21-082-F16	2-Aug-21	16:51	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO

Are samples for human consumption/ use?
☑ NO

Special Instructions / Please

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ | SIF Observations Yes ☐ No ☐
Ice Packs ☒ Ice Cubes ☐ | Custody seal intact Yes ☐ No ☐
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
							12

SHIPMENT RELEASE (client use)			ENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by: HA	Date: 8/6	Time: 2:40p

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

Affix ALS barcode label here
(lab use only)

COC Number: 20210803

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Report Format / Distribution	
Select Report Format:	☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Invoice Distribution	
Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; jjackson@vgcx.com

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	STRG100 Q68199	AFE/Cost Center:	PO#:
Job #:	Heap Leach Spill Confirmatory	Major/Minor Code:	Routing Code:
PO / AFE:	22038	Requisitioner:	
LSD:		Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods Sampler: KP/BB

Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)

Regular [R] ☐ Standard TAT if received by 3 pm - business days - no surcharges apply

PRIORITY (Business Days):
- 4 day [P4-20%] ☐
- 3 day [P3-25%] ☐
- 2 day [P2-50%] ☑

EMERGENCY:
- 1 Business day [E1 - 100%] ☐
- Same Day, Weekend or Statutory holiday [E2 -200% (Laboratory opening fees may apply)] ☐

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selected, you will be contacted.

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CN3	SAMPLES ON HOLD	Sample is hazardous (please provide further detail)	NUMBER OF CONTAINERS
	YG21-082-F17	2-Aug-21	16:58	Soil	P2			1
	YG21-082-F18	2-Aug-21	17:30	Soil	P2			1
	YG21-082-F19	2-Aug-21	17:32	Soil	P2			1
	YG21-082-F20	2-Aug-21	17:33	Soil	P2			1
	YG21-082-F21	2-Aug-21	17:35	Soil	P2			1
	YG21-082-F22	2-Aug-21	17:39	Soil	P2			1
	YG21-082-F23	2-Aug-21	17:43	Soil	P2			1
	YG21-082-F24	2-Aug-21	17:46	Soil	P2			1
	YG21-082-F25	2-Aug-21	17:48	Soil	P2			1
	YG21-082-F26	2-Aug-21	17:53	Soil	P2			1
	YG21-082-F27	2-Aug-21	17:55	Soil	P2			1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO

Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☑ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
							12

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date: 8/6	Time: 2140

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WR2100949**	Page	: 1 of 10
Amendment	: **(Partial Results)**		
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse YT Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: SWQ (July Spill Confirmatory)	Date Samples Received	: 02-Aug-2021 16:08
PO	: 22038	Date Analysis Commenced	: 04-Aug-2021
C-O-C number	: 20210801	Issue Date	: 09-Aug-2021 15:38
Sampler	: HM, SM		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Gloria Chan	Lab Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Saron Kim	Analyst	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
%	percent
µS/cm	Microsiemens per centimetre
meq/L	milliequivalents per litre
mg/L	milligrams per litre
NTU	nephelometric turbidity units
pH units	pH units

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLM	*Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).*
SP	*Sample was preserved at the laboratory.*

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W4-Mix	W22
					Client sampling date / time	30-Jul-2021 16:00	30-Jul-2021 15:25	30-Jul-2021 14:00	30-Jul-2021 13:40	30-Jul-2021 15:00
						WR2100949-001	WR2100949-002	WR2100949-003	WR2100949-004	WR2100949-005
						Result	Result	Result	Result	Result
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		42.8	58.0	88.9	88.5	91.5
conductivity	----	E100	2.0	µS/cm		107	154	291	291	309
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		46.9	71.8	143	147	157
hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L		49.8	74.1	148	148	160
pH	----	E108	0.10	pH units		7.87	8.02	8.16	8.16	8.16
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L		75.9	105	188	189	201
solids, total suspended [TSS]	----	E160-H	3.0	mg/L		9.6	11.0	<3.0	<3.0	<3.0
turbidity	----	E121	0.10	NTU		2.82	1.57	0.57	0.44	0.39
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.Cl	0.50	mg/L		<0.50	<0.50	<0.50	<0.50	<0.50
cyanate	88402-73-7	E343	0.20	mg/L		Not Authorised	Not Authorised	Not Authorised	Not Authorised	Not Authorised
fluoride	16984-48-8	E235.F	0.020	mg/L		0.078	0.083	0.103	0.103	0.106
Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L		0.051	0.076	0.058	0.071	0.060
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		0.0229	0.0264	0.0539	0.0551	0.0592
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
nitrogen, total	7727-37-9	E366	0.030	mg/L		0.063	0.074	0.107	0.107	0.123
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L		0.0027	0.0014	<0.0010	<0.0010	<0.0010
phosphorus, total	7723-14-0	E372-U	0.0020	mg/L		0.0090	0.0090	0.0029	0.0033	0.0021
phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L		0.0046	0.0037	0.0023	0.0022	<0.0020
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		12.6	23.6	67.8	68.2	75.0
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0100 DLM	<0.0050
cyanide, weak acid dissociable	----	E336	0.0050	mg/L		<0.0050	<0.0050	<0.0050	<0.0100 DLM	<0.0050
thiocyanate	302-04-5	E344	0.50	mg/L		<0.50 SP	<0.50	<0.50	<0.50	<0.50
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		2.10	2.06	2.24	2.64	2.58
carbon, total organic [TOC]	----	E355-L	0.50	mg/L		1.64	1.80	2.30	2.34	2.29
Ion Balance										

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W4-Mix	W22
					Client sampling date / time	30-Jul-2021 16:00	30-Jul-2021 15:25	30-Jul-2021 14:00	30-Jul-2021 13:40	30-Jul-2021 15:00
						WR2100949-001	WR2100949-002	WR2100949-003	WR2100949-004	WR2100949-005
						Result	Result	Result	Result	Result
Ion Balance										
anion sum	----	EC101	0.10	meq/L		1.12	1.66	3.20	3.20	3.40
cation sum	----	EC101	0.10	meq/L		1.04	1.54	2.96	3.05	3.25
ion balance (cation-anion difference)	----	EC101	0.010	%		3.70	3.75	3.90	2.40	2.26
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.0770	0.131	0.0322	0.0417	0.0165
antimony, total	7440-36-0	E420	0.00010	mg/L		0.00105	0.00122	0.00042	0.00041	0.00026
arsenic, total	7440-38-2	E420	0.00010	mg/L		0.0412	0.0366	0.00554	0.00540	0.00091
barium, total	7440-39-3	E420	0.00010	mg/L		0.0442	0.0523	0.0390	0.0394	0.0372
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000074	0.0000113	0.0000084	0.0000103	0.0000096
calcium, total	7440-70-2	E420	0.050	mg/L		14.4	19.6	36.6	36.3	39.5
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L		<0.00010	0.00014	0.00013	0.00013	0.00013
copper, total	7440-50-8	E420	0.00050	mg/L		<0.00050	0.00062	<0.00050	0.00053	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L		0.128	0.255	0.123	0.151	0.132
lead, total	7439-92-1	E420	0.000050	mg/L		0.000175	0.000382	0.000083	0.000126	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L		0.0023	0.0048	0.0064	0.0064	0.0069
magnesium, total	7439-95-4	E420	0.100	mg/L		3.37	6.12	13.7	13.9	14.9
manganese, total	7439-96-5	E420	0.00010	mg/L		0.00344	0.00968	0.0337	0.0358	0.0420
mercury, total	7439-97-6	E508	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.00203	0.00172	0.000309	0.000289	0.000063
nickel, total	7440-02-0	E420	0.00050	mg/L		<0.00050	0.00072	0.00114	0.00113	0.00117
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, total	7440-09-7	E420	0.100	mg/L		0.805	1.05	1.07	1.08	1.08
selenium, total	7782-49-2	E420	0.000050	mg/L		0.000118	0.000175	0.000129	0.000148	0.000161
silicon, total	7440-21-3	E420	0.10	mg/L		6.31	6.43	4.31	4.44	4.11
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	17341-25-2	E420	0.050	mg/L		1.92	1.96	1.86	1.91	1.82
strontium, total	7440-24-6	E420	0.00020	mg/L		0.0844	0.118	0.199	0.198	0.211
sulfur, total	7704-34-9	E420	0.50	mg/L		4.22	7.68	21.9	23.1	25.0

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W4-Mix	W22
					Client sampling date / time	30-Jul-2021 16:00	30-Jul-2021 15:25	30-Jul-2021 14:00	30-Jul-2021 13:40	30-Jul-2021 15:00
						WR2100949-001	WR2100949-002	WR2100949-003	WR2100949-004	WR2100949-005
						Result	Result	Result	Result	Result
Total Metals										
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L		0.00382	0.00752	0.00102	0.00153	0.00033
uranium, total	7440-61-1	E420	0.000010	mg/L		0.000497	0.000757	0.000919	0.000923	0.000996
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0120	0.0076	0.0084	0.0086	0.0097
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		0.00097	0.00111	0.00039	0.00037	0.00026
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.0363	0.0308	0.00473	0.00483	0.00068
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.0406	0.0472	0.0381	0.0391	0.0368
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	<0.010	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		<0.0000050	<0.0000050	0.0000086	0.0000103	0.0000105
calcium, dissolved	7440-70-2	E421	0.050	mg/L		13.7	19.6	35.6	36.5	39.6
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	0.00011
copper, dissolved	7440-50-8	E421	0.00020	mg/L		0.00024	0.00029	0.00040	0.00042	0.00040
iron, dissolved	7439-89-6	E421	0.010	mg/L		<0.010	0.012	0.048	0.053	0.056
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		0.0020	0.0045	0.0061	0.0062	0.0066
magnesium, dissolved	7439-95-4	E421	0.100	mg/L		3.09	5.54	13.1	13.6	14.2
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.00065	0.00423	0.0301	0.0328	0.0349
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.00194	0.00174	0.000302	0.000277	0.000064
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		<0.00050	<0.00050	0.00101	0.00101	0.00113
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L		0.734	0.935	1.01	1.06	1.01
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.000109	0.000130	0.000183	0.000150	0.000130
silicon, dissolved	7440-21-3	E421	0.050	mg/L		5.92	6.05	4.50	4.40	4.13

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W1	W21	W4	W4-Mix	W22
					Client sampling date / time	30-Jul-2021 16:00	30-Jul-2021 15:25	30-Jul-2021 14:00	30-Jul-2021 13:40	30-Jul-2021 15:00
						WR2100949-001	WR2100949-002	WR2100949-003	WR2100949-004	WR2100949-005
						Result	Result	Result	Result	Result
Dissolved Metals										
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	17341-25-2	E421	0.050	mg/L		1.78	1.92	1.79	1.83	1.75
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.0804	0.115	0.196	0.195	0.208
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		3.80	7.20	22.9	22.0	24.5
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.000452	0.000684	0.000880	0.000865	0.000857
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		<0.0010	0.0013	0.0014	0.0013	0.0014
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
dissolved mercury filtration location	----	EP509	-	-		Field	Field	Field	Field	Field
dissolved metals filtration location	----	EP421	-	-		Field	Field	Field	Field	Field

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W29	W99	----	----	----
					Client sampling date / time	30-Jul-2021 12:00	30-Jul-2021 11:20	----	----	----
						WR2100949-006	WR2100949-007	--------	--------	--------
						Result	Result	----	----	----
Physical Tests										
alkalinity, total (as CaCO3)	----	E290	1.0	mg/L		94.3	97.2	----	----	----
conductivity	----	E100	2.0	µS/cm		315	332	----	----	----
hardness (as CaCO3), dissolved	----	EC100	0.60	mg/L		155	168	----	----	----
hardness (as CaCO3), from total Ca/Mg	----	EC100A	0.60	mg/L		159	164	----	----	----
pH	----	E108	0.10	pH units		8.20	8.20	----	----	----
solids, total dissolved [TDS], calculated	----	EC103	1.0	mg/L		200	211	----	----	----
solids, total suspended [TSS]	----	E160-H	3.0	mg/L		4.6	<3.0	----	----	----
turbidity	----	E121	0.10	NTU		0.79	0.78	----	----	----
Anions and Nutrients										
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L		<0.0050	<0.0050	----	----	----
bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	----	----	----
chloride	16887-00-6	E235.Cl	0.50	mg/L		0.72	0.61	----	----	----
cyanate	88402-73-7	E343	0.20	mg/L		Not Authorised	Not Authorised	----	----	----
fluoride	16984-48-8	E235.F	0.020	mg/L		0.106	0.107	----	----	----
Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L		0.070	0.080	----	----	----
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L		0.0588	0.0616	----	----	----
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L		<0.0010	<0.0010	----	----	----
nitrogen, total	7727-37-9	E366	0.030	mg/L		0.112	0.126	----	----	----
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L		<0.0010	<0.0010	----	----	----
phosphorus, total	7723-14-0	E372-U	0.0020	mg/L		0.0046	0.0035	----	----	----
phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L		<0.0020	0.0025	----	----	----
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L		72.5	76.7	----	----	----
Cyanides										
cyanide, strong acid dissociable (total)	----	E333	0.0050	mg/L		<0.0050	<0.0050	----	----	----
cyanide, weak acid dissociable	----	E336	0.0050	mg/L		<0.0050	<0.0050	----	----	----
thiocyanate	302-04-5	E344	0.50	mg/L		<0.50	<0.50	----	----	----
Organic / Inorganic Carbon										
carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L		2.62	3.00	----	----	----
carbon, total organic [TOC]	----	E355-L	0.50	mg/L		2.60	2.70	----	----	----
Ion Balance										
anion sum	----	EC101	0.10	meq/L		3.42	3.57	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W29	W99	----	----	----
					Client sampling date / time	30-Jul-2021 12:00	30-Jul-2021 11:20	----	----	----
						WR2100949-006	WR2100949-007	--------	--------	--------
						Result	Result	----	----	----
Ion Balance										
cation sum	----	EC101	0.10	meq/L		3.21	3.47	----	----	----
ion balance (cation-anion difference)	----	EC101	0.010	%		3.17	1.42	----	----	----
Total Metals										
aluminum, total	7429-90-5	E420	0.0030	mg/L		0.0438	0.0490	----	----	----
antimony, total	7440-36-0	E420	0.00010	mg/L		0.00057	0.00056	----	----	----
arsenic, total	7440-38-2	E420	0.00010	mg/L		0.00554	0.00581	----	----	----
barium, total	7440-39-3	E420	0.00010	mg/L		0.0413	0.0455	----	----	----
beryllium, total	7440-41-7	E420	0.000020	mg/L		<0.000020	<0.000020	----	----	----
bismuth, total	7440-69-9	E420	0.000050	mg/L		<0.000050	<0.000050	----	----	----
boron, total	7440-42-8	E420	0.010	mg/L		<0.010	<0.010	----	----	----
cadmium, total	7440-43-9	E420	0.0000050	mg/L		0.0000150	0.0000142	----	----	----
calcium, total	7440-70-2	E420	0.050	mg/L		38.8	39.4	----	----	----
chromium, total	7440-47-3	E420	0.00050	mg/L		<0.00050	<0.00050	----	----	----
cobalt, total	7440-48-4	E420	0.00010	mg/L		0.00014	0.00016	----	----	----
copper, total	7440-50-8	E420	0.00050	mg/L		0.00060	0.00070	----	----	----
iron, total	7439-89-6	E420	0.010	mg/L		0.138	0.140	----	----	----
lead, total	7439-92-1	E420	0.000050	mg/L		0.000166	0.000192	----	----	----
lithium, total	7439-93-2	E420	0.0010	mg/L		0.0064	0.0062	----	----	----
magnesium, total	7439-95-4	E420	0.100	mg/L		15.1	15.9	----	----	----
manganese, total	7439-96-5	E420	0.00010	mg/L		0.0489	0.0579	----	----	----
mercury, total	7439-97-6	E508	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
molybdenum, total	7439-98-7	E420	0.000050	mg/L		0.000276	0.000296	----	----	----
nickel, total	7440-02-0	E420	0.00050	mg/L		0.00122	0.00125	----	----	----
phosphorus, total	7723-14-0	E420	0.050	mg/L		<0.050	<0.050	----	----	----
potassium, total	7440-09-7	E420	0.100	mg/L		1.14	1.24	----	----	----
selenium, total	7782-49-2	E420	0.000050	mg/L		0.000157	0.000138	----	----	----
silicon, total	7440-21-3	E420	0.10	mg/L		4.39	4.57	----	----	----
silver, total	7440-22-4	E420	0.000010	mg/L		<0.000010	<0.000010	----	----	----
sodium, total	17341-25-2	E420	0.050	mg/L		1.98	2.10	----	----	----
strontium, total	7440-24-6	E420	0.00020	mg/L		0.210	0.206	----	----	----
sulfur, total	7704-34-9	E420	0.50	mg/L		23.8	26.6	----	----	----
thallium, total	7440-28-0	E420	0.000010	mg/L		<0.000010	<0.000010	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W29	W99	----	----	----
					Client sampling date / time	30-Jul-2021 12:00	30-Jul-2021 11:20	----	----	----
						WR2100949-006	WR2100949-007	--------	--------	--------
						Result	Result	----	----	----
Total Metals										
tin, total	7440-31-5	E420	0.00010	mg/L		<0.00010	<0.00010	----	----	----
titanium, total	7440-32-6	E420	0.00030	mg/L		<0.00150 DLM	0.00173	----	----	----
uranium, total	7440-61-1	E420	0.000010	mg/L		0.00114	0.00110	----	----	----
vanadium, total	7440-62-2	E420	0.00050	mg/L		<0.00050	<0.00050	----	----	----
zinc, total	7440-66-6	E420	0.0030	mg/L		<0.0030	<0.0030	----	----	----
zirconium, total	7440-67-7	E420	0.00020	mg/L		<0.00020	<0.00020	----	----	----
Dissolved Metals										
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L		0.0083	0.0097	----	----	----
antimony, dissolved	7440-36-0	E421	0.00010	mg/L		0.00052	0.00058	----	----	----
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L		0.00441	0.00443	----	----	----
barium, dissolved	7440-39-3	E421	0.00010	mg/L		0.0382	0.0388	----	----	----
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L		<0.000020	<0.000020	----	----	----
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L		<0.000050	<0.000050	----	----	----
boron, dissolved	7440-42-8	E421	0.010	mg/L		<0.010	<0.010	----	----	----
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L		0.0000098	0.0000101	----	----	----
calcium, dissolved	7440-70-2	E421	0.050	mg/L		38.6	42.5	----	----	----
chromium, dissolved	7440-47-3	E421	0.00050	mg/L		<0.00050	<0.00050	----	----	----
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L		<0.00010	0.00011	----	----	----
copper, dissolved	7440-50-8	E421	0.00020	mg/L		0.00049	0.00054	----	----	----
iron, dissolved	7439-89-6	E421	0.010	mg/L		0.045	0.050	----	----	----
lead, dissolved	7439-92-1	E421	0.000050	mg/L		<0.000050	<0.000050	----	----	----
lithium, dissolved	7439-93-2	E421	0.0010	mg/L		0.0062	0.0067	----	----	----
magnesium, dissolved	7439-95-4	E421	0.100	mg/L		14.2	15.0	----	----	----
manganese, dissolved	7439-96-5	E421	0.00010	mg/L		0.0439	0.0505	----	----	----
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L		<0.0000050	<0.0000050	----	----	----
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L		0.000283	0.000270	----	----	----
nickel, dissolved	7440-02-0	E421	0.00050	mg/L		0.00106	0.00126	----	----	----
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L		<0.050	<0.050	----	----	----
potassium, dissolved	7440-09-7	E421	0.100	mg/L		1.05	1.12	----	----	----
selenium, dissolved	7782-49-2	E421	0.000050	mg/L		0.000159	0.000130	----	----	----
silicon, dissolved	7440-21-3	E421	0.050	mg/L		4.26	4.33	----	----	----
silver, dissolved	7440-22-4	E421	0.000010	mg/L		<0.000010	<0.000010	----	----	----

Analytical Results

Sub-Matrix: **Water**
(Matrix: **Water**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	W29	W99	----	----	----
					Client sampling date / time	30-Jul-2021 12:00	30-Jul-2021 11:20	----	----	----
						WR2100949-006	WR2100949-007	--------	--------	--------
						Result	Result	----	----	----
Dissolved Metals										
sodium, dissolved	17341-25-2	E421	0.050	mg/L		1.89	1.93	----	----	----
strontium, dissolved	7440-24-6	E421	0.00020	mg/L		0.205	0.222	----	----	----
sulfur, dissolved	7704-34-9	E421	0.50	mg/L		23.5	25.0	----	----	----
thallium, dissolved	7440-28-0	E421	0.000010	mg/L		<0.000010	<0.000010	----	----	----
tin, dissolved	7440-31-5	E421	0.00010	mg/L		<0.00010	<0.00010	----	----	----
titanium, dissolved	7440-32-6	E421	0.00030	mg/L		<0.00030	<0.00030	----	----	----
uranium, dissolved	7440-61-1	E421	0.000010	mg/L		0.00108	0.00116	----	----	----
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L		<0.00050	<0.00050	----	----	----
zinc, dissolved	7440-66-6	E421	0.0010	mg/L		0.0014	0.0015	----	----	----
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L		<0.00020	<0.00020	----	----	----
dissolved mercury filtration location	----	EP509	-	-		Field	Field	----	----	----
dissolved metals filtration location	----	EP421	-	-		Field	Field	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WR2100949**	Page	: 1 of 31
Amendment	: **(Partial Results)**		
Client	: **Victoria Gold (Yukon) Corp.**	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: SWQ (July Spill Confirmatory)	Date Samples Received	: 02-Aug-2021 16:08
PO	: 22038	Issue Date	: 09-Aug-2021 15:38
C-O-C number	: 20210801		
Sampler	: HM, SM		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W1	E298	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W21	E298	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W22	E298	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W29	E298	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W4	E298	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W4-Mix	E298	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
W99	E298	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W1	E235.Br-L	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W21	E235.Br-L	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W22	E235.Br-L	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W29	E235.Br-L	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W4	E235.Br-L	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W4-Mix	E235.Br-L	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE W99	E235.Br-L	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE W1	E235.Cl	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE W21	E235.Cl	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W22	E235.Cl	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W29	E235.Cl	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W4	E235.Cl	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W4-Mix	E235.Cl	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
W99	E235.Cl	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W1	E343	30-Jul-2021	----	----	----			----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E343	30-Jul-2021	----	----	----			----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E343	30-Jul-2021	----	----	----			----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E343	30-Jul-2021	----	----	----			----	----	

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W4	E343	30-Jul-2021	----	----	----			----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W4-Mix	E343	30-Jul-2021	----	----	----			----	----	
Anions and Nutrients : Cyanate by Ion Selective Electrode										
UV inhibited HDPE - total (sodium hydroxide)										
W99	E343	30-Jul-2021	----	----	----			----	----	
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W1	E378-U	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W21	E378-U	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W22	E378-U	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W29	E378-U	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W4	E378-U	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE										
W4-Mix	E378-U	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)										
HDPE W99	E378-U	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Fluoride in Water by IC										
HDPE W1	E235.F	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W21	E235.F	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W22	E235.F	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W29	E235.F	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W4	E235.F	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W4-Mix	E235.F	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE W99	E235.F	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W1	E235.NO3-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W21	E235.NO3-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W22	E235.NO3-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W29	E235.NO3-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W4	E235.NO3-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W4-Mix	E235.NO3-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE W99	E235.NO3-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W1	E235.NO2-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W21	E235.NO2-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W22	E235.NO2-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W29	E235.NO2-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W4	E235.NO2-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W4-Mix	E235.NO2-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE W99	E235.NO2-L	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Anions and Nutrients : Sulfate in Water by IC										
HDPE W1	E235.SO4	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE W21	E235.SO4	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE W22	E235.SO4	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE W29	E235.SO4	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE W4	E235.SO4	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W4-Mix	E235.SO4	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
W99	E235.SO4	30-Jul-2021	----	----	----		04-Aug-2021	28 days	5 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W1	E375-T	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W21	E375-T	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W22	E375-T	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W29	E375-T	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W4	E375-T	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W4-Mix	E375-T	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Dissolved Phosphorus by Colourimetry (Trace Level)										
Amber glass dissolved (sulfuric acid)										
W99	E375-T	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W1	E318	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W21	E318	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W22	E318	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W29	E318	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W4	E318	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W4-Mix	E318	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Kjeldahl Nitrogen by Fluorescence (Low Level)										
Amber glass total (sulfuric acid)										
W99	E318	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W1	E366	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W21	E366	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W22	E366	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W29	E366	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W4	E366	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W4-Mix	E366	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Nitrogen by Colourimetry										
Amber glass total (sulfuric acid)										
W99	E366	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W1	E372-U	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W21	E372-U	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W22	E372-U	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W29	E372-U	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W4	E372-U	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W4-Mix	E372-U	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Anions and Nutrients : Total Phosphorus by Colourimetry (Ultra Trace)										
Amber glass total (sulfuric acid)										
W99	E372-U	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W1	E344	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W21	E344	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W22	E344	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W29	E344	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W4	E344	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid)										
W4-Mix	E344	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : Thiocyanate by Colourimetry										
HDPE (nitric acid) W99	E344	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W1	E333	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W21	E333	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W22	E333	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W29	E333	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W4	E333	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W4-Mix	E333	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : Total Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W99	E333	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide) W1	E336	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W21	E336	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W22	E336	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W29	E336	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W4	E336	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W4-Mix	E336	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Cyanides : WAD Cyanide by CFA										
UV inhibited HDPE - total (sodium hydroxide)										
W99	E336	30-Jul-2021	----	----	----		04-Aug-2021	14 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
W1	E509	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
W21	E509	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
W22	E509	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓

Matrix: **Water**

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Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
W4	E509	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
W4-Mix	E509	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
W99	E509	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
W29	E509	30-Jul-2021	05-Aug-2021	----	----		05-Aug-2021	28 days	6 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W1	E421	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W21	E421	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W22	E421	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W29	E421	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
W4	E421	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W4-Mix	E421	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	5 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) W99	E421	30-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	180 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W1	E358-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W21	E358-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W22	E358-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W29	E358-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W4	E358-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W4-Mix	E358-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Dissolved Organic Carbon by Combustion (Low Level)										
Amber glass dissolved (sulfuric acid) W99	E358-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W1	E355-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W21	E355-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W22	E355-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W29	E355-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W4	E355-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W4-Mix	E355-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Organic / Inorganic Carbon : Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)										
Amber glass total (sulfuric acid) W99	E355-L	30-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	28 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W1	E290	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W21	E290	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Alkalinity Species by Titration										
HDPE W22	E290	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W29	E290	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W4	E290	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W4-Mix	E290	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE W99	E290	30-Jul-2021	----	----	----		05-Aug-2021	14 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE W1	E100	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE W21	E100	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE W22	E100	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE W29	E100	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Conductivity in Water										
HDPE W4	E100	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE W4-Mix	E100	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE W99	E100	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE W1	E108	30-Jul-2021	----	----	----		05-Aug-2021	0.25 hrs	134 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W21	E108	30-Jul-2021	----	----	----		05-Aug-2021	0.25 hrs	135 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W22	E108	30-Jul-2021	----	----	----		05-Aug-2021	0.25 hrs	135 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W4	E108	30-Jul-2021	----	----	----		05-Aug-2021	0.25 hrs	136 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W4-Mix	E108	30-Jul-2021	----	----	----		05-Aug-2021	0.25 hrs	136 hrs	× EHTR-FM
Physical Tests : pH by Meter										
HDPE W29	E108	30-Jul-2021	----	----	----		05-Aug-2021	0.25 hrs	138 hrs	× EHTR-FM

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Meter										
HDPE W99	E108	30-Jul-2021	----	----	----		05-Aug-2021	0.25 hrs	139 hrs	× EHTR-FM
Physical Tests : TSS by Gravimetry										
HDPE W1	E160-H	30-Jul-2021	----	----	----		04-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W21	E160-H	30-Jul-2021	----	----	----		04-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W22	E160-H	30-Jul-2021	----	----	----		04-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W29	E160-H	30-Jul-2021	----	----	----		04-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W4	E160-H	30-Jul-2021	----	----	----		04-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W4-Mix	E160-H	30-Jul-2021	----	----	----		04-Aug-2021	7 days	5 days	✓
Physical Tests : TSS by Gravimetry										
HDPE W99	E160-H	30-Jul-2021	----	----	----		04-Aug-2021	7 days	5 days	✓
Physical Tests : Turbidity by Nephelometry										
HDPE W1	E121	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Turbidity by Nephelometry										
HDPE W21	E121	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE W22	E121	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE W29	E121	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE W4	E121	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE W4-Mix	E121	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Physical Tests : Turbidity by Nephelometry										
HDPE W99	E121	30-Jul-2021	----	----	----		04-Aug-2021	3 days	5 days	× EHTL
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W1	E508	30-Jul-2021	----	----	----		05-Aug-2021	28 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W21	E508	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W22	E508	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W29	E508	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W4	E508	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W4-Mix	E508	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) W99	E508	30-Jul-2021	----	----	----		05-Aug-2021	28 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) W1	E420	30-Jul-2021	----	----	----		04-Aug-2021	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) W21	E420	30-Jul-2021	----	----	----		04-Aug-2021	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) W22	E420	30-Jul-2021	----	----	----		04-Aug-2021	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) W29	E420	30-Jul-2021	----	----	----		04-Aug-2021	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid) W4	E420	30-Jul-2021	----	----	----		04-Aug-2021	180 days	5 days	✓

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W4-Mix	E420	30-Jul-2021	----	----	----		04-Aug-2021	180 days	5 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
W99	E420	30-Jul-2021	----	----	----		04-Aug-2021	180 days	5 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	258055	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	258100	1	7	14.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	258060	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	258059	1	7	14.2	5.0	✓
Conductivity in Water	E100	258056	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	262165	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	258404	2	30	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	258690	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	258095	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	258064	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	258058	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	258061	1	7	14.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	258062	1	7	14.2	5.0	✓
pH by Meter	E108	258054	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	258063	1	7	14.2	5.0	✓
Thiocyanate by Colourimetry	E344	259547	1	15	6.6	5.0	✓
Total Cyanide by CFA	E333	258554	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	258099	1	7	14.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	258094	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	258871	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	258122	2	28	7.1	5.0	✓
Total Nitrogen by Colourimetry	E366	258097	1	7	14.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	258096	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	258098	1	7	14.2	5.0	✓
TSS by Gravimetry	E160-H	258065	2	26	7.6	5.0	✓
Turbidity by Nephelometry	E121	258089	2	22	9.0	5.0	✓
WAD Cyanide by CFA	E336	258553	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	258055	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	258100	1	7	14.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	258060	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	258059	1	7	14.2	5.0	✓
Conductivity in Water	E100	258056	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	262165	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	258404	2	30	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	258690	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	258095	1	7	14.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	258064	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	258058	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	258061	1	7	14.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	258062	1	7	14.2	5.0	✓
pH by Meter	E108	258054	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	258063	1	7	14.2	5.0	✓
Thiocyanate by Colourimetry	E344	259547	1	15	6.6	5.0	✓
Total Cyanide by CFA	E333	258554	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	258099	1	7	14.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	258094	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	258871	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	258122	2	28	7.1	5.0	✓
Total Nitrogen by Colourimetry	E366	258097	1	7	14.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	258096	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	258098	1	7	14.2	5.0	✓
TSS by Gravimetry	E160-H	258065	2	26	7.6	5.0	✓
Turbidity by Nephelometry	E121	258089	2	22	9.0	5.0	✓
WAD Cyanide by CFA	E336	258553	1	10	10.0	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	258055	1	7	14.2	5.0	✓
Ammonia by Fluorescence	E298	258100	1	7	14.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	258060	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	258059	1	7	14.2	5.0	✓
Conductivity in Water	E100	258056	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	262165	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	258404	2	30	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	258690	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	258095	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	258064	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	258058	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	258061	1	7	14.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	258062	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	258063	1	7	14.2	5.0	✓
Thiocyanate by Colourimetry	E344	259547	1	15	6.6	5.0	✓
Total Cyanide by CFA	E333	258554	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	258099	1	7	14.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	258094	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	258871	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	258122	2	28	7.1	5.0	✓
Total Nitrogen by Colourimetry	E366	258097	1	7	14.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	258096	1	7	14.2	5.0	✓

Matrix: **Water**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	258098	1	7	14.2	5.0	✓
TSS by Gravimetry	E160-H	258065	2	26	7.6	5.0	✓
Turbidity by Nephelometry	E121	258089	2	22	9.0	5.0	✓
WAD Cyanide by CFA	E336	258553	1	10	10.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	258100	1	7	14.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	258060	1	7	14.2	5.0	✓
Chloride in Water by IC	E235.Cl	258059	1	7	14.2	5.0	✓
Cyanate by Ion Selective Electrode	E343	262165	1	8	12.5	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	258404	2	30	6.6	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	258690	1	14	7.1	5.0	✓
Dissolved Organic Carbon by Combustion (Low Level)	E358-L	258095	1	7	14.2	5.0	✓
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U	258064	1	7	14.2	5.0	✓
Fluoride in Water by IC	E235.F	258058	1	7	14.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	258061	1	7	14.2	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	258062	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	258063	1	7	14.2	5.0	✓
Thiocyanate by Colourimetry	E344	259547	1	15	6.6	5.0	✓
Total Cyanide by CFA	E333	258554	1	9	11.1	5.0	✓
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T	258099	1	7	14.2	5.0	✓
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318	258094	1	7	14.2	5.0	✓
Total Mercury in Water by CVAAS	E508	258871	1	20	5.0	5.0	✓
Total Metals in Water by CRC ICPMS	E420	258122	2	28	7.1	5.0	✓
Total Nitrogen by Colourimetry	E366	258097	1	7	14.2	5.0	✓
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L	258096	1	7	14.2	5.0	✓
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U	258098	1	7	14.2	5.0	✓
WAD Cyanide by CFA	E336	258553	1	10	10.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Water	E100 Vancouver - Environmental	Water	APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a water sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	E108 Vancouver - Environmental	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
Turbidity by Nephelometry	E121 Vancouver - Environmental	Water	APHA 2130 B (mod)	Turbidity is measured by the nephelometric method, by measuring the intensity of light scatter under defined conditions.
TSS by Gravimetry	E160-H Vancouver - Environmental	Water	APHA 2540 D (mod)	Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, following by drying of the filter at 104 ± 1°C, with gravimetric measurement of the filtered solids. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples.
Bromide in Water by IC (Low Level)	E235.Br-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride in Water by IC	E235.Cl Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride in Water by IC	E235.F Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite in Water by IC (Low Level)	E235.NO2-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate in Water by IC (Low Level)	E235.NO3-L Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate in Water by IC	E235.SO4 Vancouver - Environmental	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290 Vancouver - Environmental	Water	APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Ammonia by Fluorescence	E298 Vancouver - Environmental	Water	J. Environ. Monit., 2005, 7, 37-42 (mod)	Ammonia in water is analyzed by flow-injection analysis with fluorescence detection after reaction with orthophthaldialdehyde (OPA).
Total Kjeldahl Nitrogen by Fluorescence (Low Level)	E318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Total Kjeldahl Nitrogen is determined using block digestion followed by flow-injection analysis with fluorescence detection.
Total Cyanide by CFA	E333 Vancouver - Environmental	Water	ISO 14403 (mod)	Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.
WAD Cyanide by CFA	E336 Vancouver - Environmental	Water	APHA 4500-CN I (mod)	Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.
Cyanate by Ion Selective Electrode	E343 Waterloo - Environmental	Water	APHA 4500-CN L (mod)	This analysis is carried out using procedures adapted from APHA method 4500-CN "Cyanide". Cyanate is determined by the Cyanate hydrolysis method using an ammonia selective electrode
Thiocyanate by Colourimetry	E344 Vancouver - Environmental	Water	APHA 4500-CN M (mod)	Thiocyanate is determined by the ferric nitrate colourimetric method. Water samples containing high levels of hexavalent chromium, cyanide (together with sulfide), reducing agents, or hydrocarbons may cause negative or positive interferences with this method.
Total Organic Carbon (Non-Purgeable) by Combustion (Low Level)	E355-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Total Organic Carbon (Non-Purgeable), also known as NPOC (total), is a direct measurement of TOC after an acidified sample has been purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of total carbon (TC) is comprised of IC (which is common), this method is more accurate and more reliable than the TOC by subtraction method (i.e. TC minus TIC).
Dissolved Organic Carbon by Combustion (Low Level)	E358-L Vancouver - Environmental	Water	APHA 5310 B (mod)	Dissolved Organic Carbon (Non-Purgeable), also known as NPOC (dissolved), is a direct measurement of DOC after a filtered (0.45 micron) sample has been acidified and purged to remove inorganic carbon (IC). Analysis is by high temperature combustion with infrared detection of CO_2. NPOC does not include volatile organic species that are purged off with IC. For samples where the majority of DC (dissolved carbon) is comprised of IC (which is common), this method is more accurate and more reliable than the DOC by subtraction method (i.e. DC minus DIC).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Nitrogen by Colourimetry	E366 Vancouver - Environmental	Water	APHA 4500-P J (mod)	Total Nitrogen is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Phosphorus by Colourimetry (Ultra Trace)	E372-U Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Phosphorus is determined colourimetrically using a discrete analyzer after heated persulfate digestion of the sample.
Total Dissolved Phosphorus by Colourimetry (Trace Level)	E375-T Vancouver - Environmental	Water	APHA 4500-P E (mod).	Total Dissolved Phosphorus is determined colourimetrically using a discrete analyzer after filtration through a 0.45 micron filter followed by heated persulfate digestion of the sample.
Dissolved Orthophosphate by Colourimetry (Ultra Trace Level)	E378-U Vancouver - Environmental	Water	APHA 4500-P E (mod)	Dissolved Orthophosphate is determined colourimetrically on a water sample that has been lab or field filtered through a 0.45 micron membrane filter. Field filtration is recommended to ensure test results represent conditions at time of sampling.
Total Metals in Water by CRC ICPMS	E420 Vancouver - Environmental	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421 Vancouver - Environmental	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS. Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 Vancouver - Environmental	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
Dissolved Mercury in Water by CVAAS	E509 Vancouver - Environmental	Water	APHA 3030B/EPA 1631E (mod)	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	APHA 2340B	“Hardness (as CaCO3), dissolved” is calculated from the sum of dissolved Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A Vancouver - Environmental	Water	APHA 2340B	“Hardness (as CaCO3), from total Ca/Mg” is calculated from the sum of total Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. “Total Hardness” refers to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a property of water due to dissolved divalent cations. Hardness from total Ca/Mg is normally comparable to Dissolved Hardness in non-turbid waters.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Ion Balance using Dissolved Metals	EC101 Vancouver - Environmental	Water	APHA 1030E	Cation Sum, Anion Sum, and Ion Balance are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present. Ion Balance cannot be calculated accurately for waters with very low electrical conductivity (EC).
TDS in Water (Calculation)	EC103 Vancouver - Environmental	Water	APHA 1030E (mod)	Total Dissolved Solids is calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Dissolved species are used where available. Minor ions are included where data is present.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
Digestion for TKN in water	EP318 Vancouver - Environmental	Water	APHA 4500-Norg D (mod)	Samples are digested using block digestion with Copper Sulfate Digestion Reagent.
Preparation for Total Organic Carbon by Combustion	EP355 Vancouver - Environmental	Water		Preparation for Total Organic Carbon by Combustion
Preparation for Dissolved Organic Carbon for Combustion	EP358 Vancouver - Environmental	Water	APHA 5310 B (mod)	Preparation for Dissolved Organic Carbon
Digestion for Total Nitrogen in water	EP366 Vancouver - Environmental	Water	APHA 4500-P J (mod)	Samples are heated with a persulfate digestion reagent.
Digestion for Total Phosphorus in water	EP372 Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are heated with a persulfate digestion reagent.
Digestion for Dissolved Phosphorus in water	EP375 Vancouver - Environmental	Water	APHA 4500-P E (mod).	Samples are filtered through a 0.45 micron membrane filter and then heated with a persulfate digestion reagent.
Dissolved Metals Water Filtration	EP421 Vancouver - Environmental	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
	Vancouver - Environmental			

QUALITY CONTROL REPORT

Work Order	: **WR2100949**	Page	: 1 of 22
Amendment	: **(Partial Results)**		
Client	: Victoria Gold (Yukon) Corp.	Laboratory	: Whitehorse - Environmental
Contact	: Bill Bowden	Account Manager	: Hilary Woods
Address	: Suite 1000 - 1050 W. Pender St Vancouver BC Canada V6E 3S7	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: 867.456.7700 ext. 6381	Telephone	: +1 867 668 6689
Project	: SWQ (July Spill Confirmatory)	Date Samples Received	: 02-Aug-2021 16:08
PO	: 22038	Date Analysis Commenced	: 04-Aug-2021
C-O-C number	: 20210801	Issue Date	: 09-Aug-2021 15:38
Sampler	: HM, SM		
Site	: ----		
Quote number	: Q68199		
No. of samples received	: 7		
No. of samples analysed	: 7		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Cindy Tang	Team Leader - Inorganics	Inorganics, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Gloria Chan	Lab Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Saron Kim	Analyst	Metals, Burnaby, British Columbia
Sristika Chand	Lab Analyst	Metals, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 258054)											
WR2100949-001	W1	pH	----	E108	0.10	pH units	7.87	7.90	0.380%	4%	----
Physical Tests (QC Lot: 258055)											
WR2100949-001	W1	alkalinity, total (as CaCO3)	----	E290	1.0	mg/L	42.8	43.0	0.466%	20%	----
Physical Tests (QC Lot: 258056)											
WR2100949-001	W1	conductivity	----	E100	2.0	µS/cm	107	106	1.22%	10%	----
Physical Tests (QC Lot: 258065)											
WR2100930-004	Anonymous	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	<3.0	<3.0	0	Diff <2x LOR	----
Physical Tests (QC Lot: 258066)											
WR2100949-002	W21	solids, total suspended [TSS]	----	E160-H	3.0	mg/L	11.0	10.8	0.2	Diff <2x LOR	----
Physical Tests (QC Lot: 258089)											
VA21B5992-001	Anonymous	turbidity	----	E121	0.10	NTU	2.68	2.68	0.00%	15%	----
Physical Tests (QC Lot: 258090)											
WR2100949-006	W29	turbidity	----	E121	0.10	NTU	0.79	0.75	0.04	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258058)											
WR2100949-001	W1	fluoride	16984-48-8	E235.F	0.020	mg/L	0.078	0.078	0.00003	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258059)											
WR2100949-001	W1	chloride	16887-00-6	E235.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258060)											
WR2100949-001	W1	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258061)											
WR2100949-001	W1	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0229	0.0245	0.0016	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258062)											
WR2100949-001	W1	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258063)											
WR2100949-001	W1	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	12.6	12.6	0.0878%	20%	----
Anions and Nutrients (QC Lot: 258064)											
WR2100949-001	W1	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0010	mg/L	0.0027	0.0022	0.0005	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258094)											
WR2100949-001	W1	Kjeldahl nitrogen, total [TKN]	----	E318	0.050	mg/L	0.051	0.055	0.004	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258097)											
WR2100949-001	W1	nitrogen, total	7727-37-9	E366	0.030	mg/L	0.063	0.072	0.009	Diff <2x LOR	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Anions and Nutrients (QC Lot: 258098)											
WR2100949-001	W1	phosphorus, total	7723-14-0	E372-U	0.0020	mg/L	0.0090	0.0090	0.000009	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258099)											
WR2100949-001	W1	phosphorus, total dissolved	7723-14-0	E375-T	0.0020	mg/L	0.0046	0.0036	0.0011	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 258100)											
WR2100949-001	W1	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
Anions and Nutrients (QC Lot: 262165)											
WT2100158-002	Anonymous	cyanate	88402-73-7	E343	0.20	mg/L	1.65	1.86	0.21	Diff <2x LOR	----
Cyanides (QC Lot: 258553)											
SK2102643-003	Anonymous	cyanide, weak acid dissociable	----	E336	0.0100	mg/L	0.0142	0.0161	0.0019	Diff <2x LOR	----
Cyanides (QC Lot: 258554)											
SK2102643-003	Anonymous	cyanide, strong acid dissociable (total)	----	E333	0.0100	mg/L	0.326	0.382	15.9%	20%	----
Cyanides (QC Lot: 259547)											
VA21B5670-001	Anonymous	thiocyanate	302-04-5	E344	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 258095)											
WR2100949-001	W1	carbon, dissolved organic [DOC]	----	E358-L	0.50	mg/L	2.10	1.99	0.11	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 258096)											
WR2100949-001	W1	carbon, total organic [TOC]	----	E355-L	0.50	mg/L	1.64	1.71	0.06	Diff <2x LOR	----
Total Metals (QC Lot: 258122)											
VA21B5973-002	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00059	0.00057	0.00002	Diff <2x LOR	----
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0118	0.0117	0.344%	20%	----
		beryllium, total	7440-41-7	E420	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	----
		bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		boron, total	7440-42-8	E420	0.010	mg/L	0.019	0.019	0.00008	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
		calcium, total	7440-70-2	E420	0.050	mg/L	25.8	25.2	2.26%	20%	----
		chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		iron, total	7439-89-6	E420	0.010	mg/L	1.81	1.84	1.64%	20%	----
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000112	0.000106	0.000005	Diff <2x LOR	----
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0019	0.0018	0.00009	Diff <2x LOR	----
		magnesium, total	7439-95-4	E420	0.0050	mg/L	10.4	10.2	2.73%	20%	----
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00729	0.00728	0.0589%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 258122) - continued											
VA21B5973-002	Anonymous	molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000778	0.000795	2.19%	20%	----
		nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	0.050	mg/L	3.78	3.79	0.331%	20%	----
		selenium, total	7782-49-2	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		silicon, total	7440-21-3	E420	0.10	mg/L	20.6	20.4	0.881%	20%	----
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		sodium, total	17341-25-2	E420	0.050	mg/L	12.9	12.9	0.0615%	20%	----
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.141	0.135	4.59%	20%	----
		sulfur, total	7704-34-9	E420	0.50	mg/L	3.48	3.60	0.12	Diff <2x LOR	----
		thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	----
		tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.000477	0.000471	1.32%	20%	----
		vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00382	0.00389	0.00007	Diff <2x LOR	----
		zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0	Diff <2x LOR	----
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	----
Total Metals (QC Lot: 258149)											
WR2100934-002	Anonymous	aluminum, total	7429-90-5	E420	0.0060	mg/L	0.311	0.318	2.17%	20%	----
		antimony, total	7440-36-0	E420	0.00020	mg/L	0.0113	0.0111	1.78%	20%	----
		arsenic, total	7440-38-2	E420	0.00020	mg/L	0.00812	0.00827	1.88%	20%	----
		barium, total	7440-39-3	E420	0.00020	mg/L	0.0237	0.0237	0.0791%	20%	----
		beryllium, total	7440-41-7	E420	0.000040	mg/L	<0.000040	<0.000020	0.000020	Diff <2x LOR	----
		bismuth, total	7440-69-9	E420	0.000100	mg/L	<0.000100	<0.000050	0.000050	Diff <2x LOR	----
		boron, total	7440-42-8	E420	0.020	mg/L	<0.020	0.014	0.006	Diff <2x LOR	----
		cadmium, total	7440-43-9	E420	0.0000100	mg/L	0.0180	0.0174	3.32%	20%	----
		calcium, total	7440-70-2	E420	0.100	mg/L	287	283	1.42%	20%	----
		chromium, total	7440-47-3	E420	0.00100	mg/L	<0.00100	0.00095	0.00005	Diff <2x LOR	----
		cobalt, total	7440-48-4	E420	0.00020	mg/L	0.00177	0.00174	1.64%	20%	----
		copper, total	7440-50-8	E420	0.00100	mg/L	0.0774	0.0750	3.18%	20%	----
		iron, total	7439-89-6	E420	0.020	mg/L	5.59	5.65	1.18%	20%	----
		lead, total	7439-92-1	E420	0.000100	mg/L	0.198	0.188	5.11%	20%	----
		lithium, total	7439-93-2	E420	0.0020	mg/L	0.0078	0.0077	0.00004	Diff <2x LOR	----
		magnesium, total	7439-95-4	E420	0.200	mg/L	8.30	8.54	2.76%	20%	----
		manganese, total	7439-96-5	E420	0.00020	mg/L	0.654	0.686	4.64%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Total Metals (QC Lot: 258149) - continued											
WR2100934-002	Anonymous	molybdenum, total	7439-98-7	E420	0.000100	mg/L	0.00926	0.00923	0.345%	20%	----
		nickel, total	7440-02-0	E420	0.00100	mg/L	0.0106	0.0105	0.899%	20%	----
		phosphorus, total	7723-14-0	E420	0.100	mg/L	0.129	0.115	0.014	Diff <2x LOR	----
		potassium, total	7440-09-7	E420	0.200	mg/L	25.9	25.6	1.26%	20%	----
		selenium, total	7782-49-2	E420	0.000100	mg/L	0.124	0.133	7.37%	20%	----
		silicon, total	7440-21-3	E420	0.20	mg/L	2.68	2.81	4.75%	20%	----
		silver, total	7440-22-4	E420	0.000020	mg/L	0.000170	0.000169	0.271%	20%	----
		sodium, total	17341-25-2	E420	0.100	mg/L	82.4	82.5	0.177%	20%	----
		strontium, total	7440-24-6	E420	0.00040	mg/L	1.24	1.22	1.57%	20%	----
		sulfur, total	7704-34-9	E420	1.00	mg/L	347	362	4.38%	20%	----
		thallium, total	7440-28-0	E420	0.000020	mg/L	0.000541	0.000515	4.93%	20%	----
		tin, total	7440-31-5	E420	0.00020	mg/L	<0.00020	<0.00010	0.00010	Diff <2x LOR	----
		titanium, total	7440-32-6	E420	0.00060	mg/L	0.00069	0.00091	0.00022	Diff <2x LOR	----
		uranium, total	7440-61-1	E420	0.000020	mg/L	0.000367	0.000360	2.04%	20%	----
		vanadium, total	7440-62-2	E420	0.00100	mg/L	0.00106	0.00113	0.00007	Diff <2x LOR	----
		zinc, total	7440-66-6	E420	0.0060	mg/L	2.26	2.26	0.0293%	20%	----
		zirconium, total	7440-67-7	E420	0.00040	mg/L	<0.00040	<0.00020	0.00020	Diff <2x LOR	----
Total Metals (QC Lot: 258871)											
VA21B6002-001	Anonymous	mercury, total	7439-97-6	E508	0.0050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 258404)											
CG2102962-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 258690)											
VA21B6002-001	Anonymous	aluminum, dissolved	7429-90-5	E421	1.0	mg/L	64.8 µg/L	0.0682	5.11%	20%	----
		antimony, dissolved	7440-36-0	E421	0.10	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		arsenic, dissolved	7440-38-2	E421	0.10	mg/L	0.15 µg/L	0.00016	0.00001	Diff <2x LOR	----
		barium, dissolved	7440-39-3	E421	0.10	mg/L	35.7 µg/L	0.0361	1.15%	20%	----
		beryllium, dissolved	7440-41-7	E421	0.100	mg/L	<0.100 µg/L	<0.000100	0	Diff <2x LOR	----
		bismuth, dissolved	7440-69-9	E421	0.050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		boron, dissolved	7440-42-8	E421	10	mg/L	<10 µg/L	<0.010	0	Diff <2x LOR	----
		cadmium, dissolved	7440-43-9	E421	0.0050	mg/L	0.0108 µg/L	0.0000098	0.0000011	Diff <2x LOR	----
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	11.4	11.4	0.517%	20%	----
		chromium, dissolved	7440-47-3	E421	0.50	mg/L	0.68 µg/L	0.00076	0.00008	Diff <2x LOR	----
		cobalt, dissolved	7440-48-4	E421	0.10	mg/L	0.39 µg/L	0.00041	0.00002	Diff <2x LOR	----
		copper, dissolved	7440-50-8	E421	0.20	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
		iron, dissolved	7439-89-6	E421	10	mg/L	9100 µg/L	9.28	1.92%	20%	----

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Dissolved Metals (QC Lot: 258690) - continued											
VA21B6002-001	Anonymous	lead, dissolved	7439-92-1	E421	0.050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		lithium, dissolved	7439-93-2	E421	1.0	mg/L	<1.0 µg/L	<0.0010	0	Diff <2x LOR	----
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	1.15	1.19	3.20%	20%	----
		manganese, dissolved	7439-96-5	E421	0.10	mg/L	442 µg/L	0.457	3.28%	20%	----
		molybdenum, dissolved	7439-98-7	E421	0.050	mg/L	0.051 µg/L	<0.000050	0.000001	Diff <2x LOR	----
		nickel, dissolved	7440-02-0	E421	0.50	mg/L	<0.50 µg/L	<0.00050	0	Diff <2x LOR	----
		phosphorus, dissolved	7723-14-0	E421	50	mg/L	<50 µg/L	<0.050	0	Diff <2x LOR	----
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	0.810	0.824	1.63%	20%	----
		selenium, dissolved	7782-49-2	E421	0.050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	----
		silicon, dissolved	7440-21-3	E421	50	mg/L	5520 µg/L	5.53	0.325%	20%	----
		silver, dissolved	7440-22-4	E421	0.010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		sodium, dissolved	17341-25-2	E421	0.050	mg/L	5.49	5.72	4.06%	20%	----
		strontium, dissolved	7440-24-6	E421	0.20	mg/L	58.4 µg/L	0.0584	0.0194%	20%	----
		sulfur, dissolved	7704-34-9	E421	500	mg/L	<500 µg/L	<0.50	0	Diff <2x LOR	----
		thallium, dissolved	7440-28-0	E421	0.010	mg/L	<0.010 µg/L	<0.000010	0	Diff <2x LOR	----
		tin, dissolved	7440-31-5	E421	0.10	mg/L	<0.10 µg/L	<0.00010	0	Diff <2x LOR	----
		titanium, dissolved	7440-32-6	E421	0.30	mg/L	<0.30 µg/L	<0.00030	0	Diff <2x LOR	----
		uranium, dissolved	7440-61-1	E421	0.010	mg/L	0.030 µg/L	0.000032	0.000002	Diff <2x LOR	----
		vanadium, dissolved	7440-62-2	E421	0.50	mg/L	2.54 µg/L	0.00260	0.00006	Diff <2x LOR	----
		zinc, dissolved	7440-66-6	E421	1.0	mg/L	12.1 µg/L	0.0123	2.02%	20%	----
		zirconium, dissolved	7440-67-7	E421	0.20	mg/L	<0.20 µg/L	<0.00020	0	Diff <2x LOR	----
Dissolved Metals (QC Lot: 258898)											
CG2102966-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 258055)						
alkalinity, total (as CaCO3)	----	E290	1	mg/L	<1.0	----
Physical Tests (QCLot: 258056)						
conductivity	----	E100	1	µS/cm	1.1	----
Physical Tests (QCLot: 258065)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 258066)						
solids, total suspended [TSS]	----	E160-H	3	mg/L	<3.0	----
Physical Tests (QCLot: 258089)						
turbidity	----	E121	0.1	NTU	<0.10	----
Physical Tests (QCLot: 258090)						
turbidity	----	E121	0.1	NTU	<0.10	----
Anions and Nutrients (QCLot: 258058)						
fluoride	16984-48-8	E235.F	0.02	mg/L	<0.020	----
Anions and Nutrients (QCLot: 258059)						
chloride	16887-00-6	E235.Cl	0.5	mg/L	<0.50	----
Anions and Nutrients (QCLot: 258060)						
bromide	24959-67-9	E235.Br-L	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 258061)						
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 258062)						
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 258063)						
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	<0.30	----
Anions and Nutrients (QCLot: 258064)						
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	<0.0010	----
Anions and Nutrients (QCLot: 258094)						
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	<0.050	----
Anions and Nutrients (QCLot: 258097)						
nitrogen, total	7727-37-9	E366	0.03	mg/L	<0.030	----
Anions and Nutrients (QCLot: 258098)						
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	<0.0020	----
Anions and Nutrients (QCLot: 258099)						
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	<0.0020	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Anions and Nutrients (QCLot: 258100)						
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	<0.0050	----
Anions and Nutrients (QCLot: 262165)						
cyanate	88402-73-7	E343	0.2	mg/L	Not Authorised	----
Cyanides (QCLot: 258553)						
cyanide, weak acid dissociable	----	E336	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 258554)						
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	<0.0020	----
Cyanides (QCLot: 259547)						
thiocyanate	302-04-5	E344	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 258095)						
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	<0.50	----
Organic / Inorganic Carbon (QCLot: 258096)						
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	<0.50	----
Total Metals (QCLot: 258122)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 258122) - continued						
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	----
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 258149)						
aluminum, total	7429-90-5	E420	0.003	mg/L	<0.0030	----
antimony, total	7440-36-0	E420	0.0001	mg/L	<0.00010	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	<0.00010	----
barium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	----
boron, total	7440-42-8	E420	0.01	mg/L	<0.010	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	<0.0000050	----
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	----
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	----
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	----
iron, total	7439-89-6	E420	0.01	mg/L	<0.010	----
lead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	----
lithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	----
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	----
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	----
nickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	----
potassium, total	7440-09-7	E420	0.05	mg/L	<0.050	----
selenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	----
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 258149) - continued						
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	----
sodium, total	17341-25-2	E420	0.05	mg/L	<0.050	----
strontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	----
sulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	----
thallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	----
tin, total	7440-31-5	E420	0.0001	mg/L	<0.00010	----
titanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	----
uranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	----
zinc, total	7440-66-6	E420	0.003	mg/L	<0.0030	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	----
Total Metals (QCLot: 258871)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 258404)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----
Dissolved Metals (QCLot: 258690)						
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	----
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	----

Sub-Matrix: **Water**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 258690) - continued						
potassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	<0.050	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	----
Dissolved Metals (QCLot: 258898)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 258054)									
pH	----	E108	----	pH units	7 pH units	99.8	98.0	102	----
Physical Tests (QCLot: 258055)									
alkalinity, total (as CaCO3)	----	E290	1	mg/L	500 mg/L	100	85.0	115	----
Physical Tests (QCLot: 258056)									
conductivity	----	E100	1	µS/cm	146.9 µS/cm	97.5	90.0	110	----
Physical Tests (QCLot: 258065)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	97.0	85.0	115	----
Physical Tests (QCLot: 258066)									
solids, total suspended [TSS]	----	E160-H	3	mg/L	150 mg/L	91.7	85.0	115	----
Physical Tests (QCLot: 258089)									
turbidity	----	E121	0.1	NTU	200 NTU	100.0	85.0	115	----
Physical Tests (QCLot: 258090)									
turbidity	----	E121	0.1	NTU	200 NTU	100	85.0	115	----
Anions and Nutrients (QCLot: 258058)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 258059)									
chloride	16887-00-6	E235.Cl	0.5	mg/L	100 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 258060)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	100	85.0	115	----
Anions and Nutrients (QCLot: 258061)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	104	90.0	110	----
Anions and Nutrients (QCLot: 258062)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 258063)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110	----
Anions and Nutrients (QCLot: 258064)									
phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.001	mg/L	0.03 mg/L	102	80.0	120	----
Anions and Nutrients (QCLot: 258094)									
Kjeldahl nitrogen, total [TKN]	----	E318	0.05	mg/L	4 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 258097)									
nitrogen, total	7727-37-9	E366	0.03	mg/L	0.5 mg/L	98.3	75.0	125	----
Anions and Nutrients (QCLot: 258098)									

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 258098) - continued									
phosphorus, total	7723-14-0	E372-U	0.002	mg/L	0.05 mg/L	96.2	80.0	120	----
Anions and Nutrients (QCLot: 258099)									
phosphorus, total dissolved	7723-14-0	E375-T	0.002	mg/L	0.05 mg/L	95.8	80.0	120	----
Anions and Nutrients (QCLot: 258100)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	93.9	85.0	115	----
Anions and Nutrients (QCLot: 262165)									
cyanate	88402-73-7	E343	0.2	mg/L	----	# Not Authorised	85.0	115	----
Cyanides (QCLot: 258553)									
cyanide, weak acid dissociable	----	E336	0.002	mg/L	0.125 mg/L	104	80.0	120	----
Cyanides (QCLot: 258554)									
cyanide, strong acid dissociable (total)	----	E333	0.002	mg/L	0.25 mg/L	90.6	80.0	120	----
Cyanides (QCLot: 259547)									
thiocyanate	302-04-5	E344	0.5	mg/L	10 mg/L	102	85.0	115	----
Organic / Inorganic Carbon (QCLot: 258095)									
carbon, dissolved organic [DOC]	----	E358-L	0.5	mg/L	8.57 mg/L	98.2	80.0	120	----
Organic / Inorganic Carbon (QCLot: 258096)									
carbon, total organic [TOC]	----	E355-L	0.5	mg/L	8.57 mg/L	101	80.0	120	----
Total Metals (QCLot: 258122)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	107	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	102	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	103	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	98.3	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	97.4	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	94.6	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	102	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	98.5	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	106	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	94.9	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	93.2	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	106	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 258122) - continued									
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	104	80.0	120	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	104	80.0	120	----
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	108	80.0	120	----
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	110	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	101	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	107	80.0	120	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	100	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	104	80.0	120	----
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	101	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	108	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.0	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	103	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	96.4	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	94.2	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	105	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	99.7	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	100	80.0	120	----
Total Metals (QCLot: 258149)									
aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	101	80.0	120	----
antimony, total	7440-36-0	E420	0.0001	mg/L	1 mg/L	100	80.0	120	----
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	96.3	80.0	120	----
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	96.6	80.0	120	----
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	93.9	80.0	120	----
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	98.2	80.0	120	----
boron, total	7440-42-8	E420	0.01	mg/L	1 mg/L	93.0	80.0	120	----
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	97.2	80.0	120	----
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	94.7	80.0	120	----
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	98.0	80.0	120	----
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.1	80.0	120	----
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.0	80.0	120	----
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	98.1	80.0	120	----
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	94.6	80.0	120	----
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	94.8	80.0	120	----
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	98.4	80.0	120	----
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	97.8	80.0	120	----
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	98.3	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 258149) - continued									
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.2	80.0	120	----
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	107	80.0	120	----
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	103	80.0	120	----
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	97.0	80.0	120	----
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	95.6	80.0	120	----
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	96.3	80.0	120	----
sodium, total	17341-25-2	E420	0.05	mg/L	50 mg/L	101	80.0	120	----
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	97.0	80.0	120	----
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	86.5	80.0	120	----
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	97.1	80.0	120	----
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	95.6	80.0	120	----
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	97.4	80.0	120	----
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	97.6	80.0	120	----
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	----
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	98.5	80.0	120	----
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	93.6	80.0	120	----
Total Metals (QCLot: 258871)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	87.4	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	100	80.0	120	----
Dissolved Metals (QCLot: 258690)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	109	80.0	120	----
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	118	80.0	120	----
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	101	80.0	120	----
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	107	80.0	120	----
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	102	80.0	120	----
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	108	80.0	120	----
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	105	80.0	120	----
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	104	80.0	120	----
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	100	80.0	120	----
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	103	80.0	120	----
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120	----
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	105	80.0	120	----
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	104	80.0	120	----
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	104	80.0	120	----
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	103	80.0	120	----

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 258690) - continued									
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	106	80.0	120	----
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	111	80.0	120	----
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	97.1	80.0	120	----
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	101	80.0	120	----
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	104	80.0	120	----
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	108	80.0	120	----
sodium, dissolved	17341-25-2	E421	0.05	mg/L	50 mg/L	107	80.0	120	----
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	109	80.0	120	----
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	91.7	80.0	120	----
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	109	80.0	120	----
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	109	80.0	120	----
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	101	80.0	120	----
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	105	80.0	120	----
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	103	80.0	120	----
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	108	80.0	120	----
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	107	80.0	120	----
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	100	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutrients (QCLot: 258058)										
WR2100949-002	W21	fluoride	16984-48-8	E235.F	1.06 mg/L	1 mg/L	106	75.0	125	----
Anions and Nutrients (QCLot: 258059)										
WR2100949-002	W21	chloride	16887-00-6	E235.Cl	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 258060)										
WR2100949-002	W21	bromide	24959-67-9	E235.Br-L	0.508 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 258061)										
WR2100949-002	W21	nitrate (as N)	14797-55-8	E235.NO3-L	2.58 mg/L	2.5 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 258062)										
WR2100949-002	W21	nitrite (as N)	14797-65-0	E235.NO2-L	0.511 mg/L	0.5 mg/L	102	75.0	125	----
Anions and Nutrients (QCLot: 258063)										
WR2100949-002	W21	sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	----
Anions and Nutrients (QCLot: 258064)										
WR2100949-002	W21	phosphate, ortho-, dissolved (as P)	14265-44-2	E378-U	0.0310 mg/L	0.03 mg/L	103	70.0	130	----
Anions and Nutrients (QCLot: 258094)										
WR2100949-002	W21	Kjeldahl nitrogen, total [TKN]	----	E318	2.64 mg/L	2.5 mg/L	106	70.0	130	----
Anions and Nutrients (QCLot: 258097)										
WR2100949-002	W21	nitrogen, total	7727-37-9	E366	0.399 mg/L	0.4 mg/L	99.8	70.0	130	----
Anions and Nutrients (QCLot: 258098)										
WR2100949-002	W21	phosphorus, total	7723-14-0	E372-U	0.0529 mg/L	0.05 mg/L	106	70.0	130	----
Anions and Nutrients (QCLot: 258099)										
WR2100949-002	W21	phosphorus, total dissolved	7723-14-0	E375-T	0.0507 mg/L	0.05 mg/L	101	70.0	130	----
Anions and Nutrients (QCLot: 258100)										
WR2100949-002	W21	ammonia, total (as N)	7664-41-7	E298	0.0954 mg/L	0.1 mg/L	95.4	75.0	125	----
Anions and Nutrients (QCLot: 262165)										
WT2100158-002	Anonymous	cyanate	88402-73-7	E343	1.77 mg/L	----	N/A	70.0	130	----
Cyanides (QCLot: 258553)										
WR2100949-001	W1	cyanide, weak acid dissociable	----	E336	0.128 mg/L	0.125 mg/L	103	75.0	125	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Cyanides (QCLot: 258554)										
WR2100949-001	W1	cyanide, strong acid dissociable (total)	----	E333	0.224 mg/L	0.25 mg/L	89.5	75.0	125	----
Cyanides (QCLot: 259547)										
WR2100936-001	Anonymous	thiocyanate	302-04-5	E344	10.6 mg/L	10 mg/L	106	75.0	125	----
Organic / Inorganic Carbon (QCLot: 258095)										
WR2100949-002	W21	carbon, dissolved organic [DOC]	----	E358-L	5.28 mg/L	5 mg/L	106	70.0	130	----
Organic / Inorganic Carbon (QCLot: 258096)										
WR2100949-002	W21	carbon, total organic [TOC]	----	E355-L	5.12 mg/L	5 mg/L	102	70.0	130	----
Total Metals (QCLot: 258122)										
VA21B5992-001	Anonymous	aluminum, total	7429-90-5	E420	0.192 mg/L	0.2 mg/L	95.8	70.0	130	----
		antimony, total	7440-36-0	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	----
		arsenic, total	7440-38-2	E420	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		barium, total	7440-39-3	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0394 mg/L	0.04 mg/L	98.6	70.0	130	----
		bismuth, total	7440-69-9	E420	0.00881 mg/L	0.01 mg/L	88.1	70.0	130	----
		boron, total	7440-42-8	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00394 mg/L	0.004 mg/L	98.5	70.0	130	----
		calcium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, total	7440-47-3	E420	0.0385 mg/L	0.04 mg/L	96.2	70.0	130	----
		cobalt, total	7440-48-4	E420	0.0195 mg/L	0.02 mg/L	97.6	70.0	130	----
		copper, total	7440-50-8	E420	0.0194 mg/L	0.02 mg/L	96.9	70.0	130	----
		iron, total	7439-89-6	E420	1.92 mg/L	2 mg/L	96.2	70.0	130	----
		lead, total	7439-92-1	E420	0.0184 mg/L	0.02 mg/L	92.0	70.0	130	----
		lithium, total	7439-93-2	E420	0.0925 mg/L	0.1 mg/L	92.5	70.0	130	----
		magnesium, total	7439-95-4	E420	0.979 mg/L	1 mg/L	97.9	70.0	130	----
		manganese, total	7439-96-5	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	----
		nickel, total	7440-02-0	E420	0.0390 mg/L	0.04 mg/L	97.4	70.0	130	----
		phosphorus, total	7723-14-0	E420	10.0 mg/L	10 mg/L	100	70.0	130	----
		potassium, total	7440-09-7	E420	ND mg/L	4 mg/L	ND	70.0	130	----
		selenium, total	7782-49-2	E420	0.0402 mg/L	0.04 mg/L	100	70.0	130	----
		silicon, total	7440-21-3	E420	9.65 mg/L	10 mg/L	96.5	70.0	130	----
		silver, total	7440-22-4	E420	0.00381 mg/L	0.004 mg/L	95.3	70.0	130	----
		sodium, total	17341-25-2	E420	ND mg/L	2 mg/L	ND	70.0	130	----
		strontium, total	7440-24-6	E420	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, total	7704-34-9	E420	20.0 mg/L	20 mg/L	100	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 258122) - continued										
VA21B5992-001	Anonymous	thallium, total	7440-28-0	E420	0.00362 mg/L	0.004 mg/L	90.6	70.0	130	----
		tin, total	7440-31-5	E420	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	----
		titanium, total	7440-32-6	E420	0.0379 mg/L	0.04 mg/L	94.8	70.0	130	----
		uranium, total	7440-61-1	E420	0.00362 mg/L	0.004 mg/L	90.6	70.0	130	----
		vanadium, total	7440-62-2	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		zinc, total	7440-66-6	E420	0.402 mg/L	0.4 mg/L	101	70.0	130	----
		zirconium, total	7440-67-7	E420	0.0399 mg/L	0.04 mg/L	99.7	70.0	130	----
Total Metals (QCLot: 258149)										
VA21B5600-011	Anonymous	aluminum, total	7429-90-5	E420	0.201 mg/L	0.2 mg/L	100	70.0	130	----
		antimony, total	7440-36-0	E420	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	----
		arsenic, total	7440-38-2	E420	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	----
		barium, total	7440-39-3	E420	0.0196 mg/L	0.02 mg/L	97.8	70.0	130	----
		beryllium, total	7440-41-7	E420	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		bismuth, total	7440-69-9	E420	0.00977 mg/L	0.01 mg/L	97.7	70.0	130	----
		boron, total	7440-42-8	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		cadmium, total	7440-43-9	E420	0.00408 mg/L	0.004 mg/L	102	70.0	130	----
		calcium, total	7440-70-2	E420	3.92 mg/L	4 mg/L	98.0	70.0	130	----
		chromium, total	7440-47-3	E420	0.0398 mg/L	0.04 mg/L	99.5	70.0	130	----
		cobalt, total	7440-48-4	E420	0.0200 mg/L	0.02 mg/L	100	70.0	130	----
		copper, total	7440-50-8	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		iron, total	7439-89-6	E420	1.96 mg/L	2 mg/L	97.9	70.0	130	----
		lead, total	7439-92-1	E420	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	----
		lithium, total	7439-93-2	E420	0.0991 mg/L	0.1 mg/L	99.1	70.0	130	----
		magnesium, total	7439-95-4	E420	0.996 mg/L	1 mg/L	99.6	70.0	130	----
		manganese, total	7439-96-5	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	----
		molybdenum, total	7439-98-7	E420	0.0201 mg/L	0.02 mg/L	101	70.0	130	----
		nickel, total	7440-02-0	E420	0.0406 mg/L	0.04 mg/L	102	70.0	130	----
		phosphorus, total	7723-14-0	E420	9.95 mg/L	10 mg/L	99.5	70.0	130	----
		potassium, total	7440-09-7	E420	4.17 mg/L	4 mg/L	104	70.0	130	----
		selenium, total	7782-49-2	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	----
		silicon, total	7440-21-3	E420	9.62 mg/L	10 mg/L	96.2	70.0	130	----
		silver, total	7440-22-4	E420	0.00403 mg/L	0.004 mg/L	101	70.0	130	----
		sodium, total	17341-25-2	E420	2.02 mg/L	2 mg/L	101	70.0	130	----
		strontium, total	7440-24-6	E420	0.0212 mg/L	0.02 mg/L	106	70.0	130	----
		sulfur, total	7704-34-9	E420	19.5 mg/L	20 mg/L	97.7	70.0	130	----
		thallium, total	7440-28-0	E420	0.00383 mg/L	0.004 mg/L	95.8	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QCLot: 258149) - continued										
VA21B5600-011	Anonymous	tin, total	7440-31-5	E420	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		titanium, total	7440-32-6	E420	0.0404 mg/L	0.04 mg/L	101	70.0	130	----
		uranium, total	7440-61-1	E420	0.00399 mg/L	0.004 mg/L	99.7	70.0	130	----
		vanadium, total	7440-62-2	E420	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		zinc, total	7440-66-6	E420	0.401 mg/L	0.4 mg/L	100	70.0	130	----
		zirconium, total	7440-67-7	E420	0.0422 mg/L	0.04 mg/L	106	70.0	130	----
Total Metals (QCLot: 258871)										
VA21B6012-001	Anonymous	mercury, total	7439-97-6	E508	0.0000858 mg/L	0.0001 mg/L	85.8	70.0	130	----
Dissolved Metals (QCLot: 258404)										
CG2102962-002	Anonymous	mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0.0001 mg/L	101	70.0	130	----
Dissolved Metals (QCLot: 258690)										
VA21B6012-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.182 mg/L	0.2 mg/L	91.0	70.0	130	----
		antimony, dissolved	7440-36-0	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	----
		arsenic, dissolved	7440-38-2	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130	----
		barium, dissolved	7440-39-3	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		beryllium, dissolved	7440-41-7	E421	0.0382 mg/L	0.04 mg/L	95.6	70.0	130	----
		bismuth, dissolved	7440-69-9	E421	0.00895 mg/L	0.01 mg/L	89.5	70.0	130	----
		boron, dissolved	7440-42-8	E421	0.097 mg/L	0.1 mg/L	97.4	70.0	130	----
		cadmium, dissolved	7440-43-9	E421	0.00400 mg/L	0.004 mg/L	100	70.0	130	----
		calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, dissolved	7440-47-3	E421	0.0366 mg/L	0.04 mg/L	91.5	70.0	130	----
		cobalt, dissolved	7440-48-4	E421	0.0188 mg/L	0.02 mg/L	93.9	70.0	130	----
		copper, dissolved	7440-50-8	E421	0.0185 mg/L	0.02 mg/L	92.7	70.0	130	----
		iron, dissolved	7439-89-6	E421	1.85 mg/L	2 mg/L	92.7	70.0	130	----
		lead, dissolved	7439-92-1	E421	0.0181 mg/L	0.02 mg/L	90.5	70.0	130	----
		lithium, dissolved	7439-93-2	E421	0.0978 mg/L	0.1 mg/L	97.8	70.0	130	----
		magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, dissolved	7439-98-7	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	----
		nickel, dissolved	7440-02-0	E421	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	----
		phosphorus, dissolved	7723-14-0	E421	9.29 mg/L	10 mg/L	92.9	70.0	130	----
		potassium, dissolved	7440-09-7	E421	3.80 mg/L	4 mg/L	95.1	70.0	130	----
		selenium, dissolved	7782-49-2	E421	0.0397 mg/L	0.04 mg/L	99.4	70.0	130	----
		silicon, dissolved	7440-21-3	E421	9.22 mg/L	10 mg/L	92.2	70.0	130	----
		silver, dissolved	7440-22-4	E421	0.00355 mg/L	0.004 mg/L	88.7	70.0	130	----
		sodium, dissolved	17341-25-2	E421	ND mg/L	2 mg/L	ND	70.0	130	----

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals (QCLot: 258690) - continued										
VA21B6012-001	Anonymous	strontium, dissolved	7440-24-6	E421	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, dissolved	7704-34-9	E421	19.9 mg/L	20 mg/L	99.5	70.0	130	----
		thallium, dissolved	7440-28-0	E421	0.00365 mg/L	0.004 mg/L	91.2	70.0	130	----
		tin, dissolved	7440-31-5	E421	0.0203 mg/L	0.02 mg/L	101	70.0	130	----
		titanium, dissolved	7440-32-6	E421	0.0392 mg/L	0.04 mg/L	97.9	70.0	130	----
		uranium, dissolved	7440-61-1	E421	0.00383 mg/L	0.004 mg/L	95.8	70.0	130	----
		vanadium, dissolved	7440-62-2	E421	0.0946 mg/L	0.1 mg/L	94.6	70.0	130	----
		zinc, dissolved	7440-66-6	E421	0.391 mg/L	0.4 mg/L	97.7	70.0	130	----
		zirconium, dissolved	7440-67-7	E421	0.0427 mg/L	0.04 mg/L	107	70.0	130	----
Dissolved Metals (QCLot: 258898)										
VA21B5431-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000994 mg/L	0.0001 mg/L	99.4	70.0	130	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental
www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210801

Page

Environmental Division
Whitehorse
Work Order Reference
WR2100949

Telephone : +1 867 668 6689

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Report Format / Distribution

Select Report Format: ☑ ☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report ☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked
Select Distribution: ☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax DLEnvironmentalLabResults@vgcx.com
Email 2 importer@victoriagold.ehsdata.com
Email 3
Email 4

Invoice Distribution

Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax invoices@vgcx.com
Email 2 bbowden@vgcx.com; Jjackson@vgcx.com

Select Service Level Below - Contact your AM to conf

Regular [R] ☐ Standard TAT if received by 3 pm - b

PRIORITY (Business Days)		EMERGENCY	
	4 day [P4-20%] ☐		1 Business day
	3 day [P3-25%] ☐		Same Day, Weel
	2 day [P2-50%] ☑		(Laboratory ope

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selecte

Analysis Requ

Indicate Filtered (F), Preserved (P) or Filtered and Pre

Project Information

ALS Account # / Quote #:	STRG100 Q68199
Job #:	SWQ (JULY Spill Confirmatory)
PO / AFE:	22038
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#:
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods **Sampler:** HM, SM

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	F/P ESW	P CN1	SAMPLES ON HOLD	Sample is hazardous (please provide further	NUMBER OF CONTAINERS
	W1	30-Jul-21	16:00	Water	P2	P2			11
	W21	30-Jul-21	15:25	Water	P2	P2			11
	W4	30-Jul-21	14:00	Water	P2	P2			11
	W4-Mix	30-Jul-21	13:40	Water	P2	P2			11
	W22	30-Jul-21	15:00	Water	P2	P2			11
	W29	30-Jul-21	12:00	Water	P2	P2			11
	W99	30-Jul-21	11:20	Water	P2	P2			11

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO
Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format
Note that all metals bottles are preserved

SAMPLE CONDITION AS RE

Frozen ☐ SIF Observations
Ice Packs ☐ Ice Cubes ☐ Custody seal intact
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C: 12° 11°

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RE	
Released by: Kris P	Date: 01-Aug-2021	Time: 8:00	Received by:	Date:	Time:	Received by:	Date:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Number: 20210801

Page

Environmental Division
Whitehorse
Work Order Reference
WR2100949

Telephone : +1 867 668 6689

Report To	Contact and company name below will appear on the final report
Company:	Victoria Gold (Yukon) Corp.
Contact:	John Jackson / Bill Bowden
Phone:	867-456-7700 x 6381
	Company address below will appear on the final report
Street:	100-1050 West Pender Street
City/Province:	Vancouver, BC
Postal Code:	V6E 3S7
Invoice To	Same as Report To ☐ YES ☑ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	STR125-EAGLEGOLD-VA
Contact:	

Report Format / Distribution

Select Report Format:	☑ EXCEL ☑ EDD (DIGITAL)
Quality Control (QC) Report with Report	☐ YES ☐ NO
☐ Compare Results to Criteria on Report - provide details below if box checked	
Select Distribution:	☑ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	DLEnvironmentalLabResults@vgcx.com
Email 2	importer@victoriagold.ehsdata.com
Email 3	
Email 4	

Invoice Distribution

Select Invoice Distribution:	☐ EMAIL ☐ MAIL ☐ FAX
Email 1 or Fax	invoices@vgcx.com
Email 2	bbowden@vgcx.com; Jjackson@vgcx.com

Project Information

ALS Account # / Quote #:	STRG100 Q68199
Job #:	SWQ (JULY Spill Confirmatory)
PO / AFE:	22038
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

Select Service Level Below - Contact your AM to confi

Regular [R] ☐ Standard TAT if received by 3 pm - b

PRIORITY (Business Days): 4 day [P4-20%] ☐ | 3 day [P3-25%] ☐ | 2 day [P2-50%] ☑

EMERGENCY: 1 Business day | Same Day, Wee | (Laboratory ope

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service level selecte

Analysis Requ

Indicate Filtered (F), Preserved (P) or Filtered and Pre

ALS Lab Work Order # (lab use only):

ALS Contact: Hilary Woods | Sampler: HM, SM

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	F/P ESW	P CN1	SAMPLES ON HOLD	Sample Is hazardous (please provide further	NUMBER OF CONTAINERS
	W1	30-Jul-21	16:00	Water	P2	P2			11
	W21	30-Jul-21	15:25	Water	P2	P2			11
	W4	30-Jul-21	14:00	Water	P2	P2			11
	W4-Mix	30-Jul-21	13:40	Water	P2	P2			11
	W22	30-Jul-21	15:00	Water	P2	P2			11
	W29	30-Jul-21	12:00	Water	P2	P2			11
	W99	30-Jul-21	11:20	Water	P2	P2			11

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?
☑ NO

Are samples for human consumption/ use?
☑ NO

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

Please include Yukon Government EQWin format
Note that all metals bottles are preserved

SAMPLE CONDITION AS RE

Frozen ☐ SIF Observations
Ice Packs ☑ Ice Cubes ☐ Custody seal intact
Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C: 12° 11°

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RE	
Released by: Kris P	Date: 01-Aug-2021	Time: 8:00	Received by:	Date:	Time:	Received by: HK Date:

8/3

5

4:05P

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

SEPT 2017 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	Brad Campbell, Brad Newbury, Vic Gold		
Date Observed:	October 25, 2021	**Time Observed:** 10:00	
Location of Spill:	Waste Disposal Area	**VGC Tracking Number:** VGC-042	
Distance to Waterbody:	2 KM	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	10 Liters	**Reported to:** Environment	
PERSON/DEPT. RESPONSIBLE FOR SPILL			
Supervisor/Investigator:	Denys Evans		
Date of Spill:	October 25, 2021		
Substance Spilled:	Waste Oil		
Equipment Involved:	Lube Truck		
Volume of Contaminated Material:	.25m3		
Personnel Contacted for Disposal (Name):	Scott Arcand		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	On October 25, 2021 at approximately 10:00am, a maintenance fuel and lube truck was pumping collected waste oil into totes in a designated waste disposal area. While the operator was pumping, the operator noticed waste oil leaking from the used oil filter disposal tray, which is installed inside the lube truck. Approx. 10 Liters was released due to the used oil filter disposal tray being too full and the Lube truck being on a slope.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	The spill was immediately contained by laying down absorbent pads and booms. Site services used a loader to scrap up the contaminated snow and ice and placed it in the LTF. All absorbent pads and booms were disposed of properly at the waste disposal area.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	YG 21-109	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Reported on October 25, 2021 at 17:00.		
Disposal Container Labelled?	☐ Yes ☑ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	Impacted snow and ice situated on the hazardous waste disposal laydown area. 0.25 m3 of snow and ice collected and removed.		
Method of Disposal & Further Remediation Required:	0.25 m3 of contaminated snow and ice removed with loader and placed in the LTF.		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:** N/A	
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	Denys Evans	**Signature:**	
Safety:		**Signature:**	
Environment:	Bill Bowden	**Signature:**	

FINAL REPORT
SPILL CLOSED

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	October 25, 2021	VGC Spill #	VGC21-042
Volume (L):	0.25m^3	Yukon Government #	21-109
Substance	Waste Oil	Location	Waste Disposal Laydown

Photos:

FINAL REPORT
SPILL CLOSED



Photo 1: Waste oil leaked from internal used oil filter disposal tray onto snow and ice.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	October 25, 2021	VGC Spill #	VGC21-042
Volume (L):	0.25m^3	Yukon Government #	21-109
Substance	Waste Oil	Location	Waste Disposal Laydown



FINAL REPORT
SPILL CLOSED

Photo 2: Site of spill after clean up. Contaminated snow and ice removed to LTF.

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	NES Vac Services		
Date Observed:	November 3, 2021	**Time Observed:** 07:00	
Location of Spill:	Contractor parking lot	**VGC Tracking Number:** VGC-043	
Distance to Waterbody:	1km	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	40L	**Reported to:** Environment	
PERSON/DEPT. RESPONSIBLE FOR SPILL			
Supervisor/Investigator:	Ryan Noble		
Date of Spill:	November 3, 2021		
Substance Spilled:	Coolant		
Equipment Involved:	Vac Truck		
Volume of Contaminated Material:	<1.0 m3 snow and ice.		
Personnel Contacted for Disposal (Name):	Site Services		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	On November 3, 2021 at approximately 07:00, an NES employee observed that coolant was on the ground adjacent to a running NES vacuum truck parked in the contractor parking lot. The release occurred due to a failed coolant hose in the engine compartment.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	NES operator immediately shut the truck down and placed absorbent pads to contain the spill. A skid steer was actioned to scrap up the contaminated snow and ice and place it in lined waste disposal bags. All absorbent pads were disposed of properly at the waste disposal area. The coolant line is repaired and the truck is operational.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	21-111	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	Jeff- Reported on November 3, 2021 at 17:00.		
Disposal Container Labelled?	☑ Yes ☐ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	Impacted snow and ice situated on contractor parking lots. <1.0 m3 snow and ice collected and removed.		
Method of Disposal & Further Remediation Required:	<1.0 m3 snow and ice placed in lined waste bags and stored at LTF.		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:**	
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	Tyler Christian	**Signature:**	
Safety:		**Signature:**	
Environment:	Bill Bowden	**Signature:**	

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	November 3, 2021	VGC Spill #	VGC21-043
Volume (L):	40 L	Yukon Government #	21-111
Substance	Coolant	Location	Contractor Parking Lot

Photos:



Photo 1: Coolant leaked from NES Vac truck while running during the night.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	November 3, 2021	VGC Spill #	VGC21-043
Volume (L):	40 L	Yukon Government #	21-111
Substance	Coolant	Location	Contractor Parking Lot



Photo 2: Release of coolant was determined to be due to a failed coolant hose.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	November 3, 2021	VGC Spill #	VGC21-043
Volume (L):	40 L	Yukon Government #	21-111
Substance	Coolant	Location	Contractor Parking Lot



Photo 3:Site of spill after clean up. Contaminated snow and ice removed and placed in lined waste disposal bags.

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	November 3, 2021	VGC Spill #	VGC21-043
Volume (L):	40 L	Yukon Government #	21-111
Substance	Coolant	Location	Contractor Parking Lot



Photo 4: Site of spill after clean up. Contaminated snow and ice put in lined waste disposal bags.

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	Victoria Gold		
Date Observed:	Nov 20, 2021	**Time Observed:** 10:00	
Location of Spill:	Lift Station	**VGC Tracking Number:** VGC21-046	
Distance to Waterbody:	500m	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	100 L	**Reported to:** C. Schaad	

PERSON/DEPT. RESPONSIBLE FOR SPILL	
Supervisor/Investigator:	Christian Schaad
Date of Spill:	November 20 2021
Substance Spilled:	septic effluent
Equipment Involved:	pump floats
Volume of Contaminated Material:	<1m3 ice and snow
Personnel Contacted for Disposal (Name):	Jim Koponen
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	On November 20, 2021 at approximately 10:00 it was observed that effluent sourcing from the main septic lift station was leaking onto the adjacent snow and ice surface. It was determined that a pump float on the secondary settling tank had failed which resulted in the release from the top overflow valve.
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	The main lift station was shut down for a short period and the failed float was identified and repaired. The snow and ice impacted by septic tank effluent was scraped up with a loader and placed on the soil absorption field.

ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	21-119	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	reported on November 20th		
Disposal Container Labelled?	☐ Yes ☑ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	snow and ice adjacent to main lift station		
Method of Disposal & Further Remediation Required:	impacted snow and ice was placed on the soil absorption field		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:**	

SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	C. Schaad	**Signature:**	
Safety:		**Signature:**	
Environment:	Bill Bowden	**Signature:**	

Final Report
Spill Closed

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	Evan Coffey (Orica)		
Date Observed:	December 10, 2021	**Time Observed:** 10:30 am	
Location of Spill:	Orica Emulsion Plant	**VGC Tracking Number:** VGC21-049	
Distance to Waterbody:	Approx. 750M	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	2000 Kgs	**Reported to:** Environment	
PERSON/DEPT. RESPONSIBLE FOR SPILL			
Supervisor/Investigator:	Evan Coffey/John Jackson/Ben Widdowson		
Date of Spill:	December 10, 2021		
Substance Spilled:	Ammonia Nitrate Solution (ANS)		
Equipment Involved:	Tanker Truck (Sharp Oilfield Transport)		
Volume of Contaminated Material:	14 m3		
Personnel Contacted for Disposal (Name):	Site Services - Scott Arcand/ Christian Brown		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	See attached (Summary of Events - Spill 21-121 Ammonium Nitrate Solution)		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Spill pads and booms were deployed to contain the release and the area cordoned off. The affected area was excavated by site services and impacted snow, ice and soils hauled to the production blast for disposal. Road crush was placed on the excavation site.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	21-121	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:			
Disposal Container Labelled?	☑ Yes ☐ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	15 m X 3 m X 0.3 m - Thin hard pack of snow cover (~5 cm) over soil.		
Method of Disposal & Further Remediation Required:	Contaminated snow/ice and soil removed and placed on blast pattern during blast.		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:**	
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:	Lee Wrekar	**Signature:**	Dec 18/21
Supervisor:	Lee Wrekar	**Signature:**	Dec 18/21
Safety:	David Rottey	**Signature:**	Dec 18/21
Environment:	John Jackson	**Signature:**	Dec 18/21

FINAL REPORT
SPILL CLOSED

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	December 10, 2021	VGC Spill #	VGC21-049
Volume (Kg):	2000	Yukon Government #	21-121
Substance	Ammonia Nitrate Solution (ANS)	Location	Orica Emulsion Plant

Summary of events (Dec 10, 2021 – ANS Release at the VGCX Orica Emulsion Plant)

While offloading a delivery of Ammonia Nitrate Solution (ANS) into the holding tank at Orica, a leak was noted on the internal valve of the lead tank. The steam was shutoff, the valve closed, and the flange gasket was evaluated. During the evaluation it was noted that the gasket seal was deformed and a decision was made to replace it with the gasket from the pup. The driver did not have a spare. Steaming was resumed for approximately 1 hour when the flange was noted to be leaking again. The steam and valves were shutoff, however the valve continued to leak product onto the ground. Spill kits were deployed to contain the material and a decision was made to continue offloading the ANS to minimize product loss onto the ground given the inability to stop the flow.

Totalizer readings indicate that approximately 12,912kg of ANS was offloaded into the Orica tank with ~2000 kg estimated to have spilled onto ground.

The product released (liquid ammonium nitrate) is the primary oxidizer used in the manufacturing of bulk emulsion explosives. The ANS is offloaded into an ISO tank in the Explosive Manufacturing Plant and when producing emulsions, the ANS is blended with surfactants and oils to produce an explosive agent. Prior to the blending process, ANS is essentially liquid fertilizer and not an explosive agent.

The on-site explosive delivery truck used for delivery to the bore hole contains both emulsion, AN and fuel oil and we mix the products at the borehole to produce a 30% emulsion/70% ANFO blend.

Photos:

FINAL REPORT
SPILL CLOSED

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	December 10, 2021	VGC Spill #	VGC21-049
Volume (Kg):	2000	Yukon Government #	21-121
Substance	Ammonia Nitrate Solution (ANS)	Location	Orica Emulsion Plant



Photo 1: Area of release of Ammonia Nitrate Solution (ANS). Spill pads and Spill booms used to contain ANS.

FINAL REPORT
SPILL CLOSED

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	December 10, 2021	VGC Spill #	VGC21-049
Volume (Kg):	2000	Yukon Government #	21-121
Substance	Ammonia Nitrate Solution (ANS)	Location	Orica Emulsion Plant

FINAL REPORT
SPILL CLOSED



Photo 2: Failed Flange



Photo 3: Location of Flange Failure while still installed on transfer pipe

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	December 10, 2021	VGC Spill #	VGC21-049
Volume (Kg):	2000	Yukon Government #	21-121
Substance	Ammonia Nitrate Solution (ANS)	Location	Orica Emulsion Plant



Photo 4: Remediated area after contaminated snow/ice and soil removed.

