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March 21, 2023

Todd Powell (via file transfer)
Director, Mineral Resources
Government of Yukon
PO Box 2703 (K-9)
Whitehorse, YT
Y1A 2C6

Re: Sa Dena Hes Mine - 2022 Annual Quartz Mining License Report for QML-0004

On behalf of the Sa Dena Hes Mine Operating Corporation please find enclosed one copy of the 2022 Annual Quartz Mining License Report for the Sa Dena Hes Mine as required under QML-0004.

We trust this submission complies with the requirements of the license. Should you have any questions or concerns please contact me at 250-467-3194 or email: Ray.Proulx@teck.com.

Thank you for your time and consideration.

Sincerely,

Ray Proulx Site Manager

Teck Resources Limited

Lay Trous

Attachment (1)

Cc: Travis Stewart - Director of Lands, Liard First Nation, travis.stewart@liardfirstnation.ca

Annual Quartz Mining License Report for 2022

Property: Sä Dena Hes Mine

Permit #: QML-0004

Company: Sä Dena Hes Operating Corporation c/o

Teck Resources Limited

Prepared By: Ray Proulx B.Sc., Site Manager

Issued Date: March 21, 2023

Sä Dena Hes Mine Annual Quartz Mining License Report for 2022



Executive Summary

The Annual Reclamation Report for 2022 for the Sä Dena Hes (SDH) mine site was prepared by Teck Resources Limited on behalf of Sä Dena Hes Mining Corporation, as required in accordance with Yukon Quartz Mining License QML-0004. This annual report describes the progress of closure and reclamation related activities at the Sä Dena Hes Mine in 2022.

The Sä Dena Hes (SDH) property is the site of a former lead-zinc mine that operated from 1991 to 1992. The property is located 45 km north of Watson Lake in the Yukon Territory and is owned by the Sä Dena Hes Mining Corporation which is a joint venture between Teck Resources Limited (Teck) and Pan-Pacific Metal Mining Corp., a wholly owned subsidiary of Korea Zinc. Teck is the operator under the joint venture agreement for the site.

Permanent closure and decommissioning activities commenced in 2013 and were completed in 2015. Reclamation activities conducted at the site includes applying a simple cover, using natural glacial till materials, to most mine disturbed areas limiting the release of contaminants to the air, water and land. Surface contouring and vegetation have been completed for protection against water erosion. A revegetation program was implemented once the cover system was finished in 2015.

In 2022, samples from most of the required water quality monitoring stations met the standards in water use licence QZ16-051 for all water quality parameters. In December 2022, there was one exceedance of the receiving water quality standard in a receiving environment station on North Creek. Water quality monitoring was also conducted under the Adaptive Management Plan (AMP) as part of the Water Licence. Although there were a few specific performance threshold exceedances, review of available water quality data, and information from subsequent sampling events, no additional actions were deemed necessary.

Routine physical work conducted at the site in 2022 included maintenance on the main access road culverts, north creek channel, and north tailings facility drainage swale. More notably, non-routine physical work was completed on a portion of north embankment of the Tailings Storage Facility at Sa Dena Hes (North Dam) to repair surface material that was displaced during an erosion event that occurred sometime in early June.

The 2022 inspection indicated that all the geotechnical structures are stable and are functioning in accordance with the closure design parameters.

Sä Dena Hes Mine Annual Quartz Mining License Report for 2022



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1.0 Introduction

The Sä Dena Hes (SDH) property is the site of a former lead-zinc mine that operated from 1991 to 1992. The property is located 45 km north of Watson Lake in the Yukon Territory and is owned by the Sä Dena Hes Mining Corporation which is a joint venture between Teck Resources Limited (Teck) and Pan-Pacific Metal Mining Corp., a wholly owned subsidiary of Korea Zinc. Teck is the operator under the joint venture agreement for the site.

Teck submitted notice to begin "Permanent Closure" to the Ministry of Energy, Mines and Resources (EMR) on February 17, 2012. The Detailed Decommissioning and Reclamation Plan (DDRP) (Teck, 2012) (Teck, 2013) was revised to plan for permanent closure. Permanent closure and decommissioning activities were carried out in 2014 and in 2015. A final DDRP was submitted in August 2015 (Teck, 2015) to account for amendments issued in 2014 and 2015. In 2015 Teck amended the Quartz Mining License (QML-0004), which expires on December 31, 2040. The current status of the site is Permanent Closure and Reclamation.

The objectives of the decommissioning and reclamation plan are to ensure the:

- Protection of public health and safety;
- Implementation of environmental protection measures that minimize adverse environment impacts;
- Land use is commensurate with surrounding lands;
- Post closure monitoring of the site is completed to assess effectiveness of closure measures for the long term.

Reclamation activities conducted at the site includes applying a simple cover, using natural glacial till materials, to most mine disturbed areas, thereby limiting the release of contaminants to the air, water and land. Surface contouring and vegetation have been completed for protection against water erosion. A revegetation program was implemented once the cover system was finished in 2015.

The Yukon Water Board regulates water management of the mine site. Water Use Licence QZ16-051 addressing permanent closure came into effect on April 1, 2017. Teck retains a Surface Lease 105A10-011 on the property and was renewed in 2021 with an expiry 2041.

2.0 2022 Decommissioning and Reclamation Activities

The QML and Water Use Licence both require post-reclamation environmental monitoring, physical/geotechnical inspections, and maintenance of constructed/engineered structures to be completed under the *Environmental Monitoring, Surveillance and Reporting Plan* (EMSRP, Alexco, 2017) and Adaptive Management Plan (AMP, Alexco, 2018).



The following summarizes the activities with details further discussed within the subsequent sections:

- Surface Water and Groundwater Quality Monitoring/Sampling
 - Bi-monthly/quarterly surface water and groundwater monitoring and sampling was conducted from January to December as per the Water Use Licence QZ16-051. Access to some of the locations are conducted using helicopter/snowmobiles in the winter months and an all-terrain vehicle in the snow free months.
 - Due to extreme weather conditions and the associated safety hazard, two sampling events in Q1 2022 could not be completed for sample locations that are only accessible by helicopter. In Q2 one sample site could not be accessed due to avalanche hazard and another could not be sampled as it was flooded due to beaver damming activity that also prevented access to the same site in Q3. In Q4, three sites accessed by helicopter were not sampled due to extreme cold weather.
- Terrestrial Monitoring
 - The five-year re-vegetation assessment is considered complete. There were no activities other than to take photographs at the eight permanent photo hubs that were installed in 2020.
- Aquatic Resources Monitoring
 - Aquatic resource monitoring occurred through the completion of the biennial program under QZ16-051 that took place in August 2022.
- Physical/geotechnical inspections
 - Spring and fall routine site inspections of physical/geotechnical features were completed by Teck and the site caretaker.
 - The 2022 Annual Mine Waste Facilities Inspection was completed by the engineer of record on August 16 and 17, 2022. As per the QML-0004, the Annual Inspection report was submitted in December 2022.
- Maintenance of constructed/engineered structures or access road
 - Inspection of and removal of debris from access road culverts;
 - Installation of beaver screens on the access road culverts to prevent future blockages;
 - Inspections of the North Pond drainage swale and clearing any blockages if encountered.

3.0 2023 Decommissioning and Reclamation Activities

There are no planned physical activities in 2023 other than monitoring the reclaimed areas and completing maintenance of any areas that may be identified following freshet.

The post closure monitoring as outlined in the EMSRP and AMP will be conducted in 2023 as per the Water Licence issued in April 2017.



4.0 Effectiveness of the Remediation Measures

All the physical remediation and revegetation activities were completed in 2015. Based on the current monitoring programs, the remediation measures appear to be effective. All the engineered structures remain to be in good condition with no signs of surficial movement or erosion with the exception of a few small areas identified in previous reports and the aforementioned erosion event that occurred on the North Dam. The erosion observed along the North Creek channel is due to high flows and beaver activity at the inlet of the channel, however it has been determined to allow the creek to erode until it will eventually sustain itself without maintenance. Beaver dams are removed as required to minimize the water level of the pond.

5.0 Map showing the status of all decommissioning and reclamation activities

All the physical remediation and revegetation activities were completed in 2015. In the 2015 Annual Report, several drawings were included within the AMEC 2015 As-built report. Due to the limited physical work and revegetation completed in 2022 there are no updated maps included within this report.

6.0 Inspection of Engineered Structures

The 2022 geotechnical inspection of the structures and features associated with the Tailings Management Area at SDH was completed by SRK Consulting (SRK) on August 16 and 17, 2022. The inspection report Sä Dena Hes Mine, Yukon Territory 2022 Annual Facility Performance Review, dated November 2022, (SRK, 2021) was submitted to EMR in December 2022.

The report presents SRK's observations of the following structures and features, identifies any deficiencies and provides recommendations where appropriate:

- The North Dam;
- The decommissioned North Creek Dyke and Second Crossing;
- The relocated Camp Creek Channel;
- The North Channel and South Channel;
- The Sediment Retaining Structure (SRS);
- The Burnick Portals (1200 and 1300) and Waste Rock Dumps;
- The Jewelbox and Main Zone Waste Rock Dump and Portal areas.

Sä Dena Hes Mine Annual Quartz Mining License Report for 2022



The South and Reclaim Dams including the tailings were decommissioned in 2014. The Camp Creek Diversion and Exit Chute were decommissioned in 2015. The North Creek Dyke and spillway including a second crossing culvert system on North Creek downstream below the dyke were decommissioned in 2015.

The North Dam remains as an earthen embankment that retains the stored tailings. A variable depth till cover was placed over the tailings in 2014 as a growth medium and to control the migration of windblown tailings. No resloping of the downstream dam face was needed.

The SRS is an approximately 5 m high berm that was formed during the decommissioning and removal of the South Dam. The berm was designed to retain sediment in runoff from the till tailings cover and incorporates a riprap lined spillway. The spillway has capacity for a 1 in 1000-year flood event.

The Burnick 1200 and 1300 Portals were capped in 2015 with locally available waste rock and graded with a gently sloped face to provide long term stability. The crests of the associated waste rock dumps were recontoured to provide added stability. No resloping of the downstream face of the dumps was required.

The 2022 inspection indicated that all the geotechnical structures are stable and are functioning in accordance with the closure design parameters.

The North Dam settlement gauges were last surveyed on July 24, 2020. The survey was discontinued after that due to no unexpected settlement over the 27-year monitoring period. The gauges remain operational and will be surveyed following any major seismic event.

The 2022 Annual Facility Performance Review Recommendations and timelines:

- 2022-2: Tailings Cover Erosion gully formed in cover north of SRS pond exposing geotextile – replace fill and armour gully– Q4 2024
- 2022-3: North Dam Drainage channel blockages on cover during snowmelt resulted in formation of a pond adjacent to embankment, and the pond overtopped the north dam, forming an erosion gully on the dam. Modify the embankment to eliminate this risk in the future – Q4 2024
- 2022-4: North Dam and Tailings Cover Update the Operations, Maintenance, Surveillance Manual to include monitoring for development of pond against embankment, and maintenance to clear drainage pathways on the tailings cover during snowmelt period – Q1 2023

As noted in the recommendations, there was an erosion event in 2022 that caused significant erosion through the north embankment. This event is explained in more detail in SRK's above referenced report. The erosion has since been repaired, and the recommendations address future improvements to prevent similar occurrences from happening in the future.



7.0 Results of Studies and Monitoring Programs

7.1 Water Licence Monitoring

The water quality standards and monitoring requirements are managed under Water Licence QZ16-051 Effective Date April 1, 2017 with the expiry date of December 31, 2040.

The licence describes the water quality monitoring program for post closure monitoring, which is the applicable program for the current status of the SDH (Permanent Closure and Reclamation). The water quality program outlines the sampling sites, frequency and required water quality parameters.

As required by Licence QZ16-051, water quality data is reported quarterly to the Yukon Territory Water Board. The 2022 monitoring results are discussed in the annual report prepared by Ensero Solutions entitled Sä Dena Hes – 2022 Annual Report Yukon Water Licence QZ16-051 dated March 2023 (Ensero Solutions, 2023). The report provides a detailed analysis of data and is included as Attachment 2. Surface and groundwater water quality monitoring conducted under the AMP are also included in the water licence monitoring requirements. The AMP describes a means of interpreting data to indicate if water quality is changing from conditions observed over the past 20 years. The plan also describes when and how changes in water quality require a response.

In 2022, samples from most of the required water quality monitoring stations met the standards in licence QZ16-051 for all water quality parameters. In December 2022, there was one exceedance of a single copper concentration was greater than the permitted limit for the receiving site (North Creek). Stream volume was very low at the time the sample was taken and it is believed that a larger contribution of particulate in the sample resulted in the measured concentration. The dissolved concentration of copper in the same sample was an order of magnitude lower. It was determined that no further action was required. While exceedances of the AMP thresholds did occur, however following a review of available water quality data, and information from subsequent sampling events, no additional actions were deemed necessary.

7.2 Environmental Effects Monitoring

The biennial biological effects monitoring at the site was completed and reported in the 2022 Water Licence report. The next monitoring event will occur in 2024.

7.3 Vegetation Monitoring

In 2015, a total 27,000 plugs were planted of *Salix alaxensis*, *S. bebbiana*, *S. barclayi*, *S. planifolia* and *Populus balsamifera* were installed in several discrete areas throughout the reclaim, south pond, north pond and mill areas. The remaining open areas of these sites were planted with approximately 70,000 alder (*Alnus viridis crispa*) plugs. The alder were planted at a much lower density than the other tree species.



The fifth year of revegetation monitoring was conducted in 2020 by Laberge Environmental Services. The detailed results of the monitoring are included in the attached report entitled "Revegetation Monitoring at the Reclaimed Sä Dena Hes Mining Site, 2020" dated January 2021 (Laberge, 2021). Monitoring of the plots is not required until 2025, however eight permanent photo hubs were established in 2020 throughout the revegetated areas to document growing conditions each summer. The locations of the photo plots are displayed in Figure 1 in Appendix A. Although the photo plots weren't established until 2020, photographs have been taken of each site previously and have been included for comparison purposes in Appendix A.

Table 1 - Locations of Permanent Photo Hubs, July 2020

Hub #	Latitude	Longitude	Site Description	Bearing (°)
PH-1	60.53885°	128.85624°	At Revegetation sign at the north dam	70 to 80
PH-2	60.53144°	128.85213°	North end of South tailings facility near VMP-2; near old access road	360 view
PH-3	60.52005°	128.87726°	Jewel box, at MW13-02 and GP3	346
PH-4	60.54871°	128.85471°	Landfill at MW14-02	360 view
PH-5	60.53388°	128.85292°	South end of north tailings facility near VMP-4	5 and 65
PH-6	60.52305°	128.86575°	Mill area near access road	360 view
PH-7	60.52457°	128.84914°	Reclaim and Borrow pit G – near osprey nest	360 view
PH-8	60.55294°	128.87687°	Burnick, GP-6 & MW13-06	220

VMP – Vegetation monitoring plot; GP – Grass monitoring plot

8.0 Invasive Plants

There were no formal assessments completed in 2022. It is expected the areas that were previously identified as containing invasive species will decrease in size as individual plants continue to be removed manually. Similar to past observations, the most common invasive species encountered was *Crepis tectorum*, (narrowleaf hawksbeard) and was generally found sporadically along the roadsides within the study area and has increased near monitoring plot VMP-9 at the landfill site (Laberge 2021). As the alders increase in size on site, the hawksbeard should eventually die off. These areas continue to be monitored and any individual invasive plants discovered across the site are hand-pulled to ensure that the remaining population is manageable.



9.0 Spills and Accidents

There were no reportable spills or accidents in 2022.

10.0 Wildlife Incidents and Other Accidents

There were no direct wildlife incidents or other accidents reported in 2022 other than notable activity of beavers plugging road culverts along the main access road and North Creek Channel.

11.0 Site Improvements to address Sediment and Erosion

There were no signs of major erosion in any of the capped areas in 2020. Erosion has been observed in the North Creek channel, but it is recommended to let it sustain itself without maintenance. In 2020, seepage was observed above the North Drainage Channel which triggered subsidence of the channel. To prevent flow from possibly creating a collapse of the channel and disturbing the covered tailings, the site's representative geotechnical engineer recommended buttressing the downstream portion of the channel which was completed in 2020. This area was monitored and photographed in 2021 with no significant changes although water appears to continue to trickle under repaired section of the North Diversion channel.

Following the erosion event that occurred on the North Dam in 2022 a recommendation has been made by the facility's engineer of record to raise the dam's crest to prevent future overtopping events caused by pooled water arising from the spring melt. An engineered design for this enhancement will be developed in 2023 and reviewed with applicable regulatory authorities before commencing work that is currently contemplated to occur in 2024.

12.0 Closing

I trust this report meets the requirements under Part 5, Section 11.4 of QML-0004. Please contact Ray Proulx at (250) 467-3194 or Ray.Proulx@teck.com if you have any questions regarding this report.

Ray Proulx, B.Sc.

Ray Proulx, Site Manager Teck Legacy Properties

Lay Trous



13.0 References

- Alexco. (2017). Sa Dena Hes Mine Environmental Monitoring, Surveillance and Reporting Plan, June 28, 2017.
- Alexco. (2018). Sa Dena Hes Mine Post-Reclamation Adaptive Management Plan, dated February 12, 2018.
- Ensero Solutions. (2023). Sä Dena Hes 2022 Annual Report Yukon Water Licence QZ16-051 dated March 2023.
- Laberge. (2021). Revegetation Monitoring at the Reclaimed Sä Dena Hes Mining Site, 2020, prepared by Laberge Environmental Services, dated January 2021.
- SRK. (2022). Sä Dena Hes Mine, Yukon Territory, 2022 Annual Facility Performance Review, prepared by SRK Consulting (Canada) Inc., dated, 2022.
- Teck. (2012). Sa Dena Hes Mine, Detailed Decommissioning and Closure Plan, Jan. 2012 update, prepared by Teck Resources Limited, Jan. 28, 2012.
- Teck. (2013). Sa Dena Hes Mine, Detailed Decomissioning and Closure Plan, March 2013 Update-Final, prepared by Teck Resources Limited.
- Teck. (2015). Sa Dena Hes Mine, Detailed Decommissioning and Reclamation Plan August 2015 Update. Prepared by Teck Resources Limited, August 31, 2015.
- Teck. (2018). Water Licence #QZ16-051 Sa Dena Hes Mine Submission of Revised Adaptive Management Plan, dated March 7, 2018.



Attachment 1 Revegetation Monitoring Plots and Photos

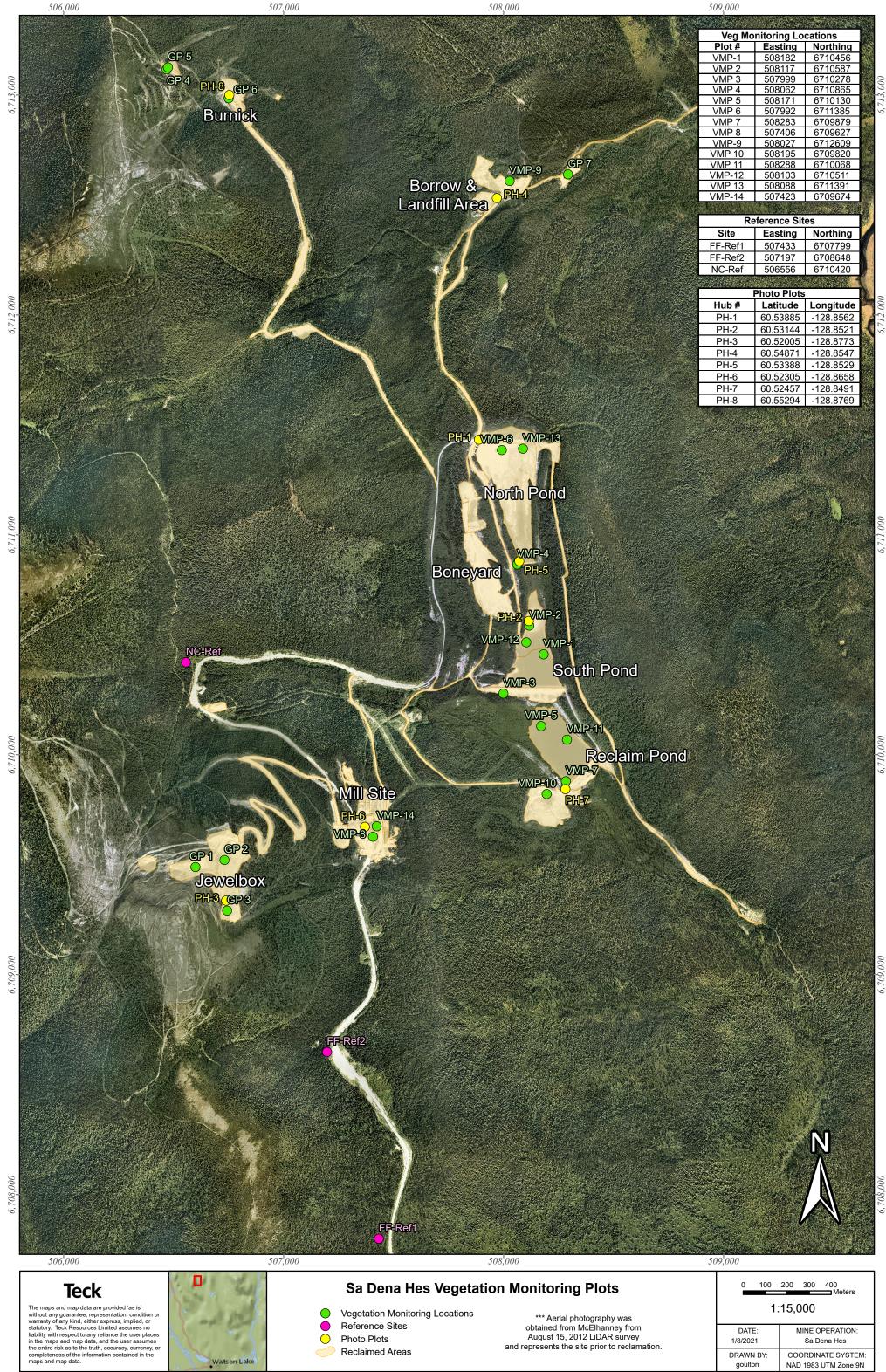
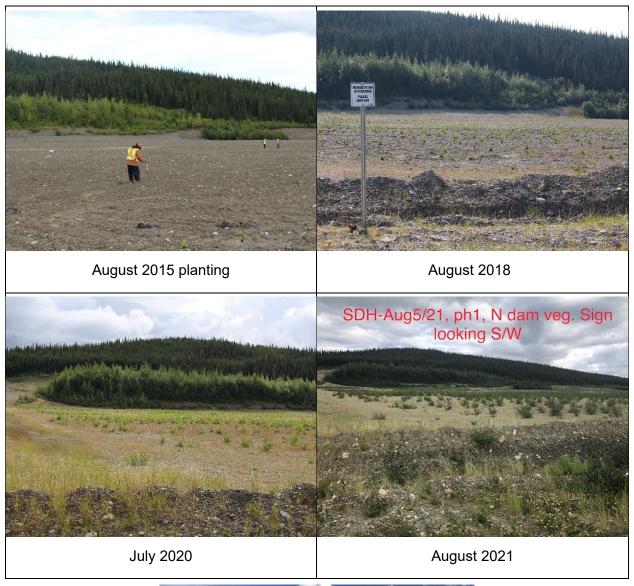


Photo Hub 1 – At Revegetation Sign at the North Dam





August 2022

Photo Hub 2 – North End of South Tailings Facility Near VMP-2





August 2022

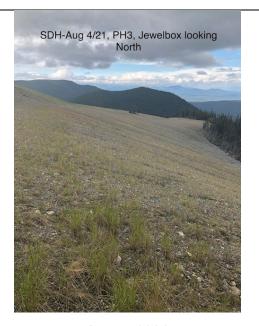
Photo Hub 3 – Jewelbox Near GP3 and MW13-02



August 2018



July 2020

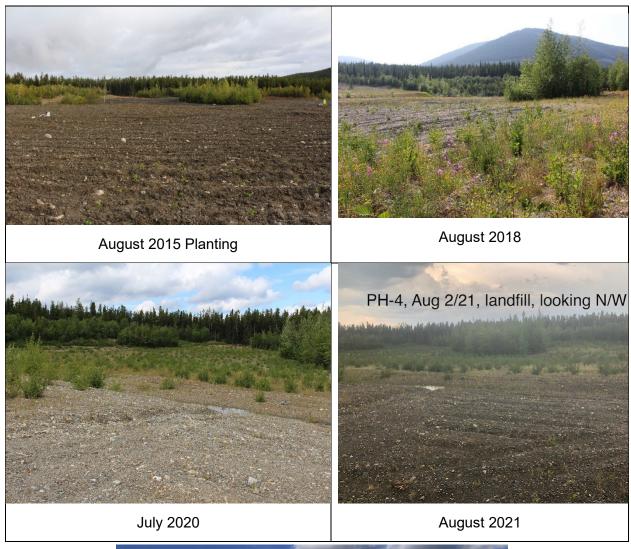


August 2021



August 2022

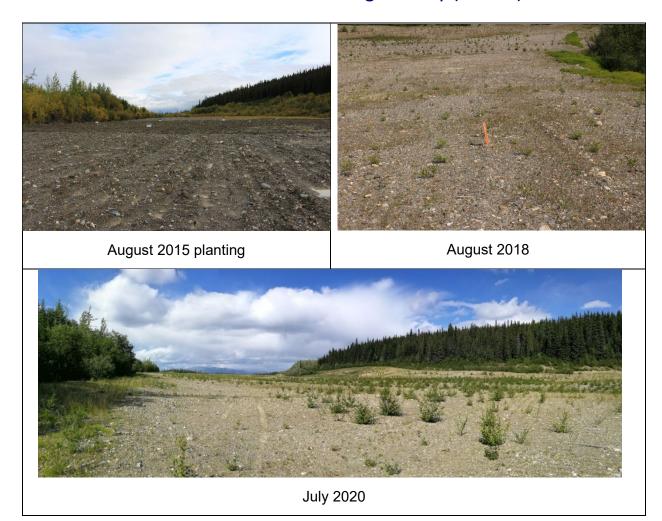
Photo Hub 4 – Landfill at MW14-02 and VMP-9

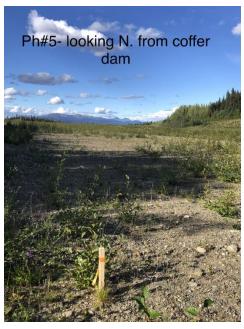




August 2022

Photo Hub 5 – South End of North Tailings Facility (VMP-4)





August 2022

Photo Hub 6 – Mill Site



August 2015 planting



July 2020



August 2021



August 2022

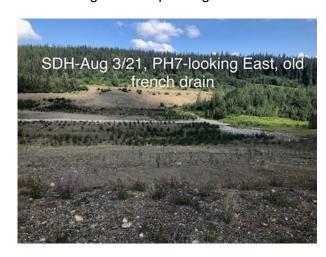
Photo Hub 7 – Reclaim Pond



August 2015 planting



July 2020



August 2021



August 2022

Photo Hub 8 – Burnick, GP-6, and MW13-06



July 2016



August 2021



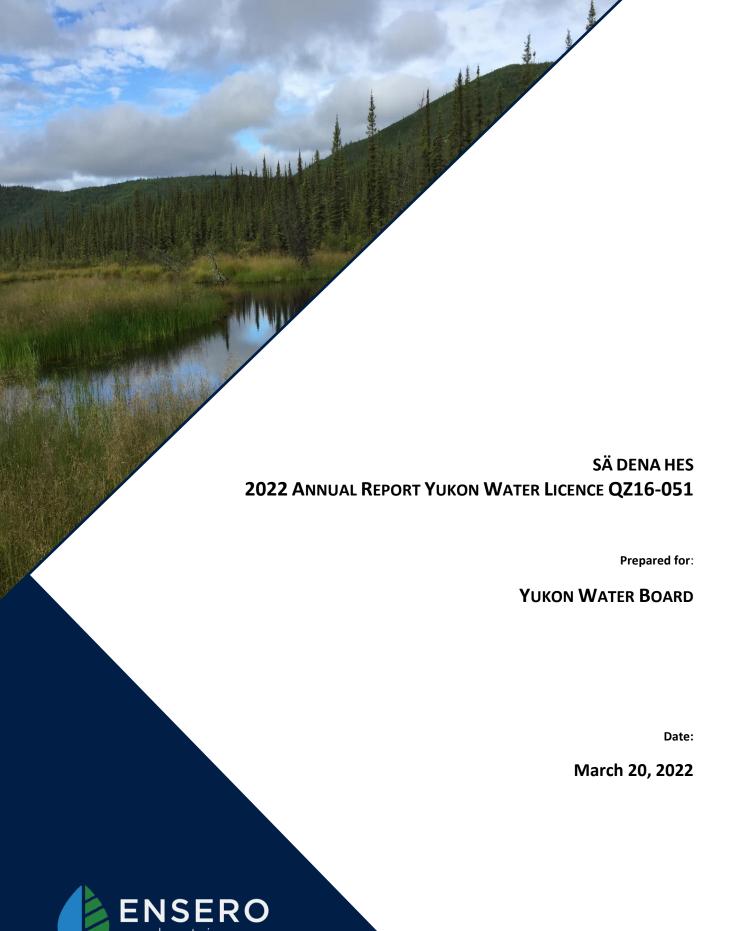
July 2020



August 2022

Attachment 2

Sä Dena Hes – 2022 Annual Report Yukon Water Licenses QZ16-051 dated March 2023, prepared by Ensero Solutions (electronically submitted as separate file)





Yukon Water Board attn.: Chairperson Y106-419 Range Road Whitehorse, YT

Dear Chairperson:

Regarding:

On behalf of Sä Dena Hes Operating Corporation c/o Teck Resources Limited and in accordance with Water Use Licence QZ16-051 Part H Clause 65 please find attached the required report for 2022 for the Sä Dena Hes Mine.

If you have any questions regarding this report, please contact the undersigned at (867) 335-0798.

Sincerely,

Ensero Solutions

Kalina Malowany, M.Sc, P.Geo. Senior Hydrogeologist



DISTRIBUTION LIST

# of copies	Company/Agency name
1	Teck Resources Limited
1	Yukon Water Board

REVISION HISTORY

Revision Date:	Issued By:	Revision Status:	Description:

ENSERO SOLUTIONS CANADA LTD. SIGNATURES

	Olex My	
Report prepared by:		3/22/2023
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	Junior Environmental Scientist	
Report reviewed by:	Zdim Malacary	3/22/2023
	Kalina Malowany, M.Sc, P.Geo.	

Senior Hydrogeologist



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LIST OF ACRONYMS

Acronym	Description
AMP	Adaptive Management Plan
ВСМоЕ	British Columbia Ministry of Environment
CCME	Canadian Council of Ministers of the Environment
DDRP	Detailed Decommissioning and Reclamation Plan
EMSRP	Environmental Monitoring Surveillance and Reporting Plan
Ensero	Ensero Solutions
MAC	Maximum Acceptable Concentration
masl	Meters above Sea Levl
MDL	Method Detection Limit
PQL	Practical Quantitative Limit
QA/QC	Quality Assurance / Quality Control
RPD	Relative Percent Difference
SDH	Sa Dena Hes
SDHOC	Sa Dena Hes Operating Corp
Teck	Tech Resources Limited
TSS	Total Suspended Solids
WUL	Water Use Licence
YCSR	Yukon Contaminated Sites Regulations
YG	Government of Yukon



1 Introduction

The Sä Dena Hes (SDH) property is the site of a former lead-zinc mine that operated from 1991 to 1992. The property is located 45 km north of Watson Lake (Figure 2-1) in the Yukon Territory and is owned by the Sä Dena Hes Operating Corporation (SDHOC) which is a joint venture between Teck Resources Limited (Teck) and Pan-Pacific Metal Mining Corp., a wholly owned subsidiary of Korea Zinc. Teck is the operator under the joint venture agreement for the site.

The Yukon Waterboard regulates water management of mine sites within Yukon Territory with site-specific Water Use Licences. Water Use Licence QZ16-051 (Appendix A) addressing permanent closure came into effect on April 1, 2017. A requirement of QZ16-051 is that annual reports addressing the terms of the licence be submitted to the Water Board. Ensero Solutions (Ensero) was retained by Teck to prepare the 2022 report.

As per clause 65 of QZ16-051, this annual report provides the following information about the water quality and environmental monitoring work conducted at SDH. The 2022 annual report includes discussion on water quality data from the surface water and groundwater programs; updates on any major post-reclamation maintenance work carried out at the SDH property; documentation of activities carried out at the site including the 2022 Aquatic Resources Monitoring Program, which was required by the Environmental Monitoring, Surveillance and Reporting Plan EMSRP; Teck, 2017); additional reporting on the AMP; and updates to the Physical Monitoring Program conducted at the North Dam Tailings Storage Facility as well as any recommendations and/or actions that were implemented.