FINAL REPORT
SPILL CLOSED

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	December 10, 2021	VGC Spill #	VGC21-049
Volume (Kg):	2000	Yukon Government #	21-121
Substance	Ammonia Nitrate Solution (ANS)	Location	Orica Emulsion Plant



Figure 1: Overview Map - Orica Spill #21-121

FINAL REPORT SPILL CLOSED

VICTORIA GOLD CORP	Additional Spill Information		
Spill Date:	December 10, 2021	VGC Spill #	VGC21-049
Volume (Kg):	2000	Yukon Government #	21-121
Substance	Ammonia Nitrate Solution (ANS)	Location	Orica Emulsion Plant

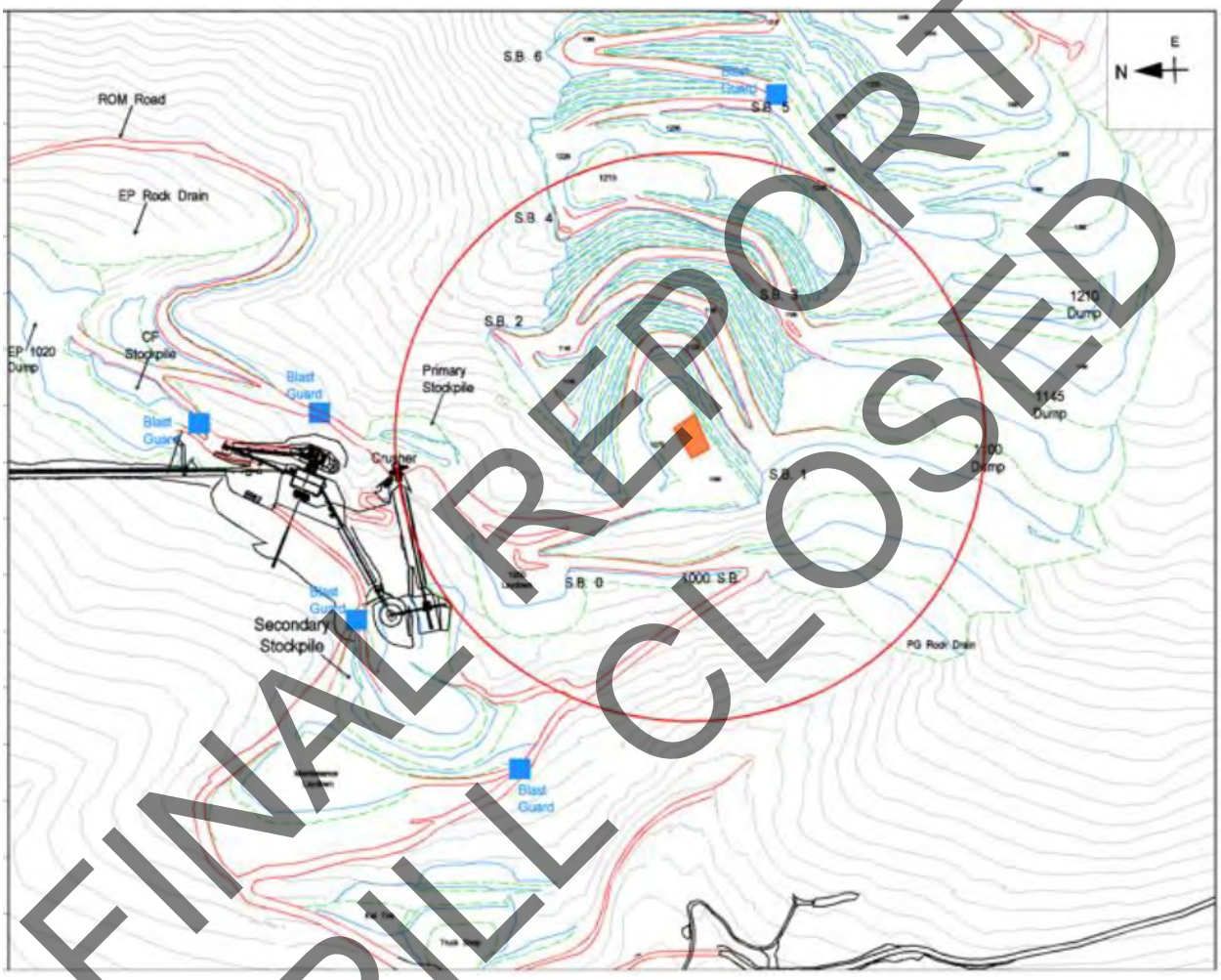


Figure 2: Overview of Blast Location used for Disposal of Material

FINAL REPORT
SPILL CLOSED

EAGLE GOLD PROJECT
SPILL RESPONSE FORM

VICTORIA GOLD CORP

FIRST OBSERVER			
Name & Company:	Brad Negrin Victoria Gold Corp.		
Date Observed:	Dec 31, 2021	**Time Observed:** 5:00 am	
Location of Spill:	1225 bench	**VGC Tracking Number:** VGC21-051	
Distance to Waterbody:	>1km	**Photos Taken?**	☑ Yes ☐ No
Estimated Spill Volume:	284 L	**Reported to:** Environment	
PERSON/DEPT. RESPONSIBLE FOR SPILL			
Supervisor/Investigator:	Brad Negrin		
Date of Spill:	Dec 31, 2021		
Substance Spilled:	Hydraulic Fluid TO4 10W		
Equipment Involved:	DL202 6290 CAT Drill		
Volume of Contaminated Material:	1m3		
Personnel Contacted for Disposal (Name):	Phil Emerson		
Cause of Spill: (Equipment Failure, vehicle accident, foreign object, etc.)	Hydraulic hose failure from the main hydraulic fluid supply tank to the hydraulic pump.		
Spill Response Actions Taken: (Containment and/or absorbent materials used, equipment required for clean-up, Pre-trip attached, etc.)	Absorbent pads were used to contain and collect released product under the equipment. The equipment was moved once safe to do so and contaminated materials were cleaned up and brought to the waste management staging area for off site disposal. Contaminated frozen soils were disposed of in the production blast.		
ENVIRONMENTAL DEPARTMENT USE ONLY			
Spill Line Tracking Number	YG21-123	**Reportable to Spill Hotline?**	☑ Yes ☐ No
Info Re. Spill Hotline:	250L, Dec 31, 2021, Hydraulic spill 1225 bench in the pit		
Disposal Container Labelled?	☑ Yes ☐ No	**Samples taken?**	☐ Yes ☑ No
Environmental areas affected: (Watercourse, soil, etc.):	Spill occurred in an active mining area within the blast pattern.		
Method of Disposal & Further Remediation Required:	Spill pads and booms will be shipped off site for disposal. No further action required.		
Follow Up Required?	☐ Yes ☑ No	**Follow Up Date:** N/A	
SIGNATURES REQUIRED FOR ALL REPORTABLE SPILLS			
Employee:		**Signature:**	
Supervisor:	Brad Negrin	**Signature:**	
Safety:	Dave Crottey	**Signature:**	
Environment:	John Jackson	**Signature:**	

FINAL REPORT
SPILL CLOSED

APPENDIX S

Backup Equipment Maintenance Records

Equipment Type	Equipment ID	Work Order	Description	Start Date	Status	PM Task
PLS Pump	PP-001	W25827	Cut hole in pipe for suction line to go in	4/2/2021	F	
PLS Pump	PP-001	W27053	Install Ground Check system into prep pump JB	7/8/2021	F	
PLS Pump	PP-001	W37741	Install the missing insulation on the discharge	9/23/2021	F	
PLS Pump	PP-001	W38482	Add a 6" drain pipe and valve to the pregnant	10/5/2021	N	
PLS Pump	PP-001	W44696	Remove temp controller to keep heat trace on all the time	1/12/2022	F	
PLS Pump	PP-001	W46904	Modify DCS faceplate/control screen to display run	2/14/2022	F	
PLS Pump	PP-001	W46234	Replace Pregnant Solution Pump	3/9/2022	S	5130
PLS Pump	PP-002	W27055	Install Ground Check system into prep pump JB	5/11/2021	F	
PLS Pump	PP-002	W44695	Remove temp controller to keep heat trace on all the time	1/12/2022	F	
PLS Pump	PP-002	W46905	Modify DCS faceplate/control screen to display run	2/14/2022	F	
PLS Pump	PP-002	W46161	Replace Pregnant Solution Pump	3/16/2022	S	5130
PLS Pump	PP-003	W27048	Splice cable for preg pump 5 and connect in JB	4/21/2021	F	
PLS Pump	PP-003	W30690	Install Auto valve to Pregnant Solution Pump #3.	5/29/2021	F	
PLS Pump	PP-003	W27056	Install Ground Check system into prep pump JB	7/10/2021	F	
PLS Pump	PP-003	W34737	Disconnect pump leads for preg Pump 3 replacement	10/10/2021	F	
PLS Pump	PP-003	W37823	Reconnect pump leads for preg Pump 3 replacement	10/12/2021	F	
PLS Pump	PP-003	W16750	Install the #3 Pregnant Solution Pump	11/7/2021	F	
PLS Pump	PP-003	W41646	Program preg #3 VFD so it follows PID controller	11/18/2021	F	
PLS Pump	PP-003	W41749	Insulate 10" discharge line for Preg pump #3	11/19/2021	N	
PLS Pump	PP-003	W43363	Break-in: repair heat trace leading to preg pump#3	12/10/2021	F	
PLS Pump	PP-003	W45105	PREG PUMP OFFSITE REPAIR	1/4/2022	N	
PLS Pump	PP-003	W44693	Remove temp controller to keep heat trace on all the time	1/12/2022	F	
PLS Pump	PP-003	W47322	remove the PREG pump that has failed in well # 3	2/9/2022	F	
PLS Pump	PP-003	W47324	Assist in cable management while reinstalling pump	2/11/2022	F	
PLS Pump	PP-003	W47341	Re-connect heat trace on Preg#3 discharge line	2/12/2022	F	
PLS Pump	PP-003	W46906	Modify DCS faceplate/control screen to display run	2/14/2022	F	
PLS Pump	PP-003	W47959	WORK ALREADY COMPLETED: Reconnect/energize preg	2/25/2022	F	
PLS Pump	PP-004	W27057	Install Ground Check system into prep pump JB	7/10/2021	F	
PLS Pump	PP-004	W44692	Break in, Remove temperature controller to keep	12/30/2021	F	
PLS Pump	PP-004	W44659	Hard wire the EHT on the preg pump piping	12/30/2021	F	
PLS Pump	PP-004	W44653	Preg pump 4 motor sent for repair - cable splice on site	12/30/2021	F	
PLS Pump	PP-004	W45310	prep feed cable for preg pump 4 reconnection	1/6/2022	F	
PLS Pump	PP-004	W45306	Build shipping crate to ship out pump for repair.	1/6/2022	F	
PLS Pump	PP-004	W47087	600v Electric Motor Disconnect and Reconnect	2/12/2022	F	6021
PLS Pump	PP-004	W39502	Install Pregnant Solution Pump	2/12/2022	F	5130
PLS Pump	PP-004	W46907	Modify DCS faceplate/control screen to display run	2/14/2022	F	
PLS Pump	PP-004	W47735	Assist with Preg Pump Retrieval	3/1/2022	F	
PLS Pump	PP-004	W47821	Ensure dcs 'no flow' bypass is off on Preg 4 & 5	3/12/2022	F	
PLS Pump	PP-005	W27058	Install Ground Check system into prep pump JB	7/10/2021	F	
PLS Pump	PP-005	W34336	Scope out preg solution pump install for parts.	8/5/2021	F	
PLS Pump	PP-005	W16751	Install the #5 Pregnant Solution Pump	8/11/2021	F	
PLS Pump	PP-005	W34733	Motor connections for newly installed pump	8/12/2021	F	
PLS Pump	PP-005	W35557	Test and troubleshoot Preg Pump 5 pump motor	9/12/2021	F	
PLS Pump	PP-005	W37392	Install EHT to discharge piping and valve	9/19/2021	F	
PLS Pump	PP-005	W37496	Troubleshoot and repair communication issues	9/20/2021	F	
PLS Pump	PP-005	W38412	Fab/Install 11 foot pipe extension	10/3/2021	F	
PLS Pump	PP-005	W38352	remove EHT from pipe	10/3/2021	F	
PLS Pump	PP-005	W38423	Replace Preg Pump #5 Butterfly Valve	10/4/2021	F	
PLS Pump	PP-005	W39370	change the rotation on preg pump5 at the VFD	10/17/2021	F	

Equipment Type	Equipment ID	Work Order	Description	Start Date	Status	PM Task
PLS Pump	PP-005	W39541	Need to cut a hole in the well pipe wall for PREG pump # 5	10/20/2021	F	
PLS Pump	PP-005	W39745	Assist with pump install	10/23/2021	F	
PLS Pump	PP-005	W39328	Unlock all preg pump VFD speed from max 90%.	11/13/2021	F	
PLS Pump	PP-005	W40139	Install undersize pump in Preg Pump 5 Hole	11/15/2021	F	
PLS Pump	PP-005	W40140	Install Preg pump 5 Technosub pump	11/17/2021	F	
PLS Pump	PP-005	W40361	Connect Preg pump 5 to JB and test rotation	11/19/2021	F	
PLS Pump	PP-005	W42913	meager before putting pump down well	12/4/2021	F	
PLS Pump	PP-005	W43093	Repair crushed outer jack for pump cable	12/7/2021	F	
PLS Pump	PP-005	W44691	Break in, Remove temperature controller stay heat	12/30/2021	F	
PLS Pump	PP-005	W44654	Preg pump 5 motor to West Fraser for rebuild	12/30/2021	F	
PLS Pump	PP-005	W45325	Build shipping crate to ship out pump for repair.	1/5/2022	F	
PLS Pump	PP-005	W45770	Rewire preg pump e-shack lights on to different	1/30/2022	F	
PLS Pump	PP-005	W46986	BUILD COVER FOR PREG PUMP BORE HOLE	2/10/2022	F	
PLS Pump	PP-005	W47085	600v Electric Motor Disconnect and Reconnect	2/11/2022	S	6021
PLS Pump	PP-005	W46908	Modify DCS faceplate/control screen to display run	2/14/2022	F	
PLS Pump	PP-005	W45482	Replace Preg pump 5 EHT controller	3/12/2022	F	
PLS Pump	PP-005	W48997	Install electrical while fixed installs pump	3/17/2022	S	
PLS Pump	PP-005	W41343	Install Preg pump 5 Technosub pump	3/17/2022	W	
Barren Pump	PP-048	W24230	Change Oil In Barren Pump Motor	4/2/2021	F	
Barren Pump	PP-048	W25874	Remove and reinstall RTD for M/W to drain oil from pump	4/3/2021	F	
Barren Pump	PP-048	W29911	4WK PM-Clean & Inspect Electric Motor	5/26/2021	F	5016
Barren Pump	PP-048	W31656	4WK PM-Clean & Inspect Electric Motor	6/26/2021	F	5016
Barren Pump	PP-048	W32958	4WK PM-Clean & Inspect Electric Motor	7/25/2021	F	5016
Barren Pump	PP-048	W19877	Change DeltaV control logic to allow operator to control and	7/28/2021	F	
Barren Pump	PP-048	W35068	4WK PM-Clean & Inspect Electric Motor	8/22/2021	F	5016
Barren Pump	PP-048	W28683	Replace all 3 phase conductors with flexible cord	9/11/2021	F	
Barren Pump	PP-048	W36713	4WK PM-Clean & Inspect Electric Motor	9/17/2021	F	5016
Barren Pump	PP-048	W38551	4WK PM-Clean & Inspect Electric Motor	10/14/2021	F	5016
Barren Pump	PP-048	W39404	Bearing Faults registered on Barren Pump #2 continue to	10/18/2021	N	
Barren Pump	PP-048	W40500	4WK PM-Clean & Inspect Electric Motor	11/11/2021	F	5016
Barren Pump	PP-048	W42634	4WK PM-Clean & Inspect Electric Motor	12/13/2021	F	5016
Barren Pump	PP-048	W40209	Disconnect and Reconnect Motor for Barren Solution Pump	1/3/2022	S	6001
Barren Pump	PP-048	W44769	4WK PM-Clean & Inspect Electric Motor	1/9/2022	F	5016
Barren Pump	PP-048	W31275	SD- Install 3rd stage	2/2/2022	N	
Barren Pump	PP-048	W40823	Disconnect and Reconnect Motor for Barren Solution Pump	2/4/2022	S	
Barren Pump	PP-048	W46511	4WK PM-Clean & Inspect Electric Motor	2/13/2022	F	5016
Barren Pump	PP-048	W46421	Modify DCS faceplate/control screen to display run hours	2/14/2022	F	
Barren Pump	PP-048	W44146	Add heat shrink to T leads from JB into motor	3/7/2022	W	
Barren Pump	PP-048	W48254	4WK PM-Clean & Inspect Electric Motor	3/13/2022	F	5016
Barren Pump	PP-048	W19962	SD- Inspect Bushings and Mech Seal-Change if needed	3/21/2022	F	
Barren Pump	PP-049	W29912	4WK PM-Clean & Inspect Electric Motor	5/26/2021	F	5016
Barren Pump	PP-049	W31657	4WK PM-Clean & Inspect Electric Motor	6/26/2021	F	5016
Barren Pump	PP-049	W32866	Discharge valve not opening-Completed	7/12/2021	F	
Barren Pump	PP-049	W32959	4WK PM-Clean & Inspect Electric Motor	7/25/2021	F	5016
Barren Pump	PP-049	W19876	Change DeltaV control logic to allow operator to control and	7/28/2021	F	
Barren Pump	PP-049	W35069	4WK PM-Clean & Inspect Electric Motor	8/22/2021	F	5016
Barren Pump	PP-049	W28684	Replace all 3 phase conductors with flexible cord	9/13/2021	F	
Barren Pump	PP-049	W36714	4WK PM-Clean & Inspect Electric Motor	9/17/2021	F	5016
Barren Pump	PP-049	W38552	4WK PM-Clean & Inspect Electric Motor	10/14/2021	F	5016

Equipment Type	Equipment ID	Work Order	Description	Start Date	Status	PM Task
Barren Pump	PP-049	W31277	Install 3rd stage	11/3/2021	F	
Barren Pump	PP-049	W19960	Inspect Bushings and Mech Seal-Change if needed	11/3/2021	F	
Barren Pump	PP-049	W40210	Disconnect and Reconnect Motor for Barren Solution Pump	11/4/2021	F	6002
Barren Pump	PP-049	W40501	4WK PM-Clean & Inspect Electric Motor	11/11/2021	F	5016
Barren Pump	PP-049	W42664	Disconnect and Reconnect Motor for Barren Solution Pump	12/12/2021	F	6002
Barren Pump	PP-049	W42635	4WK PM-Clean & Inspect Electric Motor	12/13/2021	F	5016
Barren Pump	PP-049	W44147	Add heat shrink to T leads from JB into motor	12/20/2021	S	
Barren Pump	PP-049	W44770	4WK PM-Clean & Inspect Electric Motor	1/9/2022	F	5016
Barren Pump	PP-049	W46512	4WK PM-Clean & Inspect Electric Motor	2/13/2022	F	5016
Barren Pump	PP-049	W46422	Modify DCS faceplate/control screen to display run hours	2/14/2022	F	
Barren Pump	PP-049	W47958	REPLACE BARREN PUMP	2/25/2022	N	
Barren Pump	PP-049	W48255	4WK PM-Clean & Inspect Electric Motor	3/13/2022	S	5016
Barren Pump	PP-050	W24912	Replace Pump Shafts, Seal & Bearings	1/1/2021	F	
Barren Pump	PP-050	W21195	Clean & De-Scale Wet End Of Pump & Discharge Line	3/11/2021	F	5123
Barren Pump	PP-050	W19860	Inspect Bushings and Mech Seal-Change if needed	3/11/2021	F	
Barren Pump	PP-050	W24505	Disconnect and Reconnect Motor for Barren Solution Pump	3/14/2021	F	6003
Barren Pump	PP-050	W26937	Clean & De-Scale Wet End Of Pump & Discharge Line	4/24/2021	F	5123
Barren Pump	PP-050	W29913	4WK PM-Clean & Inspect Electric Motor	5/26/2021	F	5016
Barren Pump	PP-050	W31278	Install 3rd stage	6/12/2021	F	
Barren Pump	PP-050	W31658	4WK PM-Clean & Inspect Electric Motor	6/26/2021	F	5016
Barren Pump	PP-050	W32738	Disconnect Barren pump motor 4 for pump removal.	7/9/2021	F	
Barren Pump	PP-050	W32849	Reconnect barren pump #4	7/12/2021	F	
Barren Pump	PP-050	W32961	4WK PM-Clean & Inspect Electric Motor	7/25/2021	F	5016
Barren Pump	PP-050	W19873	Change DeltaV control logic to allow operator to control and	7/28/2021	F	
Barren Pump	PP-050	W35070	4WK PM-Clean & Inspect Electric Motor	8/22/2021	F	5016
Barren Pump	PP-050	W28685	Replace all 3 phase conductors with flexible cord	9/14/2021	F	
Barren Pump	PP-050	W36715	4WK PM-Clean & Inspect Electric Motor	9/17/2021	F	5016
Barren Pump	PP-050	W38553	4WK PM-Clean & Inspect Electric Motor	10/15/2021	F	5016
Barren Pump	PP-050	W40502	4WK PM-Clean & Inspect Electric Motor	11/11/2021	F	5016
Barren Pump	PP-050	W42636	4WK PM-Clean & Inspect Electric Motor	12/13/2021	F	5016
Barren Pump	PP-050	W44771	4WK PM-Clean & Inspect Electric Motor	1/9/2022	F	5016
Barren Pump	PP-050	W46513	4WK PM-Clean & Inspect Electric Motor	2/13/2022	F	5016
Barren Pump	PP-050	W46424	Modify DCS faceplate/control screen to display run hours	2/14/2022	F	
Barren Pump	PP-050	W48256	4WK PM-Clean & Inspect Electric Motor	3/13/2022	F	5016
Barren Pump	PP-050	W44148	Add heat shrink to T leads from JB into motor	3/15/2022	F	
Barren Pump	PP-051	W23967	Clean & De-Scale Wet End Of Pump & Discharge Line	4/9/2021	F	5124
Barren Pump	PP-051	W19965	Inspect Bushings and Mech Seal-Change if needed	4/10/2021	F	
Barren Pump	PP-051	W29914	4WK PM-Clean & Inspect Electric Motor	5/26/2021	F	5016
Barren Pump	PP-051	W31279	Install 3rd stage	6/12/2021	F	
Barren Pump	PP-051	W31659	4WK PM-Clean & Inspect Electric Motor	6/26/2021	F	5016
Barren Pump	PP-051	W32962	4WK PM-Clean & Inspect Electric Motor	7/25/2021	F	5016
Barren Pump	PP-051	W19872	Change DeltaV control logic to allow operator to control and	7/28/2021	F	
Barren Pump	PP-051	W28686	Replace all 3 phase conductors with flexible cord	8/5/2021	F	
Barren Pump	PP-051	W35071	4WK PM-Clean & Inspect Electric Motor	8/22/2021	F	5016
Barren Pump	PP-051	W36013	Do a full mechanical inspection of the Barren Solution Pumps	9/4/2021	F	
Barren Pump	PP-051	W36716	4WK PM-Clean & Inspect Electric Motor	9/17/2021	F	5016
Barren Pump	PP-051	W38554	4WK PM-Clean & Inspect Electric Motor	10/14/2021	F	5016
Barren Pump	PP-051	W39371	reconnect barren pump #5	10/17/2021	F	
Barren Pump	PP-051	W40503	4WK PM-Clean & Inspect Electric Motor	11/11/2021	F	5016

Equipment Type	Equipment ID	Work Order	Description	Start Date	Status	PM Task
Barren Pump	PP-051	W42637	4WK PM-Clean & Inspect Electric Motor	12/13/2021	F	5016
Barren Pump	PP-051	W44772	4WK PM-Clean & Inspect Electric Motor	1/9/2022	F	5016
Barren Pump	PP-051	W46514	4WK PM-Clean & Inspect Electric Motor	2/13/2022	F	5016
Barren Pump	PP-051	W46425	Modify DCS faceplate/control screen to display run hours	2/14/2022	F	
Barren Pump	PP-051	W48257	4WK PM-Clean & Inspect Electric Motor	3/13/2022	F	5016
Barren Pump	PP-051	W44149	Add heat shrink to T leads from JB into motor	3/15/2022	F	

VICTORIA GOLD CORP
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MAINTENANCE WORK ORDER

WORK ORDER #: W21575 - PERFORM 500HR PM SERVICE AND INSPECTION

RESPONSIBILITY CODE	MBM	**WORK ORDER PRIORITY**	P3 Medium 14 days
EQUIPMENT ID #	6310-GN-101	**PLANNED START DATE**	01/13/2021
EQUIPMENT DESCRIPTION	Generator, 101 MainSubstation	**ESTIMATED MAN HOURS**	4.00
WO REQUESTED DATE		**MOST RECENT METER**	851.39
REQUESTOR	ihiscock	**PREVENTATIVE/CORRECTIVE**	PM

ADDITIONAL INFORMATION:

PERFORM 500HR PM SERVICE AND INSPECTION
COMPLETE CHECK & TASK LISTS AS PER ATTACHED OEM PR
FOLLOW ALL LOG OUT TAG OUT PROTOCOLS ASPER VG GUI

Complete

HISTORY NOTES

CARRY OVER NOTES

SAFETY NOTES

500 hours PM Sample

TRADESPERSON(S) NAME Include Individual Man Hours	Carl Farrel 6 hrs	**TOTAL MAN HOURS**	12 hrs
	Shawn Carrol 6 hrs	**METER READING AT SERVICE**	787
			HR
TRADES SIGN-OFF		**COMPLETION DATE**	Jan 14/21
SUPERVISOR SIGN-OFF		**DURATION (HRS)**	6

COMMENTS:

Maintenance Improvement Feedback Sheet

Attach to PM Sheet or Job Pack

****Please Print Clearly****

Date	Jan 14/21	*Tradesperson's (Names)*	Earl Forest / Shawn Serre
Equipment #	GN 101	*Work Order #*	W21575

Concern

Cause

Corrective action

1st Found work - list below -- What is the nature of job? Please be descriptive - your crossshift will appreciate it

Parts Required (List them below)

Qty.	*Part Number*	*Description*	Stock #'s
5	31845301	Engine oil Filters	103989
2	X594083000093	Fuel Filters	103988
6	SUA91661	water Sep.	103987
6	XP5950180012S	Service Kit (Filters)	103991
4	0180945802	Air Filters	103990
6	XP5950180026	Diaphram Gasket	103993
1	XP5271830001A	Diaphram. Kit	103993
1	XP5271830006C	centrifugal Paper	103994
~~8~~			
1	1	16X16 X2 } exterior Filters	
7	7	18 X 24 X 2 } furnace Filters	
10	10	24 X 24 X 2 }	

Trade's required	Estimate of labour required
1)	1)
2)	2)

Specialized Tools required (list below)	Equipment required (ie: Crane or Hytorc)

500 hours PM Sample

VICTORIA GOLD CORP
TSX | VGCX

MAINTENANCE WORK ORDER

WORK ORDER #: W39598 - Monthly Generator running test w/ mobile PM

RESPONSIBILITY CODE	EIN	**WORK ORDER PRIORITY**	P3 Medium 14 days
EQUIPMENT ID #	6310-GN-101	**PLANNED START DATE**	11/15/2021
EQUIPMENT DESCRIPTION	Generator, 101 MainSubstation	**MOST RECENT METER**	0.00
WO REQUESTED DATE	11/08/2021	**PREVENTATIVE/CORRECTIVE**	PM
REQUESTOR	fseufert		

ADDITIONAL INFORMATION:

Monthly Generator running test w/ mobilePM
Run generator to operating temperature
Ensure logbook entries are made
Make note of bearing and operating temps

ODE 36
DE 1B

HISTORY NOTES

CARRY OVER NOTES

SAFETY NOTES

500 hours PM Sample

TRADESPERSON(S) NAME Ryan
Include Individual Man Hours

TOTAL MAN HOURS ~~1087~~ 1

METER READING AT SERVICE 1069

METER TYPE HR

TRADES SIGN-OFF

COMPLETION DATE Nov 15/21

SUPERVISOR SIGN-OFF

DURATION (HRS) 1

COMMENTS:

Victoria Gold Corp - Eagle Gold Mine

RECORD OF PREVENTIVE MAINTENANCE

MAINTENANCE INTERVAL: HR

WORK ORDER No.	39598	DATE:	Nov 15/21
EQUIPMENT No.	DG 7	MODEL:	
SERIAL No.		EQUIP SERVICE METER UNIT:	
PARTS MANUAL MEDIA No.		OMM MEDIA No.	
EMPLOYEE 1	Ryan	EMPLOYEE 2	
EMPLOYEE 3		EMPLOYEE 4	

NOTE: This planned maintenance checklist meant to be for a quick reference. It does NOT replace the Operation and Maintenance Manual (OMM). The date on this checklist may be changed or updated without notice.

Job Plan Tasks

Task#	Task Description	Task Long Description	Duration	Initial
10	Pre-Work **SAFETY** Tasks	1 .Ensure all Eagle Gold Mine (EGM) work permits and LOTO procedures are followed to eliminate Stored Energy. If required, maintenance personnel are required to apply LOTO tags and locks in conjunction with Operator lockout tags and locks. 2. Refer to the manufacturer's Operation and Maintenance manuals for equipment specifications, fluid capacities, operating procedures, and maintenance procedures. 3. Perform a thorough area Field Level Risk Assessment (FLRA). 4. Wear appropriate personal protective equipment (PPE), such as a safety helmet, goggles, protective overalls, protective footwear, safety gloves, ear protection, a respirator etc., must use whenever required. (Include any SOPs that might related to the PM.)	0.5	RE
20	6M Mobile Maint Shop Generator Test	1. Inform Mobile Maintenance Supervisor of the intention of testing the generator. 2. Start the generator. 3. Switch load from grid to generator. No 4. Ensure generator loads up and all devices in the shop are able to run electrically. 5. Let the generator carry the load for an hour then switch back to grid and shut down the generator.		RE
30	Post-Work Tasks	1. Verify that all closures have been restored to a safe condition with access panels, covers and doors closed and/or secured. 2. Remove LOTO as required. 3. Clean work area of debris, old parts, and excess/unused materials, and lubricants. 4. Return Equipment worked on or inspected to a safe operating condition. 5. Notify operations when work is completed. 6. Ensure corrective Work Orders are created to resolve any issues that are not included in the PM. 7. Ensure that all reports and paperwork are validated, signed, dated and properly returned to the Supervisor.	0.5	RE

500 hours PM Sample

Comments:

Labor

Task#	Quantity	Trade	Effort Hrs

Materials:

Task #	Quantity	Item	Storeroom

Tool Crib: Tools

Task #	Quantity	Tool	Returned

Tradesman Sign-off

Name	Signature
Ryan	

Supervisor Sign-off

Name	Signature
	Ryan Crook

500 hours PM Sample

APPENDIX T

Annual Physical Stability Assessment Report - Eagle Gold Project

2011 PG Pulpmill Road, Prince George, BC, V2L 4V1 Phone: 250-614-7291

Allnorth Information		VICTORIA GOLD CORP.	
Project #:	2102059		
Document #:	211208	Client Project #:	
Document Rev. #:	0	Client Document #:	
Prepared By:	Spencer Bergin, EIT	Client Doc. Rev.#:	
Reviewed By:	Don Williams, P.Eng.	Client Contact:	Richard Tuohey

Document Description

Annual Physical Stability Assessment Report – Victoria Gold – Eagle Gold Project

Project Description:

Visual inspection of the following structures: Open Pit, Platinum Gulch Dump, Eagle Pup Dump, Lower Dublin South (Control) Pond, Primary Crusher, Secondary & Tertiary Crushers, Secondary Stockpile, Adsorption, Desorption and Recovery (ADR) Plant, Heap Leach Facility, Heap Leach Overburden Stockpile, Event Pond, Ditches A, B, and C, Truck Shop, Orica Laydown, Various Un-named Stockpiles.

REVISION HISTORY

Revision	Status	Date	Prepared By	Checked By	Approved By	Description of Revision
A	IFR	21/10/01	SBB	DW	DW	Issued for Review
0	IAF	21/12/08	SBB	DW	DW	Issued as Final

Status:

PRE	- Preliminary	IFP	- Issued for Procurement
IFR	- Issued for Review and Comment	IFC	- Issued for Construction
IFA	- Issued for Approval	AB	- As Built
IFQ	- Issued for Quotation	IAF	-Issued as Final

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1 BACKGROUND

In September, 2021, Allnorth Consultants Limited (Allnorth) was retained by Victoria Gold Corp. (VGC) to conduct a visual physical stability assessment of their Eagle Gold mining operation located in Mayo Mining District, Yukon, Canada in support of Quartz Mining License QML-0011. Spencer Bergin, EIT of Allnorth conducted the inspection on September 8th and 9th. The inspection was limited to visual inspection and did not include any specific geotechnical or structural testing or evaluation. Visual inspection generally consisted of traversing the structures on foot, and viewing the structures in their entirety from accessible vantage points. Any issues that were discovered were investigated and documented with detailed notes and photographs. The Allnorth inspector was given complete freedom in determining what to look at, and was not restricted access to any locations within the site. Conditions on site were sunny and clear for inspections.

Allnorth previously completed similar inspections in September of 2020, 2019, and 2018. Some photos taken during these inspections were used for comparison. Some areas had no basis for comparison, as construction was underway during the previous inspection, and has since been completed. Any photos included from the previous inspections are noted.

The mining project was currently extracting, storing, processing, and refining ore at the time of inspection. Construction of all major infrastructure has been completed and development of successive phases of the Heap Leach Facility (HLF), open pit mine and waste rock area expansion continue. As the project is in the early stages, historical records for survey data are limited to certain facilities at this time. As more survey data is collected and made available this can be used for stability monitoring and will likely become part of the physical stability assessment in the future.

2 SCOPE

This report outlines the findings of the physical stability assessment conducted from September 8th – 9th of 2021. This report documents the findings of the physical stability assessment and makes recommendations for remediation, additional inspection or monitoring of the issues identified. The following structures were included in the assessment:

- Lower Dublin South (Control) Pond and outfall,
- Secondary Stockpile (also known as 90 Day Stockpile),
- Heap Leach Facility,
- Heap Leach Overburden Stockpile,
- Open Pit,
- Platinum Gulch Dump,
- Eagle Pup Dump,
- Cut and fill slopes of the Primary, Secondary, and Tertiary Crushers including MSE walls,
- Cut and fill slopes of the Adsorption, Desorption and Recovery Plant,
- Event Pond,
- Ditches A, B, and C,
- Truck Shop,
- Orica Laydown,
- Various un-named stockpiles

The purpose of the inspection is to identify any visual indicators associated with instability of mass earth structures, including but not limited to tension cracking, bulging, pooled water above the slope or near the toe of the slope, falling material, indications of creep, slumps, deposits of debris, or cracking in bedrock. Additionally, constructed slopes were reviewed for slope angles and compared against the recommend slope angles for known material types on site. Refer to **Appendix A** for a map showing the site plan for the 2021 inspection. A site plan for the 2020 and 2019 inspections are available in **Appendix B** and **C** for comparison. A site plan for the 2018 inspection was not available.

3 LOWER DUBLIN SOUTH (CONTROL) POND

3.1 Diversion Ditch Overflow

Some minor erosion was noticed above the shed which houses the junction of pipes and is adjacent to the rip-rapped groundwater diversion ditch (Figure 1), no other items noted. There is an outlet sump and weir which were constructed between the 2018 and 2019 inspections; no issues noted (Figure 2).

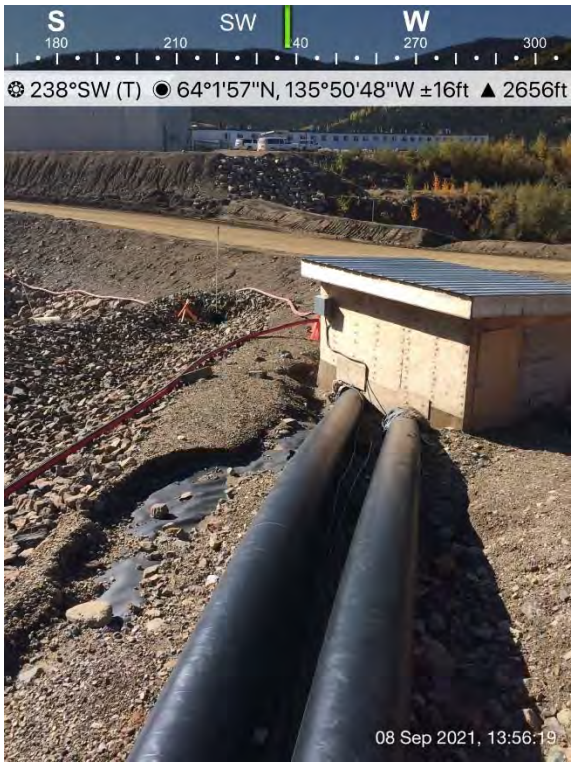


Figure 1: LDSP – Erosion adjacent to Shed and Diversion Ditch



Figure 2: LDSP – Outlet Sump and Weir

3.2 1500mm Spillway Outlet Culvert

1. The condition of this culvert appears to be the same compared to the previous years inspections (Figure 3, Figure 4, Figure 5). No water was observed flowing through the culvert in the 2018 and 2019 and 2021 inspections (Figure 6). No concerns noted.

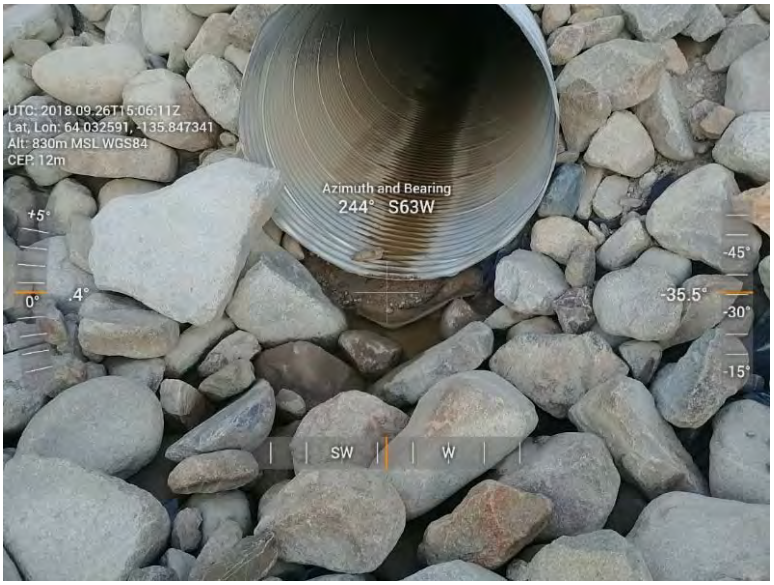


Figure 3: LDSP - 1500mm Culvert 2018 Inspection



Figure 4: LDSP - 1500mm Culvert 2019 Inspection



Figure 5: LDSP - 1500mm Culvert 2020 Inspection



Figure 6: LDSP - 1500mm Culvert 2021 Inspection

3.3 Cut slopes

1. Some saturated material and erosion was noted on the slope of the southwest corner of the Control Pond over the width of the narrow access road in 2019 and 2020 (Figure 7, Figure 8) but this erosion was rectified with the completion of Ditch A between the 2020 and 2021 inspections (Figure 9).



Figure 7: LDSP – Erosion on the Southwest slope 2019



Figure 8: LDSP – Erosion on the Southwest slope 2020



Figure 9: LDSP – Erosion rectified on the Southwest slope 2021

2. There was some flow into Ditch A on the Southwest corner of the LDSP from a culvert crossing a former construction access road, which was observed in 2019 and 2020 (Figure 10, Figure 11) and still present as of this inspection (Figure 12).



Figure 10: LDPS – Some flow from adjacent culvert 2019



Figure 11: LDPS – Some flow from adjacent culvert 2020

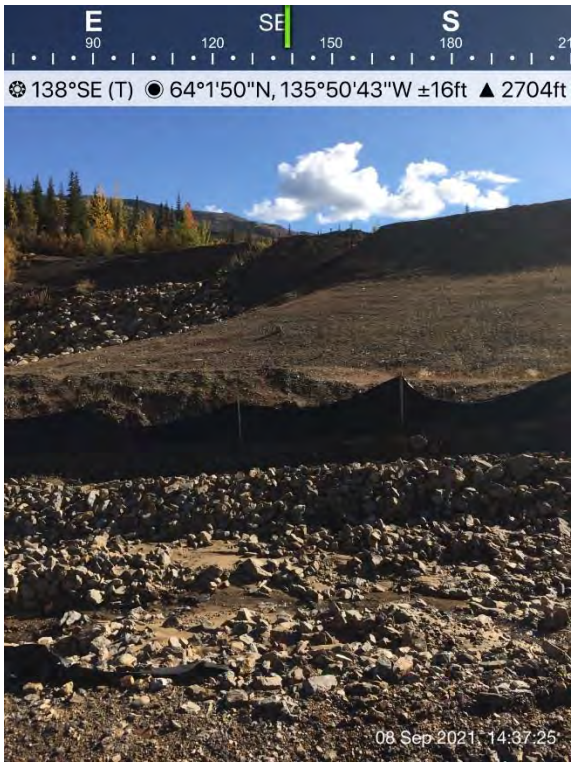


Figure 12: LDPS – Some flow from adjacent culvert 2021

4 SECONDARY STOCKPILE

4.1 Benches and Cut Slopes

1. The Secondary Stockpile (also known as the 90 Day Stockpile) was completed in 2020 (Figure 13). Some over-steepened cut slopes were observed on this inspection where the slopes had begun to collapse/erode and material was collecting at the base of the slope (Figure 14).



Figure 13: Secondary Stockpile Cut Slopes 2020

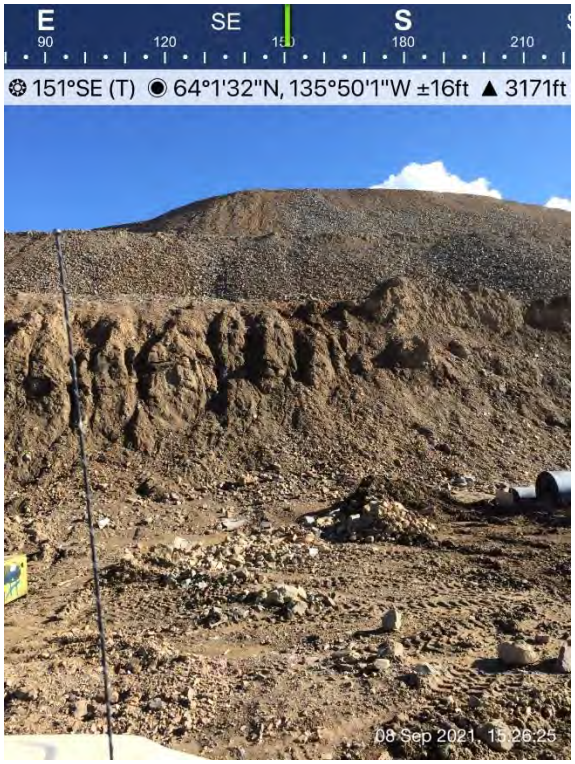


Figure 14: Secondary Stockpile Cut Slopes 2021

4.2 Perimeter Interception Ditch

1. A perimeter interception ditch extends around the downhill toe of the Secondary Stockpile area. The construction of this ditch was not complete in 2020 but has since had rock armoring installed (Figure 15, Figure 16). Issues noted in the 2020 inspection including over-steepened and sloughing slopes on the interception ditch appear to have since been addressed.



Figure 15: Perimeter Ditching 2020



Figure 16: Perimeter Ditching 2021

2. The outlet of one side of the perimeter ditch does not currently tie into the collection sump, this was observed in 2020 as well. (Figure 17, Figure 18).



Figure 17: Unconnected Ditch Section 2020



Figure 18: Unconnected Ditch Section 2021

5 HEAP LEACH FACILITY

5.1 HLF Overview

1. The Heap Leach Facility (HLF) is currently operational. In 2019 the Phase 1A expansion had been constructed as shown in Figure 19. By the time of the 2020 inspection the Phase 1B

expansion was largely complete as shown in Figure 20. During the 2021 inspection land was being cleared and graded for the Phase 2 expansion as shown in Figure 21.



Figure 19: Heap Leach Facility Overview 2019

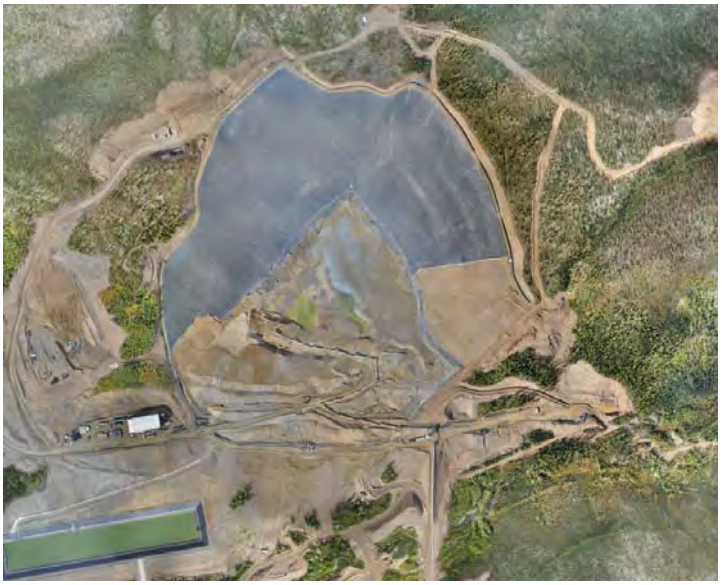


Figure 20: Heap Leach Facility Overview 2020



Figure 21: Heap Leach Facility Overview 2021

5.2 Toe Slope

1. Some scouring and rilling was noted along the toe slope below the HLF and above the un-named stockpile area and HLF Underdrain Monitoring Vault in the 2020 inspection (Figure 22). The slope has since been seeded and there appears to be less scouring of material off the toe slope (Figure 23).



Figure 22: Scouring and rilling along toe slope of HLF (2020)

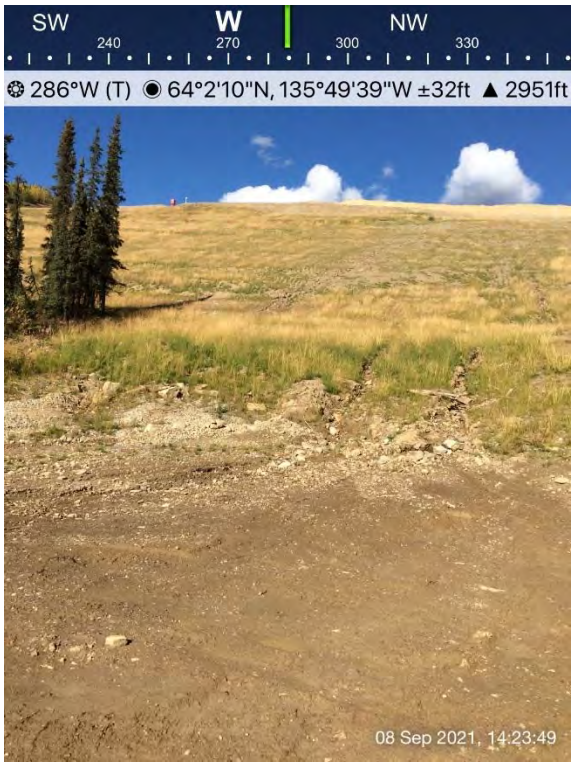


Figure 23: Seeded grass on toe slope of HLF (2021)

5.3 Phase 1B Interception Ditch

1. The phase 1B interception ditch was constructed before the 2020 inspection. The interceptor ditch has collected silt/material in some sections, indicating scour and/or erosion on the uphill cut slope and/or sloughing from the access road (Figure 24). The same section with material collection appears unfinished, with geotextile installed but no rock armoring present.



Figure 24: Material deposited in HLF Phase 1B Interceptor Ditch

2. In addition to the material build-up shown in Figure 24 the West end of the interception ditch has material build-up at the drain pipe away from the HLF; the drain pipe was buried under silt and was not visible (Figure 25).

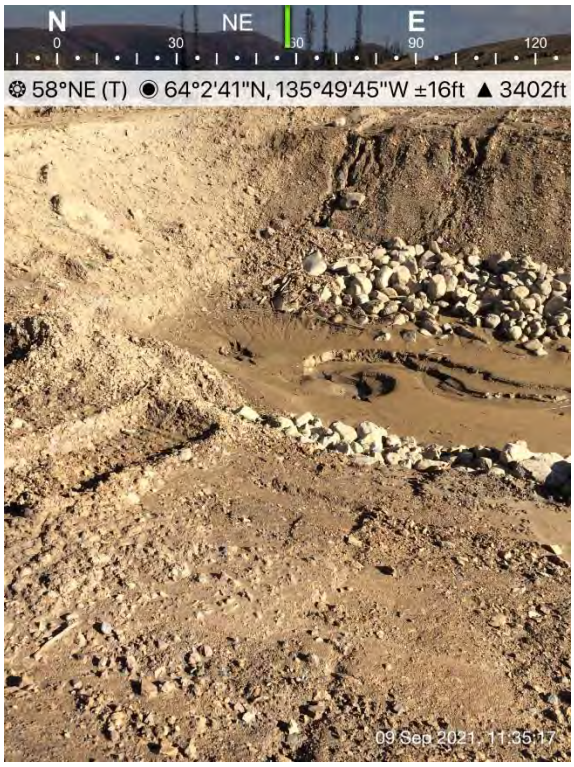


Figure 25: Phase 1B Interception Ditch buried drain pipe

5.4 Phase 2 Grade Clearing

1. The Phase 2 of the HLF was mostly cleared at the time of inspection with grading nearly finished as well (Figure 26, Figure 27). No issues noted for the cleared area.

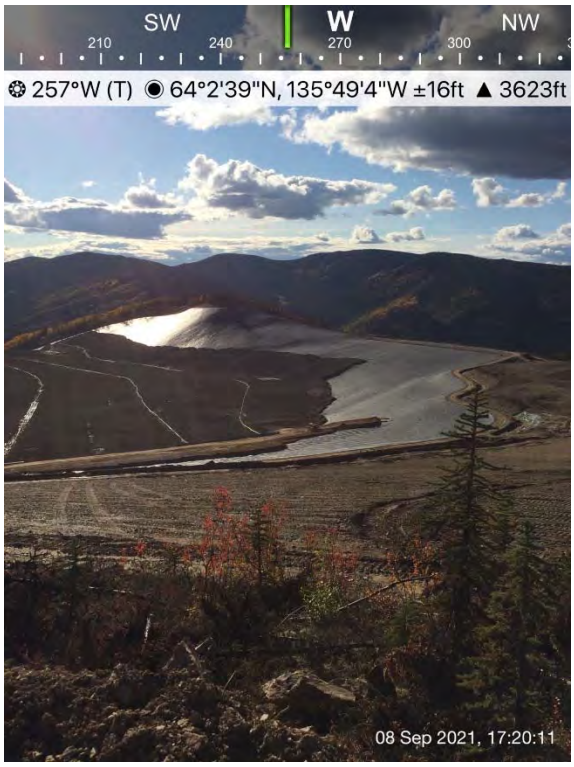


Figure 26: Phase 2 graded area (in foreground)



Figure 27: Phase 2 graded area

6 HEAP LEACH OVERBURDEN STOCKPILE

1. Overburden from clearing and grading of the HLF expansions has been placed along the North-West back slope of the HLF. Site representatives stated that the HLF overburden pile had shifted and partially collapsed some time in the late summer, roughly 4 – 5 weeks prior to the 2021 inspection (Figure 28, Figure 29).



Figure 28: HLF Overburden Stockpile collapse – plan view



Figure 29: HLF Overburden Stockpile collapse – plan view

2. The slope of an uncollapsed section of the overburden pile was roughly measured with a meter stick and a smart phone protractor application to be between 40 and 50 degrees from horizontal at the location shown in Figure 30.

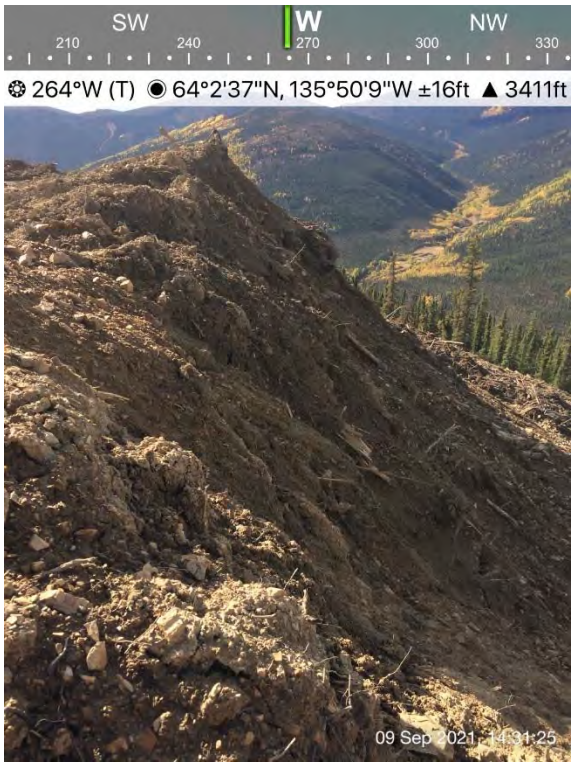


Figure 30: HLF Overburden Stockpile slope

7 OPEN PIT

1. The pit walls appear stable, and constructed in competent rock (Figure 31).



Figure 31: Phase 1 Pit Walls

2. There is a section at the base of the pit where water collects and is unable to drain, resulting in pooled water (Figure 32).

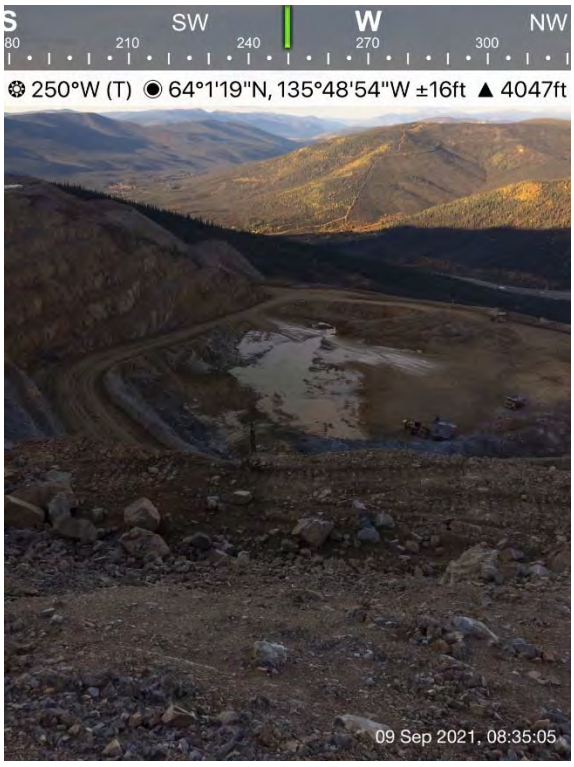


Figure 32: Phase 1 Pit pooled water

8 PLATINUM GULCH DUMP

1. Platinum Gulch Dump is currently operational, and the side slopes appear to be stable. See Figure 33 below.

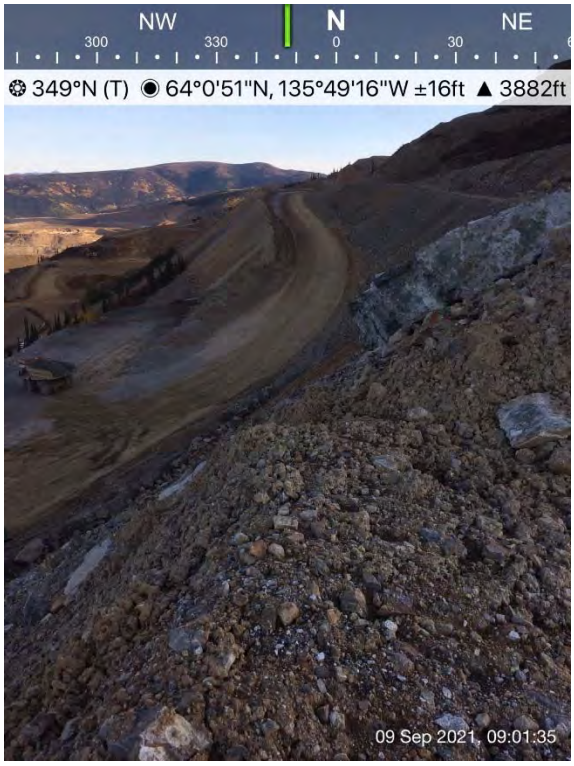


Figure 33: Platinum Gulch Dump Fill Slope

9 EAGLE PUP DUMP

1. The Eagle Pup Dump was under construction during the 2021 inspection, with drain rock being placed at the base of the slope as shown in Figure 34. No issues noted.

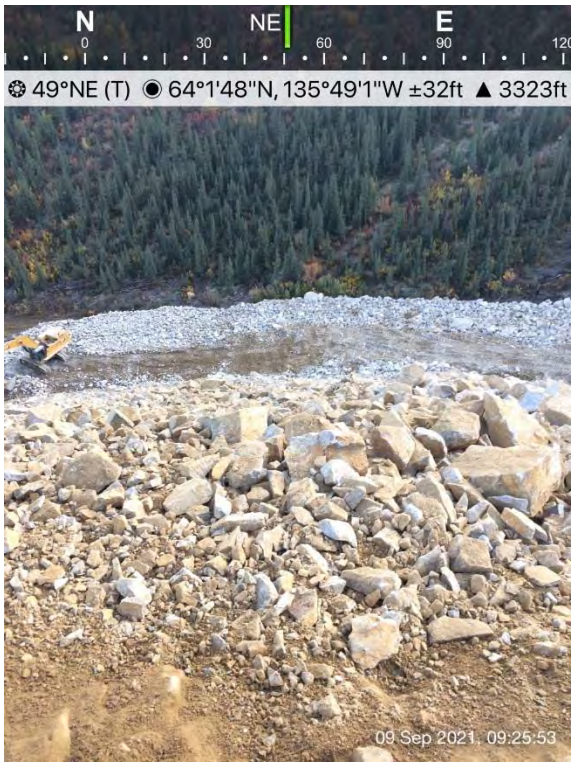


Figure 34: Eagle Pup Dump drain rock

10 PRIMARY CRUSHER

10.1 MSE Walls

1. No apparent damage or deterioration was noted during the inspection of the Primary Crusher MSE wall (Figure 35 - Figure 38). No changes were visually identified from the 2020 inspection.

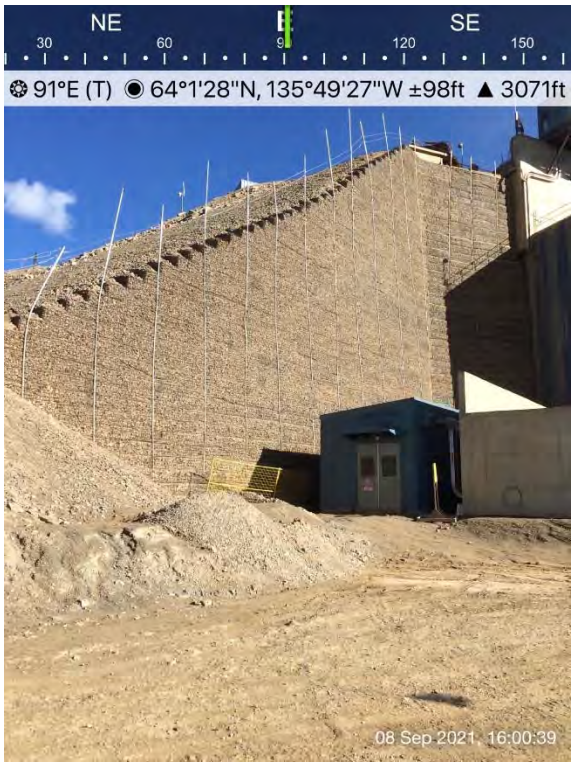


Figure 35: Primary Crusher North-West Wall



Figure 36: Primary Crusher North-West Wall

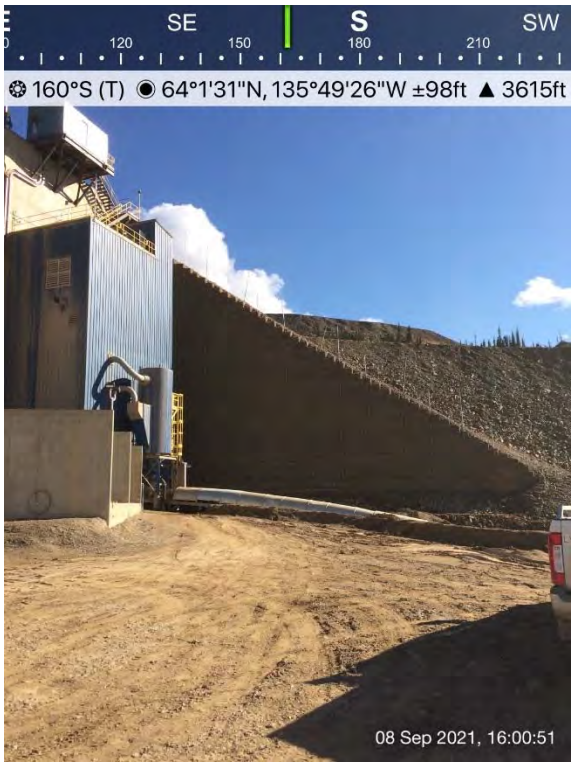


Figure 37: Primary Crusher South-East Wall



Figure 38: Primary Crusher South-East Wall

10.2 Cut and Fill slopes

1. Cut and fill slopes appear to be acceptable, no stability or erosion issues noted. (Figure 39).

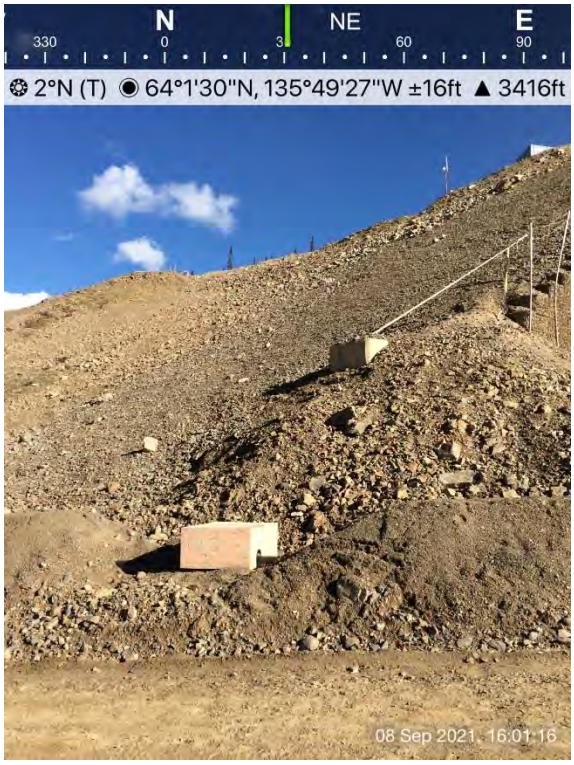


Figure 39: North-West fill slopes

11 SECONDARY/TERTIARY CRUSHER

11.1 MSE Wall

1. No apparent damage or deterioration was noted during the inspection of the Secondary/Tertiary Crusher MSE wall (Figure 40 - Figure 42). No changes were visually identified from the 2020 inspection.

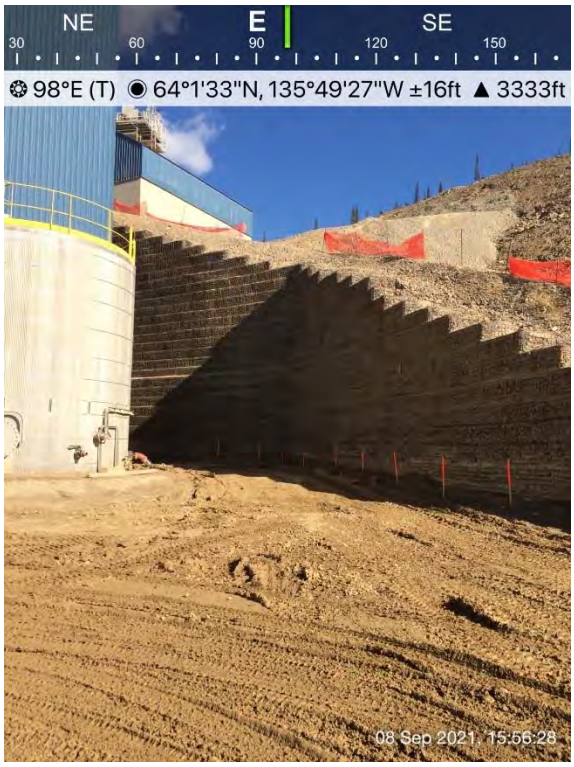


Figure 40: South side of MSE wall

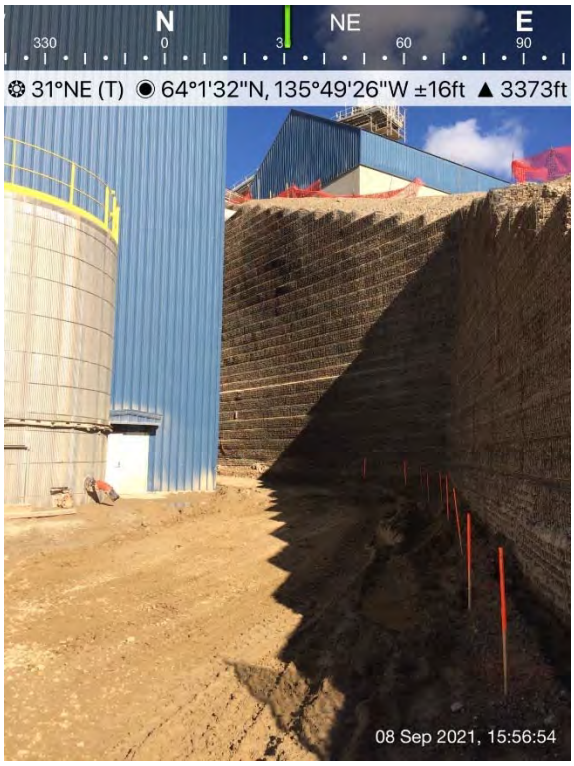


Figure 41: MSE wall behind secondary/tertiary crusher



Figure 42: MSE wall behind secondary/tertiary crusher

11.2 Cut Slopes

1. Observed locations behind the secondary crusher showed no signs of stability or erosion issues (Figure 43). Some outcrops of rippable rock visible.

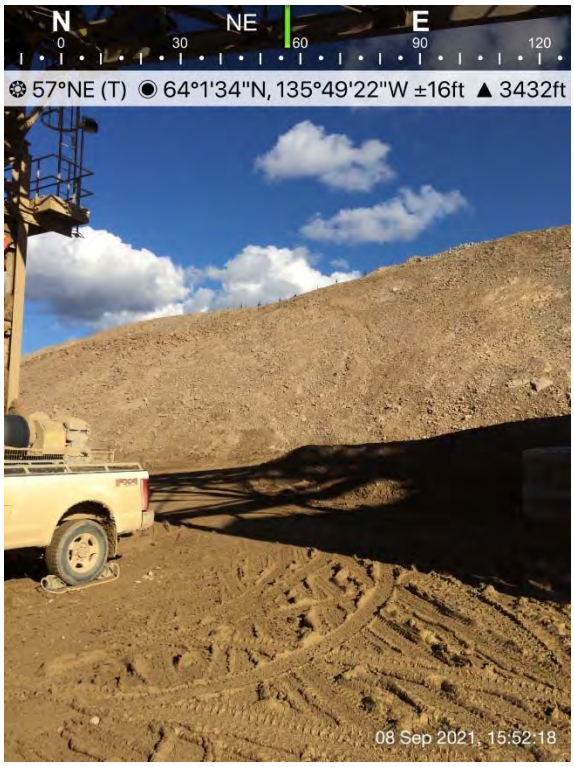


Figure 43: Cut slopes above Secondary/Tertiary Crusher

12 ADSORPTION, DESORPTION, AND RECOVERY PLANT (ADR)

12.1 Cut and Fill Slopes

1. Cut slopes behind the ADR area appear to be competent rock, with some minor rilling and unraveling (Figure 44)



Figure 44: Slopes behind ADR (2021)

12.2 North Toe Ditch

1. There is a small V ditch, referred to here as the North Toe Ditch (Figure 45), with sides close to 1:1 cut at the base of a large steep slope which is cut into bedrock; the ditch is not armored and contains loose gravel and fines, although there are no apparent scouring issues. There is also a culvert which has been installed along the ditch alignment.



Figure 45: Typical North Toe Ditch cross section

13 EVENT POND

13.1 Cut/Fill Slopes

1. The event pond was constructed between the 2018 and 2019 inspections, with hillslope unraveling noted in the 2019 inspection.



Figure 46: Overall view of event pond

2. Rill erosion and scour channels on the cut slopes above the event pond and the heap leach spillway were noted in this inspection as shown in Figure 47.



Figure 47: Rill erosion above HLF spillway

13.2 Pooling Water

1. Pooling water appeared to be forming above the North-East corner of the Event Pond at the time of this inspection (Figure 48). Pooling water had also been noted in this location on the 2020 inspection (Figure 49).

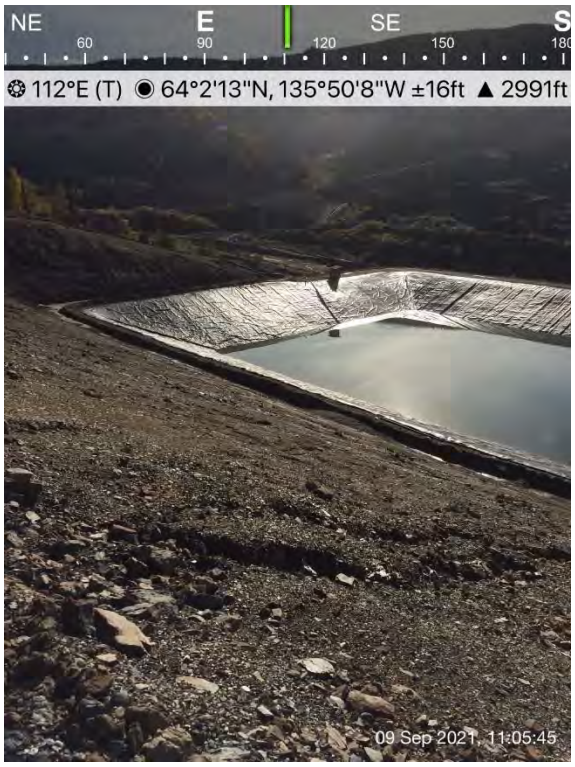


Figure 48: Pooling water above Event Pond 2021

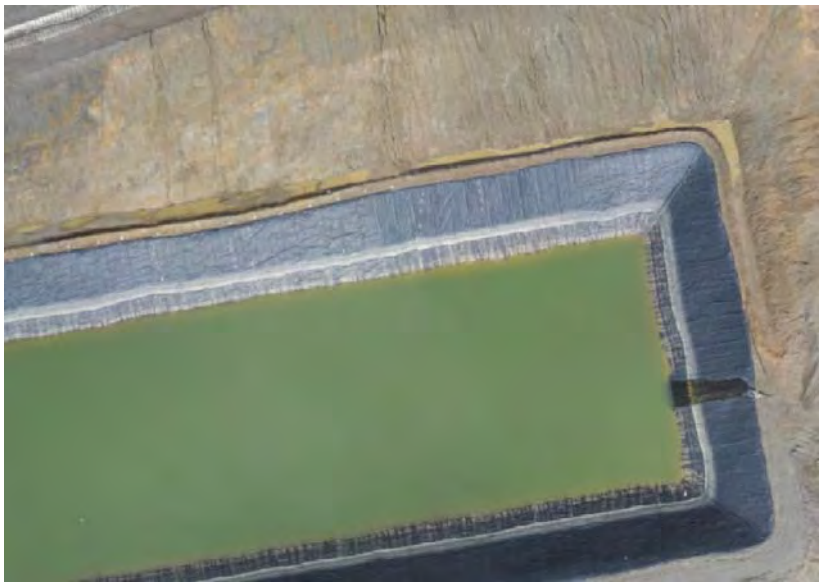


Figure 49: Pooling water above Event Pond 2020

13.3 Heap Leach Spillway

1. As noted in Section 13.1 scouring was observed upslope and downslope of the heap leach spillway, with material being deposited within the spillway. There is also damage to the spillway liner in sections; site representative reported that this was from an excavator clearing the spillway of snow during winter operations (Figure 50).

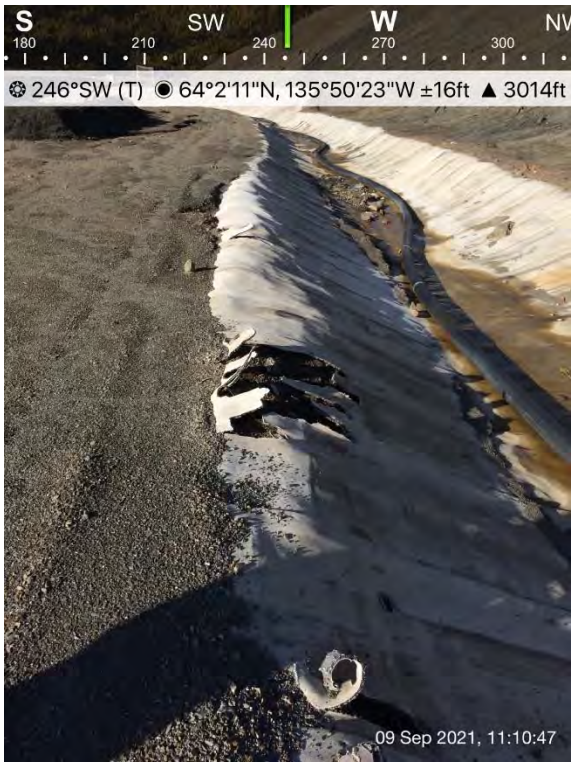


Figure 50: Heap leach spillway damage

13.4 Events Pond Emergency Spillway

1. The emergency spillway has been temporarily blocked by crushed material by site to provide equipment access to the South-East corner of the pond as there is no other easy equipment access to that area of the pond and crush needed to be placed to prevent damage to the spillway liner (Figure 51, Figure 52).



Figure 51: Events Pond Emergency spillway crush blockage

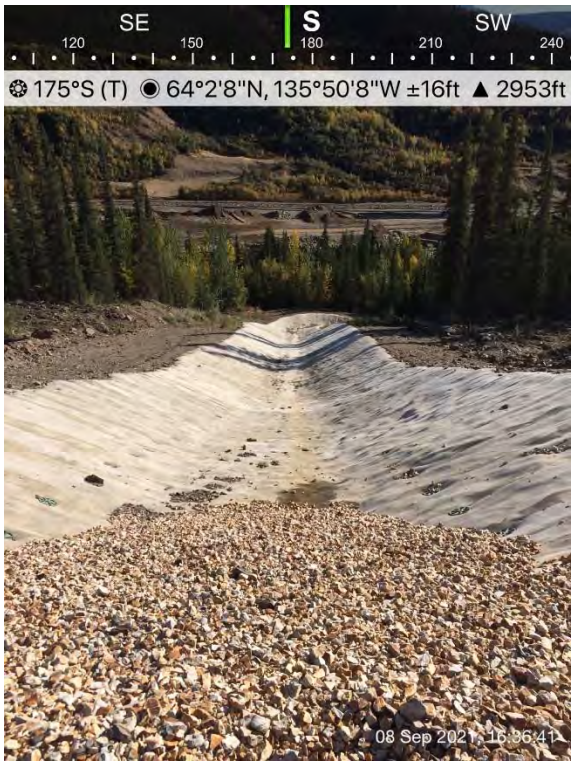


Figure 52: Events Pond Emergency spillway crush blockage

14 DITCH A

1. Ditch A carries flow from the Platinum Gulch Dump down to the Control Pond. The ditch was mostly completed at the time of the 2020 inspection and has since been finished. A section of the ditch below the Platinum Gulch Dump has been filled with material to provide a temporary vehicle access across the ditch below the dump (Figure 53).



Figure 53: Ditch A material blockage

2. A culvert for a tie-in ditch from the Secondary Stockpile perimeter ditch was observed to be blocked with sediment/material in the 2020 inspection (Figure 54). The sump was dug out and the culvert uncovered and replaced since the previous inspection (Figure 55).



Figure 54: Secondary Stockpile drainage ditch culvert blocked 2020



Figure 55: Secondary Stockpile drainage ditch culvert unblocked 2021

15 DITCH B

1. Ditch B was unfinished during the 2020 inspection but has since been extended and completed. No issues noted during this inspection (Figure 56).



Figure 56: Ditch B (view towards LDSP)

16 DITCH C

1. Diversion Ditch C begins at the 1500mm outlet culvert for the Control Pond and terminates in Haggart Creek. This ditch acts as both an emergency spillway if the Control Pond is filled over capacity or a conveyance channel for water released from the control pond through the low level outlet. There was no flow visible in the ditch during this inspection (Figure 57) as opposed to a steady flow during the 2020 inspection (Figure 58).

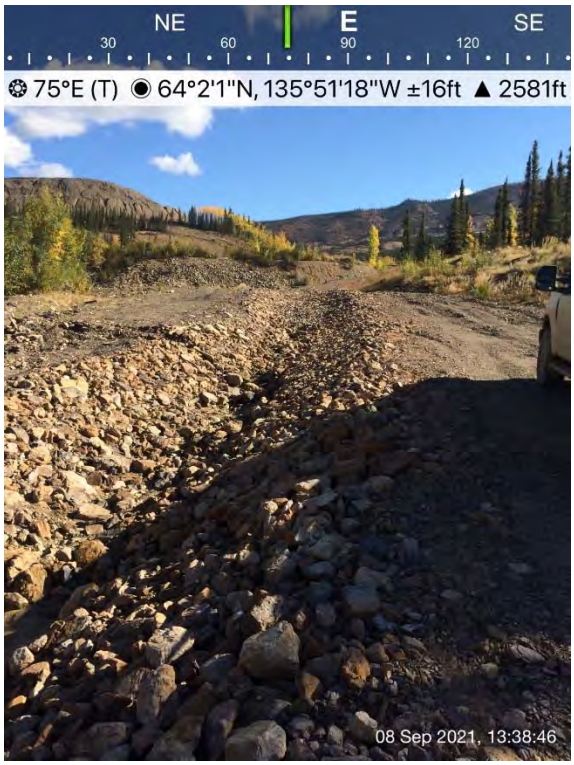


Figure 57: Ditch C typical section (2021)



Figure 58: Ditch C typical section (2020)

2. Pooling water and sedimentation was observed in the 2020 inspection on the North side of Ditch C immediately West of the culvert from the LDSP spillway to Ditch C (Figure 59). The area was dried out during the 2021 inspection with pooled sediment present (Figure 60).



Figure 59: Pooled water above Ditch C (2020)



Figure 60: Dried sediment above Ditch C (2021)

17 TRUCK SHOP

1. The truck shop was under construction at the time of this inspection. The grade had been cleared and the steel frame of the structure had been erected. Some rilling was present on the cut slope behind the truck shop (Figure 61)

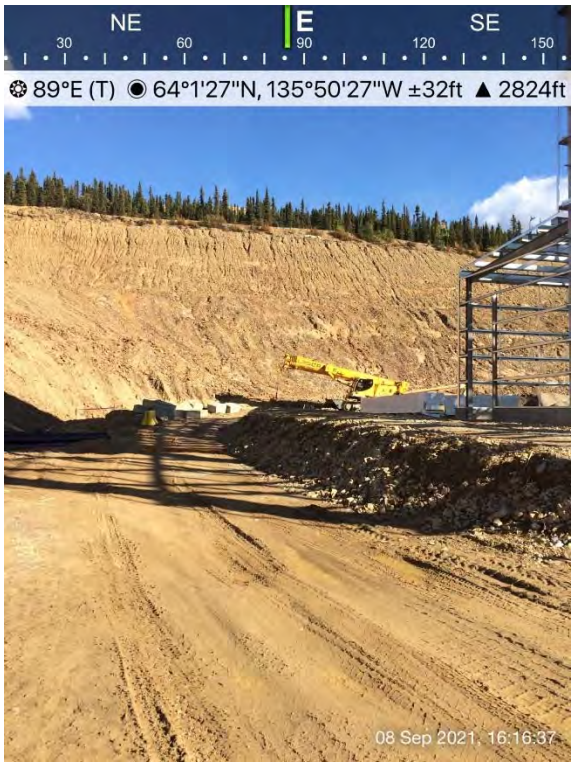


Figure 61: Truck Shop cut slopes

2. A drain ditch had been cut around the base of the cut slope and tied into Ditch A. In one section of the drain ditch rebar had been placed for storage, obstructing the ditch (Figure 62).



Figure 62: Drain ditch rebar blockage

18 ORICA LAYDOWN

1. An unlined, unarmored ditch from the portable structures of the laydown has pools of sediment (Figure 63) but the overall grade of the ditch continues to flow to the sump (Figure 64) uninterrupted. No issues noted.



Figure 63: Orica ditch sediment build-up

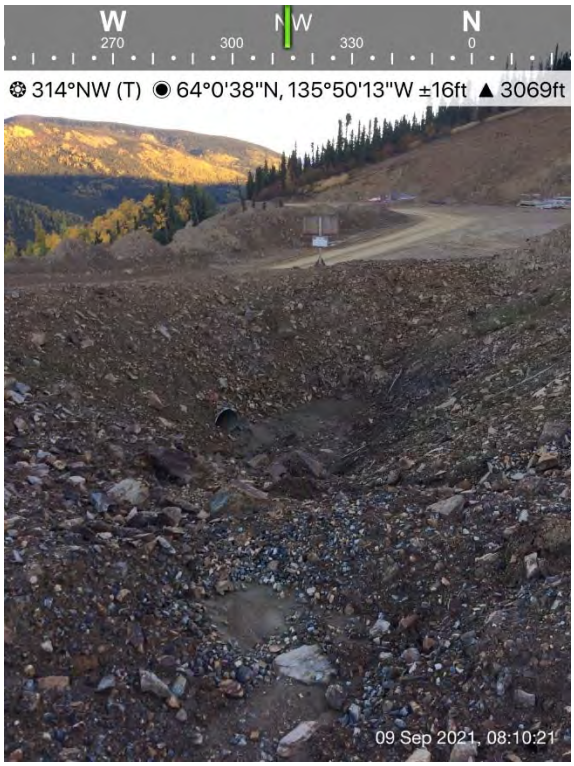


Figure 64: Orica ditch sump & drain outfall

19 UN-NAMED STOCKPILE AREA

1. Several un-named overburden stockpiles have been placed to the south of the HLF and Event Pond. Some of the stockpiles have over-steepened sides (Figure 65, Figure 66), but there is little risk to other infrastructure. The area is currently mostly un-used.

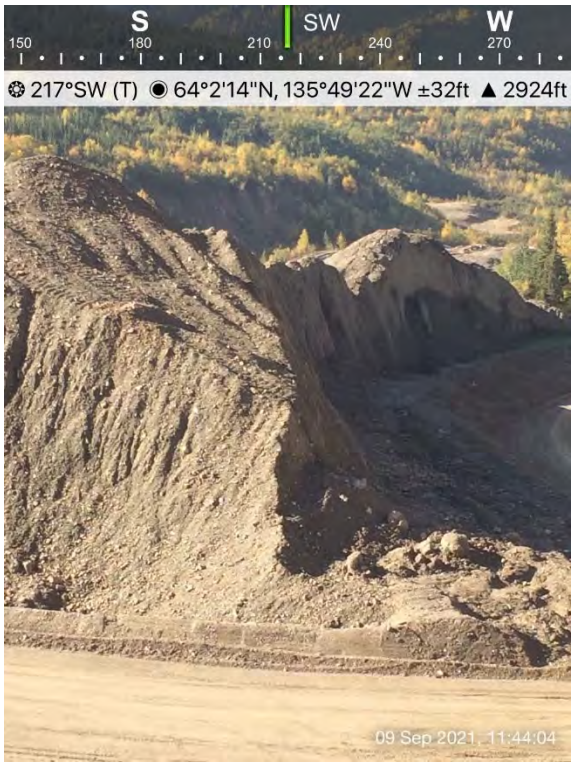


Figure 65: Some stockpiles with steep side slopes

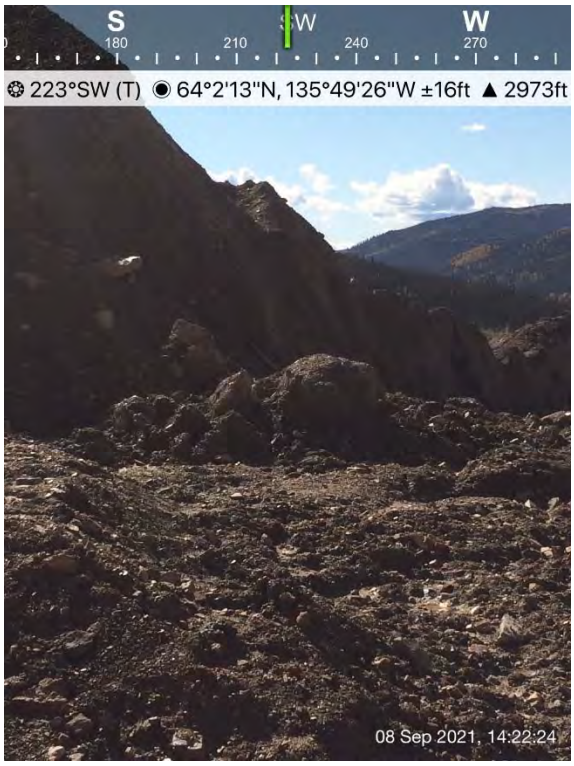


Figure 66: Additional stockpiles with steep side slopes

20 RECOMMENDATIONS

20.1 General

1. VGC should assign a qualified, on site, individual to be responsible for monitoring and documentation of any mass earth structures that have significant risks in the case of a failure. The individual should develop a standard operating procedure for the monitoring and risk management of these structures. This individual should be responsible for coordination with a qualified professional to review monitoring data for concerns and trends, if they are not qualified themselves.
2. VGC should continue to assign individuals to document and be responsible for the monitoring and construction of any structures to determine if the structures are constructed in accordance with design. Any variations between design documents and final construction should be included in final record drawings.
3. Any finalized construction of mass earth structures should include a final construction report that includes any operational and maintenance requirements (if any) to ensure stability of the structure.
4. VGC should consider a monitoring program to assist in early warning and detection of any movements in mass earth structures. Such a program might use permanent survey points, slope inclinometers, piezometers, or other tools to measure internal/external movements and pore water pressures. Such a monitoring program should be developed with the assistance of and be implemented with the oversight of a qualified professional.
5. For any stockpiles, cut slopes, and/or fill slopes with over-steepened slopes that do not require immediate rectification (due to proximity to structures, roadways, active work areas, etc) VGC should still cordon off the area above and/or below the over-steepened slope depending on what would be accessible to site staff.

20.2 LDSP (Control Pond)

1. Monitor cut slopes above Ditch A for further erosion and sloughing.

20.3 Secondary Stockpile

1. Monitor over-steepened slopes, cordon off if accessible by site staff.
2. Tie the perimeter ditch into the collection sump.

20.4 Heap Leach Facility (HLF)

1. Continue to monitor the toe slope below the HLF for rill erosion.
2. Check Phase 1B Interception Ditch and monitor sediment collection. Clear sediment collection at drain sump.

20.5 Heap Leach Overburden Stockpile

1. Continue to monitor pile for further collapse. Work in conjunction with regulators and geoscience/engineering professionals to design a short term immediate remedy and long term solution to the issue.

20.6 Open Pit

1. Monitor pooled water at base of pit, remove water via trash pump as needed.

20.7 Platinum Gulch Dump

1. No specific recommendations at this time.

20.8 Eagle Pup Dump

1. No specific recommendations at this time.

20.9 Primary Crusher and MSE Wall

1. A monitoring program should be established using regular survey of the MSE walls, to detect any potential movement. 3D scanning equipment would provide an adequate monitoring program, with scan frequency to be determined between site and an experienced professional.

20.10 Secondary/Tertiary Crusher and MSE Wall

1. A monitoring program should be established using regular survey of the MSE walls, to detect any potential movement. 3D scanning equipment would provide an adequate monitoring program, with scan frequency to be determined between site and an experienced professional.

20.11 ADR

1. No specific recommendations at this time.

20.12 Event Pond

1. Monitor minor erosion of cut slopes and maintain as required.
2. Monitor pooling water above the North side of the Event Pond and regrade area to prevent pool formation or install a water handling system (sump pumps, etc.).
3. Monitor material deposits on HLF spillway and Event Pond to ensure the spillway and pond designs are not compromised through either blockage of flow or reduced pond capacity.
4. Repair excavator damage to HLF spillway liner.
5. Clear crushed material out of Event Pond spillway mouth. If equipment access is needed for the South-East corner of the pond consider constructing additional road accesses as appropriate.

20.13 Ditch A

1. Clear soil & rock bridge from upper section of Ditch A. Consider constructing additional road accesses as appropriate to avoid having to fill Ditch A for vehicle crossings.

20.14 Ditch B

1. No specific recommendations at this time.

20.15 Ditch C

1. Monitor for potential of pooling water above Ditch C at camp road crossing.

20.16 Truck Shop

1. Monitor cut slopes for rilling and erosion.
2. Relocate rebar so that it does not block the perimeter drainage ditch.

20.17 Orica Laydown

1. Monitor perimeter sump for flow interruptions/blockages and consider re-trenching if pooled water observed.

20.18 Un-Named Stockpile Area

1. Flag over-steepened slopes in area to protect site staff. Consider dismantling over-steepened slopes depending on proximity to roadways, areas frequented by site staff.

21 CONCLUSION

The structures reviewed in this inspection generally show little evidence of movement or risk indicators. Where risk of movement was identified, the risk is typically low and the consequence of a small instability is managed by minimizing exposure to workers, infrastructure or high value natural resources. Slopes reviewed meet the recommendations for slope angles in most locations.

The exception is the collapse of sections of the Heap Leach Overburden pile. This poses a risk to the surrounding environment and requires a swift action plan involving mine management, regulators, and pertinent geotechnical and engineering professionals.

VGC representatives have noted that they have surveys and monitoring programs for infrastructure where a risk of failure would have significant consequences (i.e. the Open Pit, Platinum Gulch Dump, HLF) but review of that survey data was not included as a part of this inspection. Comparisons to inspection reports from previous years have been noted where relevant.

There are some minor erosional and stability concerns within the project, that can be addressed with some minor planning and maintenance as mining operations continue in order to moderate or eliminate the associated risks.

We trust this report satisfies your requirements at this time and thank you for the opportunity to work with you on the project. If you have questions or concerns do not hesitate to contact our office.

Yours truly,

ALLNORTH CONSULTANTS LIMITED

Prepared By:

Spencer Bergin, EIT

Reviewed By:

PROFESSIONAL ENGINEER YUKON TERRITORY D.D. WILLIAMS

DEC 0 8 2021

Don Williams, P. Eng.
Division Manager

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Any opinions of probable cost provided in the report are based on Allnorth's experience and information available to Allnorth at the time such estimates are made. Client acknowledges that due to assumptions that must be made, Allnorth shall not be liable for the accuracy of such estimates.

PERMIT TO PRACTICE
ALLNORTH CONSULTANTS LIMITED
Signature
Date DEC 0 8 2021
PERMIT NUMBER PP 123
Association of Professional Engineers of Yukon

Appendix A Site Plan (2021 Inspection)


Heap Leach Facility (Phase 2)
HLF Over-Burden Collapse
Former Nu-Way Crusher Pad
ADR Plant
Heap Leach Facility (Phase 1)
Event Pond
LDSP (Control) Pond
Un-named Stockpile Area
Ditch C
Ditch B
Secondary Stockpile
Truck Shop
Secondary/Tertiary Crushers
Primary Crusher
Eagle Pup Dump
Open Pit
Ditch A
Platinum Gulch Dump
Orica Laydown

Appendix B Site Plan (2020 Inspection)


Heap Leach Facility
(Phase 1B Expansion)
Former Nu-way Crusher Pad
ADR Plant
Event Pond
LDSP (Control Pond)
Un-named Stockpile Area
Ditch C
Ditch B
Secondary Stockpile
Secondary/Tertiary Crushers
Primary Crusher
Open Pit
Ditch A
Orica Laydown
Platinum Gulch Dump

Appendix C Site Plan (2019 Inspection)


N
Phase 1 Interception Ditch
Upper Overburden Stockpile
Heap Leach Facility
Phase 1 Heap Leach Facility
Borrow Pit / Future Landfill
ADR Plant
ADR
Event Pond
Events Pond
Stockpile
Unnamed Stockpile Area
Ditch C
Control Pond
Camp
Septic Field
Warehouse
Stockpile
Ditch B
LDSP (Control) Pond
Stockpile
Conveyor
Future EP WRSA
90 Day Stockpile
Stockpile
Secondary and Tertiary Crusher
Camp Road
Power Plant Substation
Waste Management
90 Day Storage
Crushing Circuit
Primary Crusher
Open Pit
Open Pit
Ditch A
Possible Future Ice Rich Material Storage
PG WRSA In Use
Platinum Gulch Dump
Explosives Storage
Orica Laydown
Transmission Line
0
250
500
1,000
Meters

APPENDIX U

Eagle Gold Mine 2021 Cyanide Management Plan Audit

Victoria Gold Corp. Eagle Gold Mine
2021 Cyanide Management Plan
Audit Report
Project No. 109014



Prepared by:
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Revision	Date	Status	Prepared By	Checked By	Approved By
REV A	290322	Internal Review	C. Ruff		C. Ruff
REV 0	300322	Client Review	C. Ruff	D. Whalen	C. Ruff
REV 1	300322	Updated from Client	C. Ruff		C. Ruff

Statement of Report

Forte Dynamics, Inc. (Forte) was requested by Victoria Gold Corp. (Victoria, VGC) to perform the annual audit of the Eagle Gold Mine's Cyanide Management Plan (CMP) and its implementation following the guidelines of the International Cyanide Code for the Manufacture, Transport, and Use of Cyanide in the Production of Gold (Cyanide Code, Code). Chase Ruff, a certified technical expert auditor for gold mining under the Code performed the audit. Forte has reviewed the CMP and supporting information, and the findings of the review are presented below following the Cyanide Code summary report format. The scope did not include a Cyanide Code certification audit, nor did it include a dedicated site visit for the purpose of the audit given the challenges due to COVID-19. Rather, Forte relied on prior site visits and communication with the site team, photographs, electronic document review, and personnel interviews to conduct the assessment remotely.

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Introduction

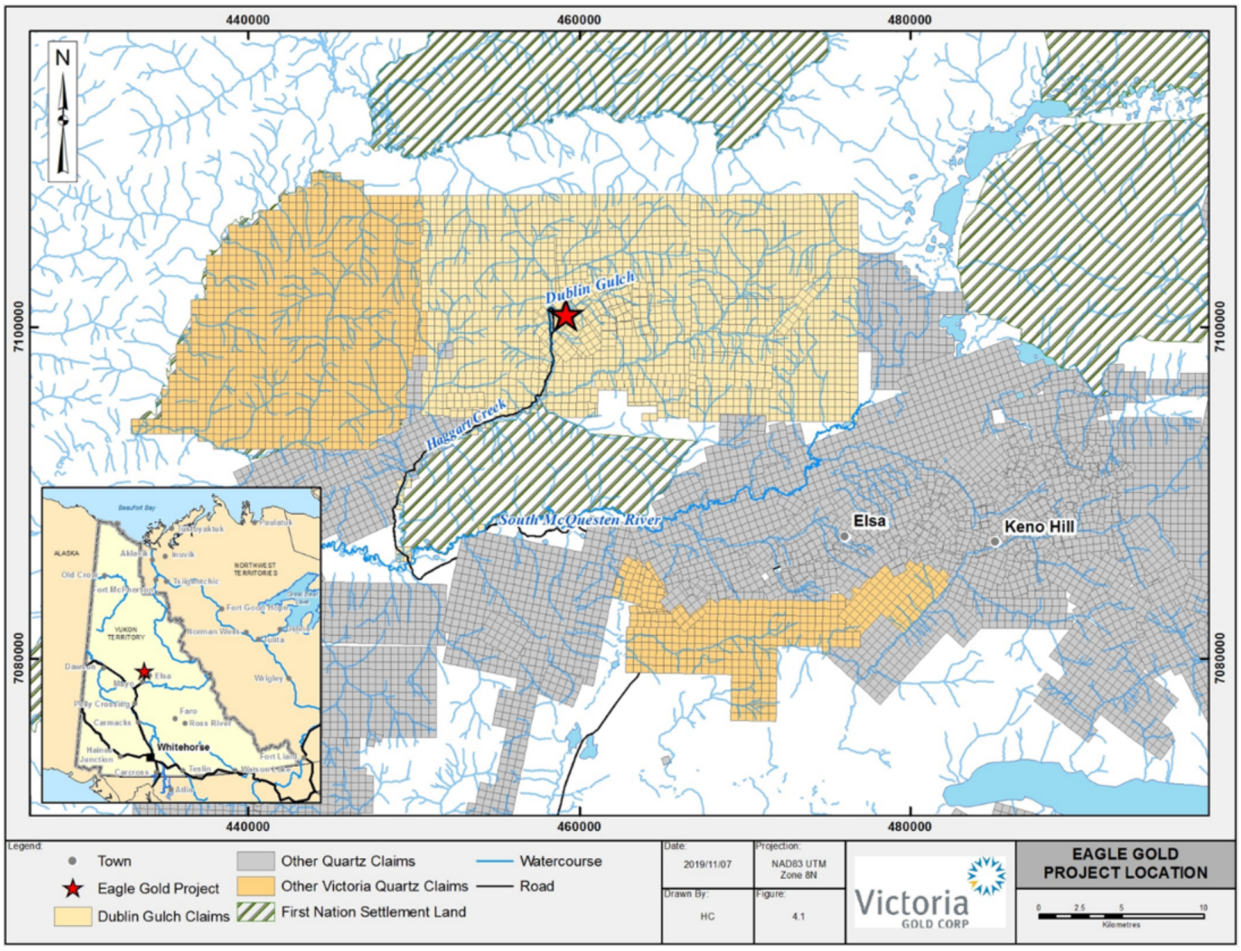


Figure 1. Location of Eagle Gold Mine

The Eagle Gold deposit is situated within Victoria Gold's Dublin Gulch property as illustrated in Figure 1. The Eagle deposit is actively being mined using open pit methods. Ore extracted from the open pit is either fed through a three-stage crushing plant (to produce an 80% passing (P80) 6.5 mm product) and transferred by covered conveyor to the heap leach facility (HLF) or trucked as run-of-mine (ROM) ore, that bypasses the crushing plant, to the HLF.

Gold is extracted from ore into a solution by using a sodium cyanide heap leaching process within the HLP. Gold is then recovered from solution by an adsorption-desorption-recovery (ADR) carbon plant.

The Eagle process flows diagram is presented in Figure 2 below.

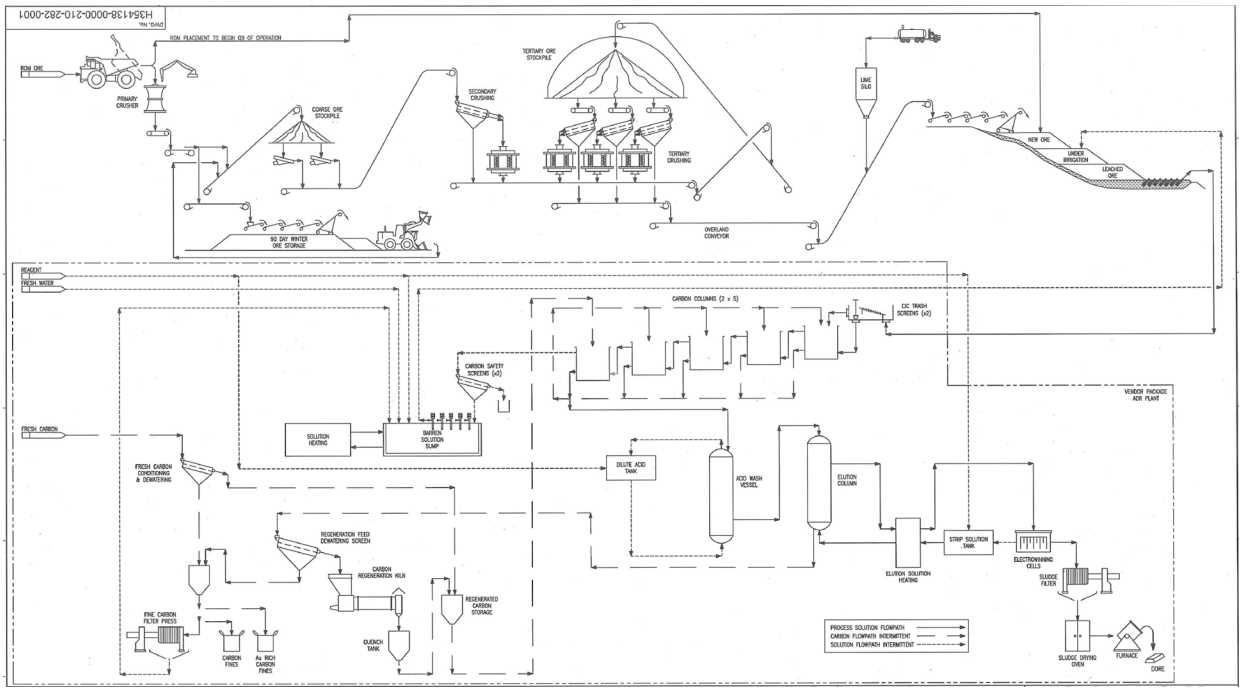


Figure 2. Eagle Gold process flow diagram

As part of project development and as a condition of the Water Use License (WUL), License #QZ14-041-1, issued by the Yukon Water Board, Victoria prepared a Cyanide Management Plan (CMP). The plan is written to follow the guidelines of the Cyanide Code for the Principles and Standards of Practice under the Code. The WUL requires an annual audit of the CMP. The CMP provided for review was Version 2021-01, issued November 2021. The period that was audited for this report was July 1st, 2020 to December 31, 2021.

The CMP has been revised during the audit period to update the Plan to address findings from the previous Cyanide Management Plan audit and reflect updates to operating procedures at the Mine. The plan is considered a working document with finalization pending the results of this audit and approval by the appropriate Yukon regulatory agencies.

The International Cyanide Management Institute (ICMI) updated the Principle's and Standards of Practice in June of 2021 to clarify areas of the code and eliminate redundancies. This audit utilizes the June 2021 version of the code and is the first audit to do so for the Eagle mine.

Principle 1 | PRODUCTION AND PURCHASE

Standard of Practice 1.1

Purchase cyanide from manufacturers employing appropriate practices and procedures to limit exposure of their workforce to cyanide and to prevent releases of cyanide to the environment.

The operation's long-term supply contract with the cyanide supplier, Cyanco Canada Inc. (Cyanco), does not require that the cyanide be produced at a facility that has been certified as following the Code. However, the certification status of the cyanide supplier, who is the product manufacturer, was verified by review of the ICMI website. During the audit period VGC only purchased cyanide from Cyanide Code certified producers, with the agreement to purchase 100% of their required cyanide from Cyanco. No cyanide was purchased from independent distributor(s) during the audit period, nor are plans or provisions in place to do so. While no secondary supply contract is in place, there are alternative

suppliers available in North America that are also certified under the Code if a disruption in the supply chain necessitated an alternative supplier. The CMP states that the operation will make every effort to purchase cyanide from a Code certified supplier in the event of a disruption to the cyanide supply chain.

Cyanco provides cyanide to the Eagle Mine in intermediate bulk containers (IBC's) consisting of dual layer polypropylene/polypropylene bags with wooden overpack crates. The crates are loaded into 20-foot seaworthy intermodal containers for delivery to site by truck.

Principle 2 | TRANSPORTATION

Standard of Practice 2.1

Require that cyanide is safely managed through the entire transportation and delivery process from the production facility to the mine by use of certified transport with clear lines of responsibility for safety, security, release prevention, training, and emergency response.

Written agreements meeting the Cyanide Code's requirements were in place for the supply contract with Cyanco during the audit. The cyanide purchase contract includes the cyanide manufacturer's (seller) responsibility to deliver the product to the mine site.

The seller's transportation supply chain is currently certified under the Cyanide Code. Supply is through the Cyanco Western U.S./Canada Rail, Barge & Truck Supply Chain. The supply chain includes rail, barge, & truck transportation from Cyanco's Alvin, Texas, USA productions plant to the Eagle site in Canada. The certification status of the supply chain was verified via the Cyanide Code website and certificate provided by the site.

Regarding storage and security at ports of entry, the contract includes seller´s responsibility for interim loading, storage, unloading during shipment and unloading at the operation.

Safety and maintenance of the means of transportation throughout transport is addressed as seller's responsibility in the contracts, as well for task and safety training and emergency response for transporters and handlers throughout transport.

All cyanide purchased and transported to the site during the audit period was supplied under the existing contract. VGC maintains all chain of custody records for cyanide deliveries to the site.

Principle 3 | HANDLING AND STORAGE

Standard of Practice 3.1

Design and construct unloading, storage and mixing facilities consistent with sound, accepted engineering practices, quality control/quality assurance procedures, spill prevention and spill containment measures.

The CMP outlines the basic process and areas for unloading, storage, and mixing facilities at the site. Sea containers are unloaded from delivery trucks and placed in a storage area that consists of a concrete pad near the ADR facility. When needed, sea containers are transported to a concrete pad immediately adjacent the ADR facility. A dedicated area within the ADR plant is used for the short-term storage of the IBC's as they are prepared for use. Access to the building contains appropriate warning signs, consistent with the language specified in the Code. The storage area also includes an HCN detector with audible and visual alarms, combination safety shower and eyewash station, and dry powder fire extinguishers for use in an emergency.

The cyanide mixing system, including the cyanide mixing and cyanide storage tanks, was designed by Hatch. A complete set of design drawings was available for review by the auditor. These drawings are stamped by a Certified Professional Engineer Registered in the Yukon Territory. Containment volume calculations were not readily available for review, and it is recommended that the site obtain the original containment calculations used in the design of the facility or contract a registered engineer to provided the calculations based on the design and actual construction of the plant.

The cyanide storage area is located inside the plant area and located far away from communities and surface waters. The process plant has HCN gas monitors equipped with visual and audible alarms at the cyanide mix area that will alert employees in case of a release of HCN gas. Operators are also required to have a portable HCN monitor on them during specific activities where the risk of exposure to HCN gas is higher. In addition, the standard operating procedure (SOP) CMP-SOP-020 – Cyanide Emergency Response Procedures covers multiple emergency scenarios, including for the process plant in the event of high concentrations of HCN gas.

The cyanide mixing and storage tanks are located in the southwestern portion of the plant area, near the main rollup equipment door. The site has experienced ventilation issues in certain areas of the building and has taken steps to evaluate the issues with the ultimate goal of reducing HCN build up in the plant. The cyanide mixing and storage tanks are located within the plant building and have restricted access. The area can only be accessed with the presence of authorized operations personnel. The cyanide mixing and storage tanks are stored within a dedicated containment area with concrete berms, with no other materials permitted to be stored in this area.

Standard of Practice 3.2

Operate unloading, storage and mixing facilities using inspections, preventive maintenance and contingency plans to prevent or contain releases and control and respond to worker exposures.

Empty cyanide bags are triple rinsed over the mix tank after the contents are emptied. The rinsed bags, including the liner, plywood crate, and strapping materials are collected and transported to a secure, onsite incinerator for disposal, according to CMP-SOP-006 – Controlled Disposal of Cyanide Packaging Materials. The packaging materials are stored inside of a secure sea container until they are incinerated.

The site has a procedure – VGC-CMP-PRO-201 – Sodium Cyanide Solution Preparation which outlines the requirements for inspection, observation, and mixing of cyanide solutions, including the sequence required for the cyanide mixing process. It also includes instruction for the prefill of the cyanide mixing tank with water and ensuring a pH of at least 10.5 or above. If required the pH adjustment is done through the addition of sodium hydroxide to the mix tank. This procedure does not require any inspection or cleanup following cyanide mixing, this should be added to the procedure to ensure that solid sodium cyanide or liquid cyanide solution spills are not left behind where another person may unknowingly be exposed to the chemical.

The Cyanide Mixing Process procedure requires operators to use the appropriate personal protective equipment (PPE) during mixing activities. These include both standard PPE required for operations, as well as specialty items such as steel-toed boots, rubber gloves, rubber boots, approved respirator, face shield, chemical suit with hood, hardhat, safety glasses, hearing protection and a personal HCN detector. The PPE requirements are further described in CMP-SOP-008 – PPE for Cyanide Facility Operations. The auditor was not able to physically verify compliance with the site procedures due to the ongoing pandemic. Photographs and video were provided by the site and show that the mixing area is kept clean, free of debris, and shows no evidence of spills or leakage. The procedure requires two operations

personnel for cyanide mixing with the area barricaded and secured from unauthorized access during mixing. Video of the mixing process showed compliance with site procedures and the Code. Remote video monitoring capability is not currently installed at the site but is considered best practice, but the current procedure satisfies the intent of the Code.

The CMP states that the sea containers are offloaded from the trucks onto the unloading and storage pad well away from the Mine camp. The CMP states spotters are used in the area during offloading to prevent any unauthorised access of personnel or equipment; however, this could not be verified by the auditor. The solid cyanide product inside the IBCs already comes with red colorant dye, as delivered by Cyanco, however this is not indicated anywhere in the contract with Cyanco or in any of site documentation. Presence of the dye was confirmed by photos of residual cyanide solution after mixing. Information regarding the presence of the dye should be added to the CMP, appropriate procedures, and training materials.

Principle 4 | OPERATIONS

Standard of Practice 4.1

Implement management and operating systems designed to protect human health and the environment including contingency planning and inspection and preventive maintenance procedures.

Eagle has several documents that are intended to support the safe operation of cyanide facilities. Some of these key items include the Cyanide Management Plan, the SOP's related to cyanide operations, and the Heap Leach Facility Operation, Maintenance and Surveillance (OMS) Manual. All SOPs include a section related to PPE requirements and considerations of safety hazards. The operation has identified equipment, personnel, and procedures for cyanide unloading and mixing activities as well as for storage facilities, processing facilities, and all associated piping and pumps having contact with cyanide. SOPs were reviewed and found to be sufficiently detailed to enable safe operation. All of these documents were updated within the current audit cycle to reflect the site moving from a construction phase to an operational phase.

Eagle has manuals and procedures that identify the assumption and parameters for the safe operation of the facilities. The Operational Maintenance and Surveillance Manual considers routine operational aspects, as well as maintenance requirements and surveillance of the facility. The Heap Leach Facility Contingency Water Management Plan addresses the design storm event considerations for the HLF, including the Probable Maximum Flood. Maximum operating in-heap pond level and response actions at various levels are detailed in the OMS. Historic in-heap pond level data during the audit period were reviewed and evidenced that at all times the pond elevation maintained at least the required freeboard within the pond. The Environmental Monitoring, Surveillance and Adaptive Management Plan (EMSAMP) is in place to manage key items such as surface water hydrology, surface and ground water quality, HLF and pond leak detection, and storage volumes. The plan details indicators, thresholds, and adaptive management measures to be taken for threshold exceedances.

The CMP also includes monitoring weak acid dissociable (WAD) cyanide present in the event pond with a level of 50 ppm WAD cyanide used to trigger wildlife deterrent measures. Further, if the need arises, and for the protection of the environment, a cyanide detoxification system is available in the ADR plant to assist in reducing the cyanide concentration of process solutions. The pond level is monitored daily via survey during the open water season. Cyanide levels are monitored on a minimum of a monthly basis and would be monitored more frequently if process solution were ever introduced into the events pond. Eagle does not have direct water discharges that have been treated for cyanide to surface water.

The CMP and OMS include a list of critical aspects and areas to be inspected and inspection frequencies. At the HLF and ADR plant, Eagle conducts inspections for pipeline leaks, ponding or pooling of solution, wildlife, condition of interceptor ditches, pond levels, condition of the facilities, functionality of safety equipment, signage, facility integrity, etc. In the case of the process plant, inspections include: the bulk cyanide storage area, the cyanide mixing and storage area, the incinerator area, the ADR plant primary and containment areas, the pregnant and barren solution pipelines, among others. Though the CMP indicates these inspections should take place, records of all inspections could not be provided to the auditor. The site should ensure that all inspections are taking place at their required frequency and that the records of those inspections and any corrective actions are kept in a readily accessible place. In addition, the CMP and OMS highlight the need to inspect the HLF for ponding. The reactions operators are to take when ponding is discovered however are only loosely defined. The site was able to communicate the steps that are taken by operators but it is recommended that these steps be captured in the OMS or in a separate SOP.

Eagle has developed and implemented a management of change (MOC) process for operational changes to ensure that a systematic approach to changes is followed with the aim of ensuring continued safety throughout the process. These systematic processes ensure that the change is managed in a proactive fashion. The MOC process ensures safety, health, and environmental risks and hazards are properly controlled when making changes to the facility, operation, or personnel. The MOC uses a format that includes a description of the proposed change, a risk assessment section, review, evaluation, and approval. The MOC process does not have a method to evaluate a change and close a change out. While the MOC process that the site has in place meets the intent of the Code it should be considered best practice to put a process into place to evaluate a change after it has occurred.

Eagle has implemented a HLF Contingency Water Management Plan for the site to respond to upsets in water balance, problems identified by inspections, and to address temporary shutdowns of the facilities. Procedures for stopping and starting the plant facilities and for power outage events, provide response measures for emergencies related to failures of cyanide equipment, and response plans to address upsets in the process water balance. Contingency scenarios are included in the CMP, OMS Manual and SOPs. The OMS also includes activities related to surveillance of the HLF and solution pipelines and actions to be taken in case of a line rupture. Any spills within the ADR plant are contained within the process plant containment. The pregnant and barren solution lines are contained within lined ditches or on the lined HLF, allowing for containment of any leakage. Should the in-heap pond become overwhelmed, solution would report to the events pond. In relation to a temporary closure or cessation of operations scenario, Eagle addresses options to manage solution in the HLF Contingency Water Management Plan, including the use of the in-pad and event pond volumes, the use of liner to reduce meteoric water infiltration, or the use of enhanced evaporation.

Eagle has a program to conduct routine inspections of cyanide facilities, with the results of the inspections reviewed by the designated staff at least weekly. The inspections are conducted in different areas of the operation, with the frequencies varying from every shift to special annual inspections. The inspection program (as written) of cyanide facilities including unloading, mixing and storage activities and frequency of inspections were found to be sufficient to assure that the operation is safe and functioning within design parameters. The auditor requested inspection records of various areas but the site was unable to provide records of consistent inspections outside of operator pre-shift and turn-over inspection forms. The site should ensure that the inspection program is being followed and that inspection records are stored in a place that is readily accessible.

A site visit specific to the audit was not possible due to COVID. However, based on photos provided for the audit, the auditor did verify the condition of tanks, secondary containments, pipelines, pumps, valves, pipeline trench, pond freeboard, and the absence of salt buildup is consistently in good order. The auditor reviewed inspection records that were made available, however there were not enough records made available to determine if the inspection program is being conducted on a consistent basis. The inspections that were provided included the date of the inspection, the name of the inspector and observed deficiencies.

Eagle uses two mechanisms to document, track and close corrective actions identified during inspections: 1) Corrective actions that are related to maintenance of equipment at the process plants and HLF are managed by the maintenance department. Work orders resulting from deficiencies related to the cyanide facilities are initiated, tracked, prioritized, planned, and closed. The auditor was provided several examples of maintenance activities related to inspection corrective actions or continuous improvements. 2) All other corrective actions not related to maintenance of equipment that are identified through inspections conducted by process personnel or other areas (e.g. Environmental) could not be verified during the audit.

The maintenance group has a preventive maintenance program for pumps, pipelines, valves, flow meters, gauges, level sensors, pH meters, sump pumps, filters, HCN sensors, tanks, ponds, and cyanide facilities in general. The Preventative Maintenance Plan is included in the CMP. The preventive maintenance program helps perform periodic maintenance and inspections of the integrity of process equipment, piping and tanks to ensure they are working properly. A corrective action maintenance schedule is also generated every week. Examples of corrective action records were reviewed to ensure they are being closed according to schedule. It would be considered best practice for the site to implement a system to check the thickness of critical tanks and pipes where possible.

Emergency power considerations are included in the CMP under CMP-SOP-010 – Backup Generator Operations and Maintenance. Eagle has three emergency power generators for the site. Each generator is rated for 1650 kW of output. These three generators start automatically if there is a grid power outage to immediately restore power to the ADR Plant and HLF, allowing for the rapid restart of all critical equipment. Generators are monitored continuously via the plant control system and they are electrically and mechanically inspected on a weekly basis. Other routine and preventative maintenance programs specific to the generators are also in place, including on-load and no-load testing per the maintenance schedule.

Standard of Practice 4.2

Introduce management and operating systems to minimize cyanide use, thereby limiting concentrations of cyanide in mill tailings.

This section is not applicable to the Eagle site under the Cyanide Code, as there is no milling operation.

Standard of Practice 4.3

Implement a comprehensive water management program to protect against unintentional releases.

Eagle uses a comprehensive, probabilistic water balance using the Monte Carlo simulation software, GoldSim. This model was updated from the initial projections to include site operational data, as well as updated Climate/Meteorological data from operations, considering the proposed process plan through mine closure. An external consulting company (Mines Group, 2019) performed the initial water balance. The most recent water balance update report was produced by Forte Dynamics, Inc. An update to this report was being prepared at the time of the audit but was not completed prior to the audit deadline.

The operational water balance includes the following factors: solution application rates, precipitation and evaporation rates, effects of freshet runoff, and impacts of freezing and thawing. Potential power outages are not included in the operational water balance as Eagle has emergency backup generators on site which will avoid any effects on water balance activities. However, the potential impacts of power outages on solution management are considered in the most recent water balance update report. The event pond has a storage capacity capable of receiving 72-hours of drain down and runoff from a 100-year rainfall event, while still maintaining a 0.5m freeboard. Should solution enter the event pond, the operation prioritizes solution recovery from the pond for makeup water in the HLF rather than continuing fresh water addition.

Eagle has zero process water discharges to surface waters during operations. In closure when the leach pad begins to drain down, water collected in the events pond or excess solutions may be treated in the mine water treatment plant and discharged if water quality standards are met. A description of the water balance model and calculations are included in the GoldSim Water Balance Model Report, dated March 2021.

Eagle conducts frequent inspections of the HLF and monitoring activities to ensure these facilities are operated according to the design criteria, following the inspection program included in the CMP and OMS manual. Process operators conduct routine inspections on the HLF, including conditions of the HLF and event ponds. The auditor reviewed the inspection records provided however there were insufficient records provided to conclude that the inspections are taking place on a regular basis. The site should ensure that inspections are being conducted per the site guidelines and documented appropriately.

Freeboard in the in-heap pond is monitored on a continuous basis and reported daily. The auditor reviewed historic data on the pond level and confirmed that the level was maintained below the overflow level to the event pond. The event pond level was also maintained below the trigger points. Pictures provided by the site confirmed freeboard was being maintained.

Climate data for Eagle has been collected since 2007. Multiple weather stations on site collects precipitation data on a daily basis. Data collected is used to compare the results to design assumptions and to calibrate the water balance model. The water balance model is updated and calibrated annually using precipitation, pond levels, solution flow rates and temperature data, as mentioned in the GoldSim Water Balance Report, dated March 2021. Eagle is a fairly young operation; however, several of the water balance model input parameters have been updated with revised assumptions based on actual operating data, as noted in the Water Balance Report by Forte Dynamics Inc. The water balance projections will continue to be revised as necessary based on actual data.

Standard of Practice 4.4

Implement measures to protect birds, other wildlife and livestock from adverse effects of cyanide process solutions.

Eagle monitors the HLF for indications of solution ponding. If ponding is observed, the CMP and OMS outline general measures to be taken to mitigate the ponding or exclude avian species from accessing the solution. Measures can include reducing or eliminating flow to the area and/or covering the ponded area with avian exclusion screens. An SOP should be developed to specifically address situations where ponding is observed.

If process or storm water collects in the event pond, operations recycles the solution back onto the HLF as soon as possible. If the solution concentration is determined to be above 50 mg/L WAD cyanide, the site increases monitoring of the effectiveness of the installed avian deterrent devices. Eagle has implemented electronic propane gas cannons to be used to scare away birds and other wildlife getting too

close to the event pond. No cyanide-related wildlife mortalities have occurred since the start-up of Eagle operations through the audit period of December 2021.

The CMP indicates that a wildlife exclusion fence was to be installed around the perimeter of the event pond to prevent access by larger terrestrial wildlife. The fencing was not installed as part of the project and pictures of the pond indicate that it has not yet been installed. When asked, the site could provide no timeline of fence installation. The site should include fence installation as a best practice prior to the next audit.

Standard of Practice 4.5

Implement measures to protect fish and wildlife from direct and indirect discharges of cyanide process solutions to surface water.

Eagle does not have direct discharges to surface water from cyanide facilities during operation. If, due to extraordinary events, the site needs to detoxify process solution to discharge to surface waters the site has a plan in place to convert one CIC train into a cyanide detoxification train using hydrogen peroxide and air. When operations cease, process solutions will be managed by recirculating solution onto the leach pad or through evaporation. If the ponds or pad are unable to manage the solution, during closure, solution could be discharged through the mine water treatment plant if the water quality levels are met. The site has a comprehensive water management program in place to help protect against unintentional releases. Further, the facility design as a zero discharge facility aids in reducing the potential for indirect discharge.

Surface water quality monitoring data was provided from July 2020 through December 2021. Trace quantities of cyanide measuring 0.005 mg/L are present in both reference sites and surface monitoring locations indicated in the Environmental Monitoring, Surveillance, and Adaptive Management Plan, which are outside of the project influence, suggesting this as a natural background level. The monitoring results have no measured cyanide concentrations exceeding the background levels in down gradient monitoring locations, suggesting that direct or indirect discharge is not occurring.

Standard of Practice 4.6

Implement measures designed to manage seepage from cyanide facilities to protect the beneficial use of groundwater.

The Eagle HLF was constructed with measures to protect groundwater from seepage of process solutions and water. The HLF is constructed with a dual-layer synthetic geomembrane liner system of linear low-density polyethylene (LLDPE) over a geosynthetic clay liner (GCL) system in the in-heap pond area. This design is also used for the event pond. Above the pond level in the HLF, the pad transitions to an LLDPE over GCL system. A solution drainage and collection system lies on top of the liner system for recovery and pumping of the pregnant solution. A Leak Detection and Recovery System (LDRS) is constructed in the in-heap pond and event pond which return any solution collected to the heap or pond, respectively. This system is installed between the two layers of LLDPE to allow for detection of any leaks in the primary liner system.

The process plant is designed and operated to manage seepage and protect groundwater quality. The entire process area, including the cyanide mixing area, is contained within a reinforced concrete pad surrounded by curbs, parapets and stem walls, which provide a competent barrier to seepage. The concrete floor is sloped to drain solution into common sumps and then pump the solution back into the process circuit. All process tanks at the plant are secured to solid, reinforced concrete pedestal-type foundations and are contained within concrete berms with good condition concrete flooring. This foundation and floor system serves to prevent any seepage from the tank bottoms from entering the

ground. Further, an LLDPE liner system was placed beneath the entire extents of the ADR plant and pregnant and barren solution pipeline corridor. The additional liner system further serves to minimize the potential for seepage and protect groundwater for beneficial uses.

Similar to surface water monitoring results, the site data reviewed for groundwater does not suggest any impacts from cyanide to the beneficial use of groundwater from the operation.

Standard of Practice 4.7

Provide spill prevention or containment measures for process tanks and pipelines.

Spill prevention and containment measures are provided for all cyanide mixing, storage, and process solution tanks. The ADR plant tanks, piping, and pumps are enclosed within the ADR plant building which has a reinforced concrete slab and stem walls to provide containment. The floor is sloped to solution collection sumps. The sumps are designed to operate with automatic level sensors to return any solution collected back into the process. The cyanide mixing and storage tanks are designed in their own containment that holds approximately 40% of the largest volume (per previous audits). If this containment were to become overwhelmed solution would flow into the CIC area containment and sump for recovery back to the process. After examining pictures, as-built drawings, and previous audit reports it appears the combined containment within the ADR plan exceeds the minimum requirement of 110% of the largest tank. The site was unable to provide calculations by a registered engineer to show this, though it is apparent the calculations have been done during the design. It is recommended the site either locate the original calculations done by the design engineer or contract an engineer to verify the design and volume calculations of the containments.

Other secondary and tertiary containment, including liner under the ADR plant provides for additional protection. Where the pregnant solution pipeline enters the building and the barren solution pipeline exits the building, the lines are run parallel to one another in an LLDPE lined channel, providing secondary containment. The facility design, pictures, and previous audits confirm that pipes, tanks, and other systems containing process solution utilize carbon steel, HDPE, corrugated polyethylene, or stainless steel, all of which are compatible with cyanide and high pH solutions.

The tertiary lined event pond provides additional containment for the HLF in-heap pond to contain any spillage if the overflow level is reached. The pond has a pump back system for storm water or process solution return to the process system. Records provided by the site indicate that all solution that has been collected in the event pond during the audit period tested as below the detection limit for cyanide.

Standard of Practice 4.8

Implement quality control/quality assurance procedures to confirm that cyanide facilities are constructed according to accepted engineering standards and specifications.

The HLF at Eagle was designed by BGC Engineering Inc. with the process plant designed by Hatch. The design drawings by both firms were produced by Professional Engineers registered in the Yukon Territory and both having the appropriate Permit to Practice. Construction management was overseen primarily by JDS Energy & Mining Inc. The Eagle facility construction was performed by multiple contractors, including but not limited to Pelly Construction, The Gisborne Group, Clark Builders, and others. The quality control and quality assurance (QA/QC) programs were implemented during the initial construction of cyanide facilities at Eagle, with services provided primarily by Tetra Tech and Layfield Canada Ltd. The complete record package of the QA/QC documents was reviewed by the auditor.

The final record of construction package for the ADR plant and HLF areas is available electronically and was provided for auditor review. This package covered the leach pad earthworks and geosynthetic liner

installation, as well as the ADR LLDPE liner and concrete equipment foundations and containment area. The final issued for construction (IFC) drawings were available for piping and mechanical disciplines and indicate that the design is consistent with the intent of the Code. Some check sheets and drawings were provided to the auditor for review of the mechanical and piping elements of the project but a completed report was not provided. Pictures of cyanide areas and inspections by previous auditors indicate that the tanks and pipelines were in good working order with no evidence of leakage. The site is requested to obtain the completed mechanical as-built/record of construction package from JDS to demonstrate adherence to the CMP.

Standard of Practice 4.9

Implement monitoring programs to evaluate the effects of cyanide use on wildlife, and surface and groundwater quality.

The CMP, the Environmental Monitoring, Surveillance, and Adaptive Management Plan, the Wildlife Protection Plan, and CMP-SOP-025 – Environmental Monitoring Procedures specify the requirements implemented by Eagle to monitor the effects of cyanide use on wildlife, surface, and ground water quality.

A comprehensive wildlife monitoring program is in place and detailed records were provided documenting the extensive wildlife interactions at the site. No wildlife mortalities related to cyanide have occurred at the site during the period of the audit.

The groundwater and surface water monitoring program also provide for an extensive program to ensure water quality is protected for beneficial uses. The documents noted above also provide requirements for sampling, preservation, chain of custody requirements, reporting requirements, etc. to ensure sample integrity is maintained. Results from the monitoring program were reviewed by the auditor.

Principle 5 | DECOMMISSIONING

Standard of Practice 5.1

Plan and implement procedures for effective decommissioning of cyanide facilities to protect human health, wildlife, livestock, and the environment.

Eagle has an approved Reclamation and Closure plan (RCP) for the site, which addresses the long-term physical and chemical stability of the site, including reclamation of the surface disturbances from existing development. The plan was first submitted to the Yukon Water Board in August 2014, and the plan is required to be revised and resubmitted every two (2) years. The current plan, Version 2020-01 dated October 2020, was provided for review. This version included several updates to the previous plan which reflect the mine site going into operation. In addition to regulatory approval, the RCP also includes engagement with first Nations groups and other stakeholders. The plan seeks to guide the return of the site to appropriate and functional ecosystems, similar to pre-development conditions, while meeting key end land use objectives. The RCP address water quality, physical stability, land use, aesthetics, monitoring, and public health and safety.

The RCP includes goals, criteria, objectives and schedules for the currently anticipated closure activities throughout the site as well as the cyanide facilities. For the heap leach pad the closure measures include plans for: residual leaching, rinsing and cyanide destruction, formation of in-heap pond bioreactor, drain-down, passive water treatment, earthworks, and final reclamation. Considerations of evaporation, water treatment, and revegetation of the cover with local species that have high moisture uptake characteristics are also considered in the plan. At the processing facilities the plans include: removal and disposal of hazardous reagents, decommissioning and removal of equipment, demolition of steel structures, and demolition and burial of concrete foundations. The RCP also includes a comprehensive water

management plan for closure to protect the beneficial use of ground and surface waters and minimize the amount of water that comes into contact with mine waste. This may include the use of covers and diversion ditches to achieve the reclamation objectives.

Standard of Practice 5.2

Establish a financial assurance mechanism capable of fully funding cyanide-related decommissioning activities.

The RCP includes a detailed cost estimate for closure of the Eagle project including all cyanide facilities and cyanide-related activities. The cost estimate provides for a two-year peak liability, covering the construction year and first year of operation, as well as the life-of-mine (LOM) closure cost. The cost estimated was developed in compliance with the Yukon Mine Site Reclamation and Closure Policy Financial Guidelines and approved by the YWB. The estimate uses unit rates and quantities for items such as earthworks, piping removal, building removal, HLF detoxification, and care and maintenance monitoring costs. Labor is assumed to be provided by a third-party, consistent with requirements under the Code. The current bonding required is to cover the two-year peak liability and surety for this bond is held by Intact Insurance Company and was updated on September 2, 2020 to included revised costs used in the RCP. The bond amount will continue to be reviewed and updated, as necessary, with each revision and resubmittal of the RCP.

Principle 6 | WORKER SAFETY

Standard of Practice 6.1

Identify potential cyanide exposure scenarios and take measures as necessary to eliminate, reduce and control them.

The CMP includes procedures describing the proper execution of cyanide-related tasks, such as unloading bulk cyanide shipments, mixing cyanide batches, plant operations, and confined space entry. Equipment decontamination is covered in several areas of the cyanide training program.

The CMP and associated SOPs provide guidance as to how tasks should be conducted to reduce or eliminate worker exposure. The CMP requires regular review of the SOPs with updates occurring, as needed. Several of the procedures reviewed for cyanide related tasks have undergone multiple revisions. The procedures indicate to the operator the personal protective equipment (PPE) that is required for each task to be undertaken. Area inspections are also conducted each shift to minimize risk to employees. Personnel are also required to conduct and document pre-work inspections prior to carrying out a specific task.

Eagle has implemented procedures for the review of proposed modifications to procedures. The Management of Change procedure requires review and approval of a cross-functional team, including representatives from Health, Safety & Security, Environmental, Maintenance, Mine Operations, Processing, Site Services, Information Technology (IT), Supply Chain, and the General Manager prior to implementing any proposed change. The Management of Change procedures detail the process for initiating a change however there is no formal process to close out a change request or evaluate its effectiveness. It is recommended that the site include a formal close out and evaluation step as part of its change management process.

Input from workers is considered in procedure development and while evaluating the effectiveness of the procedures. The workers can contribute to the procedures through direct comments on the procedure, pre-task inspections, or during safety meetings. Several examples of worker-led changes were provided to the auditor for review.

Standard of Practice 6.2

Operate and monitor cyanide facilities to protect worker health and safety and periodically evaluate the effectiveness of health and safety measures.

Eagle has determined the appropriate pH for limiting HCN evolution during mixing and operations. The CMP indicates that a pH of between 10 and 10.5 should be maintained in the pregnant and barren solutions. Operator logs document the pH of the process solutions every two hours and were found to be maintained above pH 10. The control system continuously monitors and trends for the mix tank pH, indicating that it is being maintained above pH 11. Both the operator logs and pH trend were reviewed by the auditor.

Eagle monitors the cyanide concentration in the HLF and plant to determine the appropriate cyanide addition rates, and operations adjusts the addition rates as necessary. Eagle was designed with a cyanide concentration of 500 ppm in the barren solution; however, operating data shows that the site solution concentration is significantly lower than the design point, with operating logs indicating actual concentrations ranging from approximately 200 to 300 ppm. Cyanide concentrations are measured and recorded every two hours, along with the pH, and adjustments to the addition rate are made as necessary to control at the target concentration.

A pre-start-up risk assessment was undertaken to determine the locations that the HCN detectors should be placed. These locations were selected, based on where workers could be exposed to HCN at 10 ppm on an instantaneous basis or 4.7 ppm continuously over an 8-hour period. There are nine detectors placed throughout the ADR Plant. The detectors are Dräger brand and have both audible and visual alarms, with the low-level alarm point at 4.7 ppm with an amber strobe and 10 ppm with a blue strobe. The stationary HCN detectors are calibrated monthly on a regular PM schedule, per the manufacturer's procedure. Maintenance records for all 9 units were reviewed and found to be consistently calibrated, per the schedule and spanned over a one-year period.

In addition to the stationary detectors, operators in the ADR Plant carry a personal gas detector. The personal detectors are Gas Badge Pro units. These units are to be bump tested daily, prior to use. Calibration logs provided by the manufacturer indicated that the instruments were generally functioning as they were supposed to. The site subscribes to the manufactures online dashboard system that gathers data from each unit while it is docked and provides the site with any alarms and malfunctions that the unit may have encountered.

Warning signs advising anyone entering the area that cyanide is present are posted at the entrances to the facility. Anyone coming on site, including visitors and contractors, must receive site hazard training, which includes basic information regarding cyanide. The signage clearly indicates that eating, drinking, or open flames are not permitted within cyanide facilities.

Safety showers, eye wash stations and dry powder/non-acidic sodium bicarbonate fire extinguishers are located throughout the operation. These items are maintained, inspected, and tested on a routine basis, as indicated in CMP-SOP-008 – Cyanide Facility Inspection.

The mixing and storage tanks, as well as pipelines containing cyanide are clearly identified to alert personnel to the contents. All lines containing cyanide, including low concentrations, are labeled with the specific contents and flow direction. Line labels are orange with black lettering. In addition, concentrated cyanide lines are indicated with orange/black labels, as well as purple tape on both sides of the label to further alert individuals to the presence of concentrated cyanide.

Safety Data Sheets (SDS), which include first aid procedures and additional information on cyanide safety and exposure, are found in hard copy in a binder in the ADR Plant control room. Similar information is posted directly on the cyanide mixing and storage tanks, including exposure symptoms, first aid and emergency response. All signage and SDS are printed in English, the language of the workforce.

The CMP includes procedures to investigate and evaluate cyanide exposure incidents to determine if the programs and procedures are adequate or if changes are required to protect worker health and safety or improve emergency response to cyanide exposures. The MoC process is utilized to implement any recommended changes. Review of a suspected worker exposure to HCN gas showed the site investigated the incident properly and suggested changes to the facility to prevent similar incidents.

Standard of Practice 6.3

Develop and implement emergency response plans and procedures to respond to worker exposure to cyanide.

Eagle has potable water supply to the safety showers and eyewash stations, oxygen, a resuscitator, and a radio all readily available at the ADR Plant, near the mixing and storage area.

The site stores all cyanide antidote kits (Cyanokit) at the on site medical clinic due to the qualifications required and the administration procedures for the kit. The kits are split between the ambulance and the medical clinic. The kits are checked for proper storage, inventory, and product expiry by the medical clinic staff. The check for all first aid equipment located in the medical clinic did not contain a date of inspection or the person responsible for the inspected, it is recommended that a check sheet be implemented to include this information for better tracking of the equipment and compliance with the Code.

Eagle has a written emergency response plan and procedures for responding to cyanide related incidents. The plan and procedures include responding to cyanide exposures, the site's "Code 1" procedure, rapid response process, communications, air ambulance evacuation and response to medical emergencies. Eagle has a medical clinic staffed 24/7 with two primary care paramedics with IV endorsements to allow administration of the Cyanokit.

In addition to the clinic staff, the site has an emergency response team to provide primary response, rescue, and recovery, if required. An ambulance is available on site; however, due to the remote location of the site and limited regional resources, an emergency extending beyond the capabilities of the site clinic would likely require patient transport by air. The primary destination for air transport is Whitehorse General Hospital, however, if travel to Whitehorse is not possible, resources are available at the Mayo Nurses' Station, as well as Dawson City Community Hospital. If a patient requires transport offsite for a cyanide related emergency, the procedures require attendance by one of the site paramedics and at least one Cyanokit must accompany the patient.

The auditor requested written confirmation that a formal agreement was in place for offsite medical facilities to assist in an emergency, as required under the Code. Conversations between VGC personnel and various medical facilities and provincial entities were provided to the auditor detailing the difficulties in creating these formal agreements due to the remoteness of the site and the classification of the medical facilities both at the site and in the Village of Mayo. The site has made good faith efforts to obtain these agreements with offsite medical facilities but has not been able to put agreements into place as of the audit date. It is recommended the site continue to work with provincial entities and medical facilities to ensure that these agreements are in place prior to the next audit.

Principle 7 | EMERGENCY RESPONSE

Standard of Practice 7.1

Prepare detailed emergency response plans for potential cyanide releases.

Eagle has developed the CMP, the HLF OMS, the Environmental Monitoring, Surveillance, and Adaptive Management Plan, the HLF Contingency Water Management Plan, and the Emergency Response Plan (ERP), all of which address response to the accidental release of cyanide. The Emergency Response Plan considers multiple potential failure scenarios involving cyanide and the site-specific environment, operation, and response.

Cyanco and its supply chain are responsible for the safe transport of cyanide to the site. As such, any cyanide related spills prior to delivery at site would be managed by Cyanco or their transporters. If necessary, site personnel could be requested to assist in an offsite response.

Multiple emergency situations that could occur at site are addressed through the various documents, including the CMP and ERP. The plans detail responses specific to cyanide spills or leaks including process solution and dry reagent spills and makes provision for initial response, first aid, spill reporting contacts and spill control and cleanup. The HLF OMS provides specific procedures related to the heap leach area. Any potential emergency that has the potential to affect a community will trigger the notification requirements outlined in the Emergency Response Plan.

Standard of Practice 7.2

Involve site personnel and stakeholders in planning process.

Eagle has included its workforce and stakeholders as potentially affected communities in emergency response planning. Coordination with local offsite medical providers has occurred, including air ambulance support. However, as noted, documentation confirming that formal agreements are in place were requested but not supplied. Site should confirm that offsite partners are aware of and are properly trained for their role in assisting with a cyanide related emergency.

Worker input into the planning is intended through comments on procedures, feedback in safety meetings and by taking part in the mock drills. Examples of worker input into procedures and cyanide related safety meetings were provided. The mock drill conducted included site personnel and feedback from all the parties involved in the response. It is recommended that the site seek to include external entities in their mock drills such as the air ambulance service and outside medical facilities to ensure there is smooth communication and turnover in the event of an emergency.

Eagle had regular interaction and consultation with the First Nation of Na-Ch Nyäk Dun (FNNND) and the Village of Mayo prior to start-up to solicit input. Due to the ongoing global pandemic communications with outside stakeholders has been very limited during the audit period however there are adequate procedures in place and documentation to support compliance with the Code. It is recommended that as the pandemic subsides regular interactions continue as before. Information regarding accidental releases that could impact water supplies, human health, or wildlife habitat were communicated to the appropriate stakeholders including the First Nations and the Village of Mayo.

Standard of Practice 7.3

Designate appropriate personnel and commit necessary equipment and resources for emergency response.

The ERP provides primary contact details for the incident management team members, including the General Manager who has authority to ensure that sufficient and adequate resources are allocated to

carry out the ERP. Alternate personnel are named for some roles, but not all roles have an identified alternate. The ERP does describe the roles and responsibilities for those involved in responding to an emergency.

Contact information in the ERP includes call-out procedures and 24-hour contact information for the Incident Management Team and the ERT. Phone numbers and email for all relevant parties, both internal and external, are included in the ERP. Radios are also available for 24-hour communications.

The ERT Team Roles, Responsibilities, and Minimum Requirements are documented within the ERP, including training requirements for the ERT members, and it is the responsibility to the Emergency Response Coordinators to ensure that training is provided and maintained. All responders undergo the same training.

Emergency response equipment, including the locations of cyanide antidote kits are provided in the CMP and SOPs. The cyanide emergency response equipment is checked regularly by the site paramedics. ERT members check other emergency response equipment, including the site ambulance. The medical clinic inventory checks, which include the Cyanokits, as well as ambulance inspection forms were provided to the auditor. As noted above inspections forms for equipment in the medical clinic should be modified to include the date of the inspection and the person responsible for the inspection.

Emergency response planning requirements have not been confirmed with external resources who may be required in an emergency. Outside entities should be engaged regularly and included in mock drills, as appropriate. Site is also currently seeking to engage with a neighboring mine to implement a mutual aid agreement to provide support should there be an emergency at either location.

Standard of Practice 7.4

Develop procedures for internal and external emergency notification and reporting.

The CMP and ERP provide communication requirements and procedures for the site. The ERP addresses contact requirements for public communications, employee communications, regulatory contacts, contact information for response assistance from local assets, as well as through Cyanco, First Nations contacts, among others.

Among other responsibilities, the Incident Management Team Leader coordinates overall crisis management during an emergency. The Information Officer is responsible for overall communications and is the link between the onsite Incident Commander and the Corporate Emergency Management Team. The Information Officer will also prepare responses to media inquiries, with the appropriate spokesperson designated to deliver appropriate messaging. The Government/Regulatory and Liaison Officer is the point of contact for First Nations communications. The Emergency Response Coordinator advises when mutual aid assistance is required. Appropriate subject matter experts provide consultation related to emergencies where technical expertise relevant to the incident is required.

The ERP contains procedures for communication including emergency response contact information. In the event of an incident, the Corporate Emergency Management Team in consultation with the Incident Command Team, will notify affected parties in local communities, as necessary. Procedures for notifying outside agencies and the media are provided in the ERP.

Standard of Practice 7.5

Incorporate remediation measures and monitoring elements into response plans and account for the additional hazards of using cyanide treatment chemicals.

The CMP provides procedures in the event of cyanide release and addresses cyanide recovery and remediation if necessary. CMP-SOP-020 – Cyanide Emergency Response Procedures identifies the monitoring activities to be undertaken to identify the extent and effects of a release, CMP-SOP-025 – Environmental Monitoring Procedures detail the requirements for sampling and disposal of any contaminated material from a cyanide release. Releases resulting in contaminated soils would be cleaned up and disposed of onto the HLF. The Cyanide Emergency Response Procedures do not reference sampling of contaminated materials but does not specifically reference the Environmental Monitoring Procedures. The procedures should be updated to reference each other for ease of use.

Treatment with chemicals for neutralization or decontamination is allowed for managing spilled solid cyanide within the mixing area containment, per CMP-SOP-005 – Cyanide Mixing Process. Operations would treat any contaminated area with sodium or calcium hypochlorite to destroy the cyanide. Following a minimum one-hour decomposition, the spillage could be washed to a sump with a large volume of water and the solution returned to the process. The CMP-SOP-020 – Cyanide Emergency Response Procedures further allows treatment with hypochlorite of any water flowing through the area where a spill has occurred, requiring the slurry to be contained and recovered into suitable containers.

Drinking water is prepared through onsite generation of potable water. In the event of an emergency, drinking water could be trucked to site, if necessary.

The CMP and procedure CMP-SOP-020 state that cyanide detoxification can be accomplished with hydrogen peroxide and that a sufficient quantity will be kept on site to aid in detoxification. CMP-SOP-020 also states that detoxification can be completed with other chemicals, including hypochlorite, lime, or high pH water, as long as the neutralization agents will not come into contact with any aquatic systems.

The CMP, the HLF OMS, and the Environmental Monitoring, Surveillance, and Adaptive Management Plan all address response to the accidental release of cyanide and detail the requirements for sampling and disposal of any contaminated material from a cyanide release. These documents outline procedures for validation sampling of any cleanup or remediation measures in the event of a cyanide release.

The CMP and the Environmental Monitoring, Surveillance, and Adaptive Management Plan address the potential need for monitoring the effects of a cyanide release. These documents also address sampling and monitoring.

Documents and reports following a cyanide release at the HLF during the audit period were provided to the auditor. All procedures were followed in the CMP and Cyanide Emergency Response plan include sampling and monitoring of down-gradient ground and surface waters.

Standard of Practice 7.6

Periodically evaluate response procedures and capabilities and revise them as needed.

The CMP requires that the ERP be reviewed at least annually and updated to incorporate changes in facility infrastructure or operational processes that involve management or the use of cyanide. The ERP is also intended to be updated to incorporate any lessons learned as outcomes from emergency response or mock drills.

One mock drill was conducted during the audit period. Records of the mock drill were provided to the auditor and show the drill involved plant personnel, was planned and executed to provide training to responders, and included sections for improvement of the emergency response. Suggestions for improvement were provided both by persons involved with the ERT and others at the site that witnessed the drill.

During the audit period there were two minor incidents involving cyanide: one involving worker exposure to HCN gas and one involving release of process solution off of containment. Records were provided to the auditor of the investigation surrounding the incidents. The records indicate that the site is committed to investigating the root cause of all incidents at the site to reduce the potential of exposure to its workers and the environment.

Principle 8 | TRAINING

Standard of Practice 8.1

Train workers to understand the hazards associated with cyanide use.

New workers at the mine receive detailed orientation training. Workers typically receive classroom training prior to receiving in-plant training. Initial cyanide hazard training (Level 1) addresses cyanide basics and awareness. Upon completing orientation, personnel requiring it also receive detailed cyanide related training (Level 2 and Level 3), as well initial task training, which includes task specific hazards.

Contractors working at site must also undergo site induction training, which includes cyanide hazard training. Depending on the nature of the work to be performed, contractors may receive Level 1 through Level 3 training.

Annual cyanide refresher training, cyanide related task training, and cyanide release training are to be provided to all employees who may be exposed to cyanide. A tracker was provided to the auditor showing all the process operations personnel, the required training for their positions, and the expiration date for their current training. The tracker did not provide the date that training was complete. The date of initial training and all subsequent refresher training should be recorded in the tracker. All three levels of training include a written test.

Training records for all initial cyanide hazard training for all site and contractor personnel have been retained electronically. ERT member records for cyanide hazard training are recorded separately in the tracking spreadsheet. Due to the timing and of the audit and the necessity that the audit be conducted remotely retention of the records could not be verified physically. The site has developed CMP-SOP-003 – Records Management which explains the methods of records management and how long the records should be maintained at site.

Standard of Practice 8.2

Train appropriate personnel to operate the facility according to systems and procedures that protect human health, the community and the environment.

Eagle trains personnel to perform their routine tasks, including unloading bulk cyanide, mixing, production tasks, and maintenance with minimal risk to health, safety or the environment by preventing unplanned releases. Employees whose role requires working around cyanide receive training on how to perform their assigned tasks with minimal risk.

Cyanide related training elements for employee training are addressed in the Level 1, 2, and 3 cyanide training program, as well as through the operation's SOPs. Operators are also trained on components from the Heap Leach and Process Facilities Plan, the Spill Response Plan, the HLF Contingency Water Management Plan, the Emergency Response Plan, the Environmental Monitoring Surveillance and Adaptive Management Plan and the Preventive Maintenance Program Plan relevant to their duties.

The cyanide related training program at Eagle is intended to be administered by personnel or supervisors with prior experience in training and the knowledge and experience in the systems that are the primary subject of the training. The training content for Eagle was originally developed by the Process Manager

who has extensive experience in personnel training on the safe use of cyanide and has grown and evolved as the site has moved into its operational phase with input from workers.

Cyanide is a regular topic for safety meetings. The sign in sheets for several meetings with a cyanide-related topic were provided for review.

All operators are trained prior to working with cyanide. New employees are required to complete the appropriate level of training for their specific task, including the written test, prior to beginning work. These written tests for each level of training are used, in part, to help evaluate the effectiveness of the training and ensure the trainees understand the material being presented.

As noted above, training records were not able to by physically verified during this audit cycle.

Standard of Practice 8.3

Train appropriate workers and personnel to respond to worker exposures and environmental releases of cyanide.

Eagle trains employees in the use and handling of cyanide, including mixing, leaching and maintenance processes, so that they are aware of the proper handling, decontamination, and first aid procedures. Training also includes response to first aid or cyanide release incidents. The CMP also indicates that workers will participate in the mock emergency drills.

Employees working with cyanide are trained in initial response, including recognizing the signs and symptoms of exposure, as well as basic first aid measures. Employees are also trained as to the locations of emergency response equipment. The ERT also received additional training, such as firefighting, occupational first aid (OFA) level 3, HAZMAT response, etc.

Given the remote and self-contained nature of the site, Eagle intends for all emergency response to be performed by site personnel. However, in the event of an emergency that is beyond site management's capabilities, a contingency plan should be in place, including formal agreements for offsite assistance. As discussed above the site has engaged several offsite entities in an attempt to provide formal agreements for assistance but has not had those agreements put into place as of the audit date.

Principle 9 | DIALOGUE AND DISCLOSURE

Standard of Practice 9.1

Promote dialogue with stakeholders regarding cyanide management and responsibly address identified concerns.

Eagle has conducted on-going communication in Mayo and other regional locations in order to provide general information on the site. This communication permits discussion of any concerns or questions related to the use of cyanide or other aspects of mine operations. Stakeholders participate through informal meetings, open houses, or the regulatory engagement processes to include the FNNND, the YWCHSB, community leaders, and other stakeholders in discussions on the project. The global pandemic has severely limited the amount of stakeholder engagement that the site has been able to accomplish during the audit period. The documentation of past communications as well as documentation of cyanide related events during the audit period satisfy the intent of the code. As the pandemic lifts the site should re-engage in regular communications with it stakeholders.

Standard of Practice 9.2

Make appropriate operational and environmental information regarding cyanide available to stakeholders.

Eagle makes information about the operation publicly available and is committed to disseminating information on any cyanide exposures or releases that could impact human health or the environment, in compliance with all applicable Yukon and Federal Government requirements. These include any release of process solution outside of containment, any release of hazardous product in which there is a potential for that product to enter a waterway, and any release that results in dysfunction from lack of oxygen or poisoning. In addition, as noted in the Emergency Response Plan, a designated member of the senior management team, the Information Officer/Government Liaison Officer, will serve as a single point of contact with the media for specific information on any such exposure or release, associated corrective measures, and preventive measures taken the reduce or prevent the recurrence of similar incidents in future. The site has provided documentation that information and communication regarding cyanide related events was made publicly available through both regulatory requirements and courtesy communications/reports to engaged stakeholders.



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APPENDIX V

HCN Monitoring Records and Calibrations

HCN Detection Calibration Log - Q1 2021

Device Tag	Area Description	Transmitter S/N	Sensing Head S/N	Sensor S/N	Zero		Span		Calibration Date	Technician Name(s)	Notes
					As Found	As Left	As Found	As Left			
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	0.00ppm	0.00ppm	9.50ppm	10.00ppm	22-Jan-21	Lloyd.K	*Verified by Dedrick.M
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	0.10ppm	0.00ppm	9.20ppm	10.00ppm	21-Jan-21	Lloyd.K	*Verified by Dedrick.M
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	(-)0.05ppm	0.00ppm	10.20ppm	10.00ppm	22-Jan-21	Lloyd.K	*Verified by Dedrick.M
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	(-)0.05ppm	0.00ppm	10.30ppm	10.00ppm	22-Jan-21	Lloyd.K	*Verified by Dedrick.M
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARLL-0035	(-)1.30ppm	0.00ppm	13.10ppm	10.00ppm	22-Jan-21	Lloyd.K	*Verified by Dedrick.M
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	0.00ppm	0.00ppm	9.20ppm	10.00ppm	22-Jan-21	Lloyd.K	*Verified by Dedrick.M
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	0.00ppm	0.00ppm	9.50ppm	10.00ppm	21-Jan-21	Lloyd.K	*Verified by Dedrick.M
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.00ppm	0.00ppm	10.50ppm	10.00ppm	21-Jan-21	Lloyd.K	*Verified by Dedrick.M
5600-AIT-2834	Barren Solution Sump Are	ARLL-0839	ARLL-0887	ARLM-0045	1.90ppm	0.00ppm	9.50ppm	10.00ppm	21-Jan-21	Lloyd.K	*Verified by Dedrick.M
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	0.05ppm	0.00ppm	9.80ppm	10.00ppm	17-Feb-21	Dilip.P	
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	0.50ppm	0.00ppm	11.50ppm	10.00ppm	17-Feb-21	Dilip.P	
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	(-)0.30ppm	0.00ppm	10.30ppm	10.00ppm	17-Feb-21	Dilip.P	
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	(-)0.25ppm	0.00ppm	10.10ppm	10.00ppm	17-Feb-21	Dilip.P	
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARLL-0035	(-)3.70ppm	0.00ppm	8.90ppm	10.00ppm	17-Feb-21	Dilip.P	**Orange strobe not working**
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	(-)0.40ppm	0.00ppm	10.10ppm	10.00ppm	17-Feb-21	Dilip.P	
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	0.00ppm	0.00ppm	10.10ppm	10.00ppm	17-Feb-21	Dilip.P	
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.05ppm	0.00ppm	10.05ppm	10.00ppm	17-Feb-21	Dilip.P	
5600-AIT-2834	Barren Solution Sump Are	ARLL-0839	ARLL-0887	ARLM-0045	(-)0.90ppm	0.00ppm	9.80ppm	10.00ppm	17-Feb-21	Dilip.P	
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	(-)0.10ppm	0.00ppm	9.95ppm	10.00ppm	20-Mar-21	Dedrick.M	
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	(-)0.05ppm	0.00ppm	9.15ppm	10.00ppm	20-Mar-21	Dedrick.M	
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	0.20ppm	0.00ppm	9.00ppm	10.00ppm	20-Mar-21	Dedrick.M	
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	0.05ppm	0.00ppm	8.90ppm	10.00ppm	20-Mar-21	Dedrick.M	
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARLL-0035	0.40ppm	0.00ppm	8.30ppm	10.00ppm	20-Mar-21	Dedrick.M	
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	0.10ppm	0.00ppm	8.70ppm	10.00ppm	20-Mar-21	Dedrick.M	
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	(-)0.05ppm	0.00ppm	8.50ppm	10.00ppm	21-Mar-21	Dedrick.M	
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	(-)0.10ppm	0.00ppm	11.00ppm	10.00ppm	20-Mar-21	Dedrick.M	
5600-AIT-2834	Barren Solution Sump Are	ARLL-0839	ARLL-0887	ARLM-0045	(-)0.70ppm	0.00ppm	7.50ppm	10.00ppm	20-Mar-21	Dedrick.M	

HCN Detection Calibration Log - Q2 2021

Device Tag	Area Description	Transmitter S/N	Sensing Head S/N	Sensor S/N	Zero		Span		Calibration Date	Technician Name(s)	Notes
					As Found	As Left	As Found	As Left			
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	0.00ppm	0.00ppm	9.75ppm	10.00ppm	4/19/2021	Lloyd.K	*Verified by Dedrick.M
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	0.00ppm	0.00ppm	10.00ppm	10.00ppm	4/20/2021	Lloyd.K	*Verified by Dedrick.M
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	0.10ppm	0.00ppm	9.70ppm	10.00ppm	4/20/2021	Lloyd.K	*Verified by Dedrick.M
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	1.70ppm	0.00ppm	9.70ppm	10.00ppm	4/20/2021	Lloyd.K	*Verified by Dedrick.M
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARLL-0035	0.10ppm	0.00ppm	10.10ppm	10.00ppm	4/20/2021	Lloyd.K	*Verified by Dedrick.M
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	0.35ppm	0.00ppm	11.35ppm	10.00ppm	4/20/2021	Lloyd.K	*Verified by Dedrick.M
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	0.00ppm	0.00ppm	9.95ppm	10.00ppm	4/20/2021	Lloyd.K	*Verified by Dedrick.M
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.00ppm	0.00ppm	9.70ppm	10.00ppm	4/19/2021	Lloyd.K	*Verified by Dedrick.M
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARLM-0045	1.20ppm	0.00ppm	7.20ppm	10.00ppm	4/20/2021	Lloyd.K	*Verified by Dedrick.M
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	0.10ppm	0.00ppm	9.60ppm	10.00ppm	5/17/2021	Dilip.P	
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	0.40ppm	0.00ppm	9.60ppm	10.00ppm	5/17/2021	Dilip.P	
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	0.10ppm	0.00ppm	9.90ppm	10.00ppm	5/17/2021	Dilip.P	
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	0.20ppm	0.00ppm	10.50ppm	10.00ppm	5/17/2021	Dilip.P	
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARLL-0035	1.50ppm	0.00ppm	10.80ppm	10.00ppm	5/17/2021	Dilip.P	
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	(-)0.20ppm	0.00ppm	9.85ppm	10.00ppm	5/17/2021	Dilip.P	
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	0.00ppm	0.00ppm	9.40ppm	10.00ppm	5/17/2021	Dilip.P	
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.20ppm	0.00ppm	10.10ppm	10.00ppm	5/17/2021	Dilip.P	
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMN-0055	1.20ppm	0.00ppm	11.00ppm	10.00ppm	5/17/2021	Dilip.P	sensor replaced due slow response and calibration failed
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	0.20ppm	0.00ppm	10.20ppm	10.00ppm	6/19/2021	Dilip/Vince	
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	(-)0.05	0.00ppm	9.75ppm	10.00ppm	6/19/2021	Dilip/Vince	
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	0.30ppm	0.00ppm	9.60ppm	10.00ppm	6/19/2021	Dilip	
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	0.10ppm	0.00ppm	9.65ppm	10.00ppm	6/19/2021	Dilip	
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARLL-0035	0.40ppm	0.00ppm	10.40ppm	10.00ppm	6/19/2021	Dilip	
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	0.35ppm	0.00ppm	9.30ppm	10.00ppm	6/19/2021	Dilip	
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	0.10ppm	0.00ppm	10.50ppm	10.00ppm	6/19/2021	Dilip	
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.15ppm	0.00ppm	10.00ppm	10.00ppm	6/19/2021	Dilip/Vince	
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMN-0055	(-)0.05ppm	0.00ppm	9.75ppm	10.00ppm	6/19/2021	Dilip/Vince	

Device Tag	Area Description	Transmitter S/N	Sensing Head S/N	Sensor S/N	Zero		Span		Calibration Date	Technician Name(s)	Notes
					As Found	As Left	As Found	As Left			
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	0.10ppm	0.00ppm	10.20ppm	10.00ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - Dedrick.M
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	0.35ppm	0.00ppm	10.25ppm	10.00ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - Dedrick.M
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	0.05ppm	0.00ppm	10.30ppm	10.00ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - Dedrick.M
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	0.20ppm	0.00ppm	10.10ppm	10.00ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - Dedrick.M
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARMN-0084	(-)0.40ppm	0.00ppm	10.30ppm	10.00ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - *Corrections highlighted in orange - Dedrick.M
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	0.30ppm	0.00ppm	10.20ppm	10.00ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - Dedrick.M
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	0.00ppm	0.00ppm	10.01ppm	10.00ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - Dedrick.M
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.25ppm	0.00ppm	10.30ppm	10.10ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - Dedrick.M
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMN-0055	2.10ppm	0.00ppm	7.60ppm	10.10ppm	18-Jul-21	Leon.B	Confirmed all current serial #'s (Trans, sensor head and sensor) - Dedrick.M
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	1.5ppm	0.00ppm	10.00ppm	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	0ppm	0.00ppm	10.00ppm	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	0.30ppm	0.00ppm	10.00ppm	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	0.10ppm	0.00ppm	10.00ppm	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARMN-0084	0ppm	0.00ppm	10.00ppm	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	0ppm	0.00ppm	10.00ppm	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	N/A	0.00ppm	N/A	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor) *Found out that this was not completed due to no gold room access. Please note this in the shift log next time so all can be aware. Thanks!
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.10ppm	0.00ppm	10.00ppm	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMN-0055	0ppm	0.00ppm	10.00ppm	10.00ppm	16-Aug-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	0.20ppm	0.00ppm	11.30ppm	10.00ppm	10-Sep-21	Vince/Tyler/Dilip	Confirmed all current serial #'s (Trans, sensor head and sensor)
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	(-)0.10ppm	0.00ppm	10.30ppm	10.00ppm	10-Sep-21	Vince/Tyler/Dilip	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARME-0327	ARLL-0029	(-)0.20ppm	0.00ppm	10.60ppm	10.00ppm	10-Sep-21	Vince/Tyler/Dilip	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0898	ARLM-0040	0.10ppm	0.00ppm	10.50ppm	10.00ppm	10-Sep-21	Vince/Tyler/Dilip	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1502	Strip System Area	ARLL-0421	ARME-0328	ARMN-0084	(-)1.20ppm	0.00ppm	9.70ppm	10.00ppm	11-Sep-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLL-0898	ARLL-0023	0.10ppm	0.00ppm	10.70ppm	10.00ppm	11-Sep-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0329	ARMF-0016	0.00ppm	0.00ppm	10.10ppm	10.00ppm	12-Sep-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor) *Missing field calibration record in file (only 8 of 9 scanned)
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0898	ARLL-0034	(-)0.15ppm	0.00ppm	10.20ppm	10.00ppm	11-Sep-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARME-0330	ARMN-0091	2.00ppm	0.00ppm	10.30ppm	10.00ppm	11-Sep-21	Vince/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor) *found bad sensor head, replaced it with a new one and device is working as it should , Corrections highlighted in orange

Device Tag	Area Description	Transmitter S/N	Sensing Head S/N	Sensor S/N	Zero		Span		Calibration Date	Technician Name(s)	Notes
					As Found	As Left	As Found	As Left			
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMF-0021	(-)0.45ppm	0.00ppm	9.35ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	(-)0.20ppm	0.00ppm	9.05ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	(-)0.20ppm	0.00ppm	9.35ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	(-)0.45ppm	0.00ppm	9.25ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARMN-0084	(-)0.20ppm	0.00ppm	8.60ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARLL-0023	(-)0.40ppm	0.00ppm	9.15ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	(-)0.25ppm	0.00ppm	8.50ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	(-)0.45ppm	0.00ppm	9.25ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMN-0091	(-)0.20ppm	0.00ppm	7.50ppm	10.00ppm	8-Oct-21	Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMN-0081	3.3ppm	0.00ppm	9.40ppm	10.00ppm	4-Nov-21	Vince/Dilip/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor) * Power failure caused faulty sensor, Replaced with new one and calibrated
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	(-)0.20ppm	0.00ppm	10.30ppm	10.00ppm	4-Nov-21	Vince/Dilip/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	(-)0.10ppm	0.00ppm	9.95ppm	10.00ppm	4-Nov-21	Vince/Dilip/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	0.10ppm	0.00ppm	9.10ppm	10.00ppm	3-Nov-21	Vince/Dilip/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARMN-0084	0.10ppm	0.00ppm	10.80ppm	10.00ppm	3-Nov-21	Vince/Dilip/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARNJ-0073	(-)0.10ppm	0.00ppm	10ppm	10.00ppm	3-Nov-21	Vince/Dilip/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor) * Power failure caused faulty sensor, Replaced with new one and calibrated
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	(-)0.30ppm	0.00ppm	11.30ppm	10.00ppm	8-Nov-21	Vince/Dilip/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.15ppm	0.00ppm	9.8ppm	10.00ppm	3-Nov-21	Vince/Dilip/Tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMN-0091	ISSUES	0.00ppm	ISSUES	10.00ppm	8-Nov-21	Vince/Dilip/Tyler	sensor faulty after power failure needs new sensor to try and calibrate but we have no sensors at this time
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMN-0081	(-)3.20ppm	0.00ppm	9.80ppm	10.00ppm	20-Nov-21	lloyd/leon/vince	Confirmed all current serial #'s (Trans, sensor head and sensor)
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	0.15ppm	0.00ppm	10.00ppm	10.00ppm	20-Nov-21	lloyd/leon/vince	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	0.30ppm	0.00ppm	9.00ppm	10.00ppm	20-Nov-21	lloyd/leon/vince	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	0.30ppm	0.00ppm	9.40ppm	10.00ppm	20-Nov-21	lloyd/leon/vince	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARMN-0084	ISSUES	0.00ppm	ISSUES	10.00ppm	20-Nov-21	lloyd/leon/vince	seosor faliure, need new sensor but we have no sensors at this time
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARNJ-0073	(-)0.60ppm	0.00ppm	9.50ppm	10.00ppm	20-Nov-21	lloyd/leon/vince	Confirmed all current serial #'s (Trans, sensor head and sensor)
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARMF-0016	0.30ppm	0.00ppm	9.00ppm	10.00ppm	20-Nov-21	lloyd/leon/vince	Confirmed all current serial #'s (Trans, sensor head and sensor)
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	0.30ppm	0.00ppm	8.75ppm	10.00ppm	20-Nov-21	lloyd/leon/vince	Confirmed all current serial #'s (Trans, sensor head and sensor)
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMN-0091	ISSUES	0.00ppm	ISSUES	10.00ppm	20-Nov-21	lloyd/leon/vince	sensor faulty after power failure needs new sensor to try and calibrate but we have no sensors at this time
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMN-0081	0.30ppm	0.00ppm	6.60ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	(-)0.30ppm	0.00ppm	9.5ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	(-)0.50ppm	0.00ppm	9.25ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	(-)0.75ppm	0.00ppm	10.40ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARPH-0133	0.30ppm	0.00ppm	8.60ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor) replaced sensor
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARNJ-0073	1.20ppm	0.00ppm	10.60ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARPH-0125	1.00ppm	0.00ppm	10.00ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor) replaced sensor
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	(-)0.65ppm	0.00ppm	10.70ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor)
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMF-0016	(-)0.60ppm	0.00ppm	10.70ppm	10.00ppm	17-Dec-21	vince/dilip/tyler	Confirmed all current serial #'s (Trans, sensor head and sensor) removed broken sensor and replaced it with the one that was in the gold room (device currenly working) nov/21/2021
5100-AIT-1101	CIC Upper Trash Screens Area	ARMD-1240	ARME-0326	ARMN-0081	.3ppm	0.00ppm	8.5ppm	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5100-AIT-1202	Carbon Column Area	ARLL-0846	ARLL-0898	ARLL-0044	.35ppm	0.00ppm	9.55ppm	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1402	Acid Wash Area	ARLL-0852	ARLL-0842	ARLL-0029	.25ppm	0.00ppm	10.15ppm	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1501	Caustic System Area	ARLL-0848	ARLL-0893	ARLM-0040	.5ppm	0.00ppm	9.95ppm	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5200-AIT-1502	Strip System Area	ARLL-0421	ARLL-0541	ARMN-0084	.1ppm	0.00ppm	10.5ppm	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5300-AIT-1802	Carbon Regen Area	ARLM-0149	ARLM-0403	ARNJ-0073	Fail	0.00ppm	Fail	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor) Sensor failed calibration. Span only reached 2.5ppm. Sensor is no longer functioning properly until new parts are in. Informed process of this potential saftey hazard.
5400-AIT-4653	Gold Room Area	ARMD-1212	ARME-0055	ARPH-0125	(-).3ppm	0.00ppm	8.5ppm	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor) Sensor took longer than normal to cal and reached a lower span than usual. Tested after cal to confirm that it would read
5530-AIT-3120	Cyanide System Area	ARLL-0828	ARLL-0771	ARLL-0034	.15ppm	0.00ppm	9.75ppm	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)
5600-AIT-2834	Barren Solution Sump Area	ARLL-0839	ARLL-0887	ARMN-0091	.3ppm	0.00ppm	9.75ppm	10.00ppm	25-Dec-21	Leon/Lloyd	Confirmed all current serial #'s (Trans, sensor head and sensor)

Bump Certificate

Instrument SN: 081205Y-007
Bump Date: 11/3/2019
Part Number: 18100060-3
Job Number: 081205
Setup Date: 6/3/2019
Setup Technician: AH
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
16022CL001	HCN	Hydrogen Cyanide	10.00	5.10	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
16022CL001	HCN	11/3/2019 7:54:56 AM (GMT-07:00)	230954BQ10771	1/31/2021

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Calibration Certificate

Instrument SN: 081205Y-007
Calibration Date: 11/1/2019
Part Number: 18100060-3
Job Number: 081205
Setup Date: 6/3/2019
Setup Technician: AH
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
16022CL001	HCN	Hydrogen Cyanide	10.00	326.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
16022CL001	HCN	11/1/2019 10:46:40 AM (GMT-07:00)	230954BQ10771	1/31/2021	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 081204E-078
Bump Date: 8/6/2021
Part Number: 18100060-2
Job Number: M1204E
Setup Date: 6/3/2019
Setup Technician: AH
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17091PE029	HCN	Hydrogen Cyanide	10.00	5.40	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
17091PE029	HCN	8/6/2021 11:26:02 AM (GMT-07:00)	236210BQ09363	8/31/2021

:



Calibration Certificate

Instrument SN: 081204E-078
Calibration Date: 8/6/2021
Part Number: 18100060-2
Job Number: M1204E
Setup Date: 6/3/2019
Setup Technician: AH
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17091PE029	HCN	Hydrogen Cyanide	10.00	408.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
17091PE029	HCN	8/6/2021 11:24:48 AM (GMT-07:00)	236210BQ09363	8/31/2021	Fresh Air	N/A

:

081204E-078

Bump Certificate

Instrument SN: 081205Y-007
Bump Date: 11/3/2019
Part Number: 18100060-3
Job Number: 081205
Setup Date: 6/3/2019
Setup Technician: AH
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
16022CL001	HCN	Hydrogen Cyanide	10.00	5.10	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
16022CL001	HCN	11/3/2019 7:54:56 AM (GMT-07:00)	230954BQ10771	1/31/2021

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Calibration Certificate

Instrument SN: 081205Y-007
Calibration Date: 11/1/2019
Part Number: 18100060-3
Job Number: 081205
Setup Date: 6/3/2019
Setup Technician: AH
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
16022CL001	HCN	Hydrogen Cyanide	10.00	326.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
16022CL001	HCN	11/1/2019 10:46:40 AM (GMT-07:00)	230954BQ10771	1/31/2021	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 08120EC-093
Bump Date: 1/11/2022
Part Number: 18100060-1
Job Number: 08120E
Setup Date: 5/10/2021
Setup Technician: KC
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
210317M010	HCN	Hydrogen Cyanide	10.00	5.90	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
210317M010	HCN	1/11/2022 1:09:00 AM (GMT-07:00)	247902FF47339N	9/30/2022

:



Calibration Certificate

Instrument SN: 08120EC-093
Calibration Date: 1/5/2022
Part Number: 18100060-1
Job Number: 08120E
Setup Date: 5/10/2021
Setup Technician: KC
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
210317M010	HCN	Hydrogen Cyanide	10.00	200.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
210317M010	HCN	1/5/2022 8:26:31 AM (GMT-07:00)	253492BQ09165	1/31/2023	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 09091HY-005
Bump Date: 3/31/2022
Part Number: 18100060-5
Job Number: 09091H
Setup Date: 4/6/2021
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
16100B1004	HCN	Hydrogen Cyanide	10.00	5.00	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
16100B1004	HCN	3/31/2022 10:12:01 AM (GMT-07:00)	247902FF47339N	9/30/2022

:



Calibration Certificate

Instrument SN: 09091HY-005
Calibration Date: 3/22/2022
Part Number: 18100060-5
Job Number: 09091H
Setup Date: 4/6/2021
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
16100B1004	HCN	Hydrogen Cyanide	10.00	183.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
16100B1004	HCN	3/22/2022 8:06:40 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 12074JT-016
Bump Date: 3/20/2022
Part Number: 18100060-8
Job Number: 12074J
Setup Date: 4/16/2020
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX004	HCN	Hydrogen Cyanide	10.00	6.70	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
21010FX004	HCN	3/20/2022 7:50:21 AM (GMT-07:00)	247902FF47339N	9/30/2022

:



Calibration Certificate

Instrument SN: 12074JT-016
Calibration Date: 2/19/2022
Part Number: 18100060-8
Job Number: 12074J
Setup Date: 4/16/2020
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX004	HCN	Hydrogen Cyanide	10.00	207.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
21010FX004	HCN	2/19/2022 2:38:27 PM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 12083D8-096
Bump Date: 3/31/2022
Part Number: 18100060-2
Job Number: 12083D
Setup Date: 1/14/2021
Setup Technician: JM
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17091PE028	HCN	Hydrogen Cyanide	10.00	5.10	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
17091PE028	HCN	3/31/2022 8:52:30 AM (GMT-07:00)	247902FF47339N	9/30/2022

:



Calibration Certificate

Instrument SN: 12083D8-096
Calibration Date: 3/31/2022
Part Number: 18100060-2
Job Number: 12083D
Setup Date: 1/14/2021
Setup Technician: JM
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17091PE028	HCN	Hydrogen Cyanide	10.00	404.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
17091PE028	HCN	3/31/2022 8:51:19 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 1212025-001
Bump Date: 3/31/2022
Part Number: 18100060-4
Job Number: 121202
Setup Date: 1/8/2021
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
20010NP005	HCN	Hydrogen Cyanide	10.00	5.30	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
20010NP005	HCN	3/31/2022 12:50:44 PM (GMT-07:00)	247902FF47339N	9/30/2022

:

1212025-001

Calibration Certificate

Instrument SN: 1212025-001
Calibration Date: 3/16/2022
Part Number: 18100060-4
Job Number: 121202
Setup Date: 1/8/2021
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
20010NP005	HCN	Hydrogen Cyanide	10.00	143.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
20010NP005	HCN	3/16/2022 7:48:28 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

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Bump Certificate

Instrument SN: 121229C-020
Bump Date: 2/15/2022
Part Number: 18100060-2
Job Number: 121229
Setup Date: 12/13/2012
Setup Technician: GB
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX010	HCN	Hydrogen Cyanide	10.00	5.30	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
21010FX010	HCN	2/15/2022 8:18:30 AM (GMT-07:00)	247902FF47339N	9/30/2022

:



Calibration Certificate

Instrument SN: 121229C-020
Calibration Date: 2/1/2022
Part Number: 18100060-2
Job Number: 121229
Setup Date: 12/13/2012
Setup Technician: GB
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX010	HCN	Hydrogen Cyanide	10.00	196.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
21010FX010	HCN	2/1/2022 7:25:11 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 121229C-060
Bump Date: 2/10/2022
Part Number: 18100060-2
Job Number: 121229
Setup Date: 12/13/2012
Setup Technician: GB
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17030K3025	HCN	Hydrogen Cyanide	10.00	5.20	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
17030K3025	HCN	2/10/2022 3:20:53 PM (GMT-07:00)	247902FF47339N	9/30/2022

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Calibration Certificate

Instrument SN: 121229C-060
Calibration Date: 2/10/2022
Part Number: 18100060-2
Job Number: 121229
Setup Date: 12/13/2012
Setup Technician: GB
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17030K3025	HCN	Hydrogen Cyanide	10.00	492.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
17030K3025	HCN	2/10/2022 3:19:51 PM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:

121229C-060

Bump Certificate

Instrument SN: 121229C-070
Bump Date: 8/24/2021
Part Number: 18100060-2
Job Number: 121229
Setup Date: 12/13/2012
Setup Technician: GB
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX007	HCN	Hydrogen Cyanide	10.00	5.90	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
21010FX007	HCN	8/24/2021 8:12:20 AM (GMT-07:00)	236210BQ09363	8/31/2021

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Calibration Certificate

Instrument SN: 121229C-070
Calibration Date: 8/20/2021
Part Number: 18100060-2
Job Number: 121229
Setup Date: 12/13/2012
Setup Technician: GB
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX007	HCN	Hydrogen Cyanide	10.00	248.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
21010FX007	HCN	8/20/2021 2:18:57 PM (GMT-07:00)	236210BQ09363	8/31/2021	Fresh Air	N/A

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Bump Certificate

Instrument SN: 130223S-011
Bump Date: 2/22/2022
Part Number: 18100060-1
Job Number: 130223
Setup Date: 3/16/2020
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
210317M001	HCN	Hydrogen Cyanide	10.00	5.10	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
210317M001	HCN	2/22/2022 9:17:32 AM (GMT-07:00)	247902FF47339N	9/30/2022

:

130223S-011

Calibration Certificate

Instrument SN: 130223S-011
Calibration Date: 2/14/2022
Part Number: 18100060-1
Job Number: 130223
Setup Date: 3/16/2020
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
210317M001	HCN	Hydrogen Cyanide	10.00	466.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
210317M001	HCN	2/14/2022 11:23:47 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 140834J-001
Bump Date: 3/19/2022
Part Number: 18100060-B
Job Number: 140834
Setup Date: 3/2/2021
Setup Technician: KC
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17010TA011	HCN	Hydrogen Cyanide	10.00	5.30	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
17010TA011	HCN	3/19/2022 11:57:11 AM (GMT-07:00)	247902FF47339N	9/30/2022

:



Calibration Certificate

Instrument SN: 140834J-001
Calibration Date: 3/19/2022
Part Number: 18100060-B
Job Number: 140834
Setup Date: 3/2/2021
Setup Technician: KC
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17010TA011	HCN	Hydrogen Cyanide	10.00	91.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
17010TA011	HCN	3/19/2022 11:56:10 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 160233T-004
Bump Date: 3/30/2022
Part Number: 18100060-1
Job Number: 160233
Setup Date: 5/10/2021
Setup Technician: KC
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17030K3024	HCN	Hydrogen Cyanide	10.00	5.40	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
17030K3024	HCN	3/30/2022 7:55:19 AM (GMT-07:00)	247902FF47339N	9/30/2022

:

160233T-004

Calibration Certificate

Instrument SN: 160233T-004
Calibration Date: 3/30/2022
Part Number: 18100060-1
Job Number: 160233
Setup Date: 5/10/2021
Setup Technician: KC
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17030K3024	HCN	Hydrogen Cyanide	10.00	274.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
17030K3024	HCN	3/30/2022 12:46:03 PM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 160233P-006
Bump Date: 1/19/2022
Part Number: 18100060-1
Job Number: 160233
Setup Date: 3/9/2016
Setup Technician: SL
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX006	HCN	Hydrogen Cyanide	10.00	5.10	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
21010FX006	HCN	1/19/2022 8:39:41 AM (GMT-07:00)	247902FF47339N	9/30/2022

:

160233P-006

Calibration Certificate

Instrument SN: 160233P-006
Calibration Date: 1/9/2022
Part Number: 18100060-1
Job Number: 160233
Setup Date: 3/9/2016
Setup Technician: SL
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX006	HCN	Hydrogen Cyanide	10.00	376.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
21010FX006	HCN	1/9/2022 7:43:48 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

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Bump Certificate

Instrument SN: 160233T-010
Bump Date: 3/30/2022
Part Number: 18100060-1
Job Number: 160233
Setup Date: 5/10/2021
Setup Technician: KC
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX001	HCN	Hydrogen Cyanide	10.00	5.50	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
21010FX001	HCN	3/30/2022 8:14:18 AM (GMT-07:00)	247902FF47339N	9/30/2022

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160233T-010

Calibration Certificate

Instrument SN: 160233T-010
Calibration Date: 3/12/2022
Part Number: 18100060-1
Job Number: 160233
Setup Date: 5/10/2021
Setup Technician: KC
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21010FX001	HCN	Hydrogen Cyanide	10.00	251.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
21010FX001	HCN	3/12/2022 6:43:13 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 16122D7-003
Bump Date: 2/10/2022
Part Number: 18100060-6
Job Number: 16122D
Setup Date: 12/22/2016
Setup Technician: JB
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21112M4006	HCN	Hydrogen Cyanide	10.00	6.70	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
21112M4006	HCN	2/10/2022 10:24:15 AM (GMT-07:00)	247902FF47339N	9/30/2022

:

16122D7-003

Calibration Certificate

Instrument SN: 16122D7-003
Calibration Date: 2/10/2022
Part Number: 18100060-6
Job Number: 16122D
Setup Date: 12/22/2016
Setup Technician: JB
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21112M4006	HCN	Hydrogen Cyanide	10.00	443.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
21112M4006	HCN	2/10/2022 10:23:34 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 17062SE-010
Bump Date: 3/25/2022
Part Number: 18100060-C
Job Number: 17062S
Setup Date: 4/6/2021
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
210317M007	HCN	Hydrogen Cyanide	10.00	5.00	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
210317M007	HCN	3/25/2022 4:45:01 PM (GMT-07:00)	247902FF47339N	9/30/2022

:



Calibration Certificate

Instrument SN: 17062SE-010
Calibration Date: 3/20/2022
Part Number: 18100060-C
Job Number: 17062S
Setup Date: 4/6/2021
Setup Technician: GS
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
210317M007	HCN	Hydrogen Cyanide	10.00	295.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
210317M007	HCN	3/20/2022 12:31:10 PM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 17083SH-007
Bump Date: 3/30/2022
Part Number: 18100060-B
Job Number: 17083S
Setup Date: 9/28/2021
Setup Technician: ALEE
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17030K3042	HCN	Hydrogen Cyanide	10.00	5.10	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
17030K3042	HCN	3/30/2022 8:38:39 PM (GMT-07:00)	247902FF47339N	9/30/2022

:



Calibration Certificate

Instrument SN: 17083SH-007
Calibration Date: 3/27/2022
Part Number: 18100060-B
Job Number: 17083S
Setup Date: 9/28/2021
Setup Technician: ALEE
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
17030K3042	HCN	Hydrogen Cyanide	10.00	231.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
17030K3042	HCN	3/27/2022 1:54:59 PM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 16122D7-003
Bump Date: 2/10/2022
Part Number: 18100060-6
Job Number: 16122D
Setup Date: 12/22/2016
Setup Technician: JB
Created By: iNet
Battery:
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: NOTAPPLICABLE

Sensor SN	Sensor Type	Gas Type	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21112M4006	HCN	Hydrogen Cyanide	10.00	6.70	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
21112M4006	HCN	2/10/2022 10:24:15 AM (GMT-07:00)	247902FF47339N	9/30/2022

:

16122D7-003

Calibration Certificate

Instrument SN: 16122D7-003
Calibration Date: 2/10/2022
Part Number: 18100060-6
Job Number: 16122D
Setup Date: 12/22/2016
Setup Technician: JB
Created By: iNet
Battery:
Assigned User:

Sensor SN	Sensor Type	Gas Type	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
21112M4006	HCN	Hydrogen Cyanide	10.00	443.00%	Passed	0.00	4.50	10.00	4.00	4.70

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
21112M4006	HCN	2/10/2022 10:23:34 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 08101FR-003
Bump Date: 3/5/2022
Part Number: MX6-K1230211
Job Number: 08101F
Setup Date: 1/21/2013
Setup Technician: AWU
Created By: iNet
Battery: 3-Cell Lithium Battery Pack
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: INSTALLED

Sensor SN	Sensor Type	Gas Type	Factor	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
16041PV001	CO	Carbon Monoxide		100.00	63.00	Passed	0.00	25.00	50.00	35.00	100.00
18012KA006	HCN	Hydrogen Cyanide		10.00	5.10	Passed	0.00	4.50	10.00	4.00	4.70
200619S017	LEL	Methane	Methane	50.00	28.00	Passed	0.00	10.00	20.00	N/A	N/A
19051UU009	NO2	Nitrogen Dioxide		25.00	14.30	Passed	0.00	1.00	3.00	3.00	3.00
2003376180	O2	Oxygen		18.00	19.40	Passed	0.00	19.50	23.50	N/A	N/A

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
16041PV001	CO	3/5/2022 12:24:51 PM (GMT-07:00)	239639BE101443	5/31/2023
18012KA006	HCN	3/5/2022 12:22:51 PM (GMT-07:00)	247902FF47339N	9/30/2022
200619S017	LEL	3/5/2022 12:24:47 PM (GMT-07:00)	239639BE101443	5/31/2023
19051UU009	NO2	3/5/2022 12:23:21 PM (GMT-07:00)	251094BC368177	3/31/2022
2003376180	O2	3/5/2022 12:24:56 PM (GMT-07:00)	239639BE101443	5/31/2023

:


08101FR-003

Calibration Certificate

Instrument SN: 08101FR-003
Calibration Date: 2/28/2022
Part Number: MX6-K1230211
Job Number: 08101F
Setup Date: 1/21/2013
Setup Technician: AWU
Created By: iNet
Battery: 3-Cell Lithium Battery Pack
Assigned User:

Sensor SN	Sensor Type	Gas Type	Factor	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
16041PV001	CO	Carbon Monoxide		100.00	97.00%	Passed	0.00	25.00	50.00	35.00	100.00
18012KA006	HCN	Hydrogen Cyanide		10.00	450.00%	Passed	0.00	4.50	10.00	4.00	4.70
200619S017	LEL	Methane	Methane	50.00	104.00%	Passed	0.00	10.00	20.00	N/A	N/A
19051UU009	NO2	Nitrogen Dioxide		25.00	154.00%	Passed	0.00	1.00	3.00	3.00	3.00
2003376180	O2	Oxygen		20.90	160.29%	Passed	0.00	19.50	23.50	N/A	N/A

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
16041PV001	CO	2/28/2022 11:54:03 AM (GMT-07:00)	239639BE101443	5/31/2023	Fresh Air	N/A
18012KA006	HCN	2/28/2022 11:48:44 AM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A
200619S017	LEL	2/28/2022 11:54:39 AM (GMT-07:00)	239639BE101443	5/31/2023	Fresh Air	N/A
19051UU009	NO2	2/28/2022 11:52:02 AM (GMT-07:00)	251094BC368177	3/31/2022	Fresh Air	N/A
2003376180	O2	2/28/2022 11:45:47 AM (GMT-07:00)	Fresh Air	N/A	Fresh Air	N/A

:



Bump Certificate

Instrument SN: 09060R3-004
Bump Date: 3/25/2022
Part Number: MX6-K1230211
Job Number: 09060R
Setup Date: 6/23/2014
Setup Technician: GS
Created By: iNet
Battery: 3-Cell Lithium Battery Pack
Assigned User:
Bump Threshold: 50
Bump Timeout: 120
Pump Accessory: INSTALLED

Sensor SN	Sensor Type	Gas Type	Factor	Span Gas	Sensor Reading	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
20092NA069	CO	Carbon Monoxide		100.00	64.00	Passed	0.00	25.00	50.00	35.00	100.00
15110M2003	HCN	Hydrogen Cyanide		10.00	5.00	Passed	0.00	4.50	10.00	4.00	4.70
20091Y8008	LEL	Methane	Methane	50.00	30.00	Passed	0.00	10.00	20.00	N/A	N/A
20122VJ027	NO2	Nitrogen Dioxide		25.00	12.60	Passed	0.00	1.00	3.00	3.00	3.00
20082NP063	O2	Oxygen		18.00	19.30	Passed	0.00	19.50	23.50	N/A	N/A

Sensor SN	Sensor Type	Bump Date/Time	Cylinder ID	Cylinder Exp
20092NA069	CO	3/25/2022 10:12:25 AM (GMT-07:00)	239639BE101443	5/31/2023
15110M2003	HCN	3/25/2022 10:11:02 AM (GMT-07:00)	247902FF47339N	9/30/2022
20091Y8008	LEL	3/25/2022 10:12:23 AM (GMT-07:00)	239639BE101443	5/31/2023
20122VJ027	NO2	3/25/2022 10:11:32 AM (GMT-07:00)	251094BC368177	3/31/2022
20082NP063	O2	3/25/2022 10:12:23 AM (GMT-07:00)	239639BE101443	5/31/2023

:


09060R3-004

Calibration Certificate

Instrument SN: 09060R3-004
Calibration Date: 3/24/2022
Part Number: MX6-K1230211
Job Number: 09060R
Setup Date: 6/23/2014
Setup Technician: GS
Created By: iNet
Battery: 3-Cell Lithium Battery Pack
Assigned User:

Sensor SN	Sensor Type	Gas Type	Factor	Span Gas	Span Reserve	Passed/Failed	Gas Alert	Alarm Low	Alarm High	Alarm TWA	Alarm STEL
20092NA069	CO	Carbon Monoxide		100.00	91.00%	Passed	0.00	25.00	50.00	35.00	100.00
15110M2003	HCN	Hydrogen Cyanide		10.00	329.00%	Passed	0.00	4.50	10.00	4.00	4.70
20091Y8008	LEL	Methane	Methane	50.00	116.00%	Passed	0.00	10.00	20.00	N/A	N/A
20122VJ027	NO2	Nitrogen Dioxide		25.00	140.80%	Passed	0.00	1.00	3.00	3.00	3.00
20082NP063	O2	Oxygen		20.90	160.77%	Passed	0.00	19.50	23.50	N/A	N/A

Sensor SN	Sensor Type	Cal Date/Time	Cylinder ID	Cylinder Exp	Zero Cylinder Id	Zero Cylinder Exp
20092NA069	CO	3/24/2022 3:09:09 PM (GMT-07:00)	239639BE101443	5/31/2023	Fresh Air	N/A
15110M2003	HCN	3/24/2022 3:03:24 PM (GMT-07:00)	247902FF47339N	9/30/2022	Fresh Air	N/A
20091Y8008	LEL	3/24/2022 3:09:46 PM (GMT-07:00)	239639BE101443	5/31/2023	Fresh Air	N/A
20122VJ027	NO2	3/24/2022 3:07:16 PM (GMT-07:00)	251094BC368177	3/31/2022	Fresh Air	N/A
20082NP063	O2	3/24/2022 2:59:41 PM (GMT-07:00)	Fresh Air	N/A	Fresh Air	N/A

:



APPENDIX W

Eagle Mine Base Case Cover System Performance Monitoring Report

Eagle Mine Base Case Cover System Performance Monitoring Report 2020/2021

April 6, 2022



Victoria GOLD CORP

okane

Integrated Mine Closure and Relinquishment Solutions

Eagle Mine
Base Case Cover System Performance Monitoring Report 2020/2021

1048-006-001

April 2022

Prepared for:

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Rev. #	Rev. Date	Author	Reviewer	PM Sign-off
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B	11-Feb-2022	LDoucette	LTallon	LDoucette
1	6-Apr-2022	LDoucette	LTallon	LDoucette

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EXECUTIVE SUMMARY

Okane Consultants Inc. (Okane) was retained by Victoria Gold Corp. (VG) to provide engineering services to design and evaluate a base case 0.5 m cover system at the 1370 bench of the Platinum Gulch waste rock storage area (WRSA) at the Eagle Gold Mine in Yukon, Canada. The Reclamation and Closure Plan (RCP; version 2020-01) outlined a need for evaluating cover system performance to assess net percolation (NP) through the WRSA, which can be used to evaluate the cover systems response to site-specific processes (physical, chemical, and biological) and to enhance understanding of key characteristics and processes that control cover system performance in the long term. This report summarizes the performance of the cover system over the first year of monitoring, from October 24, 2020 to November 30, 2021.

Two performance monitoring stations were installed by VG in October 2020, on the plateau and south facing slope of the base case cover system field trial on the 1370 bench of the Platinum Gulch WRSA. Meteorological data recorded at the stations during the monitoring period was supplemented with data recorded at the Potato Hills and Camp meteorological stations. Material samples from the overburden stockpile used for the construction of the cover system were collected to characterize the cover system material.

The purpose of the base case cover system is to control NP into waste material in the service of achieving closure objectives. As currently configured, the base case cover system is conceptually expected to behave as a store and release system where 20 to 50% of effective precipitation will report into the WRSA. The base case cover system will serve as a reasonable starting point to provide useful information for future design iterations.

Meteorological conditions were consistent with climate norms, with late spring snowfall and elevated temperatures in the summer months. Precipitation varied throughout the summer months with July being relatively dry, and the remaining summer/fall being wetter than normal. Generally, the Slope cover system monitoring station recorded lower volumetric water contents and greater temperature variations than the Plateau station. Material characterization study results revealed a cover system material with coarse particle size and resulting high hydraulic conductivity. The overburden cover system is considered highly heterogenous due do loose placement and erosional features.

Water balance modelling results for the Slope and Plateau locations in the first year of monitoring aligned with conceptual expectations of a store and release cover system that permits a high percentage of NP (20% to 50%). Water balance models estimated NP rates of 31% and 37% of effective precipitation for Slope and Plateau locations, respectively. Variability in performance of the cover system is associated with overburden material properties, localized variations in snow accumulation and freeze thaw cycles, and location on the landform. Future design iterations will use information gathered during the current investigation to design a system that can be effective in achieving closure criteria.

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1 INTRODUCTION

Victoria Gold Corp. (VG) owns and operates the Eagle Gold Mine on the Dublin Gulch Property located in central Yukon Territory, Canada. The mine is currently in operation. Version 2020-01 of the Reclamation and Closure Plan (RCP) outlined a series of tasks for a proposed research program in support of ongoing reclamation and closure planning. Cover system monitoring in support of progressive reclamation is being advanced through a cover system trial at the 1370 bench of the Platinum Gulch waste rock storage area (WRSA).

Okane Consultants Inc. (Okane) was retained to monitor the base case cover system trial constructed from an overburden stockpile. The base case cover system, consisting of ~0.5 m of overburden placed on the WRSA plateau and slope, provides the opportunity to track the evolution of the cover system in response to site-specific physical, chemical, and biological processes to enhance understanding of key mechanisms that control cover system performance. The current cover system configuration is reasonable as an initial demonstration and will provide useful information to guide future design revisions. For the purposes of the current document, cover system performance will primarily be assessed in terms of net percolation (NP) of meteoric waters.

Installation of performance monitoring stations on the plateau and slope of the base case cover system trial was completed by VG in fall 2020, with Okane providing remote guidance. This report summarizes meteorological and soil condition data collected through the first water year of monitoring of the cover system trial, from the onset of monitoring on October 24, 2020 to November 30, 2021, herein referred to as the monitoring period. Meteorological and soil condition monitoring data as well as water balance estimations are discussed within this report.

1.1 Project Objectives

The RCP outlines a proposed research program into reclamation cover system configurations and the processes governing performance. The primary objective of the 1370 bench Platinum Gulch WRSA cover system trial is to measure and understand base case cover system water dynamics, such that an informed estimate of NP rates through the cover system can be developed. The base case cover system stands as a reasonable starting point for understanding a performance envelope that can be expected at the site, given site climate, materials, and initial configurations.

A secondary objective of the research program is to demonstrate that the base case cover system design is geotechnically, geomorphologically, and geochemically stable. Thus, it will be necessary to demonstrate that the integrated performance of the system is sufficient to meet closure performance objectives without the need to re-slope the WRSAs from the current angle of repose.

1.2 Conceptual Model of Performance

The primary aim of the cover system is to provide controls on NP by taking advantage of the water store and release properties of the overburden material. Climate is a primary driver of cover system performance. The Eagle Gold Mine site is classified as a Dsb climate regime (Continental Subarctic, with a cold dry summer), according to the Köppen-Geiger classification system. According to the Global Cover System Design Technical Guidance Document (INAP, 2017) a Dsb climate is expected to facilitate an expected range of NP, expressed as percentage of annual precipitation, for various cover system alternatives:

- Very low (<5%): Geosynthetic;
- Low (5 to 10%): Barrier Type – Sand bentonite layer;
- Moderate (10 to 20%): Enhanced store and release – low hydraulic conductivity layer;
- High (20 to 50%): Store and release;
- Very High (>50%): Erosion protection – Vegetative cover.

The base case cover system is a simple monolithic layer of overburden and can be expected to perform as a store and release cover system. A cover system of this type would thus be expected to allow high rates of NP, allowing from 20% to 50% of average annual precipitation to infiltrate past the base of the cover system. However, the spatial distribution of the NP would not be expected to be consistent over the entirety of the WRSA. Slope areas would be expected to have a large runoff component with spring melt, and slope runoff would accumulate at a downslope plateau area. The net effect would be for lower infiltration rates on slopes, with the balance accumulating on plateaus. The remaining input water would be released via evapotranspiration during the summer months. It is expected that the majority of NP occurs in the spring following freshet, and in the fall once evapotranspiration rates slow.

1.3 Report Organization

The report has been subdivided into the following sections:

- Section 2 – Background;
- Section 3 – Material and Methods;
- Section 4 – Results;
- Section 5 – Discussion;

- Section 6 – Summary;
- Section 7 – Recommendations; and
- Section 8 – References.

2 BACKGROUND

The approximate area of the 1370 bench Platinum Gulch WRSA plateau is 47,500 m^2, and 20,777 m^3 of overburden material was used to construct the base case cover system in 2020. The base case cover system consists of ~0.5 m of overburden material placed on a portion of the WRSA plateau and on a section of the ~1.15H:1V slope (Dwg. 1048-005-020, Appendix A). The cover system design is aligned with the base case configuration in Version 2020-01 of the RCP and will inform on the potential of using the configuration for successful reclamation.

The cover system was constructed using standard site procedures. Construction methods included paddock dumping and dozing of the overburden material from the stockpile across the plateau of the WRSA to produce the ~0.5 m cover system layer, and nominal tracking by dozer after placement. Some of the remaining overburden was pushed over the crest and spilled down the south-southeast slope. The method for covering slopes aligns with the proposed final closure method for the mine, as currently waste rock slopes are not intended to be regraded and slope faces will be covered by dozing material over the crest of each bench. The application method does not provide a uniform cover system thickness on the waste rock slopes but will allow for a greater understanding of water partitioning on both benches and slopes for the refinement of cover system model inputs.

Installation of cover system performance monitoring instrumentation was completed by VG in the fall of 2020 and is managed jointly by VG and Okane. A material sampling program was conducted before and during cover system construction to characterize the physical and hydraulic properties of the overburden material.

2.1 Hydrological Processes in Mine Affected Watersheds

Base case cover system performance will primarily be assessed in terms of NP of meteoric waters, using the water balance method. Net percolation is part of the 'GW_{out}' component of the conceptual water balance model presented in Figure 2.1. Meteoric water will either run off ($R_{in} – R_{out}$), or infiltrate into the cover system surface. A portion of the water that infiltrates will be stored in the active zone (ΔS) and is subsequently available to exfiltrate from the surface via evapotranspiration (ET). Water that has infiltrated can also move laterally downslope within and below the active zone ($R_{in} – R_{out}$). A percentage of the infiltrating water will migrate beyond the active zone as a result of gravity overcoming the influence of ET and T and will result in NP to the underlying waste rock.

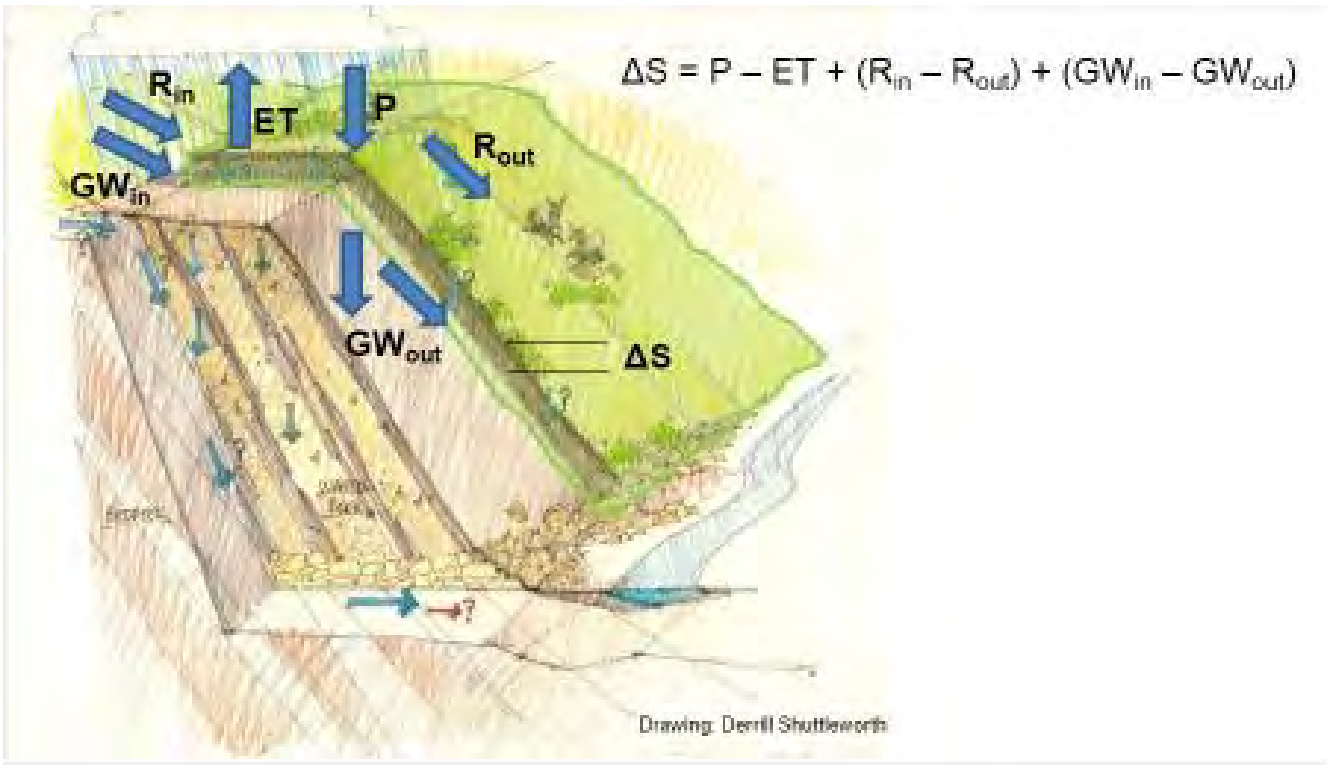


Figure 2.1 Conceptual model of hydrological processes in mine-affected watersheds.

3 MATERIALS AND METHODS

3.1 Performance Monitoring Instrumentation

Profile views of monitoring instrumentation installed in the 1370 bench of the Platinum Gulch WRSA cover system trial are shown on Dwg. 1048-005-002 (Appendix A). A detailed description of the installation of soil water and meteorological monitoring instruments can be found in Okane (2021a). The following is a summary of instrumentation installed:

- One (1) Plateau Soil Monitoring Station consisting of five (5) matric suction and five (5) volumetric water content (VWC) sensors installed throughout the cover system and in the waste surface, along with a net radiometer, snow depth sensor, and tipping bucket rain gauge (TBRG) (Photo B.1, Appendix B);

- One (1) Slope Soil Monitoring Station consisting of five (5) matric suction and five (5) volumetric water content (VWC) sensors installed throughout the cover system and in the waste surface, along with a net radiometer and snow depth sensor (Photo B.2, Appendix B).

Air temperature, relative humidity (RH), wind speed/direction, and total precipitation presented in this report are collected by the Potato Hills and Camp meteorological stations located on site (hereby referred to as the site monitoring stations record). The Camp meteorological station data was used to supplement missing data from the dates of January 22, 2021, to February 26, 2021 when the Potato Hills meteorological station did not record. The meteorological station data primarily used is Potato Hills due to its location and elevation relative to the cover system trial.

3.2 Material Sampling Program

The material characterization program carried out during construction of the field trial consisted of collecting samples from six overburden material zones to account for potential variability in material properties. Three zones were within the overburden stockpile prior to placement, and three zones were within the overburden material that was already spread on the plateau when sampling began.

The overburden material sample laboratory testing program included:

- Particle Size Distribution (PSD);

- Atterberg Limits;

- Standard Proctor;

- Hydraulic Conductivity;

- Soil Water Characteristic Curves; and
- Specific Gravity.

Further information on the material characterization program can be found in Okane (2021b).

3.3 Monitoring Data Collection

Data capture rates for components of the 1370 bench of the Platinum Gulch WRSA base case cover system field trial performance monitoring systems were analyzed over the monitoring period (Table 3.1). The average data capture rate for the monitoring period was 96%, which allows for a sufficient amount of data for analysis. Data capture rates for automated sensors are based on the number of sensors operating compared to the total number of sensors installed, and the data collection efficiency of these sensors [number of data points collected / (number of measurements per day x number of days in the monitoring period)].

Table 3.1: Soil water and meteorological monitoring station data capture rates for the monitoring period.

Component	Number of Automated Sensors	Number of Automated Sensors Operating	Data Capture Rate
Site Meteorological Station (Potato Hills & Camp)[1]			
Total precipitation	1	1	100%
Air temperature / RH	1	1	100%
Wind speed / direction	1	1	100%
Plateau Soil Monitoring Station			
Matric suction / temperature	5	5	92%
Water content	5	5	92%
Net radiometer	1	1	93%
Snow depth	1	1	92%
Rainfall	1	1	92%
Slope Soil Monitoring Station			
Matric suction / temperature	5	5	100%
Water content	5	5	100%
Net radiometer	1	1	100%
Snow depth	1	1	97%
Average Data Capture Rate for the Monitoring Period			*96%*

[1]Camp meteorological data used from January 22 to February 27, 2021.

Data issues identified for the monitoring period were as follows:

1) No Plateau monitoring station data are available from January 2 to January 25, 2021. Missing data are a result of not downloading station data prior to new program upload to the station datalogger. New station program uploads cause existing station data to be lost.

2) Potato Hills meteorological station air temperature, RH, wind, and total precipitation data was used to create the site meteorological record from:

    - October 24, 2020 to January 21, 2021;
    - February 28 to November 30, 2021.

3) Potato Hills meteorological station air temperature, RH, wind, and total precipitation data are unavailable from January 22, 2021, to February 27, 2021. The cause of data loss is attributed due to hardware issues with the battery system.

4) Net radiation data collection from the Plateau and Slope monitoring stations began on December 10, 2020, due to delay in the input of sensitivity values into the station programs.

4 RESULTS

4.1 Meteorological Conditions

Meteorological parameters are measured to obtain site-specific climatic conditions for evaluation of cover system performance. Total precipitation, wind speed, air temperature, and relative humidity are measured by the existing meteorological stations on site. The primary station used to create the site meteorological station data record is Potato Hills due to its location and elevation relative to the cover trial. Net radiation and snow depth are measured at the Plateau and Slope cover system monitoring stations, and rainfall is measured at the Plateau monitoring station. The following is a summary of meteorological conditions measured during the monitoring period.

4.1.1 Air Temperature

Air temperature recorded at the site meteorological stations during the monitoring period ranged from a low of -41.1°C in January, to a high of 25.0°C recorded in July and August (Figure 4.1, Table 4.1). Maximum and minimum air temperatures recorded each month at site over the monitoring period are compared to the monthly maximum and minimum air temperatures averaged from daily maximum and minimums from the Environment Canada climate record for Mayo Airport from 1981 to 2020.

Table 4.1: Maximum and minimum monthly air temperatures recorded at the site meteorological stations during the monitoring period, and the long-term Environment Canada record.

Month	Site Meteorological Stations		Long-Term Record Mayo Airport (1981 to 2020)	
	Maximum Air Temp (°C)	Minimum Air Temp (°C)	Maximum Air Temp (°C)	Minimum Air Temp (°C)
November 2020	-7.7	-23.5	-10.9	-21.1
December 2020	0.5	-31.0	-14.7	-25.1
January 2021	-4.1	-37.9	-16.3	-28.2
February 2021	-7.7	-41.1	-11.7	-24.6
March 2021	-5.4	-24.7	-2.9	-18.1
April 2021	8.2	-31.1	7.2	-5.2
May 2021	10.6	-6.2	16.7	2.2
June 2021	21.9	1.3	21.4	7.5
July 2021	25.0	0.2	22.8	9.4
August 2021	25.0	0.8	19.5	6.7
September 2021	15.4	-9.3	13.1	0.9
October 2021	0.7	-10.6	1.8	-6.5
November 2021	1.6	-28.7	-10.9	-21.1
Average	**8.3**	**-17.0**	**3.5**	**-8.1**

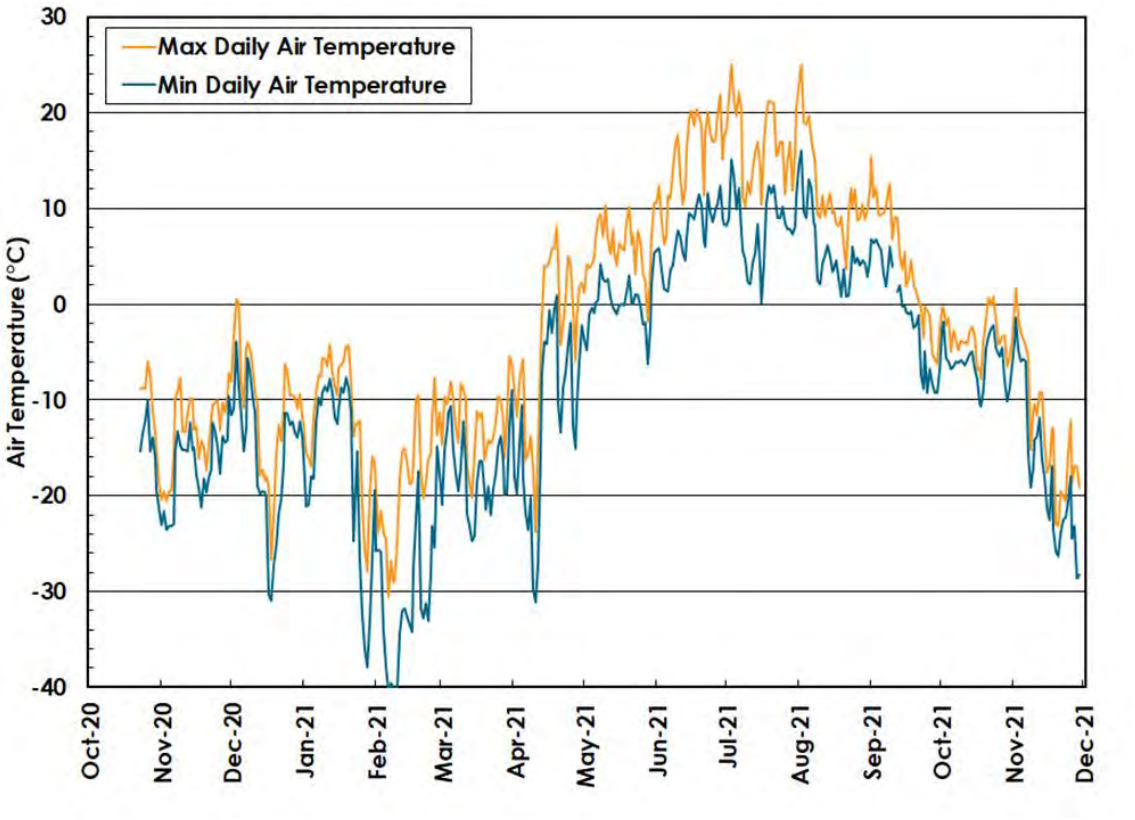


Figure 4.1: Maximum and minimum daily air temperatures recorded at the site meteorological stations during the monitoring period.

4.1.2 Relative Humidity

Maximum and minimum daily relative humidity (RH) recorded at the site meteorological stations during the monitoring period are presented in Figure 4.2. The maximum recorded RH was 100% and the minimum was 18.5%.

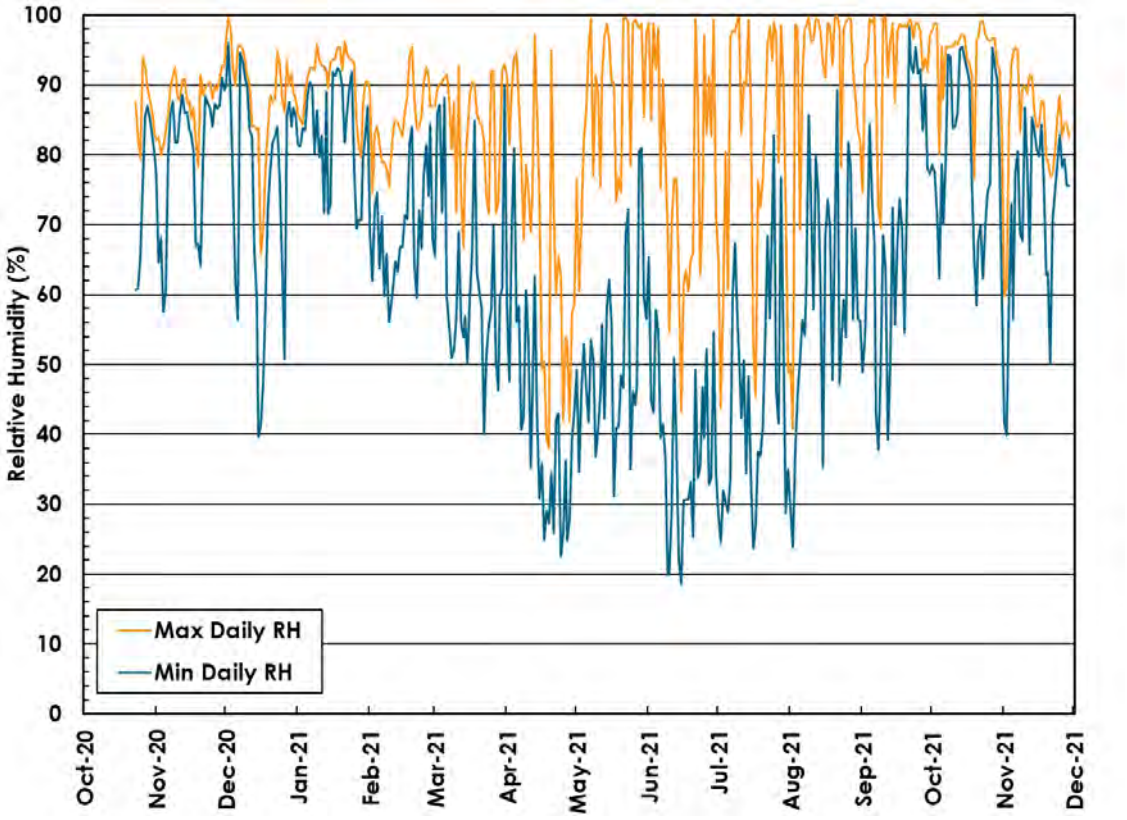


Figure 4.2: Maximum and minimum daily relative humidity recorded at the site meteorological stations during the monitoring period.

4.1.3 Wind Speed

The average daily wind speed recorded at the site meteorological stations during the monitoring period was 3.9 m/s (Figure 4.3), with a maximum daily average wind speed of 28.3 m/s recorded on December 15, 2020.

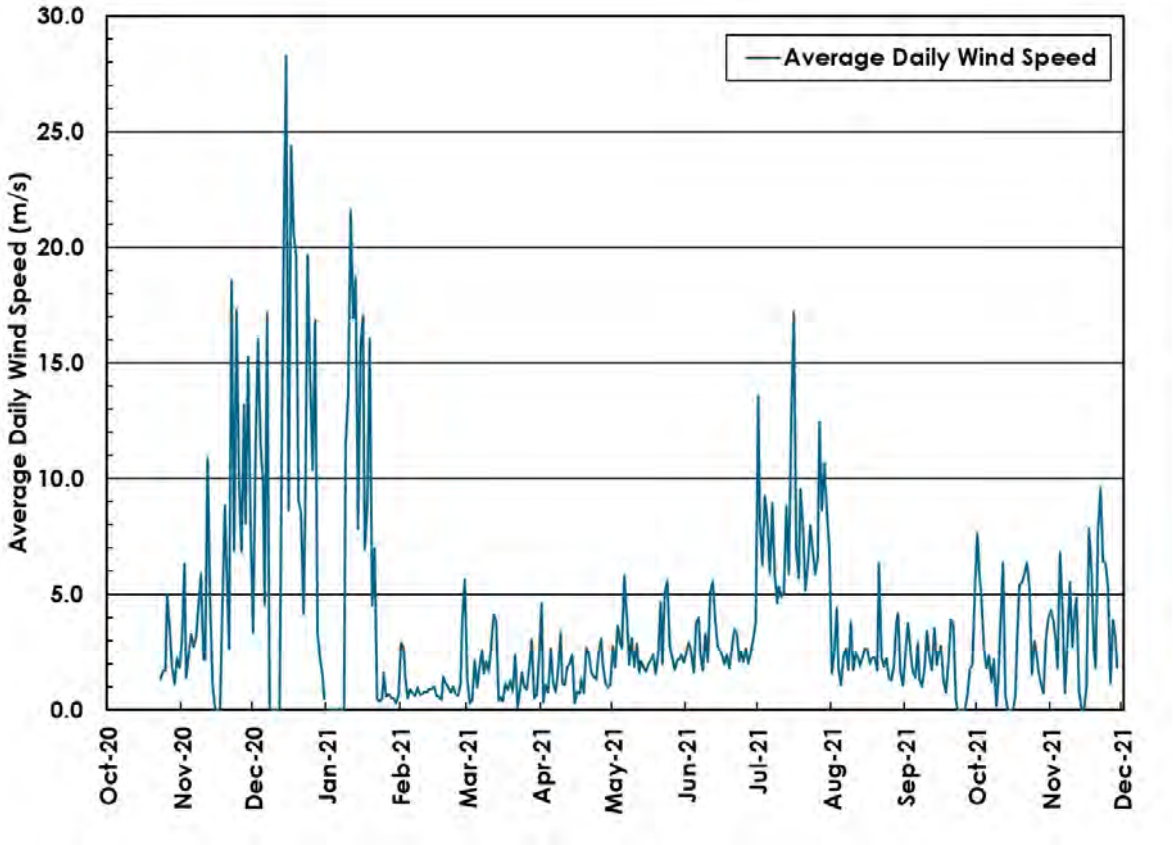


Figure 4.3: Average daily wind speed recorded at the site meteorological stations during the monitoring period.

4.1.4 Net Radiation

Net radiation is continuously monitored at the Plateau and Slope monitoring stations with an NRLite2 net radiometer. The Slope monitoring station is located on the southeast slope of the 1370 bench of the Platinum Gulch WRSA (Dwg. 1048-005-020, Appendix A). Total daily net radiation recorded at the site Plateau and Slope stations during the monitoring period is presented in Figure 4.4.

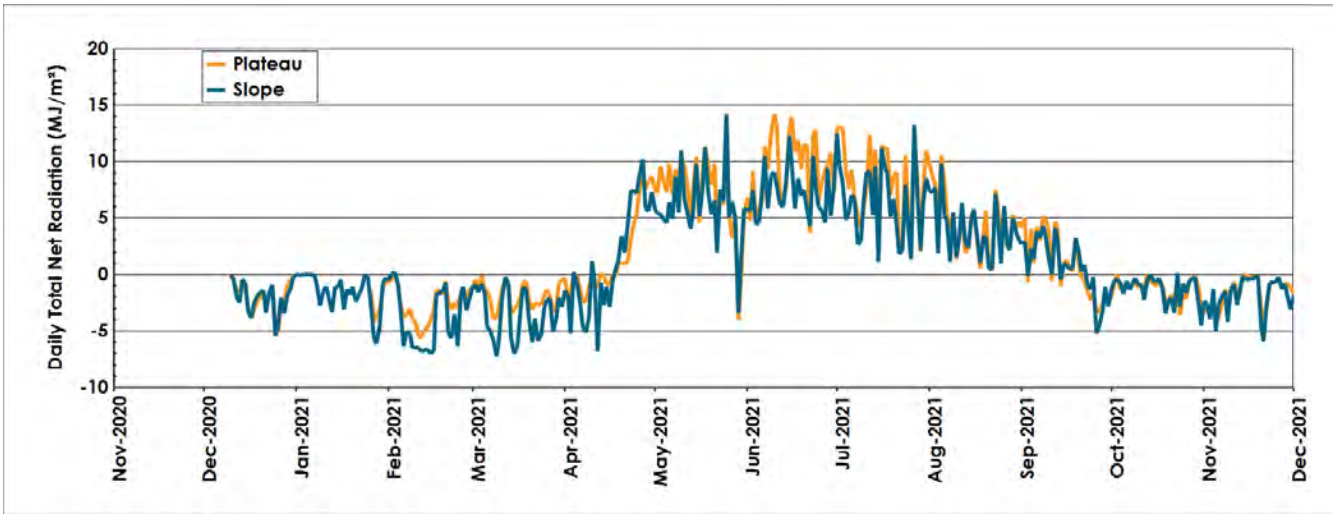


Figure 4.4: Total daily net radiation recorded at the cover system trial Plateau and Slope monitoring stations during the monitoring period.