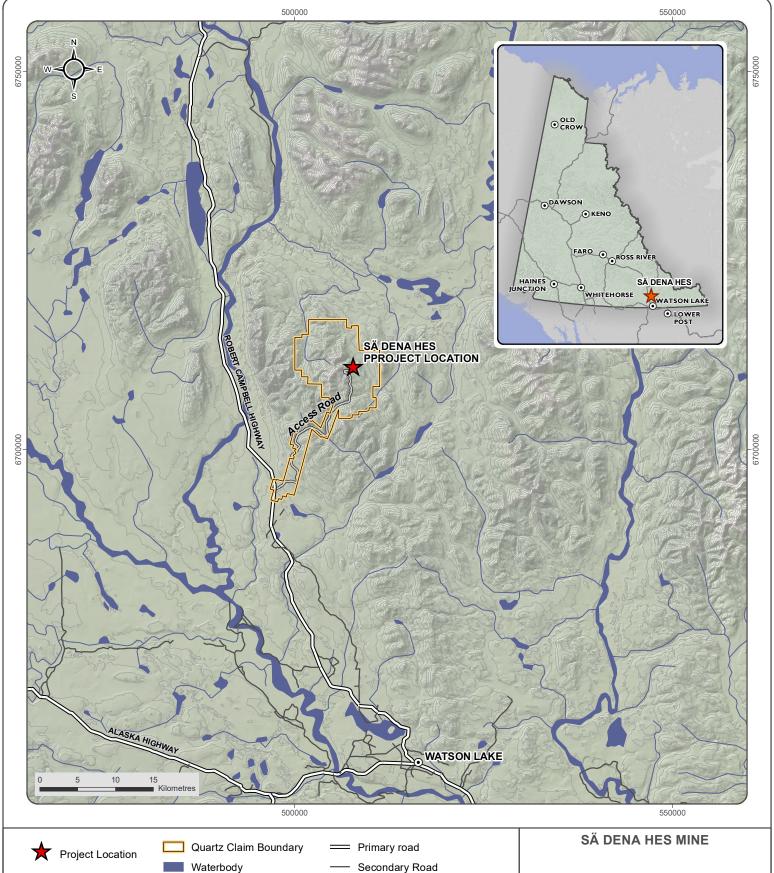


2 CLOSURE STATUS

The SDHOC c/o Teck submitted notice to begin "Permanent Closure" to the Ministry of Energy, Mines and Natural Gas on February 17, 2012. The Detailed Decommissioning and Reclamation Plan (DDRP; Teck 2012, 2013) was revised to plan for permanent closure. Permanent closure and decommissioning activities were carried out in 2014 and in 2015. A final DDRP was submitted in August 2015 (Teck, 2015) to account for amendments issued in 2014 and 2015. In 2015, Teck amended the Quartz Mining Licence (QML-0004), which expires on December 31, 2040. The status of the site is Permanent Closure and Reclamation.

Reclamation activities at SDH were completed in 2015 and all reclamation activities have been documented in the submissions.

Environmental Monitoring and Adaptive Management Planning are part of a comprehensive system of identifying and managing potential adverse effects through the post-reclamation phase of the SDH Mine. Post-reclamation environmental monitoring, physical/geotechnical inspections, and maintenance of constructed/engineered structures are undertaken at the site in the post-closure period as described in the Environmental Monitoring, Surveillance and Reporting Plan (EMSRP; Teck, 2017) and WUL QZ16-051.





Access Road

Topographic Contour (200ft)

National topographic Data Base (NTDB) compiled by Natural Resources Canada at a scale of 1:50,000. Reproduced under license from Her Majesty the Queen, as represented by the Minister of Natural Resources Canada. All rights reserved.

Datum: NAD 83; Projection: UTM Zone 9N



Community

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Watercourse



FIGURE 2-1 **PROJECT LOCATION**

JANUARY 2023

D:Project/AllProjects\Sa_Dena_Hess\GIS\Maps\01-Overview_Maps\Project_Overview|Project_Overview_Itr_20230126.mxd (
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3 WATER QUALITY MONITORING

The Water Quality Monitoring Program is a key monitoring program for the post-reclamation condition of the SDH mine site, and includes licensed monitoring for the Water Use License (WUL) QZ16-051 and the Adaptive Management Plan for the site (Teck, 2018; Alexco, 2018). The water monitoring program includes monitoring of the mine discharge sources, downstream stations which are potentially influenced by mine discharge (compliance stations), and downstream reference stations which are not influenced by mine discharge. Ensero was retained by Teck to conduct the water quality monitoring and quarterly reports.

3.1 WATER USE LICENCE QZ16-051

3.1.1 SURFACE WATER

The SDH mine is divided into three catchments, based on their loading sources: North Dam Seepage, Burnick Portal and 1380 Portal. Along each of these sources, metal loading occurs by infiltrating into the ground, then travels along groundwater flow paths, until they reach surface water features downstream. Under the current water licence, ten surface water monitoring stations are sampled bi-monthly, amongst the three catchments (Table 3-1).

Stations MH-11 (Upper False Canyon Creek), MH-12 (East Fork of Tributary E), and MH-15 (West Fork of Tributary E) are compliance points and are monitored against the receiving water quality standards of the WUL (Table 3-2). The conceptual loading flowpaths from these stations are presented in Figure 3-2.

The following mine discharge source monitoring stations are part of the surface water program and monitored under the AMP, but do not have specific water quality standards under the WUL.:

- MH-02 (North Dam seepage);
- MH-22 (Burnick 1200 Portal discharge); and
- SDH-S21 (1380 Portal discharge as seep in the downslope waste rock dump).

Additional surface water monitoring stations located downstream of the mine site are also part of the monitoring program to detect potential changes to baseline water quality but are not compared to any specific water quality standards under the AMP or the WUL. These comprise of:

- MH-13 (False Canyon Creek 10 km downstream of the former reclaim pond);
- MH-04 (Camp Creek headwaters above former reclaim pond);
- MH-29 (Access Creek upstream of Camp Creek); and
- MH-30 (unnamed tributary upstream of False Creek Canyon).

¹ In the past (2001 to 2014), the Main Zone 1380 Portal (MH-25) monitored the discharge. It can no longer be sampled since it was decommissioned during closure. SDH-S2 is sampled instead of MH-25, as it receives drainage from the 1380 Portal. It is present as a seep in the waste rock downslope of the portal.



Table 3-1: Surface Water Stations monitored in 2022

Monitoring Station	Station Category	Catchment	Applicable Standard or Threshold for Comparison
MH-11		1380 Portal	
MH-12	WUL Compliance	North Dam Seepage	WUL AMP
MH-15		Burnick Portal	
MH-02		North Dam Seepage	
MH-22	Discharge	Burnick Portal	АМР
SDH-S2		1380 Portal	
MH-04		1380 Portal	
MH-13		1380 Portal	No required standard or
MH-29	Additional Stations	Background	threshold for comparison
MH-30		Background	

The receiving water quality standards are compiled in Part F of the WUL (Teck, 2018) and summarized in Table 3-2. In this report, the water quality measured at the collection points, where the WUL does not apply, are compared to the generic Canadian Council of Ministers of the Environment water quality guidelines (CCME, 2019) for the protection of aquatic life and the British Columbia Ministry of Environment water quality guidelines for the protection of aquatic life (BCMOE, 2021) for reference purposes only.

Table 3-2: QZ16-051 Receiving Water Quality Standards for MH-11, MH-12, and MH-15

Parameter	Maximum Concentration in a Grab Sample
Aluminum, dissolved	if pH \geq 6.5 = 0.05 mg/L if pH $<$ 6.5 = e[1.6 - 3.327(median pH)+0.402(median pH)^2]
Antimony, total	9 μg/L
Arsenic, total	5 μg/L
Beryllium, total	0.13 μg/L
Cadmium, dissolved	= e^[0.736 x ln(hardness) - 4.943) in μg/L
Chromium VI, total	1 μg/L
Cobalt, total	4 μg/L
Copper, total ¹	if hardness \leq 50 mg/L = 2 μ g/L if hardness $>$ 50 mg/L = 0.04 x (hardness) (in μ g/L)
Iron, total ²	1 mg/L
Lead, total ³	MH-12/MH-15 (μ g/L) = {3.31 + e^[1.273 x ln(hardness) -4.704]} MH-11 (μ g/L) = 1.928 x {3.31 + e^[1.273 x ln(hardness) + 1.06]}
Molybdenum, total	0.073 mg/L
Nickel, total	if hardness \leq 60 mg/L or unknown = 25 µg/L if hardness > 60 mg/L and \leq 180 mg/L = {e^[0.76 x ln(hardness) + 1.06]} (µg/L) if hardness > 180 mg/L = 150 µg/L
Selenium, total	2 μg/L
Silver, total	0.25 μg/L



Parameter	Maximum Concentration in a Grab Sample			
Sulphate, total	if hardness \le 30 mg/L = 128 mg/L if hardness $>$ =30 mg/L and \le 75 mg/L = 218 mg/L if hardness $>$ 75 mg/L and \le 180 mg/L = 309 mg/L if hardness $>$ 180 mg/L = 429 mg/L			
Thallium, total	0.8 μg/L			
Zinc, total ³	MH-12/MH-15 if hardness $\leq 90 \text{ mg/L} = 7.5 \text{ μg/L}$ if hardness $\geq 90 \text{ mg/L} = \{7.5 + 0.75 \text{(hardness - 90)}\} \text{ μg/L}$ $ \text{MH-11} $ if hardness $\leq 90 \text{ mg/L} = 18.75 \text{ μg/L}$ if hardness $\geq 90 \text{ mg/L} = \{2.5 \text{ x } [7.5 + 0.75 \text{ (hardness - 90)}]\} \text{ μg/L} $			

Hardness is measured in mg/L CaCO₃

The 2022 monitoring schedule was designed to meet the requirement of Water Use Licence (WUL) QZ16-051, which came into effect on April 1, 2017. Table 3-3 shows the sampling effort for 2022 by month for the surface water quality stations. In addition to the WUL monitoring, additional surface water samples were collected at MH-02 and MH-12 in June 2022 as part of an additional environmental plan, in response to an area of surface erosion that was identified on the north embankment of the North tailings storage dam. Further details are discussed in Section 3.1.1.1 and attached as Appendix F.

Table 3-3: Routine WUL Monitoring Surface Water Samples Collected, 2022

	Feb	Apr	Jun	Aug	Oct	Dec	Total Samples 2022
MH-02	_ 1	Sampled	Sampled	Sampled	Sampled	Sampled	5
MH-04	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	6
MH-11	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	6
MH-12	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	6
MH-13	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	6
MH-15	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	6
MH-22	_ 3	_ 2	Sampled	Sampled	Sampled	Sampled	4
MH-29	Sampled	Sampled	Sampled	Sampled	Sampled	Sampled	5
MH-30	Sampled	Sampled	_ 4	_ 4	Sampled	Sampled	4
SDH-S2	_ 4	_ 4	Sampled	_1	_1	_ 4	1

^{1.} Dry/Frozen

3.1.1.1 NORTH DAM EROSION REPAIR MONITORING

In addition to the regular WUL monitoring, an environmental monitoring plan was prepared and implemented following an area of surface erosion which was identified on the north embankment of the North tailings storage facility on June 17, 2022. Additional water quality monitoring in response to the North Dam erosion was undertaken

 $^{^{1}}$ Standard for Copper during month of May is 4 μ g/L if hardness ≤ 50 mg/L or 0.08 x [hardness] if hardness > 50 mg/L

² Standard for Iron during month of May is 3.9 mg/L

³ Apply to dissolved fraction when TSS is 4 mg/L or higher

^{2.} Could not complete due to extreme weather conditions

^{3.} Not accessible in winter due to avalanche risk

^{4.} Inaccessible due to flooding



at the north dam seepage (MH-02) and the downstream receiving environment (MH-12) to monitor the effectiveness of the repair activities.

It was determined that the impacted material was dam embankment material only and no release of tailings from the impoundment occurred. The 'sand and gravel' eroded material flowed to the valley bottom, with most of the displaced mass retained above the MH-02 seepage monitoring station (located approximately 35 m downstream of the dam toe), with minor amounts of sediment deposition visible at the outlet of the former eastern diversion channel.

The Natural Resources Inspector was also notified of the event and proposed repair work.

As part of the repair work, an environmental monitoring plan was prepared and implemented during construction:

- Sediment and erosion control measures included:
 - Try to avoid working under wet/flowing conditions.
 - o Install sediment controls including silt fencing below the work area. The fencing must be secured so that water and sediment could not bypass the area (flow under or around).
 - Ongoing maintenance shall be conducted, if/when required, and removal of any accumulated sediments shall occur prior to removal of the dam(s); and
 - o Oil absorbent spill booms should also be available on site in case of releases to water.
- Water quality monitoring locations are relevant to the erosional event included:
 - o MH-02 Source sampling location -- North Tailings Dam Seepage
 - MH-12 -Compliance sampling location located at the East Fork of Tributary E of False Canyon
 Creek, approximately 2 km downstream of the north tailings dam

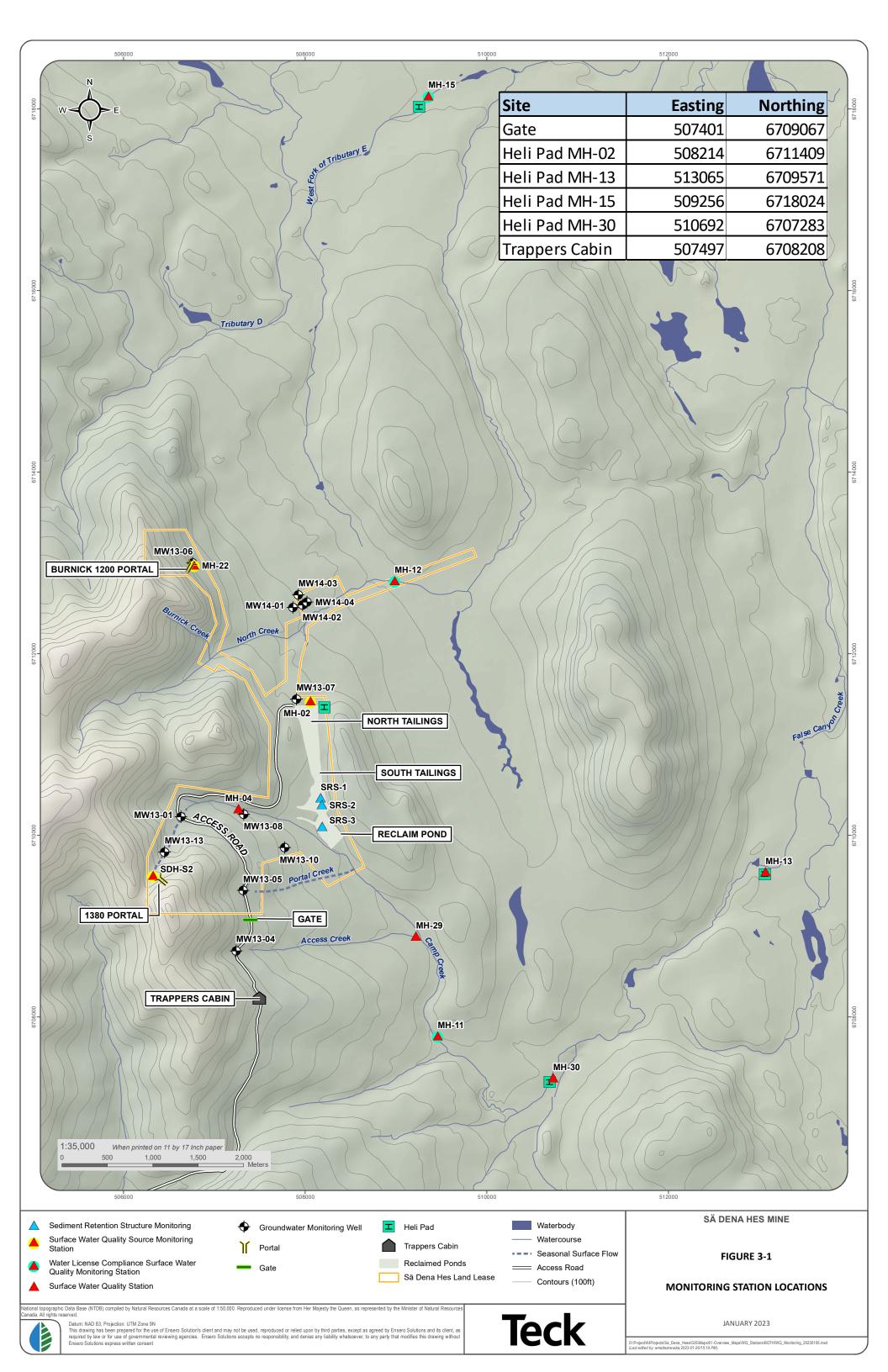
Prior to commencement of repair activities, baseline water quality sampling at MH-02 was conducted on June 17th-19th and at MH-12 on June 21st for the following parameters:

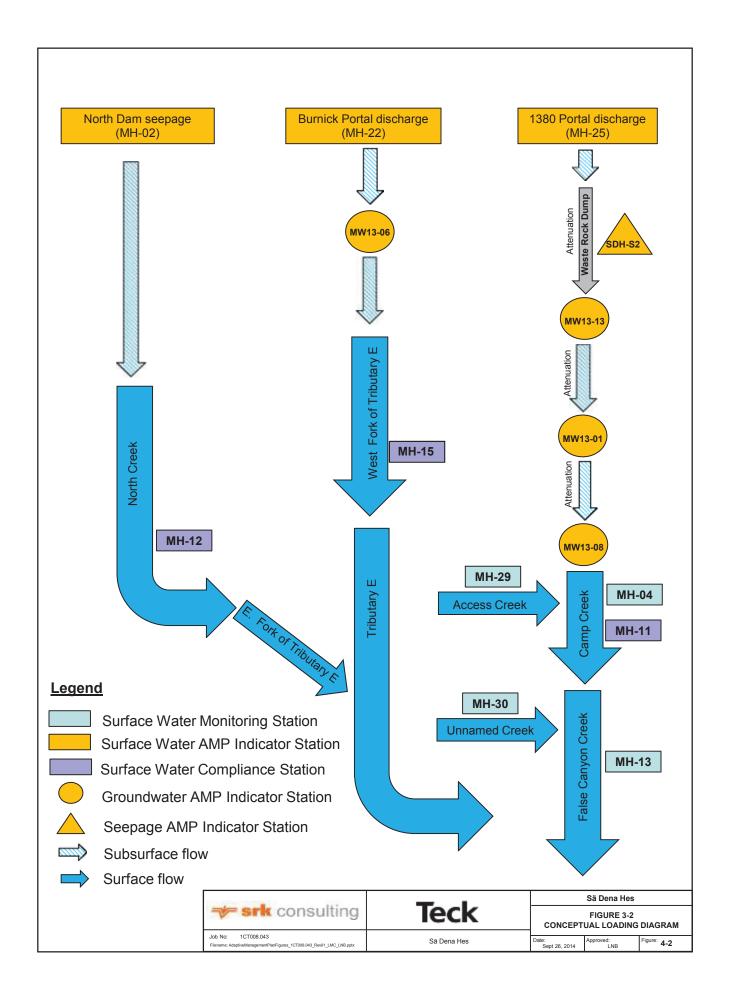
- Field parameters; and
- Laboratory analysis of physical parameters (pH, specific conductance, total alkalinity, TSS, TDS, hardness) and analytical parameters (anions and nutrients, dissolved organic carbon, total and dissolved metals, and total hexavalent chromium).

The following observations were made during all the water quality sampling events conducted as part of this program:

- Mine source water quality parameters measured at station MH-02 were below the specific thresholds (ST), as defined by the adaptive management plan (AMP).
- All constituents were below the Receiving Water Quality Standards (QZ16-051 Clause 40) at receiving environment station MH-12.
- Estimated flow volume and turbidity were measured at MH-02 and MH-12 at least 3 times per day. Photographs, weather conditions, and appearance were recorded.

A detailed memo describing the event, repair and monitoring activities was provided with the 2022 Q2 Quarterly Report, submitted on September 9, 2022 and is attached as Appendix F. Based on the additional results there were no measured changes to the receiving water quality. Additional information regarding the geotechnical work completed is provided in Section 5.







3.1.2 GROUNDWATER

There are three post-reclamation groundwater monitoring programs as part of the EMSRP. The first is designed to monitor downgradient of mine-influenced loading sources. These mine loading monitoring wells are located along the flow path of the 1380 Portal and Burnick Portal mine sources and are used to help determine if mine source water quality is deteriorating. The second groundwater monitoring program is the contaminated sites regulatory monitoring (CSR monitoring), which monitors wells that were installed downgradient of where soil contamination has been identified and used to detect if a hydrocarbon plume or metal leaching is present from the soil contamination areas. If presence of hydrocarbons or metal leaching is detected in a CSR monitoring well, it will ultimately impact surface water quality prior to compliance sites MH-11 and MH-12. The third groundwater monitoring program is the landfill monitoring wells, used to monitor the landfill area. The locations and rationale for each location are summarized in Table 3-4.

Table 3-4: Groundwater Monitoring Program Summary

Station ID	Station Description	Monitoring Program - Purpose					
Mine source flow path groundwater monitoring wells							
MW13-01	Jewelbox/Main Zone – in 1380 Gully, downgradient of 1380 Portal.	To monitor groundwater flow and quality from Jewelbox/Main Zone towards Camp Creek.					
MW13-06	Burnick 1200 Portal	To monitor groundwater flow and quality from Burnick Zone.					
MW13-08	Downgradient of 1380 Portal	To monitor groundwater flow and quality from Jewelbox/Main Zone towards Camp Creek					
MW13-13	Downgradient of 1380 Portal	To monitor groundwater flow and quality from Jewelbox/Main Zone towards Camp Creek					
Contaminated site	e assessment groundwater monitoring wells						
MW13-04	Main Access Road	Background reference well					
MW13-05	Main Access Road – south of the Mill Site on the Main Access Road.	To monitor groundwater flow and quality from Jewelbox/ Main Zone.					
MW13-07	North Dam – north of the North Dam and tailings pond area.	To monitor groundwater flow and quality from the tailings pond area.					
MW13-10	Mill site - northeast of the Mill Site	To monitor groundwater flow and quality from the Mill Site and Jewelbox/ Main Zone.					
Landfill groundwa	ter monitoring wells						
MW14-01	In proximity to the landfill.	Background reference well for the landfill					
MW14-02	In proximity to the landfill.	To monitor groundwater flow from the landfill.					
MW14-03	In proximity to the landfill.	To monitor groundwater flow from the landfill.					
MW14-04	In proximity to the landfill.	To monitor groundwater flow from the landfill.					

All groundwater stations are visited and sampled on a quarterly basis. The 2022 monitoring schedule was designed to meet the requirement of Water Use Licence (WUL) QZ16-051, which came into effect on April 1, 2017. Table 3-5 shows the sampling effort for 2022 by quarter for the groundwater quality stations.



Table 3-5: Groundwater Samples Collected in 2022

	Q1 (Feb)	Q2 (Jun)	Q3 (Aug)	Q4 (Oct)	Total Samples 2022
MW13-01	Sampled	Sampled	Sampled	Sampled	4
MW13-04	-1	Sampled	Sampled	_1	2
MW13-05	_1	Sampled	— 2	_1	1
MW13-06	_3	Sampled	Sampled	Sampled	3
MW13-07	Sampled	Sampled	Sampled	Sampled	4
MW13-08	Sampled	Sampled	Sampled	Sampled	4
MW13-10	Sampled	Sampled	Sampled	Sampled	4
MW13-13	— 3	Sampled	Sampled	Sampled	3
MW14-01	_2	Sampled	Sampled	Sampled	3
MW14-02	_1	Sampled	Sampled	Sampled	3
MW14-03	_1	_1	Sampled	Sampled	2
MW14-04	Sampled	Sampled	Sampled	Sampled	4

^{1.} Dry

3.2 ADAPTIVE MANAGEMENT PLAN

The Water Use Licence QZ16-051 required the submission of an updated Adaptive Management Plan (AMP) to the Yukon Water Board. A requirement of the water licence QZ16-051 is that the annual report include a detailed assessment of the parameters being measured at AMP indicator stations and identification of any additional indicator parameters that should be incorporated into the AMP. The AMP (Appendix B) was prepared by Alexco Environmental Group and submitted in June 2017 (Alexco, 2017) and revised in February 2018 due to transcription errors detected in 2017 (Alexco, 2018; Teck, 2018).

The AMP is a critical component for evaluating and responding to emerging or changing conditions on site. The AMP describes a means of interpreting data to indicate if water quality is changing from conditions observed over the past 20 years. The plan also describes when and how changes in water quality necessitate a response. The AMP outlines the conceptual geochemical model and associated risks and identifies monitoring stations, specific indicators, and associated numerical water quality specific performance thresholds. If a specific performance threshold is exceeded, the AMP outlines the required responses.

Receiving environment surface water quality, mine source water, and groundwater quantity and quality are the AMP components that have been identified as having the potential for unexpected conditions during the post-reclamation period for which the DDRP may not provide adequate mitigation against potential effects to the environment or human health and safety. Any activities carried out at the site under the DDRP or the AMP are included in the Annual Report, as well as any updates to the AMP.

The objective of the mine source flow path AMP monitoring program is to detect changes from existing conditions that may have the potential to adversely affect receiving aquatic environments. Water quality is monitored to observe any potential changes indicative of loading from the North Dam, Burnick Portal, and 1380 Portal. The mine source AMP indicator stations include the North Dam Seepage (MH-02), Burnick 1200 Portal Discharge (MH-22), and the 1380 Portal drainage present as a seep in the downgradient waste rock dump (SDH-S2).

^{2.} Insufficient water volume to sample

^{3.} Site inaccessible



The specific indicators used to detect changes from existing conditions are cadmium, lead, zinc, and sulphate. Stations MH-02 and MH-22 have specific performance thresholds for sulphate and total cadmium, lead, and zinc. Stations MH-11, MH-12, and MH-15 have specific performance thresholds for sulphate, total lead and zinc, and dissolved cadmium. Stations SDH-S2, MW13-01, MW13-08, and MW13-13 have specific performance thresholds for sulphate and dissolved cadmium, lead, and zinc. Station MW13-06 has specific performance thresholds for dissolved cadmium, lead, and zinc. A summary of AMP specific indicators and performance thresholds is presented in Table 3-6 and are described further in Appendix B.

All the stations monitored under the AMP are included in the water licence monitoring requirements. Instances where the AMP was triggered in 2022 are presented in Table 3-9: and Table 3-10:, and discussed in Section 3.5 for each of the three mine sources, landfill groundwater monitoring, and contaminated sites groundwater monitoring.



Table 3-6: AMP summary of Monitored Stations and Parameters

AMP Reference	Station	Parameter Monitored	ST1	ST2	ST3	ST4		
		Zn-T	0.40 mg/L	0.48 mg/L				
	N411 02	Cd-T	0.014 mg/L	0.016 mg/L				
	MH-02	Pb-T	0.006 mg/L	0.007 mg/L				
		SO ₄	600 mg/L	720 mg/L				
		Zn-T	2.3 mg/L	2.7 mg/L				
Mine Source Water	MH-22	Cd-T	0.011 mg/L	0.013 mg/L		n/a		
Quality, Table 2-2.	IVIH-22	Pb-T	0.05 mg/L	0.06 mg/L		II/ a		
		SO ₄	134 mg/L	161 mg/L				
		Zn-D	15.3 mg/L	18.3 mg/L				
	SDH-S2	Cd-D	0.13 mg/L	0.15 mg/L				
	3DH-32	Pb-D	0.51 mg/L	0.61 mg/L				
		SO ₄	290 mg/L	348 mg/L				
		Zn-D		0.5 mg/L	A sustained increase in	n/a		
	MW13-01	Cd-D		0.005 mg/L				
Mine Loading	MW13-08	Pb-D		0.035 mg/L				
Source Discharge		SO ₄		55 mg/L				
Wells – Camp		Zn-D	3 consecutive	0.5 mg/L				
Creek, Table 2-5.	MW13-13	Cd-D	monitoring results with	0.02 mg/L				
	1010013-13	Pb-D	progressively increasing	0.035 mg/L	concentration over 3			
		SO ₄	concentrations	110 mg/L	sampling events that			
		Zn-D	or 4 of the last 6	0.5 mg/L	has resulted in a concentration increase			
		Cd-D	monitoring events show	0.001 mg/L	greater than the ST2			
Mine Loading		Pb-D	progressively increasing	0.015 mg/L	levels.			
Source Discharge Wells – West Fork of Tributary E, Table 2-5.	MW13-06	SO ₄	concentrations.	No concentration threshold. The source (MH-22) concentration is less than well (MW13-06) concentration				

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AMP Reference	Station	Parameter Monitored	ST1	ST2	ST3	ST4
		Cd-D ¹ Pb-D ¹ Zn-D ¹	75% of calculated WUL Effluent Quality Standard (EQS)	90% of calculated WUL Effluent Quality Standard (EQS	2 consecutive ST2 exceedances or a single exceedance of WUL EQS	2 consecutive exceedances of WUL EQS
Receiving Environment Surface Water	MH-11 MH-12	SO ₄ (75>Hardness ≤180mg/L)	232 mg/L	278 mg/L	2 consecutive ST2 exceedances or a single exceedance of WUL EQS (309 mg/L)	2 consecutive exceedances of WUL EQS (309 mg/L)
and 2-9.	Quality, Table 2-8 MH-15 and 2-9.	SO ₄ (Hardness > 180mg/L)	322 mg/L	386 mg/L	2 consecutive ST2 exceedances or a single exceedance of WUL EQS (429 mg/L)	2 consecutive exceedances of WUL EQS (429 mg/L)
		TSS	MH-30 TSS + 10 mg/L	MH-30 TSS + 20 mg/L	MH-30 TSS + 25 mg/L	n/a
		Cd-D ¹	Two consecutive samples exceeding: 0.075-0.45 µg/L	Two consecutive samples exceeding: 0.09-0.54 µg/L	A single exceedance of: 0.1-0.6 μg/L	
		Pb-D ¹	Two consecutive samples exceeding: 30-120 μg/L	Two consecutive samples exceeding: 36-144 µg/L	A single exceedance of: 40-160 μg/L	
Landfill	MW14-01	Zn-D ¹	Two consecutive samples exceeding: 56.25-1800 µg/L	Two consecutive samples exceeding: 67.5-2160 µg/L	A single exceedance of: 75-2400 μg/L	n/a
Groundwater	MW14-02	Hydrocarbons	Refer	to Table 3-3 of the AMP (AEG,	, 2018)	.,, &
Quality, Table 3-2, MW14-03 3-3, 3-4 and 3-5 MW14-04	Groundwater Elevation	Water table measurements are within 3.5 m of the base of the landfill for 2 sampling events at one or both indicator wells.	Water table measurements are within 3.5 m of the base of the landfill for 3 consecutive sampling events (scheduled or re sampled) at all the indicator wells.	Water table measurements are within 3.0 m of the base of the landfill for 1 sampling event (scheduled or re-sampled) at all the indicator wells.		
General Site Groundwater	MW13-05 MW13-07	Cd-D ¹	Two consecutive samples exceeding: 0.075-0.45 μg/L	Two consecutive samples exceeding: 0.09-0.54 µg/L	A single exceedance of: 0.1-0.6 μg/L	n/a
Quality, Table 3-7	Quality, Table 3-7 MW13-10	Pb-D ¹	Two consecutive samples exceeding:	Two consecutive samples exceeding:	A single exceedance of: 40-160 μg/L	



AMP Refere	nce Station	Parameter Monitored	ST1	ST2	ST3	ST4
			30-120 μg/L	36-144 μg/L		
		Zn-D ¹	Two consecutive samples exceeding: 56.25-1800 μg/L	Two consecutive samples exceeding: 67.5-2160 µg/L	A single exceedance of: 75-2400 μg/L	
		Hydrocarbons	Refer to Table 3-3 of the AMP (AEG, 2018)			

¹Value is dependent on hardness



3.3 METHODOLOGY

At each of the surface water monitoring stations, *in situ* field measurements were made prior to sampling at each surface water station. Field parameters (pH, specific conductance (SPC), oxidation-reduction potential (ORP), dissolved oxygen (DO) and temperature) were measured and recorded at each station using a calibrated YSI Professional Plus multimeter to assess *in situ* water chemistry. Lab results are presented in Appendix C. *In situ* measurements are presented along with the analytical data in Appendix D.

Water quality samples were collected in accordance with Canadian Council of Ministers of the Environment (CCME) *Proposals for Manual Water Quality Sampling in Canada* (CCME, 2011). Clean nitrile gloves and sample bottles provided by the analytical laboratory specific to the analytes being tested were used. Dissolved metals, dissolved mercury and dissolved organic carbon (DOC) water samples were filtered using a 0.45 µm syringe filter in the field at the time of sample collection. During the winters, sub-zero temperatures made it impossible to field filter the dissolved samples, due to the water freezing in the syringe. During these months, an additional sterile lab bottle is provided to collect additional water to filter in a warm environment at the day's end. Preservatives were added to the sample bottles for the analysis of total and dissolved metals, total and dissolved mercury, TOC, DOC, and nutrients, as directed by the analytical laboratory (ALS Environmental [ALS]). Samples were kept in coolers with ice packs and sent to ALS, Burnaby, BC for analysis with an accompanying chain of custody form specifying the analyte(s) to be tested.

Groundwater quality samples were collected after a minimum of three well volumes were purged from the well. If, during a trip, a groundwater well is dry before three well volumes are fully purged, then they are sampled once they recharge as it is understood that the stagnant water in the well has been successfully purged. All monitoring wells were purged using dedicated WaterraTM tubing for each well to avoid cross-contamination between wells, either using a Powerpack[™] or Hydrolift[™] actuating pump, or hand purge method. Field parameters (pH, SPC, ORP, DO and temperature) were noted regularly throughout the purging process using a calibrated YSI Professional Plus multimeter to assess water chemistry stabilization. Field parameters were recorded once the parameters stabilized, then water quality samples were collected. A copy of field parameter measurements recorded after stabilization is available in Appendix D. Standard practice sampling methods were followed to maintain sample integrity: clean, disposable nitrile gloves were worn during collection and only sample bottles provided by the analytical laboratory, specific to the analytes being tested were used. Dedicated tubing was used at each monitoring well location. Dissolved metals, dissolved mercury and DOC water samples were filtered using a 0. 45 µm syringe filter or 0. 45 µm in-line high turbidity filter in the field at the time of sample collection when possible or immediately upon return from the field each evening during freezing conditions. Preservatives were added to the sample bottles for the analysis of dissolved metals, dissolved mercury, DOC and nutrients, as directed by the analytical laboratory (ALS). Samples were kept cool in coolers with ice packs and sent to ALS, Burnaby, BC for analysis with an accompanying chain of custody form specifying the analytes to be tested.