4.1.5 Total Precipitation

Total precipitation is continuously monitored with precipitation weighing gauges at the site meteorological stations and is a sum of rainfall and snow water equivalent. Daily and cumulative precipitation recorded during the monitoring period is presented in Figure 4.5. The total cumulative precipitation for the monitoring period recorded by the site meteorological stations is 513.5 mm.

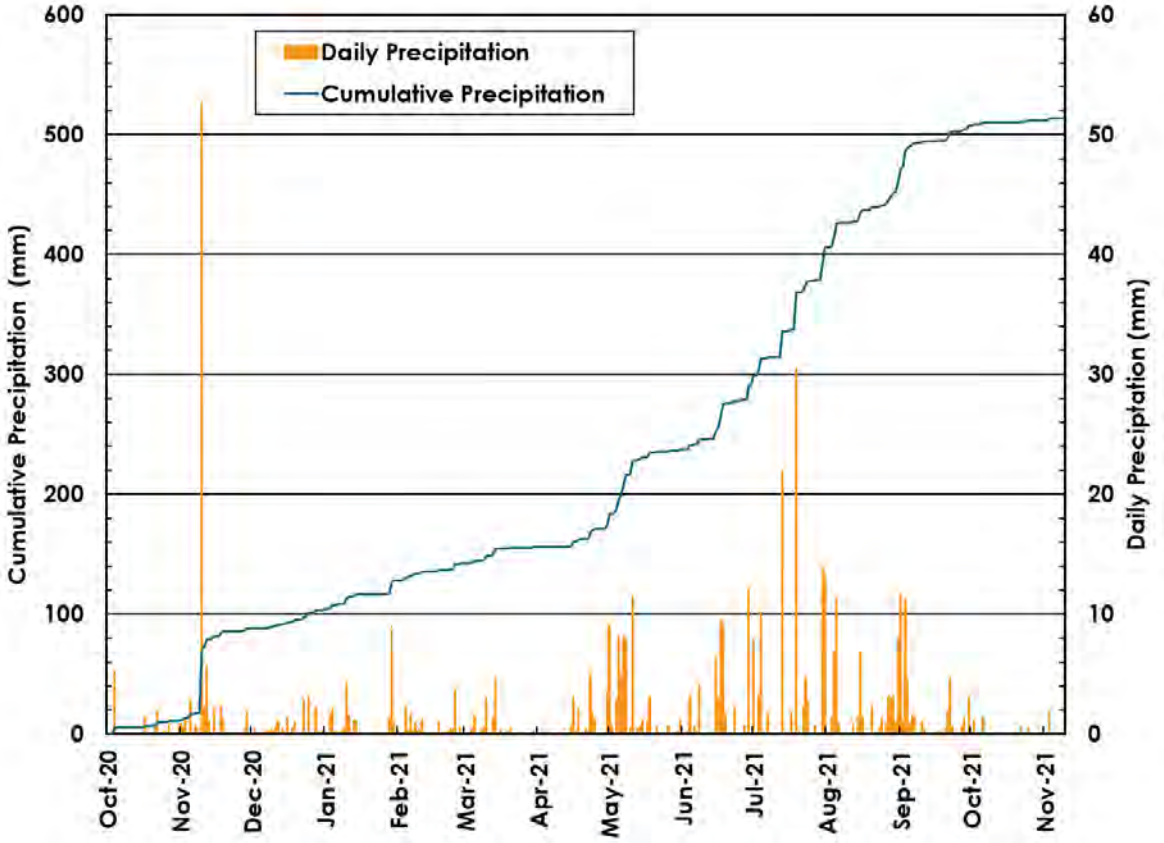


Figure 4.5: Daily and cumulative total precipitation measured at the site meteorological stations during the monitoring period.

4.1.6 Rainfall

Rainfall is continuously monitored at the cover system trial Plateau station with an EML Metric ARG314 TBRG with 0.2 mm resolution. Rainfall measurements from the ARG314 are accurate to 99% up to 120 mm/hr wind speeds. The aerodynamic shape of the TBRG reduces wind loss of rainfall over the orifice, improving accuracy of the measurement. Total monthly rainfall recorded on the Plateau and the site meteorological stations for April to October 2021 is presented in Table 4.2, along with long-term record average monthly rainfall. Daily and cumulative rainfall recorded on the Plateau during the monitoring period is presented in Figure 4.6, and cumulative rainfall on the Plateau is compared to the site meteorological station record in Figure 4.7.

Table 4.2: Rainfall recorded on the 1370 bench cover trial Plateau and site meteorological stations for the monitoring period vs. the long-term record.

Month	Total Rainfall (mm)		
	1370 Cover Trial	Site Meteorological Stations	Long-Term Record Mayo Airport (1981 to 2020)
April 2021	1.0	0.0	6.7
May 2021	31.8	55.2	17.6
June 2021	19.4	29.8	29.7
July 2021	66.4	66.4	38.2
August 2021	89.6	112.3	33.9
September 2021	23.8	16.4	29.4
October 2021	0.0	0.0	20.5
Total	**232.0**	**280.1**	**175.9**

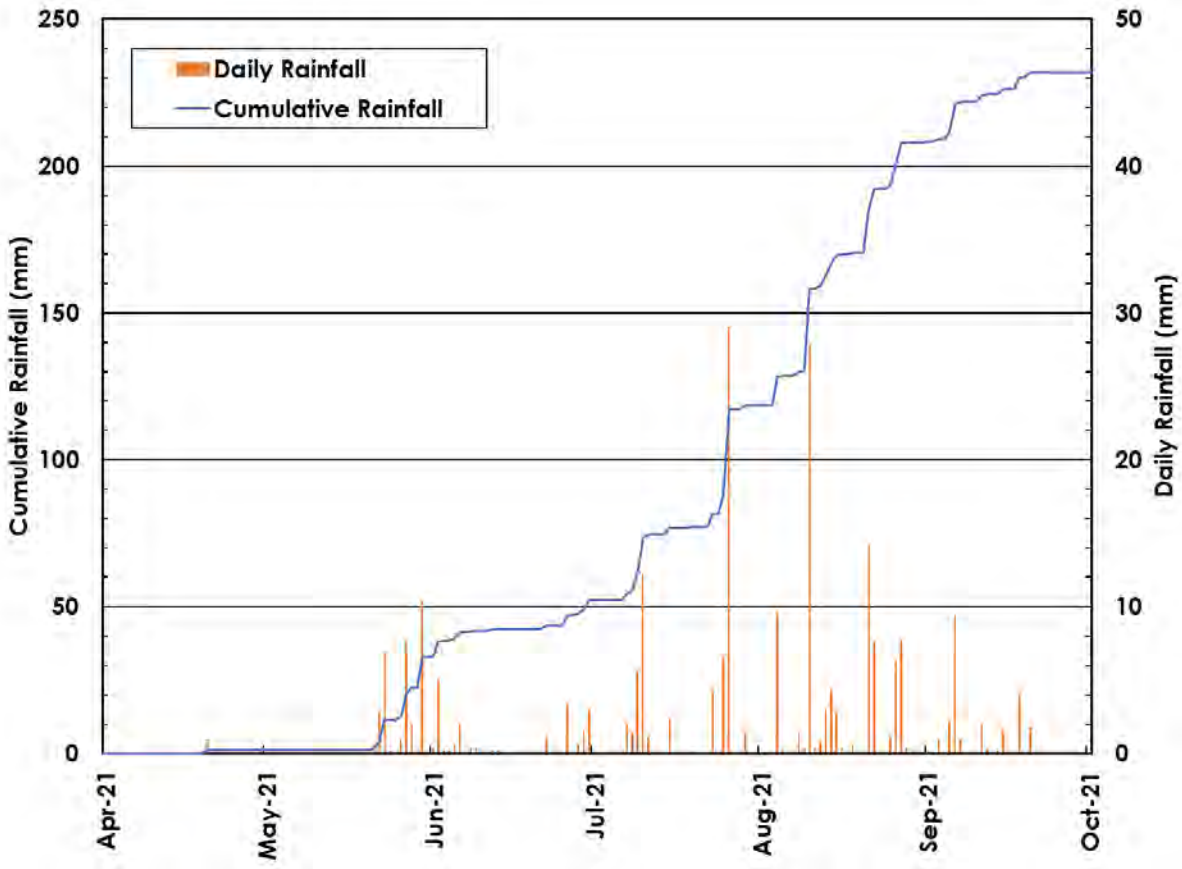


Figure 4.6: Daily and cumulative rainfall measured at the cover system trial Plateau monitoring station during the monitoring period.

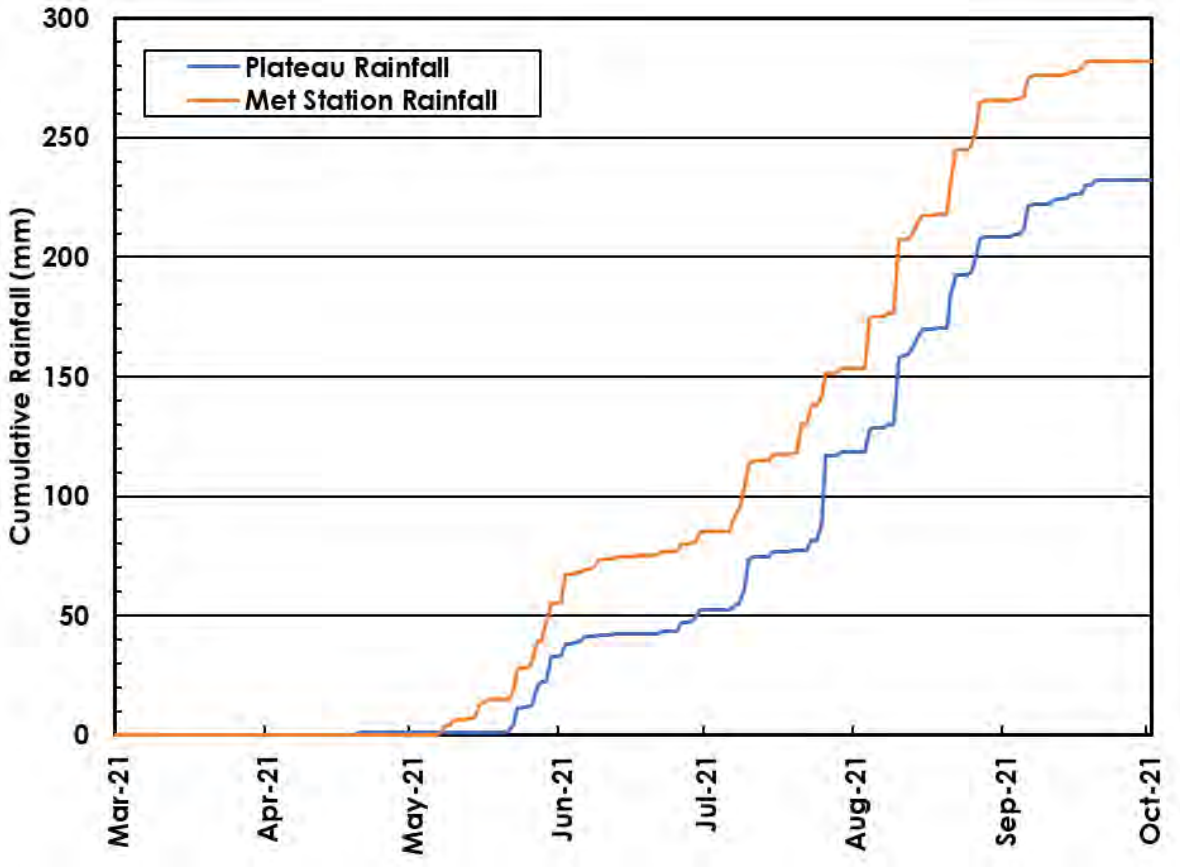


Figure 4.7: Cumulative rainfall recorded at the cover system trial Plateau monitoring station and site meteorological stations during the monitoring period.

4.1.7 Snow Depth

Snow depth is continuously monitored with Campbell Scientific (CS) SR50AT sonic ranging sensors at the Plateau and Slope monitoring stations, and measurements are accurate to ±1 cm. Average daily snow depths for the monitoring period are presented in Figure 4.8. The snow depth sensor measures the distance to the surface beneath by emitting an ultrasonic pulse in a conical beam and measuring the elapsed time between the emission and return of the pulse. Raw distance data is corrected with an air temperature measurement to account for variations of the speed of sound in air. The corrected snow depth data is then averaged and used to calculate a single snow depth value for the conical area below the sensor.

A snow survey was conducted by VG personnel on April 1, 2021 to facilitate understanding of the spatial variability of the snowpack and measure snow density on the cover system trial. Snow survey results show a maximum and minimum measured snowpack depth of 0.53 and 0.11 m, respectively, with an average snowpack depth of 0.22 m. The average snow water equivalent (SWE) obtained from the snow survey was 4.5 mm, which is based on 21% snow density.

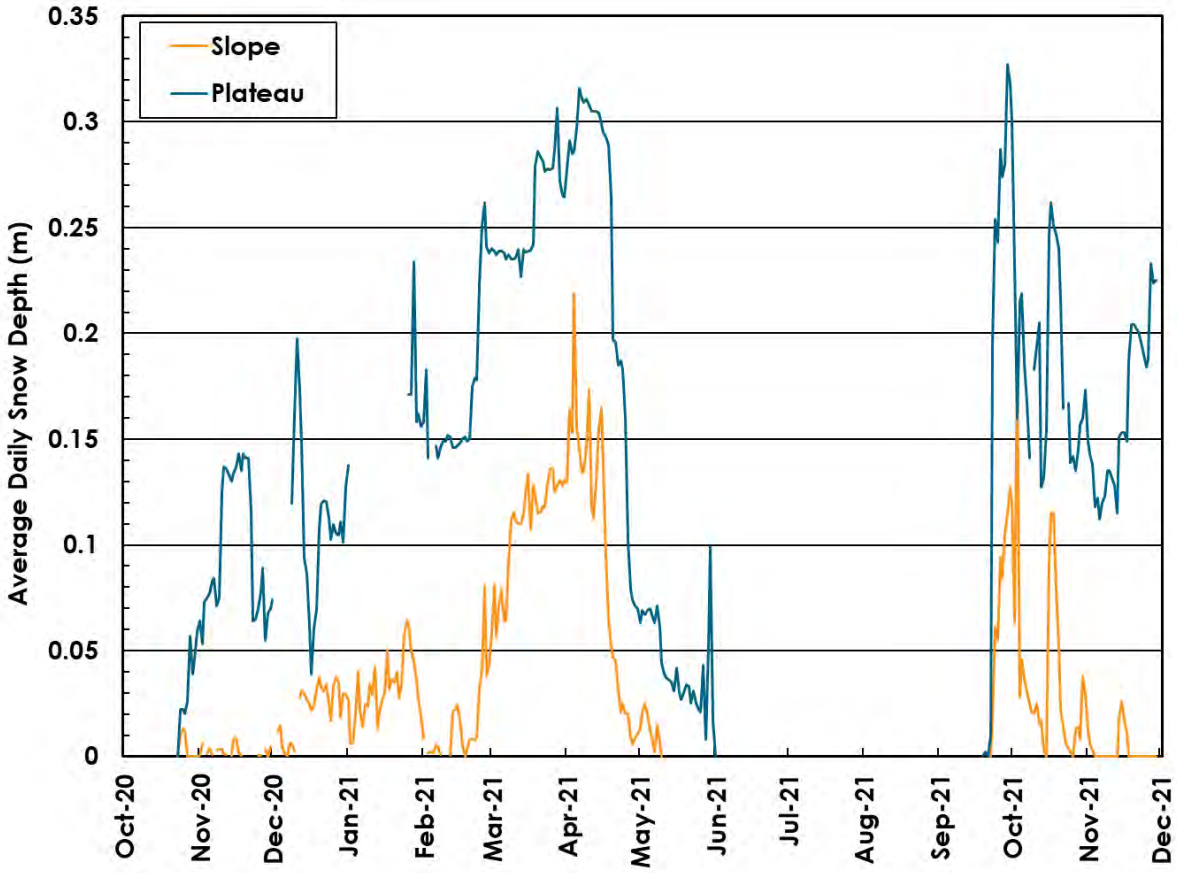


Figure 4.8: Daily average snow depth measured at the cover system trial Plateau and Slope monitoring stations during the monitoring period.

4.2 Subsurface Temperature

Subsurface soil temperatures of the cover system trial are recorded at Plateau and Slope soil monitoring stations using profiles of Campbell Scientific (CS) Model 229 heat dissipation matric potential sensors. Soil temperature data recorded at the monitoring stations are illustrated in Figure 4.9 and Figure 4.10.

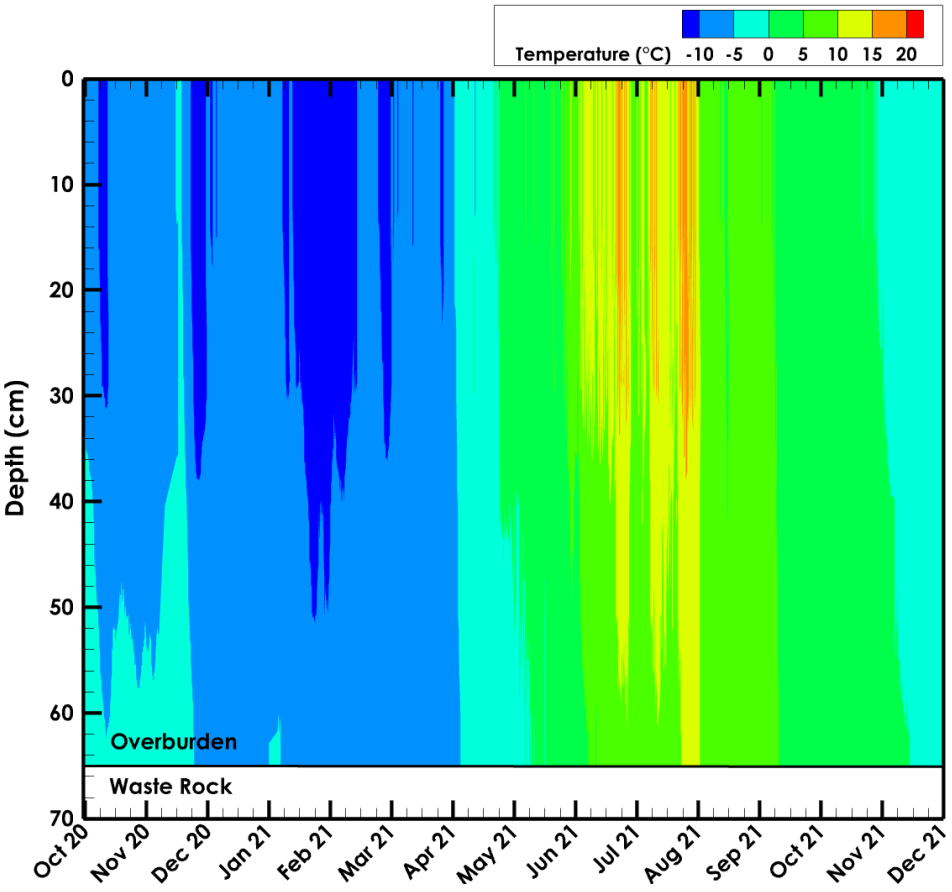


Figure 4.9: Soil temperature measured at the cover system trial Plateau soil monitoring station during the monitoring period.

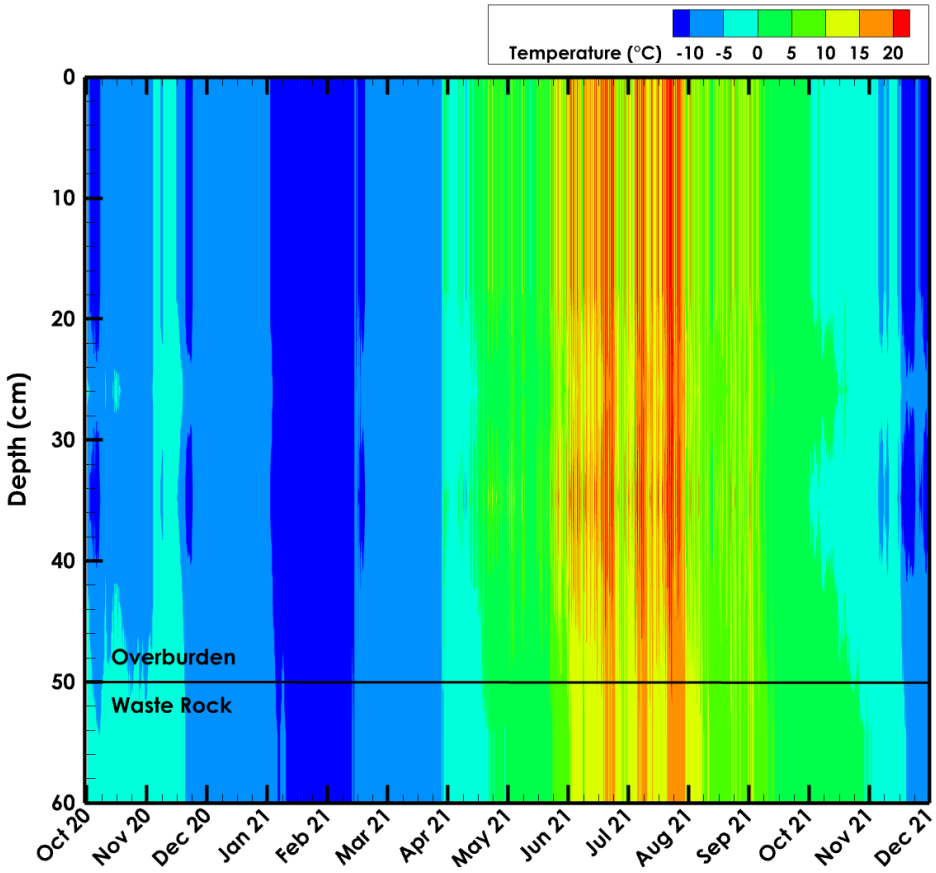


Figure 4.10: Soil temperature measured at the cover system trial Slope soil monitoring station during the monitoring period.

4.3 Soil Water Conditions

Subsurface volumetric water content (VWC) of the cover system trial is recorded at Plateau and Slope soil monitoring stations using profiles of CS616 water content reflectometers, with a measurement accuracy of ±2.5%. The CS616 reflectometer measurements are based on dielectric constant, and because the dielectric constant for ice is different than water, VWC data cannot be interpreted during frozen conditions and is removed from datasets. Matric potential is measured with CS229 heat dissipation matric potential sensors installed at the soil monitoring stations with an accuracy of ~1 kPa at matric potentials > -100 kPa.

4.3.1 Volumetric Water Content

Soil VWC data collected at the Plateau and Slope monitoring stations are illustrated in Figure 4.11 and Figure 4.12.

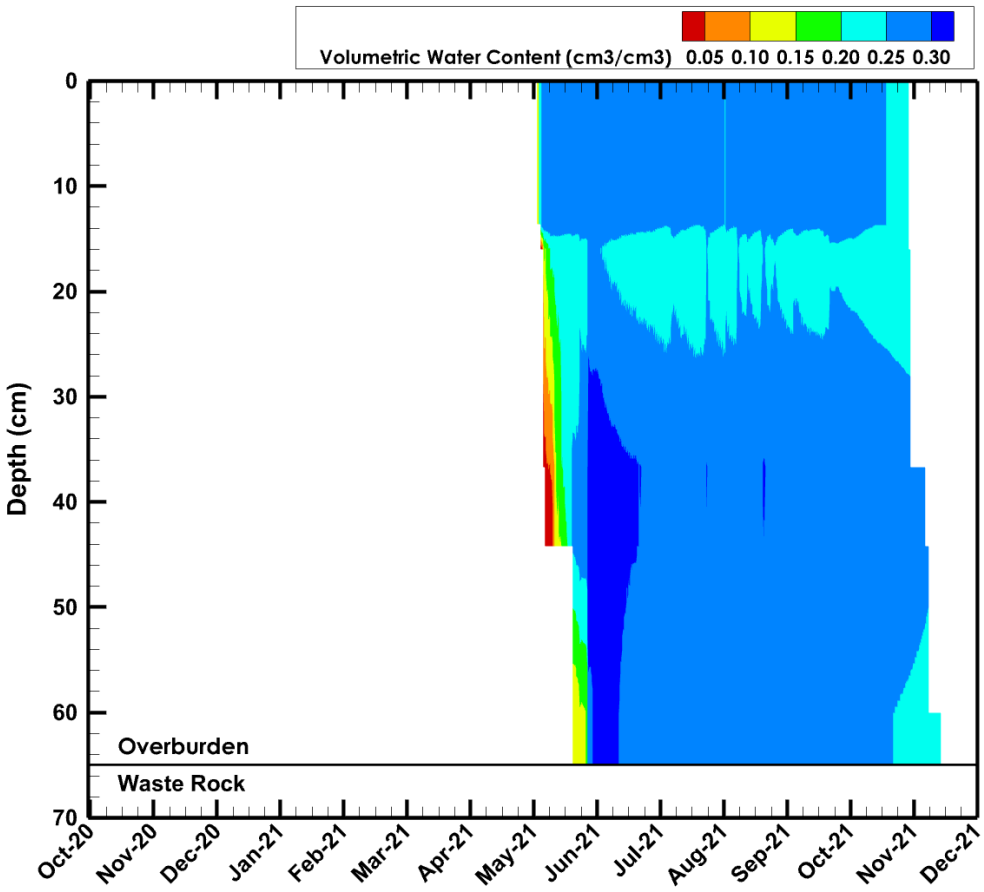


Figure 4.11: Soil VWC measured at the cover system trial Plateau soil monitoring station during the monitoring period.

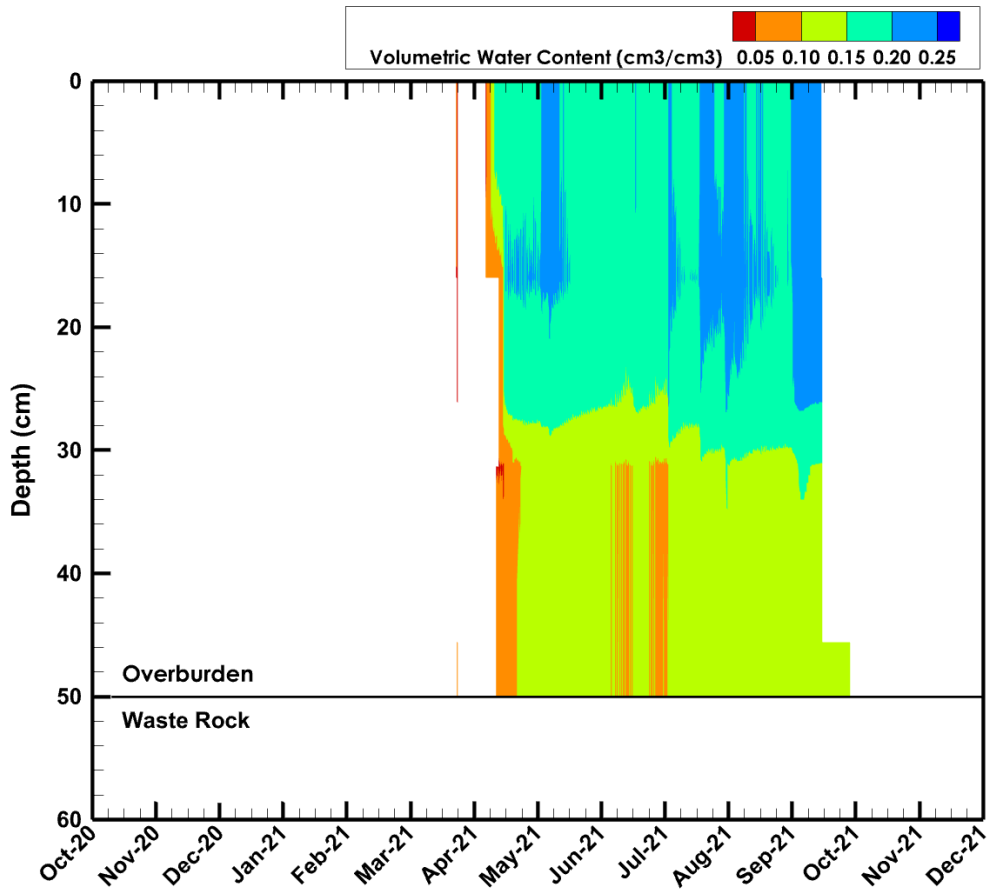


Figure 4.12: Soil VWC measured at the cover system trial Slope soil monitoring station during the monitoring period.

4.3.2 Matric Suction

Matric suction is a measure of the energy state in the system. Knowledge of the potential energy of soil water at discrete points within the soil allows determination of how far the water in a soil system is from equilibrium (Hillel, 1998). In the case of unsaturated soils, the magnitude of potential energy as given by matric suction provides an indication of the energy that would be required to remove an additional unit of water at the soil surface. Matric potential data collected at the Plateau and Slope monitoring stations are illustrated in Figure 4.13 and Figure 4.14.

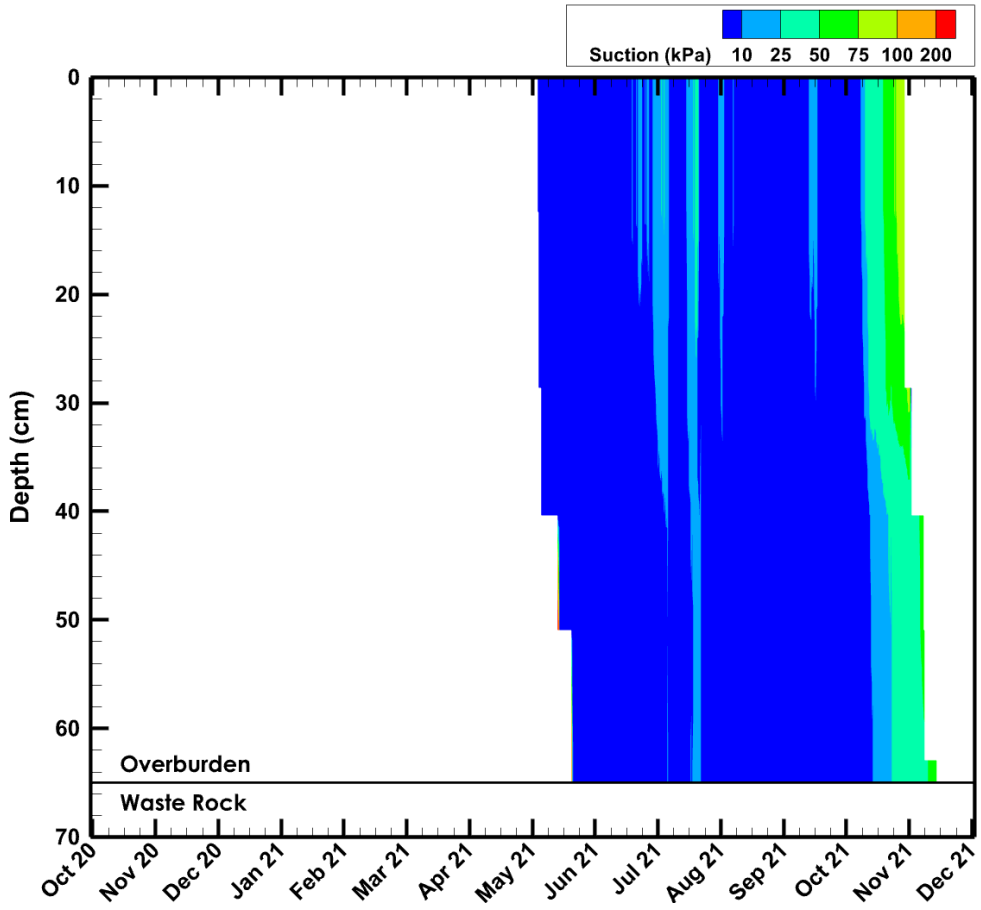


Figure 4.13: Soil matric potential measured at the cover system trial Plateau soil monitoring station during the monitoring period.

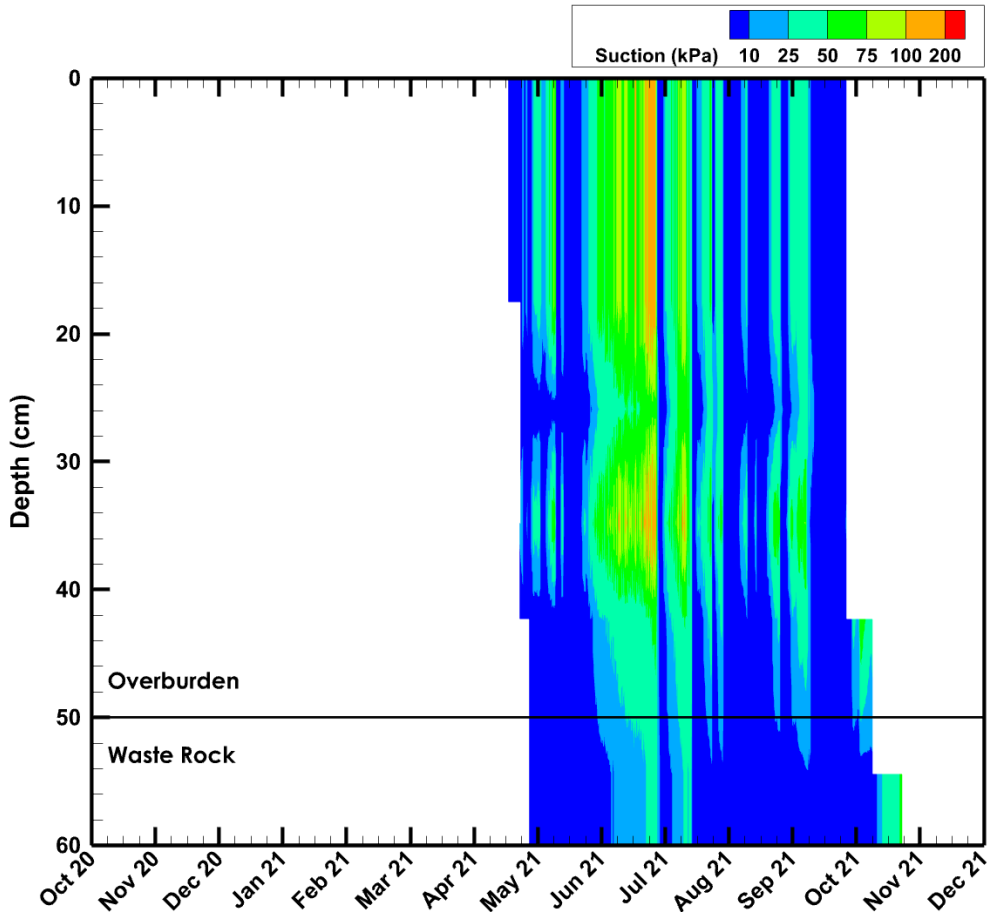


Figure 4.14: Soil matric potential measured at the cover system trial Slope soil monitoring station during the monitoring period.

5 DISCUSSION

5.1 Meteorological Conditions

Throughout the monitoring period, meteorological conditions were recorded at different stations and can provide indications of local weather variability between stations and larger scale climate variability. Meteorological conditions govern the performance of the cover system and the metrics used to evaluate performance, such as subsurface temperatures and water content. Generally, trends in meteorological data measured at site follow expected patterns for an arctic site, with elevated temperatures during prolonged summer insolation, as well as delayed snowpack melting in late spring.

All snow at the base of the Slope station had melted by May 10, 2021, while Plateau snowpack had melted by June 1 and remained snow free for the summer season (Figure 4.8, and Photos B.3 and B.4, Appendix B). The peaks and valleys observed in the snow depth records throughout the period, particularly on the Plateau, indicate that the amount of snow that falls on the site does not necessarily equate to the amount of snow that is input to the water balance during snowmelt due to differences in density, snowpack depth, sublimation, and wind ablation. Spring snow events are correlated with brief sub-zero air temperature excursions and corresponding periodic drops in net radiation. The largest snow event on May 28, 2021 corresponds with a minimum temperature observed of -6.2°C, a net radiation decrease of ~9 MJ/m^2, and a snow depth increase of 10 cm at the Plateau station. The Slope station did not record snow presence in response to this event.

In July 2021, a period of greater air temperature variability correlates with a decrease in wind speed, relative humidity, and rainfall (Figure 4.1, Figure 4.2, Figure 4.3, and Figure 4.6). These meteorological conditions are reflective of a high-pressure area dominating during the month of July. While the monthly precipitation for July exceeds the climate normal, it is dominated by two distinct rain events on July 9th and 10th and on July 25th and 26th and are associated with brief RH increases. In August, there are occurrences of abnormally high rainfall relative to climate normal (Table 4.2), smaller daily temperature differentials, higher humidity, and greater windspeed variability. The variations in meteorological conditions can affect cover system performance by enhancing evapotranspiration, increasing soil saturation, and influencing temperature changes in the subsurface.

5.1.1 Reference Evapotranspiration

Reference evapotranspiration (RE) using the Penman-Monteith method is the sum of transpiration of water within vegetation and evaporation of free water from the vegetation surface for a hypothetical crop of 0.12 m height with 70 sm^{-1} surface resistance and an albedo of 0.23 (Allen *et al.* 1998). RE was calculated from daily measurements of net radiation from the Plateau and Slope stations and air temperature, relative humidity, and wind speed recorded at the site meteorological stations. A

reference crop is used for this method to study evaporative demand independent of vegetation type, development, and management, to allow comparison between soil surfaces.

During the monitoring period, the calculated total cumulative RE was 312.0 mm and 315.0 mm for the Slope and Plateau respectively, with the highest RE occurring in June and July (Figure 5.1, Figure 5.2) when relative humidity was lowest, daily temperature maximums were highest, and precipitation was high. Evapotranspiration decreased in August and September due to colder temperatures and shorter days resulting in less evaporation and vegetation transpiration.

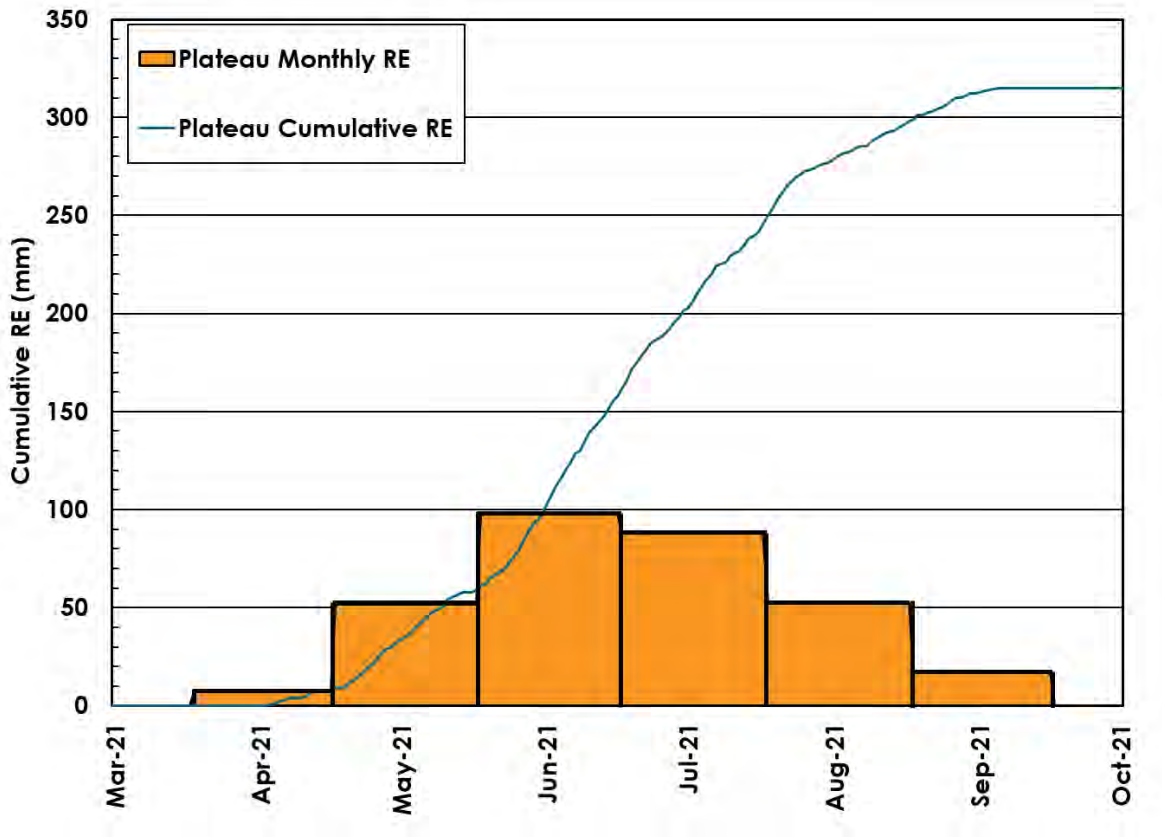


Figure 5.1: Reference evapotranspiration calculated for the cover system trial Plateau during the monitoring period.

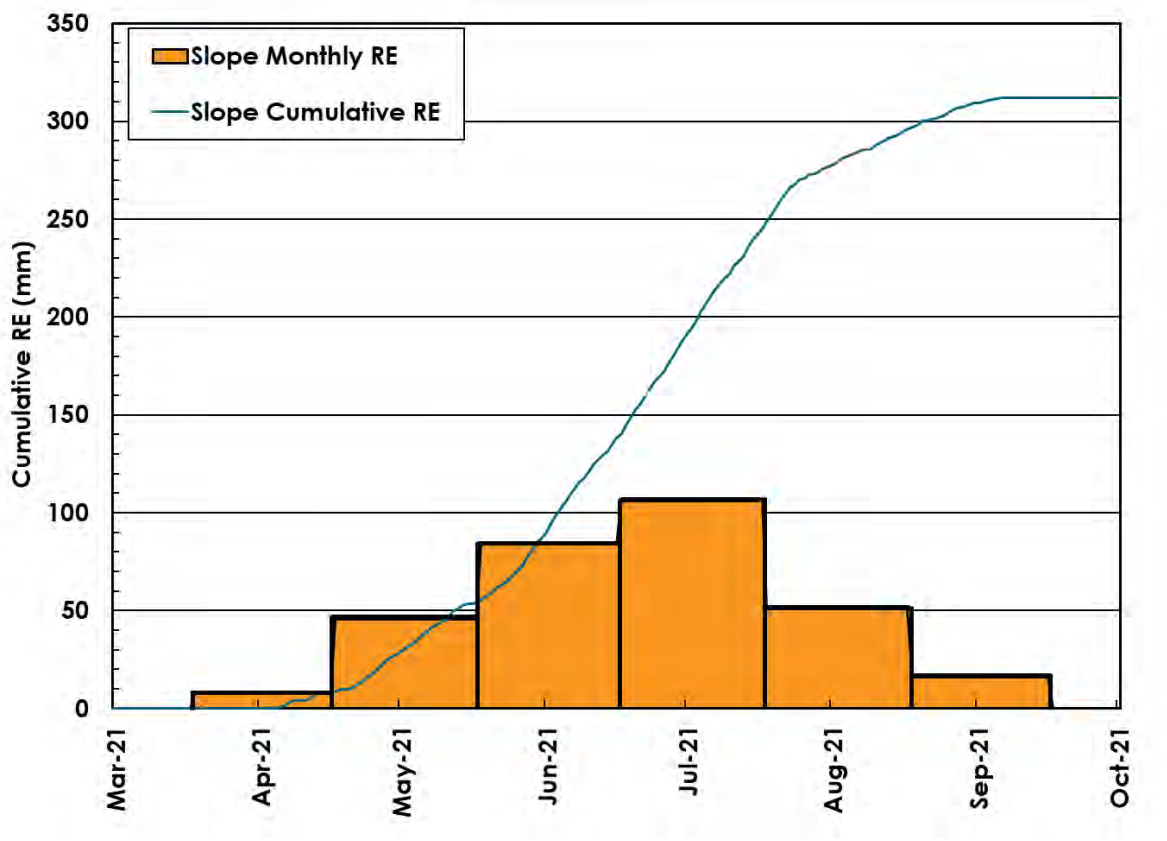


Figure 5.2: Reference evapotranspiration calculated for the cover system trial Slope during the monitoring period.

5.2 Subsurface Temperature

Cover system soil temperature provides a useful indicator of the energy balance of the system. How energy is partitioned between the cover system and the overlying atmosphere will dictate the eventual performance of the system. Partitioning of energy is especially important in subarctic environments, as climate aspects can be considered to achieve closure objectives.

Soil temperature reflects the depth and timing of cover system freeze-thaw cycles that in turn affects the water balance, as surface infiltration and subsurface flow is inhibited in frozen soil (temperatures < 0°C). The timing of frozen conditions throughout the entire soil profile is also important for the water balance, as subsurface flow is possible at depth in the cover system even when infiltration is inhibited by the frozen ground surface (e.g., early winter). In addition, freeze-thaw cycles result in evolution of the cover system, such as changes in density, hydraulic conductivity, and water storage capacity. An understanding of subsurface temperature trends can also inform on growing conditions for vegetation on the cover system once vegetation is established.

In subarctic, high latitude regions, net radiation at the cover system surface determines soil temperatures and can be a primary control on cover system performance. Therefore, slope aspect can influence performance of the cover system. The aspect of the instrumented slope on the cover system trial area is in a southeast direction. During spring and fall months when there are limited daylight hours and the sun rises lower in the horizon, the Slope station can receive greater amounts of net radiation than the Plateau station or portions of the WRSA with a northern aspect. In contrast, during the peak summer months, when near 24-hour daylight occurs, the Plateau station may receive the greatest input of net radiation.

At the start of the monitoring period in October 2020, both the Slope and Plateau station cover system profiles were frozen down to waste rock (Figure 4.9, Figure 4.10). The Plateau cover system profile then started freezing from the surface down in late October 2021 and was completely frozen by early November, while the Slope profile began to freeze in early October and was also completely frozen by early November. The cover systems at the Plateau and Slope are approximately 65 cm and 50 cm thick respectively, which likely accounts for the relatively rapid freezing through the profile. Ground thaw started in mid-April and late March for the Plateau and Slope, respectively. Differences in freezing and thawing timing are attributed to differences in sun exposure and snow cover persistence (Figure 4.8).

The site meteorological stations recorded consistent daily maximum temperatures below freezing from October 2020 until mid April 2021, with one exception on January 11th where the daytime high was 0.8°C. Concurrently, net radiation at the Plateau and Slope stations remained negative for the period, indicating the loss of energy required for freezing. Positive radiation input began to rise rapidly from mid April to early May to between 5 and 10 MJ/m^2. Ground thaw at the Slope station started within a week of the above 0°C air temperatures in the spring, while the Plateau station surface thaw began a few weeks later. Rapid thaw at the stations is likely facilitated by the infiltration of warmer water from the melting snow above, as well as increased net radiation resulting from rapidly increasing daylight hours. During June and July, the Slope station experienced greater soil temperature variability than the Plateau station. The onset of sub-zero daytime highs started inconsistently in late September 2021, but ground freeze didn't start at either station until October/ November. This delay in freezing suggests that a few weeks of sub-zero air temperatures are required for the ground surface to freeze.

5.3 Soil Water Conditions

The VWC at the Plateau monitoring station generally increased with depth during the spring freshet period, indicating downward infiltration of meltwater (Figure 4.11). For the remainder of summer period, the degree of saturation in the upper ~15 cm and the bottom ~40 cm was consistently between 0.49 and 0.58 cm^3/cm^3. However, from 15 to ~25 cm there was a layer of slightly lower VWC, which could be a layer with differing texture or density characteristics.

The volumetric water content (Eq. 1; VWC) of a soil is the ratio of the volume of water (v_w) against the total volume of the soil (V_t), while degree of saturation (Eq. 2; S) is the ratio of the volume of water (V_w) in a soil against the total volume of voids (V_v) in that soil.

Eq. 1:

$$VWC = \frac{V_w}{V_t}$$

Eq. 2:

$$S = \frac{V_w}{V_v}$$

The VWC of the Slope monitoring station profile is lower throughout the monitoring period compared to the Plateau station (Figure 4.12). The VWC and degree of saturation of the bottom 20 cm of cover system on the slope did not exceed 0.15 and 0.29 cm^3/cm^3, throughout the monitoring period. The lower VWC on the slope in general, and particularly at the base of the cover system is attributed to greater lateral flow on the slope. During spring melt and brief periods in early and late July the degree of saturation decreased to below 0.10 cm^3/cm^3. Throughout the summer season, rainfall events percolate to between approximately 12 and 25 cm below the surface and the increase in VWC and degree of saturation typically persists for approximately one week.

After spring melt, the Plateau station primarily recorded matric suctions < 10 kPa and generally remained at this level throughout the entire cover system column until early October when suction started to increase to between 75 and 100 kPa from the top down (Figure 4.13). The Slope station exhibited similar matric suction at the onset of freshet, but suction quickly increased by early June to above 50 kPa and peaked at between 100 and 200 kPa in late June (Figure 4.14). The increased suction period at the Slope station was punctuated by rainfall events that dropped the suction in the entire profile, reflecting percolation of rainfall events. The patterns observed for matric suction data are consistent with those observed in VWC data, and suction data patterns are more prominent and easier to interpret.

Water storage within the cover system profiles was calculated at the two stations using measured VWC and the thickness of discrete sections of the soil profile centered around each VWC sensor (e.g., a 10 cm interval in the soil profile centered around a sensor measuring a VWC of 0.25 cm^3/cm^3 yields 2.5 cm of water storage). Hence, water storage within the cover system profiles is the sum of the water storage calculated for the discrete sections. Water storage is an estimation of the volume of water contained within the cover system at a given time and facilitates understanding of changes in the volume of water within the cover system over time. Change in water storage within the cover system is a key performance metric and a water balance parameter and informs on the timing and magnitude of infiltration into the cover system after precipitation events, as well as movement through the cover system.

Storage increased at both the Plateau and Slope stations upon spring melt in May 2021 as the ground thawed and some snowmelt water was able to infiltrate the cover system (Figure 5.3). Snowmelt in April would have increased density of the snowpack until the snowpack was ripe, and then resulted in snowmelt runoff and infiltration into the cover system. The spring increase in storage was also facilitated by the onset of rainfall events, then storage gradually decreased during the dry month of June. Throughout the remainder of the summer, storage increases are seen after rainfall events followed by gradual declines, indicating NP and evapotranspiration processes removing water from the system. Difference in water conditions between Plateau and Slope suggests that different landscape elements exhibit differences in storage, and that runoff rates vary as a function of landform location.

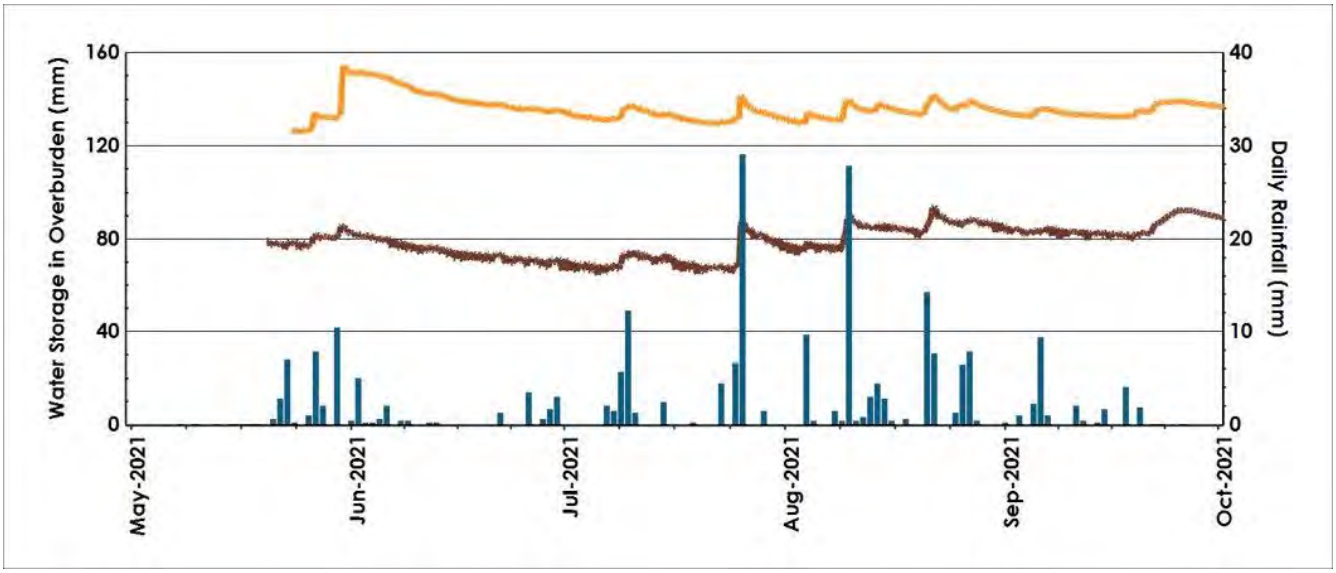


Figure 5.3: Total soil water storage calculated for the cover system trial Plateau and Slope monitoring stations during the monitoring period.

5.4 Material Characterization

Material sampling and testing for characterization was completed during construction of the cover system field trial (Okane, 2021b). The results of the program indicate that cover system overburden material is granular and non-cohesive, with a high proportion of gravel and sand sized particles. The proportion of fines (silt and clay sized particles) ranges from 19% to 31%. The materials have a low plasticity (<10), which is consistent with their relatively low clay content (5% or less).

5.5 Saturated Hydraulic Conductivity

The field saturated hydraulic conductivity (K_{fs}) measured of 7.0×10^{-4} cm/s is orders of magnitude greater than laboratory test results, which ranged from 2.5 to 4.4×10^{-7} cm/s. Laboratory tests were conducted at a target compaction level of 95% of Standard Proctor, which is representative of a

highly compacted material. Examination of the cover system field trial overburden surface during Okane's September 2021 site visit revealed it is not uniform and is subject to formation of cracks and erosional features. The cover system was placed without compaction and has been subjected to freeze-thaw cycling; therefore, density and water content of the placed material may vary over the covered area. In addition, field conductivity testing provides a measurement representative of a greater range of particle sizes. Heterogeneity in placement, presence of erosional features, lack of compaction, and freeze-thaw cycling are expected to contribute to a higher saturated hydraulic conductivity at field scale. Field saturated hydraulic conductivity measurement is a useful point measurement, but a more comprehensive testing program is recommended to characterize the hydraulic conductivity of the cover system.

The hydraulic conductivity of the cover system materials is an important control on cover system performance. The rate at which cover system material can conduct water will govern the overall efficacy of the system. Materials with high conductivity rates will allow water that infiltrates to be quickly transported past the base of the cover system into the underlying waste. Water that percolates past the cover system will most likely report to downstream receptors and become important in the fate and transport of constituents of interest. Conversely, lower hydraulic conductivity rates will keep water available in the cover system until such a time as evaporative demand from the surface can evaporate stored water. The hydraulic conductivity measured on site is considered high and is reflective of the coarse texture of the material. A future cover system design should investigate how a compacted layer of the material could be used in designing a system that reduces net percolation if required.

5.6 Water Balances

Cumulative water balance fluxes were calculated over the monitoring period for both Slope and Plateau cover system monitoring locations to estimate the volume of water percolating through the cover system to the underlying waste rock. A description of the model and methods used to obtain each component of the water balance, and water balance results are discussed below.

5.6.1 Model and Methods

Water balance models for Slope and Plateau locations were completed with Okane's proprietary "Water Balance Model", developed with GoldSim Software (GoldSim, 2021) for the period between October 24, 2020 and November 30, 2021 with monitoring data summarized in the previous sections. The following water fluxes in mm/day were measured or estimated to solve the water balance equation (Eq.3):

$$\Delta S = P + M - AET - R - NP$$

where:

- P = rainfall;
- M = snowmelt;
- AET = actual evapotranspiration;
- R = runoff;
- NP = net percolation; and,
- ΔS = change in soil water storage.

Effective precipitation (rainfall + snowmelt) was estimated using with an effective precipitation module included in the Water Balance model and measured air temperature, total precipitation, and snow depth. For the Slope location, snowmelt volume was assumed to be half of the total calculated snowmelt for the Plateau location based on differences in measured snow depth (Section 4.1.7). The effective precipitation flux was used as a direct input to the Water Balance Model.

The AET flux was calculated as a term in the water balance calculation with RE and soil water storage as a limitation (Section 5.1 and Section 5.3). Net percolation was estimated using VWC data and the matric suction gradient calculated for the base of the cover system, and conservative flow limitations of the cover system (hydraulic conductivity) (Section 4.3).

Runoff was assumed to occur due to three processes:

- Snowmelt is applied to the cover system with a frozen layer at the surface that prevents infiltration;
- Rainfall intensity is greater than the potential surface infiltration rate (referred to as Hortonian flow); and,
- The cover system is saturated so no additional water can infiltrate and must runoff (referred to as saturated overland flow).

Hence, the model was programmed to generate runoff if:

- The temperature measurement for the sensor at the surface of the soil profile was below 0°C;
- Rainfall intensity was greater than k_{sat}, in which case: $R = P - k_{sat}$; and,
- The cover system is fully saturated.

The amount of water required to fully saturate the cover system was estimated by multiplying the thickness of the cover system by the material porosity. Material porosity of the cover system material

was set as 0.34 based on laboratory results from samples collected during the material characterization program.

Once the effective precipitation, runoff, NP, and AET components of water balance were initially estimated, the storage change calculated by the water balance then was compared with measured storage change and the differences were recorded. AET, NP, or runoff values were then adjusted on a daily basis according to the recorded differences, to match the calculated change in storage more closely to the measured change in storage. A water balance is an indirect method to calculate NP; therefore, the uncertainty associated with the individual components of the water balance are compounded when estimating NP. Water balance uncertainties were constrained to the extent possible using engineering judgement.

5.6.2 Model Results and Discussion

Estimated cumulative water balance fluxes for the cover system Slope and Plateau monitoring locations are summarized in Table 5.1 and shown in Figure 5.4 and Figure 5.5, respectively. The water balance results indicate:

- Net percolation is predicted to be 31% and 37% of effective precipitation for Slope and Plateau locations, respectively, corresponding with high NP rates according to the INAP Guidance Document for the climate region (INAP 2017).
- Runoff accounts for 29% and 32% of the total water balances. For the Slope location, approximately half of the runoff was produced while the soil was frozen, and the other half was produced during major rainfall events in the summer. Comparatively, for the Plateau location, more runoff was produced during snowmelt while the cover system surface was frozen.
- The site experienced major rainfall events in July and August 2021, which resulted in increases in runoff and stored water at both monitoring locations.
- Snowmelt and AET can be variable across a landform due to differences in parameters such as snow drift and accumulation, vegetation, and location on the landform (plateau vs. slope).

Table 5.1: Cumulative water balance fluxes during the monitoring period. All fluxes are presented in mm and % of effective precipitation.

Site	Rainfall	Snowmelt	Runoff	AET	NP	Meas ΔS	Calc ΔS
Plateau	269 (63%)	160 (37%)	125 (29%)	146 (34%)	160 (37%)	3 (1%)	3 (1%)
Slope	269 (77%)	80 (23%)	111 (32%)	118 (34%)	109 (31%)	10 (3%)	10 (3%)

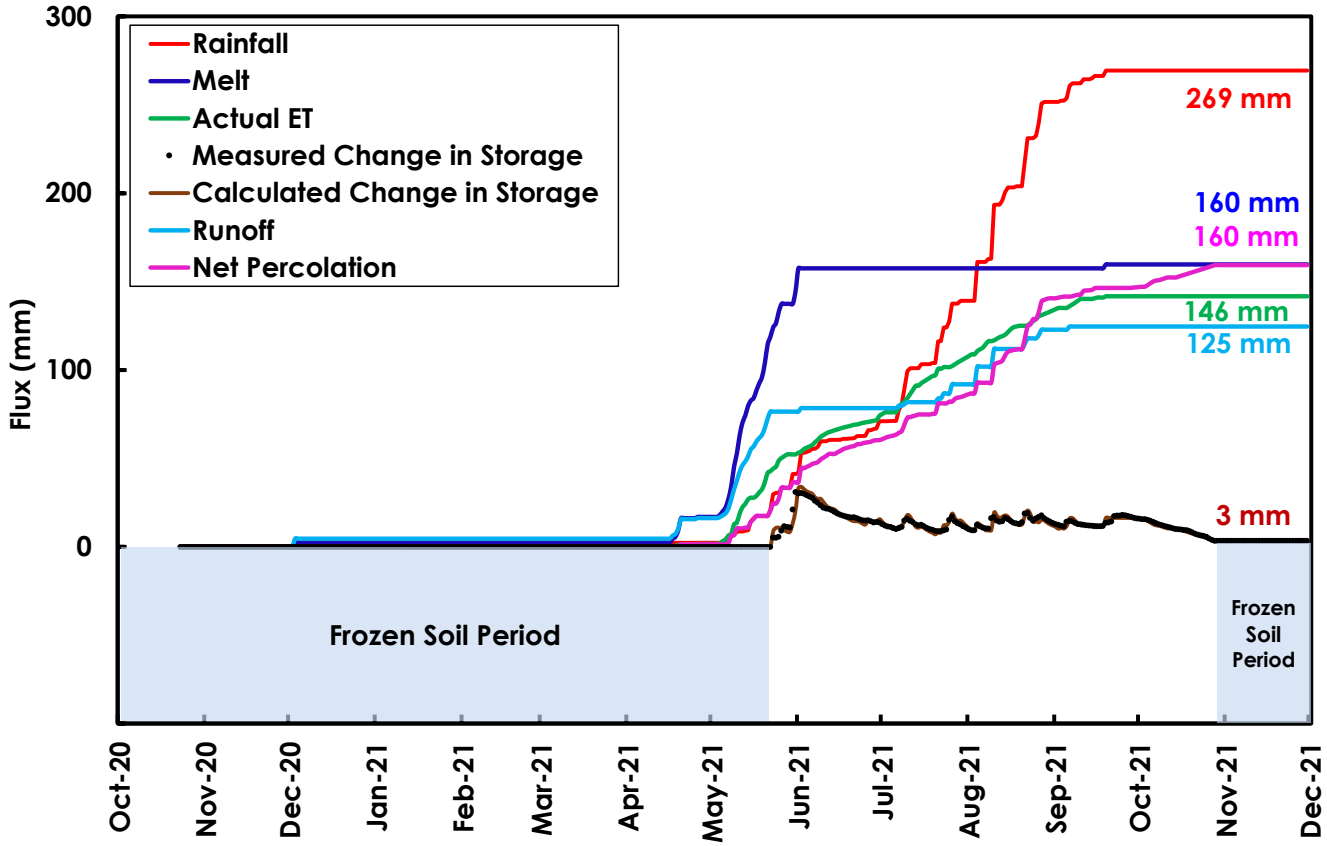


Figure 5.4: **Water balance fluxes calculated for the cover system trial Plateau during the monitoring period.**

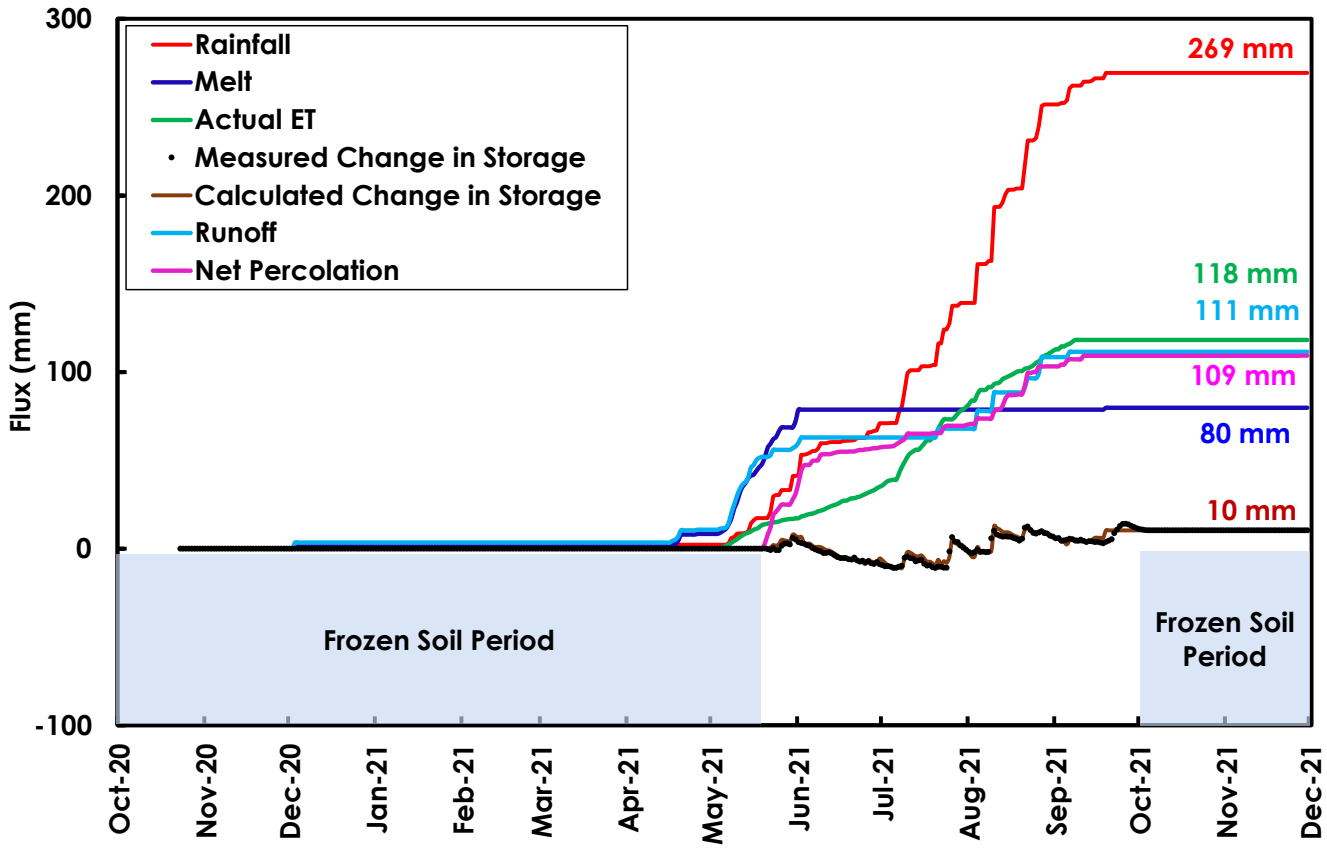


Figure 5.5 Water balance fluxes calculated for the cover system trial Slope during the monitoring period.

Water balance results generally align with the conceptual model of performance for the base case cover system. NP rates are higher on the Plateau than the Slope, fall within the expected range for the climate regime (20% to 50%). It was expected that spring runoff from the Slope area would be greater than on the Plateau; however, differences in snow accumulation resulted in greater Plateau spring runoff. Runoff resulting from rainfall events throughout the non-frozen period was greater on the Slope than the Plateau, as expected. Differences in snowmelt runoff values resulted in final runoff rates being similar at the Plateau and Slope.

6 SUMMARY

Evaluation of the performance of the base case cover system at Eagle Mine was completed for October 24, 2020, to November 30, 2021. Data from performance monitoring and material characterization programs were used to evaluate NP through the cover system using a water balance model. As outlined by the conceptual model, results from water balance modelling indicate that the rate of NP into the cover system falls within the expected range of 20% to 50% for store and release covers for the site climate regime, based on INAP, 2017. Previous modelling of the cover systems predicted 15% to 45% NP for the store and release cover system (Okane, 2014). Furthermore, greater NP is observed on the Plateau (37% of effective precipitation) relative to the Slope (31% of effective precipitation), as expected. Variability in performance of the cover system is associated with localized variations is snow depth, freeze thaw cycles, and water storage.

Continued field trial cover system performance monitoring will provide VG with additional data to confirm if cover system performance is consistent year to year and allow various types of climate years to be evaluated. Based on the first year of monitoring, future cover system design work could investigate how a compacted layer of overburden material could be used in designing a system that reduces NP rates further.

7 RECOMMENDATIONS

The following actions are recommended for the next monitoring period to continue to provide high quality monitoring data and progress reclamation research at Eagle Mine:

1) Continuation of monthly data collection and visual inspections of performance monitoring stations by VG.

2) Continuation of completion of snow surveys, to be completed at a minimum annually in spring prior to snowmelt.

3) Installation of a performance monitoring station on a north-facing aspect of the WRSA to capture differences in water content, net radiation, and snow depth across different aspects of the landform.

4) Completion of a comprehensive annual field saturated hydraulic conductivity testing campaign to capture differences in this parameter across the cover system field trial, and track cover system evolution over time.

5) Investigation of how a compacted layer of overburden could reduce NP rates further, if required.

8 REFERENCES

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International Network for Acid Prevention (INAP), 2017. Global Cover System Design – Technical Guidance Document. September.

Okane Consultants Inc., 2014. Eagle Gold Project – Further Assessment of Closure Cover System Designs for Heap Leach Facility and Waste Rock Storage Areas. Submitted to Victoria Gold, April.

Okane Consultants Inc., 2021a. 1048-005-005 Victoria Gold Cover System Performance Monitoring Instrumentation Record of Installation. Submitted to Victoria Gold, February.

Okane Consultants Inc., 2021b. Victoria Gold Cover System Construction Quality Assurance and Quality Control Report. Submitted to Victoria Gold, February.

Appendix A

Drawings



okane

Integrated Mine Waste Management and Closure Services
Specialists in Geochemistry and Unsaturated Zone Hydrology

AS BUILT

Legend/Notes

NOTE

1. ALL UNITS IN METRES U.N.O.
2. IMAGERY AND TOPOGRAPHY PROVIDED BY THE CLIENT.
3. CLIENT PROVIDED AS-BUILT DATA FOR COVER SYSTEM PLACE ON PLATEAU, COLLECTED 10-29-2020.
4. FINAL TRIAL BOUNDARY ESTIMATED BASED ON CONTOUR DATA.

LEGEND

AS-BUILT COVER CONTOUR — 1300

EXISTING CONTOUR — 1300

TRIAL BOUNDARY

1370 DUMP BOUNDARY

20 10 0 20 40 60 80 100m

SCALE 1:2000

Revision	Description	Date
3		
2		
1		
0	AS-BUILT DATA	2020/11/24
A	ISSUED FOR CLIENT REVIEW	2020/09/24

Client/Project

VICTORIA GOLD CORP
TSX | VGCX

VICTORIA GOLD CORP.
WASTE ROCK STORAGE FACILITY
COVER SYSTEM TRIAL

Drawn by: H. COOPER

Designed by: L. DOUCETTE

Approved by: L. TALLON

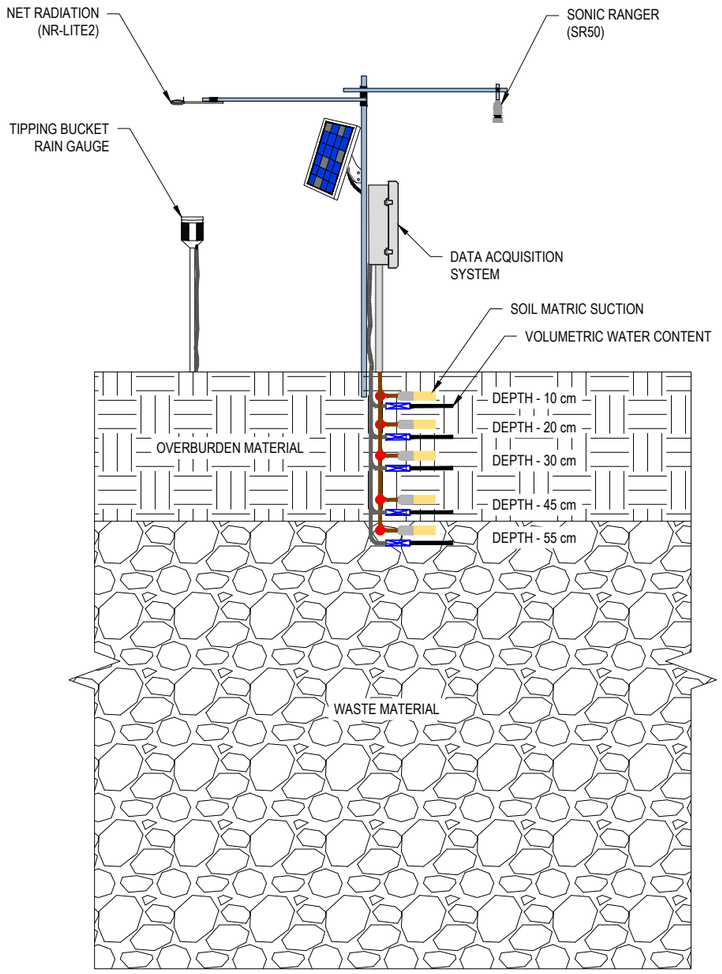
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PLATEAU COVER SYSTEM
PLACEMENT - AS-BUILT

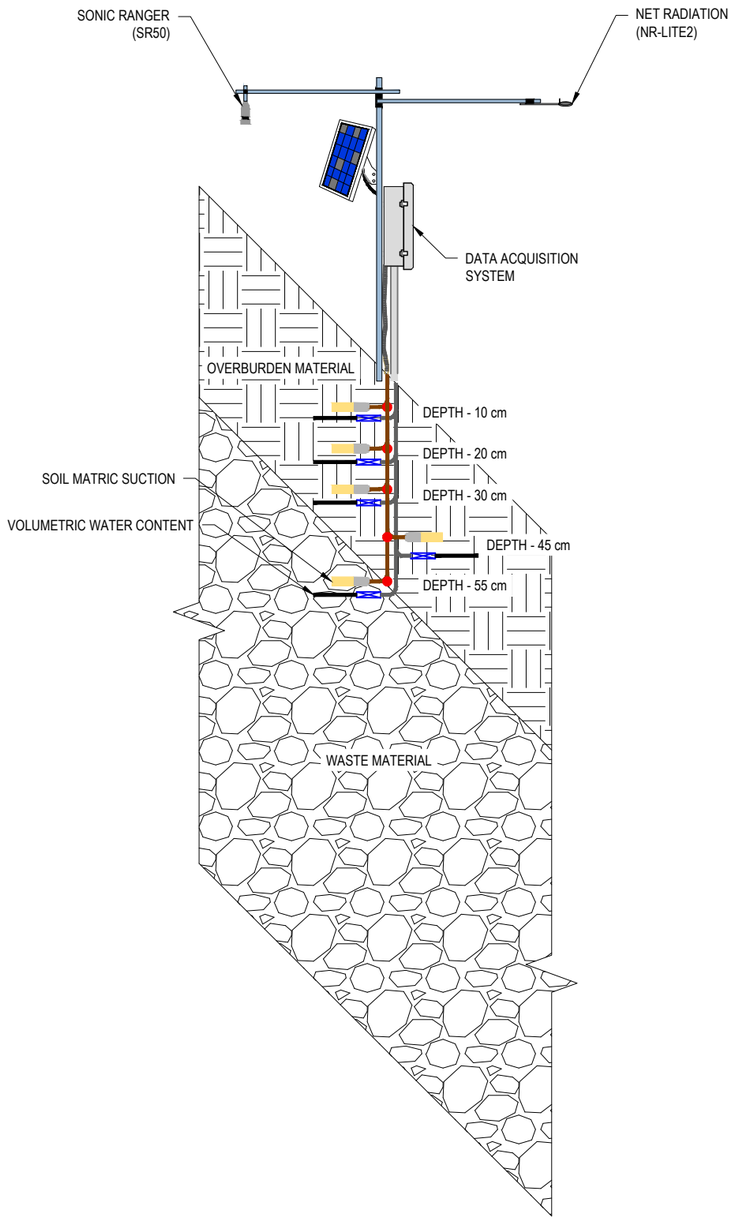
Project no.	Drawing no.	Sheet	Revision
1048-005	1048-005-020	ANSI B	0

Last Saved:1/29/2021 11:19 AM

Cadfile Name:1048-005-020.dwg



PLATEAU SURFACE MONITORING STATION
1:20



SLOPE SURFACE MONITORING STATION
1:20

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PRELIMINARY
NOT FOR CONSTRUCTION

Legend/Notes

NOTE

1. ALL UNITS IN METRES U.N.O.
2. INSTRUMENTATION DEPTHS ARE PROPOSED AND SUBJECT TO CHANGE.

LEGEND

CS616 VOLUMETRIC WATER CONTENT SENSOR

CS229 SOIL MATRIC SUCTION SENSOR

Revision	Description	Date
3		
2		
1		
0		
A	ISSUED FOR CLIENT REVIEW	2020/09/01

Client/Project

VICTORIA GOLD CORP
TSX | VGCX

VICTORIA GOLD CORP
2020 RECLAMATION AND CLOSURE
PLAN ACTIVITIES

Drawn by
H. COOPER

Designed by
OKANE CONSULTANTS

Approved by
L. DOUCETTE

Drawing title

SOIL MONITORING STATION
COVER PROFILES

Project no.	Drawing no.	Sheet	Revision
1048-005	1048-005-002	ANSI B	A

Last Saved:9/1/2020 9:16 AM

Cadfile Name:1048-005 Victoria Gold Proposed Instrumentation.dwg

Appendix B

Site Photos



Figure B.1 Plateau performance monitoring station.

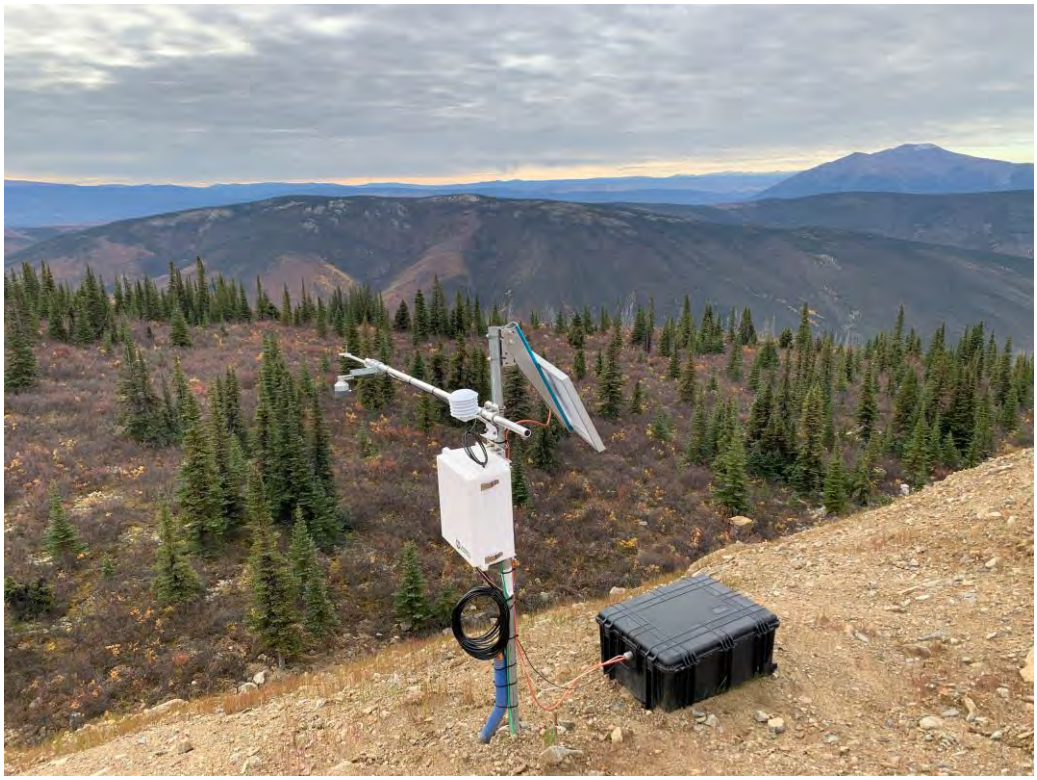


Figure B.2 Slope performance monitoring station.



Figure B.3 Plateau prior to (Feb 28, 2021, top) and after (May 01, 2021, bottom) initial snow melt. Note that there are no photos available between March 1, 2021 and April 25, 2021.



Figure A.4 Plateau prior to (May 29, 2021) and after (May, 01, 2021 a spring snow event and subsequent melt.

Appendix C

Record of Installation and Record of Construction Reports

Victoria Gold Cover System Performance Monitoring Instrumentation Record of Installation

February 3, 2021



Victoria GOLD CORP

okane

Integrated Mine Waste Management
and Closure Services
Specialists in Geochemistry and
Unsaturated Zone Hydrology

Victoria Gold
Cover System Performance Monitoring Instrumentation
Record of Installation

1048-05-005

February 2021

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Rev. #	Rev. Date	Author	Reviewer	PM Sign-off
0	Jan 28, 2021	AH	TB	TB
1	April 8, 2021	AH	LD	LD

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1 BACKGROUND

Victoria Gold Corp. (VG) owns and operates the Eagle Gold Mine on the Dublin Gulch property located in central Yukon Territory. Version 2020-01 of the Reclamation and Closure Plan (RCP) was submitted to the Yukon Water Board (YWB) and the Department of Energy, Mines, and Resources (EMR) on October 23, 2020 in fulfillment of the requirements of the mine water use licences issued by the YWB.

Victoria Gold has committed to a phased approach to reclamation and closure through operations and into decommissioning. The current RCP outlined a series of tasks for a proposed research program in support of ongoing reclamation and closure planning. Previous research tasks in the RCP included research into reclamation cover system configurations and the processes governing performance. Relocation of an overburden stockpile presented an opportunity to advance cover system monitoring in support of progressive reclamation. VG contracted Okane for characterization and instrumentation of the relocated overburden stockpile to take advantage of the relocation by developing an understanding of performance for a base case cover system design configuration (Okane 2020a).

The base case cover system provided the opportunity to track the evolution of the cover system in response to site-specific processes (physical, chemical, and biological) to enhance understanding of key characteristics and processes that control cover system performance. Cover system performance will primarily be assessed in terms of net percolation of meteoric waters, and geotechnical, geomorphological, and geochemical stability. It was proposed that a performance monitoring system with automated measurements be implemented to evaluate the base case cover system constructed from relocation of the overburden stockpile. Okane provided VG an instruction manual (Okane, 2020c) that detailed the proposed sensor locations, depths, and installation procedures. Design drawings of the final station details are provided in Appendix A.

1.1 Project Objectives and Scope

A key objective of the proposed research program is to measure and understand a base case cover system (0.50 m overburden) water dynamics, such that an appropriate estimate can be made of net percolation rates through the cover system. Net percolation rates can then be used by VG to determine whether the base case cover system implementation is likely to result in achieving site water quality criteria both during operations and at closure and to update the proposed cover system configuration, if necessary. These efforts to instrument a cover system trial are in service of advancing commitments made in the RCP (Okane, 2020d).

A secondary objective of the research program is to demonstrate that the base case cover system design is geotechnically, geomorphologically, and geochemically stable. Thus, it will be necessary to demonstrate that the integrated performance of the system is sufficient to meet closure performance objectives without the need to re-slope the WRSAs from the current angle of repose.

The scope of work is to install a performance monitoring program for the relocated overburden at the Platinum Gulch WRSA 1370 Dump.

There are two full meteorological stations, the Potato Hills and Camp stations, are located near the 1370 waste rock storage area (WRSA) that are collecting parameters required for the water balance. Some data collected by the Potato Hills and Camp meteorological stations will be used for the trial study, although this does not present the ideal situation due to the distance and difference in elevation between the stations and the 1370 WRSA. Therefore, sensors to monitor net radiation, snow depth, and rainfall were installed to monitor site-specific parameters on the plateau of the base case cover system constructed from the relocated overburden. In addition, meteorological sensors were installed on the slope area soil monitoring station to monitor net radiation and snow depth, as these parameters are aspect dependent.

The soil monitoring system design is for one soil monitoring station on the covered area of the WRSA plateau at a proposed location of 8 W 460592 E 7099173 N and one soil monitoring station on the adjacent covered slope at a proposed location of 8 W 460550 E 7099045 N. The actual location of the plateau station is 8 W 460548 E 7099154 N, while the actual location of the slope station is 8 W 460551 E 7099045 N. Maps of the proposed and actual station locations are provided in Appendix A. This design ensures that spatial and slope variability of soil parameters is captured. It was recommended that five (5) volumetric water content probes and five (5) matric suction / temperature probes be installed at each monitoring station: four (4) pairs in the cover system, and one (1) pair in the upper waste material. The volumetric water content and matric suction measurements will monitor water movement through the cover system and confirm the timing and magnitude of net percolation. Five sensors are the minimum recommended for the soil monitoring station based on the 0.5 m cover system depth, in order to adequately determine soil water dynamics of the cover system and upper waste material.

2 INSTALLATION DETAILS

The monitoring system design for the cover system trial includes one monitoring station on the covered area of the WRSA plateau and one monitoring station on the adjacent covered southeast slope. Okane developed a finalized design and instrumentation installation plan to be completed by VG site personnel after cover system construction (Okane, 2020c). In addition, Okane provided virtual training via PowerPoint presentation to VG site personnel in instrumentation installation procedures prior to installation, as well as a PowerPoint presentation on maintenance and data collection procedures following installation. Qualified, experienced Okane personnel were available during the duration of instrumentation installation for virtual oversight. Reports were provided to Okane by VG personnel approximately every second day throughout the installation to facilitate oversight of instrumentation installation, and regularly scheduled meetings with VG and Okane staff were held to review progress. Survey control was provided by VG during instrumentation installation to assist in documentation.

Station profile design drawings are provided in Appendix A. The datalogger programs are described in Appendix B. Photographs of station installation are located in Appendix C.

2.1 Data Acquisition System

A robust power system was designed for the monitoring stations to maintain station power through long winters with low solar energy. Soil and meteorological sensors for each station are controlled with one (1) CS CR1000X-XT measurement and control datalogger supplied with power by one (1) CS SP30R 30 W solar panel with 12V regulator and two (2) NAPA Deep Cycle Battery BCI No. 31 650 A in parallel. Soil sensors are wired to a CS AM16/32B-XT multiplexer. Schematics of datalogger and multiplexer wiring are provided in Appendix A. The datalogger and multiplexer are contained in a CS ENC 14/16 fiberglass enclosure mounted to a 4x4" fencepost in a 20 L pail filled with concrete and grounded with a CS L31163 basic grounding kit. The batteries are protected in a watertight container. Sensor wires from the sensors to the data acquisition system (DAS) are protected in Schedule 40 PVC tubing. The datalogger programs are provided in Appendix B.

2.2 Meteorological Sensors

The purpose of the above ground components of the monitoring system is to quantify elements of an energy and water balance for the cover system. Net radiation and snow depth are measured at both the plateau and slope monitoring stations, as these parameters are aspect-specific, while rainfall is measured at the plateau station. Meteorological instruments installed include:

- Kipp and Zonen NRLite2 net radiometers measure the net input of radiation into or out of the soil-atmosphere boundary. Net radiation is important in understanding temperature fluctuations in the cover system and is the primary energy input for evaporating water from the cover system surface. The net radiometers are mounted to the station post with a CS L26120 mount kit with built-in leveling.

- Campbell Scientific (CS) SR50ATH sonic ranging sensors measure the depth of snow above the cover system surface. Snow represents a major input of water into the cover system. Knowing how snow is partitioned between runoff, storage in the cover system, or percolation through the cover system will have a large effect on the design of the closure system. Sonic sensors determine distance by emitting an ultrasonic pulse and then measuring the elapsed time between the emission and return of the pulse. The temperature probe allows the SR50ATH to output temperature-corrected values. The integrated heater prevents ice and frost from coating the transducer. The temperature sensor is mounted in a RM Young 41303-5A radiation shield.

- An EML Metric ARG314 tipping bucket rain gauge (TBRG) with 0.2 mm resolution measures the amount of liquid precipitation that is incident to the cover system surface. Rainfall is the primary input of liquid water to the cover system during periods when the cover system is not frozen. Knowing the volume of precipitation incident to the cover system will allow for development of a defensible cover system water balance. The aerodynamic shape of the TBRG reduces wind loss of rainfall over the orifice, improving accuracy of the measurement. The rain gauge is mounted on a 2" galvanized steel post in a concrete-filled pail with a flat platform.

Net radiation will be measured every minute, snow depth will be measured once per hour, and rainfall will be measured on an event basis. Meteorological parameters will be output into daily and hourly data tables.

2.3 Soil Monitoring Stations

Measurements taken within the cover system provide insight into the partitioning of water at the cover system-atmosphere interface and the cover system-waste material interface. Measured parameters are volumetric soil water content, soil temperature, and soil matric potential. Drawings of station locations and Schematics of the soil sensor installations are located in Appendix A.

High frequency data collection ensures that cover system water balances can be estimated on a daily basis. Soil parameters will be measured every four (4) hours to capture any changes that may occur following precipitation events.

2.3.1 CS 616 Sensors

CS616 time domain reflectometry (TDR) sensors measure the volume of water in the soil at given depths throughout the profile and add to measurements from adjacent sensors to determine cover system water storage. Soil water content is the primary parameter used when developing water balance inputs to a cover system model for a reclamation cover system. The changes of water storage in the cover system provide insight into how the system behaves, and whether water is stored and subsequently released through evaporation, runs off overland, or is transported through the cover system into the underlying waste material.

A CS616 sensor consists of two stainless steel rods (300 mm long x 3 mm in diameter; referred to as the wave guide) connected to a printed circuit board encapsulated in epoxy. An electromagnetic pulse is propagated along the wave guide and the time between sending the original pulse and receiving the reflected pulse is measured. The time period is a function of the apparent dielectric constant of the soil, which is strongly dependent on the volumetric water content of the soil.

Okane applies a temperature correction to CS616 TDR output when the period output is ≥27:

1) $p = \tau + (20 - T)(0.526 - 0.052 + 0.00136\tau^2)\ if\ \tau < 27$

2) $p = \tau + (20 - T)(0.009\tau - 0.013)\ if\ \tau \geq 27$

Where p = period corrected for soil temperature
τ = period measured by CS616 TDR and output by datalogger
T = soil temperature measured by 229 sensor (°C)

Material specific calibration curves are required for correction of CS616 data following installation and these calibration curves were developed in Okane's Saskatoon laboratory from overburden and waste rock material collected during construction and installation. It should be noted that the calibration for the waste rock material is currently being undertaken.

3) $VWC_{OB} = 0.0000408p^3 - 0.003961p^2 + 0.1349p - 1.326$

4) $VWC_{WR} = Ap^3 + Bp^2 + Cp + D$

Where VWC_{OB} = volumetric water content (cm^3/cm^3) of overburden
VWC_{WR} = volumetric water content (cm^3/cm^3) of waste rock

2.3.2 CS 229 Sensors

CS 229 heat dissipation matric potential sensors measure the temperature and stress state of the soil, expressing the wetness of the system in terms of a potential, at given depths

throughout the profile. Soil temperature is an important parameter of interest in cold regions, as temperature is indicative of the energy balance of the system and provides insight into how water is partitioned at the soil-atmosphere interface. Measurement of soil matric potential provides an indication of how tightly the soil is holding the pore water at a given depth. When used with water content sensors it allows for the calculation of gravitational gradients that are then used to calculate a flux through the system. The calculated flux is then used to calculate a rate of percolation of water through the cover system into the underlying waste, where it is then available to report to surface or groundwater receptors.

A CS 229 sensor consists of a probe inserted axially in a porous cylinder, which has a diameter of 15 mm and a length of 32 mm. The probe consists of a stainless steel tube in which a heating element and a thermocouple are embedded. The heating element and thermocouple are connected to lead wires; this connection is embedded in an electrical insulating resin. The thermal conductivity sensor is heated for 30 seconds to determine the change in temperature, which varies depending on the moisture content of the ceramic block.

The CS 229 sensor records heat dissipation from a current, referred to as temperature rise.

5) $T_{norm} = \frac{\Delta T_{max} - \Delta T}{\Delta T_{max} - \Delta T_{min}}$

Where T_{norm} = normalized temperature rise
ΔT = temperature rise measured by the 229 sensor and output by datalogger
ΔT_{max} = maximum of sensor calibration curve
ΔT_{min} = minimum of sensor calibration curve

Constants for the slope function of the CS 229 sensor response to temperature were developed from Flint et al (2002):

6) $s^* = F_1 {T_{norm}}^5 + F_2 {T_{norm}}^4 + F_3 {T_{norm}}^3 + F_4 {T_{norm}}^2 + F_5 T_{norm} + F_6$

Where s* = position of T_{norm} on the slope function s
F1 = Flint et al. 2002 constant to fit T_{norm} to the slope function = -0.00774
F2 = Flint et al. 2002 constant to fit T_{norm} to the slope function = 0.03311
F3 = Flint et al. 2002 constant to fit T_{norm} to the slope function = -0.044
F4 = Flint et al. 2002 constant to fit T_{norm} to the slope function = 0.01334
F5 = Flint et al. 2002 constant to fit T_{norm} to the slope function = 0.00498
F6 = Flint et al. 2002 constant to fit T_{norm} to the slope function = 0.00064

Matric suction is calculated from the temperature-corrected CS 229 sensor output ΔT_{corr}:

7) $\Delta T_{corr} = \Delta T_{max} - \big(T_{norm} - s^*(T - 20)\big)(\Delta T_{max} - \Delta T_{min})$

Where ΔT_{corr} = input to the matric suction function
T = soil temperature measured by CS 229 sensor (°C)

The calibration curve relating sensor response (ΔT_{corr}) to soil water potential or matric suction (Ψ) is empirical. The most commonly used form is:

8) $$ln(|\Psi|) = \alpha \Delta T_{corr} + \beta$$

Where Ψ = matric suction (kPa)
α = slope of the calibration curve
β = intercept of the calibration curve

CS 229 sensors were calibrated individually in Okane's Saskatoon laboratory prior to installation and matric suction is calculated using Okane's proprietary calibration curve. The calibration data are provided in Table 2.1.

Table 2.1: Calibration constants for CS 229 sensors.

Serial #	ΔT_{min}	ΔT_{max}	A	N	M
C00053	0.7	3.381062963	166.19595	0.684983096	1.702738108
C00054	0.7	3.363703704	123.7313659	0.693919339	1.48643876
C00055	0.7	3.605421	267.4119078	0.58479218	1.990568235
C00056	0.7	3.351222222	115.0315168	0.751271763	1.37375112
C00057	0.7	3.684347407	1158.382446	0.517049165	3.002732782
C00058	0.7	3.350796667	249.9352545	0.567754977	2.031540926
C00059	0.7	3.258717852	881.7285189	0.472391915	2.846740253
C00060	0.7	3.239192593	339.7080728	0.500493491	2.133795518
C00061	0.7	3.408955556	136.2338951	0.792949061	1.485130358
C00062	0.7	3.239305259	135.0778399	0.774170056	1.470275126

2.3.3 Plateau Performance Monitoring Station

The plateau performance monitoring was located in the middle of the bench to avoid edge effects (see Appendix A). The meteorological station equipment was installed on October 21, 2020. The soil pit was excavated, and the soil sensors installed on October 22. The CS616 sensors were partially set in the soil pit wall and then overburden built up around them because the overburden was frozen and contained rocks. The 229 sensors were left in packaging overnight to avoid freezing because the soil pit was not backfilled until October 23, after the sensors were wired and correct operation verified (Okane, 2021).

The overburden depth at the plateau station location was approximately 0.65 m instead of the target 0.5 m. Sensor depth was recorded during installation as elevation in meters above sea level (masl), with the surface of the pad at 1371.46 masl, after sensor installation as shown in Table 2.2.

Table 2.2: Sensors installed at the plateau monitoring station.

Elevation (masl)	Depth (cm)	CS616 #	CS229 #
1371.338	12.4		S/N 0057
1371.326	13.6	1	
1371.303	15.9	2	
1371.176	28.6		S/N 0060
1371.095	36.7	3	
1371.058	40.4		S/N 0058
1371.02	44.2	4	
1370.953	50.9		S/N 0059
1370.866	59.6	5	
1370.833	62.9		S/N 0062

The distance between the SR50ATH, NRLite2, TBRG and ground is 1.86 m, 1.88m and 1.89 m, respectively. These measurements were conducted by Victoria Gold at the plateau station on February 28, 2021.

2.3.4 Slope Performance Monitoring System

Sensor depth was recorded during installation as elevation, as shown in Table 2.3, and the surface of the overburden is located at 1367.58 masl and 1367.48 masl above the CS229 and CS616 profiles, respectively. The location of the slope station on the landform is shown in Appendix A. Installation at a mid-slope position on a shorter slope was desired to monitor a location with mid-grade texture and reduced segregation. The slope from the crest to the sensor installation location is 2.5H:1V and from the crest to the bottom toe is 2H:1V (Rear, 2021).

The meteorological station equipment was installed on October 21, 2020. The slope was regraded on October 22, reducing slope angle, to achieve desired overburden depth of 0.5 m; the monitoring station was then installed on the slope instead of the berm as planned. Based on surface and instrumentation elevations, it is estimated that the overburden depth is between 0.40 and 0.5 m. The soil pit was excavated, and the soil sensors installed on October 22, and the pit backfilled on October 23 following verification of station operation. The 229 sensors were left in packaging overnight to avoid freezing (Okane, 2021). Phil Emerson of VG observed on October 23 that the meteorological station could have been positioned further up the slope and secured extra wiring to the meteorological station mounting post to move the station in future if required.

Table 2.3: Sensors installed at the slope monitoring station.

Elevation (masl)	Depth (cm)	CS616 #	CS229 #
1367.407	7.3	1	
1367.405	17.5		S/N 0053
1367.321	25.9		S/N 0054
1367.315	16.5	2	
1367.232	34.8		S/N 0061
1367.219	26.1	3	
1367.167	31.3	4	
1367.157	42.3		S/N 0056
1367.036	54.4		S/N 0055
1367.024	45.6	5	

The distance between the SR50ATH and ground is 1.74 m. The distance between the NRLite2 and ground is 2.29 m. These values are approximate due to the difficulty to achieve precision due to the inherent angle of the slope and ground. Measurements were recorded by Victoria Gold on February 28, 2021.

3 CLOSURE

Please do not hesitate to contact me at (403) 815-0009 or tbaker@okc-sk.com should you have any questions or comments.

4 REFERENCES

Flint, A.L., Campbell, G.S., Ellett, K.M. and Calissendorff, C. 2002. Calibration and temperature correction of heat dissipation matric potential sensors. Soil Science Society of America Journal 66:1439-1445.

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Okane Consultants Inc. 2020b. Eagle Mine Cover Trial Construction Quality Control Program Rev1. September 3, 2020. Memorandum from Lindsay Tallon and Larisa Doucette to Lindsay Rear, Environmental Manager, Victoria Gold Corp., Vancouver, British Columbia, Canada. Okane reference 1048-005.

Okane Consultants Inc. 2020c. Eagle Gold Mine Cover System Field Trial Instrumentation Installation Instruction Manual Rev1. September 9, 2020. Report 1048-005-003. Prepared for Victoria Gold Corp.

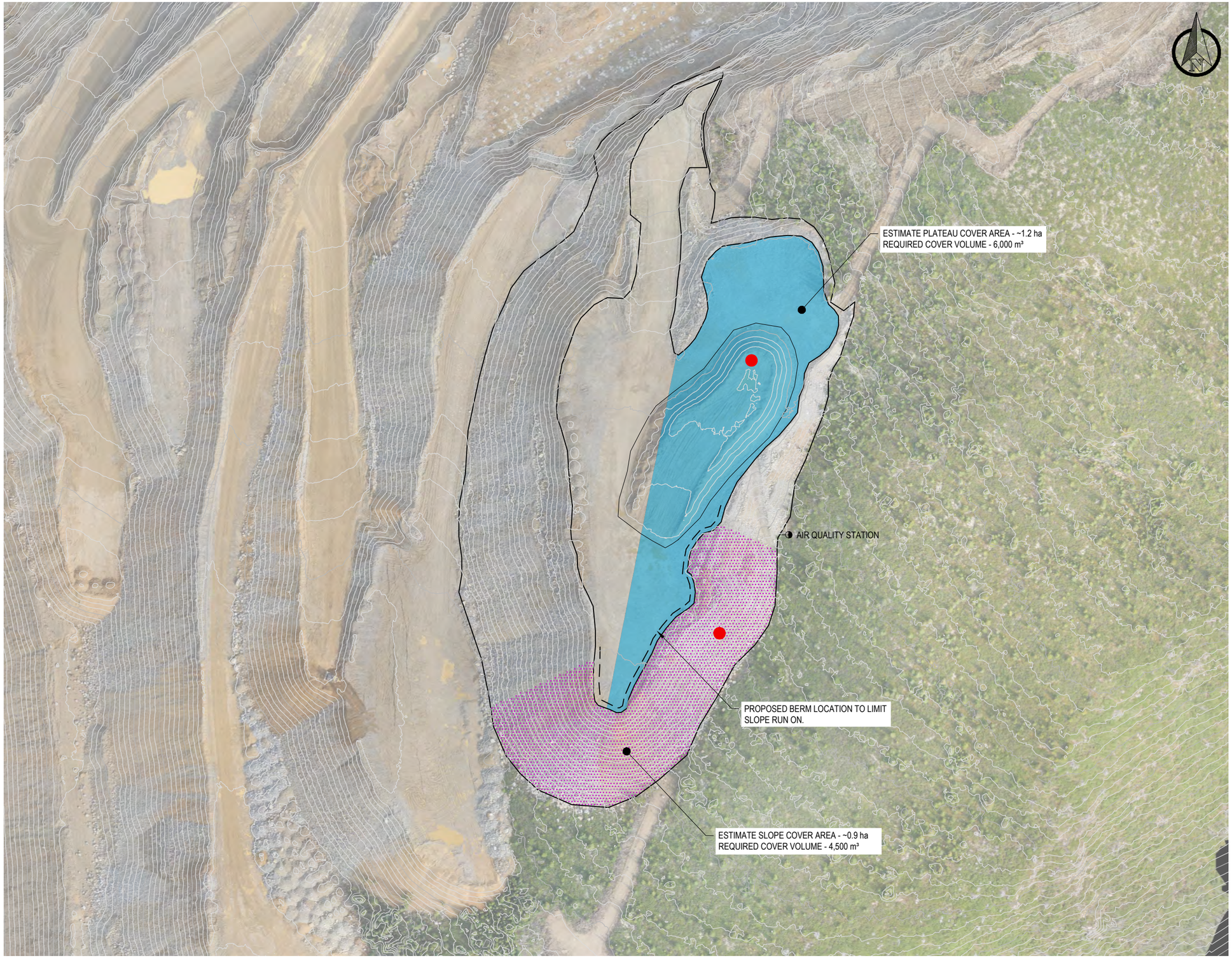
Okane Consultants Inc. 2020d. B-1048-005 Victoria Gold Eagle Gold Mine – 2020 Update to RCP. September 29, 2020. Memorandum from Lindsay Tallon to Lindsay Rear, Environmental Manager, Victoria Gold Corp., Vancouver, British Columbia, Canada. Okane reference B-1048-005.

Okane Consultants Inc. 2021. Victoria Gold Cover System Construction Quality Assurance and Quality Control Report. Report 1048-005-004 prepared for Victoria Gold Corp., February 2021.

Rear, L. 2021. Personal communication to Tara Baker, Engineer, Okane Consultants Inc. via email on January 13, 2021. Lindsary Rear, Environmental Manager, Victoria Gold Inc.

Appendix A

Drawings – Design and Wiring Diagrams



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Legend/Notes

NOTE

1. ALL UNITS IN METRES U.N.O.
2. IMAGERY AND TOPOGRAPHY PROVIDED BY THE CLIENT.
3. SOIL MONITORING STATION IS SUBJECT TO CHANGE BASED ON FIELD CONDITIONS. REFER TO INSTRUMENTATION PLAN FOR SELECTION CRITERIA.

LEGEND

EXISTING CONTOUR 1100

SOIL MONITORING STATION

PLATEAU COVER AREA

SLOPE COVER AREA

20 10 0 20 40 60 80 100m

SCALE 1:2000

Revision	Description	Date
3		
2		
1		
0		
A	ISSUED FOR CLIENT REVIEW	2020/08/17

Client/Project

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VICTORIA GOLD CORP
2020 RECLAMATION AND CLOSURE PLAN ACTIVITIES

Drawn by
H. COOPER

Designed by
OKANE CONSULTANTS

Approved by
L. DOUCETTE

Drawing title

OVERBURDEN MONITORING STATION PLAN

Project no.	Drawing no.	Sheet	Revision
1048-005	1048-005-001	ANSI B	A



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AS BUILT

Legend/Notes

NOTE

1. ALL UNITS IN METRES U.N.O.
2. IMAGERY AND TOPOGRAPHY PROVIDED BY THE CLIENT.
3. CLIENT PROVIDED AS-BUILT DATA FOR COVER SYSTEM PLACE ON PLATEAU, COLLECTED 10-29-2020.
4. FINAL TRIAL BOUNDARY ESTIMATED BASED ON CONTOUR DATA.

LEGEND

AS-BUILT COVER CONTOUR — 1300

EXISTING CONTOUR — 1300

TRIAL BOUNDARY

1370 DUMP BOUNDARY

20 10 0 20 40 60 80 100m

SCALE 1:2000

Revision	Description	Date
3		
2		
1		
0	AS-BUILT DATA	2020/11/24
A	ISSUED FOR CLIENT REVIEW	2020/09/24

Client/Project

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VICTORIA GOLD CORP.
WASTE ROCK STORAGE FACILITY
COVER SYSTEM TRIAL

Drawn by: H. COOPER

Designed by: L. DOUCETTE

Approved by: L. TALLON

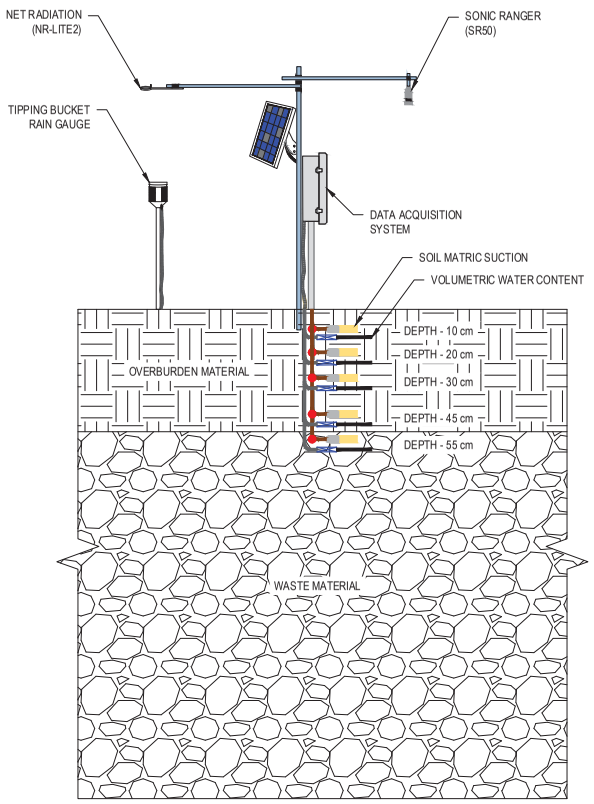
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PLATEAU COVER SYSTEM
PLACEMENT - AS-BUILT

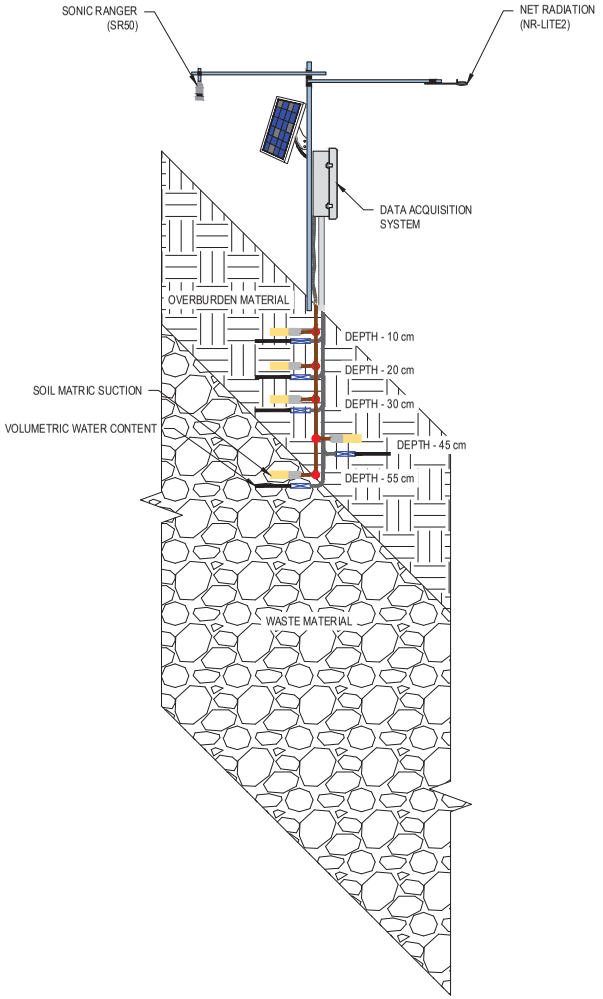
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PLATEAU SURFACE MONITORING STATION
1:20



SLOPE SURFACE MONITORING STATION
1:20

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Legend/Notes

NOTE

1. ALL UNITS IN METRES U.N.O.
2. INSTRUMENTATION DEPTHS ARE PROPOSED AND SUBJECT TO CHANGE.

LEGEND

CS616 VOLUMETRIC WATER CONTENT SENSOR

CS229 SOIL MATRIC SUCTION SENSOR

Revision	Description	Date
3		
2		
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0		
A	ISSUED FOR CLIENT REVIEW	2020/09/01

Client/Project

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2020 RECLAMATION AND CLOSURE
PLAN ACTIVITIES

Drawn by
H. COOPER

Designed by
OKANE CONSULTANTS

Approved by
L. DOUCETTE

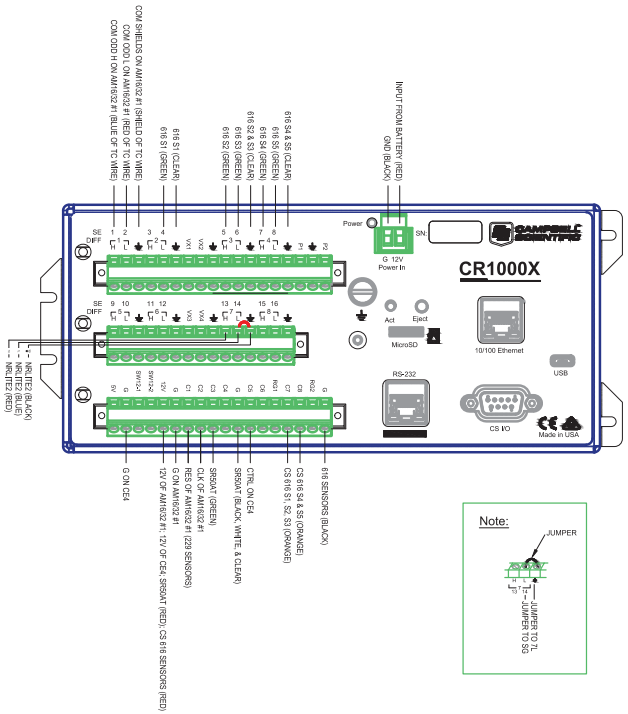
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SOIL MONITORING STATION
COVER PROFILES

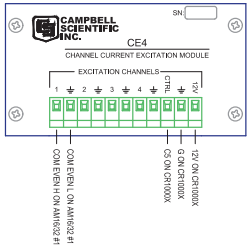
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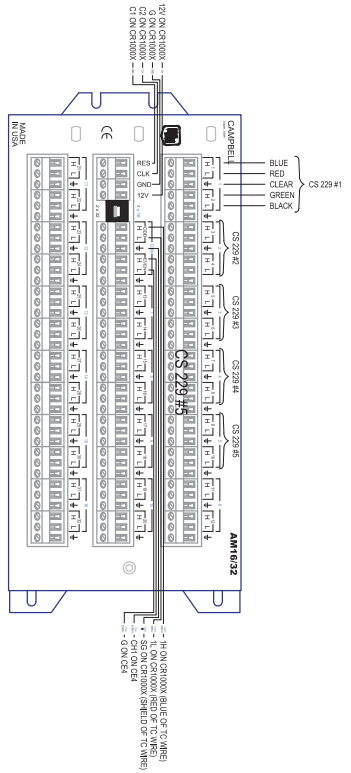
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MEASUREMENT AND CONTROL DATALOGGER (CR1000X)
N.T.S.



4-CHANNEL CURRENT- EXCITATION MODULE (CE4)
N.T.S.



16/32 CHANNEL RELAY MULTIPLEXER (AM16/32 #1)
N.T.S.

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Legend/Notes

NOTE

1. THE CS229 SENSORS SENSORS ARE CONNECTED TO ONE AM16/32 MULTIPLEXER IN 4X16 MODE, AM16/32 #1 (RES TO C1).
2. THE CS616 SENSORS ARE CONNECTED DIRECTLY TO CR1000X. THERE ARE THREE 616 SENSORS (S1, S2, S3) PER CR1000 CHANNEL.

LEGEND

NR-LITE2-L = KIPP & ZONEN NR-LITE2-L NET RADIOMETER

SR50AT = CAMPBELL SCIENTIFIC SR50A SONIC DISTANCE SENSOR

CS616 = CAMPBELL SCIENTIFIC MODEL CS616 VOLUMETRIC WATER CONTENT SENSORS

CS229 = CAMPBELL SCIENTIFIC MODEL 229 MATRIC SUCTION SENSORS

Revision	Description	Date
3		
2		
1		
0		
A	ISSUED FOR CLIENT REVIEW	2020/08/17

Client/Project

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2020 RECLAMATION AND CLOSURE PLAN ACTIVITIES

Drawn by: J. DAND

Designed by: OKANE CONSULTANTS

Approved by: L. DOUCETTE

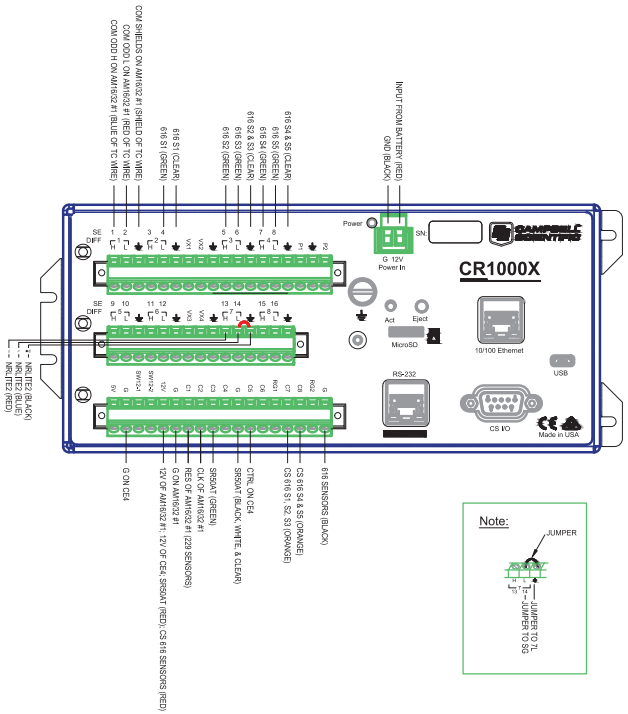
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OVERBURDEN PLATEAU SOIL MONITORING STATION WIRING DIAGRAM

Project no.	Drawing no.	Sheet	Revision
1048-005	1048-005-003	ANSI B	A

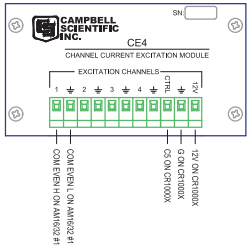
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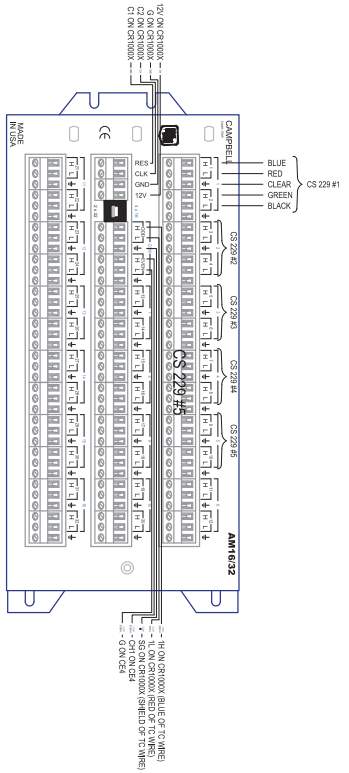


Note:

MEASUREMENT AND CONTROL DATALOGGER (CR1000X)
N.T.S.



4-CHANNEL CURRENT- EXCITATION MODULE (CE4)
N.T.S.



16/32 CHANNEL RELAY MULTIPLEXER (AM16/32 #1)
N.T.S.

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Legend/Notes

NOTE

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2. THE CS616 SENSORS ARE CONNECTED DIRECTLY TO CR1000X. THERE ARE THREE 616 SENSORS (S1, S2, S3) PER CR1000 CHANNEL.

LEGEND

NR-LITE2-L = KIPP & ZONEN NR-LITE2-L NET RADIOMETER

SR50AT = CAMPBELL SCIENTIFIC SR50A SONIC DISTANCE SENSOR

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CS229 = CAMPBELL SCIENTIFIC MODEL 229 MATRIC SUCTION SENSORS

Revision	Description	Date
3		
2		
1		
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A	ISSUED FOR CLIENT REVIEW	2020/08/17

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VICTORIA GOLD CORP
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VICTORIA GOLD CORP
2020 RECLAMATION AND CLOSURE PLAN ACTIVITIES

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Approved by: L. DOUCETTE

Drawing title

OVERBURDEN SLOPE SOIL MONITORING STATION WIRING DIAGRAM

Project no.	Drawing no.	Sheet	Revision
1048-005	1048-005-004	ANSI B	A

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Cadfile Name:1048-005 Victoria Gold Wiring Diagrams.dwg

Appendix B

Datalogger Programs

Datalogger Program for Slope Monitoring Station

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'CR1000X
'Program for Victoria Gold Overburden Monitoring
'Version August 2020
'Prepared by O'Kane Consultants Inc.

'This program controls the sensors installed in the slope soil profile
'including:

'- 5 CS616 Volumetric Water Content Sensors
'- 5 CS229 Matric Suction Sensors
'- 1 NR-LITE2 Net Radiometer (S/N ____)
'- 1 SR50AT Sonic Ranger (S/N ____)

'The 229 sensors are connected to AM16/32 Multiplexer (Res to C1)
'The 616 sensors are connected directly to the CR1000X. There are three 616
'sensors (S1, S2, S3) per CR1000 channel.

'Radiation measurements are taken every minute,
'Snow Depth is measured every hour
'Soil sensors are measured every four hours

'*********************************************************************************
'CR1000X Wiring:
'SG stands for 'Symbol Ground'

'1H  = COM ODD H on AM16/32 #1 (blue of TC wire)
'1L  = COM ODD L on AM16/32 #1 (red of TC wire)
'SG  = COM SHIELDS on AM16/32 #1 (shield of TC wire)
'2H  =
'2L  = Green of 616 S1
'SG  = Clear of 616 S1
'3H  = Green of 616 S2
'3L  = Green of 616 S3
'SG  = Clear of 616 S2 & S3
'4H  = Green of 616 S4
'4L  = Green of 616 S5
'SG  = Clear of 616 S4 & S5
'5H  =
'5L  =
'SG  =
'6H  =
'6L  =
'SG  =
'7H  = Red of NRLite2
'7L  = Blue of NRLite2 & Jumper to SG
'SG  = black of NRLite2 & Jumper to 7L
'8H  =
'8L  =
'SG  =
'VX1 =
```

'VX2 =
'SG =
'VX3 =
'VX4 =
'SG =
'P1 =
'SG =
'P2 =
'SG =
'C1 = RES on AM16/32 #1 (229s)
'C2 = CLK on AM16/32 #1
'C3 = Green of SR50AT
'C4 =
'G   = Black, white, and clear of SR50AT
'C5 = CTRL on CE4
'C6 =
'C7 = Orange of 616 S1, S2, S3
'C8 = Orange of 616 S4 & S5
'G   =
'5V =
'G   = G on CE4
'RG1 =
'RG2 =
'SW12(1) =
'SW12(2) =
'G   = G on AM16/32 #1
'12V = 12V on AM16/32 #1, 12V on CE4, Red of SR50AT
'12V = Red 616 sensors
'G   = Black 616 sensors

'CE4 Wiring
'CTRL = C5 on CR1000X
'G   = G on CR1000X
'CH1 = COM EVEN H on AM16/32 #1
'G   = COM EVEN L on AM16/32 #1

'AM16/32 No. 1 (229 Sensors) - 4x16 mode
'RES   = C1 on CR1000X
'CLK   = C2 on CR1000X
'12V   = 12V on CR1000X
'G   = G on CR1000X
'COM ODD H = 1H on CR1000X (blue of TC wire)
'COM ODD L = 1L on CR1000X (red of TC wire)
'COM SH   = SG on CR1000X (shield of TC wire)
'COM EVEN H = CH1 on CE4
'COM EVEN L = G on CE4

'CSCC Model 229 Matric Suction Sensor Wiring to AM16/32

'blue = ODD H
'red   = ODD L
'green = EVEN H

```
'black = EVEN L
'clear = shield
'*****************************************************************************

'Declare Station Name to be stored in the Status Table
StationName (VG_OB_Slope)

'Declare Public Variables, Alias', Dimensions, and Units
Public Batt_Volt
Public RefTemp_C
Public SoilTemp(5)
Public DelT(5)
Public Wat_Con_616(5)
Public NR_Wm2
Public NR_MJm2
Public SR50AT(2)
Public SR50AT_Temp
Public SnowDepth
Public Corr_Distance
Public Flag(2) As Boolean

Alias SR50AT(1)=SR50AT_Raw_Dist
Alias SR50AT(2)=SR50AT_Sig

'Declare Other Variables that remain hidden from the datalogger real-time tables
Dim k
Dim NRLite_mult
Dim PTemp_1sec_C(5),PTemp_30sec_C(5)

'Declare unit labels to be displayed in header of the tables
Units Batt_Volt=Volts
Units RefTemp_C=degC
Units SoilTemp()=degC
Units DelT()=degC
Units Wat_Con_616()=raw_value
Units NR_Wm2=W/meter^2
Units SnowDepth=m
Units SR50AT_Temp=degC
Units SR50AT_Raw_Dist=m

'Declare sensor-specific constants
Const NRLite_Sensitivity = 14.0    'enter NR-Lite2 specific sensitivity
Const SR50Disttoground = 1.74      'enter distance between SR50 and ground (in meters)

'*****************************************************************************

'Define Data Tables
'Output average net radiation, snow depth, signal quality and air temperature
'every hour - Output SR50 distance and panel temperature for snow depth measurement data
QC
DataTable(VG_Weather_Hourly_SL,True,-1)
  DataInterval(0,60,Min,10)
```

```
  Average(1,NR_Wm2,FP2,False)
  Sample(1,SnowDepth,IEEE4,False)
  Sample (1,SR50AT_Temp,FP2)
  Sample (1,SR50AT_Sig,FP2)
  Sample (1,SR50AT_Raw_Dist,IEEE4)
  Sample (1,RefTemp_C,FP2)
EndTable

'Output total net radiation in MJ/m2, average and min./max. snow depth
'and min. battery voltage for the past 24 hours
DataTable(VG_Weather_Daily_SL,True,-1)
  DataInterval(0,1440,Min,10)
  Totalize (1,NR_MJm2,FP2,False)
  Average(1,SnowDepth,IEEE4,False)
  Minimum(1,SnowDepth,IEEE4,False,False)
  Maximum(1,SnowDepth,IEEE4,False,False)
  Minimum(1,Batt_Volt,FP2,False,False)
EndTable

'Output data tables for soil sensors every time measurements are taken
DataTable(VG_Soil_SL,Flag(1)=True,1000)
  Sample(5,SoilTemp(),FP2)
  Sample (5,DelT(),FP2)
  Sample (5,Wat_Con_616(),FP2)
EndTable

'*********************************************************************************

'Main Program
BeginProg
  NRLite_mult=1000/NRLite_Sensitivity
  Scan(60,Sec,1,0)
    'Default Datalogger Battery Voltage measurement Batt_Volt:
    Battery(Batt_Volt)
    'Measure reference temperature before starting 229 measurements
    PanelTemp (RefTemp_C,_60Hz)

    'NR-LITE2 Net Radiometer (no wind speed correction) measurement 'NR_Wm2'
    VoltDiff(NR_Wm2,1,mV200,7,True,0,60,NRLite_mult,0)
    'Calculate the net radiation in MJ/m^2 over the previous 60 seconds by multiplying
    'NR_Wm2 by 60sec and dividing by 1x10^6
    NR_MJm2=0.00006*NR_Wm2

    'Measure snow depth every hour
    If TimeIntoInterval (59,60,Min) Then Flag(2)=True
    If Flag(2)=True Then
      'Use SDI12 command aM1! to receive the raw distance (m) and signal quality number
(independently from
      'temperature correction for control until the temperature sensor is protected in a radiation
shield)
      SDI12Recorder (SR50AT(),C3,"0","M1!",1.0,0,-1)
      'Use SDI12 command AM9! to receive the SR50AT temperature
```

```
    SDI12Recorder (SR50AT_Temp,C3,"0","M9!",1.0,0,-1)
    'Calculate temperature corrected distance (m)
    Corr_Distance = SR50AT_Raw_Dist*SQR((SR50AT_Temp+273.15)/273.15)
    'Subtract the temperature corrected distance from the SR50AT initial distance to ground
    'to get a result of snow depth in meters
    SnowDepth = SR50Disttoground-Corr_Distance
    Flag(2)=False
  EndIf

  'Set flags for sensor measurements high every four hours
  If IfTime (230,240,Min) Then Flag(1)=True
  If Flag(1)=True Then
    'Initiate measurements for 229 sensors controlled by AM16/32 #1
    'Enable Multiplexer (Set port C1 high)
    PortSet (C1,1)
    'Set Dim Variable k to measure sensors (1 x 229 sensor per channel)
    For k=1 To 5
      'Pulse port C2 for 20msec to switch to the next multiplexer channel
      PulsePort(C2,20000)
      'Measure 229 starting temperature before heating
      TCDiff (SoilTemp(k),1,mV200C,1,TypeT,RefTemp_C,True ,0,60,1.0,0)
      'Activate CE4 by setting port C5 high
      PortSet (C5,1)
      'Heat CS229 sensor for 1 second
      Delay (0,1,Sec)
      'Measure INITIAL sensor temperature after 1 second of heating
      TCDiff (PTemp_1sec_C(k),1,mV200C,1,TypeT,RefTemp_C,True ,0,60,1.0,0)
      'Heat CS229 sensor for 29 more seconds
      Delay (0,29,Sec)
      'Measure FINAL sensor temperature after 30 seconds of heating
      TCDiff (PTemp_30sec_C(k),1,mV200C,1,TypeT,RefTemp_C,True ,0,_60Hz,1.0,0)
      'Deactivate CE4 by setting port C5 low
      PortSet (C5,0)
      'Calculate temperature rise deltaT
      DelT(k)=PTemp_30sec_C(k)-PTemp_1sec_C(k)
      'Loop to next channel / sensor
    Next k
    'Disable Multiplexer to complete 229 measurements (set port C1 to low)
    PortSet (C1 ,0)

    'Initiate measurements for 616 sensors
    CS616 (Wat_Con_616(1),3,4,C7,3,1.0,0)  'SK - switched the CS616 signal wire (green) from SE 5-
9 to SE 4-8, program would not compile otherwise
    CS616 (Wat_Con_616(4),2,7,C8,2,1.0,0)  'SK - changed reps from 1 to 2, to measure CS616 #5

    'Call conditional data table for soil sensor measurements and store data
    CallTable VG_Soil_SL

    'Set Flag 1 low to end the measurements until the next time interval
    Flag(1)=false
  EndIf
```

```
  'Call time-controlled data tables
  CallTable VG_Weather_Hourly_SL
  CallTable VG_Weather_Daily_SL
NextScan

EndProg
```

Datalogger Program for Plateau Monitoring Station

```
'CR1000X
'Program for Victoria Gold Overburden Monitoring
'Version August 2020, edited October 2020
'Prepared by O'Kane Consultants Inc.

'This program controls the sensors installed in the plateau soil profile
'including:

'- 5 CS616 Volumetric Water Content Sensors
'- 5 CS229 Matric Suction Sensors
'- 1 NR-LITE2 Net Radiometer (S/N ____)
'- 1 SR50AT Sonic Ranger (S/N ____)
'- 1 ARG314 Tipping Bucket rain gauge

'The 229 sensors are connected to AM16/32 Multiplexer (Res to C1)
'The 616 sensors are connected directly to the CR1000X. There are three 616
'sensors (S1, S2, S3) per CR1000 channel.

'Radiation measurements are taken every minute,
'Snow Depth is measured every hour
'Rainfall measurements are taken on an event basis
'Soil sensors are measured every four hours

'*********************************************************************************
'CR1000X Wiring:
'SG stands for 'Symbol Ground'

'1H  = COM ODD H on AM16/32 #1 (blue of TC wire)
'1L  = COM ODD L on AM16/32 #1 (red of TC wire)
'SG  = COM SHIELDS on AM16/32 #1 (shield of TC wire)
'2H  =
'2L  = Green of 616 S1
'SG  = Clear of 616 S1
'3H  = Green of 616 S2
'3L  = Green of 616 S3
'SG  = Clear of 616 S2 & S3
'4H  = Green of 616 S4
'4L  = Green of 616 S5
'SG  = Clear of 616 S4 & S5
'5H  =
'5L  =
'SG  =
'6H  =
'6L  =
'SG  =
'7H  = Red of NRLite2
'7L  = Blue of NRLite2 & Jumper to SG
'SG  = black of NRLite2 & Jumper to 7L
'8H  =
'8L  =
```

'SG =
'VX1 =
'VX2 =
'SG =
'VX3 =
'VX4 =
'SG =
'P1 = ARG314 Rainfall Tipping Bucket (white of white/black, red of red/black, black of black/brown)
'SG = ARG314 Rainfall Tipping Bucket (black of white/black or red/black, brown of black/brown)
'P2 =
'SG =
'C1 = RES on AM16/32 #1 (229s)
'C2 = CLK on AM16/32 #1
'C3 = Green of SR50AT
'C4 =
'G = Black, white, and clear of SR50AT
'C5 = CTRL on CE4
'C6 =
'C7 = Orange of 616 S1, S2, S3
'C8 = Orange of 616 S4 & S5
'G =
'5V =
'G = G on CE4
'RG1 =
'RG2 =
'SW12(1) =
'SW12(2) =
'G = G on AM16/32 #1
'12V = 12V on AM16/32 #1, 12V on CE4, Red of SR50AT
'12V = Red 616 sensors
'G = Black 616 sensors

'CE4 Wiring
'CTRL = C5 on CR1000X
'G = G on CR1000X
'CH1 = COM EVEN H on AM16/32 #1
'G = COM EVEN L on AM16/32 #1

'AM16/32 No. 1 (229 Sensors) - 4x16 mode
'RES = C1 on CR1000X
'CLK = C2 on CR1000X
'12V = 12V on CR1000X
'G = G on CR1000X
'COM ODD H = 1H on CR1000X (blue of TC wire)
'COM ODD L = 1L on CR1000X (red of TC wire)
'COM SH = SG on CR1000X (shield of TC wire)
'COM EVEN H = CH1 on CE4
'COM EVEN L = G on CE4

'CSCC Model 229 Matric Suction Sensor Wiring to AM16/32

```
'blue  = ODD H
'red   = ODD L
'green = EVEN H
'black = EVEN L
'clear = shield

'*******************************************************************************

'Declare Station Name to be stored in the Status Table
StationName (VG_OB_Plateau)

'Declare Public Variables, Alias', Dimensions, and Units
Public Batt_Volt
Public RefTemp_C
Public SoilTemp(5)
Public DelT(5)
Public Wat_Con_616(5)
Public NR_Wm2
Public NR_MJm2
Public SR50AT(2)
Public SR50AT_Temp
Public SnowDepth
Public Corr_Distance
Public Rainfall
Public Flag(2) As Boolean
Alias SR50AT(1)=SR50AT_Raw_Dist
Alias SR50AT(2)=SR50AT_Sig

'Declare Other Variables that remain hidden from the datalogger real-time tables
Dim k
Dim NRLite_mult
Dim PTemp_1sec_C(5),PTemp_30sec_C(5)

'Declare unit labels to be displayed in header of the tables
Units Batt_Volt=Volts
Units RefTemp_C=degC
Units SoilTemp()=degC
Units DelT()=degC
Units Wat_Con_616()=raw_value
Units NR_Wm2=W/meter^2
Units SnowDepth=m
Units SR50AT_Temp=degC
Units SR50AT_Raw_Dist=m
Units Rainfall=mm

'Declare sensor-specific constants
Const NRLite_Sensitivity = 13.8    'enter NR-Lite2 specific sensitivity
Const SR50Disttoground = 1.86      'enter distance between SR50 and ground (in meters)

'*******************************************************************************

'Define Data Tables
```

```
'Output average net radiation, snow depth, signal quality and air temperature
'every hour - Output SR50 distance and panel temperature for snow depth measurement data
QC
DataTable(VG_Weather_Hourly_PL,True,-1)
  DataInterval(0,60,Min,10)
  Totalize(1,Rainfall,FP2,False)
  Average(1,NR_Wm2,FP2,False)
  Sample(1,SnowDepth,IEEE4,False)
  Sample (1,SR50AT_Temp,FP2)
  Sample (1,SR50AT_Sig,FP2)
  Sample (1,SR50AT_Raw_Dist,IEEE4)
  Sample (1,RefTemp_C,FP2)
EndTable

'Output total net radiation in MJ/m2, average and min./max. snow depth
'and min. battery voltage for the past 24 hours
DataTable(VG_Weather_Daily_PL,True,-1)
  DataInterval(0,1440,Min,10)
  Totalize(1,Rainfall,FP2,False)
  Totalize (1,NR_MJm2,FP2,False)
  Average(1,SnowDepth,IEEE4,False)
  Minimum(1,SnowDepth,IEEE4,False,False)
  Maximum(1,SnowDepth,IEEE4,False,False)
  Minimum(1,Batt_Volt,FP2,False,False)
EndTable

'Output data tables for soil sensors every time measurements are taken
DataTable(VG_Soil_PL,Flag(1)=True,1000)
  Sample(5,SoilTemp(),FP2)
  Sample (5,DelT(),FP2)
  Sample (5,Wat_Con_616(),FP2)
EndTable

DataTable(VG_PptEvent,Rainfall>= 0.1,-1)
  Totalize(1,Rainfall,FP2,False)
EndTable

'*************************************************************************

'Main Program
BeginProg
  NRLite_mult=1000/NRLite_Sensitivity
  Scan(60,Sec,1,0)
    'Default Datalogger Battery Voltage measurement Batt_Volt:
    Battery(Batt_Volt)
    'Measure reference temperature before starting 229 measurements
    PanelTemp (RefTemp_C,_60Hz)

    'NR-LITE2 Net Radiometer (no wind speed correction) measurement 'NR_Wm2'
    VoltDiff(NR_Wm2,1,mV200,7,True,0,60,NRLite_mult,0)
    'Calculate the net radiation in MJ/m^2 over the previous 60 seconds by multiplying
    'NR_Wm2 by 60sec and dividing by 1x10^6
```

```
  NR_MJm2=0.00006*NR_Wm2

  'Rainfall tipping bucket measurement:
              PulseCount(Rainfall,1,P1,5,0,0.2,0)

  'Set flag to measure snow depth every hour
  If TimeIntoInterval (59,60,Min) Then Flag(2)=True
  If Flag(2)=True Then
   'Use SDI12 command aM1! to receive the raw distance (m) and signal quality number (independently from
   'temperature correction for control until the temperature sensor is protected in a radiation shield)
    SDI12Recorder (SR50AT(),C3,"0","M1!",1.0,0,-1)
    'Use SDI12 command AM9! to receive the SR50AT temperature
    SDI12Recorder (SR50AT_Temp,C3,"0","M9!",1.0,0,-1)
    'Calculate temperature corrected distance (m)
    Corr_Distance = SR50AT_Raw_Dist*SQR((SR50AT_Temp+273.15)/273.15)
    'Subtract the temperature corrected distance from the SR50AT initial distance to ground
    'to get a result of snow depth in meters
    SnowDepth = SR50Disttoground-Corr_Distance
    'Set Flag 2 low to end the measurements until the next time interval
    Flag(2)=false
  EndIf

  'Set flag high for sensor measurements every four hours
  If IfTime (230,240,Min) Then Flag(1)=True
  If Flag(1)=True Then
   'Initiate measurements for 229 sensors controlled by AM16/32 #1
   'Enable Multiplexer (Set port C1 high)
   PortSet (C1,1)
   'Set Dim Variable k to measure sensors (1 x 229 sensor per channel)
   For k=1 To 5
    'Pulse port C2 for 20msec to switch to the next multiplexer channel
    PulsePort(C2,20000)
    'Measure 229 starting temperature before heating
    TCDiff (SoilTemp(k),1,mV200C,1,TypeT,RefTemp_C,True ,0,60,1.0,0)
    'Activate CE4 by setting port C5 high
    PortSet (C5,1)
    'Heat CS229 sensor for 1 second
    Delay (0,1,Sec)
    'Measure INITIAL sensor temperature after 1 second of heating
    TCDiff (PTemp_1sec_C(k),1,mV200C,1,TypeT,RefTemp_C,True ,0,60,1.0,0)
    'Heat CS229 sensor for 29 more seconds
    Delay (0,29,Sec)
    'Measure FINAL sensor temperature after 30 seconds of heating
    TCDiff (PTemp_30sec_C(k),1,mV200C,1,TypeT,RefTemp_C,True ,0,_60Hz,1.0,0)
    'Deactivate CE4 by setting port C5 low
    PortSet (C5,0)
    'Calculate temperature rise deltaT
    DelT(k)=PTemp_30sec_C(k)-PTemp_1sec_C(k)
    'Loop to next channel / sensor
   Next k
```

```
    'Disable Multiplexer to complete 229 measurements (set port C1 to low)
    PortSet (C1 ,0)

    'Initiate measurements for 616 sensors
    CS616 (Wat_Con_616(1),3,4,C7,3,1.0,0)
    CS616 (Wat_Con_616(4),2,7,C8,2,1.0,0)

    'Call conditional data table for soil sensor measurements and store data
    CallTable VG_Soil_PL

    'Set Flag 1 low to end the measurements until the next time interval
    Flag(1)=false
  EndIf

  'Call time-controlled data tables
  CallTable VG_Weather_Hourly_PL
  CallTable VG_Weather_Daily_PL
  CallTable VG_PptEvent
 NextScan