3.4 QUALITY ASSURANCE/ QUALITY CONTROL PROGRAM

The monitoring program included a comprehensive quality assurance and quality control (QA/QC) program to verify validity of the data collected, including data quality objectives and documentation of sample variability due to natural variability and analytical variability. The QA/QC program included the following:

- All field staff followed work methods for surface water and groundwater monitoring and sample collection
 that are based on generally accepted best industry practices (CCME, 2011). The sampling procedures
 included measures to avoid sample contamination in the field during sample collection, as well as during
 sample handling and shipping;
- Blind field duplicates collected at a rate of at least one duplicate per 10 samples (10%) during each
 groundwater and surface water event. The field duplicates were linked to one of samples and recorded in
 field notes but were not indicated on the chain of custody forms. Field duplicates were subsequently
 evaluated for variability by evaluating the relative percent difference (RPD);
- Field blanks and trip blanks were collected during each sampling event;
- Following each sampling event, all analytical and QA/QC results received from the laboratory were reviewed to verify data quality and to flag any potential issues (e.g., data quality issues from the information provided by the lab, high ion balance percent difference).

The above QA/QC procedures were followed during every event and data quality objectives were established to evaluate sample variability resulting from natural conditions or as a function of sampling or analytical procedures.

3.4.1 ANALYTICAL VARIABILITY

Laboratory duplicates were used to measure laboratory analytical variability. Results of quality assurance analysis are included in Appendix C within the laboratory reports. All laboratory duplicates met the lab quality control limit of 20% relative percent difference (RPD) for all parameters tested. ALS Environmental also ran analyses on matrix spikes, spiked blanks, and method blanks with internal Data Quality Objectives achieved for all samples ensuring data precision and accuracy.

3.4.2 FIELD VARIABILITY

During the monitoring program, field duplicates were collected to measure field variability between simultaneous grab samples. 18 field duplicates were collected from the 125 samples in 2022. The Relative Percent Difference (RPD) is used to determine variability. RPD was calculated for every analyte of each sample-duplicate couple according to the following formula:

$$RPD (\%) = \frac{\left| \frac{\left(Result_{Sample} - Result_{Replicate} \right)}{\left(\frac{Result_{Sample} + Result_{Replicate}}{2} \right)} \right| \times 100$$

RPD is not considered further where one or both results being compared are less than the practical quantitation limit (PQL). The PQL is five times the Method Detection Limit (MDL) and is defined as the minimum concentration that can be measured within specified limits of precision and accuracy. A constituent with results below the PQL means that the constituent being analyzed is not present in a sufficient amount to be reliably quantified. Typically,



as parameters approach their detection limit, high variability is more likely to occur. Where applicable, the RPD of <25% can be used as a benchmark whereby an RPD greater than 25% warrants further comment or consideration.

The parameters with RPD values greater than 25% that met the PQL are shown in Table 3-7. The RPD range (26% to 106%) is relatively limited and reflects natural variation of the concentration of these parameters at each station rather than laboratory or sampling error. High RPDs typically occur when flows are typically at their lowest or during freshet as there is often a higher amount of silt and sediment that can get unevenly distributed to the samples, often resulting in more interference between replicate samples.

Table 3-7: Parameters with RPD values greater than 25% and met the PQL

Site	Date	Parameter with value greater than 25% that met the PQL	MDL	Parent Sample Result	Dup Sample Result	PQL ¹	RPD
MH-02	06-Apr-22	Total Aluminum	0.003	0.0386	0.0298	9.93	26%
MH-02	27-Jun-22	Dissolved Lead	0.00005	0.000388	0.00066	7.76	52%
MW13-13	29-Jun-22	Dissolved Manganese	0.0001	0.00231	0.00077	7.7	100%
SDH-S2	29-Jun-22	Dissolved Selenium	0.00025	0.00372	0.00266	10.6	33%
MW13-06	29-Jun-22	Dissolved Lead	0.00005	0.000399	0.000821	7.98	69%
MW14-04	30-Jun-22	Dissolved Manganese	0.0001	0.00076	0.00055	5.5	32%
MW13-08	08-Aug-22	Dissolved Manganese	0.0001	0.00051	0.00165	5.1	106%
NAVA (4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	00 4 22	Dissolved Copper	0.0002	0.00119	0.00185	5.95	43%
MW14-03	09-Aug-22	2-Bromobenzotrifluoride	1	84	63.6	63.6	28%
MW13-10	10-Aug-22	Total Suspended Solids	1.5	828	553	369	40%
NAVA/4 A 02	25 0-4 22	Sulphate	0.3	19.8	35.3	66	56%
MW14-03	25-Oct-22	Nitrate	0.005	0.154	0.223	30.8	37%
MH-04	04-Dec-22	Total Manganese	0.0001	0.00095	0.00053	5.3	57%

All values in mg/L unless otherwise stated

3.4.3 FIELD AND TRAVEL BLANKS

Additional field quality control samples include field blanks and trip blanks, where de-ionized water is handled, processed, and analyzed in the same manner as the site water samples. Blanks can provide an indication of sample contamination occurring in the field (field blank) or laboratory (method blanks) and at any point in between (trip blanks). Concentrations of parameters should not be detectable, though a use of a blank reporting threshold of two-times the MDL allows for slight "noise" around the detection limit.

A field blank is processed by taking de-ionized water (analyte free media) to the sample station, opening it, and exposing it to ambient air and 'collecting' it in the sample bottles. These samples are treated the same as the actual water samples, preserved and filtered as necessary, and their analysis can provide an indication of contamination that may be affecting the actual samples. Nine field blanks were analyzed in 2022 for quarterly groundwater and bimonthly surface sampling events. The field blank data are provided in Appendix C. In 2022 ten field blank parameters

¹ PQL of the lowest result is shown for each duplicate.



were detected in concentrations >2x the MDL. Many of these parameters were detected during the April and June 2022 monitoring events.

Trip blanks (sample of de-ionized water) are supplied and prepared by the lab and are intended to accompany the sample bottles provided by the lab for the monitoring program. The trip blank travels with the sample bottles to the sample stations and is returned unopened back to the lab with the collected samples. The purpose of the trip blank is to identify any potential contamination (e.g., cross contamination from other samples or ambient air conditions) to which the samples may be exposed. Five trip blanks were analyzed in 2022 for the February, April, August, October, and December sampling events (Table 3-8). The lab failed to provide a useable trip blank during the June 2022 sampling event. The results of the trip blanks are presented in the laboratory certificates of analysis provided in Appendix C. In 2022, only two trip blank parameters returned results over twice the MDL. Both total suspended solids and ammonia were detected during the August 2022 trip blank.

Overall, the replicate and blank data indicate the data collected in 2022 are suitable for use.

Table 3-8: Field and Trip Blanks Results Greater than Twice the MDL

Site	Date	Analyte	Units	Result	MDL	PQL
Field Blank	10-Feb-22	Total Molybdenum	mg/L	0.000131	0.000050	2.62
Field Blank	07-Apr-22	Dissolved Molybdenum	mg/L	0.00464	0.000050	92.8
Field Blank	07-Apr-22	Dissolved Cadmium	mg/L	0.268	0.050	5.36
Field Blank	07-Apr-22	Dissolved Strontium	mg/L	0.00099	0.00020	4.95
Field Blank	07-Apr-22	Dissolved Barium	mg/L	0.00028	0.00010	2.8
Field Blank	28-Jun-22	Dissolved Molybdenum	mg/L	0.000248	0.000050	4.96
Field Blank	28-Jun-22	Dissolved Lead	mg/L	0.000196	0.000050	3.92
Field Blank	28-Jun-22	Total Ammonia	mg/L	0.0123	0.0050	2.46
Field Blank	28-Jun-22	Dissolved Sodium	mg/L	0.114	0.050	2.28
Field Blank	28-Oct-22	Total Ammonia	mg/L	25.7	1.0	25.7
Trip Blank	11-Aug-22	Total Suspended Solids	mg/L	0.0163	0.0050	3.26
Trip Blank	11-Aug-22	Ammonia	mg/L	0.0486	0.0050	9.72



3.5 RESULTS AND DISCUSSION

The following sections discuss the three mine source flow paths and the two groundwater programs. Each section addresses all three elements required by the WUL (Appendix A):

- WUL exceedances;
- AMP triggers and responses (when applicable); and
- Long-term water quality trends.

WUL exceedances as well as AMP responses are summarised in Table 3-9: and Table 3-10: then discussed in further detail below. All the results from the 2022 monitoring are available in Appendix D. Where constituent concentrations were below the MDL, a value of half the MDL was used for figure plotting purposes.

Clause 65a of licence QZ16-051 states that any variances from baseline conditions or from the previous year's data should be discussed. This section of the report compares the 2022 data to the long-term trends for selected parameters and stations.

For this report, the parameters included in the discussion were selected based on the following rationale:

- pH, sulphate, and total alkalinity as indicators of acid rock drainage, sulphide oxidation, and buffering capacity;
- Hardness this parameter is used to calculate some WUL QZ16-051 water quality standards (e.g., cadmium, copper, lead, nickel, zinc, and sulphate) as well as some AMP thresholds;
- Cadmium² this parameter historically exceeded the licence standard at MH-25 between 2001 and 2014, before the Main Zone 1380 Portal was decommissioned. MH-25 can no longer be monitored, therefore, SDH-S2 has been monitored instead. Cadmium have also regularly triggered the AMP at the groundwater wells;
- Copper this parameter had one exceedance of the Receiving Water Quality Standards Maximum Grab Sample concentration for total copper in the December 2022 monitoring event;
- Lead this parameter had one historical exceedance of the AMP ST2 in 2021 at the North Dam seepage (MH-02) and regularly trigger the AMP ST1 at the groundwater wells; and
- Zinc this parameter had multiple groundwater monitoring wells which have triggered the AMP ST1 in recent years.

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² Cadmium analytical detection limits have decreased over time. Detection limits were higher and more variable before 2005. A few samples had concentrations at 0.002 and 0.003 mg/L prior to 2005. These were not entered as below detection limits in the database but are likely within the range of analytical error of instrumentation. Since 2005, detection limits have been as low as 0.00001 mg/L but occasionally have been higher (0.0001 mg/L) due to matrix effects. The varying limits confound interpretation of long-term trends for stations that have lower cadmium levels (e.g. MH-04 and MH-11).



Table 3-9: WUL Responses for Surface Water in 2022

Station	Date	WUL Exceedance	Response
MH-12	01-Dec-2022	Total Copper – Exceeded the WUL Maximum Allowable Concentration in a Grab Sample.	 Notification Teck Representative/Environmental Monitor completed by email on December 22, 2022 Yukon government inspector notified by email on January 6, 2023 Include in scheduled annual reporting in Section 3.4.3 Review Request Laboratory re-run results – results were confirmed by laboratory re-analysis. Review laboratory QA/QC report: results were validated using internal QA/QC methods. Evaluation Compare with upstream and receiving environment water quality results. This was completed and results discussed in the Q4 report dated January 15, 2023. Results were compared with upstream mine source water quality results. Further monitoring is required to determine if this exceedance is the result of deteriorating water quality at the mine source or if this result is an anomaly. This will be reported on in the next Quarterly Report following the February 2023 monitoring event. Action During next scheduled sampling event conduct a duplicate at monitoring site that exceeded the WUL MAC. Follow-up Follow-up actions are planned for the February 2023 monitoring event.

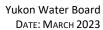


Table 3-10: AMP Responses for Groundwater in 2022

Station	Date	AMP Trigger	Specific Response
MW13-01 – Downstream of Mine Source Groundwater Quality (1380 portal)	Feb 2022	Sulphate - triggered AMP ST1 with three consecutively increasing concentrations	 Notification Teck Representative/Environmental Monitor completed by email on March 23, 2022 Include in scheduled annual reporting in Section 3.4.5 Review Review laboratory QA/QC report: results were validated using internal QA/QC methods Evaluation Compare with upstream and receiving environment water quality results. This was completed and results discussed in the Q1 report dated March 31, 2022. Action During next scheduled sampling event conduct a duplicate at monitoring site that exceeded ST1. Results were compared with upstream and receiving environment water quality results. Follow-up A duplicate was collected at the next sampling event to verify the result in the following monitoring event.
MW13-08 - Downstream of Mine Source Groundwater Quality (1380 Portal)	Feb 2022	Sulphate, Dissolved Lead and Dissolved Zinc - triggered AMP ST1 with three consecutively increasing concentrations.	 Notification Teck Representative/Environmental Monitor completed by email on March 23, 2022 Include in scheduled annual reporting in Section 3.4.5 Review Review laboratory QA/QC report: results were validated using internal QA/QC methods Evaluation Compare with upstream and receiving environment water quality results. This was completed and results discussed in the Q1 report dated March 31, 2022. Action During next scheduled sampling event conduct a duplicate at monitoring site that exceeded ST1. Results were compared with upstream and receiving environment water quality results. Follow-up A duplicate was collected at the next sampling event to verify the result in the following monitoring event.
MW13-01 - Downstream of Mine Source Groundwater Quality (1380 portal)	Jun 2022	Sulphate - triggered AMP ST1 with three consecutively increasing concentrations	Notification Teck Representative/Environmental Monitor completed by email on July 28, 2022 Include in scheduled annual reporting in Section 3.4.5 Review Review laboratory QA/QC report: results were validated using internal QA/QC methods Evaluation Compare with upstream and receiving environment water quality results. This was completed and results discussed in the Q2 report dated August 8, 2022.



Station	Date	AMP Trigger	Specific Response
			Action Results were compared with upstream and receiving environment water quality results. Follow-up • A duplicate was collected at the next sampling event to verify the result in the following monitoring event.
MW13-08 - Downstream of Mine Source Groundwater Quality (1380 Portal)	Jun 2022	Dissolved Cadmium, Dissolved Lead and Dissolved Zinc - triggered AMP ST1 with three consecutively increasing concentrations.	Notification Teck Representative/Environmental Monitor completed by email on July 28, 2022 Include in scheduled annual reporting in Section 3.4.5 Review Review laboratory QA/QC report: results were validated using internal QA/QC methods Evaluation Compare with upstream and receiving environment water quality results. This was completed and results discussed in the Q2 report dated August 8, 2022. Action Results were compared with upstream and receiving environment water quality results. Follow-up A duplicate was collected at the next sampling event to verify the result in the following monitoring event.
MW13-01 - Downstream of Mine Source Groundwater Quality (1380 portal)	Oct 2022	Dissolved Zinc - triggered AMP ST1 with three consecutively increasing concentrations	Notification Teck Representative/Environmental Monitor completed by email on July 28, 2022 Include in scheduled annual reporting in Section 3.4.5 Review Review laboratory QA/QC report: results were validated using internal QA/QC methods Evaluation Compare with upstream and receiving environment water quality results. This was completed and results discussed in the Q4 report dated January 16, 2023 Action Results were compared with upstream and receiving environment water quality results. Follow-up A duplicate was collected at the next sampling event to verify the result in the following monitoring event.
MW13-06 - Downstream of Mine Source Groundwater Quality	Oct 2022	Sulphate - triggered AMP ST1 with three consecutively increasing concentrations.	Notification Teck Representative/Environmental Monitor completed by email on November 28, 2022 Include in scheduled annual reporting in Section 3.4.4 Review Review laboratory QA/QC report: results were validated by internal QA/QC methods. Evaluation





Station	Date	AMP Trigger	Specific Response			
(Burnick			Compare with upstream and receiving environment water quality results. This was completed and			
Portal)			results discussed in the Q4 report dated January 16, 2023			
			Action			
			Results were compared with upstream and receiving environment water quality results.			
			Follow-up			
			A duplicate was collected at the next sampling event to verify the result in the following monitoring			
			event.			

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3.5.1 NORTH DAM SEEPAGE

During operations, tailings were discharged to the North Tailings Impoundment. Currently, there is no ponded water behind the North Tailings Dam. The tailings are saturated within a metre of the surface. Seepage from the toe of the North Dam was routinely monitored at MH-02 as required by the existing WUL QZ16-051. The seepage at MH-02 is tailings porewater that mixes with groundwater from the valley sides and runoff from the North Dam face (SRK, 2000). Seepage from the North Tailings Dam flows throughout the entire year. Flow at MH-02 is highest during freshet and lowest during the winter. The seepage flows above ground for a short distance from the North Dam before infiltrating into the ground. It then flows as groundwater before eventually discharging to North Creek and the headwaters of the East Fork of Tributary E. From the East Fork of Tributary E, the water flows to Tributary E and then to False Canyon Creek. The monitoring stations and conceptual flow path are shown in Figure 3-1 and Figure 3-2. MH-12 is a receiving water quality collection point and located approximately 2 km downstream of the tailings on North Creek.

3.5.1.1 WUL

In 2022, there was one exceedance of the receiving water quality standard in the receiving environment station MH-12 on North Creek. In December 2022, total copper concentrations exceeded the WUL standard (Table 3-2) with a concentration of 0.0176 mg/L. This concentration was confirmed by a laboratory duplicate and re-analysis, following the original distribution of the results. Total copper concentrations at MH-12 have historically been near or below the detection limit (see Figure 3-4), except for one event in April 2015 that was recorded above the WUL Maximum Allowable Concentration (MAC). Since that event, copper concentrations at MH-12 have declined and have been reported near the detection limit (0.00050 mg/L) in recent years. Total copper concentrations at all other surface water stations were below the detection limit in 2022.