EndProg
```

Appendix C

Photo Log



Photo 1 View directly north across the 1370 bench with the staked 20x20 m area for the plateau monitoring station on October 19, 2020.



Photo 2 View east over the covered slope on October 19, 2020, showing the staked location for the slope climate station.



Photo 3 View south from the designated slope meteorological station area on October 19, 2020.

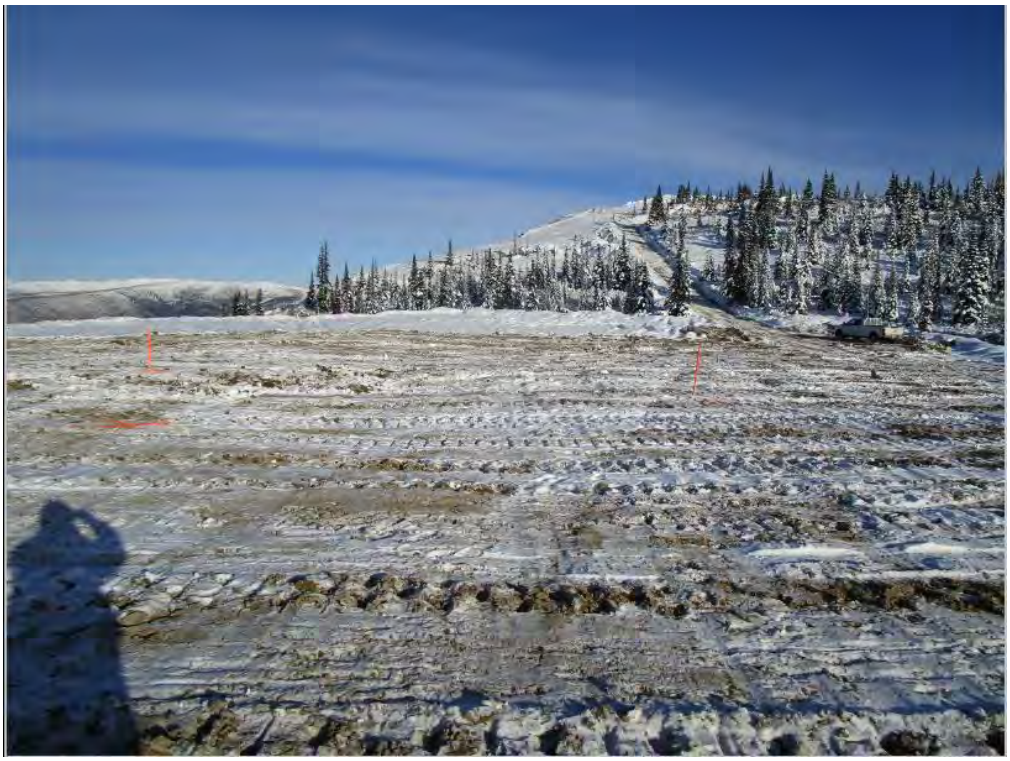


Photo 4 1370 bench on October 20, 2020 following removal of snow and grade stakes.

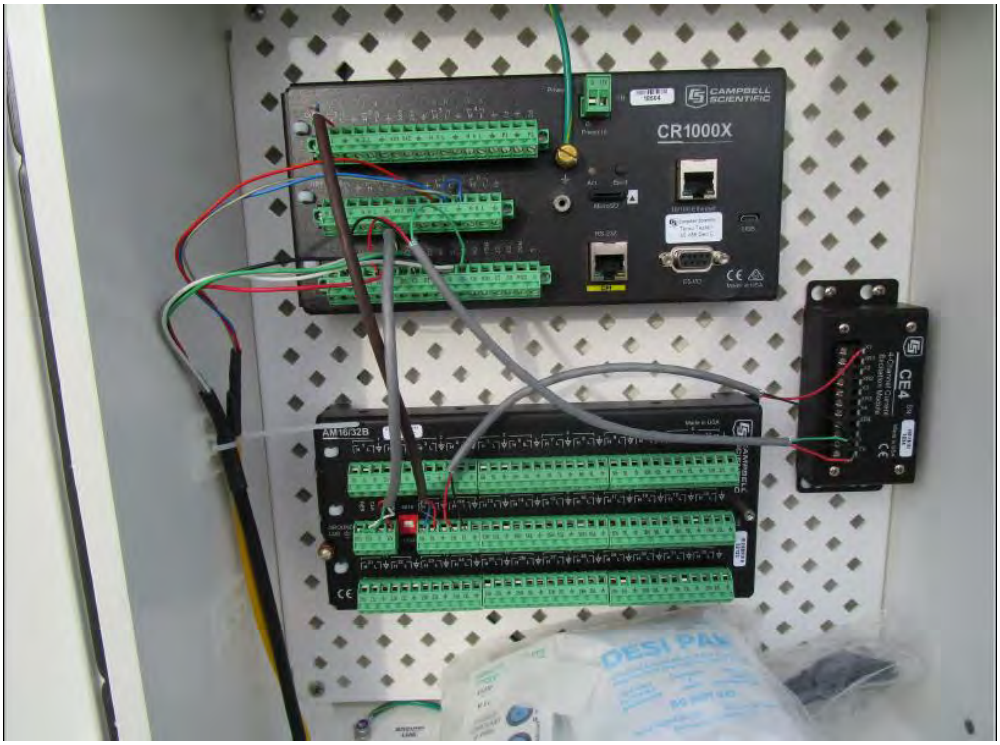


Photo 5 Wiring of slope monitoring station on October 21, 2020.



Photo 6 Stations were completed and laid on the pelican case overnight on October 21, 2020.

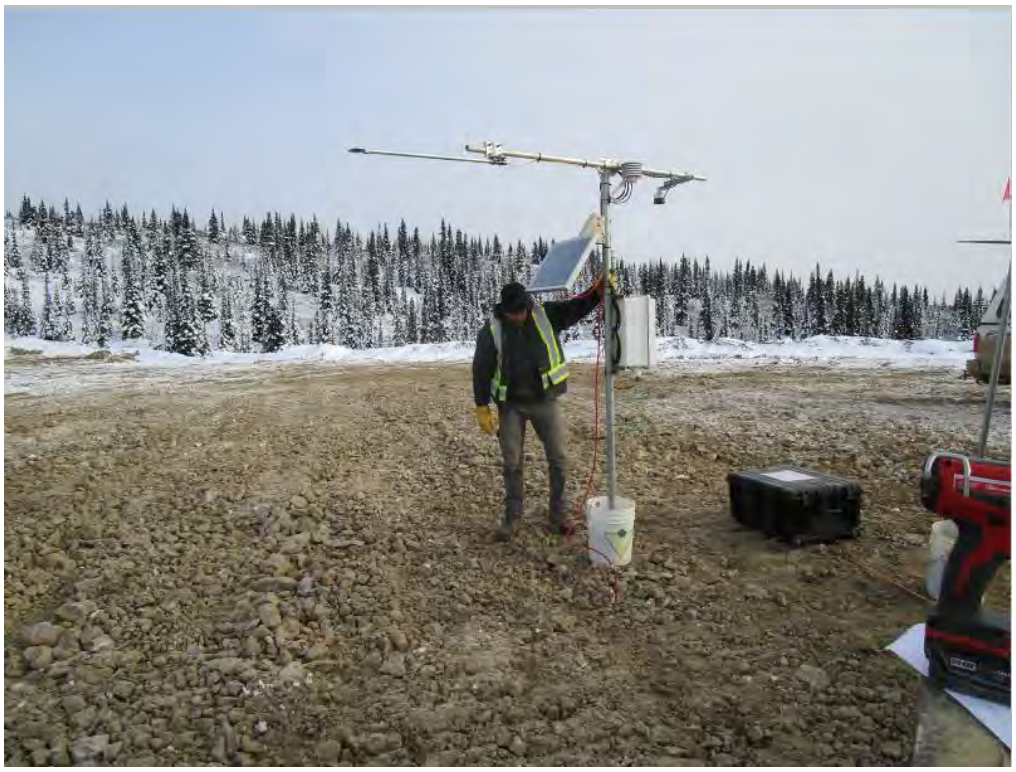


Photo 7 Plateau monitoring station set on October 21, 2020.



Photo 8 Attaching sensor to the plateau meteorological station on October 22, 2020.



Photo 9 Wiring sensors on October 22, 2020.



Photo 10 Icy/frozen rock was placed around sensors at the overburden / dump interface on October 22, 2020.



Photo 11 Excavator removing material at slope monitoring station on October 22, 2020 to meet project specification of 0.50 m.



Photo 12 Sensor installation before the datalogger program was tested on October 23, 2020. CS 229 sensors were removed from cases prior to backfilling pit.



Photo 12 Sensor installation before the datalogger program was tested on October 23, 2020. CS 229 sensors were removed from cases before the pit was filled.



Photo 13 Excavator completing slope monitoring station fill and grading on October 23, 2020.

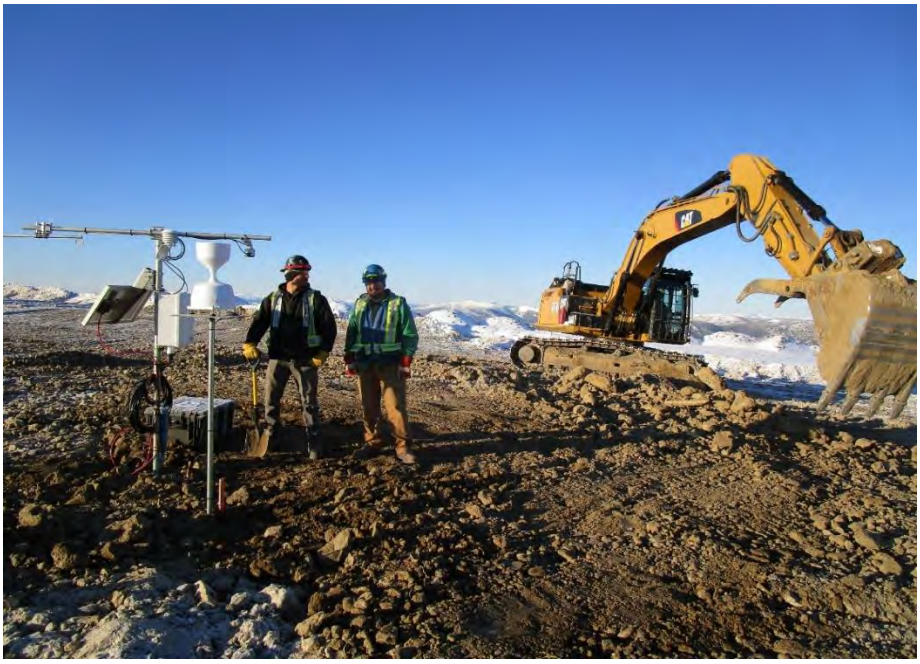


Photo 14 Completed plateau monitoring station with Ewing operator completing finishing touches around station on October 23, 2020.

Victoria Gold Cover System Construction Quality Assurance and Quality Control Report

February 3, 2021



Victoria GOLD CORP

okane

Integrated Mine Waste Management
and Closure Services
Specialists in Geochemistry and
Unsaturated Zone Hydrology

Victoria Gold
Cover System Construction Quality Assurance and Quality Control Report

1048-005-004

February 2021

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1	March 26, 2021	AH, HC	LD	LD
2	March 26, 2021	AH, HC	LD	LD
3	March 29, 2021	AH, HC	LD	LD
4	May 21, 2021	AH, HC	LD	LD

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4. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation, or information provided by the client or a third party and which have not therefore been taken into account in this document.
5. The passage of time will affect the information and assessment provided in this document. The opinions expressed in this document are based on information that existed at the time of the production of this document.
6. The investigations undertaken and services provided by Okane allowed Okane to form no more than an opinion of the actual conditions of the site at the time the site referred to in the Okane proposal was visited and the proposal developed and those investigations and services cannot be used to assess the effect of any subsequent changes in the conditions at the site, or its surroundings, or any subsequent changes in the relevant laws or regulations.
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EXECUTIVE SUMMARY

Victoria Gold Corp. (VG) has committed to a phased approach to reclamation and closure for the Eagle Gold Mine in central Yukon Territory, as described in Version 2020-01 of the Reclamation and Closure Plan (RCP). Relocation of an overburden stockpile presented an opportunity to advance cover system monitoring in support of this goal. VG contracted Okane for characterization and instrumentation of the relocated overburden stockpile.

The scope of work is construction of a base case cover system following the construction and material sampling quality assurance / quality control (QA/QC) programs developed by Okane for relocated overburden at the Platinum Gulch WRSA 1370 Dump, and training support and virtual overview to ensure that VG carries out the program with site personnel. The material sampling program conducted before and during cover system construction was developed to characterize the physical and hydraulic properties of the overburden material to determine its suitability for use in a reclamation cover system.

The plateau and adjacent slope of the waste rock storage area (WRSA) were covered with approximately 0.50 m of overburden material in September 2020 in accordance with the base case configuration in the RCP. Soil moisture and meteorological monitoring systems were installed by VG in October 2020.

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1 INTRODUCTION

Victoria Gold Corp. (VG) owns and operates the Eagle Gold Mine on the Dublin Gulch property located in central Yukon Territory. Version 2020-01 of the Reclamation and Closure Plan (RCP) was submitted to the Yukon Water Board (YWB) and the Department of Energy, Mines, and Resources (EMR) in fulfillment of the requirements of the mine water use licences issued by the YWB October 23, 2020.

Victoria Gold has committed to a phased approach to reclamation and closure through operations and into decommissioning. The current RCP outlined a series of tasks for a proposed research program in support of ongoing reclamation and closure planning. Previous research tasks in the RCP included research into reclamation cover system configurations and the processes governing performance. Relocation of an overburden stockpile presented an opportunity to advance cover system monitoring in support of progressive reclamation. VG contracted Okane Consultants Inc. (Okane) for characterization and instrumentation of the relocated overburden stockpile to take advantage of the relocation by developing an understanding of performance for a base case cover system design configuration (Okane, 2020a).

1.1 Project Objectives and Scope

The objective of the overburden stockpile relocation was to cover the plateau and slope of the waste rock storage area (WRSA) to 0.50 m depth, aligned with the base case configuration in Version 2020-01 of the RCP, in a fashion consistent with expected full-scale practices. VG took advantage of this opportunity to cover an adjacent slope on the existing WRSA, the objective of which was to test the feasibility of covering the preferred angle of repose slope post closure. The current slope of the WRSA is approximately 1.15H:1V, the angle of repose, which will have a high likelihood of segregation of overburden during placement on the slope (Okane, 2020b).

The objective of the material sampling program conducted before and during cover system construction was characterization of the physical and hydraulic properties of the overburden material to determine its suitability for use in a reclamation cover system. Data from the characterization program will aid in the interpretation of performance monitoring data collected as part of the instrumentation program. Furthermore, material characterization data serves as a critical input for numerical modelling programs that use performance monitoring data for calibration (Okane, 2020a).

The scope of work is construction of a base case cover system following the construction and material sampling quality assurance / quality control (QA/QC) programs for relocated

overburden at the Platinum Gulch WRSA 1370 Dump, and training support and virtual overview to ensure that VG carries out the program with site personnel.

2 GENERAL INFORMATION

A construction QA/QC program is necessary to ensure documentation of base case cover system construction. Okane developed the Eagle Mine Cover Trial Construction Quality Control Program which outlines the QA / QC procedures and criteria to be followed during cover system construction (Okane, 2020b). Field QA/QC procedures included a material sampling and testing plan to determine as-built properties of the cover system (Okane, 2020c). The material sampling plan and construction quality control program were submitted to VG on August 20 and 28, 2020, respectively.

VG site personnel completed the construction QA/QC program on site. Okane provided virtual training via PowerPoint presentation to VG site personnel prior to construction commencement. Qualified, experienced Okane personnel were available during the duration of construction for virtual oversight of VG employees implementing field QA/QC techniques. It was proposed that reports be provided to Okane every second day by VG site personnel completing the work to facilitate oversight, and morning meetings be completed after a review of the reports by Okane. A laboratory material testing program was designed as part of the QA/QC program (Okane, 2020c) and completed at an accredited laboratory. Okane provided instruction on material sampling and recommended the number and types of laboratory tests as part of the QA/QC plan. VG collected material samples and submitted the samples to the laboratory for testing.

2.1 Construction Team

Table 2.1 provides a list of personnel involved in the construction of the cover system, including progress reports provided by VG and collection of samples.

Table 2.1: Construction and Sampling Team

Personnel	Company	Role
Lindsay Rear	VG	Environmental Manager
Phil Emerson	VG	Environmental Coordinator
Jessica Wilkinson	VG	Environmental Technician
Larisa Doucette	Okane	Project Coordinator
Hal Cooper	Okane	Sampling Program Contact
Kevin Olynyk	Ewing Construction	Excavator Operator
Marshall Ewing	Ewing Construction	Supervisor and Dozer Operator
Mike Cox	Mueller Electric	Electrician
Curtis Dinan	Mueller Electric	Electrician

2.2 Construction Timeline

Based on progress reports provided by VG, a timeline for construction, sample collection and instrumentation install is provided below.

- September 2: VG reported that efforts had been made to prepare the plateau by filling holes and flattening the bench.
- September 3-4: The area, perimeter, and depth of the overburden spread were measured.
- September 6-7: Overburden samples were collected at Zones 1-3.
- September 7: Construction began. VG reported on September 8 that half of the overburden pile had been knocked down.
- September 10: Overburden samples were collected at Zones 4-6. A shovel was pulling out overburden material from pile and spreading it out as sampling was being conducted.
- September 22: Construction of the overburden spread was complete.
- October 19-20: Ewing Construction regraded the overburden to achieve the target depth of 0.50 m, focusing on the staked areas designated for monitoring station installation. VG completed a successful test of internet and cell access on October 19 in preparation for Okane support of instrumentation installation planned for October 22.
- October 21: Both meteorological stations were installed but the sensors were not wired because the electrician preferred to wait until all sensors were installed.
- October 22: Excavation for the slope soil monitoring station began that morning but the overburden material depth was >1.5 m. The slope was regraded with the excavator to achieve the target depth of closer to 0.50 m. The excavator dug pits on the plateau and slope for the soil monitoring stations, and the pits were instrumented with soil sensors. Both soil and meteorological sensors were then wired.
- October 23: Larisa Doucette worked remotely with the crew to verify the monitoring stations were working properly. The soil sensors were packed within the soil pits with hand tools. The plateau meteorological station was leveled, and the soil pits were backfilled and leveled by the excavator. The excavator then completed packing the berm at the slope station location.

- October 26: Phil was to request a final as-built survey of the plateau. A survey of the slope had been completed.

2.3 Equipment

The overburden material was spread across the waste rock using a dozer operated by Ewing Construction. The soil pits for the plateau and slope soil monitoring stations were excavated and backfilled with an excavator operated by Ewing Construction.

A camera was installed prior to construction with a view of a large portion of the area to be covered, in order to monitor construction activities. Following construction, the camera was moved to the plateau monitoring station to provide information on snow melt timing.

2.4 Safety and Environment

No safety or environmental incidents were reported.

3 COVER SYSTEM CONSTRUCTION

A 0.50 m cover system was recommended for construction on the eastern portion of the plateau area and a portion of the south-southeast slope of the WRSA. Standard operating procedures were implemented to complete construction of the cover system. Standard procedures include paddock dumping and dozing of the overburden material from the existing stockpile across the plateau of the WRSF to produce the 0.50 m cover system layer, and nominal tracking by dozer after placement. Some of the remaining overburden was pushed over the crest and spilled down the south-southeast slope. The area for slope coverage was selected in order to reduce slope lengths while avoiding the air quality station on the east side of the WRSA. This application method for the cover system aligns with the proposed final closure method for the mine, as waste rock slopes are not intended to be regraded and slope faces will be covered by dozing material over the crest of each bench. This application method does not provide a uniform cover system thickness on the waste rock slopes but will allow for a greater understanding of the infiltration rates on both benches and slopes for the refinement of cover system model inputs. A plateau area berm was constructed to prevent additional run-on from the plateau onto the slope, isolating the water balance to a single landscape element and preventing erosion to the extent possible.

3.1 Construction Materials

The approximate area of the 1370 plateau is 47,500 m^2, and the amount of stockpiled overburden that was relocated is 20,777 m^3. The overburden material was described as "gravelly silt, light to medium brown, compacted in some areas, with some coarser material." The overburden material was frozen to the consistency of cement overnight on September 10 but described as "soup-like" the following morning after thawing. Material was frozen during excavation to install soil monitoring stations on October 22.

3.1.1 Material Control Testing

The material characterization program collected samples from six overburden zones to account for potential variability in properties of the material. Three zones were within the overburden stockpile and three zones were within the overburden material that was already spread on the plateau when sampling began.

Overburden material samples were collected from five random locations in each discrete zone to produce one composite sample collected in one 20 L pail. The same procedure was carried out two additional times for a total of three composite samples per zone. Three composite samples were collected in this manner in each of the six zones, for a total of 18 composite samples (Okane, 2020c). Sampling locations were spread out to capture the variability of material properties within the overburden stockpile and spread material. In

addition, a digital particle size distribution (PSD) sample was collected for each composite sample. Table 3.1 outlines the testing regime and samples tested, and sampling locations are shown in Figure 3.1. The laboratory testing program included:

- PSD as determined by the hydrometer method using AASHTO T 88 Standard Method of Test for Particle Size Analysis of Soils;
- Atterberg Limits using ASTM D4318-17 Standard Test Methods for Liquid Limit, Plastic Limit, and Plasticity Index of Soils;
- Standard Proctor using D698-12;
- Hydraulic Conductivity using D5084-16; and
- Soil Water Characteristic Curve using ASTM D6839-02.

Two samples (20-VGE-OVB-03-01 and 20-VGE-OVB-04-01) were chosen by Okane for additional analysis based on the results from the first three laboratory tests which included hydraulic conductivity (k_{sat}), soil water characteristic curves (SWCC), specific gravity, and standard proctor compaction testing, which have been completed.

A summary of the test results is provided in Section 3.3 and the full test results in Appendix A.

Table 3.1: Samples collected for material characterization.

Zone	UTM Zone 8 W		Sample ID	Location	Date	Test						
	Easting[1]	Northing				Digital PSD	Hydrometer PSD	Atterberg Limits	Standard Proctor	K_{sat}	SWCC	SG
1	460506	7099025	20VGE-OVB-01-01	South	2020-09-06	✓	✓	✓				
			20VGE-OVB-01-02	Middle	2020-09-06	✓						
			20VGE-OVB-01-03	North	2020-09-06	✓						
2	458371	7097839	20VGE-OVB-02-01	South	2020-09-07	✓	✓	✓				
			20VGE-OVB-02-02	Middle	2020-09-07	✓						
			20VGE-OVB-02-03	North	2020-09-07	✓						
3	460541	7099098	20VGE-OVB-03-01	South	2020-09-07	✓	✓	✓	✓	✓	✓	✓
			20VGE-OVB-03-02	Middle	2020-09-07	✓						
			20VGE-OVB-03-03	North	2020-09-07	✓						
4	460591	7099175	20-VGE-OVB-04-01	South	2020-09-10	✓	✓	✓	✓	✓	✓	✓
			20-VGE-OVB-04-02	Middle	2020-09-10	✓						
			20-VGE-OVB-04-03	North	2020-09-10	✓						
5	460572	7099200	20-VGE-OVB-05-01	South	2020-09-10	✓	✓	✓				
			20-VGE-OVB-05-02	Middle	2020-09-10	✓						
			20-VGE-OVB-05-03	North	2020-09-10	✓						
6	458516	7100751	20-VGE-OVB-06-01	South	2020-09-10	✓	✓	✓				
			20-VGE-OVB-06-02	Middle	2020-09-10	✓						
			20-VGE-OVB-06-03	North	2020-09-10	✓						
	460592	7099173	20-VGE-OVB-Plateau-01		2020-10-23		✓					
	460550	7099045	20-VGE-OVB-Slope-01		2020-10-23		✓					
			20-VGE-WR-Plateau-01		2020-11-30		✓					



Figure 3.1: Sampling locations at 1370 Bench in September 2020.

3.2 Construction of Cover System

The construction areas and locations of the monitoring stations are provided in Appendix B, and photographs of construction in Appendix C. Progress reports prepared by VG during sampling and construction are provided in Appendix D.

The plateau was prepared for overburden by filling holes and flattening the bench. The area, perimeter, and depth of overburden spread were measured on September 3-4 by taking eight (8) waypoints as well as a track of the spread. The total area of overburden spread was 5,317 m^2 (57,234 ft^2) with a perimeter of 405 m. The spread of overburden was uneven, ranging from 0.15 to 0.50 m. Personnel collecting overburden samples from the slope at Zones 4 to 6 on September 10 described the slope as approximately 60% or 1.66:1V, similar to the 1.15:1V angle of repose.

Construction of the overburden spread was completed between September 7-22. VG observed on September 22 that the meteorological station planned for the slope could not be located on the slope because the incline was too steep for safe installation. A new location

was proposed “right on the edge”, near the time lapse camera. Instrumentation installation was delayed until the trial area could be regraded to 0.50 m.

Phil Emerson and Lindsay Rear of VG arrived at the 1370 Bench on October 19 to observe the new contractor, Ewing Construction, levelling overburden throughout the pad. Approximately 2” of snow was observed on the bench. The survey contractor had staked a 20 x 20 m location for the plateau meteorological station further to the north. VG consulted with operator and supervisor Marshall Ewing to level the pad to 0.50 m, requesting high accuracy for the proposed meteorological station location. In addition, VG reviewed the staked area for the slope meteorological station and determined the area was adequate.

Spreading of overburden material continued on October 20, with even spreading hampered by freezing conditions. The overburden depth was expected to be between 0.4 to 0.7 m but the surveyor was unable to advise on cut/fill in this area because the original elevation of the stockpile was not captured in earlier surveys. The operator, Senior Mine Technician and Senior Project Manager decided the dozer operator would cut down the dump to confirm 0.50 m of overburden had been placed and then cut and fill accordingly.

Both meteorological stations were installed on October 21. The excavator was unavailable until 3 pm so operators decided to wait until 8 am the following morning to excavate pits to install the soil monitoring sensors, rather than allow the pits to freeze overnight. Wiring of the soil sensors was therefore also delayed because the electrician requested to wait until the pits were dug.

Frost had penetrated 0.2 to 0.3 m into the ground when excavation to install the soil sensors began on October 22. Excavation for the slope monitoring station began in the morning but the overburden material depth was found to be >1.5 m, so Larisa Doucette (Okane) was consulted. The berm and slope were excavated back to stockpile in a section of ~20 m, and the slope was regraded with the excavator to achieve the target depth of 0.50 m.

Following regrading the slope from the crest to the sensor installation location was 2.5H:1V and from the crest to the bottom toe was 2H:1V (Rear, 2021). The slope soil monitoring station was therefore installed on the slope instead of the berm. The excavator dug a pit on the plateau for the soil monitoring station, finding the overburden was frozen throughout the profile with large chunks of frozen earth, and an overburden depth of approximately 0.6 m. Soil sensors were installed and both soil and meteorological sensors were then wired. The progress report indicates the soil pit for the slope monitoring station was excavated and instrumented on October 22 as well.

Larisa Doucette worked remotely with the crew on October 23 to verify the monitoring stations were working properly. The Ewing operator moved material to cover the excavation on the slope, using hand tools to level the areas close to the weather stations, and reshaped the

berm. Unfrozen material was transported to the soil pit on the plateau and the sensors were packed within the soil pit using hand tools. The plateau meteorological station was leveled, and the soil pit was backfilled and leveled by the excavator. The excavator then completed packing the berm at the slope station location.

3.2.1 Construction QA/QC Activities

The slope was regraded when the overburden depth was discovered to be >1.5 m instead of the target 0.50 m depth. The regrading reduced the slope angle from the 1.15H:1V angle of repose to 2-2.5H:1V.

3.3 Material Properties

PSD of the nine overburden samples submitted for analysis was determined using the American Association of State Highway and Transportation Officials (AASHTO) Soil Classification System as shown in Table 3.2. The AASHTO classification is A-2-4 based on PSD and Atterberg Limits, provided in Table 3.3.

The overburden is 43% gravel and 57% sandy loam as classified using the Canadian System of Soil Classification (CSSC), with clay and sand representing approximately 8.5% and 58% respectively of particles >2 mm in diameter. The low plasticity of the overburden is attributed to low clay content. PSD data is provided in Appendix A.

Table 3.2: Summary of PSD of overburden samples.

AASHTO Soil Classification System	Average (%)	Minimum (%)	Maximum (%)
Clay	4	3	5
Silt	18	13	25
Fine sand	11	7	12
Coarse sand	21	15	23
Fine and medium gravel	34	31	49
Coarse gravel	8	2	13
Summary			
Silt and clay	26	19	31
Sand	31	22	35
Gravel	43	36	59

Table 3.3: Summary of Atterberg limits from overburden samples.

Atterberg Limit	Average (%)	Minimum (%)	Maximum (%)
Plastic Limit (PL)	21	20	22
Liquid Limit (LL)	27	24	30
Plasticity Index (PI)	6	3	9

Nine samples of overburden and six samples of waste rock were collected from the slope and plateau monitoring station locations for material calibration of the soil moisture sensors. Analysis for the overburden and waste rock material is provided in Table 3.4 and Table 3.5.

Table 3.4: Overburden bulk density and gravimetric water content.

Parameter	Average (%)	Minimum (%)	Maximum (%)
Bulk Density (g/cm^3)	1.71	1.6	1.8
Gravimetric water content (g/g)	0.11	0.05	0.16
Porosity[1] (%)	34		

[1]Porosity estimated assuming particle density of 2.6 g/cm^3.

Table 3.5: Waste rock bulk density and gravimetric water content.

Parameter	Average (%)	Minimum (%)	Maximum (%)
Bulk Density (g/cm^3)	1.71	1.6	1.8
Gravimetric water content (g/g)	0.07	0.002	0.13
Porosity[1] (%)	34		

[1]Porosity estimated assuming particle density of 2.6 g/cm^3.

Standard proctor testing on two overburden samples (20-VGE-OVG-03-01 and 20-VGE-OVG-04-01) determined that molding water content is 9.7 to 11.3% for maximum compaction of 1,988 to 2,054 kg/m^3 dry density. Hydraulic conductivity testing on the two overburden samples determined hydraulic conductivities of 2.5 x 10^{-9} m/s and 4.4 x 10^{-9} m/s, respectively at 95% compaction. Standard proctor and hydraulic conductivity data, and SWCCs are provided in Appendix A.

4 CLOSURE

Please do not hesitate to contact me at (403) 815-0009 or tbaker@okc-sk.com should you have any questions or comments.

5 REFERENCES

Okane Consultants Inc. 2020a. Eagle Gold Mine Overburden Stockpile Characterization and Instrumentation Scope of Services. July 23, 2020. Technical letter from Lindsay Tallon to Lindsay Rear, Environmental Manager, Victoria Gold Corp., Vancouver, British Columbia, Canada. Okane reference P-1048-005.

Okane Consultants Inc. 2020b. Eagle Mine Cover Trial Construction Quality Control Program Rev1. September 3, 2020. Memorandum from Lindsay Tallon and Larisa Doucette to Lindsay Rear, Environmental Manager, Victoria Gold Corp., Vancouver, British Columbia, Canada. Okane reference 1048-005.

Okane Consultants Inc. 2020c. Victoria Gold – Standard Operating Procedure for Material Sampling. August 20, 2020. Memorandum from Hal Cooper to Lindsay Rear, Environmental Manager, Victoria Gold Corp., Vancouver, British Columbia, Canada. Okane reference 1048-005.

Okane Consultants Inc. 2020d. B-1048-005 Victoria Gold Eagle Gold Mine – 2020 Update to RCP. September 29, 2020. Memorandum from Lindsay Tallon to Lindsay Rear, Environmental Manager, Victoria Gold Corp., Vancouver, British Columbia, Canada. Okane reference B-1048-005.

Rear, L. 2021. Personal communication to Tara Baker, Engineer, Okane Consultants Inc. via email on January 13, 2021. Lindsay Rear, Environmental Manager, Victoria Gold Inc.

Appendix A

Material Sampling Data

Appendix B

As-Built Drawings



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AS BUILT

Legend/Notes

NOTE

1. ALL UNITS IN METRES U.N.O.
2. IMAGERY AND TOPOGRAPHY PROVIDED BY THE CLIENT.
3. CLIENT PROVIDED AS-BUILT DATA FOR COVER SYSTEM PLACE ON PLATEAU, COLLECTED 10-29-2020.
4. FINAL TRIAL BOUNDARY ESTIMATED BASED ON CONTOUR DATA.

LEGEND

AS-BUILT COVER CONTOUR — 1300

EXISTING CONTOUR — 1300

TRIAL BOUNDARY

1370 DUMP BOUNDARY

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SCALE 1:2000

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2		
1		
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A	ISSUED FOR CLIENT REVIEW	2020/09/24

Client/Project

VICTORIA GOLD CORP
TSX | VGCX

VICTORIA GOLD CORP.
WASTE ROCK STORAGE FACILITY
COVER SYSTEM TRIAL

Drawn by: H. COOPER

Designed by: L. DOUCETTE

Approved by: L. TALLON

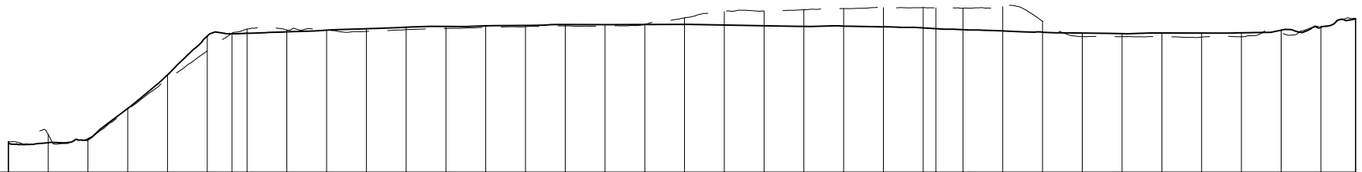
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PLACEMENT - AS-BUILT

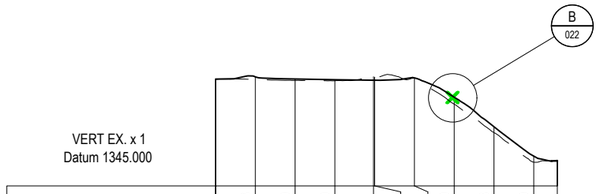
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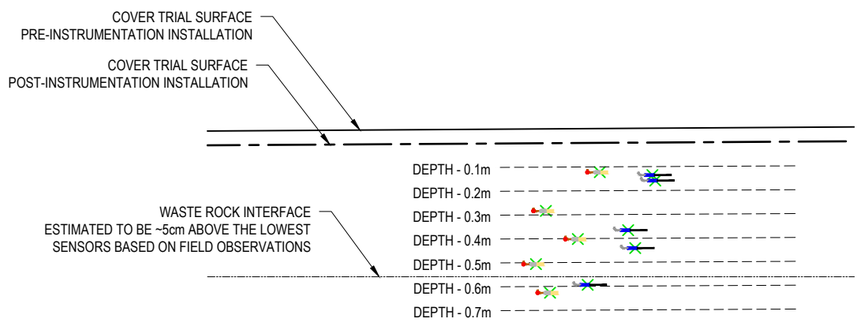

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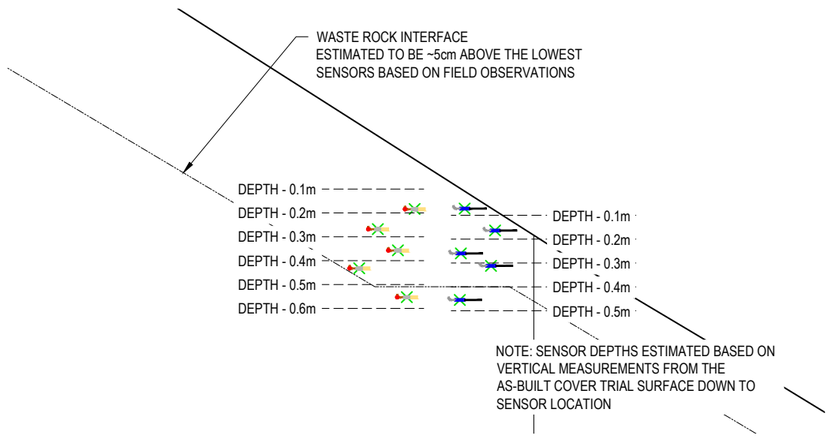
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DEPTH	0.78	0.37	0.27	-0.88	-0.76	0.04	1.75	1.49	1.55	
CHAINAGE	10.00	20.00	30.00	39.71	40.00	50.00	60.00	70.00	80.00	

SECTION 4 / 020
1:1500



PLATEAU STATION INSTRUMENTATION LAYOUT

DETAIL A / 021
1:25



SLOPE STATION INSTRUMENTATION LAYOUT

DETAIL B / 022
1:50

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AS BUILT

Legend/Notes

NOTE

1. ALL UNITS IN METRES U.N.O.
2. IMAGERY AND TOPOGRAPHY PROVIDED BY THE CLIENT.
3. CLIENT PROVIDED AS-BUILT DATA FOR COVER SYSTEM PLACE ON PLATEAU, COLLECTED 10-29-2020.

LEGEND

VOLUMETRIC WATER CONTENT (CS650)

SOIL MATRIC SUCTION (CS229)

Revision	Description	Date
3		
2		
1		
0	AS-BUILT DATA	2020/11/24
A	ISSUED FOR CLIENT REVIEW	2020/09/24

Client/Project

VICTORIA GOLD CORP
TSX | VGCX

VICTORIA GOLD CORP.
WASTE ROCK STORAGE FACILITY
COVER SYSTEM TRIAL

Drawn by: H. COOPER
Designed by: L. DOUCETTE
Approved by: L. TALLON

Drawing title

PLATEAU COVER SYSTEM
PLACEMENT - AS-BUILT
SECTIONS AND INSTRUMENTATION

Project no.	Drawing no.	Sheet	Revision
1048-005	1048-005-022	ANSI B	0

Last Saved:1/29/2021 11:19 AM
Cadfile Name:1048-005-020.dwg

Appendix C

Photo Log



Photo 1 1370 Bench on September 6, 2020.



Photo 2 Face of Zone 1 on September 6, 2020.



Photo 3 Digital PSD of Zone 1 composite sample area 1 (20VGE-OVB-01-01).



Photo 4 Digital PSD of Zone 1 composite sample area 2 (20VGE-OVB-01-02).



Photo 5 Digital PSD of Zone 1 composite sample area 3 (20VGE-OVB-01-02).



Photo 6 Oversized fraction at Zone 1 sample area 3.



Photo 7 Face of Zone 2 on September 7, 2020.



Photo 8 Digital PSD of Zone 2 composite sample area 1 (20VGE-OBV-02-01).



Photo 9 Digital PSD of Zone 2 composite sample area 2 (20VGE-OBV-02-02).



Photo 10 Digital PSD of Zone 2 composite sample area 3 (20VGE-OBV-02-03).



Photo 11 Oversized fraction at Zone 2 sample area 3.



Photo 12 Face of Zone 3 on September 7, 2020.



Photo 13 Digital PSD of Zone 3 composite sample area 1 (20VGE-OBV-03-01).



Photo 14 Digital PSD of Zone 3 composite sample area 2 (20VGE-OBV-03-02).



Photo 15 Digital PSD of Zone 3 composite sample area 3 (20VGE-OBV-03-03).



Photo 16 Oversized fraction at Zone 3 sample area 3.



Photo 17 1370 bench on September 10, 2020.



Photo 18 1370 bench on September 10, 2020.



Photo 19 1370 bench on September 10, 2020.



Photo 20 1370 bench on September 10, 2020.



Photo 21 1370 bench on September 10, 2020.


Photo 22 Face of Zone 4 on September 10, 2020.



Photo 23 Digital PSD of Zone 4 composite sample area 1 (20-VGE-OVB-04-01).



Photo 24 Digital PSD of Zone 4 composite sample area 2 (20-VGE-OVB-04-02).

APPENDIX W

Eagle Mine Base Case Cover System Performance Monitoring Report



Photo 25 Digital PSD of Zone 4 composite sample area 3 (20-VGE-OVB-04-03).



Photo 26 Oversized fraction at Zone 4 composite sample area 1.



Photo 27 Oversized fraction at Zone 4 composite sample area 2.



Photo 28 Oversized fraction at Zone 4 composite sample area 3.



Photo 29 Face of Zone 5 on September 10, 2020.



Photo 30 Digital PSD of Zone 5 composite sample area 1 (20-VGE-OVB-05-01).



Photo 31 Digital PSD of Zone 5 composite sample area 2 (20-VGE-OVB-05-02).



Photo 32 Digital PSD of Zone 5 composite sample area 3 (20-VGE-OVB-05-03).



Photo 33 Oversized fraction at Zone 5 composite sample area 2.



Photo 34 Face of Zone 6 on September 10, 2020.



Photo 35 Digital PSD of Zone 6 composite sample area 1 (20-VGE-OVB-06-01).



Photo 36 Digital PSD of Zone 6 composite sample area 2 (20-VGE-OVB-06-02).



Photo 37 Digital PSD of Zone 6 composite sample area 3 (20-VGE-OVB-06-03).



Photo 38 Oversized fraction at Zone 6 composite sample area 1.



Photo 39 Overburden spreading on 1370 bench on September 11, 2020.



Photo 40 Overburden spreading on 1370 bench on September 11, 2020.



Photo 41 Overburden spreading on 1370 bench on September 11, 2020.



Photo 42 1370 bench on September 11, 2020.



Photo 43 Heavy fog in morning of September 19, 2020 at 1370 bench.



Photo 44 Overburden at 1370 bench on September 19, 2020.



Photo 45 Overburden at 1370 bench on September 19, 2020.



Photo 46 Reclamation work at 1370 bench on September 20, 2020.



Photo 47 1370 bench on September 22, 2020.



Photo 48 Rutting area on 1370 bench on September 22, 2020.



Photo 49 1370 bench on September 22, 2020.



Photo 50 1370 bench on September 22, 2020.



Photo 51 1370 bench on September 22, 2020.



Photo 52 1370 bench on September 22, 2020.



Photo 53 1370 bench on September 22, 2020.



Photo 54 1370 bench on September 22, 2020.



Photo 55 1370 bench on September 22, 2020.



Photo 56 1370 bench on September 22, 2020.



Photo 57 View directly south across the 1370 bench of bulldozer working on October 19, 2020.



Photo 58 View directly north across the 1370 bench with the staked 20x20 m area on October 19, 2020.



Photo 59 View east over the covered slope on October 19, 2020, showing the staked location for the slope climate station.



Photo 60 View south from the designated slope meteorological station area on October 19, 2020.

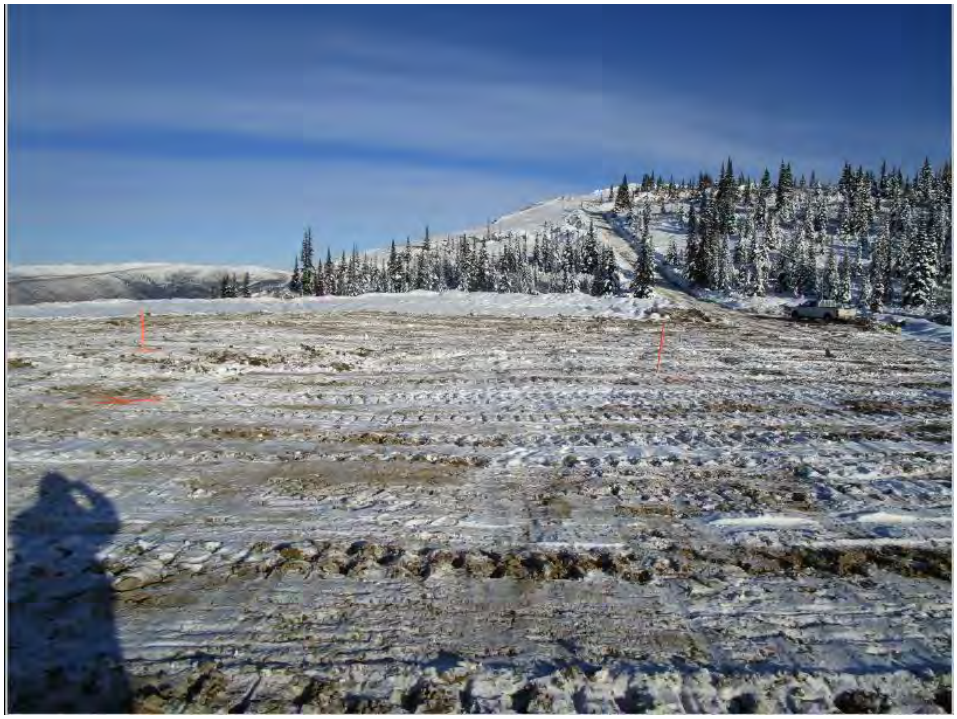


Photo 61 1370 bench on October 20, 2020 following removal of snow and grade stakes.



Photo 62 Excavator removing material at slope monitoring station on October 22, 2020 to meet project specification of 0.50 m.

Appendix D

Progress Reports

Eagle Mine 1370 Cover System Progress Report

Date:	2020-09-03, 04	**Owner/Client:**	
Day:		**Okane Project #:**	
Prepared by:	KT	**Project Location:**	Eagle Mine - Bench 1370

Number of Pages in Report

Environmental Conditions:

Weather	Showers	Wind	Low
Temperature (High/Low)	4C -	Humidity	80 to 100%

Location of Work:

Overburden on the 1370 Bench. Specifically, the overburden that has been spread out already (57234 sq ft).

Effects on Work (weather, incidents, breakdowns, delays, etc.):

Heavy rain was making the roads muddy. 4x4 is needed.

Health, Safety, & Environment:

Safety: To access the 1370 Bench, communication with the Pit Supervisor is to be obtained prior to entry. Haul trucks are hauling ore most days, situational awareness is imperative to worker's safety.

Sampling/Construction/Installation Notes:

Obtained area, perimeter and depth readings of overburden material that has been spread out. See photos and map attached.

Sampling was not conducted at this time.

Construction was not ongoing at this time.

Communication:

Total area of overburden spread to date is 57234 sq ft.
Total perimeter of overburden spread to date is 405m.
Depth of spread is uneven, approximately 15-50cm.
8 waypoints were taken (shown on map) as well as a track of the spread.

Sampling will be conducted within the next couple days once all equipment is obtained.

Incidents:

No incidents.

Other General Remarks:

By signing below I agree that the above statements are an accurate representation of events.

Okane Consultants:

Victoria Gold Representative:

PHOTOGRAPHS

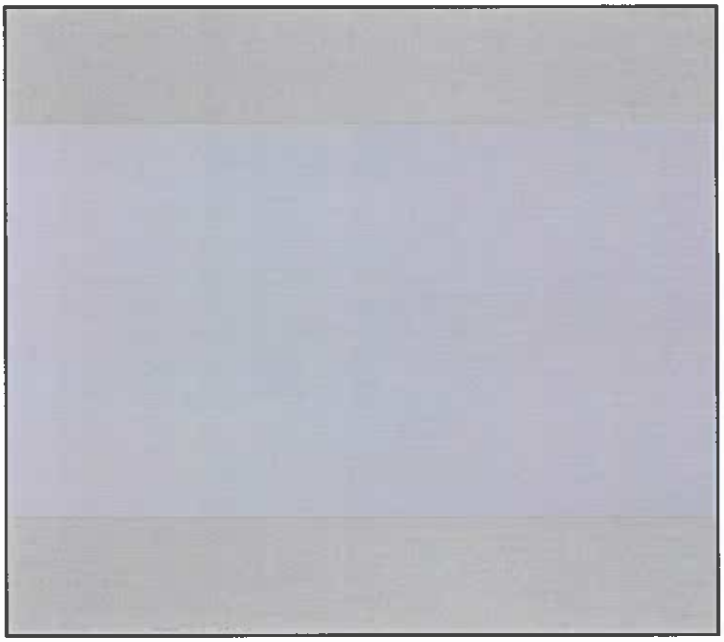


Photo #:

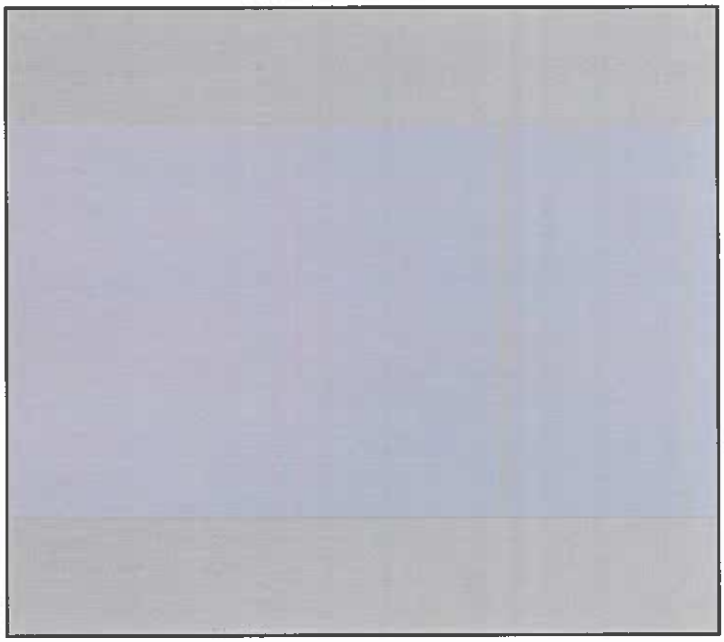


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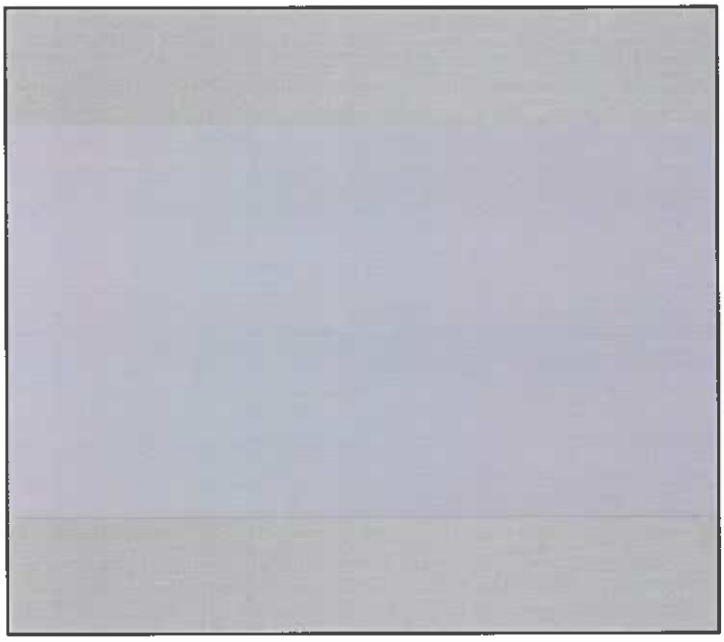


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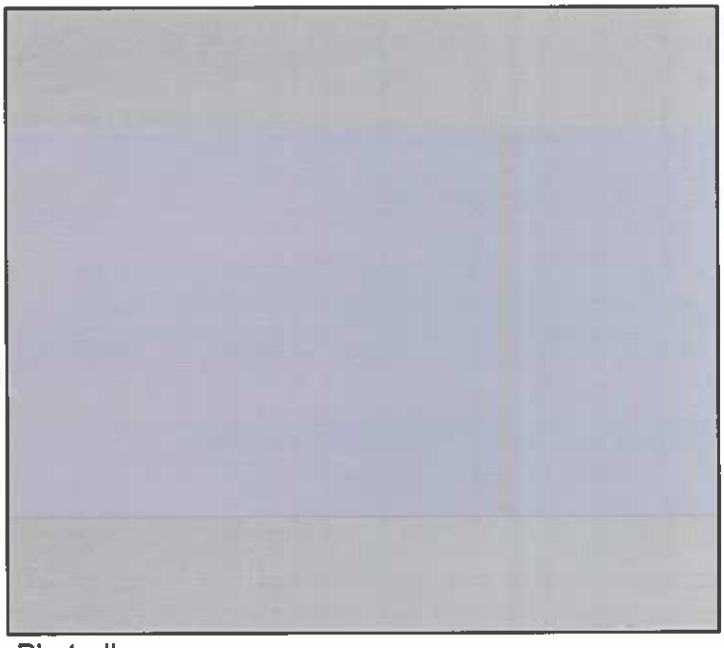
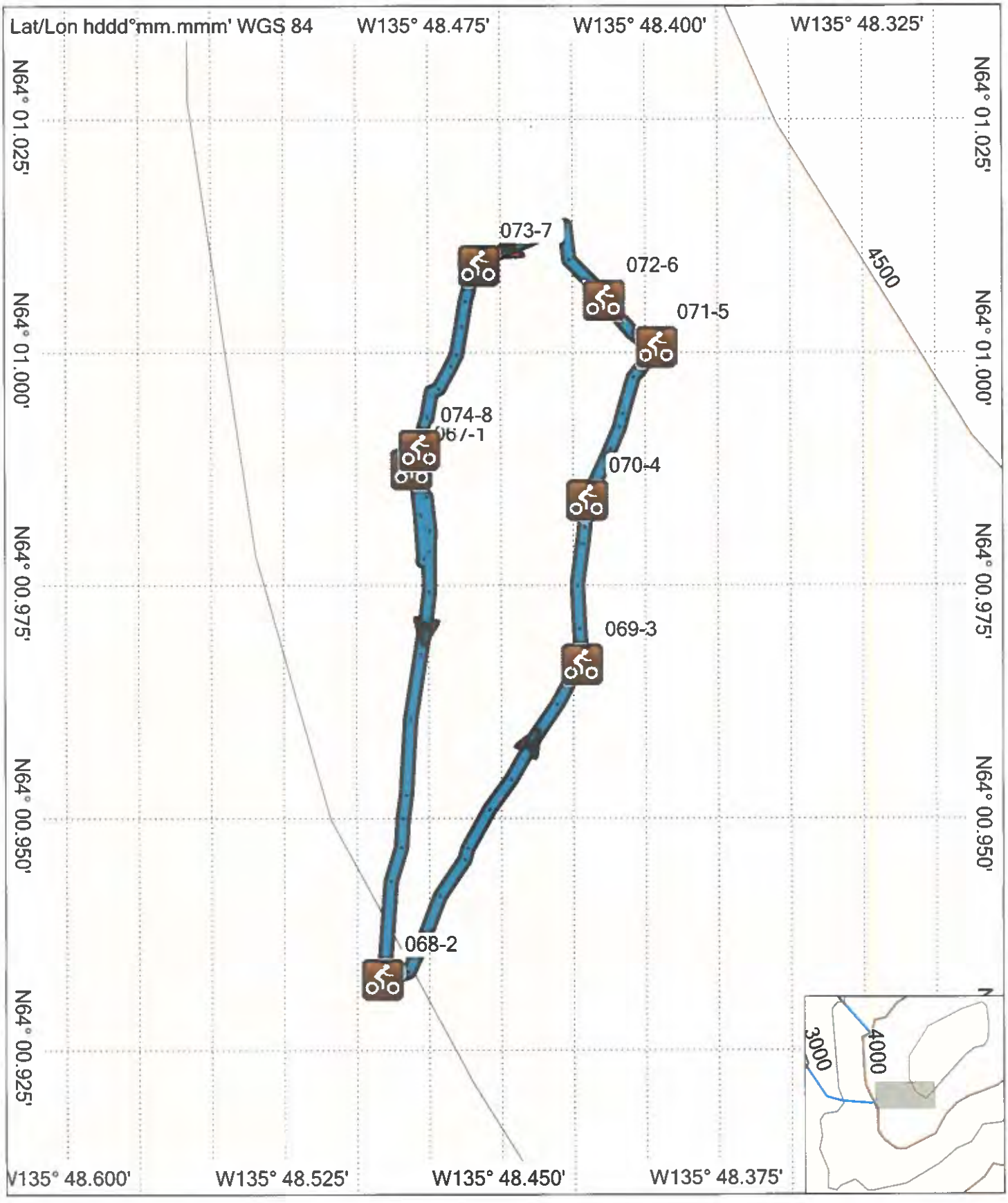


Photo #:

Duplicate Page



Topo Canada v4
© Dmti Spatial Inc. 2008
© Garmin Ltd. and its Subsidiaries 2009

0 ft 60 ft 120 ft 180 ft 240 ft

TN MN 24.0°

1370 Bench

GARMIN. 1/1/2010

Eagle Mine 1370 Cover System Progress Report

Date:	2020-09-10	**Owner/Client:**	
Day:	2	**Okane Project #:**	
Prepared by:	KT	**Project Location:**	Eagle Gold Mine

Number of Pages in Report

Environmental Conditions:

Weather	Clear		Wind	Moderate
Temperature (High/Low)	2C	- 0C	Humidity	40 to 60%

Location of Work:

Overburden on the 1370 Bench.

Effects on Work (weather, incidents, breakdowns, delays, etc.):

Frost is now present at Eagle Mine. Wind was moderate during this visit.

Health, Safety, & Environment:

Safety: To access the 1370 Bench, communication with the Pit Supervisor is to be obtained prior to entry. Haul trucks are hauling ore, call your km's in the pit. Be aware of machinery blind spots.

Sampling/Construction/Installation Notes:

Sampling:
Sampled Zone 4, 5 and 6. Slope was approximately a 60% incline, so sampling took longer. Because of the frost at night and sun during the morning, material was becoming saturated with moisture and becoming soup-like.

Construction:
A shovel was pulling out overburden material from pile and spreading it out during our time sampling. Communication was established prior to sampling. Photos were taken. Time lapse camera is still taking 2 photos every hour.

Communication:

Two different sized balls were used (one 6" and one 8.7" due to communication error). Red is 8.7", orange is 6". The 8.7" red ball was always placed above the 6" orange ball in medium scale photos.

We (the samplers) had a tough time sampling the slope. The material was almost equivalent to cement (probably the frost) but it did loosen up after walking around on it mixed with the warmth from the sun.

Incidents:

No incidents.

Other General Remarks:

By signing below I agree that the above statements are an accurate representation of events.

Okane Consultants:

Victoria Gold Representative:

Eagle Mine 1370 Cover System Progress Report

Date:	Sep-19-20	**Owner/Client:**	
Day:	4	**Okane Project #:**	
Prepared by:	KT, KB	**Project Location:**	Eagle

Number of Pages in Report

Environmental Conditions:

Weather	Fair		Wind	Low
Temperature (High/Low)	1	5	Humidity	60 to 80%

Location of Work:

Overburden on the 1370 Bench.

Effects on Work (weather, incidents, breakdowns, delays, etc.):

Weather: Heavy fog in the early morning until 9am.

Health, Safety, & Environment:

Safety: To access the 1370 Bench, communication with Pit Supervisor is to be obtained prior to entry. Haul trucks are hauling ore, call your km's in the pit. Be aware of machinery blind spots.

Sampling/Construction/Installation Notes:

Construction ongoing.

Communication:

Checked time lapse camera, all operations normal - taking photos every 2 hours.

Incidents:

No incidents.

Other General Remarks:

By signing below I agree that the above statements are an accurate representation of events.

Okane Consultants:

Victoria Gold Representative:

Eagle Mine 1370 Cover System Progress Report

Date:	Sep-22-20	**Owner/Client:**	
Day:	5	**Okane Project #:**	
Prepared by:	KT, KB	**Project Location:**	Eagle

Number of Pages in Report

Environmental Conditions:

Weather	Cloudy		Wind	High
Temperature (High/Low)	1	-4	Humidity	40 to 60%

Location of Work:

Overburden on the 1370 Bench.

Effects on Work (weather, incidents, breakdowns, delays, etc.):

Weather: High wind.

Health, Safety, & Environment:

Safety: To access the 1370 Bench, communication with Pit Supervisor is to be obtained prior to entry, Haul trucks are hauling re, call your km's in the pit. Be aware of machinery blind spots.

Sampling/Construction/Installation Notes:

Construction of the overburden spread is complete.

Took photos of overview shots, a shot showing the berms, a shot showing slope down where the slope weather station is going to go, and shots showing the least impacted rutting area and the most impacted rutting area.

Wx Plateau Proposed Location: 0460592N 7099173W
Wx Slope Proposed Location: 0460592 7099173

The weather station on the slope can not physically be on the slope as the incline is too great to achieve safe installation. This proposed location is right on the edge, close to where the time lapse camera is set up.

Communication:

See photos.

Incidents:

No incidents.

Other General Remarks:

By signing below I agree that the above statements are an accurate representation of events.

Okane Consultants:

Victoria Gold Representative:

Khale

Eagle Mine 1370 Cover System Progress Report

Date:	Sep-22-20	**Owner/Client:**	
Day:	5	**Okane Project #:**	
Prepared by:	KT, KB	**Project Location:**	Eagle

Number of Pages in Report

Environmental Conditions:

Weather	Cloudy		Wind	High
Temperature (High/Low)	1	-4	Humidity	40 to 60%

Location of Work:

Overburden on the 1370 Bench.

Effects on Work (weather, incidents, breakdowns, delays, etc.):

Weather: High wind.

Health, Safety, & Environment:

Safety: To access the 1370 Bench, communication with Pit Supervisor is to be obtained prior to entry, Haul trucks are hauling re, call your km's in the pit. Be aware of machinery blind spots.

Sampling/Construction/Installation Notes:

Construction of the overburden spread is complete.

Took photos of overview shots, a shot showing the berms, a shot showing slope down where the slope weather station is going to go, and shots showing the least impacted rutting area and the most impacted rutting area.

Wx Plateau Proposed Location: 0460592N 7099173W
Wx Slope Proposed Location: 0460592 7099173

The weather station on the slope can not physically be on the slope as the incline is too great to achieve safe installation. This proposed location is right on the edge, close to where the time lapse camera is set up.

Communication:

See photos.

Incidents:

No incidents.

Other General Remarks:

By signing below I agree that the above statements are an accurate representation of events.

Okane Consultants:

Victoria Gold Representative:

Khale

Eagle Mine 1370 Cover System Progress Report

Date:	October 19, 2020	**Owner/Client:**	
Day:	Monday	**Okane Project #:**	
Prepared by:	LRear	**Project Location:**	

Number of Pages in Report

Environmental Conditions:

Weather	Clear	Wind	Low
Temperature (High/Low)	-15	Humidity	Choose from List

Location of Work:

1370 Bench, Eagle Pit

Effects on Work (weather, incidents, breakdowns, delays, etc.):

New contractor Ewing Construction arrived at work location October 19, 2020

Health, Safety, & Environment:

Be aware of moving equipment, make eye contact with operator before passing machinery on foot or vehicle.
Steep and narrow access roads, use radio, drive slow in 4x4.

Sampling/Construction/Installation Notes:

Phil Emerson and Lindsay Rear (VGC) arrived at the 1370 Bench around 13:00pm. Ewing bulldozer was leveling the overburden throughout pad. Approximately 2 inches of snow was on the bench.

Survey had staked a location 20x20m for the plateau climate station further to the north.

Communication:

VGC reviewed with Ewing operator and supervisor (Marshall Ewing) to level the pad to 0.5 m, focusing on high accuracy within the 20x20m section staked out.

Upon review of the staked section it was discussed to move the 20x20m area further south.

VGC also reviewed the staked area for the slope climate station further south. The area looked adequate for the station. The slope depth was estimated previously at 60cm.

VGC completed a test run of communications at that location to ensure O'Kane could remotely support the instrumentation installation later that week. Internat and cell access was successful.

Incidents:

N/A

Other General Remarks:

Instrument Installation is scheduled for Wednesday, October 22, 2020. VGC will contact Larissa for support and to provide remote access to ensure loggers are activated and functioning correctly.

By signing below I agree that the above statements are an accurate representation of events.

Okane Consultants:

Victoria Gold Representative:

Lindsay Rear

Eagle Mine 1370 Cover System Progress Report

PHOTOGRAPHS



Photo #: 1

Viewing directly south across the 1370 bench with bulldozer working.



Photo #: 2

Viewing directly north across the 1370 bench with the staked 20x20m area in the photo.



Photo #: 3

Viewing east over the covered slope, showing the staked location for the slope climate station.

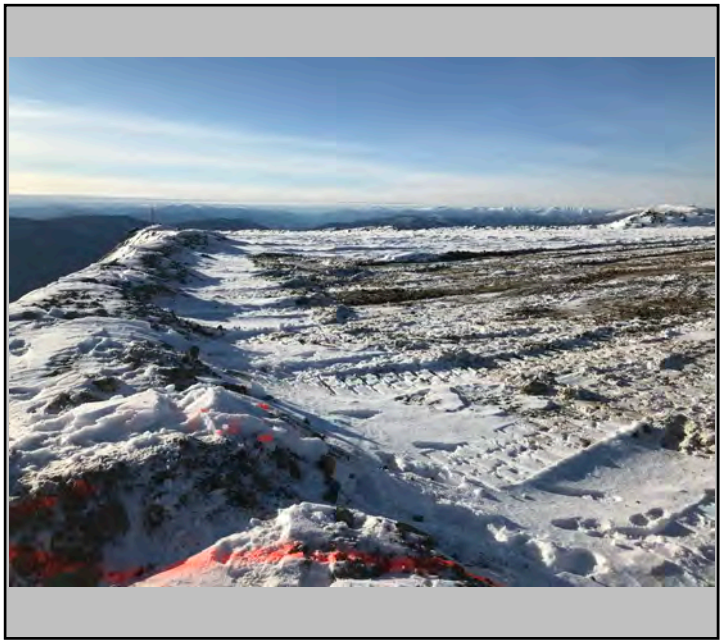


Photo #: 4

Viewing south from the slope climate station area (wildlife camera visible in the far background on left).

Duplicate Page

Eagle Mine 1370 Cover System Progress Report

Date:	October 19, 2020	**Owner/Client:**	
Day:	Monday	**Okane Project #:**	
Prepared by:	LRear	**Project Location:**	

Number of Pages in Report

Environmental Conditions:

Weather	Clear	Wind	Low
Temperature (High/Low)	-15	Humidity	Choose from List

Location of Work:

1370 Bench, Eagle Pit

Effects on Work (weather, incidents, breakdowns, delays, etc.):

New contractor Ewing Construction arrived at work location October 19, 2020

Health, Safety, & Environment:

Be aware of moving equipment, make eye contact with operator before passing machinery on foot or vehicle.
Steep and narrow access roads, use radio, drive slow in 4x4.

Sampling/Construction/Installation Notes:

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Incidents:

N/A

Other General Remarks:

Instrument Installation is scheduled for Wednesday, October 22, 2020. VGC will contact Larissa for support and to provide remote access to ensure loggers are activated and functioning correctly.

By signing below I agree that the above statements are an accurate representation of events.

Okane Consultants:

Victoria Gold Representative:

Lindsay Rear

Eagle Mine 1370 Cover System Progress Report

PHOTOGRAPHS



Photo #: 1

Viewing directly south across the 1370 bench with bulldozer working.

Photo #: 2

Viewing directly north across the 1370 bench with the staked 20x20m area in the photo.

Photo #: 3

Viewing east over the covered slope, showing the staked location for the slope climate station.

Photo #: 4

Viewing south from the slope climate station area (wildlife camera visible in the far background on left).

Duplicate Page

Eagle Mine 1370 Cover System Progress Report

Date:	October 19, 2020	**Owner/Client:**	
Day:	Monday	**Okane Project #:**	
Prepared by:	LRear	**Project Location:**	

Number of Pages in Report

Environmental Conditions:

Weather	Clear	Wind	Low
Temperature (High/Low)	-15	Humidity	Choose from List

Location of Work:

1370 Bench, Eagle Pit

Effects on Work (weather, incidents, breakdowns, delays, etc.):

New contractor Ewing Construction arrived at work location October 19, 2020

Health, Safety, & Environment:

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Steep and narrow access roads, use radio, drive slow in 4x4.

Sampling/Construction/Installation Notes:

Phil Emerson and Lindsay Rear (VGC) arrived at the 1370 Bench around 13:00pm. Ewing bulldozer was leveling the overburden throughout pad. Approximately 2 inches of snow was on the bench.

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Communication:

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VGC also reviewed the staked area for the slope climate station further south. The area looked adequate for the station. The slope depth was estimated previously at 60cm.

VGC completed a test run of communications at that location to ensure O'Kane could remotely support the instrumentation installation later that week. Internat and cell access was successful.

Incidents:

N/A

Other General Remarks:

Instrument Installation is scheduled for Wednesday, October 22, 2020. VGC will contact Larissa for support and to provide remote access to ensure loggers are activated and functioning correctly.

By signing below I agree that the above statements are an accurate representation of events.

Okane Consultants:

Victoria Gold Representative:

Lindsay Rear

Eagle Mine 1370 Cover System Progress Report

PHOTOGRAPHS



Photo #: 1

Viewing directly south across the 1370 bench with bulldozer working.



Photo #: 2

Viewing directly north across the 1370 bench with the staked 20x20m area in the photo.

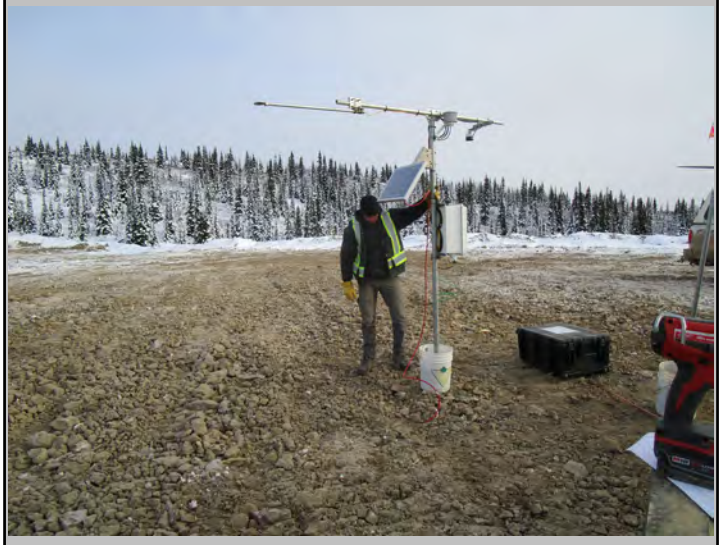


Photo #: 3

Viewing east over the covered slope, showing the staked location for the slope climate station.

Photo #: 4

Viewing south from the slope climate station area (wildlife camera visible in the far background on left).

Duplicate Page

Date: October 26, 2020

Prepared by: Phil Emerson

Temp: -20 to -10

Location: 1370

Effects on work

Slope hole was started at 9:30am, material was >150cm, call to Larisa was made for guidance. Berm and slope were excavated back to stockpile in a section of about 20m. Slope was regraded with the excavator in order to get closer to the project scope of 50cm.

Frost has penetrated about 20-30cm into the ground

Heath, Safety and Environment

Cold conditions

Working around excavator

Sampling/Construction/Installation Notes:

Crew was ready to start at 9:00

Mueller electric - Mike & Kurt

VGC - Jessica &Phil

Ewing - Kevin

9:30- Issue with depth of material on the slope station - Larisa was called and it was decided to reshape the slope and get the depth closer to project scope of 50cm.

10:00- Decided to cut berm and slope and create a station on the slope instead of the berm

10:30- Excavator still has earthworks to complete on the slope. Operator was asked to dig a hole on the plateau station so the group could continue with the installation

10:45- Plateau hole has been dug, frozen the entire way down, large chunks of frozen earth in the work area. Overburden depth is approximately 60cm

11:15- Wiring has been fed through the PVC and rain gauge has been mounted

11:30- Area is within the blast radius, crew left work area

13:00- Returned to work area and started to prep plateau excavation for instrumentation

13:00- Slope station has been prepped, slope has been regraded and is less steep than before.

13:30 - Phil left site and group had instruction to install instrument in both locations.

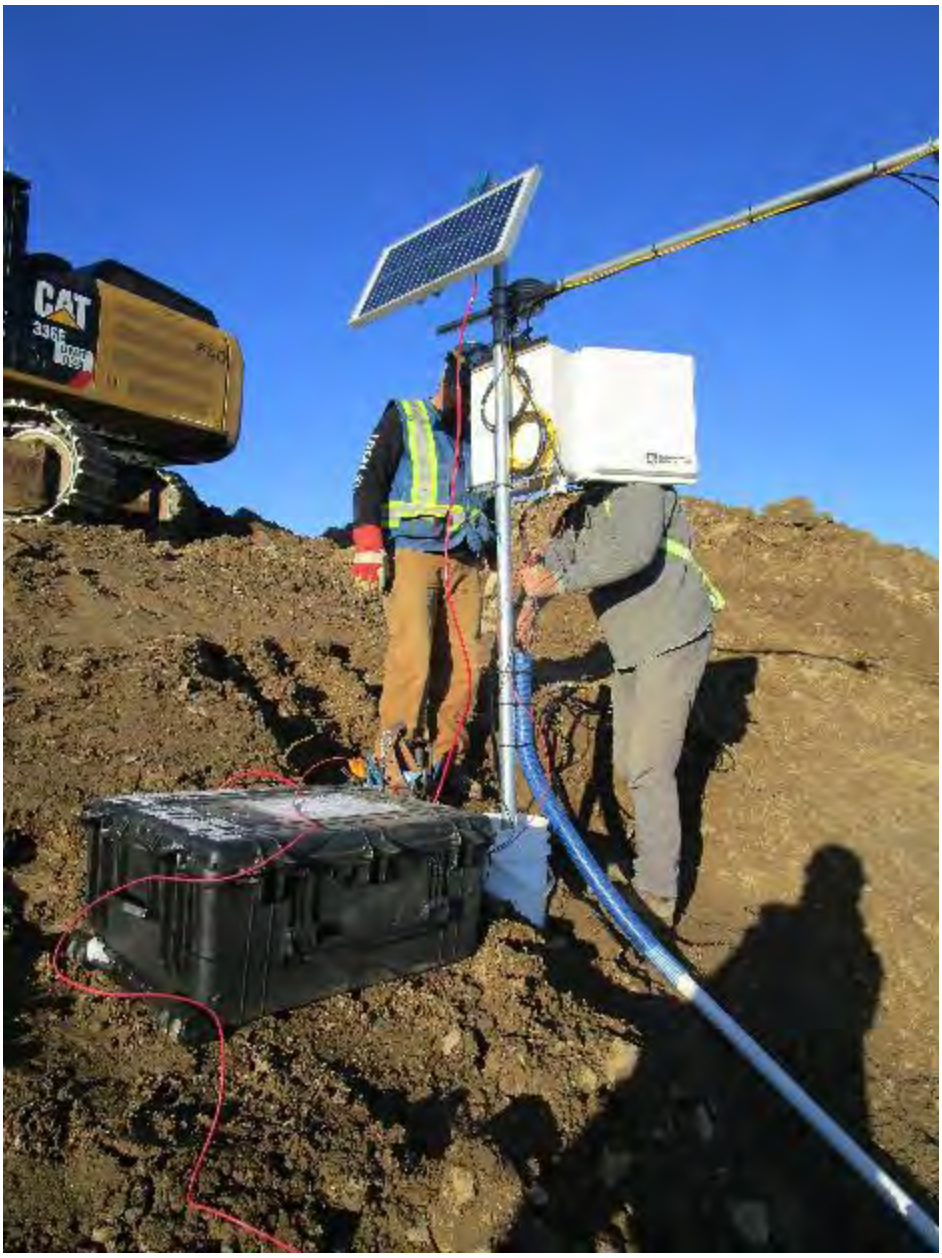
14:00- Plateau station instruments were installed, because of the frozen ground and rocks present in the overburden CS616 were partial set into the wall and then dirt was built up around them. CS229 sensors were left in the packaging overnight to avoid damage.

Communication:

Larisa was sent updated picture throughout the day



Pic 1: Hooking up sensors to the weather station



Pic 2: Wiring sensors



Pic 3: Icy/frozen conditions rock was placed around probe at the the OB/Dump interface



Pic 4: Excavator removing material at slope station to meet project specs of 50cm

Date: Oct 23, 2020

Prepared by: Phil Emerson

Weather: -20 to -10

Location: 1370 bench

Effects on Work (weather, incidents, breakdowns, delays, etc.)

Cold weather trucks were left running and used as warm up zones

Blast scheduled for 12pm must clear the area at 11:30

At slope station we could have positioned the weather station further up on the slope. Will require workers to upload information on the slope. Extra wiring has been secured to the weather station pole and station could be moved in the future if needed.

Health, Safety & Environment:

Cold weather

Working around excavator

Sampling/Construction/ Installation Notes:

8:15- Contacted Larisa to test the system via Team Viewer. Slope station was verified and we moved to plateau station to complete verification

8:45 - Verification has been completed at both stations Ewing operator starting moving material to cover excavation. hand tools were used to level area close to the weather station

9:30 - Slope station has been covered Slope sensors distance ground- snow 183cm, NRlite 241cm

and excavator started to reshape berm

10:00- Asked for unfrozen material to be tracked to the plateau station so field crew could move forward with completion of instrumentation installation (packing around instruments), leveling weather station, installation of ground, etc.

11:00- instruments have been packed and the hole was ready for backfill, combination of excavator and hand tools used

12:00- hole was backfilled and ground leveled

12:00- Excavator moved back to the slope station to completed packing the the berm before it tracked out back to site.



Pic 1: Instruments installation before program tested. CS229 probes were removed from case before hole was filled



Pic 2: Instrument installation before program test. CS229 sensors were removed from case prior to being buried



Pic 3: Excavator completing slope station fill and grading



Pic 4: Completed plateau station with Ewing operator completing finishing touches around station

APPENDIX X

Eagle Mine Material Characterization Summary

Saskatoon

112 - 112 Research Drive
Saskatoon, SK S7N 3R3
Canada

T: (306) 955 0702 F: (306) 955 1596

www.okc-sk.com

Memorandum

Date:	March 24, 2022
Re:	Eagle Gold Mine Overburden Material Characterization Program – Results Summary
To:	Hugh Coyle – Manager, Lands and Permitting, Victoria Gold Corp.
From:	Larisa Doucette, Geoscientist
Cc:	Matt McKeown – Okane Consultants Bill Bowden, Ben Widdowson, Phil Emerson, Katie Chakhova, John Jackson – Victoria Gold Corp.
Our ref:	1048-220-003 Rev2.

Okane Consultants Inc. (Okane) was retained by Victoria Gold Corp. (VG) for engineering services related to characterization of major overburden stockpiles at the Eagle Gold Mine located in the Yukon Territory. The primary objective of the program is to assess material properties of accessible overburden stockpiles on site to determine suitability for use in future reclamation activities. This memorandum provides a summary of the material characterization sampling and testing program.

Description of Field Investigation

Matt McKeown and Brent Kazamel of Okane were on site to complete the overburden material characterization sampling campaign from September 13 to 15, 2021. The sampling campaign comprised of excavation of test pits, logging the pits for material types, and collecting material samples for laboratory analysis.

Test pits were excavated where major stockpiles identified by VG site personnel were accessible with either a tracked excavator or rubber-tired backhoe (Figure 1). Several

additional samples were collected by Okane personnel using hand tools (see -4B location in Figure 1). As indicated in Figure 1, test pits targeting stockpile 3 (SP-03) do not align with the SP-03 location as indicated on the site map. As Okane personnel understood the test pit location to be on SP-03, the samples were labelled as such and referred to accordingly in this document for consistency.

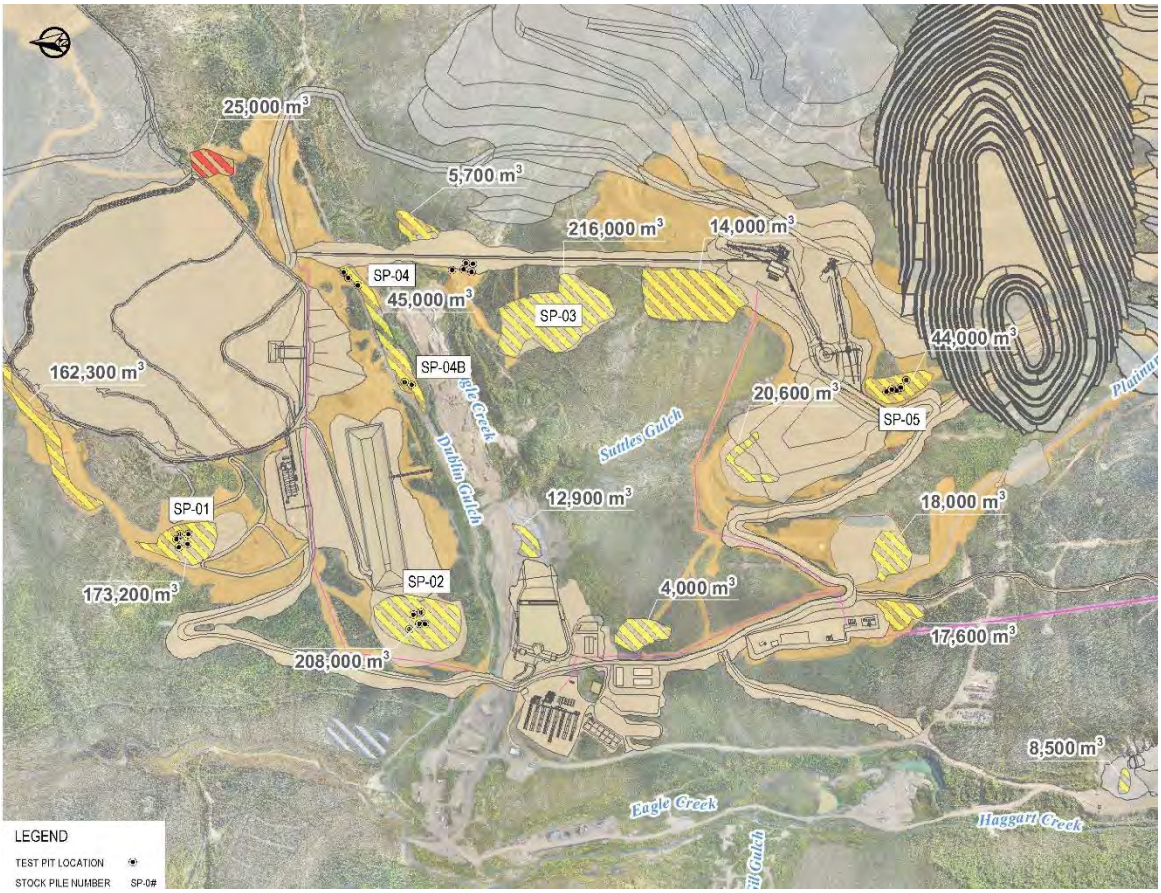


Figure 1: Material characterization sampling campaign test pit locations.

Test pits were excavated to the physical extent of the excavator arm, or until the perimeters of the test pits became unstable. Excavated material was piled adjacent to test pits. Uniform material types were encountered at most test pits, so it was not necessary to segregate material types into separate spoil piles during excavation. Physical material samples were collected from each test pit in a 20 L pail, and Munsell soil colour charts were used to describe soil colours. A summary of samples collected during the material characterization campaign is provided in Table 1. After sampling and logging, each test pit was backfilled with surplus material and restored to its original appearance. A digital photographic record was developed for each test pit and the specific test pit location was documented using a handheld GPS device. Photos referenced herein are located in Attachment A, and test pit logs are provided in Attachment B.

Table 1: Material characterization campaign sample log.

Stockpile	Test Pit	Sample Name
SP-01	1	1048-220-Stockpile01-01-09/14/21-8:30-MMCKEOWN
	2	1048-220-Stockpile01-02-09/14/21-8:40-MMCKEOWN
	3	1048-220-Stockpile01-03-09/14/21-8:50-MMCKEOWN
	4	1048-220-Stockpile01-04-09/14/21-9:00-MMCKEOWN
	5	1048-220-Stockpile01-05-09/14/21-9:10MMCKEOWN
SP-02	1	1048-220-Stockpile02-01-09/13/21-12:00-MMCKEOWN
	2	1048-220-Stockpile02-02-09/13/21-12:15-MMCKEOWN
	3	1048-220-Stockpile02-03-09/13/21-1:00-MMCKEOWN
	4	1048-220-Stockpile02-04-09/13/21-3:20-MMCKEOWN
	5	1048-220-Stockpile02-05-09/13/21-6:00-MMCKEOWN
SP-03	1	1048-220-Stockpile03-01-09/14/21-14:10-MMCKEOWN
	2	1048-220-Stockpile03-02-09/14/21-12:10-MMCKEOWN
	3	1048-220-Stockpile03-03-09/14/21—MMCKEOWN
	4	1048-220-Stockpile04-04-09/14/21—MMCKEOWN
	5	1048-220-Stockpile05-05-09/14/21—MMCKEOWN
	6	1048-220-Stockpile03-06-09/14/21-4:20-MMCKEOWN
SP-04	1	1048-220-Stockpile04-01-09/14/21-10:25-MMCKEOWN
	2	1048-220-Stockpile04-02-09/14/21-10:45-MMCKEOWN
	3	1048-220-Stockpile04-03-09/14/21-4:00-MMCKEOWN
SP-04B	1	1048-220-Stockpile04B-01-09/14/21-4:55-MMCKEOWN
	2	1048-220-Stockpile04B-02-09/14/21-5:00-MMCKEOWN
SP-05	1	1048-220-Stockpile05-01-09/13/21-2:30-MMCKEOWN
	2	1048-220-Stockpile05-02-09/13/21-2:53-MMCKEOWN
	3	1048-220-Stockpile05-03-09/13/21-3:06-MMCKEOWN
	4	1048-220-Stockpile05-04-09/13/21-3:11-MMCKEOWN
	5	1048-220-Stockpile05-05-09/13/21-3:20-MMCKEOWN

Stockpile 1 (SP-01)

SP-01 is located to the west of the heap leach facility, with an estimated volume of 173,000 m^3. Okane understands that SP-01 is comprised of materials removed from the heap leach area (communication with operator). The surface of the stockpile was noted as being hummocky with visible sticks, branches, and roots present throughout (Photo 1). The material was noted as moist to wet, and test pit walls tended to slough in, preventing excavation deeper than approximately 3 m. The material was comprised of a well graded silty gravel with sand and trace clay.

Stockpile 2 (SP-02)

SP-02 has an estimated volume of 208,000 m^3 and is located southwest of SP-011. The test pit program was restricted to the plateau area as the steeper slopes were inaccessible. The materials were primarily comprised of silty gravel and cobbles with sand. Some boulders were present, with stones greater than ~10 cm comprising an estimated 10-20% of the spoil piles examined. Some evidence of oxidized materials was observed within test pit 2 (Photo 2).

Stockpile 3 (SP-03)

Situated to the west of the conveyor belt (Photo 3), SP-03 was targeted for a test pit investigation. GPS locations logged as part of the investigation indicated that the test pits were to the north of SP-03 as indicated on Figure 1. As such, SP-03 samples were not considered representative of the stockpile and are not discussed in this document.

Stockpile 4 (SP-04)

SP-04, with an estimated volume of 45,000 m^3, was too narrow and had slopes too steep to access its plateau with heavy equipment (Photo 4). As such, test pits were excavated along the sidewall of the stockpile. A higher proportion of stones and boulders were noted in this area (20 to 25% oversized), which can likely be attributed to particle size segregation toward the bottom of the slope. Material texture was similar to that of materials incorporated in the 1370 bench Platinum Gulch WRSA cover system trial: silty gravel with sand and trace clay. Okane personnel walked the perimeter of SP-04 and noted that materials that could be accessed by manual observation were similar to samples collected at test pit locations.

Additional small stockpiles were noted along the road to the east of SP-04 (Photo 5), denoted as SP-04B. Test pits were excavated by hand in this location. Erosion of surface materials was evident, as there was a higher proportion of coarse materials at the surface. Materials at depth were similar in texture to SP-04.

Stockpile 5 (SP-05)

SP-05 is located just north of the open pit, with an estimated volume of 44,000 m^3. The accessible surface of the stockpile had the appearance of having been long exposed, due to the higher proportion of coarse materials visible on the surface (Photo 6). Sparse vegetation was also visible, and boulders (possibly relocated from adjacent areas) were present on the surface. The materials sampled were well-graded silty gravel with sand. Near surface materials were noted as being dry to moist with organic materials such as twigs and branches noted within spoil piles.

Laboratory Results

A summary of tests completed as part of Phase 1 laboratory testing is provided in Table 2. Results of analyses are provided in Attachment C.

Table 2: Laboratory testing program.

Stockpile	Test Pit	Particle Size Distribution	Atterberg Limits	Detailed Salinity	Total Carbon	Plant Available Nutrients
1	4	x	x	x	x	x
	5	x				
2	2	x	x	x	x	x
	3	x				
	5	x				
3	2	x				
	5	x	x	x	x	x
4	2	x				
	3	x	x	x	x	x
4b	2	x				
5	1	x	x	x	x	x
	3	x				
	5	x				

Particle Size Distribution

Material texture is an important component of any material characterization program. Examination of a material's particle size distribution (PSD) will give an indication of its hydraulic conductivity and water retention characteristics. Particle size distribution (PSD) tests were completed by ALS Laboratories for 13 samples (methods SSIR-51 Method 3.2.1, Modified Wentworth). A PSD curve is a graphical representation of the particle sizing of a sample representing the percent passing against the effective particle size.

Stockpiles SP-01, -04, and -05 were broadly comparable to the 1370 bench Platinum Gulch WRSA cover system trial overburden materials (Figure 2). Materials from these stockpiles were well graded, comprising a high proportion of gravel and sand sized particles, with a proportion of fines ranging from approximately 20 to 40%. Clay content is below 5% for each of the samples tested. Samples collected from SP-04 and -04B were generally coarser than SP-01 and -05, which may be in part attributed to the sampling methodology employed on these stockpiles, where excavator access was limited. Material segregation on the perimeter of the stockpiles may have contributed to coarser materials where the excavator could access the pile.

Materials sampled from SP-02 were generally coarser than SP-01, -04, and -05. A greater proportion of oversize materials was estimated at SP-02, and fines content was 20% or less.

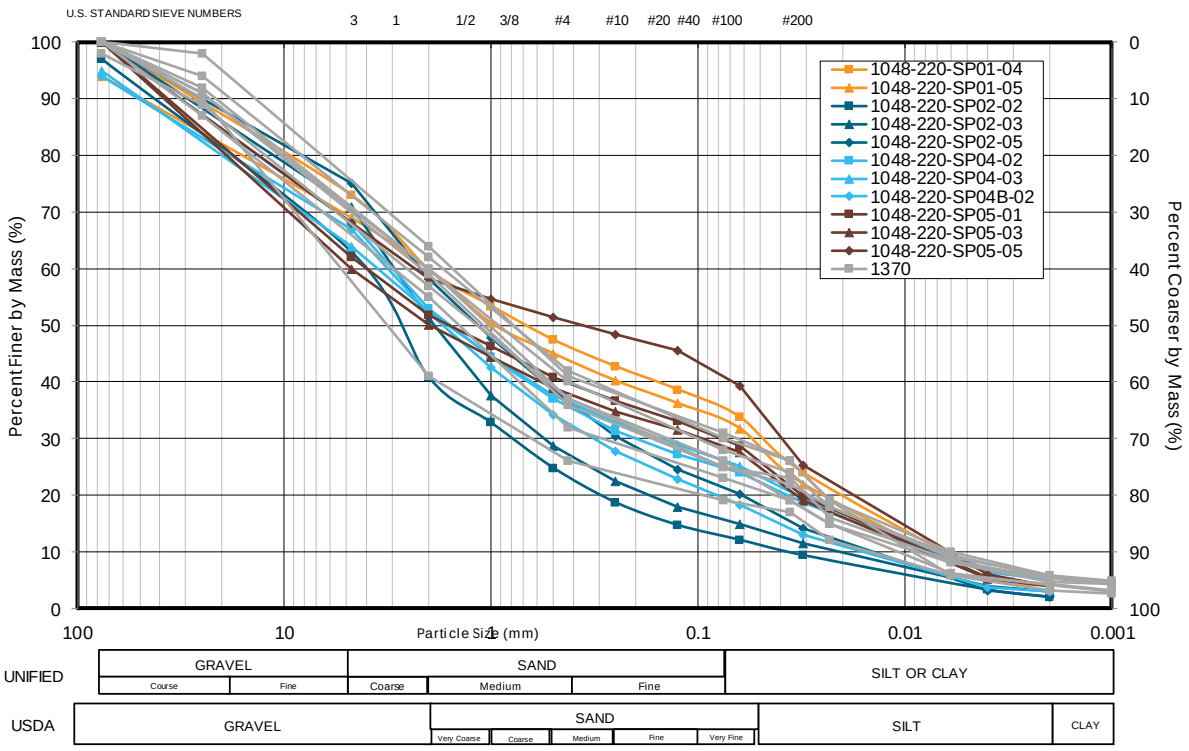


Figure 2: Particle size distributions of stockpiled materials compared to materials used at 1370 bench Platinum Gulch WRSA cover system trial.

A ternary plot (Figure 3) also illustrates the textural difference between materials from SP-02 and the other stockpiles. The low fines content at this location is indicative of a material capable of relatively low water holding capacity and limited utility in development of a lower permeability layer.

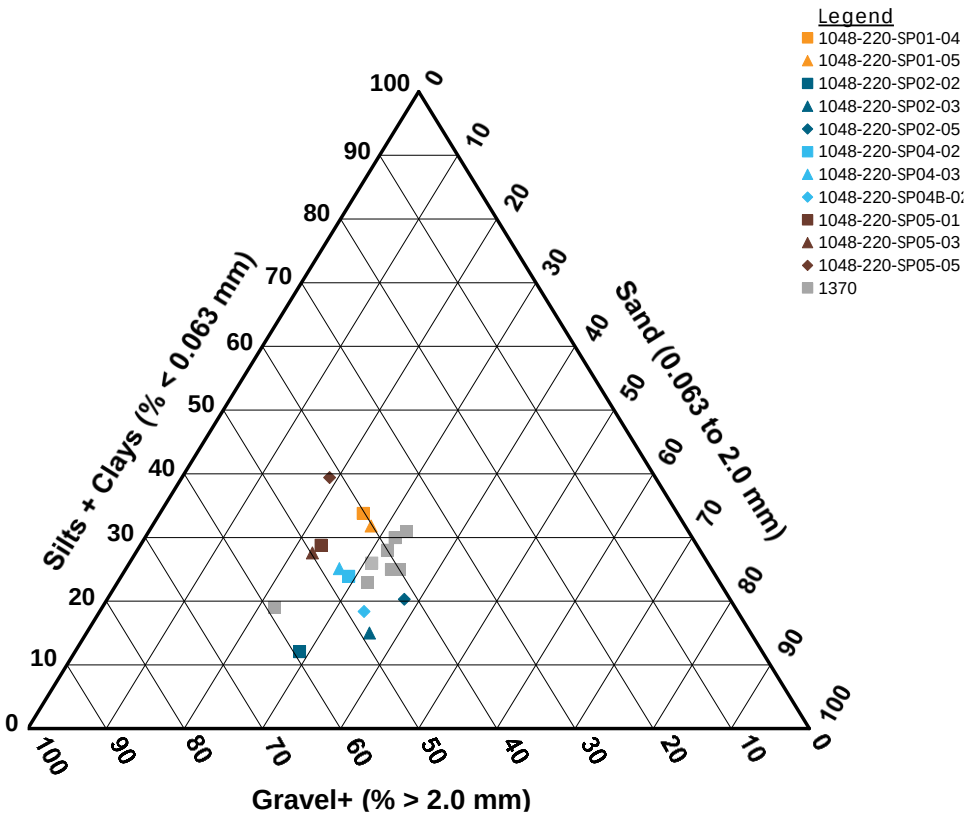


Figure 3: Ternary plot showing material texture of stockpiled materials.

Atterberg Limits

Atterberg Limits are measures of physical properties of fine-grained soils, indicating a material's capability to act as a moldable plastic material. A material's plastic limit is the water content at which soil begins to exhibit plastic behaviour and is measured as the moisture content of a 3 mm diameter thread of soil that begins to crumble when rolled. The liquid limit is the water content at which soil behaviour changes from plastic to liquid, and the plasticity index (PI) is the liquid limit subtracted from the plastic limit.

Five samples were selected for Atterberg limits testing, and each of the samples were of low plasticity (PI < 10). Results of Atterberg limit testing are consistent with observations collected on site and results of PSD testing, as soils with clay contents less than 10% are typically of low plasticity or non-plastic. Atterberg limit results are also comparable to the overburden materials used to construct the 1370 bench Platinum Gulch WRSA cover system trial.

Soil Fertility

One sample from each stockpile was submitted for testing of a general suite of soil fertility parameters. Parameters included organic and inorganic carbon (Table 3), plant available

macro- and micro-nutrients and other indicators of fertility such as salinity and sodicity (Attachment C). Samples from SP-02 and -04 have low organic carbon contents (<1%), which is indicative of soil that will be a poor growth medium if not amended. Low carbon content soils would require amendment for successful establishment and persistence of a vegetation community. SP-01 and -05 are higher in organic carbon (1.7% and 1.4%, respectively) but would still be considered relatively infertile soils and would likely require amendment.

Table 3: Soil fertility results.

	SP-01 TP4	SP-02 TP2	SP-04-TP2	SP-05 TP1
Inorganic carbon	<0.050	0.123	<0.050	0.078
Total carbon	1.00	0.334	0.284	0.888
Organic matter	1.00	0.211	0.284	0.810

Implications for Cover System Design and Construction

The base case cover system being monitored at 1370 bench Platinum Gulch WRSA cover system trial employs the store-and-release concept. In a store-and-release cover system, water infiltrates during periods of higher precipitation or snowmelt, and is stored within the cover system until it can be removed by evaporation or transpiration. The proportion of silt and clay sized particles is an important indicator of potential performance for a store-and-release cover system that relies on hydraulic characteristics of the cover system material. Materials sampled from SP-01, -04, and -05 are similar to materials incorporated into the cover system field trial in terms of texture and plasticity. It is reasonable to expect that if any of the materials examined as part of this characterization program were incorporated into a simple store-and-release cover system, net percolation would be in the same range as the field trial.

Soil fertility analyses indicate SP-02 and -04 are relatively devoid of organic matter and would require amendment to support a sustainable vegetation community. Samples from SP-01 and -05 also had low organic matter and would require amendment but would be preferable to the other stockpiles for development of a vegetation layer. SP-01 and -05 also contained a high proportion of sticks and logs that would need to be screened if incorporated into a compacted layer, as organic materials can inhibit compaction and their degradation may lead to issues with geotechnical stability.

To construct a true 'barrier' layer (typically defined as having a k_{sat} equal to or lower than 1×10^{-7} cm/s) typically requires materials with a plasticity index of at least 10 to 20, and a minimum clay content of 10 to 20%. The materials examined as part of this program do not have the hydraulic characteristics necessary to produce a barrier layer but may be effective when compacted to produce a lower permeability layer. Examination of PSD and Atterberg limit testing indicate hydraulic conductivity of the materials sampled as part of this program will be similar to laboratory results obtained as part of the 1370 bench Platinum Gulch WRSA cover system trial material characterization program.

Next Steps

No further material characterization laboratory testing phases are deemed necessary at this time.

Closure

We trust information provided in this memorandum is satisfactory for your requirements. Please do not hesitate to contact me at 1-306-955-0719 or ldoucette@okc-sk.com should you have any questions or comments.



Photo 1: View of SP-01 excavation.



Photo 2: SP-02 TP2 spoil pile showing evidence of oxidation.



Photo 3: Location identied as SP-03.



Photo 4: Side slope of SP-04.



Photo 5: Small stockpile identified as SP-04B.



Photo 6: SP-05 excavation.

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 14, 2021
Profiled by: MM	**Trial pit no:** SP01-TP02	**Location:** SP01 E0458988 N7101819

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~2 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Pit walls sluffing in prevented deeper excavation. Branches >1 m Higher organic content compared to other stockpiles. Moist to wet. Silty gravel with sand. Colour 10yr v5 c2	Stockpile description: Hummocky surface, sticks and logs present on surface. Operator indicates stockpile is relatively homogeneous throughout based on experience during placement. Indicates materials have been relocated from heap leach area with more competent materials reserved for construction.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 14, 2021
Profiled by: MM	**Trial pit no:** SP01-TP04	**Location:** SP01 E0459015 N7101839

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~3 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Pit walls sluffing in prevented deeper excavation. Roots and branches throughout. Higher organic content compared to other stockpiles. Moist to wet. Silty gravel with sand. Two colours 10yr v5 c4 top 10yr V6 C4 Bottom	Stockpile description: Hummocky surface, sticks and logs present on surface. Operator indicates stockpile is relatively homogeneous throughout based on experience during placement. Indicates materials have been relocated from heap leach area with more competent materials reserved for construction.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 14, 2021
Profiled by: MM	**Trial pit no:** SP01-TP05	**Location:** SP01 E0459001 N7101850

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~1.5 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Shallow excavation due to soft material and pit walls. Roots and branches throughout. Higher organic content compared to other stockpiles. Moist to wet. Silty gravel with sand. Two colours 10yr v5 c1 and 10yr V5 C4	Stockpile description: Hummocky surface, sticks and logs present on surface. Operator indicates stockpile is relatively homogeneous throughout based on experience during placement. Indicates materials have been relocated from heap leach area with more competent materials reserved for construction.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP02-TP01	**Location:** SP02 E0458766 N7101162

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~3 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Sandy gravel with silt and trace clay. Dry to moist. Some angular rock est. 10-20% particles greater than ~10 cm.	Only plateau accessible. Slopes too steep for access.

DEPTH OF WATER TABLE: N/A

MACHINE:

CONTRACTOR:

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP02-TP02	**Location:** SP02 E0458799 N7101173

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~4 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Sandy gravel with silt and trace clay. Dry to moist. Some angular rock est. 10-20% particles greater than ~10 cm. Bottom ~1.5 m friable rock/gravel material shows some evidence of oxidation.	Only plateau accessible. Slopes too steep for access.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP02-TP03	**Location:** SP02 E0458792 N7101194

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~2.5 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Equipment issue limited depth of excavation. Sandy gravel with silt and trace clay. Dry to moist. Some angular rock est. 10% particles greater than ~10 cm. Bottom ~1.5 m friable rock/gravel material shows some evidence of oxidation.	Only plateau accessible. Slopes too steep for access.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP04B-TP01	**Location:** SP04B E0459435 N7101218

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Sample collected by hand

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Dry Sandy gravel and cobble w trace silt and clay	Small stockpile identified during site reconaissance

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 14, 2021
Profiled by: MM	**Trial pit no:** SP04B-TP02	**Location:** SP04B E0459435 N7101218

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Sample collected by hand

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Dry Sandy gravel and cobble w trace silt and clay	Small stockpile identified during site reconaissance

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP04-TP01	**Location:** SP02 E0459703 N7101348

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~2.5 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Small sticks Est. 20% oversize (>10cm) Sandy gravel and cobble w trace silt and clay	Stockpile too narrow and steep for heavy equipment access. Test pits along bench adjacent to slope.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP04-TP02	**Location:** SP04 E0459739 N7101387

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Excavated into sidewall from bench

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Small sticks Est. 20% oversize (>10cm) Sandy gravel and cobble w trace silt and clay	Stockpile too narrow and steep for heavy equipment access. Test pits along bench adjacent to slope.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP05-TP01	**Location:** SP05 E0459409 N7099885

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~3.5 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Moist gravelly sand w silt and clay. Est 10-15% oversize Higher Fines conent, can roll into a ball but not ribbon Dark grey in appearance	Stockpile surface is rock, appears to have been exposed. Sparse vegetation established. Boulders present on surface.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP05-TP02	**Location:** SP05 E0459415 N7099870

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~4.5 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Moist gravelly sand w silt and clay. Est 10-15% oversize Higher Fines conent, can roll into a ball but not ribbon Dark grey in appearance	Stockpile surface is rock, appears to have been exposed. Sparse vegetation established. Boulders present on surface.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP05-TP03	**Location:** SP05 E0459420 N7099845

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~4 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Moist gravelly sand w silt and clay. Est 10% oversize, more with depth in pit Higher Fines content, can roll into a ball but not ribbon Dark grey in appearance	Stockpile surface is rock, appears to have been exposed. Sparse vegetation established. Boulders present on surface.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP05-TP04	**Location:** SP05 E0459440 N7099830

Sample Photo



Test Pit Photo



Description	Description
Pail Sample	Depth ~4 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Moist gravelly sand w silt and clay. Est 10% oversize. Branches and twigs. Higher Fines content, can roll into a ball but not ribbon Dark grey in appearance	Stockpile surface is rock, appears to have been exposed. Sparse vegetation established. Boulders present on surface.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 13, 2021
Profiled by: MM	**Trial pit no:** SP05-TP04	**Location:** SP05 E0459440 N7099830

Sample Photo



Test Pit Photo



Description	Description
Pail Sample	Depth ~4 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Moist gravelly sand w silt and clay. Est 10% oversize. Branches and twigs. Higher Fines content, can roll into a ball but not ribbon Dark grey in appearance	Stockpile surface is rock, appears to have been exposed. Sparse vegetation established. Boulders present on surface.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 14, 2021
Profiled by: MM	**Trial pit no:** SP01-TP01	**Location:** SP01 E0458979 N7101843

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~3 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Pit walls sluffing in prevented deeper excavation. Higher organic content compared to other stockpiles. Moist to wet. Silty gravel with sand. Colour 10yr v5 c2	Stockpile description: Hummocky surface, sticks and logs present on surface. Operator indicates stockpile is relatively homogeneous throughout based on experience during placement. Indicates materials have been relocated from heap leach area with more competent materials reserved for construction.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

Test Pit Log

Client: Victoria Gold	**Project:** 1048-220	**Date:** Sept 14, 2021
Profiled by: MM	**Trial pit no:** SP01-TP02	**Location:** SP01 E0458988 N7101819

Sample Photo



Test Pit Photo



Description

Pail Sample

Description

Depth ~2 m

Lithology	mm	Sample	Description	Comments
	0 100 200 300 400 500 600 700 800 900 1000 1100 1200 1300 1400 1500 1600		Pit walls sluffing in prevented deeper excavation. Branches >1 m Higher organic content compared to other stockpiles. Moist to wet. Silty gravel with sand. Colour 10yr v5 c2	Stockpile description: Hummocky surface, sticks and logs present on surface. Operator indicates stockpile is relatively homogeneous throughout based on experience during placement. Indicates materials have been relocated from heap leach area with more competent materials reserved for construction.

DEPTH OF WATER TABLE: N/A

MACHINE:	**CONTRACTOR:**

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **SK2106305**	Page	: 1 of 8
Amendment	: **1**		
Client	: **O'Kane Consultants Inc.**	Laboratory	: Saskatoon - Environmental
Contact	: Matt Mckeown	Account Manager	: Brian Morgan
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 819 58 Street East Saskatoon SK Canada S7K 6X5
Telephone	: ----	Telephone	: 1 306 221 7147
Project	: ----	Date Samples Received	: 08-Dec-2021 14:10
PO	: ----	Date Analysis Commenced	: 10-Dec-2021
C-O-C number	: ----	Issue Date	: 07-Feb-2022 08:25
Sampler	: ----		
Site	: ----		
Quote number	: Q87509		
No. of samples received	: 14		
No. of samples analysed	: 13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Colby Bingham	Quality Systems Coordinator	Inorganics, Saskatoon, Saskatchewan
Colby Bingham	Quality Systems Coordinator	Metals, Saskatoon, Saskatchewan
David Sowah-Kuma	Laboratory Analyst	Metals, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Jwan Abdalla	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan
Lian Nesbitt	Laboratory Analyst	Metals, Saskatoon, Saskatchewan
Melissa Houseman	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Melissa Houseman	Team Leader - Inorganics	Metals, Saskatoon, Saskatchewan
Nancy Cruse	Laboratory _ Supervisor	Inorganics, Saskatoon, Saskatchewan
Natalia Mitrofanov	Laboratory Assistant	Inorganics, Saskatoon, Saskatchewan
Xihua Yao	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
%	percent
dS/m	decisiemens per metre
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
pH units	pH units
t/ha	tonnes per hectare

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLHC	*Detection Limit Raised: Dilution required due to high concentration of test analyte(s).*
SARM	*Reported SAR represents a maximum value. Actual SAR may be lower if both Ca and Mg were detectable.*

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	1048-220-SP01 -04	1048-220-SP01 -05	1048-220-SP02 -02	1048-220-SP02 -03	1048-220-SP02 -05
					Client sampling date / time	14-Sep-2021 09:00	14-Sep-2021 09:10	13-Sep-2021 12:15	13-Sep-2021 13:00	13-Sep-2021 06:00
						SK2106305-002	SK2106305-003	SK2106305-004	SK2106305-005	SK2106305-006
						Result	Result	Result	Result	Result
Physical Tests										
Atterberg plastic limit [PL] (moisture)	----	E199	1.0	%		24.0	----	19.4	----	----
Atterberg liquid limit [LL] (moisture)	----	E199	1.0	%		27.3	----	25.9	----	----
Atterberg plasticity index [PI]	----	E199	1.0	%		3.3	----	6.5	----	----
Particle Size										
grain size curve	----	E185A	-	-		See Attached	See Attached	See Attached	See Attached	See Attached
clay (<0.004mm)	----	EC184A	1.0	%		6.2	5.4	3.3	4.0	3.2
silt (0.063mm - 0.0312mm)	----	EC184A	1.0	%		9.8	9.8	2.7	3.5	6.1
silt (0.0312mm - 0.004mm)	----	EC184A	1.0	%		17.8	16.6	6.1	7.5	11.0
sand (0.125mm - 0.063mm)	----	EC184A	1.0	%		4.8	4.4	2.6	2.9	4.3
sand (0.25mm - 0.125mm)	----	EC184A	1.0	%		4.1	4.0	4.0	4.5	5.9
sand (0.5mm - 0.25mm)	----	EC184A	1.0	%		4.7	4.8	6.1	6.4	8.0
sand (1.0mm - 0.50mm)	----	EC184A	1.0	%		6.0	5.4	8.0	8.8	9.3
sand (2.0mm - 1.0mm)	----	EC184A	1.0	%		6.4	9.4	8.0	13.6	10.5
gravel (>2mm)	----	EC184A	1.0	%		40.2	40.2	59.2	48.8	41.7
Organic / Inorganic Carbon										
carbon, total [TC]	----	E351	0.050	%		1.00	----	0.334	----	----
carbon, inorganic [IC]	----	E354	0.050	%		<0.050	----	0.123	----	----
carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354	0.40	%		<0.40	----	1.03	----	----
carbon, total organic [TOC]	----	EC356	0.050	%		1.00	----	0.211	----	----
organic matter	----	EC356	0.10	%		1.72	----	0.36	----	----
Plant Available Nutrients										
copper	7440-50-8	E496	0.20	mg/kg		2.34	----	0.67	----	----
iron	7439-89-6	E496	2.0	mg/kg		157	----	24.1	----	----
manganese	7439-96-5	E496	0.050	mg/kg		91.1	----	4.79	----	----
zinc	7440-66-6	E496	0.20	mg/kg		<1.00 DLHC	----	4.91	----	----
Saturated Paste Extractables										
conductivity, saturated paste	----	E102	0.010	dS/m		0.129	----	1.22	----	----
sodium adsorption ratio [SAR]	----	EC102	0.10	-		0.42 SARM	----	0.10	----	----
pH, saturated paste	----	E114	0.10	pH units		5.68	----	7.61	----	----
TGR (brine)	----	EC106	0.10	t/ha		<0.10	----	<0.10	----	----

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	1048-220-SP01 -04	1048-220-SP01 -05	1048-220-SP02 -02	1048-220-SP02 -03	1048-220-SP02 -05
					Client sampling date / time	14-Sep-2021 09:00	14-Sep-2021 09:10	13-Sep-2021 12:15	13-Sep-2021 13:00	13-Sep-2021 06:00
						SK2106305-002	SK2106305-003	SK2106305-004	SK2106305-005	SK2106305-006
						Result	Result	Result	Result	Result
Saturated Paste Extractables										
TGR (sodic)	----	EC106	0.10	t/ha		<0.10	----	<0.10	----	----
% saturation	----	E141	1.0	%		37.4	----	37.5	----	----
calcium, soluble ion content	7440-70-2	EC485	5.0	mg/kg		<5.0	----	55.9	----	----
calcium, soluble ion content	7440-70-2	E485	5.0	mg/L		11.7	----	149	----	----
magnesium, soluble ion content	7439-95-4	EC485	5.0	mg/kg		<5.0	----	26.1	----	----
magnesium, soluble ion content	7439-95-4	E485	5.0	mg/L		<5.0	----	69.5	----	----
potassium, soluble ion content	7440-09-7	EC485	5.0	mg/kg		<5.0	----	<5.0	----	----
potassium, soluble ion content	7440-09-7	E485	5.0	mg/L		<5.0	----	9.7	----	----
sodium, soluble ion content	17341-25-2	EC485	5.0	mg/kg		<5.0	----	<5.0	----	----
sodium, soluble ion content	17341-25-2	E485	5.0	mg/L		5.2	----	6.2	----	----
sulfur (as SO4), soluble ion content	14808-79-8	EC485	8.0	mg/kg		8.0	----	209	----	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6.0	mg/L		21.5	----	557	----	----
chloride, soluble ion content	16887-00-6	EC266A.Cl	10	mg/kg		<10	----	<10	----	----
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L		<20	----	<20	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	1048-220-SP03 -02	1048-220-SP03 -05	1048-220-SP04 -02	1048-220-SP04 -03	1048-220-SP04 B-02
					Client sampling date / time	14-Sep-2021 12:10	14-Sep-2021 16:00	14-Sep-2021 10:00	14-Sep-2021 16:55	14-Sep-2021 17:00
						SK2106305-007	SK2106305-008	SK2106305-009	SK2106305-010	SK2106305-011
						Result	Result	Result	Result	Result
Physical Tests										
Atterberg plastic limit [PL] (moisture)	----	E199	1.0	%		----	23.7	19.4	----	----
Atterberg liquid limit [LL] (moisture)	----	E199	1.0	%		----	29.6	28.0	----	----
Atterberg plasticity index [PI]	----	E199	1.0	%		----	6.0	8.6	----	----
Particle Size										
grain size curve	----	E185A	-	-		See Attached	See Attached	See Attached	See Attached	See Attached
clay (<0.004mm)	----	EC184A	1.0	%		1.1	3.4	6.3	6.9	3.8
silt (0.063mm - 0.0312mm)	----	EC184A	1.0	%		1.0	2.9	5.3	5.7	5.4
silt (0.0312mm - 0.004mm)	----	EC184A	1.0	%		2.3	7.0	12.3	12.5	9.2
sand (0.125mm - 0.063mm)	----	EC184A	1.0	%		<1.0	2.1	3.4	3.8	4.4
sand (0.25mm - 0.125mm)	----	EC184A	1.0	%		1.3	2.5	4.0	3.9	5.0
sand (0.5mm - 0.25mm)	----	EC184A	1.0	%		2.0	3.5	5.7	4.9	6.5
sand (1.0mm - 0.50mm)	----	EC184A	1.0	%		2.6	4.6	7.5	6.9	8.3
sand (2.0mm - 1.0mm)	----	EC184A	1.0	%		4.1	7.6	8.5	7.8	9.6
gravel (>2mm)	----	EC184A	1.0	%		84.8	66.4	47.0	47.6	47.8
Organic / Inorganic Carbon										
carbon, total [TC]	----	E351	0.050	%		----	0.266	0.284	----	----
carbon, inorganic [IC]	----	E354	0.050	%		----	<0.050	<0.050	----	----
carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354	0.40	%		----	<0.40	<0.40	----	----
carbon, total organic [TOC]	----	EC356	0.050	%		----	0.266	0.284	----	----
organic matter	----	EC356	0.10	%		----	0.46	0.49	----	----
Plant Available Nutrients										
copper	7440-50-8	E496	0.20	mg/kg		----	0.88	1.23	----	----
iron	7439-89-6	E496	2.0	mg/kg		----	20.4	22.2	----	----
manganese	7439-96-5	E496	0.050	mg/kg		----	3.52	5.49	----	----
zinc	7440-66-6	E496	0.20	mg/kg		----	0.51	0.58	----	----
Saturated Paste Extractables										
conductivity, saturated paste	----	E102	0.010	dS/m		----	0.225	0.338	----	----
sodium adsorption ratio [SAR]	----	EC102	0.10	-		----	0.25	0.31	----	----
pH, saturated paste	----	E114	0.10	pH units		----	6.66	7.26	----	----
TGR (brine)	----	EC106	0.10	t/ha		----	<0.10	<0.10	----	----

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	1048-220-SP03 -02	1048-220-SP03 -05	1048-220-SP04 -02	1048-220-SP04 -03	1048-220-SP04 B-02
					Client sampling date / time	14-Sep-2021 12:10	14-Sep-2021 16:00	14-Sep-2021 10:00	14-Sep-2021 16:55	14-Sep-2021 17:00
						SK2106305-007	SK2106305-008	SK2106305-009	SK2106305-010	SK2106305-011
						Result	Result	Result	Result	Result
Saturated Paste Extractables										
TGR (sodic)	----	EC106	0.10	t/ha		----	<0.10	<0.10	----	----
% saturation	----	E141	1.0	%		----	41.4	36.5	----	----
calcium, soluble ion content	7440-70-2	EC485	5.0	mg/kg		----	9.9	13.3	----	----
calcium, soluble ion content	7440-70-2	E485	5.0	mg/L		----	24.0	36.4	----	----
magnesium, soluble ion content	7439-95-4	EC485	5.0	mg/kg		----	<5.0	5.0	----	----
magnesium, soluble ion content	7439-95-4	E485	5.0	mg/L		----	6.3	13.7	----	----
potassium, soluble ion content	7440-09-7	EC485	5.0	mg/kg		----	<5.0	<5.0	----	----
potassium, soluble ion content	7440-09-7	E485	5.0	mg/L		----	10.2	6.6	----	----
sodium, soluble ion content	17341-25-2	EC485	5.0	mg/kg		----	<5.0	<5.0	----	----
sodium, soluble ion content	17341-25-2	E485	5.0	mg/L		----	5.4	8.7	----	----
sulfur (as SO4), soluble ion content	14808-79-8	EC485	8.0	mg/kg		----	10.3	32.0	----	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6.0	mg/L		----	24.9	87.8	----	----
chloride, soluble ion content	16887-00-6	EC266A.Cl	10	mg/kg		----	<10	<10	----	----
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L		----	<20	<20	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	1048-220-SP05 -01	1048-220-SP05 -03	1048-220-SP05 -05	----	----
					Client sampling date / time	13-Sep-2021 14:30	13-Sep-2021 15:06	13-Sep-2021 15:20	----	----
						SK2106305-012	SK2106305-013	SK2106305-014	--------	--------
						Result	Result	Result	----	----
Physical Tests										
Atterberg plastic limit [PL] (moisture)	----	E199	1.0	%		24.1	----	----	----	----
Atterberg liquid limit [LL] (moisture)	----	E199	1.0	%		28.9	----	----	----	----
Atterberg plasticity index [PI]	----	E199	1.0	%		4.8	----	----	----	----
Particle Size										
grain size curve	----	E185A	-	-		See Attached	See Attached	See Attached	----	----
clay (<0.004mm)	----	EC184A	1.0	%		5.5	5.3	6.0	----	----
silt (0.063mm - 0.0312mm)	----	EC184A	1.0	%		9.0	8.6	14.1	----	----
silt (0.0312mm - 0.004mm)	----	EC184A	1.0	%		14.3	13.7	19.3	----	----
sand (0.125mm - 0.063mm)	----	EC184A	1.0	%		4.3	4.0	6.2	----	----
sand (0.25mm - 0.125mm)	----	EC184A	1.0	%		3.5	3.2	2.8	----	----
sand (0.5mm - 0.25mm)	----	EC184A	1.0	%		4.2	4.1	3.0	----	----
sand (1.0mm - 0.50mm)	----	EC184A	1.0	%		5.6	5.5	3.3	----	----
sand (2.0mm - 1.0mm)	----	EC184A	1.0	%		5.5	5.8	3.6	----	----
gravel (>2mm)	----	EC184A	1.0	%		48.1	49.8	41.7	----	----
Organic / Inorganic Carbon										
carbon, total [TC]	----	E351	0.050	%		0.888	----	----	----	----
carbon, inorganic [IC]	----	E354	0.050	%		0.078	----	----	----	----
carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354	0.40	%		0.65	----	----	----	----
carbon, total organic [TOC]	----	EC356	0.050	%		0.810	----	----	----	----
organic matter	----	EC356	0.10	%		1.40	----	----	----	----
Plant Available Nutrients										
copper	7440-50-8	E496	0.20	mg/kg		5.78	----	----	----	----
iron	7439-89-6	E496	2.0	mg/kg		122	----	----	----	----
manganese	7439-96-5	E496	0.050	mg/kg		67.3	----	----	----	----
zinc	7440-66-6	E496	0.20	mg/kg		2.14	----	----	----	----
Saturated Paste Extractables										
conductivity, saturated paste	----	E102	0.010	dS/m		0.607	----	----	----	----
sodium adsorption ratio [SAR]	----	EC102	0.10	-		0.30	----	----	----	----
pH, saturated paste	----	E114	0.10	pH units		7.16	----	----	----	----
TGR (brine)	----	EC106	0.10	t/ha		<0.10	----	----	----	----

Analytical Results

Sub-Matrix: **Soil/Solid**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	1048-220-SP05-01	1048-220-SP05-03	1048-220-SP05-05	----	----
					Client sampling date / time	13-Sep-2021 14:30	13-Sep-2021 15:06	13-Sep-2021 15:20	----	----
						SK2106305-012	SK2106305-013	SK2106305-014	--------	--------
						Result	Result	Result	----	----
Saturated Paste Extractables										
TGR (sodic)	----	EC106	0.10	t/ha		<0.10	----	----	----	----
% saturation	----	E141	1.0	%		22.7	----	----	----	----
calcium, soluble ion content	7440-70-2	EC485	5.0	mg/kg		21.6	----	----	----	----
calcium, soluble ion content	7440-70-2	E485	5.0	mg/L		95.3	----	----	----	----
magnesium, soluble ion content	7439-95-4	EC485	5.0	mg/kg		<5.0	----	----	----	----
magnesium, soluble ion content	7439-95-4	E485	5.0	mg/L		17.8	----	----	----	----
potassium, soluble ion content	7440-09-7	EC485	5.0	mg/kg		<5.0	----	----	----	----
potassium, soluble ion content	7440-09-7	E485	5.0	mg/L		7.7	----	----	----	----
sodium, soluble ion content	17341-25-2	EC485	5.0	mg/kg		<5.0	----	----	----	----
sodium, soluble ion content	17341-25-2	E485	5.0	mg/L		12.1	----	----	----	----
sulfur (as SO4), soluble ion content	14808-79-8	EC485	8.0	mg/kg		25.9	----	----	----	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6.0	mg/L		114	----	----	----	----
chloride, soluble ion content	16887-00-6	EC266A.Cl	10	mg/kg		<10	----	----	----	----
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L		<20	----	----	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **SK2106305**	Page	: 1 of 11
Amendment	: 1		
Client	: **O'Kane Consultants Inc.**	Laboratory	: Saskatoon - Environmental
Contact	: Matt Mckeown	Account Manager	: Brian Morgan
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 819 58 Street East Saskatoon, Saskatchewan Canada S7K 6X5
Telephone	: ----	Telephone	: 1 306 221 7147
Project	: ----	Date Samples Received	: 08-Dec-2021 14:10
PO	: ----	Issue Date	: 07-Feb-2022 08:25
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: Q87509		
No. of samples received	: 14		
No. of samples analysed	: 13		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag 1048-220-SP01-04	E351	14-Sep-2021	----	----	----		28-Jan-2022	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag 1048-220-SP02-02	E351	13-Sep-2021	----	----	----		20-Dec-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag 1048-220-SP03-05	E351	14-Sep-2021	----	----	----		20-Dec-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag 1048-220-SP04-02	E351	14-Sep-2021	----	----	----		20-Dec-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag 1048-220-SP05-01	E351	13-Sep-2021	----	----	----		20-Dec-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag 1048-220-SP01-04	E354	14-Sep-2021	----	----	----		28-Jan-2022	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag 1048-220-SP02-02	E354	13-Sep-2021	----	----	----		20-Dec-2021	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag 1048-220-SP03-05	E354	14-Sep-2021	----	----	----		20-Dec-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag 1048-220-SP04-02	E354	14-Sep-2021	----	----	----		20-Dec-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag 1048-220-SP05-01	E354	13-Sep-2021	----	----	----		20-Dec-2021	----	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP01-04	E185A	14-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP01-05	E185A	14-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP02-02	E185A	13-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP02-03	E185A	13-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP02-05	E185A	13-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP03-02	E185A	14-Sep-2021	----	----	----		21-Dec-2021	365 days	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP03-05	E185A	14-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP04-02	E185A	14-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP04-03	E185A	14-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP04B-02	E185A	14-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP05-01	E185A	13-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP05-03	E185A	13-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Particle Size : Grain Size Report (Attachment) Pipet/Sieve Method										
LDPE bag 1048-220-SP05-05	E185A	13-Sep-2021	----	----	----		21-Dec-2021	365 days	----	
Physical Tests : Atterberg Limits										
LDPE bag 1048-220-SP01-04	E199	14-Sep-2021	----	----	----		28-Jan-2022	180 days	136 days	✓
Physical Tests : Atterberg Limits										
LDPE bag 1048-220-SP03-05	E199	14-Sep-2021	----	----	----		10-Dec-2021	180 days	87 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Atterberg Limits										
LDPE bag 1048-220-SP04-02	E199	14-Sep-2021	----	----	----		10-Dec-2021	180 days	87 days	✓
Physical Tests : Atterberg Limits										
LDPE bag 1048-220-SP02-02	E199	13-Sep-2021	----	----	----		10-Dec-2021	180 days	88 days	✓
Physical Tests : Atterberg Limits										
LDPE bag 1048-220-SP05-01	E199	13-Sep-2021	----	----	----		10-Dec-2021	180 days	88 days	✓
Plant Available Nutrients : Plant Available Micronutrients by ICPOES										
LDPE bag 1048-220-SP02-02	E496	13-Sep-2021	21-Dec-2021	----	----		04-Jan-2022	----	14 days	
Plant Available Nutrients : Plant Available Micronutrients by ICPOES										
LDPE bag 1048-220-SP03-05	E496	14-Sep-2021	21-Dec-2021	----	----		04-Jan-2022	----	14 days	
Plant Available Nutrients : Plant Available Micronutrients by ICPOES										
LDPE bag 1048-220-SP04-02	E496	14-Sep-2021	21-Dec-2021	----	----		04-Jan-2022	----	14 days	
Plant Available Nutrients : Plant Available Micronutrients by ICPOES										
LDPE bag 1048-220-SP05-01	E496	13-Sep-2021	21-Dec-2021	----	----		04-Jan-2022	----	14 days	
Plant Available Nutrients : Plant Available Micronutrients by ICPOES										
LDPE bag 1048-220-SP01-04	E496	14-Sep-2021	02-Feb-2022	----	----		04-Feb-2022	----	2 days	
Saturated Paste Extractables : Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)										
LDPE bag 1048-220-SP01-04	E485	14-Sep-2021	----	----	----		01-Feb-2022	180 days	140 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)										
LDPE bag 1048-220-SP02-02	E485	13-Sep-2021	----	----	----		17-Dec-2021	180 days	95 days	✓
Saturated Paste Extractables : Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)										
LDPE bag 1048-220-SP03-05	E485	14-Sep-2021	----	----	----		21-Dec-2021	180 days	98 days	✓
Saturated Paste Extractables : Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)										
LDPE bag 1048-220-SP04-02	E485	14-Sep-2021	----	----	----		21-Dec-2021	180 days	98 days	✓
Saturated Paste Extractables : Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)										
LDPE bag 1048-220-SP05-01	E485	13-Sep-2021	----	----	----		21-Dec-2021	180 days	99 days	✓
Saturated Paste Extractables : Chloride by Colourimetry (Saturated Paste)										