During the December sampling event, it was noted that the stream volume at MH-12 was very low. When stream volumes are low, it increases the possibility that surface water samples collect more particulates, which may contain elevated concentrations of trace metals, as it becomes increasingly difficult to avoid disturbing the stream bottom when collecting a water sample. The December MH-12 sample returned TSS concentrations of 5.1 mg/L, which suggests that the presence of particulates in the sample. When comparing the total and dissolved copper concentration reported at MH-12 for December 2022 (Figure 3-4), the total copper concentrations were nearly twice as high as the dissolved concentrations, suggesting that suspended sediment may be skewing the copper concentrations higher. Total copper concentrations in the North Dam source and receiving environment stations, MH-02 and MH-12, respectively, are typically present in concentrations below the analytical detection limit (Figure 3-3 and Figure 3-4). During the December 2022 monitoring event, detectable dissolved copper concentrations were also reported at North Dam outlet station MH-02, but an order of magnitude lower than at the receiving environment. In addition, the copper concentration observed at MH-02 during the December 2022 monitoring event was within the historical range of copper concentrations observed previously at this station (Figure 3-3). Currently, there is not enough data to determine whether the WUL exceedance from MH-12 is the result of deteriorating water quality from mine source station MH-02. Copper concentrations will be closely monitored at this station to determine if copper concentrations are continuing to increase at MH-02 and MH-12, or if this exceedance of the WUL was anomalous.

None of the six surface water samples taken at the receiving water collection point on North Creek (MH-12) in 2022 exceeded the receiving water quality standard for any other parameter prescribed by the water licence (Table 3-11). Table 3-11 presents a summary of select parameters compared to the WUL in 2022. A full list results are compiled in Appendix D.



Table 3-11: MH-12 Select Water Quality Parameters Compared to the WUL, 2021

Station	Data	Hardness	TSS	Dissolved Cadmium	Total Copper	Total Iron	Total Lead	Total Selenium	Total Zinc
	Date	WUL Standard		0.00027 - 0.0034 ¹	0.0064 – 0.0077 ¹	1	0.0081 - 0.011 ¹	0.002	0.43 - 0.84 1
MH-12	05-Feb-22	190	4	0.0000393	<0.00050	0.02	0.000064	0.000862	<u>0.0036</u>
MH-12	05-Apr-22	192	2.8	0.0000346	<0.00050	0.014	0.000188	0.000737	0.013
MH-12	27-Jun-22	138	5.1	0.0000427	<0.00050	0.155	0.00024	0.000658	0.0058
MH-12	09-Aug-22	160	1	0.0000416	<0.00050	0.012	0.000281	0.000579	<0.0030
MH-12	25-Oct-22	181	<1.0	0.0000419	<0.00050	<0.010	0.000084	0.000641	<0.0030
MH-12	01-Dec-22	167	5.1	0.0000422	0.0176	0.044	0.000072	0.000719	<u>0.0054</u>

All units are in mg/L

Values that are underlined indicate that the dissolved fraction was used due to TSS > 4 mg/L.

 $^{^{\}rm 1}$ WUL ranges are based on 2022 hardness (167 mg/L to 192 mg/L)

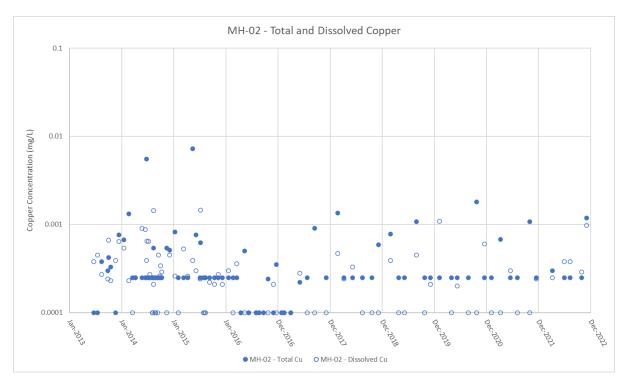


Figure 3-3: MH-02 - Total and Dissolved Copper



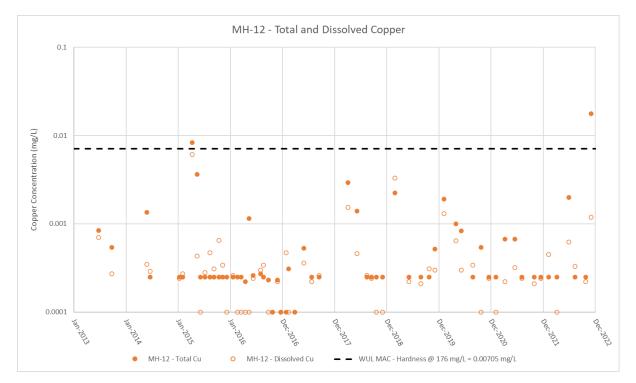


Figure 3-4: MH-12 – Total and Dissolved Copper

3.5.1.2 AMP

This section discusses the comparison of AMP water quality data to the specific performance thresholds for the North Dam Seepage mine source flow path. The objective of the AMP for the North Dam seepage is to detect any deterioration in water quality in the tailings dam seepage and manage and mitigate these changes before any effects are observed in the downstream receiving surface waters. AMP monitoring locations include tailings seepage monitoring at MH-02 located at the toe of the dam and surface water monitoring station MH-12 in North Creek.

Monitoring MH-02 would detect any changes in water quality to the loading source. Downstream of this station, tailings seepage flows as groundwater. Any potential change in surface water quality in the receiving waters would therefore be a function of groundwater reactive transport. In 2022, there were no exceedances of any AMP parameters at either of the North Dam stations.

MH-02 has previously triggered the AMP ST2 thresholds in October 2020 and April 2021. Lead concentrations returned to levels below the AMP specific thresholds in the following sampling events, after these exceedances and it was also noted that TSS concentrations were elevated during these exceedances. In 2022, all lead concentrations were below the AMP specific thresholds.

3.5.1.3 WATER QUALITY TRENDS

Plots showing historical and current surface and groundwater constituent concentrations are available in Appendix E. Below is a discussion of water quality trends in key parameters for the site.

Samples collected in the North Dam seepage MH-02 had pH levels ranging from 7.40 to 8.28, with a 2022 annual average of 7.70, which is consistent with the historical average (2013 to 2021 dataset) of 7.60. The pH for the receiving environment monitoring station MH-12 ranged between 8.07 and 8.42 with an annual average of 8.23,



consistent with the historical average of 7.99. Downstream at MW13-07, the pH had an annual average of 7.54, comparable to the historical average of 7.28.

Alkalinity at MH-02 was as high as 450 mg/L in the 1990s but has since decreased in recent years. In 2022, MH-02 had an average alkalinity of 304 mg/L. Alkalinity at MH-12 in 2021 averaged at 163 mg/L which is in line with the historical average of 165 mg/L. Alkalinity at MW13-07 averaged at 222 mg/L in 2021, compared to the historical average of 229 mg/L.

Sulphate concentrations at the North Dam seepage (MH-02) have remained stable at approximately 300 mg/L since 2002. In 2022, the average sulphate concentration at MH-02 was 294 mg/L, comparable to the historical average of 280 mg/L. At the receiving water monitoring station (MH-12), the 2022 average sulphate concentration was 8.94 mg/L, which is slightly lower than the historical average of 11.5 mg/L. Sulphate at MW13-07 averaged at 30.4 mg/L in 2021, which was lower than the historical average of 39.1 mg/L. In 2022, sulphate concentrations at MW13-07 were consistently between 29 and 31 mg/L, however historically, concentrations have reached as high as 56 mg/L (in 2014). Sulphate concentrations at MW13-07 have shown a gradual decrease from 2014 to 2021 and appear to have stabilised in 2022.

North Dam Seepage (MH-02) total hardness has historically ranged between 200 mg/L and 744 mg/L, with a historical average of 550 mg/L, which is comparable to the 2022 annual average of 570 mg/L. The receiving environment monitoring location MH-12 had a 2022 annual average hardness of 171 mg/L, which is comparable to the historical average of 177 mg/L. The 2022 hardness average at MW13-07 was 240 mg/L, comparable to the historical average of 238 mg/L.

Cadmium concentrations at the North Dam seepage (MH-02) were elevated in 2022 with an annual average of 0.000129 mg/L, compared to the historical average of 0.0000627 mg/L. Cadmium concentrations at MH-02 were still at least two orders of magnitude below the prescribed AMP specific threshold of 0.014 mg/L during each sampling event in 2022, however cadmium concentrations will continue to be monitored to determine if cadmium concentrations continue to increase. Downstream at the receiving environment (MH-12), cadmium concentrations were stable, with a 2022 annual average for total cadmium of 0.0000505 mg/L, compared to the historical average of 0.0000708 mg/L. Despite observing elevated cadmium concentrations at the MH-02, cadmium concentrations at MH-12 were unaffected. Dissolved cadmium concentrations at MW13-07 were all below the detection limit in 2022, which is consistent with past results.

Copper concentrations at MH-02 were stable in 2022 and consistent with what has historically been observed at this station. The 2022 annual average total copper concentration at MH-02 was 0.000448 mg/L, which was slightly lower than the historical average of 0.000495 mg/L. At MH-12, total copper concentrations, in 2022, observed a new maximum concentration of 0.0176 mg/L, during the December monitoring event, which triggered the WUL MAC. This exceedance was discussed previously in Section 3.5.1.1. Prior to this exceedance, total copper concentrations at MH-12 were below or close to the detection limit of 0.00050 mg/L in 2022 (Table 3-11). It is inconclusive to determine whether the December 2022 concentration at MH-12 is the beginning of an increasing trend for copper at this station, especially given that the North Dam seepage concentrations do not appear to give indication of an increasing trend (Figure 3-3). At MW13-07, dissolved copper concentrations were below the detection limit or barely above detect (<0.00020 mg/L to 0.00023 mg/L) in 2022. Copper concentrations will be closely monitored at this station during the following sampling events in 2023.

Total lead concentrations varied at MH-02 in 2022, ranging from 0.000153 mg/L to 0.00400 mg/L. The total lead annual average was 0.00115 mg/L in 2022, which was slightly lower than the historical average of 0.00174 mg/L.



Lead concentrations at MH-02 have observed a slightly decreasing trend since 2020 and appear to be stabilising as the 2022 minimum and maximum concentrations show less variability than recent years. At MH-12, the 2022 total lead average was 0.000716 mg/L, and was lower than the historical average of 0.00148 mg/L. The groundwater samples taken at MW13-07 in 2022 returned dissolved lead concentrations below the detection limit for three of the four samples collected. Overall, no increasing trend in total lead was observed at any of the surface and groundwater monitoring stations within the North Dam catchment, following the AMP exceedances in 2020 and 2021.

Total zinc concentrations at the North Dam seepage (MH-02) had an average of 0.0207 mg/L in 2022, compared to the historical average of 0.0368 mg/L. The 2022 average total zinc concentration at MH-02 was higher than the 2020 and 2021 annual averages of 0.00330 mg/L and 0.0153 mg/L, respectively, and could be the indication of a re-surging increasing trend. Concentrations will need to continue to be monitored to determine if zinc concentrations have stabilised or will continue to increase. Downstream at the receiving environment monitoring station (MH-12) the 2022 average total zinc concentration was 0.00870 mg/L, compared to the historical average of 0.0130 mg/L and well below the WUL MAC standard of 0.560 mg/L. At MW13-07, the 2022 average dissolved zinc concentration was 0.00108 mg/L, which was lower than the historical average of 0.0164 mg/L.

3.5.2 BURNICK PORTAL DISCHARGE

The objective of the AMP for the Burnick Portal discharge is to detect any deterioration in water quality in the drainage flowing from the Burnick Portal and downgradient surface water. AMP monitoring locations include the Burnick Portal drainage (MH-22), groundwater monitoring well MW13-06 adjacent to and downgradient of the Burnick Portal, and the receiving surface water quality monitoring station MH-15 in the West Fork of Tributary E. The monitoring stations and conceptual flow path are shown in Figure 3-1 and Figure 3-2.

3.5.2.1 WUL

None of the six surface water samples taken at the receiving water collection point in West Fork of Tributary E (MH-15) in 2022 exceeded the receiving water quality standard prescribed by the water licence. Table 3-12 presents a summary of select water quality parameters at MH-15 compared to the WUL. Detailed results are presented in Appendix D.

Manual groundwater level monitoring of the mine source monitoring wells is required under water licence QZ16-051. Water levels at MW13-06 ranged from 1178.43 masl to 1185.68 masl from 2013 to 2022, typically peaking in the summer and fall, with the lowest levels occurring in the winter and early spring (Table 3-13). There are no water quality standards for this well outlined in the current water licence; however, AMP thresholds are defined for this well (Appendix B).



Table 3-12: MH-15 Select Water Quality Parameters Compared to the WUL, 2022

Station	Date	Hardness	TSS	Dissolved Cadmium	Total Copper	Total Iron	Total Lead	Total Selenium	Total Zinc
Station	Date	WUL Standard ¹		0.00032 – 0.00036	0.0070 – 0.0084	1	0.0099 – 0.000	0.002	0.072 - 0.097
MH-15	07-Feb-22	207	2.0	0.0000108	<0.00050	0.258	<0.000050	0.000740	<0.0030
MH-15	07-Apr-22	209	1.7	<0.0000050	<0.00050	0.222	<0.000050	0.000755	<0.0030
MH-15	28-Jun-22	176	1.6	0.0000099	<0.00050	0.068	<0.000050	0.000363	<0.0030
MH-15	09-Aug-22	188	1.3	0.0000092	<0.00050	0.172	<0.000050	0.000427	<0.0030
MH-15	27-Oct-22	197	2.1	0.0000070	<0.00050	0.157	<0.000050	0.000471	<0.0030
MH-15	03-Dec-22	190	<1.0	0.0000053	<0.00050	0.101	<0.000050	0.000521	<0.0030

All units are in mg/L

Table 3-13: Burnick Portal Manual Groundwater Levels (masl 1)

Well ID		20	22		2022	2021	2020	Historical
	Feb	Jun	Aug	Oct	Average	Average	Average	Average ²
MW13-06	_ 3	1185.46	1182.18	1179.88	1182.51	1181.79	1182.84	1181.72

¹ masl denotes metres above sea level

3.5.2.2 AMP

The AMP ST1 for the mine source groundwater wells is triggered when three consecutive monitoring events or four of the last six monitoring events show progressively increasing concentrations of sulphate, dissolved cadmium, lead, or zinc. In 2022, the AMP ST1 was triggered by MW13-06 for sulphate during the October monitoring event. This trigger, as well as previous AMP ST1 triggers, have been linked to natural variations of these concentrations at this monitoring well and are discussed below.

MW13-06 Sulphate

Mine source groundwater monitoring well MW13-06 met the AMP ST1 for sulphate in October 2022, with three consecutive monitoring results that returned progressively increasing sulphate concentrations in June 2021, August 2021, and October 2022 (Figure 3-5). This AMP trigger was reported in the 2022 Q4 Quarterly report, submitted in January 2023. As per the AMP, the upstream and receiving environment sites were reviewed to determine if there were any water quality changes to the catchment, and a duplicate is planned to be collected during the next sampling event, in February 2023. The AMP ST1 trigger at MW13-06 is thought to be linked to seasonal variations that have been observed at this station since 2016. At this groundwater station, sulphate concentrations tend to be at their minimum during the early summer (June) and increase throughout the year until reaching their peak concentrations in the winter (December/February). This seasonal increase typically results in at least one AMP trigger for sulphate, at MW13-06, each year.

¹ WUL ranges are based on 2022 hardness (176 mg/L to 209 mg/L)

² Average using data from 2013 to 2021

³ Unable to sample well due to weather.



As per the AMP, an evaluation of upstream and downstream water quality was conducted. The closest water quality monitoring location upstream is at the Burnick Portal (MH-22). MH-15, on the West Fork of Tributary E, is the downstream receiving water monitoring station. Sulphate concentrations upstream at station MH-22 (43.7 mg/L in October 2022) were consistent with the historical average (39.3 mg/L). There is a seasonal trend in the sulphate levels measured at MH-22 with gradual increasing concentrations observed yearly starting in the early summer until winter (December/February). Downstream, at station MH-15, the October 2022 sulphate concentrations was 4.49 m/L, which was comparable to the historical average of 3.99 mg/L. A slight seasonal trend was also evident at MH-15. Sulphate concentrations at MH-15 tended to follow an opposite pattern from MH-22, with peak concentrations detected in late fall/early winter, with gradually decreasing concentrations throughout the year. This seasonal trend appears to be the result of dilution where waters with lower sulphate concentrations infiltrate MH-15 during freshet and summer. Minimum sulphate concentrations at MH-15 typically are observed in the late summer or early fall.