LDPE bag 1048-220-SP01-04	E266.Cl	14-Sep-2021	----	----	----		01-Feb-2022	365 days	140 days	✓
Saturated Paste Extractables : Chloride by Colourimetry (Saturated Paste)										
LDPE bag 1048-220-SP02-02	E266.Cl	13-Sep-2021	----	----	----		17-Dec-2021	365 days	95 days	✓
Saturated Paste Extractables : Chloride by Colourimetry (Saturated Paste)										
LDPE bag 1048-220-SP03-05	E266.Cl	14-Sep-2021	----	----	----		21-Dec-2021	365 days	98 days	✓
Saturated Paste Extractables : Chloride by Colourimetry (Saturated Paste)										
LDPE bag 1048-220-SP04-02	E266.Cl	14-Sep-2021	----	----	----		21-Dec-2021	365 days	98 days	✓
Saturated Paste Extractables : Chloride by Colourimetry (Saturated Paste)										
LDPE bag 1048-220-SP05-01	E266.Cl	13-Sep-2021	----	----	----		21-Dec-2021	365 days	99 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Conductivity in Soil (Saturated Paste)										
LDPE bag 1048-220-SP01-04	E102	14-Sep-2021	----	----	----		31-Jan-2022	365 days	139 days	✓
Saturated Paste Extractables : Conductivity in Soil (Saturated Paste)										
LDPE bag 1048-220-SP02-02	E102	13-Sep-2021	----	----	----		16-Dec-2021	365 days	94 days	✓
Saturated Paste Extractables : Conductivity in Soil (Saturated Paste)										
LDPE bag 1048-220-SP03-05	E102	14-Sep-2021	----	----	----		20-Dec-2021	365 days	97 days	✓
Saturated Paste Extractables : Conductivity in Soil (Saturated Paste)										
LDPE bag 1048-220-SP04-02	E102	14-Sep-2021	----	----	----		20-Dec-2021	365 days	97 days	✓
Saturated Paste Extractables : Conductivity in Soil (Saturated Paste)										
LDPE bag 1048-220-SP05-01	E102	13-Sep-2021	----	----	----		20-Dec-2021	365 days	98 days	✓
Saturated Paste Extractables : pH by Meter (Saturated Paste)										
LDPE bag 1048-220-SP01-04	E114	14-Sep-2021	----	----	----		31-Jan-2022	365 days	139 days	✓
Saturated Paste Extractables : pH by Meter (Saturated Paste)										
LDPE bag 1048-220-SP02-02	E114	13-Sep-2021	----	----	----		16-Dec-2021	365 days	94 days	✓
Saturated Paste Extractables : pH by Meter (Saturated Paste)										
LDPE bag 1048-220-SP03-05	E114	14-Sep-2021	----	----	----		20-Dec-2021	365 days	97 days	✓
Saturated Paste Extractables : pH by Meter (Saturated Paste)										
LDPE bag 1048-220-SP04-02	E114	14-Sep-2021	----	----	----		20-Dec-2021	365 days	97 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : pH by Meter (Saturated Paste)										
LDPE bag 1048-220-SP05-01	E114	13-Sep-2021	----	----	----		20-Dec-2021	365 days	98 days	✓
Saturated Paste Extractables : Saturation Percentage										
LDPE bag 1048-220-SP01-04	E141	14-Sep-2021	----	----	----		31-Jan-2022	----	0 days	
Saturated Paste Extractables : Saturation Percentage										
LDPE bag 1048-220-SP02-02	E141	13-Sep-2021	----	----	----		16-Dec-2021	----	0 days	
Saturated Paste Extractables : Saturation Percentage										
LDPE bag 1048-220-SP03-05	E141	14-Sep-2021	----	----	----		20-Dec-2021	----	0 days	
Saturated Paste Extractables : Saturation Percentage										
LDPE bag 1048-220-SP04-02	E141	14-Sep-2021	----	----	----		20-Dec-2021	----	0 days	
Saturated Paste Extractables : Saturation Percentage										
LDPE bag 1048-220-SP05-01	E141	13-Sep-2021	----	----	----		20-Dec-2021	----	0 days	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Atterberg Limits	E199	364273	2	9	22.2	5.0	✓
Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)	E485	368625	3	59	5.0	5.0	✓
Chloride by Colourimetry (Saturated Paste)	E266.Cl	368624	3	59	5.0	5.0	✓
Conductivity in Soil (Saturated Paste)	E102	368621	3	59	5.0	5.0	✓
pH by Meter (Saturated Paste)	E114	368622	3	59	5.0	5.0	✓
Plant Available Micronutrients by ICPOES	E496	372957	2	5	40.0	5.0	✓
Saturation Percentage	E141	368623	3	59	5.0	5.0	✓
Total Carbon by Combustion	E351	372403	2	6	33.3	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	372402	2	6	33.3	5.0	✓
Laboratory Control Samples (LCS)							
Atterberg Limits	E199	364273	2	9	22.2	5.0	✓
Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)	E485	368625	6	59	10.1	10.0	✓
Chloride by Colourimetry (Saturated Paste)	E266.Cl	368624	6	59	10.1	10.0	✓
Conductivity in Soil (Saturated Paste)	E102	368621	6	59	10.1	10.0	✓
pH by Meter (Saturated Paste)	E114	368622	6	59	10.1	10.0	✓
Plant Available Micronutrients by ICPOES	E496	372957	4	5	80.0	10.0	✓
Saturation Percentage	E141	368623	6	59	10.1	10.0	✓
Total Carbon by Combustion	E351	372403	4	6	66.6	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	372402	4	6	66.6	10.0	✓
Method Blanks (MB)							
Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)	E485	368625	3	59	5.0	5.0	✓
Chloride by Colourimetry (Saturated Paste)	E266.Cl	368624	3	59	5.0	5.0	✓
Conductivity in Soil (Saturated Paste)	E102	368621	3	59	5.0	5.0	✓
Plant Available Micronutrients by ICPOES	E496	372957	2	5	40.0	5.0	✓
Total Carbon by Combustion	E351	372403	2	6	33.3	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	372402	2	6	33.3	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Conductivity in Soil (Saturated Paste)	E102 Saskatoon - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)/AER D50	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a filtered extract from a soil sample prepared using the saturated paste procedure. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter (Saturated Paste)	E114 Saskatoon - Environmental	Soil/Solid	Carter-CSSS / APHA 4500 H	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) on a soil produced by the saturated paste extraction procedure.
Saturation Percentage	E141 Saskatoon - Environmental	Soil/Solid	CSSS Ch. 18 (mod)/AER D50	Saturation Percentage (SP) is determined as the total volume of water present in a saturated paste (in mL) divided by the dry weight of the sample (in grams), expressed as a percentage.
Grain Size Report (Attachment) Pipet/Sieve Method	E185A Saskatoon - Environmental	Soil/Solid	SSIR-51 Method 3.2.1	A grain size curve is a graphical representation of the particle sizing of a sample representing the percent passing against the effective particle size.
Atterberg Limits	E199 Saskatoon - Environmental	Soil/Solid	CSSS Ch. 58 (mod)	Atterberg Limits are measures of physical properties of fine grained soils. Liquid Limit (LL) is the water content where soil behaviour changes from plastic to liquid, and is determined by Casagrande cup. Plastic Limit (PL) is the water content where soil begins to exhibit plastic behaviour, and is measured as the moisture content of a 3 mm diameter thread of soil which begins to crumble when rolled. Plasticity Index (PI) is equal to LL - PL.
Chloride by Colourimetry (Saturated Paste)	E266.Cl Saskatoon - Environmental	Soil/Solid	CSSS Ch. 15/APHA 4500-CL E (mod)/AER D50	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by colourimetry using a discrete analyzer.
Total Carbon by Combustion	E351 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste)	E485 Saskatoon - Environmental	Soil/Solid	CSSS CH15/EPA 6010B/AER D50	A soil extract produced by the saturated paste extraction procedure is analyzed for Calcium, Magnesium, Potassium, Sodium, Boron, and Sulfur (as SO4) by ICPOES.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Plant Available Micronutrients by ICPOES	E496 Saskatoon - Environmental	Soil/Solid	CSSS (1993) 11	Plant available micro nutrients (Cu, Fe, Mn, Zn) are determined by extraction using 0.005 M DTPA followed by analysis using ICPOES.
Sodium Adsorption Ratio (SAR) Saturated Paste	EC102 Saskatoon - Environmental	Soil/Solid	CCME Sodium Adsorption Ratio (SAR)	The Sodium Adsorption Ratio (SAR) for a sample is calculated from the Sodium, Calcium, and Magnesium concentrations from sediment paste extract.
Theoretical Gypsum Requirements (TGR) Saturated Paste	EC106 Saskatoon - Environmental	Soil/Solid	J. Ashworth et al (1999)	Theoretical Gypsum Requirement is an estimate of the gypsum amendment required to remediate brine contaminated or sodic soils, and is provided in units of tonnes per hectare (t/ha) for a treatment depth of 15cm. TGR(brine), intended for brine-contaminated soils, is calculated using Method A from "A Comparison of Methods for Gypsum Requirement of Brine-Contaminated Soils", by J. Ashworth (Cdn J. of Soil Science, 1999), available at www.alsglobal.com. TGR(sodic), intended for naturally sodic soils, uses the Oster and Frenkel method (Method B) from the same paper. Reported TGR values are capped at 50 t/ha, considered the maximum practical gypsum amendment. To convert TGR from t/ha to tons/acre, multiply by 0.446. To determine a TGR value for an alternate treatment depth, multiply by [desired treatment depth (cm) / 15 cm].
Particle Size Analysis (Pipette) - Wentworth Classification	EC184A Saskatoon - Environmental	Soil/Solid	Modified Wentworth	The particle size determination is performed by various methods to generate a Grain Size curve. The data from the curve is then used to produce particle size ranges based on the Modified Wentworth Classification system.
Chloride by Colourimetry (Saturated Paste) (mg/kg)	EC266A.Cl Saskatoon - Environmental	Soil/Solid	CSSS Ch. 15/APHA 4500-CL E (mod)	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by colourimetry using a discrete analyzer.
Total Organic Carbon (Calculated) in soil	EC356 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
Ca, K, Mg, Na, B and S by ICPOES (Saturated Paste) (mg/kg)	EC485 Saskatoon - Environmental	Soil/Solid	CSSS CH15/EPA 6010B	A soil extract produced by the saturated paste extraction procedure is analyzed for Calcium, Magnesium, Potassium, Sodium, Boron, and Sulfur (as SO4) by ICPOES. Results are calculated in mg/kg using Saturation Percentage.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
0.005 M DTPA Extraction for micro nutrients	EP496 Saskatoon - Environmental	Soil/Solid	CSSS (1993) 11	Plant available micro nutrients are extracted from soil using 0.005 M diethylenetrianime (DTPA). The sample is mixed in a fixed ratio with dilute DTPA, shaken then filtered.
Dry and Grind	EPP442 Saskatoon - Environmental	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **SK2106305**	Page	: 1 of 11
Amendment	: **1**		

Client	: O'Kane Consultants Inc.	Laboratory	: Saskatoon - Environmental
Contact	: Matt Mckeown	Account Manager	: Brian Morgan
Address	: 112 - 112 Research Drive Saskatoon SK Canada S7N 3R3	Address	: 819 58 Street East Saskatoon, Saskatchewan Canada S7K 6X5
Telephone	: ----	Telephone	: 1 306 221 7147
Project	: ----	Date Samples Received	: 08-Dec-2021 14:10
PO	: ----	Date Analysis Commenced	: 10-Dec-2021
C-O-C number	: ----	Issue Date	: 07-Feb-2022 08:25
Sampler	: ----		
Site	: ----		
Quote number	: Q87509		
No. of samples received	: 14		
No. of samples analysed	: 13		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
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Colby Bingham	Quality Systems Coordinator	Metals, Saskatoon, Saskatchewan
David Sowah-Kuma	Laboratory Analyst	Metals, Saskatoon, Saskatchewan
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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 364273)											
SK2106305-004	1048-220-SP02-02	Atterberg liquid limit [LL] (moisture)	----	E199	1.0	%	25.9	26.0	0.344%	20%	----
		Atterberg plastic limit [PL] (moisture)	----	E199	1.0	%	19.4	19.4	0.0784%	20%	----
Physical Tests (QC Lot: 397335)											
SK2106305-002	1048-220-SP01-04	Atterberg liquid limit [LL] (moisture)	----	E199	1.0	%	27.3	27.2	0.334%	20%	----
		Atterberg plastic limit [PL] (moisture)	----	E199	1.0	%	24.0	24.0	0.125%	20%	----
Organic / Inorganic Carbon (QC Lot: 372402)											
SK2106305-004	1048-220-SP02-02	carbon, inorganic [IC]	----	E354	0.050	%	0.123	0.123	0.00004	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 372403)											
SK2106305-004	1048-220-SP02-02	carbon, total [TC]	----	E351	0.050	%	0.334	0.337	0.003	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 397096)											
SK2106305-002	1048-220-SP01-04	carbon, inorganic [IC]	----	E354	0.050	%	<0.050	<0.050	0	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 397339)											
FJ2200156-009	Anonymous	carbon, total [TC]	----	E351	0.050	%	45.7	45.9	0.419%	20%	----
Plant Available Nutrients (QC Lot: 372957)											
SK2106305-004	1048-220-SP02-02	copper	7440-50-8	E496	0.20	mg/kg	0.67	0.64	0.03	Diff <2x LOR	----
		iron	7439-89-6	E496	2.0	mg/kg	24.1	21.1	13.4%	30%	----
		manganese	7439-96-5	E496	0.050	mg/kg	4.79	4.54	5.36%	30%	----
		zinc	7440-66-6	E496	0.20	mg/kg	4.91	4.78	2.69%	30%	----
Plant Available Nutrients (QC Lot: 399753)											
SK2106305-002	1048-220-SP01-04	copper	7440-50-8	E496	1.00	mg/kg	2.34	2.29	0.06	Diff <2x LOR	----
		iron	7439-89-6	E496	10.0	mg/kg	157	150	4.53%	30%	----
		manganese	7439-96-5	E496	0.250	mg/kg	91.1	89.9	1.33%	30%	----
		zinc	7440-66-6	E496	1.00	mg/kg	<1.00	<1.00	0	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 368621)											
SK2106077-038	Anonymous	conductivity, saturated paste	----	E102	0.010	µS/cm	3.88 dS/m	3780	2.61%	20%	----
Saturated Paste Extractables (QC Lot: 368622)											
SK2106077-038	Anonymous	pH, saturated paste	----	E114	0.10	pH units	7.51	7.48	0.400%	10%	----
Saturated Paste Extractables (QC Lot: 368623)											
SK2106077-038	Anonymous	% saturation	----	E141	1.0	%	56.5	61.0	7.64%	20%	----
Saturated Paste Extractables (QC Lot: 368624)											
SK2106077-038	Anonymous	chloride, soluble ion content	16887-00-6	E266.Cl	100	mg/L	202	194	8	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Saturated Paste Extractables (QC Lot: 368625)											
SK2106077-038	Anonymous	calcium, soluble ion content	7440-70-2	E485	25.0	mg/L	503	502	0.0994%	30%	----
		magnesium, soluble ion content	7439-95-4	E485	25.0	mg/L	162	161	1.2	Diff <2x LOR	----
		potassium, soluble ion content	7440-09-7	E485	25.0	mg/L	<25.0	<25.0	0	Diff <2x LOR	----
		sodium, soluble ion content	17341-25-2	E485	25.0	mg/L	253	242	4.20%	30%	----
		sulfur (as SO4), soluble ion content	14808-79-8	E485	7.5	mg/L	1950	1940	0.615%	30%	----
Saturated Paste Extractables (QC Lot: 368633)											
SK2106305-008	1048-220-SP03-05	chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L	<20	<20	0	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 368634)											
SK2106305-008	1048-220-SP03-05	% saturation	----	E141	1.0	%	41.4	37.2	10.8%	20%	----
Saturated Paste Extractables (QC Lot: 368635)											
SK2106305-008	1048-220-SP03-05	calcium, soluble ion content	7440-70-2	E485	5.0	mg/L	24.0	22.5	1.5	Diff <2x LOR	----
		magnesium, soluble ion content	7439-95-4	E485	5.0	mg/L	6.3	5.9	0.4	Diff <2x LOR	----
		potassium, soluble ion content	7440-09-7	E485	5.0	mg/L	10.2	9.8	0.3	Diff <2x LOR	----
		sodium, soluble ion content	17341-25-2	E485	5.0	mg/L	5.4	5.1	0.3	Diff <2x LOR	----
		sulfur (as SO4), soluble ion content	14808-79-8	E485	6	mg/L	24.9	23.9	1.0	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 368636)											
SK2106305-008	1048-220-SP03-05	pH, saturated paste	----	E114	0.10	pH units	6.66	6.68	0.300%	10%	----
Saturated Paste Extractables (QC Lot: 368637)											
SK2106305-008	1048-220-SP03-05	conductivity, saturated paste	----	E102	0.010	µS/cm	0.225 dS/m	218	3.16%	20%	----
Saturated Paste Extractables (QC Lot: 398383)											
SK2106305-002	1048-220-SP01-04	calcium, soluble ion content	7440-70-2	E485	5.0	mg/L	11.7	14.2	2.4	Diff <2x LOR	----
		magnesium, soluble ion content	7439-95-4	E485	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		potassium, soluble ion content	7440-09-7	E485	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
		sodium, soluble ion content	17341-25-2	E485	5.0	mg/L	5.2	5.5	0.3	Diff <2x LOR	----
		sulfur (as SO4), soluble ion content	14808-79-8	E485	6	mg/L	21.5	20.1	1.4	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 398384)											
SK2106305-002	1048-220-SP01-04	% saturation	----	E141	1.0	%	37.4	36.7	1.86%	20%	----
Saturated Paste Extractables (QC Lot: 398385)											
SK2106305-002	1048-220-SP01-04	pH, saturated paste	----	E114	0.10	pH units	5.68	5.63	0.884%	10%	----
Saturated Paste Extractables (QC Lot: 398386)											
SK2106305-002	1048-220-SP01-04	conductivity, saturated paste	----	E102	0.010	µS/cm	0.129 dS/m	141	9.03%	20%	----
Saturated Paste Extractables (QC Lot: 398387)											
SK2106305-002	1048-220-SP01-04	chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L	<20	<20	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Organic / Inorganic Carbon (QCLot: 372402)						
carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 372403)						
carbon, total [TC]	----	E351	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 397096)						
carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 397339)						
carbon, total [TC]	----	E351	0.05	%	<0.050	----
Plant Available Nutrients (QCLot: 372957)						
copper	7440-50-8	E496	0.2	mg/kg	<0.20	----
iron	7439-89-6	E496	2	mg/kg	<2.0	----
manganese	7439-96-5	E496	0.05	mg/kg	<0.050	----
zinc	7440-66-6	E496	0.2	mg/kg	<0.20	----
Plant Available Nutrients (QCLot: 399753)						
copper	7440-50-8	E496	0.2	mg/kg	<0.20	----
iron	7439-89-6	E496	2	mg/kg	<2.0	----
manganese	7439-96-5	E496	0.05	mg/kg	<0.050	----
zinc	7440-66-6	E496	0.2	mg/kg	<0.20	----
Saturated Paste Extractables (QCLot: 368621)						
conductivity, saturated paste	----	E102	10	µS/cm	<10	----
Saturated Paste Extractables (QCLot: 368623)						
% saturation	----	E141	1	%	<1.0	----
Saturated Paste Extractables (QCLot: 368624)						
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L	<20	----
Saturated Paste Extractables (QCLot: 368625)						
calcium, soluble ion content	7440-70-2	E485	5	mg/L	<5.0	----
magnesium, soluble ion content	7439-95-4	E485	5	mg/L	<5.0	----
potassium, soluble ion content	7440-09-7	E485	5	mg/L	<5.0	----
sodium, soluble ion content	17341-25-2	E485	5	mg/L	<5.0	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6	mg/L	<6.0	----
Saturated Paste Extractables (QCLot: 368633)						
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L	<20	----
Saturated Paste Extractables (QCLot: 368634)						
% saturation	----	E141	1	%	<1.0	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Saturated Paste Extractables (QCLot: 368635)						
calcium, soluble ion content	7440-70-2	E485	5	mg/L	<5.0	----
magnesium, soluble ion content	7439-95-4	E485	5	mg/L	<5.0	----
potassium, soluble ion content	7440-09-7	E485	5	mg/L	<5.0	----
sodium, soluble ion content	17341-25-2	E485	5	mg/L	<5.0	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6	mg/L	<6.0	----
Saturated Paste Extractables (QCLot: 368637)						
conductivity, saturated paste	----	E102	10	µS/cm	<10	----
Saturated Paste Extractables (QCLot: 398383)						
calcium, soluble ion content	7440-70-2	E485	5	mg/L	<5.0	----
magnesium, soluble ion content	7439-95-4	E485	5	mg/L	<5.0	----
potassium, soluble ion content	7440-09-7	E485	5	mg/L	<5.0	----
sodium, soluble ion content	17341-25-2	E485	5	mg/L	<5.0	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6	mg/L	<6.0	----
Saturated Paste Extractables (QCLot: 398386)						
conductivity, saturated paste	----	E102	10	µS/cm	<10	----
Saturated Paste Extractables (QCLot: 398387)						
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L	<20	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Organic / Inorganic Carbon (QCLot: 372402)									
carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	94.1	90.0	110	----
Organic / Inorganic Carbon (QCLot: 372403)									
carbon, total [TC]	----	E351	0.05	%	48 %	103	90.0	110	----
Organic / Inorganic Carbon (QCLot: 397096)									
carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	95.6	90.0	110	----
Organic / Inorganic Carbon (QCLot: 397339)									
carbon, total [TC]	----	E351	0.05	%	48 %	101	90.0	110	----
Plant Available Nutrients (QCLot: 372957)									
copper	7440-50-8	E496	0.2	mg/kg	2 mg/kg	105	80.0	120	----
iron	7439-89-6	E496	2	mg/kg	40 mg/kg	100.0	80.0	120	----
manganese	7439-96-5	E496	0.05	mg/kg	1 mg/kg	100	80.0	120	----
zinc	7440-66-6	E496	0.2	mg/kg	4 mg/kg	101	80.0	120	----
Plant Available Nutrients (QCLot: 399753)									
copper	7440-50-8	E496	0.2	mg/kg	2 mg/kg	104	80.0	120	----
iron	7439-89-6	E496	2	mg/kg	40 mg/kg	97.9	80.0	120	----
manganese	7439-96-5	E496	0.05	mg/kg	1 mg/kg	95.0	80.0	120	----
zinc	7440-66-6	E496	0.2	mg/kg	4 mg/kg	99.4	80.0	120	----
Saturated Paste Extractables (QCLot: 368621)									
conductivity, saturated paste	----	E102	10	µS/cm	1000 µS/cm	97.3	80.0	120	----
Saturated Paste Extractables (QCLot: 368622)									
pH, saturated paste	----	E114	----	pH units	6.86 pH units	101	95.6	104	----
Saturated Paste Extractables (QCLot: 368623)									
% saturation	----	E141	1	%	100 %	98.8	80.0	120	----
Saturated Paste Extractables (QCLot: 368624)									
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L	50 mg/L	97.9	80.0	120	----
Saturated Paste Extractables (QCLot: 368625)									
calcium, soluble ion content	7440-70-2	E485	5	mg/L	100 mg/L	94.7	80.0	120	----
magnesium, soluble ion content	7439-95-4	E485	5	mg/L	100 mg/L	94.6	80.0	120	----
potassium, soluble ion content	7440-09-7	E485	5	mg/L	100 mg/L	95.2	80.0	120	----
sodium, soluble ion content	17341-25-2	E485	5	mg/L	100 mg/L	99.2	80.0	120	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6	mg/L	300 mg/L	95.9	80.0	120	----
Saturated Paste Extractables (QCLot: 368633)									

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Saturated Paste Extractables (QCLot: 368633) - continued									
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L	50 mg/L	95.5	80.0	120	----
Saturated Paste Extractables (QCLot: 368634)									
% saturation	----	E141	1	%	100 %	102	80.0	120	----
Saturated Paste Extractables (QCLot: 368635)									
calcium, soluble ion content	7440-70-2	E485	5	mg/L	100 mg/L	99.1	80.0	120	----
magnesium, soluble ion content	7439-95-4	E485	5	mg/L	100 mg/L	96.7	80.0	120	----
potassium, soluble ion content	7440-09-7	E485	5	mg/L	100 mg/L	96.6	80.0	120	----
sodium, soluble ion content	17341-25-2	E485	5	mg/L	100 mg/L	100	80.0	120	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6	mg/L	300 mg/L	98.4	80.0	120	----
Saturated Paste Extractables (QCLot: 368636)									
pH, saturated paste	----	E114	----	pH units	6.86 pH units	101	95.6	104	----
Saturated Paste Extractables (QCLot: 368637)									
conductivity, saturated paste	----	E102	10	µS/cm	1000 µS/cm	97.5	80.0	120	----
Saturated Paste Extractables (QCLot: 398383)									
calcium, soluble ion content	7440-70-2	E485	5	mg/L	100 mg/L	98.8	80.0	120	----
magnesium, soluble ion content	7439-95-4	E485	5	mg/L	100 mg/L	94.2	80.0	120	----
potassium, soluble ion content	7440-09-7	E485	5	mg/L	100 mg/L	100	80.0	120	----
sodium, soluble ion content	17341-25-2	E485	5	mg/L	100 mg/L	102	80.0	120	----
sulfur (as SO4), soluble ion content	14808-79-8	E485	6	mg/L	300 mg/L	98.6	80.0	120	----
Saturated Paste Extractables (QCLot: 398384)									
% saturation	----	E141	----	%	100 %	100	80.0	120	----
Saturated Paste Extractables (QCLot: 398385)									
pH, saturated paste	----	E114	----	pH units	6.86 pH units	101	95.6	104	----
Saturated Paste Extractables (QCLot: 398386)									
conductivity, saturated paste	----	E102	10	µS/cm	1000 µS/cm	102	80.0	120	----
Saturated Paste Extractables (QCLot: 398387)									
chloride, soluble ion content	16887-00-6	E266.Cl	20	mg/L	50 mg/L	95.3	80.0	120	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix: **Soil/Solid**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 364273)									
QC-364273-001	RM	Atterberg liquid limit [LL] (moisture)	----	E199	33.68 %	101	80.0	120	----
QC-364273-001	RM	Atterberg plastic limit [PL] (moisture)	----	E199	20 %	97.8	80.0	120	----
Physical Tests (QCLot: 397335)									
QC-397335-001	RM	Atterberg liquid limit [LL] (moisture)	----	E199	33.68 %	98.4	80.0	120	----
QC-397335-001	RM	Atterberg plastic limit [PL] (moisture)	----	E199	20 %	101	80.0	120	----
Organic / Inorganic Carbon (QCLot: 372402)									
QC-372402-003	RM	carbon, inorganic [IC]	----	E354	0.383 %	91.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 372403)									
QC-372403-003	RM	carbon, total [TC]	----	E351	1.4 %	106	80.0	120	----
Organic / Inorganic Carbon (QCLot: 397096)									
QC-397096-003	RM	carbon, inorganic [IC]	----	E354	0.383 %	98.4	80.0	120	----
Organic / Inorganic Carbon (QCLot: 397339)									
QC-397339-003	RM	carbon, total [TC]	----	E351	1.4 %	106	80.0	120	----
Plant Available Nutrients (QCLot: 372957)									
QC-372957-003	RM	copper	7440-50-8	E496	1.42 mg/kg	112	70.0	130	----
QC-372957-003	RM	iron	7439-89-6	E496	57.9 mg/kg	99.7	70.0	130	----
QC-372957-003	RM	manganese	7439-96-5	E496	22.5 mg/kg	98.9	70.0	130	----
QC-372957-003	RM	zinc	7440-66-6	E496	1.79 mg/kg	104	70.0	130	----
Plant Available Nutrients (QCLot: 399753)									
QC-399753-003	RM	copper	7440-50-8	E496	1.42 mg/kg	108	70.0	130	----
QC-399753-003	RM	iron	7439-89-6	E496	57.9 mg/kg	102	70.0	130	----
QC-399753-003	RM	manganese	7439-96-5	E496	22.5 mg/kg	103	70.0	130	----
QC-399753-003	RM	zinc	7440-66-6	E496	1.79 mg/kg	111	70.0	130	----
Saturated Paste Extractables (QCLot: 368621)									
QC-368621-003	RM	conductivity, saturated paste	----	E102	5990 µS/cm	95.2	70.0	130	----
Saturated Paste Extractables (QCLot: 368622)									
QC-368622-002	RM	pH, saturated paste	----	E114	7.8 pH units	98.2	96.2	108	----
Saturated Paste Extractables (QCLot: 368623)									
QC-368623-003	RM	% saturation	----	E141	49.76 %	103	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Saturated Paste Extractables (QCLot: 368624)									
QC-368624-003	RM	chloride, soluble ion content	16887-00-6	E266.Cl	1190 mg/L	101	70.0	130	----
Saturated Paste Extractables (QCLot: 368625)									
QC-368625-003	RM	calcium, soluble ion content	7440-70-2	E485	724 mg/L	92.5	70.0	130	----
QC-368625-003	RM	magnesium, soluble ion content	7439-95-4	E485	228 mg/L	97.9	70.0	130	----
QC-368625-003	RM	potassium, soluble ion content	7440-09-7	E485	109 mg/L	96.4	70.0	130	----
QC-368625-003	RM	sodium, soluble ion content	17341-25-2	E485	314 mg/L	95.1	70.0	130	----
QC-368625-003	RM	sulfur (as SO4), soluble ion content	14808-79-8	E485	1790 mg/L	92.1	70.0	130	----
Saturated Paste Extractables (QCLot: 368633)									
QC-368633-003	RM	chloride, soluble ion content	16887-00-6	E266.Cl	1190 mg/L	98.7	70.0	130	----
Saturated Paste Extractables (QCLot: 368634)									
QC-368634-003	RM	% saturation	----	E141	49.76 %	105	80.0	120	----
Saturated Paste Extractables (QCLot: 368635)									
QC-368635-003	RM	calcium, soluble ion content	7440-70-2	E485	724 mg/L	102	70.0	130	----
QC-368635-003	RM	magnesium, soluble ion content	7439-95-4	E485	228 mg/L	101	70.0	130	----
QC-368635-003	RM	potassium, soluble ion content	7440-09-7	E485	109 mg/L	96.4	70.0	130	----
QC-368635-003	RM	sodium, soluble ion content	17341-25-2	E485	314 mg/L	101	70.0	130	----
QC-368635-003	RM	sulfur (as SO4), soluble ion content	14808-79-8	E485	1790 mg/L	107	70.0	130	----
Saturated Paste Extractables (QCLot: 368636)									
QC-368636-002	RM	pH, saturated paste	----	E114	7.8 pH units	98.7	96.2	108	----
Saturated Paste Extractables (QCLot: 368637)									
QC-368637-003	RM	conductivity, saturated paste	----	E102	5990 µS/cm	95.8	70.0	130	----
Saturated Paste Extractables (QCLot: 398383)									
QC-398383-003	RM	calcium, soluble ion content	7440-70-2	E485	724 mg/L	117	70.0	130	----
QC-398383-003	RM	magnesium, soluble ion content	7439-95-4	E485	228 mg/L	126	70.0	130	----
QC-398383-003	RM	potassium, soluble ion content	7440-09-7	E485	109 mg/L	113	70.0	130	----
QC-398383-003	RM	sodium, soluble ion content	17341-25-2	E485	314 mg/L	120	70.0	130	----
QC-398383-003	RM	sulfur (as SO4), soluble ion content	14808-79-8	E485	1790 mg/L	122	70.0	130	----
Saturated Paste Extractables (QCLot: 398384)									
QC-398384-002	RM	% saturation	----	E141	49.76 %	98.5	70.0	130	----
Saturated Paste Extractables (QCLot: 398385)									
QC-398385-002	RM	pH, saturated paste	----	E114	7.8 pH units	96.7	96.2	104	----
Saturated Paste Extractables (QCLot: 398386)									
QC-398386-003	RM	conductivity, saturated paste	----	E102	5990 µS/cm	111	70.0	130	----

Sub-Matrix: **Soil/Solid**

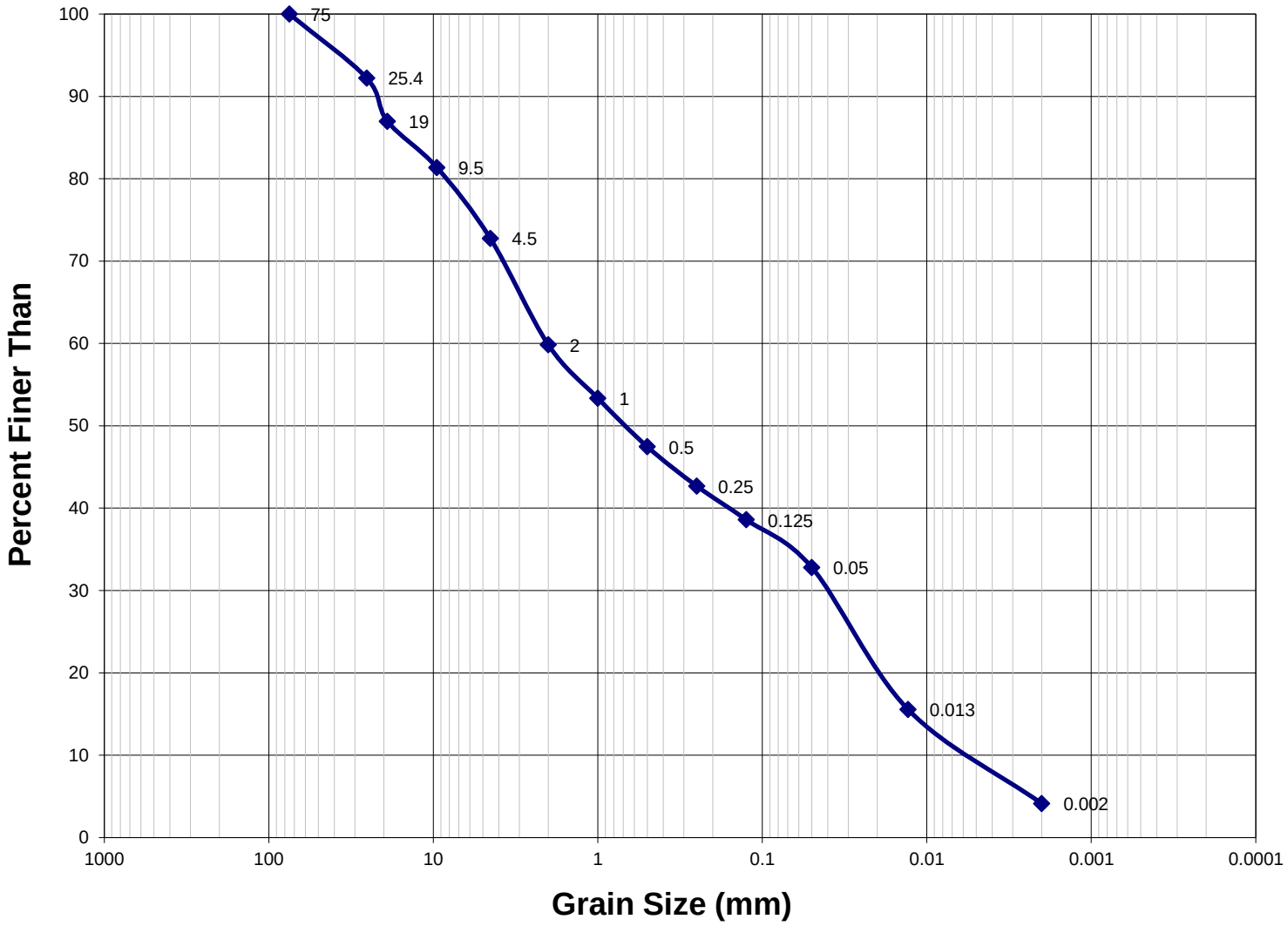
					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Saturated Paste Extractables (QCLot: 398387)									
QC-398387-003	RM	chloride, soluble ion content	16887-00-6	E266.Cl	1190 mg/L	116	70.0	130	----

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP01-04
Lab ID: SK2106305002

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	4.75mm - 3"	27
Coarse Sand	2.0mm - 4.75mm	13
Medium Sand	0.425mm - 2.0mm	12
Fine Sand	0.075mm - 0.425mm	13
Fines	< 0.075mm	35

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	2mm - 3"	40
Sand	0.05mm - 2mm	27
Silt	0.002mm - 0.05mm	29
Clay	< 0.002mm	4

Texture Sample contains material greater than 4.75mm. T

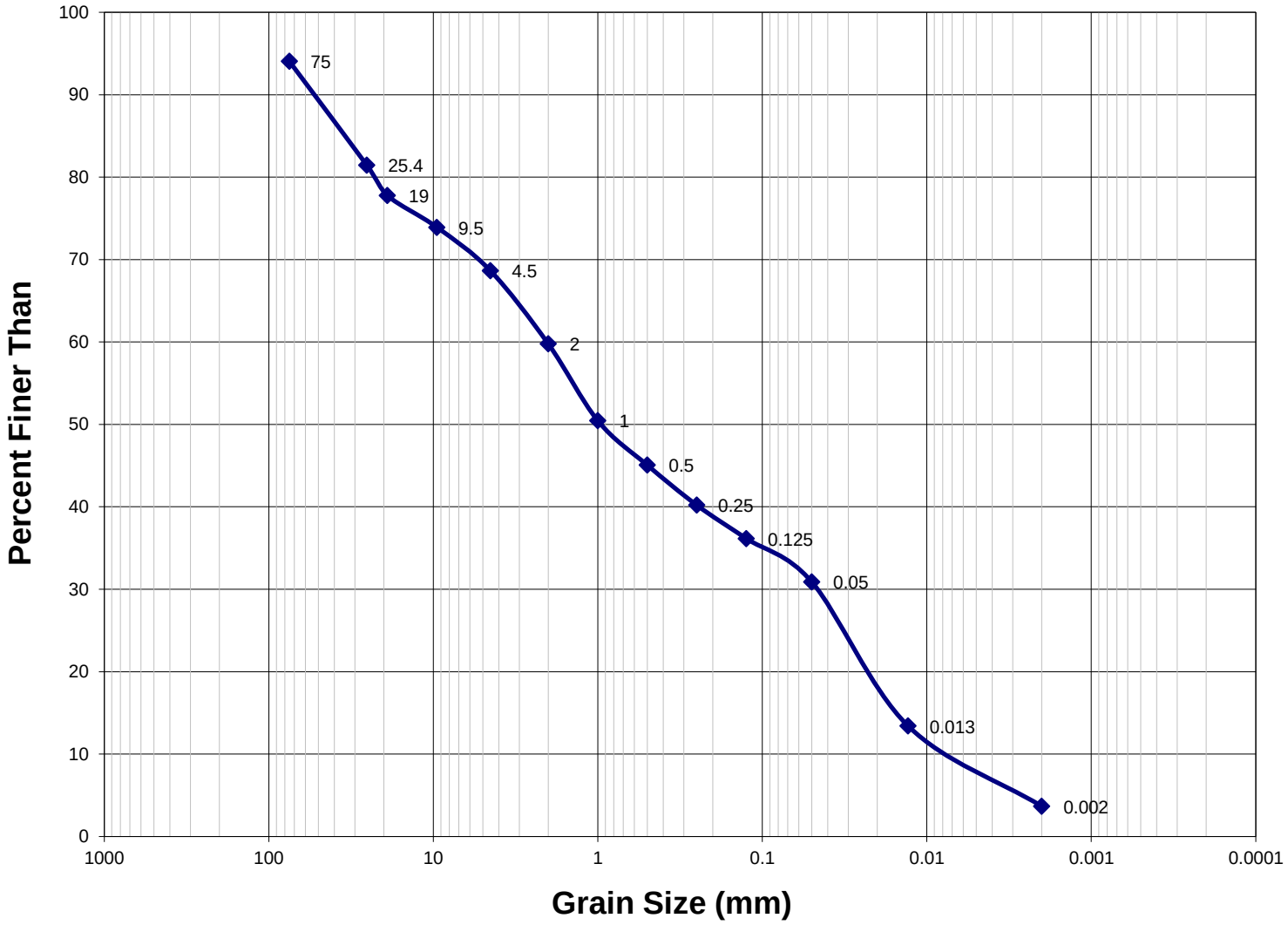
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP01-05
Lab ID: SK2106305003

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	6
Gravel	4.75mm - 3"	25
Coarse Sand	2.0mm - 4.75mm	9
Medium Sand	0.425mm - 2.0mm	15
Fine Sand	0.075mm - 0.425mm	12
Fines	< 0.075mm	33

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	6
Gravel	2mm - 3"	34
Sand	0.05mm - 2mm	29
Silt	0.002mm - 0.05mm	27
Clay	< 0.002mm	4

Texture Sample contains material greater than 4.75mm. T

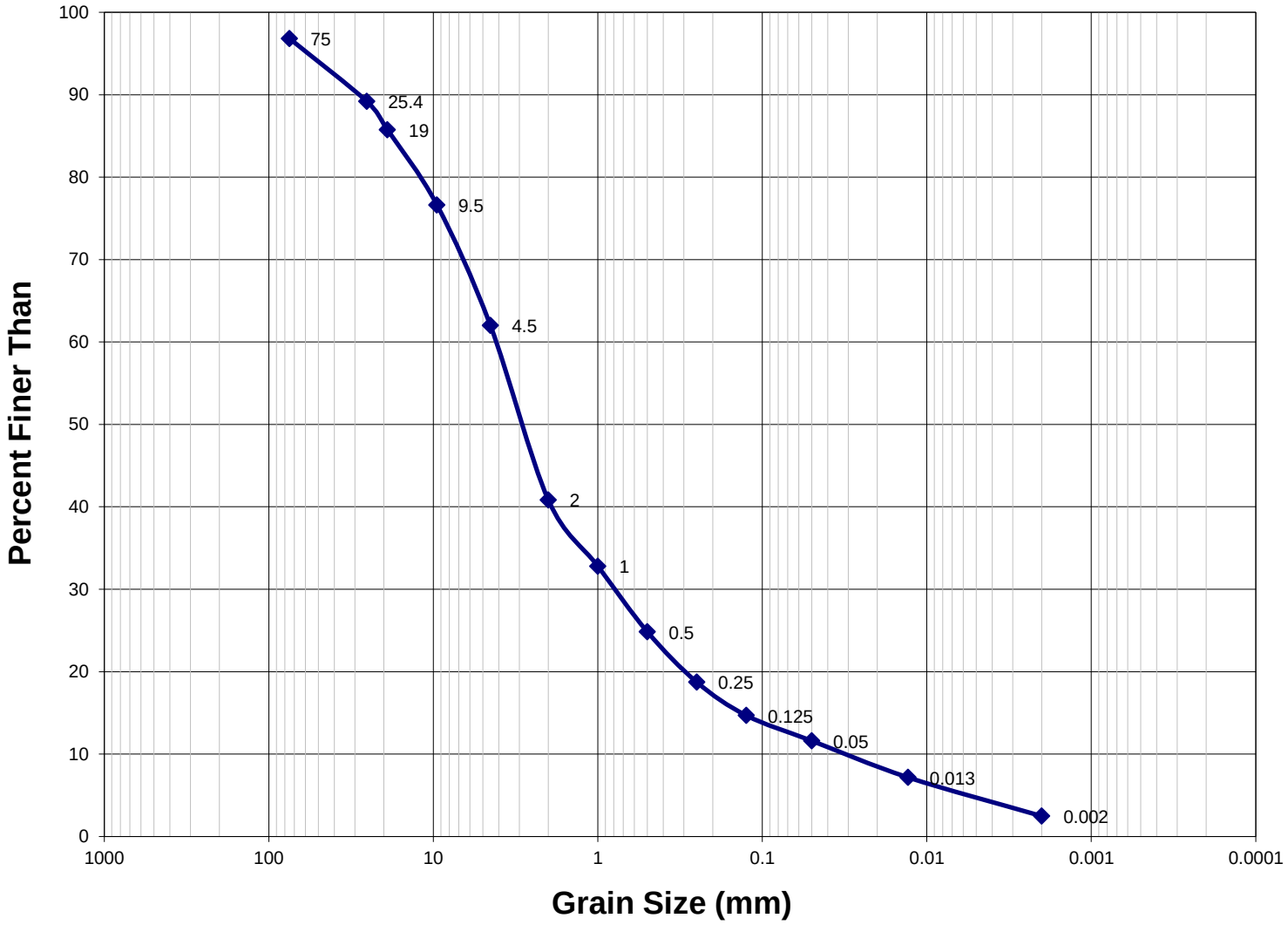
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP02-02
Lab ID: SK2106305004

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	3
Gravel	4.75mm - 3"	34
Coarse Sand	2.0mm - 4.75mm	22
Medium Sand	0.425mm - 2.0mm	16
Fine Sand	0.075mm - 0.425mm	12
Fines	< 0.075mm	13

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	3
Gravel	2mm - 3"	56
Sand	0.05mm - 2mm	29
Silt	0.002mm - 0.05mm	9
Clay	< 0.002mm	2

Texture Sample contains material greater than 4.75mm. T

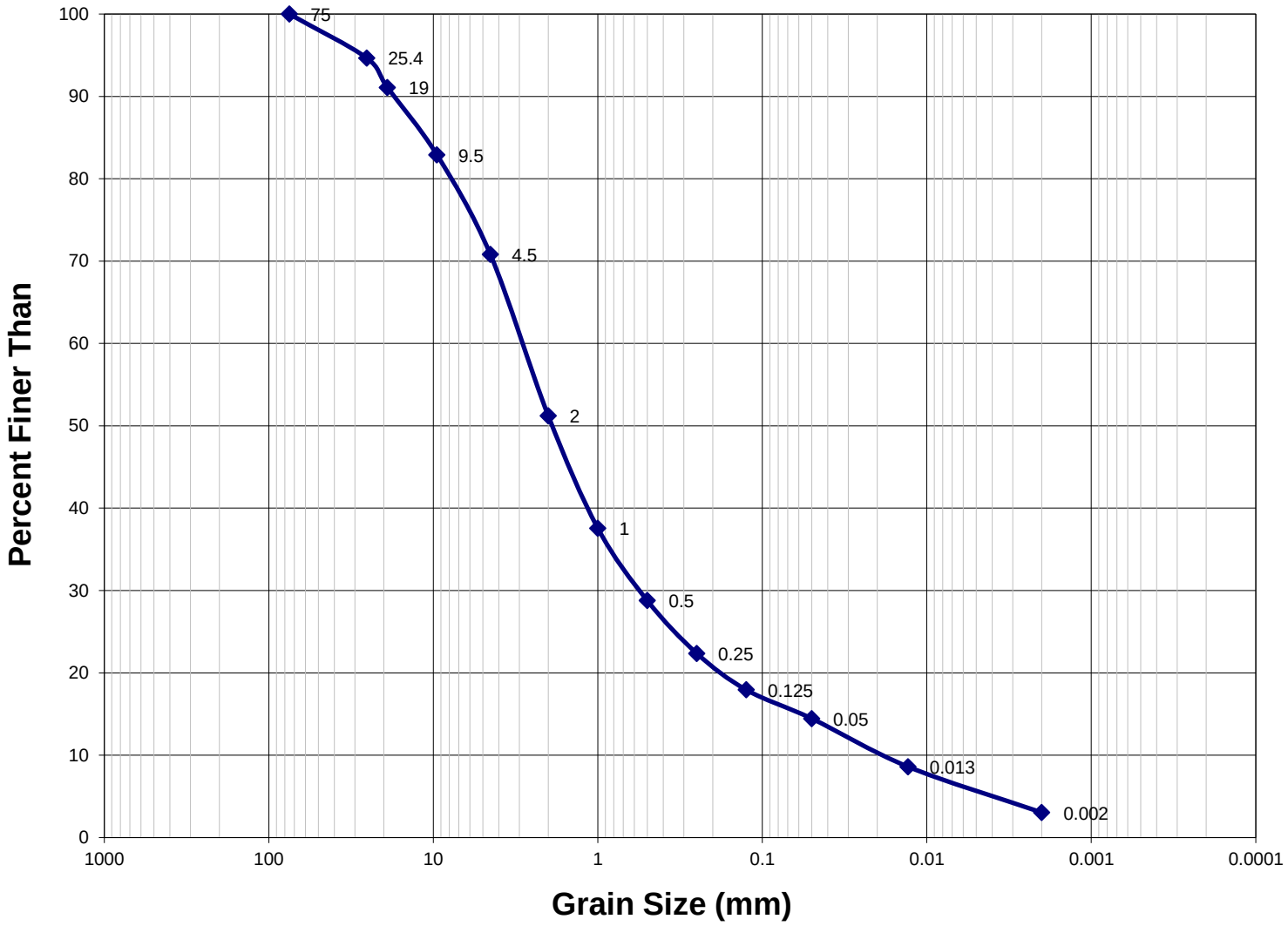
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

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ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP02-03
Lab ID: SK2106305005

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	4.75mm - 3"	29
Coarse Sand	2.0mm - 4.75mm	20
Medium Sand	0.425mm - 2.0mm	22
Fine Sand	0.075mm - 0.425mm	13
Fines	< 0.075mm	16

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	2mm - 3"	49
Sand	0.05mm - 2mm	37
Silt	0.002mm - 0.05mm	11
Clay	< 0.002mm	3

Texture Sample contains material greater than 4.75mm. T

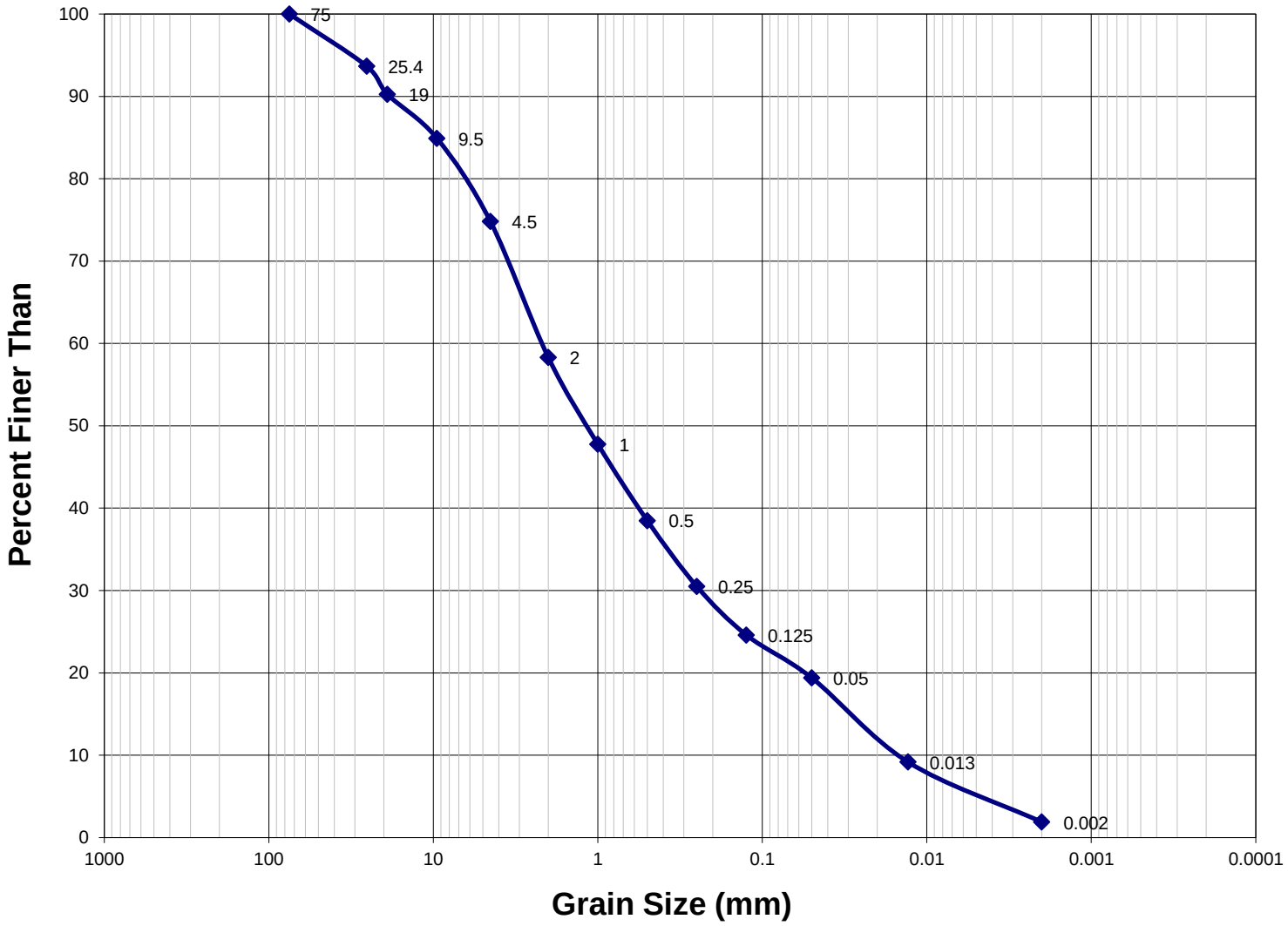
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP02-05
Lab ID: SK2106305006

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	4.75mm - 3"	25
Coarse Sand	2.0mm - 4.75mm	17
Medium Sand	0.425mm - 2.0mm	20
Fine Sand	0.075mm - 0.425mm	17
Fines	< 0.075mm	21

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	2mm - 3"	42
Sand	0.05mm - 2mm	39
Silt	0.002mm - 0.05mm	17
Clay	< 0.002mm	2

Texture Sample contains material greater than 4.75mm. T

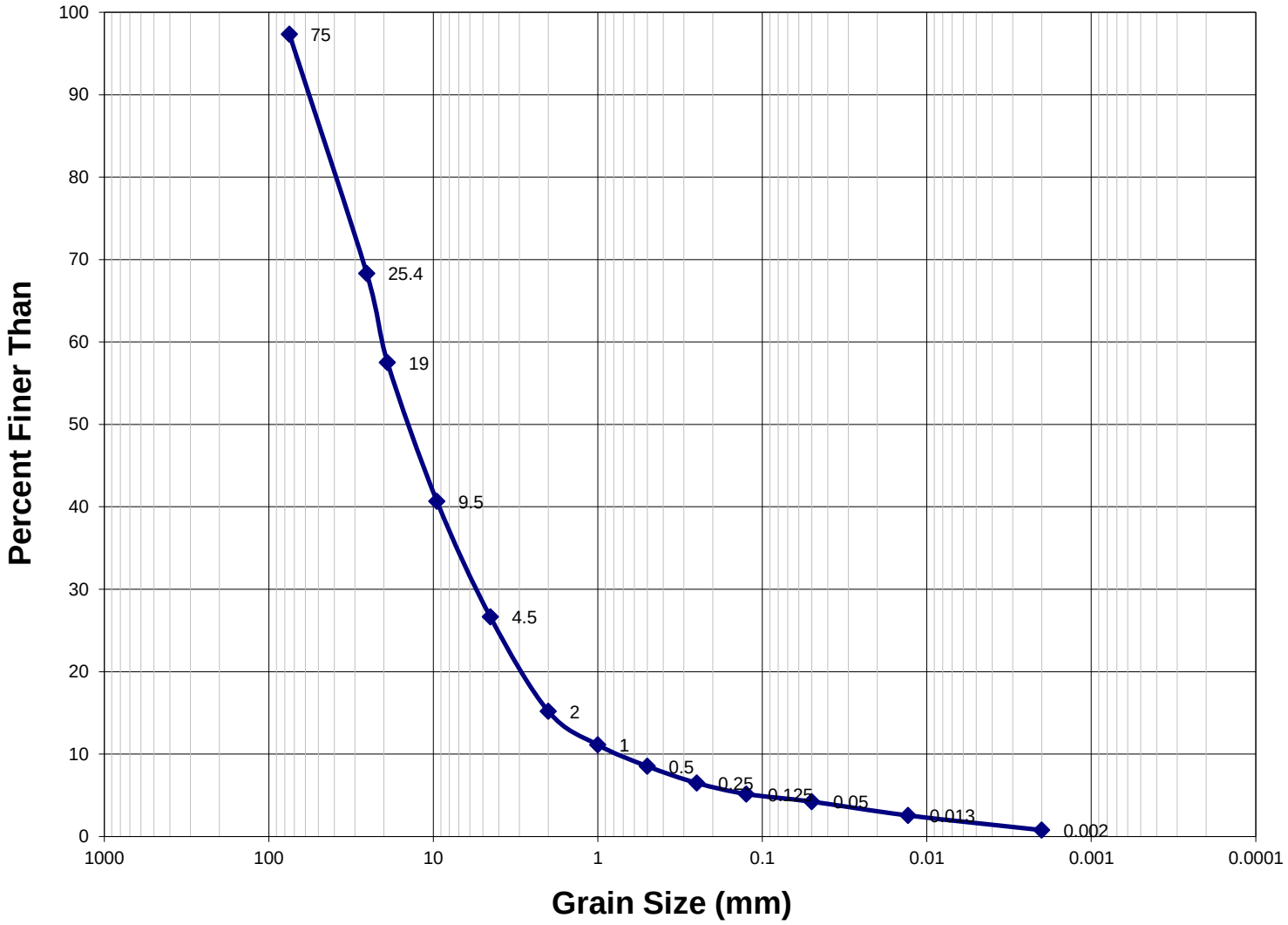
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP03-02
Lab ID: SK2106305007

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	3
Gravel	4.75mm - 3"	70
Coarse Sand	2.0mm - 4.75mm	12
Medium Sand	0.425mm - 2.0mm	7
Fine Sand	0.075mm - 0.425mm	4
Fines	< 0.075mm	5

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	3
Gravel	2mm - 3"	82
Sand	0.05mm - 2mm	11
Silt	0.002mm - 0.05mm	3
Clay	< 0.002mm	1

Texture Sample contains material greater than 4.75mm. T

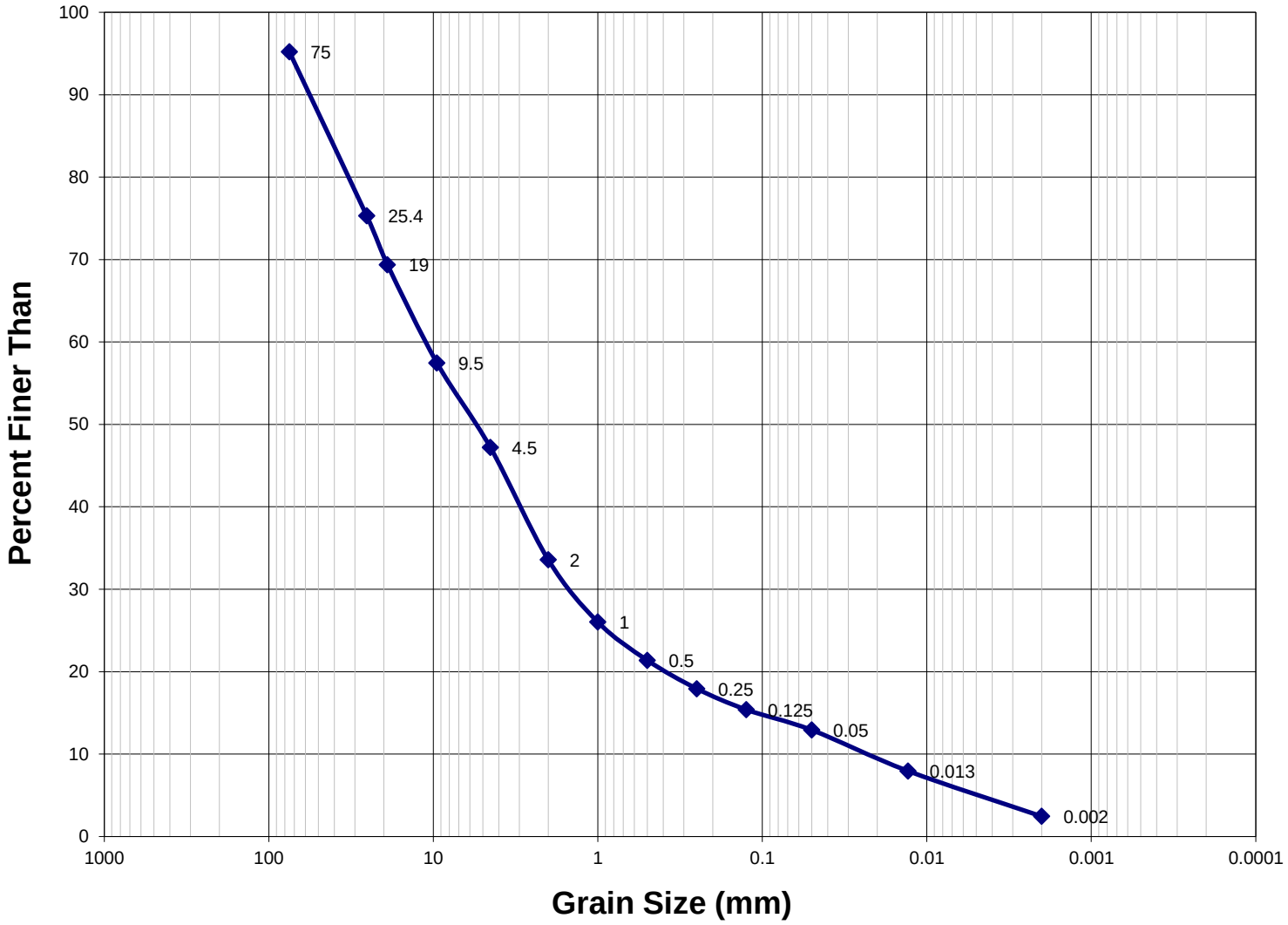
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP03-05
Lab ID: SK2106305008

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	5
Gravel	4.75mm - 3"	47
Coarse Sand	2.0mm - 4.75mm	14
Medium Sand	0.425mm - 2.0mm	12
Fine Sand	0.075mm - 0.425mm	8
Fines	< 0.075mm	14

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	5
Gravel	2mm - 3"	62
Sand	0.05mm - 2mm	21
Silt	0.002mm - 0.05mm	10
Clay	< 0.002mm	2

Texture Sample contains material greater than 4.75mm. T

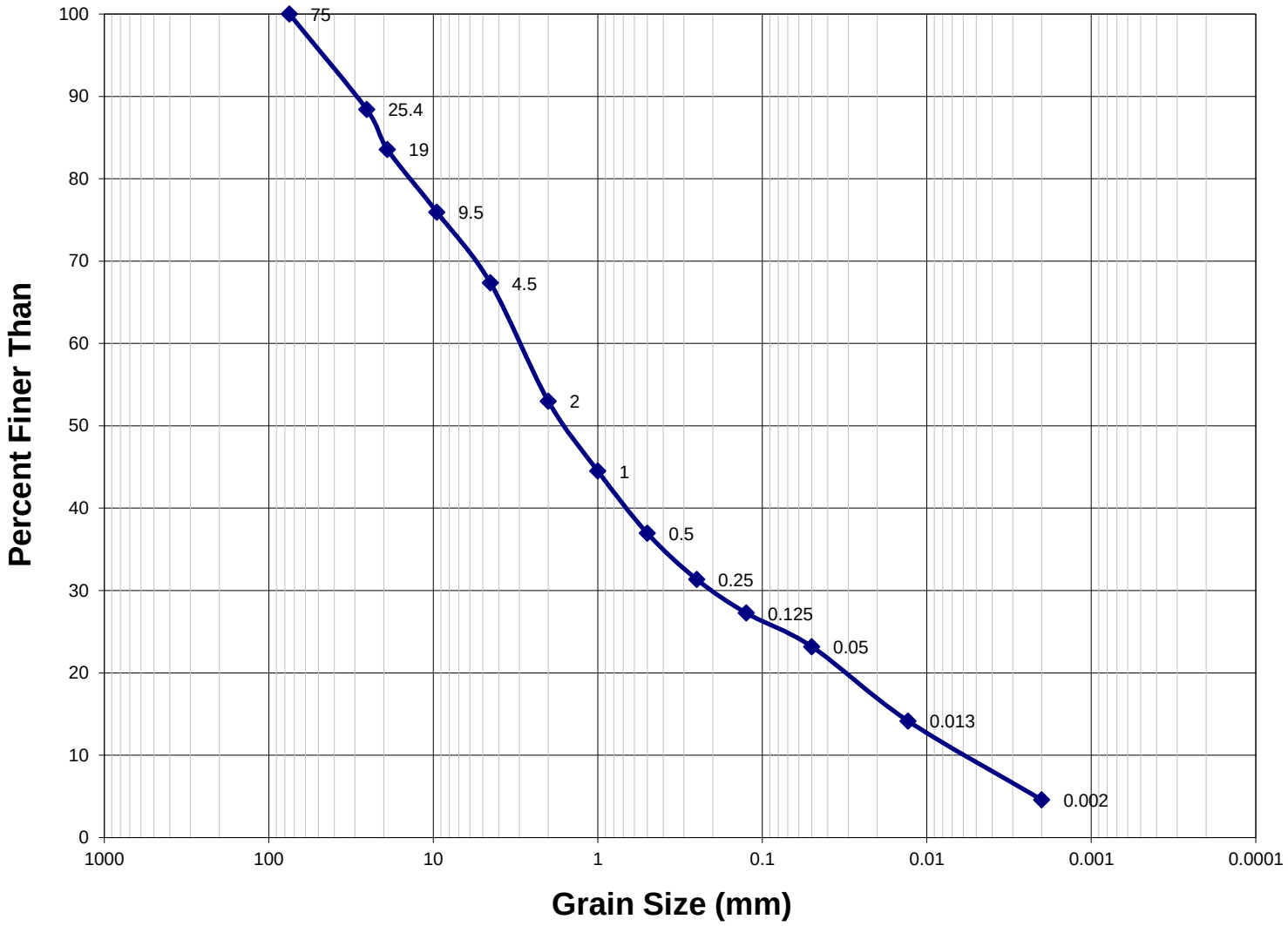
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

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ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP04-02
Lab ID: SK2106305009

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	4.75mm - 3"	32
Coarse Sand	2.0mm - 4.75mm	15
Medium Sand	0.425mm - 2.0mm	16
Fine Sand	0.075mm - 0.425mm	12
Fines	< 0.075mm	25

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	2mm - 3"	47
Sand	0.05mm - 2mm	30
Silt	0.002mm - 0.05mm	19
Clay	< 0.002mm	5

Texture Sample contains material greater than 4.75mm. T

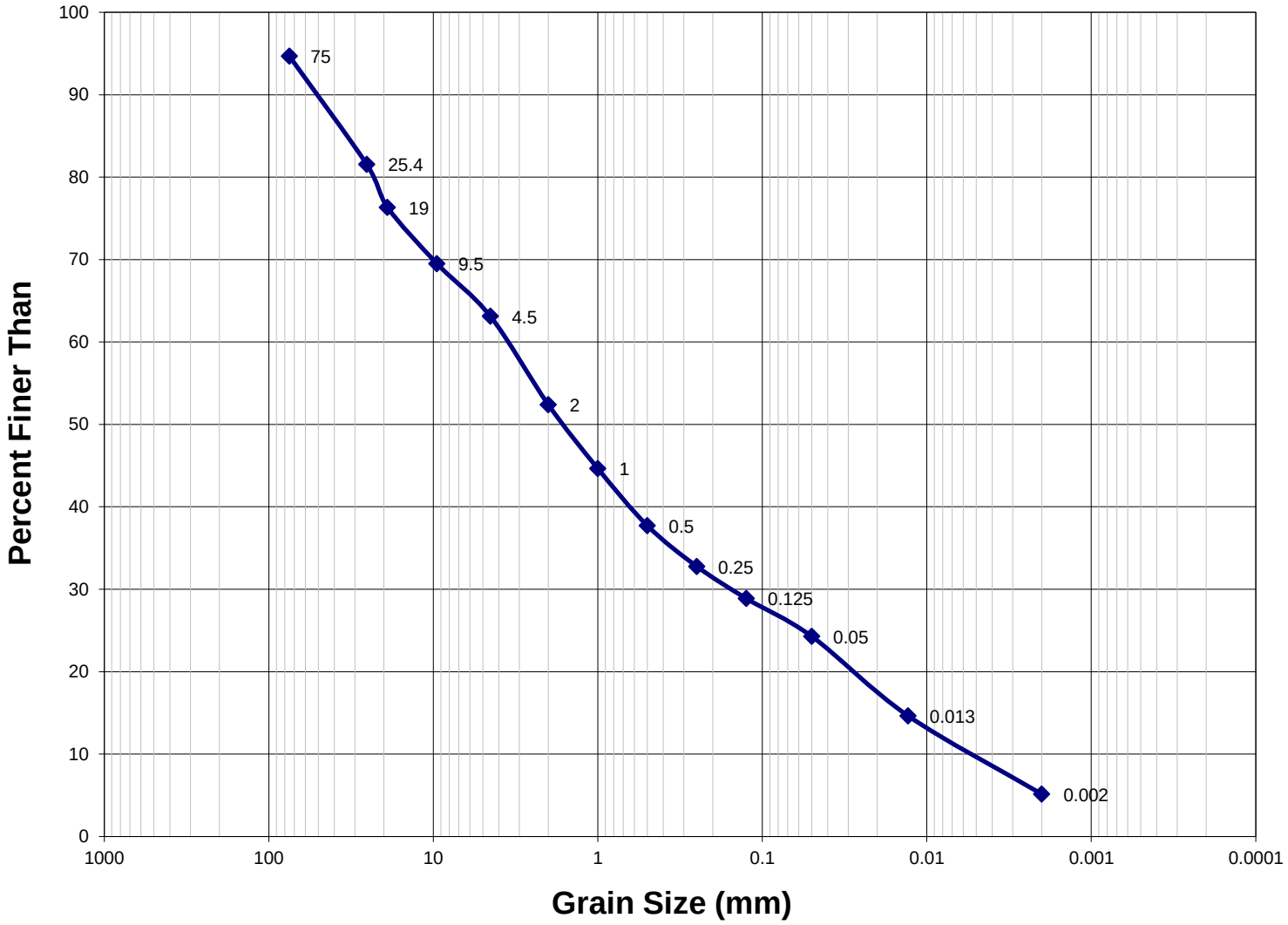
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

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ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP04-03
Lab ID: SK2106305010

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	5
Gravel	4.75mm - 3"	31
Coarse Sand	2.0mm - 4.75mm	11
Medium Sand	0.425mm - 2.0mm	15
Fine Sand	0.075mm - 0.425mm	12
Fines	< 0.075mm	26

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	5
Gravel	2mm - 3"	42
Sand	0.05mm - 2mm	28
Silt	0.002mm - 0.05mm	19
Clay	< 0.002mm	5

Texture Sample contains material greater than 4.75mm. T

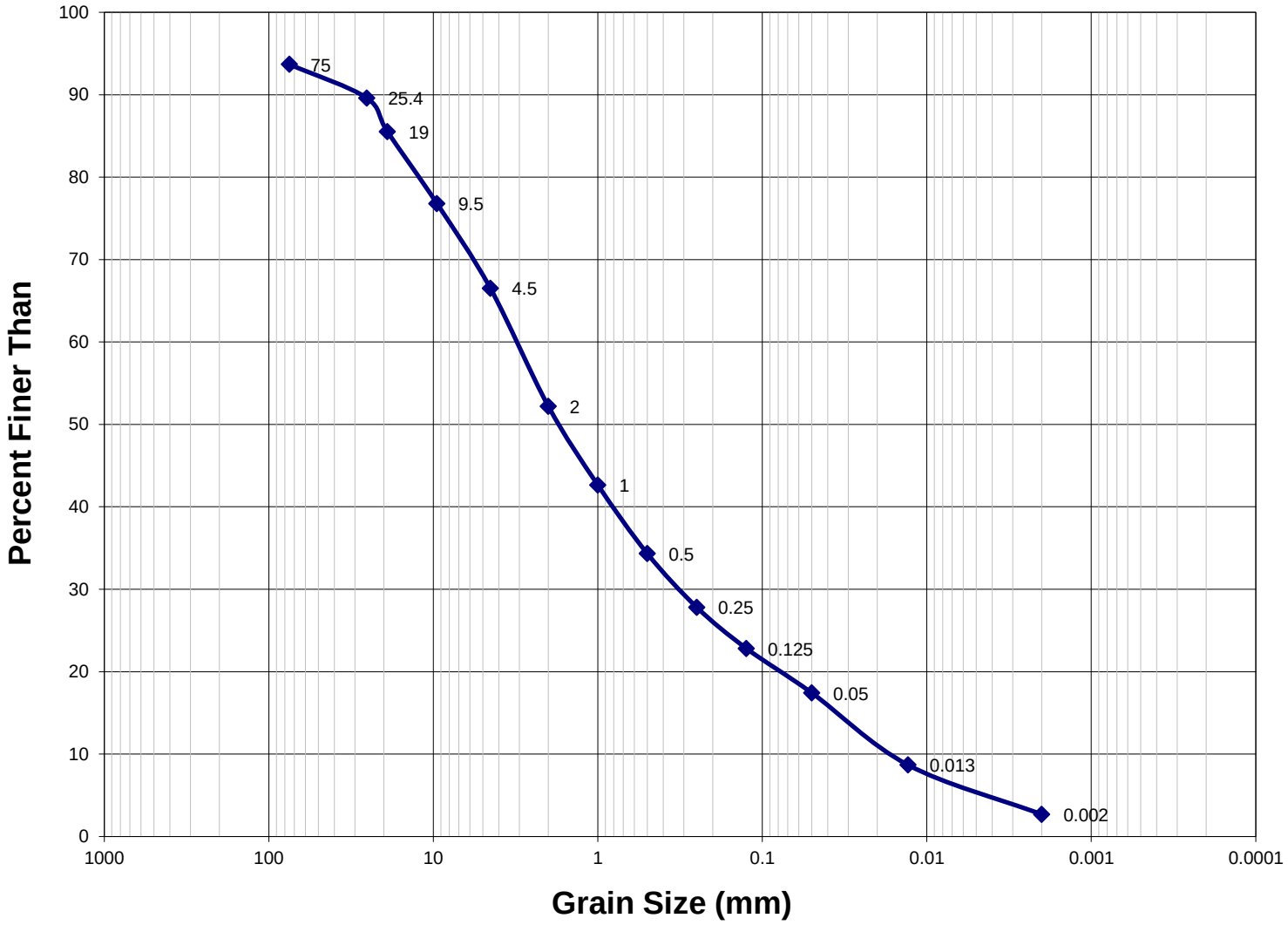
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP04B-02
Lab ID: SK2106305011

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	6
Gravel	4.75mm - 3"	27
Coarse Sand	2.0mm - 4.75mm	15
Medium Sand	0.425mm - 2.0mm	18
Fine Sand	0.075mm - 0.425mm	15
Fines	< 0.075mm	19

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	6
Gravel	2mm - 3"	41
Sand	0.05mm - 2mm	35
Silt	0.002mm - 0.05mm	15
Clay	< 0.002mm	3

Texture Sample contains material greater than 4.75mm. T

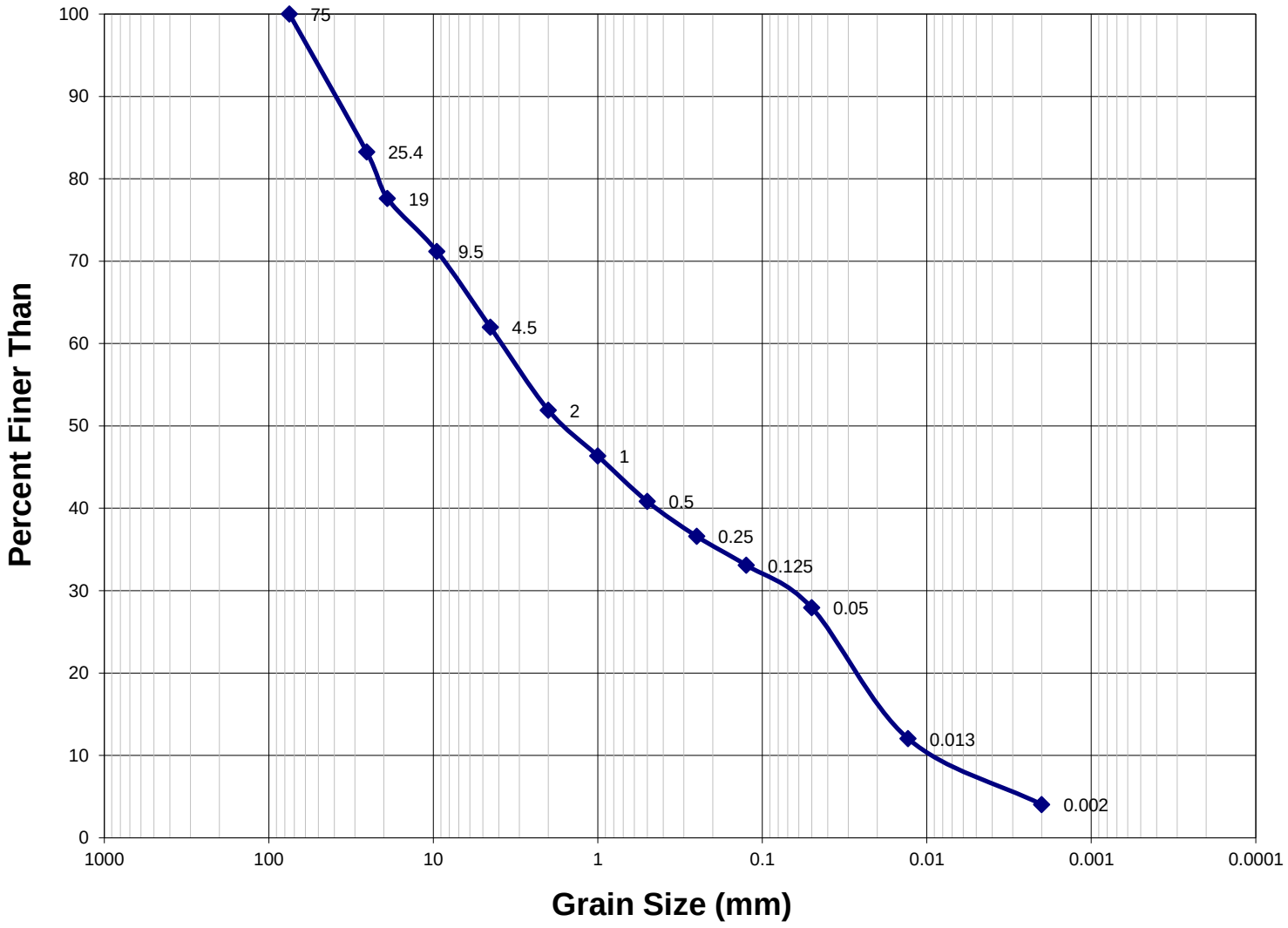
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP05-01
Lab ID: SK2106305012

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	4.75mm - 3"	38
Coarse Sand	2.0mm - 4.75mm	11
Medium Sand	0.425mm - 2.0mm	11
Fine Sand	0.075mm - 0.425mm	11
Fines	< 0.075mm	30

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	2mm - 3"	48
Sand	0.05mm - 2mm	24
Silt	0.002mm - 0.05mm	24
Clay	< 0.002mm	4

Texture Sample contains material greater than 4.75mm. T

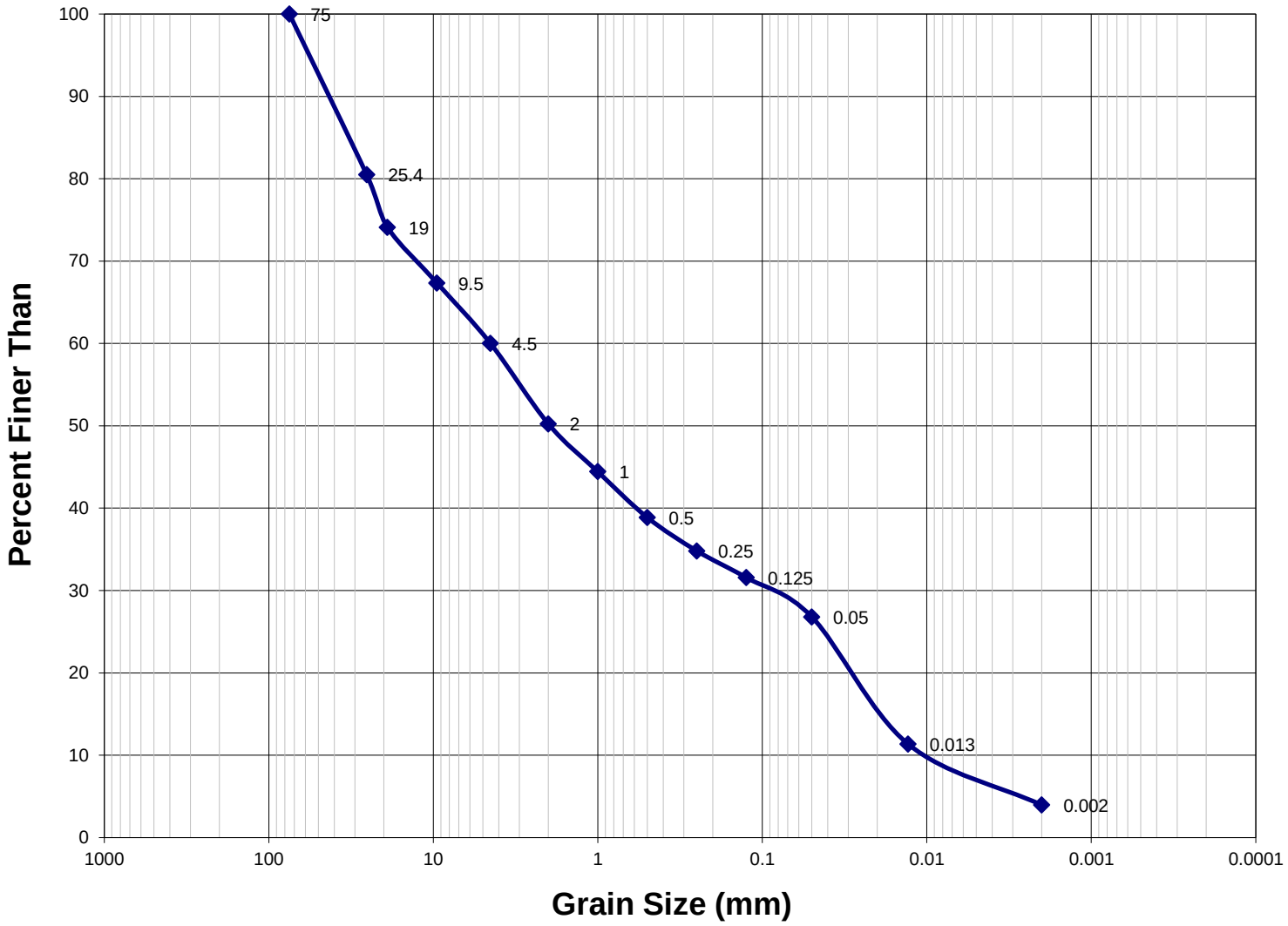
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP05-03
Lab ID: SK2106305013

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	4.75mm - 3"	40
Coarse Sand	2.0mm - 4.75mm	10
Medium Sand	0.425mm - 2.0mm	11
Fine Sand	0.075mm - 0.425mm	10
Fines	< 0.075mm	28

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	2mm - 3"	50
Sand	0.05mm - 2mm	23
Silt	0.002mm - 0.05mm	23
Clay	< 0.002mm	4

Texture Sample contains material greater than 4.75mm. T

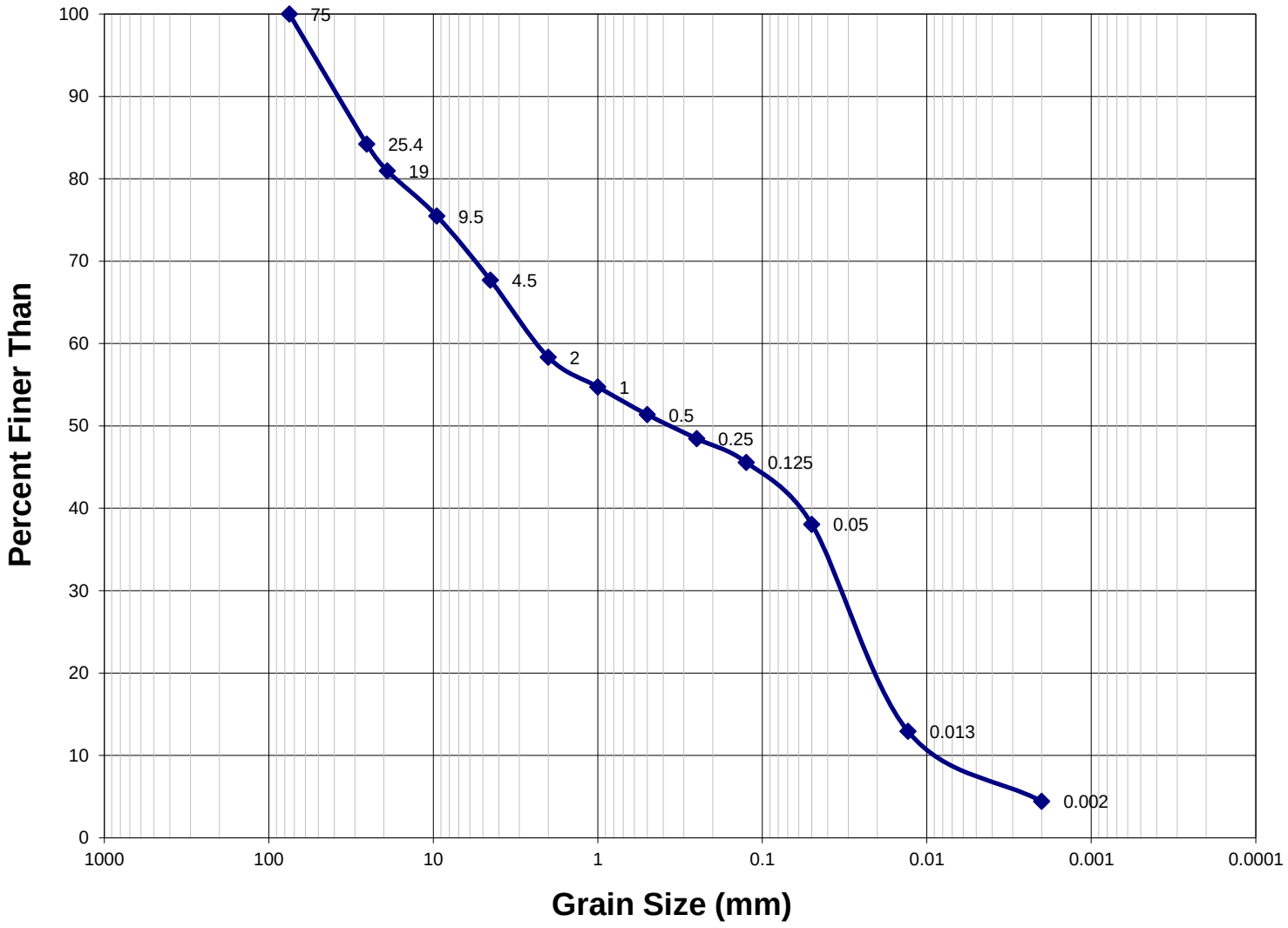
Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

Client Name: OKCI100
Project:
Sample ID: 1048-220-SP05-05
Lab ID: SK2106305014

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	4.75mm - 3"	32
Coarse Sand	2.0mm - 4.75mm	10
Medium Sand	0.425mm - 2.0mm	7
Fine Sand	0.075mm - 0.425mm	11
Fines	< 0.075mm	41

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	2mm - 3"	42
Sand	0.05mm - 2mm	20
Silt	0.002mm - 0.05mm	34
Clay	< 0.002mm	4

Texture Sample contains material greater than 4.75mm. T

Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

Chain of Custody (COC) / Analytical Request Form

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number: 21 -

Page of

Environmental Division Saskatoon

Work Order Reference

SK2106305

Telephone : +1 306 668 8370

Report To	Contact and company name below will appear on the final report
Company:	Okane Consultants
Contact:	Matt McKeown
Phone:	306-716-3662
	Company address below will appear on the final report
Street:	112-112 Research Drive
City/Province:	Saskatoon, SK
Postal Code:	S7N R3R
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax mmckeown@okc-sk.com

Email 2

Email 3

Invoice Recipients

Select Invoice Distribution: ☑ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax mmckeown@okc-sk.com

Email 2

Turnaround Time (TAT) Requested

☑ Routine [R] if received by 3pm M-F - no surcharges apply

☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum

☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimun

☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimun

☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimun

☐ Same day [E2] If received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, s

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

Project Information

ALS Account # / Quote #:	Q87509
Job #:	
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):

ALS Contact:

Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Alterberg-SK	SAL-Detail-sk	METAL-DTPA-SK	PSA-PIPET-DETAIL-SK	C-TC, TOC, TIC-SK	PREP-DRY/GRIND-SK	SAMPLE-DISPOSAL-SK	Specific gravity	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	1046-220-SP01-02	14-Sep-21	6:40	Soil	R	R	R	R	R	R	R	R				
	" " SP01-04	14-Sep-21	9:00						R			R				
	SP01-05	14-Sep-21	9:10						R			R				
	SP02-02	13-Sep-21	12:15		R	R	R	R	R	R	R	R	R			
	SP02-03	13-Sep-21	1:00						R							
	SP02-05	13-Sep-21	6:00						R							
	SP03-02	14-Sep-21	12:10						R							
	SP03-05	14-Sep-21	4:00		R	R	R	R	R	R	R		R			
	SP03-06	14-Sep-21	4:20						R							
	SP04-02	14-Sep-21	10:00		R	R	R	R	R	R	R		R			
	SP04-03	14-Sep-21	4:55						R							
	SP04B-02	14-Sep-21	5:00						R							

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?

☐ YES ☐ NO

Are samples for human consumption/ use?

☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C			
16.2						

SHIPMENT RELEASE (client use)

Released by:	Date:	Time:

INITIAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	8-10-21	2:10

FINAL SHIPMENT RECEPTION (ALS use only)

Received by:	Date:	Time:
	8-10-21	2:40

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form.**

Chain of Custody (COC) / Analytical Request Form

COC Number: 21 -

Page of

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Canada Toll Free: 1 800 668 9878

Report To	Contact and company name below will appear on the final report
Company:	Okane Consultants
Contact:	Matt McKeown
Phone:	306-716-3662
	Company address below will appear on the final report
Street:	112-112 Research Drive
City/Province:	Saskatoon, SK
Postal Code:	S7N R3R
Invoice To	Same as Report To ☑ YES ☐ NO
	Copy of Invoice with Report ☑ YES ☐ NO
Company:	
Contact:	

Reports / Recipients

Select Report Format: ☑ PDF ☑ EXCEL ☐ EDD (DIGITAL)

Merge QC/QCI Reports with COA ☐ YES ☐ NO ☐ N/A

☐ Compare Results to Criteria on Report - provide details below if box checked

Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX

Email 1 or Fax mmckeown@okc-sk.com

Email 2

Email 3

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☑ Routine [R] if received by 3pm M-F - no surcharges apply
☐ 4 day [P4] if received by 3pm M-F - 20% rush surcharge minimum
☐ 3 day [P3] if received by 3pm M-F - 25% rush surcharge minimum
☐ 2 day [P2] if received by 3pm M-F - 50% rush surcharge minimum
☐ 1 day [E] if received by 3pm M-F - 100% rush surcharge minimum
☐ Same day [E2] if received by 10am M-S - 200% rush surcharge.

Additional fees may apply to rush requests on weekends, statutory holidays and for non-routine tests.

Date and Time Required for all E&P TATs: dd-mmm-yy hh:mm am/pm

For all tests with rush TATs requested, please contact your AM to confirm availability.

AFFIX ALS BARCODE LABEL HERE (ALS use only)

Project Information

ALS Account # / Quote #:	Q87509
Job #:	
PO / AFE:	
LSD:	

Oil and Gas Required Fields (client use)

AFE/Cost Center:	PO#
Major/Minor Code:	Routing Code:
Requisitioner:	
Location:	

ALS Lab Work Order # (ALS use only):	ALS Contact:	Sampler:

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (ALS use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	NUMBER OF CONTAINERS	Atterberg-SK	SAL-Detail-sk	METAL-DTPA-SK	PSA-PIPET-DETAIL-SK	C-TC,TOC,TIC-SK	PREP-DRY/GRIND-SK	SAMPLE-DISPOSAL-SK	Specific gravity	SAMPLES ON HOLD	EXTENDED STORAGE REQUIRED	SUSPECTED HAZARD (see notes)
	1048-220-SP05-01	13-Sep-21	2:30	Soil		R	R	R	R	R	R	R	R			
	1048-220-SP05-03	13-Sep-21	3:06	↓					R			R				
	1048-220-SP05-05	13-Sep-21	3:20	↓					R			R				

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System? ☐ YES ☐ NO

Are samples for human consumption/ use? ☐ YES ☐ NO

Notes / Specify Limits for result evaluation by selecting from drop-down below (Excel COC only)

SAMPLE RECEIPT DETAILS (ALS use only)

Cooling Method: ☐ NONE ☐ ICE ☐ ICE PACKS ☐ FROZEN ☐ COOLING INITIATED

Submission Comments identified on Sample Receipt Notification: ☐ YES ☐ NO

Cooler Custody Seals Intact: ☐ YES ☐ N/A Sample Custody Seals Intact: ☐ YES ☐ N/A

INITIAL COOLER TEMPERATURES °C				FINAL COOLER TEMPERATURES °C			
16.2							

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (ALS use only)			FINAL SHIPMENT RECEPTION (ALS use only)		
Released by:	Date:	Time:	Received by:	Date:	Time:	Received by:	Date:	Time:
				8-10-21	910			

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION WHITE - LABORATORY COPY YELLOW - CLIENT COPY AUG 2020 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a **Regulated Drinking Water (DW) System**, please submit using an **Authorized DW COC form**.

APPENDIX Y

Eagle Mine Treatment Wetland Information Review and Site Visit

Memorandum

To: Hugh Coyle, Victoria Gold Corp.

From: Rachel Martz and Vanessa Friesen, Ensero Solutions Canada, Inc.

CC: Kai Woloshyn, Ensero Solutions Canada, Inc.

Date: March 25, 2022

Re: Eagle Mine Treatment Wetland Information Review and Site Visit

1 INTRODUCTION

Ensero Solutions Canada, Inc. (Ensero) was contracted by Victoria Gold Corp. (VGC) to undertake an information review and Site visit to inform the design of a treatment wetland at VGC's Eagle Mine (the Site). A treatment wetland, herein referred to as a constructed wetland treatment system (CWTS), is being evaluated as a passive treatment system (PTS) option to be implemented at the Platinum Gulch Waste Rock Storage Area (PG WRSA) for the treatment of primarily arsenic. Ensero is proposing a phased approach to inform the design of the Platinum Gulch treatment wetland where each phase of work will inform the subsequent phases. This phased approach includes completing an information review and conducting a Site visit (this memo), followed by bench-scale and pilot-scale trials, to ultimately inform the design of a full-scale CWTS.

The Platinum Gulch CWTS will be piloted during active mining as part of the mine closure research. This research will provide proof-of-concept of arsenic treatability and allow for development of the full-scale CWTS design at the Platinum Gulch WRSA prior to final closure of other major facilities which will also require the use of CWTS, such as the Eagle Pup WRSA, and the Heap Leach Facility (HLF). The Mine Water Treatment Plant will be decommissioned when all passive treatment systems are in place and can treat discharge to or below the Water Use Licence Effluent Quality Standards (WUL EQS) for a period of five years. This memo summarizes the information review and Site visit to help inform the design of the pilot for the Platinum Gulch CWTS and identify information gaps required to further inform the design.

2 BACKGROUND

Treatment of mine-affected water via a CWTS has successfully been demonstrated at various mine sites as stand-alone treatment systems or as part of a treatment train paired with other technologies (e.g., Kuyucak et al., 2006; Ettner, 2007; Nelson 2010; Contango, 2019). A CWTS can be designed to promote either aerobic (oxidizing) or anaerobic (reducing) conditions, both which are facilitated by microbes within the CWTS that act as catalysts for reactions.

CWTS are typically different from wetlands (natural or constructed) that provide habitat for wildlife or are intended to compensate or reclaim and restore impacted wetlands. Instead, a CWTS is designed to reduce concentrations of constituents of concern (COC) from water, using natural microbiological processes to sequester them into the soils and render them less bioavailable (i.e., minimizing plant uptake). The design of the CWTS will attempt to optimize the use of naturally occurring plant sources from the Site, which can withstand seasonal changes in temperature and are known to thrive in the Site-specific climate.

CWTS are the most passive and long-term PTS option, typically requiring periodic long-term maintenance, and can have a commissioning period of 1 to 2 years to establish the plant and microbial communities within the system. Depending upon treatment needs and site-specific water chemistry, CWTS can also be supplemented with amendments such as solid or liquid phase carbons (e.g., straw, wood chips, methanol), alkalinity, nitrogen, phosphorous, and/or iron sources to enhance treatment.

3 INFORMATION REVIEW

This information study includes a review of available information for the Site to inform the initial Platinum Gulch CWTS design and identify potential substrate and plant borrow sources for CWTS construction. The following information was shared with Ensero by VGC on May 19, 2021 and June 9, 2021:

Water quality data:

- WUL effluent quality standards.
- Flow and water quality model data for Platinum Gulch PTS received by email from Victoria Gold June 9, 2021.
- Lorax Environmental Services Ltd. (2021). *2020 Water Balance and Water Quality Model Update Report.* (Document #WBM v.6.1.2). Prepared for Victoria Gold Corp.
- 2019-2021 water quality data for sample sites relevant to the Platinum Gulch PTS (i.e., PDI, PGS, DA4, DA4P, LDSPI, and LDSPS).

Constructability information:

- BGC Engineering Inc. (2012a). Appendix C Test Pit Logs: *2011 Geotechnical Investigation for Mine Site Infrastructure - Factual Data Report*. Prepared for Victoria Gold Corp.
- BGC Engineering Inc. (2012b). 2012 Geotechnical Investigation for Mine Site Infrastructure - Factual Data Report. Prepared for Victoria Gold Corp.

Substrate information:

- BGC Engineering Inc. (2011). *Eagle Gold – Borrow Evaluation Report*. (Document # 0792-004-M6.1-2011). Prepared for Victoria Gold Corp.
- SRK Consulting Inc. (2013). Geochemical Characterization of Proposed Excavation Areas and Borrow Sources from the Eagle Gold Project, Yukon. (Document # 1CV004.000). Prepared for StrataGold Corp.
- SRK Consulting Inc. (2014). *Geochemical Characterization - Eagle Gold Project*. (Document # 1CS043.000). Prepared for Victoria Gold Corp.

Vegetation information:

- Stantec Consulting Ltd. (2011). *Eagle Gold Project Environmental Baseline Report: Vegetation.* (Document # 1231-10377). Prepared for Victoria Gold Corp.

Maps and figures:

- Site flight ortho photos.

- 20210331 - Eagle End of Mine General Arrangement Map.
- 20210519 PG Pond & PTS Conceptual Location.
- Sample location map.
- Digital Elevation Model (DEM 0.5 m).

4 SITE VISIT

A site visit was completed July 24-26, 2021, including a tour of the Site and the proposed Platinum Gulch CWTS location (Figure 4-1). With the intention of gathering more information on the constructability, 6 test pits were dug in the proposed Platinum Gulch CWTS location to confirm soil properties for foundation and construction materials (i.e., berms) (Figure 4-2). Samples from the test pits were collected for geotechnical testing (Grain Size Analysis, Atterberg Limits) and sent to ALS laboratories for analysis. The Site visit also included an investigation of substrate borrow sources following criteria outlined in Section 5.4. Ensero worked with VGC staff to identify areas on site with substrate suitable for use in a CWTS. Four potential substrate borrow sites were visited and three sites were selected for sampling (Figure 4-2), with analysis outlined in Table 4-1 below.



Figure 4-1: General location proposed for the Platinum Gulch CWTS.

Looking towards the toe of the Platinum Gulch Waste Rock Dump

Table 4-1: Substrate Borrow Source Sampling Analyses

Analysis	ALS Analytical Code
Alkalinity	E294
Acidity	E285
Anions	S243
Total Carbon	S351
Cation Exchange Capacity	E407
Metals in Soil and Hardness by CRC ICPMS	E446
Conductivity	E103
Metals by ICPMS (shake flask)	E440
Available N,P,K,S	CA17
Ph in Soil	E116
Particle Size Analysis	E180A
Detailed Salinity	CA13
Acid-Base Accounting	S1L-ABA-PKG04(M)

Ensero also worked with VGC staff to identify areas on site with wetland plants which could be suitable for use in a CWTS. Five locations were visited with wetland plant species suitable for use in a CWTS (Section 5.3). Three plant species from three locations were harvested and brought back to Ensero's pilot facilities in Saskatoon and placed into a nursery until they are used in bench-scale trials (Figure 4-2).



Revision History		
B	Draft for review	2022-03-25
A	Draft for review	2022-02-16
Rev.	**Description**	**Date**

Engineer's Seal

DRAFT
NOT FOR
CONSTRUCTION

	Name	Date
Design	K. Boldt	2022-03-25
Drawn	K. Boldt	2022-03-25
Checked	R. Martz	2022-03-25
Approved	V. Friesen	2022-03-25

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Project/Drawing Information	
Project Name	Eagle Mine Treatment Wetland
Project Number	ECA21SK00167
Project Location	Eagle Mine, Yukon Territory

Drawing Name

FIGURE 4-2
July 2021 Site Visit
Sample and Test Pit Locations

Drawing Number

ECA21SK00167-G-100

ENSERO solutions
104-411 Downey Road
Saskatoon, SK S7N 4L8

Victoria Gold Corp.

D:\Users\KBoldt\Projects\Victoria Gold\Drawings\CWTS\ECA21SK00167-G-100.dwg (last edited by: KBoldt; 2022/03/25 - 9:55 AM

5 SUMMARY OF INFORMATION FOR CWTS DESIGN

After a review of the available information outlined in Section 3 and completing a Site visit as outlined in Section 4, Ensero identified information that would help with substrate and plant borrow source option identification for the CWTS and with the initial CWTS design and constructability. A summary of this information and its interpretation is provided in Sections 5.1 to 5.5 below.

5.1 WATER CHEMISTRY EVALUATION

Following correspondence with VGC on June 9, 2021, it was indicated that the most representative data to use for inflow to the Platinum Gulch CWTS at this time is the output from the Lorax GoldSim model, which simulates the Platinum Gulch WRSA seepage up to year 2029 prior to the pit filling. This data includes minimum, median, mean, and maximum monthly water chemistry, and flow for 2029 which can be assumed to represent the range in flow and load to the CWTS. When comparing the WUL EQS to the PTS 2029 predicted water chemistry it was noted that nitrite and arsenic consistently exceeded the WUL EQS, and nitrate and selenium neared the WUL EQS in the maximum scenario (Table 5-1). The mean and maximum monthly water chemistry for selected parameters is presented in Table 5-1. Within the next few years, during the staged development of the PTS, actual water flow and chemistry data from the PG WRSA and pit seepages will help refine the design basis for the full scale CWTS.

Table 5-1: Predicted Water Quality and Flow Rate Data for Platinum Gulch PTS 2029

Month	Mean					Max				
	Flow (m^3/day)	As (mg/L)	NO_2 (mg/L as N)	NO_3 (mg/L as N)	Se (mg/L)	Flow (m^3/day)	As (mg/L)	NO_2 (mg/L as N)	NO_3 (mg/L as N)	Se (mg/L)
Jan	233	0.046	0.0043	0.25	0.00056	423	0.052	0.041	1.9	0.0017
Feb	207	0.05	0.0039	0.23	0.00057	406	**0.055**	0.046	2.1	0.0021
Mar	225	0.053	0.011	0.51	0.00084	769	**0.058**	0.11	4.8	0.0043
Apr	1080	**0.058**	**0.13**	5.9	0.0062	2488	**0.064**	**0.31**	13.5	0.013
May	4476	**0.073**	**0.35**	15.3	0.018	6947	**0.087**	**0.44**	19.2	0.023
Jun	2756	**0.084**	**0.24**	10.6	0.011	4579	**0.095**	**0.28**	12.1	0.014
Jul	2860	**0.07**	**0.17**	7.5	0.0097	4458	**0.091**	**0.28**	12.2	0.016
Aug	3033	**0.063**	**0.14**	6.0	0.0078	4441	**0.067**	**0.19**	8.3	0.011
Sep	2436	**0.062**	**0.13**	5.6	0.0062	4441	**0.068**	**0.22**	9.5	0.010
Oct	1486	0.052	0.034	1.5	0.0017	1970	**0.059**	0.067	3.0	0.0030
Nov	968	0.052	0.0033	0.20	0.00057	1296	**0.056**	0.036	1.7	0.0017
Dec	708	0.053	0.0018	0.13	0.00051	769	**0.056**	0.023	1.1	0.0012
WUL EQS	-	0.053	0.12	19.5	0.025	-	0.053	0.12	19.5	0.025

*WUL EQS- Water Use Licence Effluent Quality Standard; Concentrations above the EQS are indicated with **bold red** text.*

For the treatment of arsenic at the Site an aerobic CWTS design is most suitable. While arsenic can be treated through iron sulphides in anaerobic conditions, treatment occurs faster and can be to a greater extent under aerobic conditions with sorption and coprecipitation of arsenic to iron (hydroxy)oxides. Furthermore, there are risks associated with an anaerobic wetland becoming too reducing and resulting in the formation of soluble thioarsenic species which would decrease treatment efficacy of the wetland.

It is anticipated that at the predicted concentrations, nitrite will either oxidize to nitrate and/or will be used by the wetland plants as a nutrient source in an aerobic CWTS, and therefore will not require a separate CWTS for treatment. While selenium and nitrate are nearing the WUL EQS in the maximum concentration scenario, these two constituents would require a separate CWTS that targets anaerobic (reducing) conditions for removal. For the purposes of this assessment, it is assumed that only nitrite and arsenic will need to be treated in the Platinum Gulch CWTS and the CWTS will be primarily designed for the treatment of arsenic through an aerobic design (Section 5.2). This assumption will continue to be reviewed and discussed with VGC as the scope of work progresses. Should higher concentrations of nitrate and selenium be expected for the Platinum Gulch CWTS, a secondary anaerobic treatment step would be evaluated. Treatment of nitrate and selenium in anaerobic CWTS has been successfully demonstrated at other sites in the Yukon, and this step of the treatment system could be incorporated into the Platinum Gulch CWTS design (Contango, 2019).

When evaluating treatability of constituents in a CWTS it is important to look at the entire water chemistry as some constituents can interfere with wetland function, while others can affect treatability of elements in beneficial or detrimental ways. For the treatment of arsenic in an aerobic CWTS, the molar ratio of iron to arsenic in the water is important to facilitate arsenic removal. A review of the PTS 2029 water chemistry revealed that in the mean water chemistry scenario there is on average a 1.78 iron to arsenic molar ratio, whereas in the max water chemistry scenario there is on average a 2.30 iron to arsenic molar ratio. An ideal iron to arsenic molar ratio to achieve low arsenic concentrations is 10:1. However, Ensero has had success with CWTS at lower iron to arsenic molar ratios similar to those simulated for the Platinum Gulch CWTS. Should additional iron be needed for the CWTS, it could be passively incorporated by selecting iron-rich soils or incorporating iron waste from the mine site that would corrode over time and release iron into the water.

5.2 CONCEPTUAL DESIGN AND SIZE

A conceptual size for the Platinum Gulch CWTS was estimated to guide CWTS location evaluation and substrate needs. The conceptual sizing of the CWTS is based on best available information to date using the water chemistry and flow rates outlined in Table 5-1, proxy treatment rate coefficients (described further below), and assumptions for water depth and substrate depth based on Ensero's experience with similar CWTS.

Treatment rate coefficients are based on the treatability of a specific constituent and the hydraulic retention time (HRT) of the system, both of which are site-specific based on water chemistry, wetland designs, and characteristics of the system. Treatment rate coefficients therefore must be refined through bench-scale and pilot-scale work and will affect the final full-scale sizing. In order to evaluate potential CWTS locations at this stage of the project, a proxy treatment rate coefficient was used to develop a conceptual size of the Platinum Gulch CWTS. This proxy treatment rate was adopted from a pilot-scale study designed for the treatment of arsenic in an aerobic CWTS at a site in northern Canada, where no additional iron was supplemented to the CWTS and the water had an iron to arsenic molar ratio of < 1, which is lower than the PTS 2029 water chemistry and is therefore conservative. The proxy treatment rate coefficient for arsenic used for the conceptual sizing of the Platinum Gulch CWTS is 0.13 day^{-1} (zero order reaction). The CWTS design for which the proxy treatment rate was developed used *Typha* species planted into a 50 cm deep substrate (with a porosity of 30%) and water depth of 10 cm. These parameters were used for the conceptual sizing and will continue to be refined through the bench- and pilot-scale trials, where water depths in particular may depend on conditions favorable for the plant type selected.

The Platinum Gulch CWTS was conceptually sized using paired arsenic concentrations and flow data (Table 5-1) to meet the WUL EQS for arsenic (0.053 mg/L). Using the aerobic proxy treatment rate coefficient for arsenic, it is estimated that a 0.25 to 0.75 hectare full-scale wetland may be required to treat the Platinum Gulch water to the

WUL EQS target for arsenic. The range of estimated size is based on the mean and maximum flow and water quality scenarios and is conceptual at this stage, intended to inform potential CWTS locations and substrate needs. The CWTS size will be further refined and evaluated as the design and testing of the CWTS advances.

5.3 PLANTS

Plants are included in a CWTS to aid in treatment of mine-impacted water through contribution to: carbon as food for microbes, accretion, evapotranspiration, structural stability, filtration, hydrology, radial oxygen loss, sorption, and creation of microbial habitat. CWTS can be designed to create sustainable conditions that minimize the uptake of constituents into vegetation and decrease bioavailability by promoting direct mineralization of metals and metalloids within the substrate.

A review of the Environmental Baseline Report (Stantec, 2011) identified potential wetland plants such as species of *Carex* that are suitable for use in a CWTS.

During the 2021 Site visit, three plant species were identified as potential candidates for use in a CWTS including *Carex aquatilis* (water sedge), *Carex utriculata* (beaked sedge), and *Equisetum* species (horsetail) (Table 5-2). During the Site visit it was observed that all of these plant species were growing in areas with ~10 cm water depth, which is a water depth that is used for aerobic wetlands and was used for the conceptual sizing described in Section 5.2.

Equisetum was the most dominant wetland plant species observed in wetlands at the Site. Figure 5-5: shows a wetland on Lower Haggart Road where *Equisetum* was harvested and is an example of the many wetlands on Site where *Equisetum* is the dominant plant species. Harvesting this plant species was challenging due to the fine-grained substrate the plants were growing in and the thick root mats that have developed. *Equisetum* is a plant species that has been used in constructed wetlands for treatment of wastewater (Wahyudianto, 2019), and it was selected and harvested as a potential candidate for the CWTS as it is very dominant in the wetlands on Site (Figure 5-6:).

Carex utriculata and *Carex aquatilis* were also selected as potential plant species for use in the CWTS and have been successfully used by Ensero in many previous wetland designs in the Yukon (e.g., Contango, 2019). *Carex aquatilis* was found in a wet area near W22 (Figure 5-1), growing in a small stand in coarse grained substrate and were easily harvested (Figure 5-2). While the *C. aquatilis* stand at this location was small, other locations could be investigated for larger stands of this plant type for future borrow sources, or an on-site nursery could be developed. *Carex utriculata* was found in a wetland south of Haggart Road growing in shallow water (~10 cm) and in fine grained substrate. At this location there was also *Equisetum* growing in deeper water. The *Carex utriculata* was challenging to harvest from this location due to the fine-grained substrate. Harvested plants were brought back to Ensero's pilot facility nursery in Saskatoon SK to be maintained until bench-scale testing commences.

Table 5-2: Wetland plant investigation on Site.

Wetland Plant Location ID	Plant Species	Location Description	Easting	Northing	Harvested (Yes/No)
ENS-WL-001	*Carex aquatilis*	Near W22	458322	7101340	Yes
ENS-WL-002	*Carex utriculata*	Wetland South of Haggart Creek	458371	7098634	Yes
ENS-WL-003	*Equisetum*	Wetland South of Haggart Creek	458384	7098778	No
ENS-WL-004	*Equisetum*	Lower Haggart Road	458254	7100323	Yes
ENS-WL-005	*Equisetum*	Haggart Creek South of Ditch C	458225	7100098	No



Figure 5-1: Wetland areas near W22 where *Carex aquatilis* were identified at ENS-WL-001



Figure 5-2: *Carex aquatilis* harvested at ENS-WL-001



Figure 5-3: Wetland south of Haggart Creek with *Carex utriculata at* ENS-WL-002



Figure 5-4: *Carex utriculata* harvested at ENS-WL-002



Figure 5-5: Wetland on Lower Haggart Road with *Equisetum* as the dominant plant species



Figure 5-6: *Equisetum* harvested from ENS-WL-004

5.4 SUBSTRATE

The Platinum Gulch CWTS is being primarily designed for the treatment of arsenic, therefore the CWTS will require a substate that promotes the development of aerobic conditions and with no negative impact on the water quality. As such, a borrow source is considered suitable for the construction of the CWTS if it possesses the following characteristics:

- Composed of clean coarse sized material including medium to coarse sand (0.25-2.0 mm) to pea gravel (<1.25 cm) to promote the development of aerobic conditions.
- Low potential for acid generation and metal release to eliminate the potential for the release of metal loadings from the material into the CWTS.
- Contain sufficient volume of material for the construction.

Borrow areas and ARD/ML reports provided by VGC were reviewed to identify potential borrow sources for the CWTS. The review showed that several borrow sources investigated by BGC (2011) had suitable geotechnical characteristics and contained sufficient volume of material for usage for the construction of the CWTS. SRK (2013) also identified several locations as potential sources for construction material; however, the risk of metal release was not assessed, therefore these locations would require an assessment of their ARD/ML potential. Also, VGC has indicated that a lot of the material assessed in 2012-2013 has been moved since those studies were undertaken and the material may not be available for the CWTS. Thus, during the Site visit a borrow area field investigation, assessment, and subsequent sampling and testing was completed to identify potential borrow sources for the Platinum Gulch CWTS. Based on the information review, it was recommended that the Site Visit focuses on the following areas:

- Alluvium regions along Haggart Creek including the locations of borrow areas 1, 2 and 3 assessed by BGC in 2011.
- Placer gravel sites located in the upper catchment of Dublin Gulch.
- Borrow sources that can provide approximately 1,250 to 3,750 m^3 of material which will make up the 50 cm substrate layer at the base of the full-scale CWTS.

And avoid the following:

- Areas composed of fine grain size material and low hydraulic conductivity.
- Rock fill sources because of potential for metal leaching.
- Borrow sources that will have less than approximately 1,250 m^3 of borrow material available.

5.4.1 GEOCHEMICAL ASSESSMENT OF SUBSTRATE

During a site visit in July 2021, four sites were visited and investigated as potential borrow sources for the substrate for the CWTS and three samples were taken and submitted for geotechnical and geochemical testing (Table 5-3**Error! Reference source not found.**, Figure 5-7 to Figure 5-12). The three samples that were sent for analysis are described in Table 5-3 and were used to assess substrate composition and particle size, as well as the potential of the material to generate ARD/ML. The geochemical tests that were carried out on those samples include: Acid-Base Accounting (ABA), metal analysis by aqua regia digestion followed by inductively coupled plasma mass spectrometry (ICP-MS) and shake flask extraction (MEND SFE) test at 3:1 water to solid ratio as per standards practice (Price 2009). The laboratory reports for these analyses are compiled in Appendix A:.

Table 5-3: Samples Submitted for Geotechnical and Geochemical Testing.

Substrate Sample ID	Sample analyzed (Yes/No)	Composition	Location Description
ENS21-SUB01	No	N/A	Borrow pile close to camp crushed for road sanding
ENS21-SUB02	No	N/A	Borrow pile close to camp crushed for road sanding
ENS21-SUB03	Yes	Sand (76.7%), silt (19.5%) and clay (3.8%)	Eagle Pup Road, placer gravel sites upper Dublin Gulch
ENS21-SUB04	No	N/A	Above the warehouse, truck shop staging
ENS21-SUB05	Yes	Sand (73.4%), silt (20.6%) and clay (5.9%)	Above the warehouse, truck shop staging
ENS21-SUB06	No	N/A	Lower Haggart Road
ENS21-SUB07	Yes	Sand (87.2%), silt (11.2%) and clay (1.7%)	Lower Haggart Road

Sand (2.0 mm – 0.05 mm), silt (0.05 mm – 0.002 mm), clay (<0.002 mm)

During the Site visit it was observed that all substrate borrow source locations had a mixture of particle sizes which included fine grained material (silt and clay). The results of the particle size analysis show that ENS21-SUB03 and ENS21-SUB05 have the highest composition of fine-grained material. However, visually ENS21-SUB05 had the largest particle sizes of all the samples collected (Figure 5-10). As all material had fine-grained silt and clay, bench-scale trials can evaluate if the fine-grained material impacts the ability of the CWTS to achieve the desired aerobic conditions and the need for processing the material prior to use in a CWTS by washing or screening.

The results of the ABA indicate that the samples had low potential for acid generation due to their low sulphide sulphur content (max = 0.09 wt.%) combined with an adequate amount of neutralization capacity (5-9 kg $CaCO_3$/t). The metal analysis results confirm that arsenic is naturally elevated in the geologic material found on Site. Also

commonly elevated were antimony and bismuth when compared to the ten times their average concentrations in the continental crustal (Price 1997); a commonly used threshold for assessing the concentration of constituents in geologic material. The leaching of the samples to determine the elements that could be readily released by meteoric water revealed that the acidity was below the detection limit (<4 mg/L $CaCO_3$) and alkalinity was greater than 14 mg/L $CaCO_3$ in all samples confirming that the potential for the material to generate acidity was low. The results also show that the sulphate released was low (1.6 to 15.3 mg/L) and several constituents were below the detection limit in two or all three samples including: chloride, nitrite, beryllium, bismuth, boron, cadmium, lithium, phosphorus, selenium, silver, thallium, tin, titanium, vanadium, and zinc. More importantly, only aluminum and arsenic concentrations released from ENS21-SUB03 (0.545 and 0.087 mg/L, respectively) were marginally higher than their respective WUL EQS (0.4 and 0.053 mg/L). In comparison, ENS21-SUB05 and -SUB07 had slightly lower leachable aluminum and arsenic (Table 5-4). All other metals that leached from the three samples were below WUL EQS. Iron was also released from all samples, with the most leachable iron released from the upper Dublin Gulch borrow source (ENS21-SUB03, Table 5-4). Substrates with leachable iron are desirable for a CWTS as iron will facilitate arsenic removal (Section 5.1). When evaluating the leachable iron and arsenic from each of the substrate samples in addition to the maximum arsenic and iron expected in Platinum Gulch water (0.095 mg/L As, Table 5-1), the substrate borrow sources at Upper Dublin Gulch (ENS21-SUB03) and Lower Haggart Road (ENS21-SUB07) would theoretically provide additional iron to achieve Fe:As molar ratios > 9:1. It should be noted that although ENS21-SUB03 is desirable for its iron availability, it also has the highest risk of leaching other constituents, therefore testing this substrate at bench-scale will be valuable to determine the extent of leaching under CWTS conditions.

Table 5-4: Leachable metals of interest from substrate borrow source samples

Sample Name	Leachable Arsenic (mg/L)	Leachable Aluminum (mg/L)	Leachable Iron (mg/L)
ENS21-SUB03	0.087	0.545	1.92
ENS21-SUB05	0.0484	0.135	0.037
ENS21-SUB07	0.0044	0.312	0.676
WUL EQS	0.053	0.4	6.4

Based on the results of the substrate analyses, it is recommended that the borrow sources at Upper Dublin Gulch (ENS21-SUB03) and Lower Haggart Road (ENS21-SUB07) be tested further in the bench scale trials to understand the potential benefit of iron in the substrate. It should also be noted that substrate ENS21-SUB05 could be another potential substrate source that could be used in a CWTS should the benefit of additional iron from ENS21-SUB03 and -SUB07 not be realized. For the next phase of work (bench-scale) it is estimated that 0.5 m^3 of material from each borrow source selected be sent to Ensero's pilot facility to be used in bench-scale trials, however exact volumes of substrate needed will be refined once the bench-scale trial design is finalized.



Figure 5-7: Placer gavel site on Eagle Pup road, Dublin Gulch where ENS21-SUB03 was collected



Figure 5-8: ENS21-SUB03 sample collection



Figure 5-9: Truck shop staging area above warehouse where ENS21-SUB05 was collected



Figure 5-10: ENS21-SUB05 sample collection



Figure 5-11: Lower Haggart Road where ENS21-SUB07 was collected



Figure 5-12: ENS21-SUB07 sample collection

5.5 CONSTRUCTABILITY

A CWTS would be constructed on Site by digging down into the existing soils and creating flat bottomed rectangular treatment cells where substrates and plants can be added to create a wetland environment to promote the treatment of primarily arsenic. With the elevation change across the area, multiple terraced cells may be considered with cascades in between the cells which would be beneficial for promoting aerobic conditions. Substrate material will be tested in bench-scale trials and analyzed prior to use in an on-site pilot-scale system. As the design of the CWTS advances, any additional material used in the CWTS (e.g., rip rap for cascades) will also need to be analysed to determine its suitability for use prior to construction.

Available information was reviewed (Section 3) and a Site visit was conducted (Section 4) to complete an evaluation on the constructability of a proposed Platinum Gulch CWTS location (Figure 5-19).The soils in this area are assumed to be colluvium consisting of Sandy Silty Gravel, and Silty Sand based on the results of the historic test pits in the vicinity of the proposed CWTS location (BGC, 2012a). New test pits were excavated during the Site visit in the location of the CWTS to confirm soil types as well as foundation conditions. Seepage was not expected to be an issue based on historic test pit logs in the vicinity of the proposed CTWS location.

During the July site visit, 6 test pits were dug in in the location of the proposed CWTS, three to each side of the site road that leads to the toe end of the Platinum Gulch Waste Rock Storage Area. The locations of the test pits are shown in Figure 5-19 and are listed in Table 5-6, with photos shown in Figure 5-13 to Figure 5-18.

Eight soil samples were collected from the test pits and submitted to ALS Environmental in Whitehorse for analysis of CSSC Particle Size Classification, Moisture Content, and Atterberg Limits (Table 5-5). The soils found in the test pits ranged from predominantly silty sands with trace gravel, to sandy silts with trace gravel, all with low plasticity. The results of historic test pits from this area (TP-BGC11-114 through TP-BGC11-117) were also examined and were generally in agreement with a classification of sandy silt with gravel (BGC, 2012a). It should be noted however that only one of the previous test pits completed in the area (TP-BGC11-116) met refusal on frozen ground. By contrast, all test pits completed during the July 2021 site visit terminated on frozen ground refusal. When developing the detailed design of the CWTS it will be critical to consider a foundation design that protects against differential settlement which may be caused by thawing of the existing frozen ground. Results of the analytical testing completed on the samples collected from the test pits are attached in Appendix B.

Table 5-5 – Test pit sample results

Sample Name	Atterberg Limits (%)			Moisture (%)	Composition	Texture Class
	Plastic limit	Liquid limit	Plasticity index			
TP-ENS21-002 (20-60cm)	32.4	35.7	3.3	17.2	Sand (59.9%), silt (34.8%) and clay (5.3%)	Sandy loam
TP-ENS21-002 (2m)	21.5	25.1	3.6	8.29	Sand (75.6%), silt (21.3%) and clay (3.1%)	Loamy sand
TP-ENS21-003 (20-35cm)	35.4	40.2	4.8	26	Sand (45.1%), silt (21.3%) and clay (8.1%)	Loam
TP-ENS21-004 (10-60cm)	23.2	25.9	2.7	16.7	Sand (52.6%), silt (39.9%) and clay (7.5%)	Loam/Sandy loam
TP-ENS21-004 (0.6-1.1 cm)	19.4	20.5	1.2	10.4	Sand (50.7%), silt (42.3%) and clay (7.0%)	Loam/Sandy loam
TP-ENS21-005 (10-55 cm)	17.6	19.5	1.9	7.46	Sand (63.4%), silt (32.2%) and clay (4.4%)	Sandy loam
TP-ENS21-005(55-110cm)	18.8	22	3.2	13.3	Sand (56.2%), silt (34.6%) and clay (9.2%)	Sandy loam
TP-ENS21-006(10-170 cm)	22.2	24.5	2.3	12.1	Sand (41.3%), silt (46.8%) and clay (11.9%)	Loam

Sand (2.0 mm – 0.05 mm), silt (0.05 mm – 0.002 mm), clay (<0.002 mm)

It is expected that the CWTS will be constructed using a balanced cut/fill approach where possible to minimize the need for imported fill. The cut/fill approach utilizes excavated soils for the construction of both containment, and separation berms. CWTS cells will be generally constructed in a 3:1 length to width ratio and will be lined with a geosynthetic liner. The foundation, as well as containment and separation berms will require well controlled compaction during construction. To limit the footprint of the facility, berms would preferably be constructed with 2:1 side slopes, maximising the space available for treatment area. However, this may not be possible using native soils, and the side slopes may need to be shallower to ensure long term stability. Proper compaction will be very important considering the high silt content, and low plasticity of the native soils. Sandy silts and silty sands are very susceptible to erosion as well as shearing with deformation. Protection from surface water flows in, and around the CWTS foundation will also be critical.

It was noted during the July 2021 site visit that during spring freshet, as well as during significant weather events, surface runoff from higher elevations north-east of the proposed pilot CWTS can transport sediment downhill towards the proposed CWTS area. Evidence of sediment deposits in the proposed pilot CWTS area were seen during test pitting. It will be important to stabilize exposed soils uphill of the CWTS to prevent these events from depositing sediment into the CWTS. It was also noted during the Site visit that icings from groundwater seeps occur in the area of the proposed Platinum Gulch CWTS. Further considerations should be made on how to protect a CWTS in that area from potential impacts from these icings during the winter/freshet.

Based on the conceptual treatment sizes described in Section 5.2, there should be sufficient area within the proposed location to construct the CWTS; however, towards the upper range of treatment sizes, the design may require a different length to width ratio to fit within the proposed location. It is assumed that existing site roads will be sufficient to provide access for all required construction equipment.

Table 5-6: Locations of Test Pits excavated during the July 2021 Site Visit.

Test Pit ID	Easting	Northing	Location Description
TP-ENS 21-001	459239	7099486	North-east side of site road
TP-ENS 21-002	459253	7099471	North-east side of site road
TP-ENS 21-003	459233	7099496	North-east side of site road
TP-ENS 21-004	459199	7099464	South-west side of site road
TP-ENS 21-005	459184	7099492	South-west side of site road
TP-ENS 21-006	459171	7099505	South-west side of site road



Figure 5-13: Test Pit TP-ENS21-001

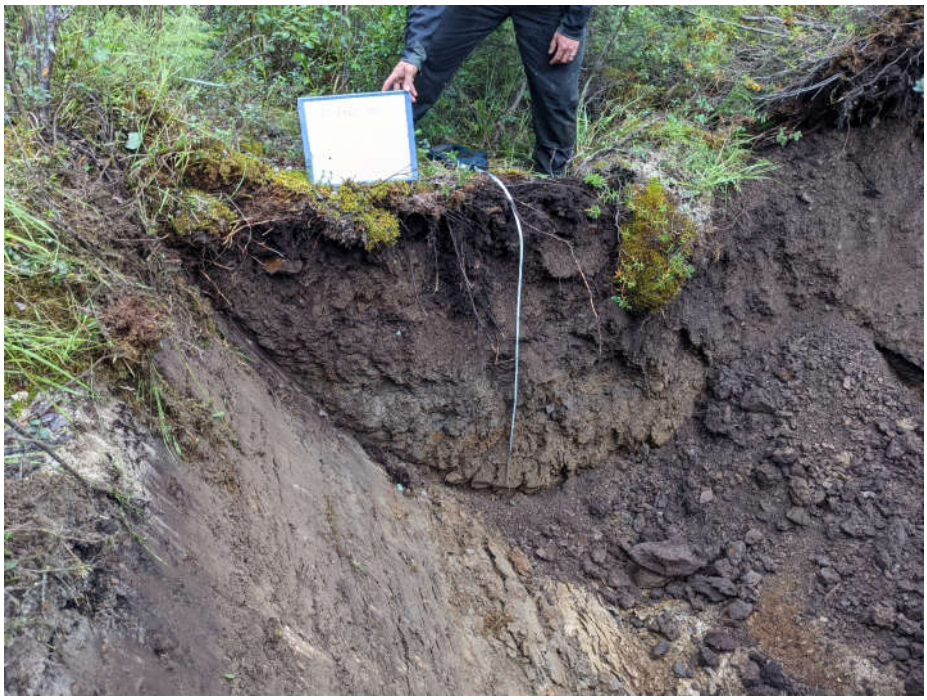


Figure 5-14: Test Pit TP-ENS21-002



Figure 5-15: Test Pit TP-ENS21-003



Figure 5-16: Test Pit TP-ENS21-004



Figure 5-17: Test Pit TP-ENS21-005



Figure 5-18: Test Pit TP-ENS21-006



Revision History		
B	Draft for review	2022-03-25
A	Draft for review	2022-02-24
Rev.	**Description**	**Date**

Engineer's Seal

DRAFT
NOT FOR
CONSTRUCTION

	Name	Date
Design	K. Boldt	2022-03-25
Drawn	K. Boldt	2022-03-25
Checked	R. Martz	2022-03-25
Approved	V. Friesen	2022-03-25

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Project/Drawing Information	
Project Name	Eagle Mine Treatment Wetland
Project Number	ECA21SK00167
Project Location	Eagle Mine, Yukon Territory

Drawing Name

FIGURE 5-19
Conceptual CWTS Size and Location

Drawing Number

ECA21SK00167-G-101

ENSERO solutions
131 Lincoln Ave Suite 200
Ft. Collins, CO 80524

Victoria Gold Corp.

D:\Users\KBoldt\Projects\Victoria Gold\Drawings\CWTS\ECA21SK00167-G-101.dwg (last edited by: KBoldt; 2022/03/25 - 9:55 AM

6 INFORMATION GAPS AND NEXT STEPS

After reviewing and interpreting the information provided by VGC and completing a Site visit in July 2021, additional information that will be required to refine the pilot-scale PG CWTS design and size, includes current flow and water quality from the Platinum Gulch WRSA in Ditch A. Appropriate sizing of a CWTS is important to ensure that there is adequate treatment area to achieve treatment goals without being oversized and risking drying out.

Next steps for the Platinum Gulch CWTS will be to complete an off-site bench-scale test program to refine the on-site pilot-scale CWTS size and design for the Platinum Gulch WRSA. The primary purpose of the bench-scale testing is to de-risk the implementation of an on-site pilot-scale system by testing multiple designs and inputs at a smaller scale with the intention of using the information to refine the on-site pilot-scale design. Bench-scale testing would provide preliminary site-specific information on removal rates of arsenic and nitrite, plant establishment, substrate and plant suitability, and determine if potential leaching of constituents is expected to occur. The design criteria and inputs that will be tested during the bench-scale trials to refine the on-site pilot-scale design include plant type, substrate, hydraulic retention times, depths, and preliminary treatment rates. Plant types identified during the Site visit will be chosen from for testing in the bench-scale trials to determine which plant species should be advanced for use in the on-site pilot-scale trial. The plant types will be chosen based on abundance on Site and which ones establish the best in the nursery system in Ensero's pilot facility. The bench-scale trials will evaluate the establishment of different plant species in a CWTS environment and the influence on treatment of arsenic. Substrate types identified in Section 5.4.1 will be tested in the bench-scale trial to determine which substrate would be most suitable for use in the on-site pilot-scale trial. Multiple hydraulic retention times (HRT) will be tested in the bench-scale trials to determine the ideal HRT for an aerobic CWTS for treatment of arsenic. Additionally, stagnation testing can be completed to evaluate the risk of the system going anaerobic during no flow/low flow scenarios and the potential of constituent leaching from the substrate. The suitability of a 10 cm water depth for plant establishment and maintaining aerobic conditions will also be evaluated in the bench-scale trials and refined as needed for the pilot-scale CWTS. The bench-scale trials will also evaluate the effect of cascades between treatment cells to determine their influence on treatment of arsenic and determine the need for additional iron amendments for the on-site CWTS.

Following bench-scale testing a more rigorous on-site pilot-scale trial is recommended to provide further site-specific information to advance the design and sizing of a full-scale CWTS for the Platinum Gulch. The pilot-scale testing will be completed to provide details on plant uptake, fate and distribution of arsenic, evapotranspiration rates, accretion and decomposition rates, and stability of treated constituents including the impact of freezing, thawing and icings from groundwater seeps, and potential stagnation in the CWTS and remobilization of arsenic.

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APPENDIX A:

SUBSTRATE ANALYTICAL CERTIFICATES OF ANALYSIS

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WR2100901**	Page	: 1 of 7
Client	: **Ensero Solutions**	Laboratory	: Whitehorse - Environmental
Contact	: Rachel Martz	Account Manager	: Heather McKenzie
Address	: #3 Calcite Business Centre 151 Industrial Road Whitehorse YT Canada Y1A 2V3	Address	: #12 151 Industrial Road Whitehorse YT Canada Y1A 2V3
Telephone	: 306 978 3111	Telephone	: +1 867 668 6689
Project	: ----	Date Samples Received	: 27-Jul-2021 15:51
PO	: 0000001061	Date Analysis Commenced	: 31-Jul-2021
C-O-C number	: ----	Issue Date	: 08-Oct-2021 13:44
Sampler	: ----		
Site	: ----		
Quote number	: VA2020-CAEG100-005		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Colby Bingham	Quality Systems Coordinator	Inorganics, Saskatoon, Saskatchewan
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Kaitlyn Gardner	Account Manager Assistant	Internal Subcontracting, North Vancouver, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Melissa Houseman	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Nancy Cruse	Laboratory _ Supervisor	Inorganics, Saskatoon, Saskatchewan
Ophelia Chiu	Department Manager - Organics	Organics, Burnaby, British Columbia
Tracy Harley	Supervisor - Water Quality Instrumentation	Inorganics, Burnaby, British Columbia
Xihua Yao	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
%	percent
µS/cm	Microsiemens per centimetre
dS/m	decisiemens per metre
kg	kilograms
meq/100g	milliequivalents per 100 grams
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
pH units	pH units
t/ha	tonnes per hectare
tCaCO3/kt	tons CaCO3 per kiloton

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Qualifiers

Qualifier	*Description*
DLIS	*Detection Limit Adjusted due to insufficient sample.*

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	ENS21-SUB07	ENS21-SUB03	ENS21-SUB05	----	----
					Client sampling date / time	27-Jul-2021 15:00	27-Jul-2021 12:00	27-Jul-2021 13:00	----	----
						WR2100901-001	WR2100901-002	WR2100901-003	--------	--------
						Result	Result	Result	----	----
Physical Tests										
acidity, leachable (as CaCO3)	----	E285	4.0	mg/L		<4.0	<4.0	<4.0	----	----
conductivity, leachable	----	E103	2.0	µS/cm		34.3	76.2	64.3	----	----
moisture	----	E144	0.25	%		6.37	8.68	7.34	----	----
pH	----	E116	0.10	pH units		7.44	7.51	7.83	----	----
Particle Size										
texture class	----	E180A	-	-		Sand	Loamy Sand	Sandy Loam	----	----
silt (0.05mm - 0.002mm)	----	E180A	1.0	%		11.2	19.5	20.6	----	----
sand (2.0mm - 0.05mm)	----	E180A	1.0	%		87.2	76.7	73.4	----	----
clay (<0.002mm)	----	E180A	1.0	%		1.7	3.8	5.9	----	----
Anions and Nutrients										
phosphate, available (as P)	14265-44-2	E384	2.0	mg/kg		4.5	10.7	17.9	----	----
Organic / Inorganic Carbon										
carbon, total [TC]	----	E351	0.050	%		0.177	0.225	0.219	----	----
carbon, inorganic [IC]	----	E354	0.050	%		0.081	0.095	0.204	----	----
carbon, inorganic [IC], (as CaCO3 equivalent)	----	E354	0.40	%		0.68	0.79	1.70	----	----
carbon, total organic [TOC]	----	EC356	0.050	%		0.096	0.130	<0.050	----	----
Plant Available Nutrients										
cation exchange capacity	----	E407	0.80	meq/100g		0.94	1.34	3.42	----	----
nitrate + nitrite, available (as N)	----	E269.N+N	1.0	mg/kg		<1.0	1.3	<1.0	----	----
nitrate, available (as N)	14797-55-8	EC269.NO3	2.0	mg/kg		<2.0	<2.0	<2.0	----	----
nitrite, available (as N)	14797-65-0	E269.NO2	0.40	mg/kg		<0.40	<0.40	<0.40	----	----
potassium, available	7440-09-7	E390	20	mg/kg		28	43	67	----	----
sulfate, available (as S)	14808-79-8	E497.SO4	3.0	mg/kg		<3.0	19.6	26.6	----	----
Saturated Paste Extractables										
% saturation	----	E141	1.0	%		27.6	25.2	14.4	----	----
pH, saturated paste	----	E114	0.10	pH units		8.03	7.81	8.10	----	----
conductivity, saturated paste	----	E102	0.030	dS/m		0.108	0.647	0.267	----	----
sodium adsorption ratio [SAR]	----	EC102	0.10	-		<0.10	0.31	0.10	----	----
TGR (brine)	----	EC106	0.1	t/ha		incomputable	----	----	----	----
TGR (brine)	----	EC106	0.10	t/ha		----	<0.10	<0.10	----	----
TGR (sodic)	----	EC106	0.10	t/ha		<0.10	<0.10	<0.10	----	----

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	ENS21-SUB07	ENS21-SUB03	ENS21-SUB05	----	----
					Client sampling date / time	27-Jul-2021 15:00	27-Jul-2021 12:00	27-Jul-2021 13:00	----	----
						WR2100901-001	WR2100901-002	WR2100901-003	--------	--------
						Result	Result	Result	----	----
Saturated Paste Extractables										
calcium, soluble ion content	7440-70-2	EC442	0.30	mg/kg		2.98	21.8	5.76	----	----
calcium, soluble ion content	7440-70-2	E442	0.60	mg/L		10.8	86.7	40.0	----	----
magnesium, soluble ion content	7439-95-4	EC442	0.50	mg/kg		0.99	5.29	<0.50	----	----
magnesium, soluble ion content	7439-95-4	E442	1.0	mg/L		3.6	21.0	3.1	----	----
potassium, soluble ion content	7440-09-7	EC442	2.0	mg/kg		<2.0	<2.0	<2.0	----	----
potassium, soluble ion content	7440-09-7	E442	4.0	mg/L		<4.0	7.5	5.6	----	----
sodium, soluble ion content	17341-25-2	EC442	1.00	mg/kg		<1.00	3.12	<1.00	----	----
sodium, soluble ion content	17341-25-2	E442	2.0	mg/L		<2.0	12.4	2.5	----	----
chloride, soluble ion content	16887-00-6	EC239A.Cl	1.0	mg/kg		<5.5	<5.0	<2.9	----	----
chloride, soluble ion content	16887-00-6	E239.Cl	2.0	mg/L		<20.0	<20.0	<20.0	----	----
sulfate, soluble ion content	14808-79-8	EC239A.SO4	2.5	mg/kg		<13.8	60.0	10.9	----	----
sulfate, soluble ion content	14808-79-8	E239.SO4	5.0	mg/L		<50.0	238	75.9	----	----
nitrate (as N), soluble ion content	14797-55-8	EC239A.NO3	0.50	mg/kg		<1.38	<1.26	<0.72	----	----
nitrate (as N), soluble ion content	14797-55-8	E239.NO3	0.5	mg/L		<5.0	<5.0	<5.0	----	----
alkalinity, bicarbonate (as CaCO3)	----	EC293	2.0	mg/kg		<2.0	15.1	<2.0	----	----
alkalinity, bicarbonate (as CaCO3)	----	E293	10	mg/L		<50	60	<50	----	----
alkalinity, carbonate (as CaCO3)	----	EC293	2.0	mg/kg		<2.0	<2.0	<2.0	----	----
alkalinity, carbonate (as CaCO3)	----	E293	5.0	mg/L		<50.0	<50.0	<50.0	----	----
alkalinity, total (as CaCO3)	----	EC293	2.0	mg/kg		<2.0	15.1	<2.0	----	----
alkalinity, total (as CaCO3)	----	E293	10	mg/L		<50 DLIS	60	<50 DLIS	----	----
Acid Base Accounting										
carbon dioxide	124-38-9	C-GAS05	0.2	%		<0.2	<0.2	0.2	----	----
carbon, total inorganic [TIC]	----	C-GAS05	0.05	%		<0.05	<0.05	0.06	----	----
fizz rating	----	OA-VOL08m	1	-		1	1	1	----	----
maximum potential acidity [MPA]	----	OA-VOL08m	0.3	tCaCO3/kt		1.3	0.9	2.8	----	----
net neutralization potential [NNP]	----	OA-VOL08m	1	tCaCO3/kt		4	5	6	----	----
neutralization potential [NP]	----	OA-VOL08m	1	tCaCO3/kt		5	6	9	----	----
neutralization potential ratio [NPR], (NP/MPA)	----	OA-VOL08m	0.01	-		4	6.40	3.20	----	----
pH (1:1 soil:water)	----	OA-ELE07	0.10	pH units		8.40	8.30	8.70	----	----
sulfate (as S), HCl leach	14808-79-8	S-GRA06A	0.01	%		<0.01	<0.01	<0.01	----	----
sulfide (as S), total minus HCl leach	18496-25-8	S-CAL06a	0.01	%		0.04	0.03	0.09	----	----
sulfur, total	7704-34-9	S-IR08	0.01	%		0.04	0.03	0.09	----	----

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	ENS21-SUB07	ENS21-SUB03	ENS21-SUB05	----	----
					Client sampling date / time	27-Jul-2021 15:00	27-Jul-2021 12:00	27-Jul-2021 13:00	----	----
						WR2100901-001	WR2100901-002	WR2100901-003	--------	--------
						Result	Result	Result	----	----
Acid Base Accounting										
weight, sample received	NA	WEI-21	0.02	kg		3.12	3.32	2.96	----	----
Metals										
aluminum	7429-90-5	E440	50	mg/kg		5220	10500	14900	----	----
antimony	7440-36-0	E440	0.10	mg/kg		44.9	20.2	10.0	----	----
arsenic	7440-38-2	E440	0.10	mg/kg		55.3	341	71.1	----	----
barium	7440-39-3	E440	0.50	mg/kg		67.4	134	152	----	----
beryllium	7440-41-7	E440	0.10	mg/kg		0.21	0.67	0.60	----	----
bismuth	7440-69-9	E440	0.20	mg/kg		0.40	0.59	1.34	----	----
boron	7440-42-8	E440	5.0	mg/kg		<5.0	<5.0	<5.0	----	----
cadmium	7440-43-9	E440	0.020	mg/kg		0.607	0.328	0.259	----	----
calcium	7440-70-2	E440	50	mg/kg		996	2600	6200	----	----
chromium	7440-47-3	E440	0.50	mg/kg		11.2	19.2	31.3	----	----
cobalt	7440-48-4	E440	0.10	mg/kg		9.59	12.2	11.1	----	----
copper	7440-50-8	E440	0.50	mg/kg		34.1	32.8	30.2	----	----
iron	7439-89-6	E440	50	mg/kg		29100	31700	23000	----	----
lead	7439-92-1	E440	0.50	mg/kg		206	24.1	38.4	----	----
lithium	7439-93-2	E440	2.0	mg/kg		7.4	24.0	28.4	----	----
magnesium	7439-95-4	E440	20	mg/kg		2480	4240	6370	----	----
manganese	7439-96-5	E440	1.0	mg/kg		1230	391	253	----	----
molybdenum	7439-98-7	E440	0.10	mg/kg		1.17	1.37	0.80	----	----
nickel	7440-02-0	E440	0.50	mg/kg		26.7	27.8	27.8	----	----
phosphorus	7723-14-0	E440	50	mg/kg		260	395	638	----	----
potassium	7440-09-7	E440	100	mg/kg		960	3160	6500	----	----
selenium	7782-49-2	E440	0.20	mg/kg		0.32	0.26	<0.20	----	----
silver	7440-22-4	E440	0.10	mg/kg		<0.10	0.16	0.11	----	----
sodium	7440-23-5	E440	50	mg/kg		<50	174	159	----	----
strontium	7440-24-6	E440	0.50	mg/kg		13.8	29.8	24.7	----	----
sulfur	7704-34-9	E440	1000	mg/kg		<1000	<1000	<1000	----	----
thallium	7440-28-0	E440	0.050	mg/kg		0.090	0.247	0.384	----	----
tin	7440-31-5	E440	2.0	mg/kg		<2.0	<2.0	<2.0	----	----
titanium	7440-32-6	E440	1.0	mg/kg		94.2	551	934	----	----
tungsten	7440-33-7	E440	0.50	mg/kg		2.50	8.73	0.96	----	----

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	ENS21-SUB07	ENS21-SUB03	ENS21-SUB05	----	----
					Client sampling date / time	27-Jul-2021 15:00	27-Jul-2021 12:00	27-Jul-2021 13:00	----	----
						WR2100901-001	WR2100901-002	WR2100901-003	--------	--------
						Result	Result	Result	----	----
Metals										
uranium	7440-61-1	E440	0.050	mg/kg		1.39	1.94	2.06	----	----
vanadium	7440-62-2	E440	0.20	mg/kg		12.1	24.0	34.0	----	----
zinc	7440-66-6	E440	2.0	mg/kg		152	75.3	69.9	----	----
zirconium	7440-67-7	E440	1.0	mg/kg		7.2	8.8	2.6	----	----
Leachable Anions & Nutrients										
alkalinity, total (as CaCO3), leachable	----	E294	1.0	mg/L		14.8	16.6	22.9	----	----
bromide, leachable	24959-67-9	E243.Br	0.050	mg/L		<0.050	<0.050	<0.050	----	----
chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L		<0.50	<0.50	<0.50	----	----
fluoride, leachable	16984-48-8	E243.F	0.020	mg/L		0.118	0.403	0.125	----	----
nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L		<0.0010	<0.0010	<0.0010	----	----
nitrate (as N), leachable	14797-55-8	E243.NO3	0.0050	mg/L		0.103	0.206	0.0252	----	----
sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L		1.64	15.3	8.65	----	----
Leachable Metals										
aluminum, leachable	7429-90-5	E446	0.0050	mg/L		0.312	0.545	0.135	----	----
antimony, leachable	7440-36-0	E446	0.00010	mg/L		0.00225	0.00669	0.00320	----	----
arsenic, leachable	7440-38-2	E446	0.0010	mg/L		0.0044	0.0866	0.0484	----	----
barium, leachable	7440-39-3	E446	0.0010	mg/L		0.0169	0.0196	0.0016	----	----
beryllium, leachable	7440-41-7	E446	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
bismuth, leachable	7440-69-9	E446	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
boron, leachable	7440-42-8	E446	0.010	mg/L		<0.010	<0.010	<0.010	----	----
cadmium, leachable	7440-43-9	E446	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
calcium, leachable	7440-70-2	E446	0.10	mg/L		4.08	8.44	9.23	----	----
chromium, leachable	7440-47-3	E446	0.00050	mg/L		0.00059	0.00078	<0.00050	----	----
cobalt, leachable	7440-48-4	E446	0.00010	mg/L		0.00030	0.00080	<0.00010	----	----
copper, leachable	7440-50-8	E446	0.0010	mg/L		0.0013	0.0037	<0.0010	----	----
iron, leachable	7439-89-6	E446	0.030	mg/L		0.676	1.92	0.037	----	----
lead, leachable	7439-92-1	E446	0.00010	mg/L		0.00082	0.00414	0.00025	----	----
lithium, leachable	7439-93-2	E446	0.0050	mg/L		<0.0050	<0.0050	<0.0050	----	----
magnesium, leachable	7439-95-4	E446	0.050	mg/L		1.18	2.03	0.612	----	----
manganese, leachable	7439-96-5	E446	0.00050	mg/L		0.0148	0.0342	0.00319	----	----
molybdenum, leachable	7439-98-7	E446	0.00010	mg/L		0.00094	0.00219	0.00367	----	----
nickel, leachable	7440-02-0	E446	0.00050	mg/L		0.00096	0.00207	<0.00050	----	----

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	ENS21-SUB07	ENS21-SUB03	ENS21-SUB05	----	----
					Client sampling date / time	27-Jul-2021 15:00	27-Jul-2021 12:00	27-Jul-2021 13:00	----	----
						WR2100901-001	WR2100901-002	WR2100901-003	--------	--------
						Result	Result	Result	----	----
Leachable Metals										
phosphorus, leachable	7723-14-0	E446	0.30	mg/L		<0.30	<0.30	<0.30	----	----
potassium, leachable	7440-09-7	E446	0.050	mg/L		0.832	1.89	2.31	----	----
selenium, leachable	7782-49-2	E446	0.00050	mg/L		<0.00050	<0.00050	0.00166	----	----
silicon, leachable	7440-21-3	E446	0.050	mg/L		1.61	1.97	2.00	----	----
silver, leachable	7440-22-4	E446	0.000050	mg/L		<0.000050	<0.000050	<0.000050	----	----
sodium, leachable	7440-23-5	E446	0.050	mg/L		0.257	1.16	0.439	----	----
strontium, leachable	7440-24-6	E446	0.00050	mg/L		0.0240	0.0368	0.0397	----	----
sulfur, leachable	7704-34-9	E446	0.50	mg/L		0.59	5.03	2.99	----	----
thallium, leachable	7440-28-0	E446	0.00010	mg/L		<0.00010	<0.00010	<0.00010	----	----
tin, leachable	7440-31-5	E446	0.00050	mg/L		<0.00050	<0.00050	<0.00050	----	----
titanium, leachable	7440-32-6	E446	0.010	mg/L		<0.010	0.015	<0.010	----	----
uranium, leachable	7440-61-1	E446	0.000010	mg/L		0.000029	0.000236	0.00134	----	----
vanadium, leachable	7440-62-2	E446	0.0010	mg/L		<0.0010	0.0014	<0.0010	----	----
zinc, leachable	7440-66-6	E446	0.010	mg/L		<0.010	<0.010	<0.010	----	----
hardness (as CaCO3), dissolved	----	E446	0.60	mg/L		15.0	29.4	25.6	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WR2100901**	Page	: 1 of 24
Client	: **Ensero Solutions**	Laboratory	: Whitehorse - Environmental
Contact	: Rachel Martz	Account Manager	: Heather McKenzie
Address	: #3 Calcite Business Centre 151 Industrial Road Whitehorse YT Canada Y1A 2V3	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: 306 978 3111	Telephone	: +1 867 668 6689