Long term trends show that the sulphate concentrations at surface water stations (i.e., MH-15 and MH-22) in the Burnick Portal catchment have been consistent since monitoring began in 2013. An increasing trend in sulphate levels was evident for the samples collected at MW13-06, between 2016 and 2020, however concentrations in 2021, following the AMP trigger, appear to stabilise around 300 mg/L (Figure 3-5). Sulphate concentrations from MW13-06 are naturally much higher than those present from the Burnick Portal (MH-22). As such, sulphate does not have a numerical specific threshold under the AMP, as it is expected that the contribution of sulphate from the mine source is minimal compared to the naturally elevated levels at this station. Both the source and receiving water sampling locations show stable levels of sulphate that were three to four times lower than those present in samples collected from MW13-06 (Figure 3-5). As such, the increasing sulphate levels observed in MW13-06 have not affected the surface receiving environment and do not seem to be related to the Burnick Portal discharge (MH-22). This topic is further discussed at the end of Section 3.5.2.3. Changes in the sulphate concentrations measured at MW13-06 will continue to be evaluated in 2023.

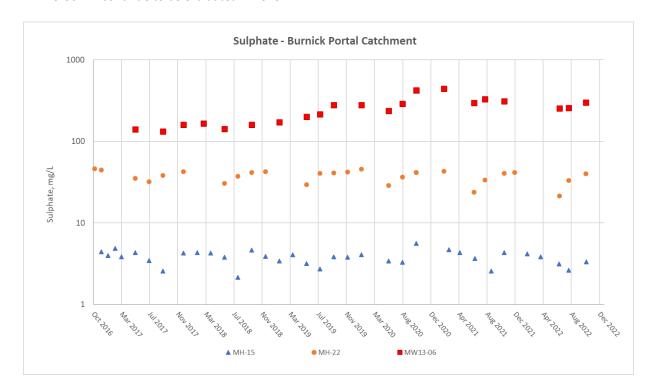


Figure 3-5: Sulphate Concentrations at Stations MH-15, MH-22, and MW13-06



3.5.2.3 WATER QUALITY TRENDS

Plots showing historical and current surface and groundwater constituents are available in Appendix E.

Long term pH trends have been stable for all stations in the Burnick Portal catchment since 1997. In 2022, the pH for the mine source station (MH-22) ranged from 7.18 to 8.19 with an average of 7.64, which is comparable to historical average of 7.72. At the receiving environment monitoring station MH-15, pH ranged between 7.69 and 8.11, with an annual average of 7.97, comparable with the historical average of 7.89. Samples collected from the groundwater station downgradient of the portal (MW13-06) in 2022 ranged between 6.75 and 8.53, with an annual average of 7.44, which is higher than the historical average of 6.94.

Alkalinity in the Burnick 1200 Portal discharge (MH-22) has consistently been around 100 mg/L. Total alkalinity concentrations were within historical ranges in 2022 with an average alkalinity of 103 mg/L. At the receiving environmental station (MH-15), total alkalinity levels have remained stable with a 2022 annual average of 193 mg/L compared to the historical average of 199 mg/L. The monitoring well in the Burnick Portal discharge flow path (MW13-06) had a yearly average total alkalinity of 178 mg/L comparable to the historical average of 192 mg/L.

In 2022, MH-22 sulphate concentrations were stable and displayed the historical seasonal trend typically observed at this station. At MH-22, sulphate concentrations are lowest in the early summer and increase throughout the year, until they peak during the winter. MH-15 does not show any apparent seasonal trend, however sulphate concentrations at this station are typically lowest in the early fall (August and September) and highest in the late fall/ winter (October to February). The annual averages for MH-22 and MH-15 (34.6 and 3.62 mg/L, respectively) were comparable to the historical averages (39.3 and 3.99 mg/L, respectively). Sulphate levels have been increasing steadily at MW13-06 (Figure 3-5) with concentrations increasing from 142 mg/L to 444 mg/L between June 2018 and October 2020, triggering the AMP on multiple occasions. Sulphate concentrations in 2021 and 2022 have since dropped and stabilised (Figure 3-5). In 2022, sulphate concentrations ranged from 253 mg/L to 299 mg/L and triggered the AMP ST1 in October 2022 as discussed in Section 3.5.2.2. The 2022 average sulphate concentration was 270 mg/L, which is slightly higher than the historical average of 219 mg/L. Changes in the sulphate concentrations measured at MW13-06 will continue to be evaluated in 2023.

Hardness levels have been stable at the surface water monitoring stations in the Burnick Portal catchment. Total hardness at MH-22 varied between 107 and 153 mg/L in 2022, with an average of 136 mg/L, comparable to the historical average of 145mg/L. Similarly, total hardness at MH-15 was stable with a yearly average of 195 mg/L, which was almost identical to the historical average of 198 mg/L. The 2022 average dissolved hardness at MW13-06 was 423 mg/L, which is higher compared to the historical average of 384 mg/L.

Total cadmium concentrations at the 1200 Burnick Portal (MH-22) ranged from 0.0020 to 0.0045 mg/L in 2022. Total cadmium concentrations at MH-22 have been stable since 2013, with a 2022 yearly average of 0.0034 mg/L compared to the historical average of 0.0038 mg/L. Total cadmium concentration at MH-15 have remained constant with yearly averages between 0.000001 to 0.00003 mg/L since 2013. The 2022 average cadmium concentration at MH-15 was 0.000011 mg/L. Cadmium concentrations at MW13-06 averaged at 0.000074 mg/L in 2022, which is lower than the historical average of 0.00015 mg/L. The lower 2022 average is likely due to the fact that no sample could be collected at this well during the February 2022 monitoring event, which is when the seasonal maximum concentrations for cadmium are usually observed.

Copper concentrations in the Burnick Portal catchment are typically below the detection limit. At both the Burnick Portal, MH-22, and receiving environment, MH-15, total copper concentrations were below the detection limit



during each sample collected in 2022. At the monitoring well, MW13-06, dissolved copper concentrations were below the detection limit in two of the three samples collected. During the August 2022 monitoring event, dissolved copper at MW13-06 was 0.00108 mg/L.

At MH-22, total lead concentrations in 2021 averaged 0.000549 mg/L and were lower than the historical average of 0.00168 mg/L. The historical average is heavily influenced by the historically higher lead concentrations at this station between 2013 and 2016. In 2017, lead concentrations decreased by one order of magnitude to 0.000467 mg/L and then to 0.000348 mg/L in 2018. Lead concentrations have been stable in recent years with no evidence of any further increasing or decreasing trends. At MH-15, total lead concentrations were below the detection limit (0.000050 mg/L) in each sample collected in 2022. Lead concentrations have consistently been below the detection limit in the historical dataset at this station. At MW13-06, 2022 dissolved lead concentration had an average of 0.000179 mg/L, compared to the historical average of 0.000155 mg/L.

The 2022 total zinc annual average for MH-22 was 0.507 mg/L, which was lower than the historical average of 0.64 mg/L. Similar with lead, the historical average is heavily influenced by the historically higher zinc concentrations that were observed at this station in 2015 and 2016. Following 2016, zinc concentrations had stabilised between 0.2 mg/L and 1 mg/L. Since 2019, the average total zinc concentration at MH-22 has decreased each year (e.g., 0.618 mg/L in 2019 to 0.507 mg/L in 2022), suggesting evidence of a slightly decreasing trend in zinc concentrations. At MH-15, all 2022 results for total zinc were below the detection limit, which is consistent with historical data. MW13-06 had a 2022 annual average of 0.12 mg/L of dissolved zinc, which was lower than the historical average of 0.16 mg/L. Zinc concentrations at MW13-06 appeared stable in 2022.

The increasing trend observed for sulphate at MW13-06 is associated with an increase of calcium, magnesium, and cadmium. These parameters suggest that there are increased minerals dissolutions in the aquifer at MW13-06. Since the groundwater sulphate is greater than at the adit, as well as that the lead and zinc concentrations at this well were stable, it is unlikely that the increasing sulphate or elevated cadmium concentrations are related to the adit discharge. Data from this station will continue to be closely monitored in 2023.

3.5.3 1380 PORTAL DISCHARGE

The objective of the AMP for the 1380 Portal drainage is to detect any deterioration in the portal drainage water quality within the waste rock dump and monitor for the potential loss of attenuation capacity of the soils upstream of Camp Creek (Appendix B). AMP monitoring locations include the seepage monitoring at station SDH-S2 within the Main Zone waste rock dump, groundwater monitoring at MW13-01, MW13-08, and MW13-13 located downgradient of SDH-S2 and upstream of Camp Creek, and the receiving surface water monitoring at MH-11 in upper False Canyon Creek. The monitoring wells along the flow path downstream of the 1380 Portal were installed to monitor the groundwater water quality and the potential loss of attenuation capacity in the mine source flow path.

The three groundwater monitoring stations downstream of the 1380 Portal are sampled quarterly. Station MW13-01 is located downgradient of 1380 Portal in the 1380 gully. Stations MW13-08 and MW13-13 are also projected to be along the groundwater flow path of 1380 Portal drainage. The monitoring stations and conceptual flow path are shown in Figure 3-1 and Figure 3-2.



3.5.3.1 WUL

None of the six surface water samples taken at the receiving water collection point in Upper False Creek Canyon (MH-11) during 2022 exceeded the receiving water standards prescribed by the water licence (Table 3-2). Table 3-14 presents a summary of select water quality parameters at MH-11 compared to the WUL. Detailed results are presented in Appendix D.

Table 3-14: MH-11 Select Water Quality Parameters Compared to the WUL, 2022

Station D	Dete	Hardness	TSS	Dissolved Cadmium	Total Copper	Total Iron	Total Lead	Total Selenium	Total Zinc
	Date	WUL Standard ¹		0.00031 - 0.00041	0.0067 – 0.0098	1	0.018 - 0.026	0.002	0.38 - 0.74
MH-11	09-Feb-22	242	<1.0	0.0000468	<0.00050	0.088	0.000154	0.000733	0.0061
MH-11	06-Apr-22	246	<1.0	0.0000404	<0.00050	0.023	<0.000050	0.000754	0.0043
MH-11	30-Jun-22	167	2.0	0.0000824	<0.00050	0.071	0.000908	0.000672	0.0060
MH-11	10-Aug-22	187	<1.0	0.0000576	<0.00050	0.054	0.000265	0.000532	0.0058
MH-11	26-Oct-22	210	<1.0	0.0000455	<0.00050	0.062	0.000234	0.000636	0.0046
MH-11	04-Dec-22	201	<1.0	0.0000392	0.00054	0.048	0.000144	0.000694	0.0050

All units are in mg/L

Water level monitoring of the mine source groundwater monitoring wells is required under water licence QZ16-051. Water levels in all three mine source monitoring wells remained relatively constant throughout 2022 and previous years (Table 3-15). In 2022, groundwater levels varied by of 2.3 m (MW13-01), 3.7 m (MW13-08) and 6.4 m (MW13-13), respectively. The highest water levels were observed in spring and the lowest in late winter. There are no water quality standards for these stations outlined in the current water licence; however, there are AMP thresholds for these stations (Appendix B).

Table 3-15: 1380 Portal Discharge Manual Groundwater Levels (masl ²)

Well ID		20	22		2022 Ava	2021 Ave	2020 4	Historical
	Feb	Jun	Aug	Oct	2022 Avg	2021 Avg	2020 Avg	Average ¹
MW13-01	1180.5	1182.7	1180.9	1180.7	1181.2	1181.4	1181.4	1180.9
MW13-08	1130.8	1134.6	1131.7	1130.2	1131.8	1132.5	1133.1	1132.3
MW13-13	_ 3	1252.3	1245.9	1246.0	1248.1	1247.4	1247.5	1247.3

¹Average using data from 2013 to 2021

¹ WUL ranges are based on 2021 hardness (167 mg/L to 246 mg/L)

² masl denotes metres above sea level

³ Unable to collect sample due to weather conditions.



3.5.3.2 AMP

During the 2022 monitoring events, the AMP was triggered for sulphate, dissolved cadmium, dissolved lead and dissolved zinc at monitoring wells MW13-01 and MW13-08 (Table 3-10:). These AMP triggers are discussed below.

MW13-01 and MW13-08- Sulphate

In 2022, sulphate concentrations triggered the AMP ST1, due to three consecutively increasing concentrations, at MW13-01 and MW13-08. MW13-08 triggered the ST1 in February and MW13-01 triggered the ST1 in February and June.

At MW13-08, sulphate concentrations have a seasonal variation, increasing at the end of the summer until late winter, then decreasing in spring (Figure 3-6). These seasonal trends typically cause the AMP ST1 to trigger once or twice a year at MW13-08. The February 2021 sulphate concentration (19.7 mg/L) at MW13-08 was consistent with the concentrations observed at this station between 2013 and 2021. Sulphate concentrations at MW13-08 continued to follow the seasonal trend for the remainder of 2022. All sulphate concentrations from MW13-08 were below the AMP ST2 of 55 mg/L.

MW13-01 also triggered the AMP ST1 by having at least three consecutive sampling events with increasing concentrations in February and June 2022. MW13-01 also tends to experience a slight seasonal variability for sulphate, increasing throughout the winter until the summer, then decreasing throughout the fall. The highest sulphate concentrations at MW13-01 are typically observed in June, as was the case in 2022. In 2022, sulphate concentrations at MW13-01 were consistent with the typical seasonality observed at this station. Following the peak in June, sulphate concentrations decreased for the rest of 2022. All monitoring well sulphate concentrations are presented in Figure 3-6.

At the mine source station, SDH-S2, sulphate concentrations were below the AMP specific thresholds during the June 2022 sampling event. SDH-S2 is a seep located within the waste rock dump and between 2013 to 2022, only eight sampling events have successfully collected water at this station, all of which have been in the summer. This station previously triggered the AMP ST2 in June 2021, however sulphate concentrations downstream at the monitoring wells and receiving environments were unaffected. It is suspected that the June 2021 sulphate concentration at SDH-S2 is linked to the flushing of soluble salts that had accumulated at this station over the winter months. Sulphate concentrations for the surface water stations and for SDH-S2 are presented in Figure 3-7 and Figure 3-8, respectively.

In the downstream surface water stations, MH-04, MH-11, and MH-13, the sulphate AMP ST1 was not triggered for any sites during 2022. Sulphate concentrations within the 1380 Portal drainage show neither an overall increasing or decreasing trend and the AMP ST1 events in 2022 appear to be related to natural variation in sulphate concentrations rather than the beginning of an increasing trend within the catchment.



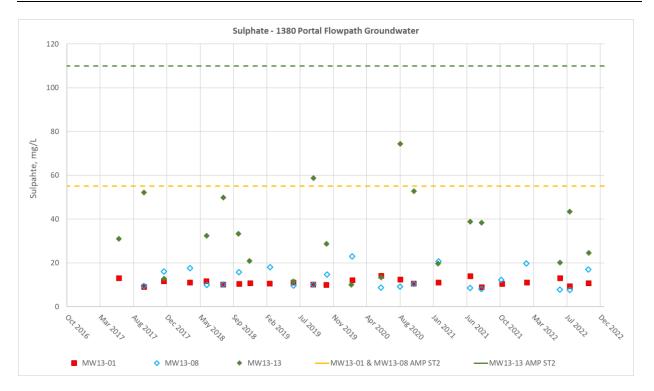


Figure 3-6: Sulphate Concentrations at MW13-01, MW13-08 and MW13-13

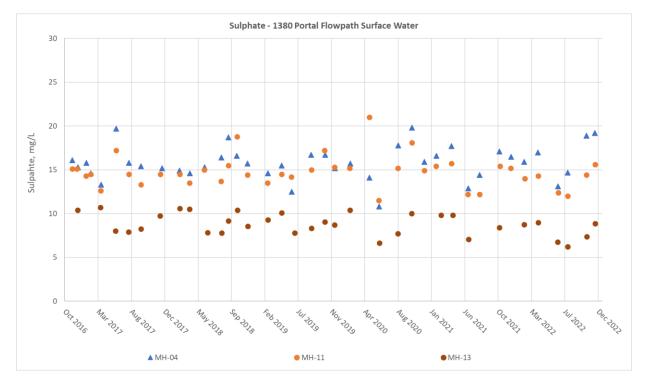


Figure 3-7: Sulphate Concentrations at MH-04, MH-11, and MH-13



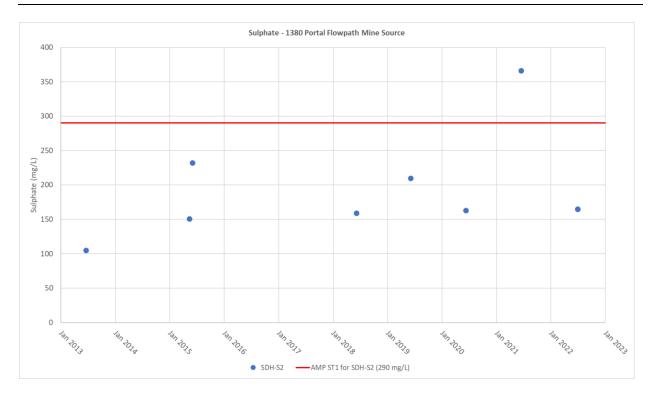


Figure 3-8: Sulphate Concentrations at SDH-S2

MW13-08 Dissolved Cadmium

Dissolved cadmium exceeded the AMP ST1 trigger at MW13-02 in the first quarter of 2022 with three consecutively increasing concentrations from 0.0000583 mg/L in October 2021 to 0.0000655 mg/L in June 2022 (Figure 3-9). The next following monitoring event in August, dissolved cadmium concentrations at MW13-01 dropped to 0.0000560 mg/L. No obvious seasonal trends are apparent at MW13-08, however this well has triggered the AMP on multiple occasions in the past. Overall, the 2022 dissolved cadmium concentrations at MW13-08 were within the historical range observed in at this station and the increases were comparable to increases observed in previous years. Moreover, the dissolved cadmium levels were all well below the AMP thresholds (0.005 mg/L for MW13-08).