Project	: ----	Date Samples Received	: 27-Jul-2021 15:51
PO	: 0000001061	Issue Date	: 08-Oct-2021 13:44
C-O-C number	: ----		
Sampler	: ----		
Site	: ----		
Quote number	: VA2020-CAEG100-005		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Duplicate outliers occur - please see following pages for full details.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- Analysis Holding Time Outliers exist - please see following pages for full details.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: **Soil/Solid**

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Duplicate (DUP) RPDs								
Metals	Anonymous	Anonymous	cadmium	7440-43-9	E440	0.088 % DUP-H	Diff <2x LOR	Low Level DUP DQO exceeded (difference > 2 LOR).
Metals	Anonymous	Anonymous	chromium	7440-47-3	E440	39.4 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	copper	7440-50-8	E440	38.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	uranium	7440-61-1	E440	34.9 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.
Metals	Anonymous	Anonymous	zinc	7440-66-6	E440	124 % DUP-H	30%	Duplicate RPD does not meet the DQO for this test.

Result Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Acid Base Accounting : Acid Base Accounting (Modified Sobek)										
LDPE bag										
ENS21-SUB03	OA-VOL08m	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Acid Base Accounting (Modified Sobek)										
LDPE bag										
ENS21-SUB05	OA-VOL08m	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Acid Base Accounting (Modified Sobek)										
LDPE bag										
ENS21-SUB07	OA-VOL08m	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Inorganic Carbon by Coulometer										
LDPE bag										
ENS21-SUB03	C-GAS05	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Inorganic Carbon by Coulometer										
LDPE bag										
ENS21-SUB05	C-GAS05	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Inorganic Carbon by Coulometer										
LDPE bag										
ENS21-SUB07	C-GAS05	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Received Sample Weight										
LDPE bag										
ENS21-SUB03	WEI-21	27-Jul-2021	----	----	----		27-Sep-2021	180 days	62 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Acid Base Accounting : Received Sample Weight										
LDPE bag ENS21-SUB05	WEI-21	27-Jul-2021	----	----	----		27-Sep-2021	180 days	62 days	✓
Acid Base Accounting : Received Sample Weight										
LDPE bag ENS21-SUB07	WEI-21	27-Jul-2021	----	----	----		27-Sep-2021	180 days	62 days	✓
Acid Base Accounting : Saturated Paste pH										
LDPE bag ENS21-SUB03	OA-ELE07	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Saturated Paste pH										
LDPE bag ENS21-SUB05	OA-ELE07	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Saturated Paste pH										
LDPE bag ENS21-SUB07	OA-ELE07	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Sulfates by HCl Leaching and Gravimetry										
LDPE bag ENS21-SUB03	S-GRA06A	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Sulfates by HCl Leaching and Gravimetry										
LDPE bag ENS21-SUB05	S-GRA06A	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Sulfates by HCl Leaching and Gravimetry										
LDPE bag ENS21-SUB07	S-GRA06A	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Sulfide S (as S) Calc. (Total-S - SO4-S)										
LDPE bag ENS21-SUB03	S-CAL06a	27-Jul-2021	----	----	----		27-Sep-2021	----	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Acid Base Accounting : Sulfide S (as S) Calc. (Total-S - SO4-S)										
LDPE bag ENS21-SUB05	S-CAL06a	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Sulfide S (as S) Calc. (Total-S - SO4-S)										
LDPE bag ENS21-SUB07	S-CAL06a	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Total Sulfur by Combustion and IR										
LDPE bag ENS21-SUB03	S-IR08	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Total Sulfur by Combustion and IR										
LDPE bag ENS21-SUB05	S-IR08	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Acid Base Accounting : Total Sulfur by Combustion and IR										
LDPE bag ENS21-SUB07	S-IR08	27-Jul-2021	----	----	----		27-Sep-2021	----	----	
Anions and Nutrients : Available Phosphorus by FIALab (Modified Kelowna)										
LDPE bag ENS21-SUB03	E384	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	180 days	8 days	✓
Anions and Nutrients : Available Phosphorus by FIALab (Modified Kelowna)										
LDPE bag ENS21-SUB05	E384	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	180 days	8 days	✓
Anions and Nutrients : Available Phosphorus by FIALab (Modified Kelowna)										
LDPE bag ENS21-SUB07	E384	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	180 days	8 days	✓
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E294	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E294	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E294	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E243.Br	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E243.Br	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Bromide by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E243.Br	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E243.Cl	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E243.Cl	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Chloride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E243.Cl	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E243.F	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E243.F	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Fluoride by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E243.F	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E243.NO3	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E243.NO3	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Nitrate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E243.NO3	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E243.NO2	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E243.NO2	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Nitrite by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E243.NO2	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E243.SO4	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E243.SO4	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Anions & Nutrients : Sulfate by IC (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E243.SO4	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E446	27-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	----	9 days	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E446	27-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	----	9 days	
Leachable Metals : Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E446	27-Jul-2021	04-Aug-2021	----	----		05-Aug-2021	----	9 days	
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag ENS21-SUB03	E440	27-Jul-2021	31-Jul-2021	----	----		03-Aug-2021	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag ENS21-SUB05	E440	27-Jul-2021	31-Jul-2021	----	----		03-Aug-2021	180 days	7 days	✓
Metals : Metals in Soil/Solid by CRC ICPMS										
LDPE bag ENS21-SUB07	E440	27-Jul-2021	31-Jul-2021	----	----		03-Aug-2021	180 days	7 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag ENS21-SUB03	E351	27-Jul-2021	----	----	----		04-Aug-2021	180 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag ENS21-SUB05	E351	27-Jul-2021	----	----	----		04-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Carbon by Combustion										
LDPE bag ENS21-SUB07	E351	27-Jul-2021	----	----	----		04-Aug-2021	180 days	0 days	✓
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag ENS21-SUB03	E354	27-Jul-2021	----	----	----		03-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag ENS21-SUB05	E354	27-Jul-2021	----	----	----		03-Aug-2021	----	----	
Organic / Inorganic Carbon : Total Inorganic Carbon by Acetic Acid pH Standard Curve										
LDPE bag ENS21-SUB07	E354	27-Jul-2021	----	----	----		03-Aug-2021	----	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag ENS21-SUB03	E180A	27-Jul-2021	----	----	----		03-Aug-2021	365 days	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag ENS21-SUB05	E180A	27-Jul-2021	----	----	----		03-Aug-2021	365 days	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag ENS21-SUB07	E180A	27-Jul-2021	----	----	----		03-Aug-2021	365 days	----	
Physical Tests : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E285	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E285	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Physical Tests : Acidity by titration (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E285	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E103	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E103	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Physical Tests : Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E103	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag ENS21-SUB03	E144	27-Jul-2021	----	----	----		03-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag ENS21-SUB05	E144	27-Jul-2021	----	----	----		03-Aug-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag ENS21-SUB07	E144	27-Jul-2021	----	----	----		03-Aug-2021	----	----	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB03	E116	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB05	E116	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Physical Tests : pH by Electrode (Shakeflask, 3:1 Ratio with Water)										
LDPE bag ENS21-SUB07	E116	27-Jul-2021	04-Aug-2021	----	----		06-Aug-2021	----	10 days	
Plant Available Nutrients : Ammonium Acetate CEC in Soil by Colourimetry										
LDPE bag ENS21-SUB03	E407	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	3 days	0 days	✓
Plant Available Nutrients : Ammonium Acetate CEC in Soil by Colourimetry										
LDPE bag ENS21-SUB05	E407	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	3 days	0 days	✓
Plant Available Nutrients : Ammonium Acetate CEC in Soil by Colourimetry										
LDPE bag ENS21-SUB07	E407	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	3 days	0 days	✓
Plant Available Nutrients : Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride										
LDPE bag ENS21-SUB03	E269.N+N	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	3 days	7 days	× EHT
Plant Available Nutrients : Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride										
LDPE bag ENS21-SUB05	E269.N+N	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	3 days	7 days	× EHT
Plant Available Nutrients : Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride										
LDPE bag ENS21-SUB07	E269.N+N	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	3 days	7 days	× EHT
Plant Available Nutrients : Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)										
LDPE bag ENS21-SUB03	E269.NO2	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	1 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Plant Available Nutrients : Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)										
LDPE bag ENS21-SUB05	E269.NO2	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	1 days	0 days	✓
Plant Available Nutrients : Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)										
LDPE bag ENS21-SUB07	E269.NO2	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	1 days	0 days	✓
Plant Available Nutrients : Available Potassium by flame photometry (Modified Kelowna)										
LDPE bag ENS21-SUB03	E390	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	180 days	8 days	✓
Plant Available Nutrients : Available Potassium by flame photometry (Modified Kelowna)										
LDPE bag ENS21-SUB05	E390	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	180 days	8 days	✓
Plant Available Nutrients : Available Potassium by flame photometry (Modified Kelowna)										
LDPE bag ENS21-SUB07	E390	27-Jul-2021	04-Aug-2021	----	----		04-Aug-2021	180 days	8 days	✓
Plant Available Nutrients : Available Sulfate by ICPOES (0.01M Calcium Chloride Ext.)										
LDPE bag ENS21-SUB03	E497.SO4	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	----	0 days	
Plant Available Nutrients : Available Sulfate by ICPOES (0.01M Calcium Chloride Ext.)										
LDPE bag ENS21-SUB05	E497.SO4	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	----	0 days	
Plant Available Nutrients : Available Sulfate by ICPOES (0.01M Calcium Chloride Ext.)										
LDPE bag ENS21-SUB07	E497.SO4	27-Jul-2021	03-Aug-2021	----	----		03-Aug-2021	----	0 days	
Saturated Paste Extractables : Alkalinity Species by Titration (Saturated Paste)										
LDPE bag ENS21-SUB03	E293	27-Jul-2021	----	----	----		31-Jul-2021	14 days	0 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Alkalinity Species by Titration (Saturated Paste)										
LDPE bag ENS21-SUB05	E293	27-Jul-2021	----	----	----		31-Jul-2021	14 days	0 days	✓
Saturated Paste Extractables : Alkalinity Species by Titration (Saturated Paste)										
LDPE bag ENS21-SUB07	E293	27-Jul-2021	----	----	----		31-Jul-2021	14 days	0 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
LDPE bag ENS21-SUB03	E442	27-Jul-2021	----	----	----		01-Aug-2021	365 days	5 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
LDPE bag ENS21-SUB05	E442	27-Jul-2021	----	----	----		01-Aug-2021	365 days	5 days	✓
Saturated Paste Extractables : Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)										
LDPE bag ENS21-SUB07	E442	27-Jul-2021	----	----	----		01-Aug-2021	365 days	5 days	✓
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
LDPE bag ENS21-SUB03	E239.Cl	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
LDPE bag ENS21-SUB05	E239.Cl	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : Chloride by IC (Saturated Paste)										
LDPE bag ENS21-SUB07	E239.Cl	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : Conductivity in Soil (Saturated Paste)										
LDPE bag ENS21-SUB03	E102	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Conductivity in Soil (Saturated Paste)										
LDPE bag ENS21-SUB05	E102	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : Conductivity in Soil (Saturated Paste)										
LDPE bag ENS21-SUB07	E102	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : Nitrate by IC (Saturated Paste)										
LDPE bag ENS21-SUB03	E239.NO3	27-Jul-2021	----	----	----		31-Jul-2021	----	4 days	EHT
Saturated Paste Extractables : Nitrate by IC (Saturated Paste)										
LDPE bag ENS21-SUB05	E239.NO3	27-Jul-2021	----	----	----		31-Jul-2021	----	4 days	EHT
Saturated Paste Extractables : Nitrate by IC (Saturated Paste)										
LDPE bag ENS21-SUB07	E239.NO3	27-Jul-2021	----	----	----		31-Jul-2021	----	4 days	EHT
Saturated Paste Extractables : pH by Meter (Saturated Paste)										
LDPE bag ENS21-SUB03	E114	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : pH by Meter (Saturated Paste)										
LDPE bag ENS21-SUB05	E114	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : pH by Meter (Saturated Paste)										
LDPE bag ENS21-SUB07	E114	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : Saturation Percentage										
LDPE bag ENS21-SUB03	E141	27-Jul-2021	----	----	----		31-Jul-2021	28 days	4 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Saturated Paste Extractables : Saturation Percentage										
LDPE bag ENS21-SUB05	E141	27-Jul-2021	----	----	----		31-Jul-2021	28 days	4 days	✓
Saturated Paste Extractables : Saturation Percentage										
LDPE bag ENS21-SUB07	E141	27-Jul-2021	----	----	----		31-Jul-2021	28 days	4 days	✓
Saturated Paste Extractables : Sulfate by IC (Saturated Paste)										
LDPE bag ENS21-SUB03	E239.SO4	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : Sulfate by IC (Saturated Paste)										
LDPE bag ENS21-SUB05	E239.SO4	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓
Saturated Paste Extractables : Sulfate by IC (Saturated Paste)										
LDPE bag ENS21-SUB07	E239.SO4	27-Jul-2021	----	----	----		31-Jul-2021	365 days	4 days	✓

Legend & Qualifier Definitions

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	257206	1	3	33.3	5.0	✓
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	257203	1	3	33.3	5.0	✓
Alkalinity Species by Titration (Saturated Paste)	E293	255837	1	3	33.3	5.0	✓
Ammonium Acetate CEC in Soil by Colourimetry	E407	257267	1	3	33.3	5.0	✓
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	257075	1	20	5.0	5.0	✓
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	257076	1	5	20.0	5.0	✓
Available Phosphorus by FIALab (Modified Kelowna)	E384	257052	1	20	5.0	5.0	✓
Available Potassium by flame photometry (Modified Kelowna)	E390	257051	1	20	5.0	5.0	✓
Available Sulfate by ICPOES (0.01M Calcium Chloride Ext.)	E497.SO4	257074	1	19	5.2	5.0	✓
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	257212	1	3	33.3	5.0	✓
Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)	E442	255838	1	3	33.3	5.0	✓
Chloride by IC (Saturated Paste)	E239.Cl	255833	1	3	33.3	5.0	✓
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	257211	1	3	33.3	5.0	✓
Conductivity in Soil (Saturated Paste)	E102	255836	1	3	33.3	5.0	✓
CSSC Particle Size Classification (Mini Pipet Method)	E180A	257072	1	3	33.3	5.0	✓
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	257210	1	3	33.3	5.0	✓
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	257213	1	3	33.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	255826	1	7	14.2	5.0	✓
Moisture Content by Gravimetry	E144	257214	1	4	25.0	5.0	✓
Nitrate by IC (Saturated Paste)	E239.NO3	255832	1	3	33.3	5.0	✓
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	257208	1	3	33.3	5.0	✓
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	257209	1	3	33.3	5.0	✓
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	257205	1	3	33.3	5.0	✓
pH by Meter (Saturated Paste)	E114	255835	1	3	33.3	5.0	✓
Saturation Percentage	E141	255834	1	3	33.3	5.0	✓
Sulfate by IC (Saturated Paste)	E239.SO4	255831	1	3	33.3	5.0	✓
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	257207	1	3	33.3	5.0	✓
Total Carbon by Combustion	E351	258043	1	6	16.6	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	257128	1	6	16.6	5.0	✓
Laboratory Control Samples (LCS)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	257206	1	3	33.3	5.0	✓
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	257203	1	3	33.3	5.0	✓
Alkalinity Species by Titration (Saturated Paste)	E293	255837	1	3	33.3	5.0	✓
Ammonium Acetate CEC in Soil by Colourimetry	E407	257267	2	3	66.6	10.0	✓
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	257075	2	20	10.0	10.0	✓
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	257076	2	5	40.0	10.0	✓
Available Phosphorus by FIALab (Modified Kelowna)	E384	257052	2	20	10.0	10.0	✓

Matrix: **Soil/Solid**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Control Samples (LCS) - Continued							
Available Potassium by flame photometry (Modified Kelowna)	E390	257051	2	20	10.0	10.0	✓
Available Sulfate by ICPOES (0.01M Calcium Chloride Ext.)	E497.SO4	257074	2	19	10.5	10.0	✓
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	257212	1	3	33.3	5.0	✓
Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)	E442	255838	2	3	66.6	10.0	✓
Chloride by IC (Saturated Paste)	E239.Cl	255833	2	3	66.6	10.0	✓
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	257211	1	3	33.3	5.0	✓
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	257204	1	3	33.3	5.0	✓
Conductivity in Soil (Saturated Paste)	E102	255836	2	3	66.6	10.0	✓
CSSC Particle Size Classification (Mini Pipet Method)	E180A	257072	1	3	33.3	5.0	✓
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	257210	1	3	33.3	5.0	✓
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	257213	1	3	33.3	5.0	✓
Metals in Soil/Solid by CRC ICPMS	E440	255826	2	7	28.5	10.0	✓
Moisture Content by Gravimetry	E144	257214	1	4	25.0	5.0	✓
Nitrate by IC (Saturated Paste)	E239.NO3	255832	1	3	33.3	5.0	✓
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	257208	1	3	33.3	5.0	✓
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	257209	1	3	33.3	5.0	✓
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116	257205	1	3	33.3	5.0	✓
pH by Meter (Saturated Paste)	E114	255835	2	3	66.6	10.0	✓
Saturation Percentage	E141	255834	2	3	66.6	10.0	✓
Sulfate by IC (Saturated Paste)	E239.SO4	255831	2	3	66.6	10.0	✓
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	257207	1	3	33.3	5.0	✓
Total Carbon by Combustion	E351	258043	2	6	33.3	10.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	257128	2	6	33.3	10.0	✓
Method Blanks (MB)							
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285	257206	1	3	33.3	5.0	✓
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294	257203	1	3	33.3	5.0	✓
Alkalinity Species by Titration (Saturated Paste)	E293	255837	1	3	33.3	5.0	✓
Ammonium Acetate CEC in Soil by Colourimetry	E407	257267	1	3	33.3	5.0	✓
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N	257075	1	20	5.0	5.0	✓
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2	257076	1	5	20.0	5.0	✓
Available Phosphorus by FIALab (Modified Kelowna)	E384	257052	1	20	5.0	5.0	✓
Available Potassium by flame photometry (Modified Kelowna)	E390	257051	1	20	5.0	5.0	✓
Available Sulfate by ICPOES (0.01M Calcium Chloride Ext.)	E497.SO4	257074	1	19	5.2	5.0	✓
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	257212	1	3	33.3	5.0	✓
Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)	E442	255838	1	3	33.3	5.0	✓
Chloride by IC (Saturated Paste)	E239.Cl	255833	1	3	33.3	5.0	✓
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	257211	1	3	33.3	5.0	✓
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103	257204	1	3	33.3	5.0	✓
Conductivity in Soil (Saturated Paste)	E102	255836	1	3	33.3	5.0	✓
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	257210	1	3	33.3	5.0	✓
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	257213	1	3	33.3	5.0	✓

Matrix: **Soil/Solid**

Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Method Blanks (MB) - Continued							
Metals in Soil/Solid by CRC ICPMS	E440	255826	1	7	14.2	5.0	✓
Moisture Content by Gravimetry	E144	257214	1	4	25.0	5.0	✓
Nitrate by IC (Saturated Paste)	E239.NO3	255832	1	3	33.3	5.0	✓
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	257208	1	3	33.3	5.0	✓
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	257209	1	3	33.3	5.0	✓
Saturation Percentage	E141	255834	1	3	33.3	5.0	✓
Sulfate by IC (Saturated Paste)	E239.SO4	255831	1	3	33.3	5.0	✓
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	257207	1	3	33.3	5.0	✓
Total Carbon by Combustion	E351	258043	1	6	16.6	5.0	✓
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354	257128	1	6	16.6	5.0	✓
Matrix Spikes (MS)							
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br	257212	1	3	33.3	5.0	✓
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl	257211	1	3	33.3	5.0	✓
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F	257210	1	3	33.3	5.0	✓
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446	257213	1	3	33.3	5.0	✓
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3	257208	1	3	33.3	5.0	✓
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2	257209	1	3	33.3	5.0	✓
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4	257207	1	3	33.3	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Inorganic Carbon by Coulometer	C-GAS05 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals C-GAS05	Determine Total Inorganic Carbon (TIC) by using diluted perchloric acid to react with metal carbonate and yield carbon dioxide. Concentration of CO_2 is determined by coulometer.
Conductivity in Soil (Saturated Paste)	E102 Vancouver - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/APHA 2510 (mod)/AER D50	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into a filtered extract from a soil sample prepared using the saturated paste procedure. Conductivity measurements are temperature-compensated to 25°C.
Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E103 Vancouver - Environmental	Soil/Solid	MEND (mod)/APHA 2510 (mod)	Conductivity, also known as Electrical Conductivity (EC) or Specific Conductance, is measured by immersion of a conductivity cell with platinum electrodes into an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter (Saturated Paste)	E114 Vancouver - Environmental	Soil/Solid	Carter-CSSS / APHA 4500 H	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) on a soil produced by the saturated paste extraction procedure.
pH by Electrode (Shakeflask, 3:1 Ratio with Water)	E116 Vancouver - Environmental	Soil/Solid	MEND (mod)/APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted at ambient laboratory temperature (normally 20 ± 5°C) on an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis. The pH is then measured by a standard pH probe. .
Saturation Percentage	E141 Vancouver - Environmental	Soil/Solid	CSSS Ch. 18 (mod)/AER D50	Saturation Percentage (SP) is determined as the total volume of water present in a saturated paste (in mL) divided by the dry weight of the sample (in grams), expressed as a percentage.
Moisture Content by Gravimetry	E144 Vancouver - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
CSSC Particle Size Classification (Mini Pipet Method)	E180A Saskatoon - Environmental	Soil/Solid	CCME Vol 4 Analytical Methods	A soil sample is disaggregated to pass a 2mm sieve. The <2mm specimen is then further disaggregated using Calgon solution and suspended in solution. Two pipette aliquots are taken, dried, and measured gravimetrically at specific times to determine %clay and %silt+clay using the principles of Stokes' law. %silt and %sand are determined mathematically.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Chloride by IC (Saturated Paste)	E239.Cl Vancouver - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate by IC (Saturated Paste)	E239.NO3 Vancouver - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate by IC (Saturated Paste)	E239.SO4 Vancouver - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Bromide by IC (Shakeflask, 3:1 Ratio with Water)	E243.Br Vancouver - Environmental	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Chloride by IC (Shakeflask, 3:1 Ratio with Water)	E243.Cl Vancouver - Environmental	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Fluoride by IC (Shakeflask, 3:1 Ratio with Water)	E243.F Vancouver - Environmental	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrite by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO2 Vancouver - Environmental	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate by IC (Shakeflask, 3:1 Ratio with Water)	E243.NO3 Vancouver - Environmental	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Sulfate by IC (Shakeflask, 3:1 Ratio with Water)	E243.SO4 Vancouver - Environmental	Soil/Solid	MEND (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Available Nitrate and Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.N+N Saskatoon - Environmental	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Plant available nitrate and nitrite are analyzed by colourimetry using a flow injection analyzer on a soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Available Nitrite by Colourimetry (0.01M Calcium Chloride Ext.)	E269.NO2 Saskatoon - Environmental	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Plant available nitrite is analyzed by colourimetry using a segmented flow analyzer on a soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E285 Vancouver - Environmental	Soil/Solid	MEND (mod)/APHA 2310 B (mod)	Acidity is determined by obtaining an extract from a soil sample that has been added in a 3:1 ratio of deionized water to soil, then leached and the extract filtered prior to analysis, which is then analyzed by potentiometric titration to a specified endpoint.
Alkalinity Species by Titration (Saturated Paste)	E293 Vancouver - Environmental	Soil/Solid	CSSS Ch. 15/APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint on an extract produced by the saturated paste procedure. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.
Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	E294 Vancouver - Environmental	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by autotitration
Total Carbon by Combustion	E351 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 21.2 (mod)	Total Carbon is determined by the high temperature combustion method with measurement by an infrared detector.
Total Inorganic Carbon by Acetic Acid pH Standard Curve	E354 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 20.2	Total Inorganic Carbon is determined by acetic acid pH standard curve, where a known quantity of acetic acid is consumed by reaction with carbonates in the soil. The pH of the resulting solution is measured and compared against a standard curve relating pH to weight of carbonate.
Available Phosphorus by FIALab (Modified Kelowna)	E384 Saskatoon - Environmental	Soil/Solid	Comm. Soil Sci. Plant Anal, 25 (5&6)	Plant available phosphorus is extracted from air dried soil using a fixed ratio Modified Kelowna extraction. Phosphorus is determined by colorimetry using an flow injection analyzer.
Available Potassium by flame photometry (Modified Kelowna)	E390 Saskatoon - Environmental	Soil/Solid	Comm. Soil Sci. Plant Anal, 25 (5&6)	Plant available potassium is extracted from soil using modified Kelowna solution. Potassium is determined by flame emission at 770 nm.
Ammonium Acetate CEC in Soil by Colourimetry	E407 Saskatoon - Environmental	Soil/Solid	CSSS(2008) 18.4	Cation Exchange Capacity (CEC) is determined by saturating soil exchange sites with ammonium acetate. The ammonium ions are then displaced using potassium chloride. CEC is determined by measuring the ammonium in the extract, which is determined colourimetrically.
Metals in Soil/Solid by CRC ICPMS	E440 Vancouver - Environmental	Soil/Solid	EPA 6020B (mod)	This method is intended to liberate metals that may be environmentally available. Samples are dried, then sieved through a 2 mm sieve, and digested with HNO3 and HCl. Dependent on sample matrix, some metals may be only partially recovered, including Al, Ba, Be, Cr, Sr, Ti, Tl, V, W, and Zr. Silicate minerals are not solubilized. Volatile forms of sulfur (including sulfide) may not be captured, as they may be lost during sampling, storage, or digestion. Elemental Sulfur may be poorly recovered by this method. Analysis is by Collision/Reaction Cell ICPMS.
Ca, K, Mg, and Na by CRC ICPMS (Saturated Paste, mg/L)	E442 Vancouver - Environmental	Soil/Solid	CSSS CH15/EPA 6020B (mod)	A soil extract produced by the saturated paste extraction procedure is analyzed for Calcium, Magnesium, Potassium and Sodium by Collision/Reaction Cell ICPMS as per "Soil Sampling Methods of Analysis" By M Carter.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Metals by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E446 Vancouver - Environmental	Soil/Solid	BC MINISTRY OF ENERGY AND MINES/EPA 6020B (mod)	A sample is extracted with water at a 3:1 liquid to solid ratio for 24 hours, then filtered through a 0.45 micron membrane filter. Analysis is by Collision/Reaction Cell ICPMS. This extraction is an empirical procedure with pre-defined characteristics. Recovery of some elements (Ag, Bi, and Sn) by this method can be variable due to the neutral pH of the extraction fluid, and therefore the LCS DQOs has been established at 50-130% for these elements.
Available Sulfate by ICPOES (0.01M Calcium Chloride Ext.)	E497.SO4 Saskatoon - Environmental	Soil/Solid	Alberta Agriculture	Plant available sulfate is determined by ICPOES. Soil is extracted using a 0.01M calcium chloride solution. This extraction may also produce organic sulfur in the extracts when organic soils are analyzed.
Sodium Adsorption Ratio (SAR) Saturated Paste	EC102 Vancouver - Environmental	Soil/Solid	CCME Sodium Adsorption Ratio (SAR)	The Sodium Adsorption Ratio (SAR) for a sample is calculated from the Sodium, Calcium, and Magnesium concentrations from sediment paste extract.
Theoretical Gypsum Requirements (TGR) Saturated Paste	EC106 Vancouver - Environmental	Soil/Solid	J. Ashworth et al (1999)	Theoretical Gypsum Requirement is an estimate of the gypsum amendment required to remediate brine contaminated or sodic soils, and is provided in units of tonnes per hectare (t/ha) for a treatment depth of 15cm. TGR(brine), intended for brine-contaminated soils, is calculated using Method A from "A Comparison of Methods for Gypsum Requirement of Brine-Contaminated Soils", by J. Ashworth (Cdn J. of Soil Science, 1999), available at www.alsglobal.com. TGR(sodic), intended for naturally sodic soils, uses the Oster and Frenkel method (Method B) from the same paper. Reported TGR values are capped at 50 t/ha, considered the maximum practical gypsum amendment. To convert TGR from t/ha to tons/acre, multiply by 0.446. To determine a TGR value for an alternate treatment depth, multiply by [desired treatment depth (cm) / 15 cm].
Chloride by IC (Saturated Paste) (mg/kg)	EC239A.Cl Vancouver - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Nitrate by IC (Saturated Paste) (mg/kg)	EC239A.NO3 Vancouver - Environmental	Soil/Solid	Calculation	Results are reported in mg/kg wet weight
Sulfate by IC (Saturated Paste) (mg/kg)	EC239A.SO4 Vancouver - Environmental	Soil/Solid	CSSS Ch. 15 (mod)/EPA 300.1 (mod)	Inorganic anions are analyzed by obtaining a soil extract produced by the saturated paste extraction procedure which is then analyzed by Ion Chromatography with conductivity and/or UV detection.
Available Nitrate by Difference (0.01M Calcium Chloride Ext.)	EC269.NO3 Saskatoon - Environmental	Soil/Solid	Alberta Agriculture/APHA 4500-NO3 I (mod)	Available Nitrate is determined by difference between Nitrate+Nitrite-N and Nitrite-N. A soil sample extract that has been extracted using 0.01M Calcium Chloride, then shaken well and filtered prior to analysis.
Alkalinity Species by Titration (Saturated Paste) (mg/kg)	EC293 Vancouver - Environmental	Soil/Solid	CSSS Ch. 15/APHA 2320 B (mod)	Total alkalinity is determined by potentiometric titration to a pH 4.5 endpoint on an extract produced by the saturated paste procedure. Bicarbonate, carbonate and hydroxide alkalinity are calculated from phenolphthalein alkalinity and total alkalinity values.

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Organic Carbon (Calculated) in soil	EC356 Saskatoon - Environmental	Soil/Solid	CSSS (2008) 21.2	Total Organic Carbon (TOC) is calculated by the difference between total carbon (TC) and total inorganic carbon (TIC).
Ca, K, Mg, Na by ICPMS (Saturated Paste, mg/kg)	EC442 Vancouver - Environmental	Soil/Solid	CSSS CH15/EPA 6020B (mod)	A soil extract produced by the saturated paste extraction procedure is analyzed for Calcium, Magnesium, Potassium, Sodium by ICPMS.
Saturated Paste pH	OA-ELE07 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals OA-ELE07	Sample mix with water in 1:1 ratio to make a paste, pH is then determined.
Acid Base Accounting (Modified Sobek)	OA-VOL08m ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals OA-VOL08m	Determine the acid generation power of a sample as tonne $CaCO_3$ per kilo-tonne using modified Sobek method
Sulfide S (as S) Calc. (Total-S - SO4-S)	S-CAL06a ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals:S-CAL06a	Sulfide Sulfur (as S) is calculated by subtracting the HCL Leachable Sulfate Sulfur (as S) from the Total Sulfur (as S) obtained from combustion.
Sulfates by HCl Leaching and Gravimetry	S-GRA06A ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals S-GRA06A	A prepared sample is heated with dilute HCl and then filtered. The sulfate in the filtrate is precipitated with $BaCl_2$ in a dilute HCl. The $BaSO_4$ precipitate is filtered, ignited, weighed and the Sulfate Sulfur is determined (as S).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Sulfur by Combustion and IR	S-IR08 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals S-IR08	A prepared sample is heated to approximately 1350°C in an induction furnace with oxygen stream. Sulfur dioxide released from the sample are measured by IR (Leco analyzer) and the Total Sulfur result is provided.
Received Sample Weight	WEI-21 ALS Minerals (Vancouver) - 2103 Dollarton Hwy North Vancouver British Columbia Canada V7H 0A7	Soil/Solid	ALS Minerals WEI-21	Weigh out sample received.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Fixed ratio 0.01M Calcium Chloride extraction for plant available nutrients	EP269 Saskatoon - Environmental	Soil/Solid	Alberta Agriculture	Plant available nutrients (N&S) extracted using 0.01M calcium chloride, then shaken well and filtered prior to analysis.
Modified Kelowna Extraction for soil	EP384 Saskatoon - Environmental	Soil/Solid	Comm. Soil Sci. Plant Anal, 25 (5&6)	Plant available phosphorus and potassium are extracted from the soil using fixed ratio Modified Kelowna solution.
Ammonium Acetate Extraction for CEC in Soil	EP407 Saskatoon - Environmental	Soil/Solid	CSSS(2008) 18.4	Soil exchange sites are saturated with ammonium acetate. The ammonium ions are then displaced with potassium chloride.
Digestion for Metals and Mercury	EP440 Vancouver - Environmental	Soil/Solid	EPA 200.2 (mod)	Samples are dried, then sieved through a 2 mm sieve, and digested with HNO_3 and HCl. This method is intended to liberate metals that may be environmentally available.
Shakeflask Leachate Preparation (3:1 Ratio with Water)	EP446 Vancouver - Environmental	Soil/Solid	BC MINISTRY OF ENERGY AND MINES	A sample is extracted with water at a 3:1 liquid to solids ratio for 24 hours, then filtered through a 0.45 micron membrane filter.
Dry and Grind	EPP442 Saskatoon - Environmental	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **WR2100901**	Page	: 1 of 19
Client	: Ensero Solutions	Laboratory	: Whitehorse - Environmental
Contact	: Rachel Martz	Account Manager	: Heather McKenzie
Address	: #3 Calcite Business Centre 151 Industrial Road Whitehorse YT Canada Y1A 2V3	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: 306 978 3111	Telephone	: +1 867 668 6689
Project	: ----	Date Samples Received	: 27-Jul-2021 15:51
PO	: 0000001061	Date Analysis Commenced	: 31-Jul-2021
C-O-C number	: ----	Issue Date	: 08-Oct-2021 13:43
Sampler	: ----		
Site	: ----		
Quote number	: VA2020-CAEG100-005		
No. of samples received	: 3		
No. of samples analysed	: 3		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
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General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Physical Tests (QC Lot: 257205)											
WR2100901-001	ENS21-SUB07	pH	----	E116	0.10	pH units	7.44	7.42	0.269%	5%	----
Physical Tests (QC Lot: 257214)											
VA21B5529-001	Anonymous	moisture	----	E144	0.25	%	27.5	27.7	0.845%	20%	----
Particle Size (QC Lot: 257072)											
WR2100901-001	ENS21-SUB07	clay (<0.002mm)	----	E180A	1.0	%	1.7	1.7	0.0%	20%	----
		sand (2.0mm - 0.05mm)	----	E180A	1.0	%	87.2	87.3	0.1%	20%	----
		silt (0.05mm - 0.002mm)	----	E180A	1.0	%	11.2	11.0	1.7%	20%	----
Organic / Inorganic Carbon (QC Lot: 257128)											
VA21B5690-001	Anonymous	carbon, inorganic [IC]	----	E354	0.050	%	0.080	0.080	0.0004	Diff <2x LOR	----
Organic / Inorganic Carbon (QC Lot: 258043)											
VA21B5690-001	Anonymous	carbon, total [TC]	----	E351	0.050	%	0.252	0.228	0.024	Diff <2x LOR	----
Plant Available Nutrients (QC Lot: 257051)											
VA21B5540-001	Anonymous	potassium, available	7440-09-7	E390	397	mg/kg	8110	7300	10.5%	30%	----
Plant Available Nutrients (QC Lot: 257052)											
VA21B5540-001	Anonymous	phosphate, available (as P)	14265-44-2	E384	99.2	mg/kg	847	809	4.53%	30%	----
Plant Available Nutrients (QC Lot: 257074)											
WR2100901-002	ENS21-SUB03	sulfate, available (as S)	14808-79-8	E497.SO4	3.0	mg/kg	19.6	19.7	0.06	Diff <2x LOR	----
Plant Available Nutrients (QC Lot: 257075)											
WR2100901-002	ENS21-SUB03	nitrate + nitrite, available (as N)	----	E269.N+N	1.0	mg/kg	1.3	1.2	0.03	Diff <2x LOR	----
Plant Available Nutrients (QC Lot: 257076)											
WR2100901-002	ENS21-SUB03	nitrite, available (as N)	14797-65-0	E269.NO2	0.40	mg/kg	<0.40	<0.40	0	Diff <2x LOR	----
Plant Available Nutrients (QC Lot: 257267)											
WR2100901-002	ENS21-SUB03	cation exchange capacity	----	E407	0.80	meq/100g	1.34	1.47	0.12	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 255831)											
WR2100901-001	ENS21-SUB07	sulfate, soluble ion content	14808-79-8	E239.SO4	50.0	mg/L	<50.0	<50.0	0	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 255832)											
WR2100901-001	ENS21-SUB07	nitrate (as N), soluble ion content	14797-55-8	E239.NO3	5.0	mg/L	<5.0	<5.0	0	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 255833)											
WR2100901-001	ENS21-SUB07	chloride, soluble ion content	16887-00-6	E239.Cl	20.0	mg/L	<20.0	<20.0	0	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 255834)											
WR2100901-001	ENS21-SUB07	% saturation	----	E141	1.0	%	27.6	26.8	2.72%	20%	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Saturated Paste Extractables (QC Lot: 255835)											
WR2100901-001	ENS21-SUB07	pH, saturated paste	----	E114	0.10	pH units	8.03	8.25	2.70%	5%	----
Saturated Paste Extractables (QC Lot: 255836)											
WR2100901-001	ENS21-SUB07	conductivity, saturated paste	----	E102	0.030	µS/cm	0.108 dS/m	110	2	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 255837)											
WR2100901-001	ENS21-SUB07	alkalinity, total (as CaCO3)	----	E293	50	mg/L	<50	<50	0	Diff <2x LOR	----
Saturated Paste Extractables (QC Lot: 255838)											
WR2100901-001	ENS21-SUB07	calcium, soluble ion content	7440-70-2	E442	0.60	mg/L	10.8	12.6	15.3%	30%	----
		magnesium, soluble ion content	7439-95-4	E442	1.0	mg/L	3.6	4.3	0.7	Diff <2x LOR	----
		potassium, soluble ion content	7440-09-7	E442	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
		sodium, soluble ion content	17341-25-2	E442	2.0	mg/L	<2.0	<2.0	0	Diff <2x LOR	----
Metals (QC Lot: 255826)											
VA21B5548-008	Anonymous	aluminum	7429-90-5	E440	50	mg/kg	18800	26800	35.1%	40%	----
		antimony	7440-36-0	E440	0.10	mg/kg	0.23	0.41	0.18	Diff <2x LOR	----
		arsenic	7440-38-2	E440	0.10	mg/kg	2.59	3.44	28.3%	30%	----
		barium	7440-39-3	E440	0.50	mg/kg	59.7	85.0	35.0%	40%	----
		beryllium	7440-41-7	E440	0.10	mg/kg	0.20	0.28	0.08	Diff <2x LOR	----
		bismuth	7440-69-9	E440	0.20	mg/kg	<0.20	<0.20	0	Diff <2x LOR	----
		boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	0	Diff <2x LOR	----
		cadmium	7440-43-9	E440	0.020	mg/kg	0.084	# 0.172	0.088	Diff <2x LOR	DUP-H
		calcium	7440-70-2	E440	50	mg/kg	2610	3320	24.0%	30%	----
		chromium	7440-47-3	E440	0.50	mg/kg	9.76	14.5	39.4%	30%	DUP-H
		cobalt	7440-48-4	E440	0.10	mg/kg	5.46	6.46	16.8%	30%	----
		copper	7440-50-8	E440	0.50	mg/kg	15.4	22.8	38.9%	30%	DUP-H
		iron	7439-89-6	E440	50	mg/kg	15900	20600	26.0%	30%	----
		lead	7439-92-1	E440	0.50	mg/kg	9.36	10.9	15.5%	40%	----
		lithium	7439-93-2	E440	2.0	mg/kg	6.1	7.5	1.4	Diff <2x LOR	----
		magnesium	7439-95-4	E440	20	mg/kg	4850	6160	23.8%	30%	----
		manganese	7439-96-5	E440	1.0	mg/kg	288	363	23.1%	30%	----
		molybdenum	7439-98-7	E440	0.10	mg/kg	0.82	1.09	28.2%	40%	----
		nickel	7440-02-0	E440	0.50	mg/kg	6.92	8.72	23.1%	30%	----
		phosphorus	7723-14-0	E440	50	mg/kg	352	464	27.6%	30%	----
		potassium	7440-09-7	E440	100	mg/kg	880	1160	26.4%	40%	----
		selenium	7782-49-2	E440	0.20	mg/kg	0.26	0.38	0.12	Diff <2x LOR	----
		silver	7440-22-4	E440	0.10	mg/kg	<0.10	<0.10	0	Diff <2x LOR	----
		sodium	7440-23-5	E440	50	mg/kg	215	252	37	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Metals (QC Lot: 255826) - continued											
VA21B5548-008	Anonymous	strontium	7440-24-6	E440	0.50	mg/kg	22.6	31.5	32.8%	40%	----
		sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR	----
		thallium	7440-28-0	E440	0.050	mg/kg	0.059	0.070	0.010	Diff <2x LOR	----
		tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	----
		titanium	7440-32-6	E440	1.0	mg/kg	818	1060	26.3%	40%	----
		tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	0	Diff <2x LOR	----
		uranium	7440-61-1	E440	0.050	mg/kg	0.343	0.489	34.9%	30%	DUP-H
		vanadium	7440-62-2	E440	0.20	mg/kg	45.2	59.4	27.1%	30%	----
		zinc	7440-66-6	E440	2.0	mg/kg	87.0	371	124%	30%	DUP-H
		zirconium	7440-67-7	E440	1.0	mg/kg	<1.0	1.1	0.10	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 257203)											
WR2100901-001	ENS21-SUB07	alkalinity, total (as CaCO3), leachable	----	E294	1.0	mg/L	14.8	13.9	6.27%	25%	----
Leachable Anions & Nutrients (QC Lot: 257206)											
WR2100901-001	ENS21-SUB07	acidity, leachable (as CaCO3)	----	E285	4.0	mg/L	<4.0	<4.0	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 257207)											
WR2100901-001	ENS21-SUB07	sulfate, leachable	14808-79-8	E243.SO4	0.50	mg/L	1.64	1.59	0.05	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 257208)											
WR2100901-001	ENS21-SUB07	nitrate (as N), leachable	14797-55-8	E243.NO3	0.0050	mg/L	0.103	0.103	0.498%	30%	----
Leachable Anions & Nutrients (QC Lot: 257209)											
WR2100901-001	ENS21-SUB07	nitrite (as N), leachable	14797-65-0	E243.NO2	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 257210)											
WR2100901-001	ENS21-SUB07	fluoride, leachable	16984-48-8	E243.F	0.020	mg/L	0.118	0.120	0.002	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 257211)											
WR2100901-001	ENS21-SUB07	chloride, leachable	16887-00-6	E243.Cl	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	----
Leachable Anions & Nutrients (QC Lot: 257212)											
WR2100901-001	ENS21-SUB07	bromide, leachable	24959-67-9	E243.Br	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	----
Leachable Metals (QC Lot: 257213)											
WR2100901-001	ENS21-SUB07	aluminum, leachable	7429-90-5	E446	0.0050	mg/L	0.312	0.313	0.394%	30%	----
		antimony, leachable	7440-36-0	E446	0.00010	mg/L	0.00225	0.00242	6.96%	30%	----
		arsenic, leachable	7440-38-2	E446	0.0010	mg/L	0.0044	0.0042	0.0002	Diff <2x LOR	----
		barium, leachable	7440-39-3	E446	0.0010	mg/L	0.0169	0.0178	5.20%	30%	----
		beryllium, leachable	7440-41-7	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		bismuth, leachable	7440-69-9	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		boron, leachable	7440-42-8	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		cadmium, leachable	7440-43-9	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Leachable Metals (QC Lot: 257213) - continued											
WR2100901-001	ENS21-SUB07	calcium, leachable	7440-70-2	E446	0.10	mg/L	4.08	3.87	5.29%	30%	----
		chromium, leachable	7440-47-3	E446	0.00050	mg/L	0.00059	0.00065	0.00006	Diff <2x LOR	----
		cobalt, leachable	7440-48-4	E446	0.00010	mg/L	0.00030	0.00034	0.00003	Diff <2x LOR	----
		copper, leachable	7440-50-8	E446	0.0010	mg/L	0.0013	0.0014	0.00007	Diff <2x LOR	----
		iron, leachable	7439-89-6	E446	0.030	mg/L	0.676	0.707	4.58%	40%	----
		lead, leachable	7439-92-1	E446	0.00010	mg/L	0.00082	0.00087	5.61%	30%	----
		lithium, leachable	7439-93-2	E446	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	----
		magnesium, leachable	7439-95-4	E446	0.050	mg/L	1.18	1.17	0.501%	30%	----
		manganese, leachable	7439-96-5	E446	0.00050	mg/L	0.0148	0.0155	4.59%	30%	----
		molybdenum, leachable	7439-98-7	E446	0.00010	mg/L	0.00094	0.00096	1.57%	30%	----
		nickel, leachable	7440-02-0	E446	0.00050	mg/L	0.00096	0.00095	0.000009	Diff <2x LOR	----
		phosphorus, leachable	7723-14-0	E446	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	----
		potassium, leachable	7440-09-7	E446	0.050	mg/L	0.832	0.845	1.53%	30%	----
		selenium, leachable	7782-49-2	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		silicon, leachable	7440-21-3	E446	0.050	mg/L	1.61	1.65	2.50%	40%	----
		silver, leachable	7440-22-4	E446	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	----
		sodium, leachable	7440-23-5	E446	0.050	mg/L	0.257	0.254	0.002	Diff <2x LOR	----
		strontium, leachable	7440-24-6	E446	0.00050	mg/L	0.0240	0.0218	9.59%	30%	----
		sulfur, leachable	7704-34-9	E446	0.50	mg/L	0.59	0.66	0.07	Diff <2x LOR	----
		thallium, leachable	7440-28-0	E446	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	----
		tin, leachable	7440-31-5	E446	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	----
		titanium, leachable	7440-32-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----
		uranium, leachable	7440-61-1	E446	0.000010	mg/L	0.000029	0.000029	0.0000008	Diff <2x LOR	----
		vanadium, leachable	7440-62-2	E446	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	----
		zinc, leachable	7440-66-6	E446	0.010	mg/L	<0.010	<0.010	0	Diff <2x LOR	----

Qualifiers

Qualifier	*Description*
DUP-H	*Duplicate results outside ALS DQO, due to sample heterogeneity.*

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 257204)						
conductivity, leachable	----	E103	2	µS/cm	<2.0	----
Physical Tests (QCLot: 257214)						
moisture	----	E144	0.25	%	<0.25	----
Organic / Inorganic Carbon (QCLot: 257128)						
carbon, inorganic [IC]	----	E354	0.05	%	<0.050	----
Organic / Inorganic Carbon (QCLot: 258043)						
carbon, total [TC]	----	E351	0.05	%	<0.050	----
Plant Available Nutrients (QCLot: 257051)						
potassium, available	7440-09-7	E390	20	mg/kg	<20	----
Plant Available Nutrients (QCLot: 257052)						
phosphate, available (as P)	14265-44-2	E384	2	mg/kg	<2.0	----
Plant Available Nutrients (QCLot: 257074)						
sulfate, available (as S)	14808-79-8	E497.SO4	3	mg/kg	<3.0	----
Plant Available Nutrients (QCLot: 257075)						
nitrate + nitrite, available (as N)	----	E269.N+N	1	mg/kg	<1.0	----
Plant Available Nutrients (QCLot: 257076)						
nitrite, available (as N)	14797-65-0	E269.NO2	0.4	mg/kg	<0.40	----
Plant Available Nutrients (QCLot: 257267)						
cation exchange capacity	----	E407	0.8	meq/100g	<0.80	----
Saturated Paste Extractables (QCLot: 255831)						
sulfate, soluble ion content	14808-79-8	E239.SO4	5	mg/L	<5.0	----
Saturated Paste Extractables (QCLot: 255832)						
nitrate (as N), soluble ion content	14797-55-8	E239.NO3	0.5	mg/L	<0.5	----
Saturated Paste Extractables (QCLot: 255833)						
chloride, soluble ion content	16887-00-6	E239.Cl	2	mg/L	<2.0	----
Saturated Paste Extractables (QCLot: 255834)						
% saturation	----	E141	1	%	50.0	----
Saturated Paste Extractables (QCLot: 255836)						
conductivity, saturated paste	----	E102	10	µS/cm	<10	----
Saturated Paste Extractables (QCLot: 255837)						
alkalinity, total (as CaCO3)	----	E293	10	mg/L	<12	----
Saturated Paste Extractables (QCLot: 255838)						
calcium, soluble ion content	7440-70-2	E442	0.6	mg/L	<0.60	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Saturated Paste Extractables (QCLot: 255838) - continued						
magnesium, soluble ion content	7439-95-4	E442	1	mg/L	<1.0	----
potassium, soluble ion content	7440-09-7	E442	4	mg/L	<4.0	----
sodium, soluble ion content	17341-25-2	E442	2	mg/L	<2.0	----
Metals (QCLot: 255826)						
aluminum	7429-90-5	E440	50	mg/kg	<50	----
antimony	7440-36-0	E440	0.1	mg/kg	<0.10	----
arsenic	7440-38-2	E440	0.1	mg/kg	<0.10	----
barium	7440-39-3	E440	0.5	mg/kg	<0.50	----
beryllium	7440-41-7	E440	0.1	mg/kg	<0.10	----
bismuth	7440-69-9	E440	0.2	mg/kg	<0.20	----
boron	7440-42-8	E440	5	mg/kg	<5.0	----
cadmium	7440-43-9	E440	0.02	mg/kg	<0.020	----
calcium	7440-70-2	E440	50	mg/kg	<50	----
chromium	7440-47-3	E440	0.5	mg/kg	<0.50	----
cobalt	7440-48-4	E440	0.1	mg/kg	<0.10	----
copper	7440-50-8	E440	0.5	mg/kg	<0.50	----
iron	7439-89-6	E440	50	mg/kg	<50	----
lead	7439-92-1	E440	0.5	mg/kg	<0.50	----
lithium	7439-93-2	E440	2	mg/kg	<2.0	----
magnesium	7439-95-4	E440	20	mg/kg	<20	----
manganese	7439-96-5	E440	1	mg/kg	<1.0	----
molybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	----
nickel	7440-02-0	E440	0.5	mg/kg	<0.50	----
phosphorus	7723-14-0	E440	50	mg/kg	<50	----
potassium	7440-09-7	E440	100	mg/kg	<100	----
selenium	7782-49-2	E440	0.2	mg/kg	<0.20	----
silver	7440-22-4	E440	0.1	mg/kg	<0.10	----
sodium	7440-23-5	E440	50	mg/kg	<50	----
strontium	7440-24-6	E440	0.5	mg/kg	<0.50	----
sulfur	7704-34-9	E440	1000	mg/kg	<1000	----
thallium	7440-28-0	E440	0.05	mg/kg	<0.050	----
tin	7440-31-5	E440	2	mg/kg	<2.0	----
titanium	7440-32-6	E440	1	mg/kg	<1.0	----
tungsten	7440-33-7	E440	0.5	mg/kg	<0.50	----
uranium	7440-61-1	E440	0.05	mg/kg	<0.050	----
vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 255826) - continued						
zinc	7440-66-6	E440	2	mg/kg	<2.0	----
zirconium	7440-67-7	E440	1	mg/kg	<1.0	----
Leachable Anions & Nutrients (QCLot: 257203)						
alkalinity, total (as CaCO3), leachable	----	E294	1	mg/L	<1.0	----
Leachable Anions & Nutrients (QCLot: 257206)						
acidity, leachable (as CaCO3)	----	E285	4	mg/L	<4.0	----
Leachable Anions & Nutrients (QCLot: 257207)						
sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 257208)						
nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	<0.0050	----
Leachable Anions & Nutrients (QCLot: 257209)						
nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	<0.0010	----
Leachable Anions & Nutrients (QCLot: 257210)						
fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	<0.020	----
Leachable Anions & Nutrients (QCLot: 257211)						
chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	<0.50	----
Leachable Anions & Nutrients (QCLot: 257212)						
bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	<0.050	----
Leachable Metals (QCLot: 257213)						
aluminum, leachable	7429-90-5	E446	0.005	mg/L	<0.0050	----
antimony, leachable	7440-36-0	E446	0.0001	mg/L	<0.00010	----
arsenic, leachable	7440-38-2	E446	0.001	mg/L	<0.0010	----
barium, leachable	7440-39-3	E446	0.001	mg/L	<0.0010	----
beryllium, leachable	7440-41-7	E446	0.0005	mg/L	<0.00050	----
bismuth, leachable	7440-69-9	E446	0.0005	mg/L	<0.00050	----
boron, leachable	7440-42-8	E446	0.01	mg/L	<0.010	----
cadmium, leachable	7440-43-9	E446	0.00005	mg/L	<0.000050	----
calcium, leachable	7440-70-2	E446	0.1	mg/L	<0.10	----
chromium, leachable	7440-47-3	E446	0.0005	mg/L	<0.00050	----
cobalt, leachable	7440-48-4	E446	0.0001	mg/L	<0.00010	----
copper, leachable	7440-50-8	E446	0.001	mg/L	<0.0010	----
iron, leachable	7439-89-6	E446	0.03	mg/L	<0.030	----
lead, leachable	7439-92-1	E446	0.0001	mg/L	<0.00010	----
lithium, leachable	7439-93-2	E446	0.005	mg/L	<0.0050	----
magnesium, leachable	7439-95-4	E446	0.05	mg/L	<0.050	----
manganese, leachable	7439-96-5	E446	0.0005	mg/L	<0.00050	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Leachable Metals (QCLot: 257213) - continued						
molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	<0.00010	----
nickel, leachable	7440-02-0	E446	0.0005	mg/L	<0.00050	----
phosphorus, leachable	7723-14-0	E446	0.3	mg/L	<0.30	----
potassium, leachable	7440-09-7	E446	0.05	mg/L	<0.050	----
selenium, leachable	7782-49-2	E446	0.0005	mg/L	<0.00050	----
silicon, leachable	7440-21-3	E446	0.05	mg/L	<0.050	----
silver, leachable	7440-22-4	E446	0.00005	mg/L	<0.000050	----
sodium, leachable	7440-23-5	E446	0.05	mg/L	<0.050	----
strontium, leachable	7440-24-6	E446	0.0005	mg/L	<0.00050	----
sulfur, leachable	7704-34-9	E446	0.5	mg/L	<0.50	----
thallium, leachable	7440-28-0	E446	0.0001	mg/L	<0.00010	----
tin, leachable	7440-31-5	E446	0.0005	mg/L	<0.00050	----
titanium, leachable	7440-32-6	E446	0.01	mg/L	<0.010	----
uranium, leachable	7440-61-1	E446	0.00001	mg/L	<0.000010	----
vanadium, leachable	7440-62-2	E446	0.001	mg/L	<0.0010	----
zinc, leachable	7440-66-6	E446	0.01	mg/L	<0.010	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 257204)									
conductivity, leachable	----	E103	2	µS/cm	146.9 µS/cm	99.9	90.0	110	----
Physical Tests (QCLot: 257205)									
pH	----	E116	----	pH units	7.04 pH units	99.1	95.0	105	----
Physical Tests (QCLot: 257214)									
moisture	----	E144	0.25	%	50 %	100.0	90.0	110	----
Organic / Inorganic Carbon (QCLot: 257128)									
carbon, inorganic [IC]	----	E354	0.05	%	0.5 %	95.1	90.0	110	----
Organic / Inorganic Carbon (QCLot: 258043)									
carbon, total [TC]	----	E351	0.05	%	48 %	103	90.0	110	----
Plant Available Nutrients (QCLot: 257051)									
potassium, available	7440-09-7	E390	20	mg/kg	125 mg/kg	92.2	70.0	130	----
Plant Available Nutrients (QCLot: 257052)									
phosphate, available (as P)	14265-44-2	E384	2	mg/kg	12.5 mg/kg	91.6	80.0	120	----
Plant Available Nutrients (QCLot: 257074)									
sulfate, available (as S)	14808-79-8	E497.SO4	3	mg/kg	200 mg/kg	101	70.0	130	----
Plant Available Nutrients (QCLot: 257075)									
nitrate + nitrite, available (as N)	----	E269.N+N	1	mg/kg	40 mg/kg	103	70.0	130	----
Plant Available Nutrients (QCLot: 257076)									
nitrite, available (as N)	14797-65-0	E269.NO2	0.4	mg/kg	20 mg/kg	99.9	70.0	130	----
Plant Available Nutrients (QCLot: 257267)									
cation exchange capacity	----	E407	0.8	meq/100g	17.9 meq/100g	95.8	80.0	120	----
Saturated Paste Extractables (QCLot: 255831)									
sulfate, soluble ion content	14808-79-8	E239.SO4	5	mg/L	100 mg/L	102	80.0	120	----
Saturated Paste Extractables (QCLot: 255832)									
nitrate (as N), soluble ion content	14797-55-8	E239.NO3	0.5	mg/L	2.5 mg/L	100	80.0	120	----
Saturated Paste Extractables (QCLot: 255833)									
chloride, soluble ion content	16887-00-6	E239.Cl	2	mg/L	100 mg/L	101	80.0	120	----
Saturated Paste Extractables (QCLot: 255834)									
% saturation	----	E141	1	%	100 %	97.5	80.0	120	----
Saturated Paste Extractables (QCLot: 255835)									
pH, saturated paste	----	E114	----	pH units	6 pH units	99.8	95.0	105	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Saturated Paste Extractables (QCLot: 255836)									
conductivity, saturated paste	----	E102	10	µS/cm	146.9 µS/cm	102	80.0	120	----
Saturated Paste Extractables (QCLot: 255837)									
alkalinity, total (as CaCO3)	----	E293	10	mg/L	500 mg/L	101	85.0	115	----
Saturated Paste Extractables (QCLot: 255838)									
calcium, soluble ion content	7440-70-2	E442	0.6	mg/L	50 mg/L	108	80.0	120	----
magnesium, soluble ion content	7439-95-4	E442	1	mg/L	50 mg/L	104	80.0	120	----
potassium, soluble ion content	7440-09-7	E442	4	mg/L	50 mg/L	106	80.0	120	----
sodium, soluble ion content	17341-25-2	E442	2	mg/L	50 mg/L	112	80.0	120	----
Metals (QCLot: 255826)									
aluminum	7429-90-5	E440	50	mg/kg	200 mg/kg	105	80.0	120	----
antimony	7440-36-0	E440	0.1	mg/kg	100 mg/kg	102	80.0	120	----
arsenic	7440-38-2	E440	0.1	mg/kg	100 mg/kg	104	80.0	120	----
barium	7440-39-3	E440	0.5	mg/kg	25 mg/kg	107	80.0	120	----
beryllium	7440-41-7	E440	0.1	mg/kg	10 mg/kg	98.3	80.0	120	----
bismuth	7440-69-9	E440	0.2	mg/kg	100 mg/kg	95.6	80.0	120	----
boron	7440-42-8	E440	5	mg/kg	100 mg/kg	97.4	80.0	120	----
cadmium	7440-43-9	E440	0.02	mg/kg	10 mg/kg	102	80.0	120	----
calcium	7440-70-2	E440	50	mg/kg	5000 mg/kg	101	80.0	120	----
chromium	7440-47-3	E440	0.5	mg/kg	25 mg/kg	103	80.0	120	----
cobalt	7440-48-4	E440	0.1	mg/kg	25 mg/kg	102	80.0	120	----
copper	7440-50-8	E440	0.5	mg/kg	25 mg/kg	99.6	80.0	120	----
iron	7439-89-6	E440	50	mg/kg	100 mg/kg	100	80.0	120	----
lead	7439-92-1	E440	0.5	mg/kg	50 mg/kg	98.3	80.0	120	----
lithium	7439-93-2	E440	2	mg/kg	25 mg/kg	99.5	80.0	120	----
magnesium	7439-95-4	E440	20	mg/kg	5000 mg/kg	105	80.0	120	----
manganese	7439-96-5	E440	1	mg/kg	25 mg/kg	102	80.0	120	----
molybdenum	7439-98-7	E440	0.1	mg/kg	25 mg/kg	107	80.0	120	----
nickel	7440-02-0	E440	0.5	mg/kg	50 mg/kg	98.2	80.0	120	----
phosphorus	7723-14-0	E440	50	mg/kg	1000 mg/kg	97.8	80.0	120	----
potassium	7440-09-7	E440	100	mg/kg	5000 mg/kg	103	80.0	120	----
selenium	7782-49-2	E440	0.2	mg/kg	100 mg/kg	99.1	80.0	120	----
silver	7440-22-4	E440	0.1	mg/kg	10 mg/kg	106	80.0	120	----
sodium	7440-23-5	E440	50	mg/kg	5000 mg/kg	104	80.0	120	----
strontium	7440-24-6	E440	0.5	mg/kg	25 mg/kg	111	80.0	120	----
sulfur	7704-34-9	E440	1000	mg/kg	5000 mg/kg	107	80.0	120	----
thallium	7440-28-0	E440	0.05	mg/kg	100 mg/kg	91.9	80.0	120	----

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Metals (QCLot: 255826) - continued									
tin	7440-31-5	E440	2	mg/kg	50 mg/kg	104	80.0	120	----
titanium	7440-32-6	E440	1	mg/kg	25 mg/kg	101	80.0	120	----
tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	96.0	80.0	120	----
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	108	80.0	120	----
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	105	80.0	120	----
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	98.2	80.0	120	----
zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	106	80.0	120	----
Leachable Anions & Nutrients (QCLot: 257203)									
alkalinity, total (as CaCO3), leachable	----	E294	1	mg/L	500 mg/L	102	85.0	115	----
Leachable Anions & Nutrients (QCLot: 257206)									
acidity, leachable (as CaCO3)	----	E285	4	mg/L	50 mg/L	106	85.0	115	----
Leachable Anions & Nutrients (QCLot: 257207)									
sulfate, leachable	14808-79-8	E243.SO4	0.5	mg/L	25 mg/L	104	70.0	130	----
Leachable Anions & Nutrients (QCLot: 257208)									
nitrate (as N), leachable	14797-55-8	E243.NO3	0.005	mg/L	0.625 mg/L	102	70.0	130	----
Leachable Anions & Nutrients (QCLot: 257209)									
nitrite (as N), leachable	14797-65-0	E243.NO2	0.001	mg/L	0.125 mg/L	101	70.0	130	----
Leachable Anions & Nutrients (QCLot: 257210)									
fluoride, leachable	16984-48-8	E243.F	0.02	mg/L	0.25 mg/L	100	70.0	130	----
Leachable Anions & Nutrients (QCLot: 257211)									
chloride, leachable	16887-00-6	E243.Cl	0.5	mg/L	25 mg/L	102	70.0	130	----
Leachable Anions & Nutrients (QCLot: 257212)									
bromide, leachable	24959-67-9	E243.Br	0.05	mg/L	0.125 mg/L	97.2	70.0	130	----
Leachable Metals (QCLot: 257213)									
aluminum, leachable	7429-90-5	E446	0.005	mg/L	0.2 mg/L	103	70.0	130	----
antimony, leachable	7440-36-0	E446	0.0001	mg/L	0.1 mg/L	111	70.0	130	----
arsenic, leachable	7440-38-2	E446	0.001	mg/L	0.1 mg/L	102	70.0	130	----
barium, leachable	7440-39-3	E446	0.001	mg/L	0.025 mg/L	107	70.0	130	----
beryllium, leachable	7440-41-7	E446	0.0005	mg/L	0.01 mg/L	93.7	70.0	130	----
bismuth, leachable	7440-69-9	E446	0.0005	mg/L	0.1 mg/L	90.8	70.0	130	----
boron, leachable	7440-42-8	E446	0.01	mg/L	0.1 mg/L	95.9	70.0	130	----
cadmium, leachable	7440-43-9	E446	0.00005	mg/L	0.01 mg/L	103	70.0	130	----
calcium, leachable	7440-70-2	E446	0.1	mg/L	5 mg/L	97.8	70.0	130	----
chromium, leachable	7440-47-3	E446	0.0005	mg/L	0.025 mg/L	100	70.0	130	----
cobalt, leachable	7440-48-4	E446	0.0001	mg/L	0.025 mg/L	102	70.0	130	----

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
					Concentration	LCS	Low	High	Qualifier
Leachable Metals (QCLot: 257213) - continued									
copper, leachable	7440-50-8	E446	0.001	mg/L	0.025 mg/L	100	70.0	130	----
iron, leachable	7439-89-6	E446	0.03	mg/L	0.1 mg/L	95.1	70.0	130	----
lead, leachable	7439-92-1	E446	0.0001	mg/L	0.05 mg/L	95.1	70.0	130	----
lithium, leachable	7439-93-2	E446	0.005	mg/L	0.025 mg/L	100	70.0	130	----
magnesium, leachable	7439-95-4	E446	0.05	mg/L	5 mg/L	102	70.0	130	----
manganese, leachable	7439-96-5	E446	0.0005	mg/L	0.025 mg/L	97.8	70.0	130	----
molybdenum, leachable	7439-98-7	E446	0.0001	mg/L	0.025 mg/L	107	70.0	130	----
nickel, leachable	7440-02-0	E446	0.0005	mg/L	0.05 mg/L	99.0	70.0	130	----
phosphorus, leachable	7723-14-0	E446	0.3	mg/L	1 mg/L	110	70.0	130	----
potassium, leachable	7440-09-7	E446	0.05	mg/L	5 mg/L	102	70.0	130	----
selenium, leachable	7782-49-2	E446	0.0005	mg/L	0.1 mg/L	104	70.0	130	----
silicon, leachable	7440-21-3	E446	0.05	mg/L	1 mg/L	100	70.0	130	----
silver, leachable	7440-22-4	E446	0.00005	mg/L	0.01 mg/L	103	70.0	130	----
sodium, leachable	7440-23-5	E446	0.05	mg/L	5 mg/L	98.6	70.0	130	----
strontium, leachable	7440-24-6	E446	0.0005	mg/L	0.025 mg/L	108	70.0	130	----
sulfur, leachable	7704-34-9	E446	0.5	mg/L	5 mg/L	104	70.0	130	----
thallium, leachable	7440-28-0	E446	0.0001	mg/L	0.11 mg/L	89.9	70.0	130	----
tin, leachable	7440-31-5	E446	0.0005	mg/L	0.05 mg/L	102	70.0	130	----
titanium, leachable	7440-32-6	E446	0.01	mg/L	0.025 mg/L	98.0	70.0	130	----
uranium, leachable	7440-61-1	E446	0.00001	mg/L	0.0005 mg/L	97.7	70.0	130	----
vanadium, leachable	7440-62-2	E446	0.001	mg/L	0.05 mg/L	102	70.0	130	----
zinc, leachable	7440-66-6	E446	0.01	mg/L	0.05 mg/L	104	70.0	130	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Anions & Nutrients (QCLot: 257207)										
WR2100901-002	ENS21-SUB03	sulfate, leachable	14808-79-8	E243.SO4	106 mg/L	100 mg/L	106	60.0	140	----
Leachable Anions & Nutrients (QCLot: 257208)										
WR2100901-002	ENS21-SUB03	nitrate (as N), leachable	14797-55-8	E243.NO3	2.61 mg/L	2.5 mg/L	104	60.0	140	----
Leachable Anions & Nutrients (QCLot: 257209)										
WR2100901-002	ENS21-SUB03	nitrite (as N), leachable	14797-65-0	E243.NO2	0.527 mg/L	0.5 mg/L	105	60.0	140	----
Leachable Anions & Nutrients (QCLot: 257210)										
WR2100901-002	ENS21-SUB03	fluoride, leachable	16984-48-8	E243.F	1.07 mg/L	1 mg/L	107	60.0	140	----
Leachable Anions & Nutrients (QCLot: 257211)										
WR2100901-002	ENS21-SUB03	chloride, leachable	16887-00-6	E243.Cl	105 mg/L	100 mg/L	105	60.0	140	----
Leachable Anions & Nutrients (QCLot: 257212)										
WR2100901-002	ENS21-SUB03	bromide, leachable	24959-67-9	E243.Br	0.501 mg/L	0.5 mg/L	100	60.0	140	----
Leachable Metals (QCLot: 257213)										
WR2100901-002	ENS21-SUB03	aluminum, leachable	7429-90-5	E446	ND mg/L	0.2 mg/L	ND	70.0	130	----
		antimony, leachable	7440-36-0	E446	0.0197 mg/L	0.02 mg/L	98.3	70.0	130	----
		arsenic, leachable	7440-38-2	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		barium, leachable	7440-39-3	E446	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	----
		beryllium, leachable	7440-41-7	E446	0.0409 mg/L	0.04 mg/L	102	70.0	130	----
		bismuth, leachable	7440-69-9	E446	0.00984 mg/L	0.01 mg/L	98.4	70.0	130	----
		boron, leachable	7440-42-8	E446	0.100 mg/L	0.1 mg/L	100	70.0	130	----
		cadmium, leachable	7440-43-9	E446	0.00397 mg/L	0.004 mg/L	99.2	70.0	130	----
		calcium, leachable	7440-70-2	E446	ND mg/L	4 mg/L	ND	70.0	130	----
		chromium, leachable	7440-47-3	E446	0.0397 mg/L	0.04 mg/L	99.2	70.0	130	----
		cobalt, leachable	7440-48-4	E446	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	----
		copper, leachable	7440-50-8	E446	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	----
		iron, leachable	7439-89-6	E446	1.91 mg/L	2 mg/L	95.4	70.0	130	----
		lead, leachable	7439-92-1	E446	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	----
		lithium, leachable	7439-93-2	E446	0.0995 mg/L	0.1 mg/L	99.5	70.0	130	----
		magnesium, leachable	7439-95-4	E446	ND mg/L	1 mg/L	ND	70.0	130	----
		manganese, leachable	7439-96-5	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		molybdenum, leachable	7439-98-7	E446	0.0194 mg/L	0.02 mg/L	97.3	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Leachable Metals (QCLot: 257213) - continued										
WR2100901-002	ENS21-SUB03	nickel, leachable	7440-02-0	E446	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	----
		phosphorus, leachable	7723-14-0	E446	10.2 mg/L	10 mg/L	102	70.0	130	----
		potassium, leachable	7440-09-7	E446	4.36 mg/L	4 mg/L	109	70.0	130	----
		selenium, leachable	7782-49-2	E446	0.0401 mg/L	0.04 mg/L	100	70.0	130	----
		silicon, leachable	7440-21-3	E446	9.63 mg/L	10 mg/L	96.3	70.0	130	----
		silver, leachable	7440-22-4	E446	0.00380 mg/L	0.004 mg/L	94.9	70.0	130	----
		sodium, leachable	7440-23-5	E446	1.93 mg/L	2 mg/L	96.3	70.0	130	----
		strontium, leachable	7440-24-6	E446	ND mg/L	0.02 mg/L	ND	70.0	130	----
		sulfur, leachable	7704-34-9	E446	19.3 mg/L	20 mg/L	96.6	70.0	130	----
		thallium, leachable	7440-28-0	E446	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	----
		tin, leachable	7440-31-5	E446	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	----
		titanium, leachable	7440-32-6	E446	0.040 mg/L	0.04 mg/L	101	70.0	130	----
		uranium, leachable	7440-61-1	E446	0.00372 mg/L	0.004 mg/L	92.9	70.0	130	----
		vanadium, leachable	7440-62-2	E446	0.101 mg/L	0.1 mg/L	101	70.0	130	----
		zinc, leachable	7440-66-6	E446	0.418 mg/L	0.4 mg/L	104	70.0	130	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix: **Soil/Solid**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Particle Size (QCLot: 257072)									
QC-257072-001	RM	clay (<0.002mm)	----	E180A	19.34 %	102	74.0	126	----
QC-257072-001	RM	sand (2.0mm - 0.05mm)	----	E180A	50.71 %	98.3	90.0	110	----
QC-257072-001	RM	silt (0.05mm - 0.002mm)	----	E180A	29.96 %	102	85.0	115	----
Organic / Inorganic Carbon (QCLot: 257128)									
QC-257128-003	RM	carbon, inorganic [IC]	----	E354	0.383 %	101	80.0	120	----
Organic / Inorganic Carbon (QCLot: 258043)									
QC-258043-003	RM	carbon, total [TC]	----	E351	1.4 %	106	80.0	120	----
Plant Available Nutrients (QCLot: 257051)									
QC-257051-003	RM	potassium, available	7440-09-7	E390	154 mg/kg	98.2	70.0	130	----
Plant Available Nutrients (QCLot: 257052)									
QC-257052-003	RM	phosphate, available (as P)	14265-44-2	E384	10.47 mg/kg	96.0	80.0	120	----
Plant Available Nutrients (QCLot: 257074)									
QC-257074-003	RM	sulfate, available (as S)	14808-79-8	E497.SO4	497 mg/kg	102	70.0	130	----
Plant Available Nutrients (QCLot: 257075)									
QC-257075-003	RM	nitrate + nitrite, available (as N)	----	E269.N+N	18.9 mg/kg	95.8	70.0	130	----
Plant Available Nutrients (QCLot: 257076)									
QC-257076-003	RM	nitrite, available (as N)	14797-65-0	E269.NO2	0.17 mg/kg	36.3	----	----	----
Plant Available Nutrients (QCLot: 257267)									
QC-257267-003	RM	cation exchange capacity	----	E407	17.2 meq/100g	84.4	70.0	130	----
Saturated Paste Extractables (QCLot: 255831)									
QC-255831-003	RM	sulfate, soluble ion content	14808-79-8	E239.SO4	2600 mg/L	90.2	70.0	130	----
Saturated Paste Extractables (QCLot: 255833)									
QC-255833-003	RM	chloride, soluble ion content	16887-00-6	E239.Cl	994 mg/L	97.9	70.0	130	----
Saturated Paste Extractables (QCLot: 255834)									
QC-255834-003	RM	% saturation	----	E141	50.2 %	95.2	70.0	130	----
Saturated Paste Extractables (QCLot: 255835)									
QC-255835-002	RM	pH, saturated paste	----	E114	7.31 pH units	100	95.0	105	----
Saturated Paste Extractables (QCLot: 255836)									
QC-255836-003	RM	conductivity, saturated paste	----	E102	6560 µS/cm	101	70.0	130	----
Saturated Paste Extractables (QCLot: 255838)									

Sub-Matrix: **Soil/Solid**

Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Reference Material (RM) Report: RM Target Concentration	Recovery (%): RM	Recovery Limits (%): Low	Recovery Limits (%): High	Qualifier
Saturated Paste Extractables (QCLot: 255838) - continued									
QC-255838-003	RM	calcium, soluble ion content	7440-70-2	E442	640 mg/L	93.3	70.0	130	----
QC-255838-003	RM	magnesium, soluble ion content	7439-95-4	E442	318 mg/L	91.9	70.0	130	----
QC-255838-003	RM	potassium, soluble ion content	7440-09-7	E442	71.4 mg/L	91.8	70.0	130	----
QC-255838-003	RM	sodium, soluble ion content	17341-25-2	E442	610 mg/L	92.6	70.0	130	----
Metals (QCLot: 255826)									
QC-255826-003	SCP SS-2	aluminum	7429-90-5	E440	9817 mg/kg	112	70.0	130	----
QC-255826-003	SCP SS-2	antimony	7440-36-0	E440	3.99 mg/kg	111	70.0	130	----
QC-255826-003	SCP SS-2	arsenic	7440-38-2	E440	3.73 mg/kg	117	70.0	130	----
QC-255826-003	SCP SS-2	barium	7440-39-3	E440	105 mg/kg	107	70.0	130	----
QC-255826-003	SCP SS-2	beryllium	7440-41-7	E440	0.349 mg/kg	107	70.0	130	----
QC-255826-003	SCP SS-2	boron	7440-42-8	E440	8.5 mg/kg	122	40.0	160	----
QC-255826-003	SCP SS-2	cadmium	7440-43-9	E440	0.91 mg/kg	101	70.0	130	----
QC-255826-003	SCP SS-2	calcium	7440-70-2	E440	31082 mg/kg	100.0	70.0	130	----
QC-255826-003	SCP SS-2	chromium	7440-47-3	E440	101 mg/kg	119	70.0	130	----
QC-255826-003	SCP SS-2	cobalt	7440-48-4	E440	6.9 mg/kg	105	70.0	130	----
QC-255826-003	SCP SS-2	copper	7440-50-8	E440	123 mg/kg	105	70.0	130	----
QC-255826-003	SCP SS-2	iron	7439-89-6	E440	23558 mg/kg	106	70.0	130	----
QC-255826-003	SCP SS-2	lead	7439-92-1	E440	267 mg/kg	93.0	70.0	130	----
QC-255826-003	SCP SS-2	lithium	7439-93-2	E440	9.5 mg/kg	98.0	70.0	130	----
QC-255826-003	SCP SS-2	magnesium	7439-95-4	E440	5509 mg/kg	110	70.0	130	----
QC-255826-003	SCP SS-2	manganese	7439-96-5	E440	269 mg/kg	114	70.0	130	----
QC-255826-003	SCP SS-2	molybdenum	7439-98-7	E440	1.03 mg/kg	104	70.0	130	----
QC-255826-003	SCP SS-2	nickel	7440-02-0	E440	26.7 mg/kg	102	70.0	130	----
QC-255826-003	SCP SS-2	phosphorus	7723-14-0	E440	752 mg/kg	94.8	70.0	130	----
QC-255826-003	SCP SS-2	potassium	7440-09-7	E440	1587 mg/kg	123	70.0	130	----
QC-255826-003	SCP SS-2	sodium	7440-23-5	E440	797 mg/kg	110	70.0	130	----
QC-255826-003	SCP SS-2	strontium	7440-24-6	E440	86.1 mg/kg	105	70.0	130	----
QC-255826-003	SCP SS-2	thallium	7440-28-0	E440	0.0786 mg/kg	102	40.0	160	----
QC-255826-003	SCP SS-2	tin	7440-31-5	E440	10.6 mg/kg	102	70.0	130	----
QC-255826-003	SCP SS-2	titanium	7440-32-6	E440	839 mg/kg	123	70.0	130	----
QC-255826-003	SCP SS-2	uranium	7440-61-1	E440	0.52 mg/kg	110	70.0	130	----
QC-255826-003	SCP SS-2	vanadium	7440-62-2	E440	32.7 mg/kg	114	70.0	130	----

Sub-Matrix: **Soil/Solid**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 255826) - continued									
QC-255826-003	SCP SS-2	zinc	7440-66-6	E440	297 mg/kg	97.2	70.0	130	----
QC-255826-003	SCP SS-2	zirconium	7440-67-7	E440	5.73 mg/kg	116	70.0	130	----

ALS Canada Ltd.

2103 Dollarton Hwy
North Vancouver BC V7H 0A7
Phone: +1 604 984 0221 Fax: +1 604 984 0218
www.alsglobal.com/geochemistry

To: **ALS ENVIRONMENTAL**
100 - 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Finalized Date: 28-SEP-2021
Account: APN

CERTIFICATE VA21198390

Project: WR2100901

This report is for 3 samples of Rock submitted to our lab in Vancouver, BC, Canada on 30-JUL-2021.

The following have access to data associated with this certificate:

ALSE VANCOUVER WEBTRIEVE SOFTWARE DEVELOPMENT GROUP	ALSEV DATASUBLET	HEATHER MCKENZIE

SAMPLE PREPARATION

ALS CODE	DESCRIPTION
WEI-21	Received Sample Weight
DISP-01	Disposal of all sample fractions
LOG-21	Sample logging - ClientBarCode
CRU-31	Fine crushing - 70% <2mm
SPL-21	Split sample - riffle splitter
PUL-31	Pulverize up to 250g 85% <75 um

ANALYTICAL PROCEDURES

ALS CODE	DESCRIPTION	INSTRUMENT
S-CAL06a	Sulfide Sulfur (calculated*)	
S-GRA06a	Sulfate Sulfur (HCl leachable)	WST-SEQ
C-GAS05	Inorganic Carbon (CO2)	
S-GRA06	Sulfate Sulfur-carbonate leach	WST-SEQ
C-IR06	Non-Carbonate C by HCl Leach, IR Spec	LECO
OA-VOL08m	Modified NP	
S-IR08	Total Sulphur (IR Spectroscopy)	LECO
OA-ELE07	Paste pH	

This is the Final Report and supersedes any preliminary report with this certificate number.Results apply to samples as submitted.All pages of this report have been checked and approved for release.
***** See Appendix Page for comments regarding this certificate *****

Signature:

Saa Traxler, General Manager, North Vancouver

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To: **ALS ENVIRONMENTAL**
100 - 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Finalized Date: 28-SEP-2021
Account: APN

Project: WR2100901

CERTIFICATE OF ANALYSIS VA21198390

Sample Description	Method Analyte Units LOD	WEI-21 Recvd Wt. kg 0.02	OA-VOL08m FIZZ RAT Unity 1	OA-VOL08m MPA tCaCO3/1Kt 0.3	OA-VOL08m NNP tCaCO3/1Kt 1	OA-VOL08m NP tCaCO3/1Kt 1	OA-VOL08m Ratio (N Unity 0.01	OA-ELE07 pH Unity 0.1	S-IR08 S % 0.01	S-CAL06a S % 0.01	C-GAS05 C % 0.05	C-GAS05 CO2 % 0.2	S-GRA06a S % 0.01	S-GRA06 S % 0.01	C-IR06 C organi % 0.01
WR2100901-001		3.12	1	1.3	4	5	4.00	8.4	0.04	0.04	<0.05	<0.2	<0.01	0.02	0.05
WR2100901-002		3.32	1	0.9	5	6	6.40	8.3	0.03	0.03	<0.05	<0.2	<0.01	0.01	0.07
WR2100901-003		2.96	1	2.8	6	9	3.20	8.7	0.09	0.09	0.06	0.2	<0.01	0.01	0.01

***** See Appendix Page for comments regarding this certificate *****

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To: **ALS ENVIRONMENTAL**
100 - 8081 LOUGHEED HWY.
BURNABY BC V5A 1W9

Finalized Date: 28-SEP-2021
Account: APN

Project: WR2100901

CERTIFICATE OF ANALYSIS VA21198390

CERTIFICATE COMMENTS

LABORATORY ADDRESSES

Processed at ALS Vancouver located at 2103 Dollarton Hwy, North Vancouver, BC, Canada.

Applies to Method:			
C-GAS05	C-IR06	CRU-31	DISP-01
LOG-21	OA-ELE07	OA-VOL08m	PUL-31
S-CAL06a	S-GRA06	S-GRA06a	S-IR08
SPL-21	WEI-21		

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

COC Number:

Affix ALS barcode label here
(lab use only)

Environmental Division
Whitehorse
Work Order Reference
WR2100901

Telephone : +1 867 668 6689

Report To	Contact and company name below will appear on the final report
Company:	Ensero Solutions
Contact:	Rachel Martz
Phone:	867-668-6463
	Company address below will appear on the final report
Street:	104-411 Downey Rd
City/Province:	Saskatoon, SK
Postal Code:	S7N 4L8
Invoice To	Same as Report To
	Copy of Invoice with Report
Company:	
Contact:	

Report Format / Distribution	
Select Report Format:	
Quality Control (QC) Report with Report	
Select Distribution:	
Email 1 or Fax	rkleinberger@ensero.com
Email 2	rmartz@ensero.com
Email 3	celemine@ensero.com
Invoice Distribution	
Select Invoice Distribution:	
Email 1 or Fax	ap@ensero.com
Email 2	

Select Service Level Below - Please confirm all E&P TATs with yo

Regular [R]

PRIORITY (Business Days): 4 day [P4] | 3 day [P3] | 2 day [P2]

EMERGENCY: 1 E | S | S

Date and Time Required for all E&P TATs:

For tests that can not be performed according to the service lev

Analysis Re

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA21-CAEG100-05	AFE/Cost Center:	PO#
Job #:		Major/Minor Code:	Routing Code:
PO / AFE:	0000001061	Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: Can Dang	Sampler:

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	E446 Metals + Hardness by CRC ICPMS (Shakeflask, 3:1 Ratio with Water)	E103 Conductivity by Electrode (Shakeflask, 3:1 Ratio with Water)	E118 pH by electrode (Shakeflask, 3:1 Ratio with Water)	E285 Acidity by titration (Shakeflask, 3:1 Ratio with Water)	E294 Alkalinity by titration (Shakeflask, 3:1 Ratio with Water)	S243 Anions by IC (Shakeflask, 3:1 Ratio with Water)	E440 Metals in Soil/Solid by CRC ICPMS	E407 Ammonium Acetate CEC in Soil by colorimetry	CA13 Full Salinity (Ca,Mg,Na,K,SO4, Cl,NO3,pH,EC,Alk.,SAR,TGR,% Sat.)	E180A CSSC Particle Size Classification (Mini	CA17 Available N,P,K,S + Dry and Grind in Soil	S1L-ABA PKG04(M) ALS Minerals: ABA PKG04(M) - Modified Sobek Method	S351 TC, TIC, TOC in Soil	Number of Containers
					R	R	R	R	R	R	R	R	R	R	R	R	R	
	ENS21-SUB07	25-07-21	15:00	Soil	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3
	ENS21-SUB03	25-07-21	12:00	↓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3
	ENS21-SUB05	25-07-21	13:00	↓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	3

Drinking Water (DW) Samples[1] (client use)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)
Are samples taken from a Regulated DW System?	
Are samples for human drinking water use?	Please perform dissolved metals analysis on E446 and Modified Sobek Method on S1L-ABA PKG04(M). Prep methods are not listed but assumed to be included (EPP442 and EP446)

SAMPLE CONDITION AS RECE

Frozen ☐ SIF Observati

Ice Packs ☐ Ice Cubes ☐ Custody seal i

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C

18

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT REC	
Released by:	Date:	Time:	Received by:	Date: July 27	Time: 348	Received by:	Da

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

APPENDIX B:

TEST PIT ANALYTICAL CERTIFICATES OF ANALYSIS

ALS Environmental

CERTIFICATE OF ANALYSIS

Work Order	: **WR2101751**	Page	: 1 of 4
Client	: **Ensero Solutions**	Laboratory	: Whitehorse - Environmental
Contact	: Ken Boldt	Account Manager	: Heather McKenzie
Address	: 104-411 Downey Road Saskatoon SK Canada S7N 4L8	Address	: #12 151 Industrial Road Whitehorse YT Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: ECA21SK00167	Date Samples Received	: 09-Dec-2021 13:42
PO	: ----	Date Analysis Commenced	: 14-Dec-2021
C-O-C number	: ----	Issue Date	: 21-Dec-2021 17:58
Sampler	: KB		
Site	: ----		
Quote number	: VA21-CAEG100-05		
No. of samples received	: 8		
No. of samples analysed	: 8		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Ivan Yip	Laboratory Analyst	Organics, Saskatoon, Saskatchewan
Xihua Yao	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	No Unit
%	percent

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	TP-ENS21-002 (20-60cm)	TP-ENS21-002 (2m)	TP-ENS21-003 (20-35cm)	TP-ENS21-004 (10-60cm)	TP-ENS21-004 (0.6-1.1 cm)
					Client sampling date / time	25-Jul-2021	25-Jul-2021	25-Jul-2021	25-Jul-2021	25-Jul-2021
						WR2101751-001	WR2101751-002	WR2101751-003	WR2101751-004	WR2101751-005
						Result	Result	Result	Result	Result
Physical Tests										
Atterberg plastic limit [PL] (moisture)	----	E199	1.0	%		32.4	21.5	35.4	23.2	19.4
moisture	----	E144	0.25	%		17.2	8.29	26.0	16.7	10.4
Atterberg liquid limit [LL] (moisture)	----	E199	1.0	%		35.7	25.1	40.2	25.9	20.5
Atterberg plasticity index [PI]	----	E199	1.0	%		3.3	3.6	4.8	2.7	1.2
Particle Size										
texture class	----	E180A	-	-		Sandy loam	Loamy sand	Loam	Loam / Sandy loam	Loam / Sandy loam
silt (0.05mm - 0.002mm)	----	E180A	1.0	%		34.8	21.3	46.8	39.9	42.3
sand (2.0mm - 0.05mm)	----	E180A	1.0	%		59.9	75.6	45.1	52.6	50.7
clay (<0.002mm)	----	E180A	1.0	%		5.3	3.1	8.1	7.5	7.0

Please refer to the General Comments section for an explanation of any qualifiers detected.

Analytical Results

Sub-Matrix: **Soil**
(Matrix: **Soil/Solid**)

Analyte	CAS Number	Method	LOR	Unit	Client sample ID	TP-ENS21-005 (10-55 cm)	TP-ENS21-005(55-110cm)	TP-ENS21-006(10-170)	----	----
					Client sampling date / time	25-Jul-2021	25-Jul-2021	25-Jul-2021	----	----
						WR2101751-006	WR2101751-007	WR2101751-008	--------	--------
						Result	Result	Result	----	----
Physical Tests										
Atterberg plastic limit [PL] (moisture)	----	E199	1.0	%		17.6	18.8	22.2	----	----
moisture	----	E144	0.25	%		7.46	13.3	12.1	----	----
Atterberg liquid limit [LL] (moisture)	----	E199	1.0	%		19.5	22.0	24.5	----	----
Atterberg plasticity index [PI]	----	E199	1.0	%		1.9	3.2	2.3	----	----
Particle Size										
texture class	----	E180A	-	-		Sandy loam	Sandy loam	Loam	----	----
silt (0.05mm - 0.002mm)	----	E180A	1.0	%		32.2	34.6	46.8	----	----
sand (2.0mm - 0.05mm)	----	E180A	1.0	%		63.4	56.2	41.3	----	----
clay (<0.002mm)	----	E180A	1.0	%		4.4	9.2	11.9	----	----

Please refer to the General Comments section for an explanation of any qualifiers detected.

QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **WR2101751**	Page	: 1 of 6
Client	: **Ensero Solutions**	Laboratory	: Whitehorse - Environmental
Contact	: Ken Boldt	Account Manager	: Heather McKenzie
Address	: 104-411 Downey Road Saskatoon SK Canada S7N 4L8	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: ECA21SK00167	Date Samples Received	: 09-Dec-2021 13:42
PO	: ----	Issue Date	: 21-Dec-2021 17:59
C-O-C number	: ----		
Sampler	: KB		
Site	: ----		
Quote number	: VA21-CAEG100-05		
No. of samples received	: 8		
No. of samples analysed	: 8		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag TP-ENS21-002 (20-60cm)	E180A	25-Jul-2021	----	----	----		15-Dec-2021	365 days	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag TP-ENS21-002 (2m)	E180A	25-Jul-2021	----	----	----		15-Dec-2021	365 days	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag TP-ENS21-003 (20-35cm)	E180A	25-Jul-2021	----	----	----		15-Dec-2021	365 days	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag TP-ENS21-004 (0.6-1.1 cm)	E180A	25-Jul-2021	----	----	----		15-Dec-2021	365 days	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag TP-ENS21-004 (10-60cm)	E180A	25-Jul-2021	----	----	----		15-Dec-2021	365 days	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag TP-ENS21-005 (10-55 cm)	E180A	25-Jul-2021	----	----	----		15-Dec-2021	365 days	----	
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag TP-ENS21-005(55-110cm)	E180A	25-Jul-2021	----	----	----		15-Dec-2021	365 days	----	

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Particle Size : CSSC Particle Size Classification (Mini Pipet Method)										
LDPE bag TP-ENS21-006(10-170)	E180A	25-Jul-2021	----	----	----		15-Dec-2021	365 days	----	
Physical Tests : Atterberg Limits										
LDPE bag TP-ENS21-002 (20-60cm)	E199	25-Jul-2021	----	----	----		16-Dec-2021	180 days	144 days	✓
Physical Tests : Atterberg Limits										
LDPE bag TP-ENS21-002 (2m)	E199	25-Jul-2021	----	----	----		16-Dec-2021	180 days	144 days	✓
Physical Tests : Atterberg Limits										
LDPE bag TP-ENS21-003 (20-35cm)	E199	25-Jul-2021	----	----	----		16-Dec-2021	180 days	144 days	✓
Physical Tests : Atterberg Limits										
LDPE bag TP-ENS21-004 (0.6-1.1 cm)	E199	25-Jul-2021	----	----	----		16-Dec-2021	180 days	144 days	✓
Physical Tests : Atterberg Limits										
LDPE bag TP-ENS21-004 (10-60cm)	E199	25-Jul-2021	----	----	----		16-Dec-2021	180 days	144 days	✓
Physical Tests : Atterberg Limits										
LDPE bag TP-ENS21-005 (10-55 cm)	E199	25-Jul-2021	----	----	----		16-Dec-2021	180 days	144 days	✓
Physical Tests : Atterberg Limits										
LDPE bag TP-ENS21-005(55-110cm)	E199	25-Jul-2021	----	----	----		16-Dec-2021	180 days	144 days	✓
Physical Tests : Atterberg Limits										
LDPE bag TP-ENS21-006(10-170)	E199	25-Jul-2021	----	----	----		16-Dec-2021	180 days	144 days	✓

Matrix: **Soil/Solid**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Physical Tests : Moisture Content by Gravimetry										
LDPE bag TP-ENS21-002 (20-60cm)	E144	25-Jul-2021	----	----	----		16-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag TP-ENS21-002 (2m)	E144	25-Jul-2021	----	----	----		16-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag TP-ENS21-003 (20-35cm)	E144	25-Jul-2021	----	----	----		16-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag TP-ENS21-004 (0.6-1.1 cm)	E144	25-Jul-2021	----	----	----		16-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag TP-ENS21-004 (10-60cm)	E144	25-Jul-2021	----	----	----		16-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag TP-ENS21-005 (10-55 cm)	E144	25-Jul-2021	----	----	----		16-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag TP-ENS21-005(55-110cm)	E144	25-Jul-2021	----	----	----		16-Dec-2021	----	----	
Physical Tests : Moisture Content by Gravimetry										
LDPE bag TP-ENS21-006(10-170)	E144	25-Jul-2021	----	----	----		16-Dec-2021	----	----	

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Soil/Solid**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Atterberg Limits	E199	369292	1	8	12.5	5.0	✓
CSSC Particle Size Classification (Mini Pipet Method)	E180A	368132	1	8	12.5	5.0	✓
Moisture Content by Gravimetry	E144	369351	1	9	11.1	5.0	✓
Laboratory Control Samples (LCS)							
Atterberg Limits	E199	369292	1	8	12.5	5.0	✓
CSSC Particle Size Classification (Mini Pipet Method)	E180A	368132	1	8	12.5	5.0	✓
Moisture Content by Gravimetry	E144	369351	1	9	11.1	5.0	✓
Method Blanks (MB)							
Moisture Content by Gravimetry	E144	369351	1	9	11.1	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by "mod").

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Moisture Content by Gravimetry	E144 Saskatoon - Environmental	Soil/Solid	CCME PHC in Soil - Tier 1	Moisture is measured gravimetrically by drying the sample at 105°C. Moisture content is calculated as the weight loss (due to water) divided by the wet weight of the sample, expressed as a percentage.
CSSC Particle Size Classification (Mini Pipet Method)	E180A Saskatoon - Environmental	Soil/Solid	CCME Vol 4 Analytical Methods	A soil sample is disaggregated to pass a 2mm sieve. The <2mm specimen is then further disaggregated using Calgon solution and suspended in solution. Two pipette aliquots are taken, dried, and measured gravimetrically at specific times to determine %clay and %silt+clay using the principles of Stokes' law. %silt and %sand are determined mathematically.
Atterberg Limits	E199 Saskatoon - Environmental	Soil/Solid	CSSS Ch. 58 (mod)	Atterberg Limits are measures of physical properties of fine grained soils. Liquid Limit (LL) is the water content where soil behaviour changes from plastic to liquid, and is determined by Casagrande cup. Plastic Limit (PL) is the water content where soil begins to exhibit plastic behaviour, and is measured as the moisture content of a 3 mm diameter thread of soil which begins to crumble when rolled. Plasticity Index (PI) is equal to LL - PL.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dry and Grind	EPP442 Saskatoon - Environmental	Soil/Solid	Soil Sampling and Methods of Analysis, Carter 2008	After removal of any coarse fragments and reservation of wet subsamples a portion of homogenized sample is set in a tray and dried at less than 60°C until dry. The sample is then particle size reduced with an automated crusher or mortar and pestle, typically to <2 mm. Further size reduction may be needed for particular tests.

QUALITY CONTROL REPORT

Work Order	: **WR2101751**	Page	: 1 of 3
Client	: Ensero Solutions	Laboratory	: Whitehorse - Environmental
Contact	: Ken Boldt	Account Manager	: Heather McKenzie
Address	: 104-411 Downey Road Saskatoon SK Canada S7N 4L8	Address	: #12 151 Industrial Road Whitehorse, Yukon Canada Y1A 2V3
Telephone	: ----	Telephone	: +1 867 668 6689
Project	: ECA21SK00167	Date Samples Received	: 09-Dec-2021 13:42
PO	: ----	Date Analysis Commenced	: 14-Dec-2021
C-O-C number	: ----	Issue Date	: 21-Dec-2021 17:58
Sampler	: KB		
Site	: ----		
Quote number	: VA21-CAEG100-05		
No. of samples received	: 8		
No. of samples analysed	: 8		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percentage Difference (RPD) and Acceptance Limits
- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits
- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Hedy Lai	Team Leader - Inorganics	Inorganics, Saskatoon, Saskatchewan
Ivan Yip	Laboratory Analyst	Organics, Saskatoon, Saskatchewan
Xihua Yao	Laboratory Analyst	Inorganics, Saskatoon, Saskatchewan

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Services number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percentage Difference
# = Indicates a QC result that did not meet the ALS DQO.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test specific).

Sub-Matrix: **Soil/Solid**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Physical Tests (QC Lot: 369292)											
WR2101751-001	TP-ENS21-002 (20-60cm)	Atterberg liquid limit [LL] (moisture)	----	E199	1.0	%	35.7	35.3	1.27%	20%	----
		Atterberg plastic limit [PL] (moisture)	----	E199	1.0	%	32.4	32.0	1.30%	20%	----
Physical Tests (QC Lot: 369351)											
WR2101751-001	TP-ENS21-002 (20-60cm)	moisture	----	E144	0.25	%	17.2	16.3	5.39%	20%	----
Particle Size (QC Lot: 368132)											
WR2101751-001	TP-ENS21-002 (20-60cm)	clay (<0.002mm)	----	E180A	1.0	%	5.3	5.5	2.7%	20%	----
		sand (2.0mm - 0.05mm)	----	E180A	1.0	%	59.9	57.7	3.7%	20%	----
		silt (0.05mm - 0.002mm)	----	E180A	1.0	%	34.8	36.8	5.7%	20%	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Soil/Solid**

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 369351)						
moisture	----	E144	0.25	%	<0.25	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Soil/Solid**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 369351)									
moisture	----	E144	0.25	%	50 %	99.3	90.0	110	----

Reference Material (RM) Report

A Reference Material (RM) is a homogenous material with known and well-established analyte concentrations. RMs are processed in an identical manner to test samples, and are used to monitor and control the accuracy and precision of a test method for a typical sample matrix. RM results are expressed as percent recovery of the target analyte concentration. RM targets may be certified target concentrations provided by the RM supplier, or may be ALS long-term mean values (for empirical test methods).

Sub-Matrix: **Soil/Solid**

					Reference Material (RM) Report				
					RM Target	Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Physical Tests (QCLot: 369292)									
QC-369292-001	RM	Atterberg liquid limit [LL] (moisture)	----	E199	33.68 %	103	80.0	120	----
QC-369292-001	RM	Atterberg plastic limit [PL] (moisture)	----	E199	20 %	110	80.0	120	----
Particle Size (QCLot: 368132)									
QC-368132-001	RM	clay (<0.002mm)	----	E180A	19.34 %	103	74.0	126	----
QC-368132-001	RM	sand (2.0mm - 0.05mm)	----	E180A	50.71 %	96.5	90.0	110	----
QC-368132-001	RM	silt (0.05mm - 0.002mm)	----	E180A	29.96 %	104	85.0	115	----

Chain of Custody (COC) / Analytical Request Form

ALS Environmental

www.alsglobal.com

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here
(lab use only)

COC Environmental Division Whitehorse
Work Order Reference
WR2101751

Telephone : +1 867 668 8689

Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Please confirm all E&P TAT
Company:	Ensero Solutions	Select Report Format:	Regular [R]
Contact:	Ken Boldt	Quality Control (QC) Report with Report	PRIORITY (Business Days): 4 day [P4] / 3 day [P3] / 2 day [P2] — EMERGENCY
Phone:	647-226-4451		
	Company address below will appear on the final report	Select Distribution:	Date and Time Required for all E&P TATs
Street:	#3 Calcite Business Centre, 151 Industrial Road	Email 1 or Fax kboldt@ensero.com	For tests that can not be performed according to the se
City/Province:	Whitehorse, YT	Email 2 rmartz@ensero.com	
Postal Code:	Y1A 2V3	Email 3	

Invoice To	Same as Report To	Invoice Distribution
	Copy of Invoice with Report	Select Invoice Distribution:
Company:	Ensero Solutions	Email 1 or Fax ap@ensero.com
Contact:	Accounts Payable	Email 2 rmartz@ensero.com

Project Information		Oil and Gas Required Fields (client use)	
ALS Account # / Quote #:	VA21-CAEG100-05	AFE/Cost Center:	PO#
Job #:	ECA21SK00167	Major/Minor Code:	Routing Code:
PO / AFE:		Requisitioner:	
LSD:		Location:	
ALS Lab Work Order # (lab use only)		ALS Contact: Can Dang	Sampler: KB

Analysis Request

Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below

ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	CSSC Particle Size Classification (Mini Pipet	AlterBerg Limits	Moisture Content	Number of Containers
	TP-ENS21-002 (20-60cm)	25-Jul-21	N/A	Soil	R	R	R	1
	TP-ENS21-002 (2m)	25-Jul-21	N/A	Soil	R	R	R	1
	TP-ENS21-003 (20-35cm)	25-Jul-21	N/A	Soil	R	R	R	1
	TP-ENS21-004 (10-60cm)	25-Jul-21	N/A	Soil	R	R	R	1
	TP-ENS21-004 (0.6-1.1m))	25-Jul-21	N/A	Soil	R	R	R	1
	TP-ENS21-005 (10-55cm)	25-Jul-21	N/A	Soil	R	R	R	1
	TP-ENS21-005 (55-110cm)	25-Jul-21	N/A	Soil	R	R	R	1
	TP-ENS21-006 (10-170)	25-Jul-21	N/A	Soil	R	R	R	1

Drinking Water (DW) Samples[1] (client use)

Are samples taken from a Regulated DW System?

Are samples for human drinking water use?

Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)

SAMPLE CONDITION AS RECEIVED (lab use only)

Frozen ☐ SIF Observations Yes ☐ No ☐

Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐

Cooling Initiated ☐

INITIAL COOLER TEMPERATURES °C			FINAL COOLER TEMPERATURES °C		
3.0	6.2				

SHIPMENT RELEASE (client use)			INITIAL SHIPMENT RECEPTION (lab use only)			FINAL SHIPMENT RECEPTION (lab use only)		
Released by: Robert Dekuysscher	Date: 9-DEC-2021	Time:	Received by:	Date: DEC 9/21	Time: 13:40	Received by:	Date:	Time:

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

OCTOBER 2015 FRONT

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.