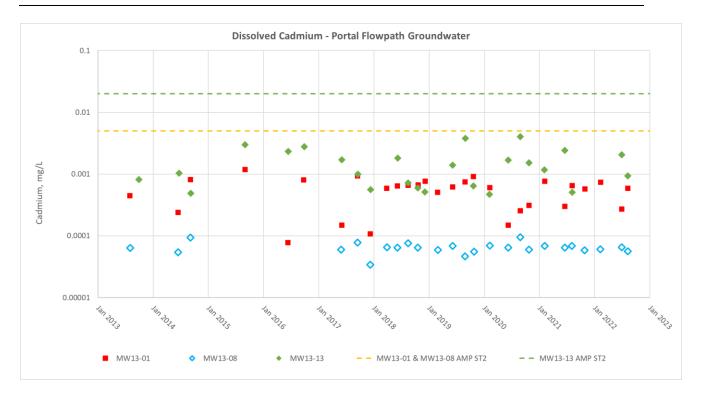


Figure 3-9: Dissolved Cadmium at MW13-01, MW13-08 and MW13-13

Dissolved cadmium concentrations for the 1380 Portal drainage surface water stations and at SDH-S2 are presented in Figure 3-10 and Figure 3-11. Cadmium concentrations at the surface water monitoring locations downstream remained stable. Concentrations at the receiving environment station, MH-11, were within their historical ranges and can be observed to exhibit a seasonal trend in 2020, 2021 and 2022, with annual maximum concentrations observed during the summer and minimum concentrations observed during the winter. All concentrations at MH-11 were well below the hardness-based WUL guideline. At SDH-S2, the June 2022 dissolved cadmium concentration was 0.0990 mg/L, within the historic range observed at this site.

Given the stable cadmium concentrations observed over the period of record, it appears that natural attenuation of cadmium continues to operate along the 1380 Portal flow path and the activation of the AMP is indicative of natural variation of cadmium at these wells and the sensitivity of the AMP trigger.



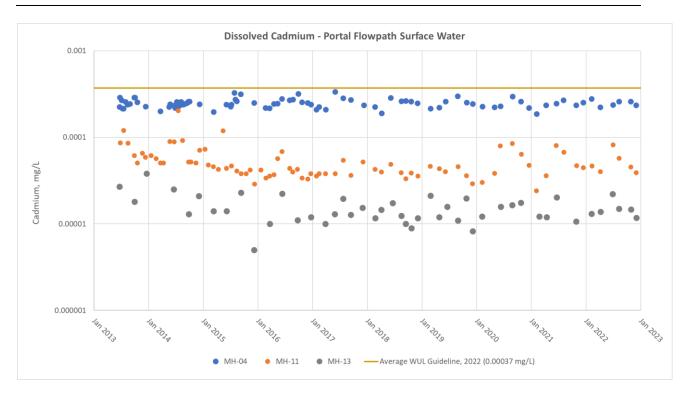


Figure 3-10: Dissolved Cadmium at MH-04, MH-11, and MH-13

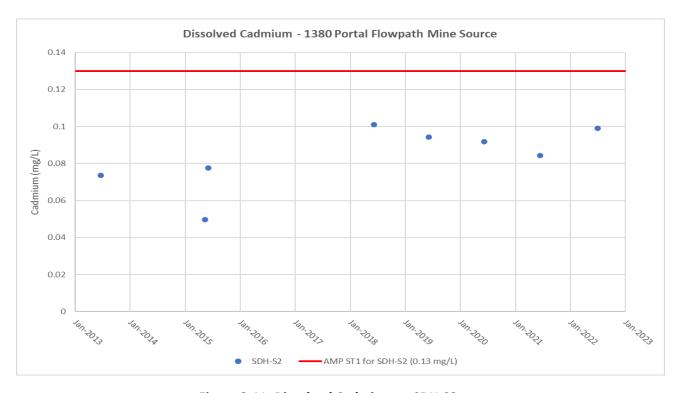


Figure 3-11: Dissolved Cadmium at SDH-S2



MW13-08 Dissolved Lead

MW13-08 triggered the AMP ST1 with three consecutively increasing lead concentrations, from February to June 2022. Dissolved lead increased from below the detection limit (0.000050 mg/L) in August 2021 to 0.000141 mg/L in February 2022, then increasing to 0.000502 mg/L in June 2022 (Figure 3-12:). The June 2022 lead concentration was the highest concentration observed at this well since 2017, however it was two orders of magnitude below the AMP ST2 (0.035 mg/L for MW13-08). During the following sampling events in August and October 2022, dissolved lead concentrations returned to below the detection limit. Dissolved lead concentrations were below the detection limit in 12 of the 22 samples collected at this station, since 2013. Because lead concentrations at this well experience a wide range, the AMP ST1 can be easily triggered. Lead concentrations at MW13-08 do not exhibit any seasonality as there is no consistency to which months values are above or below the detection limit.

Dissolved lead concentrations for the 1380 Portal drainage surface area stations and at mine source station SDH-S2 are presented in Figure 3-11. Lead concentrations at the surface water and mine source stations in 2022 remained within the range of their historical datasets. No signs of an increasing trend were apparent at any of the stations. Concentrations at the receiving environment station, MH-11, were well below the hardness-based WUL standard in all samples collected in 2022. At SDH-S2, the June 2022 lead concentration was 0.0416 mg/L, which was one order of magnitude below the AMP ST1 threshold of 0.51 mg/L. Lead concentrations for the monitoring wells, receiving environment stations and mine source station are presented in Figure 3-12:, Figure 3-13 and Figure 3-14, respectively.

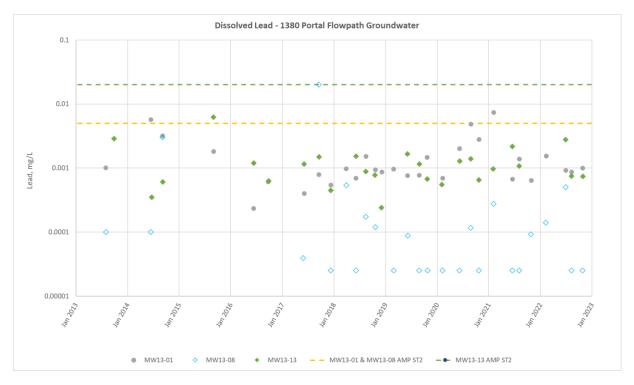


Figure 3-12: Dissolved Lead at MW13-01, MW13-08 and MW13-13



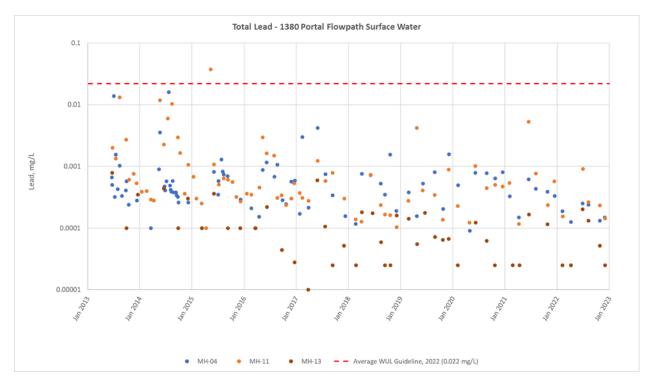


Figure 3-13: Total Lead at MH-04, MH-11 and MH-13

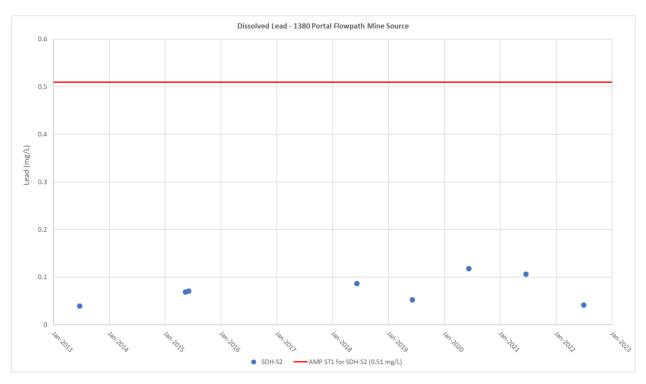


Figure 3-14: Dissolved Lead at SDH-S2



MW13-08 Dissolved Zinc

MW13-08 and triggered the AMP ST1 in 2021 with three consecutively increasing dissolved zinc concentrations, in February and June 2022 (Figure 3-15). Dissolved zinc increased from below the detection limit (0.0010 mg/L) in August 2021 to 0.0034 mg/L in February 2022, then increasing to 0.0068 mg/L in June 2022. The June 2022 dissolved zinc concentration was also the highest observed at this well since 2014, however it was still two orders of magnitude below the AMP ST2 threshold of 0.5 mg/L. During the following sampling events in August and October 2022, dissolved lead concentrations returned to below the detection limit. Dissolved zinc concentrations at MW13-08 tend to fluctuate, similarly to dissolved lead, and therefore can easily trigger the AMP ST1. There are no apparent seasonal trends at this station, however peak concentrations have typically been observed in the summer or fall. Despite the June 2022 zinc concentration, the AMP ST1 triggers at MW13-08 are thought to be part of natural concentration variations.

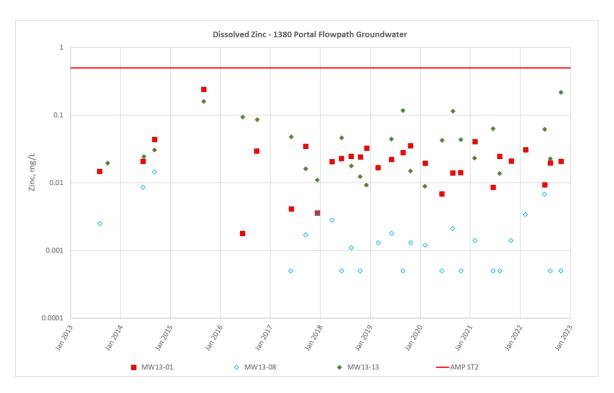


Figure 3-15: Dissolved Zinc Concentrations at MW13-01, MW13-08 and MW13-13

Total zinc concentrations for the receiving surface water stations at the 1380 Portal drainage are presented in Figure 3-16. The mine source (SDH-S2) seep is sampled infrequently as it is often inaccessible or dry. Figure 3-17 presents the dissolved zinc data for SDH-S2, however the scarcity of overall sampling events makes it difficult to determine any trends. The sample collected at SDH-S2, in June 2022, returned a zinc concentration within the historical range observed. At the receiving environment surface water monitoring station on Camp Creek (MH-11), downgradient of well MW13-08, total and dissolved zinc levels remained consistent with historical data with no indication of an increasing or decreasing trend. All samples from 2022 were below the calculated WUL guideline for this site. Total zinc concentrations at MH-13 have been consistently below the detection limit since April 2018. No trends were observed at station MH-04; however, all results from 2022 returned zinc concentrations within their historical bounds. Despite the AMP trigger at MW13-01 in 2021, the dissolved zinc concentrations are suspected to be related to natural variation in zinc concentrations and do not appear to be part of an overall increasing trend. Zinc concentrations in the receiving surface water seem to reflect this and show no evidence of an increasing trend.



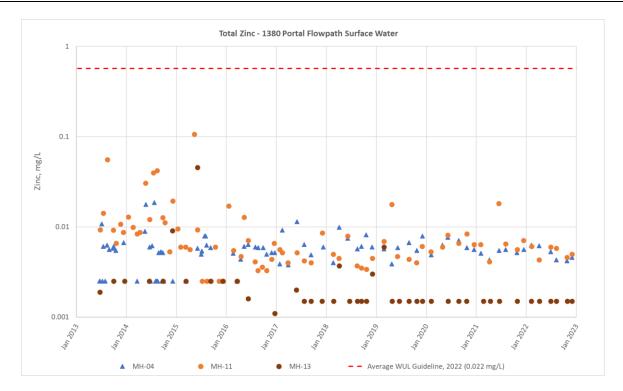


Figure 3-16: Total Zinc Concentrations at MH-04, MH-11 and MH-13

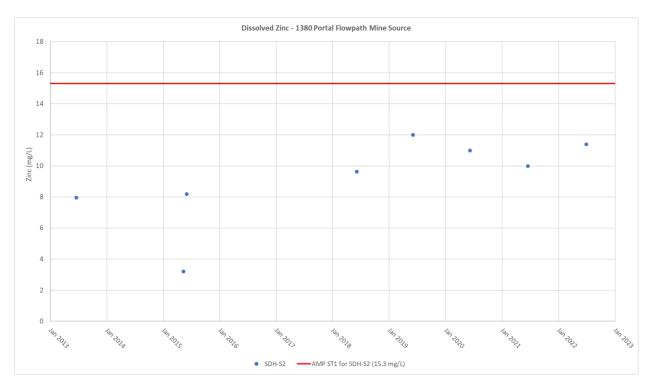


Figure 3-17: Dissolved Zinc at SDH-S2



3.5.3.3 WATER QUALITY TRENDS

Long term pH trends have been stable for all three surface water stations and three groundwater stations downstream of the 1380 Portal. The receiving surface water monitoring stations (MH-04, MH-11, and MH-13) had circumneutral pH with a range between 7.36 and 8.32. The WUL receiving environment monitoring station (MH-11) had an annual average pH of 8.11 in 2022, which was slightly higher than the historical average of 7.89. Plots showing historical and current surface and groundwater concentrations are available in Appendix E. The single sample collected at SDH-S2 in June 2021, had a pH of 7.45, which was similar to the historical average pH of 7.32.

The 1380 Portal discharge (SDH-S2) had generally a low alkalinity, averaging at 54.9 mg/L since monitoring began at this location. The single sample collected in 2022 at the SDH-S2 had an alkalinity of 52.2 mg/L. In 2022, all the groundwater stations downstream of the 1380 Portal had alkalinity concentrations comparable to historical averages. At the Lower Camp Creek surface water quality monitoring locations, the 2022 average total alkalinity concentrations were 149, 199, and 195 mg/L at stations MH-04, MH-11, and MH-15, respectively. Groundwater alkalinity also remained stable in 2022 as compared to previous years. MW13-13 had an average total alkalinity of 90.2 mg/L in 2022, compared to the historical average of 89.4. mg/L. MW13-08 had a 2022 average of 262 mg/L alkalinity as compared to the historical average of 264 mg/L. Similarly, MW13-01 had a 2022 annual average alkalinity of 147 mg/L, which is comparable with the historical average of 147 mg/L.

Sulphate concentrations triggered the AMP ST1 in 2022 at MW13-01 and MW13-08 but the gradual increases that activated the AMP trigger are considered to be due to a seasonal trend rather than a long-term increase; sulphate levels are discussed in detail in Section 0. Sulphate concentrations in the 1380 Portal discharge (SDH-S2) have been 170 mg/L on average since monitoring began in 2013 and were consistent with historical concentrations at MH-25 averaging 221 mg/L, with exception of the June 2021 event, where sulphate concentrations spiked to 366 mg/L, triggering the AMP ST2. The WUL mandated receiving water monitoring station below the 1380 Portal (MH-11) had a stable sulphate level with the 2022 annual average of 13.8 mg/L comparable to the historical average (15.1 mg/L).

Historical total hardness levels were generally between 162.5 and 202.2 mg/L at all surface water stations in this catchment. In 2022, hardness remained stable at all surface water monitoring stations with annual averages of 161 mg/L, 209 mg/L and 202 mg/L at MH-04, MH-11 and MH-13, respectively. Dissolved hardness has also been stable over the years of monitoring at the three wells, with annual averages being comparable to historical averages. MW13-13 had an average dissolved hardness of 115 mg/L in 2022 compared to the historical average of 127 mg/L. Similarly, MW13-08 had a 2022 average dissolved hardness of 279 mg/L as compared to the historical average of 284 mg/L. Lastly, the MW13-01 2022 annual average was 159 mg/L, compared to the historical average of 161 mg/L

Dissolved cadmium concentrations triggered the AMP ST1 in 2021 at MW13-08 by having increasing concentrations in three consecutive sampling events. A consecutive increase in cadmium was not detected at any other location in the 1380 Portal drainage area, as cadmium concentrations at all other surface water and groundwater stations remained within their historical ranges. At MW13-01 the 2022 annual average was 0.00054 mg/L, compared to the historical average of 0.00056 mg/L. The 2022 annual average at MW13-08 was 0.000060 mg/L, compared to the historical average of 0.000065 mg/L. Lastly at MW13-13, the 2022 average dissolved cadmium concentration was 0.0013 mg/L, similar to the historical average of 0.0015 mg/L. At the surface water stations MH-04, MH-11 and MH-13, the 2022 concentrations were also consistent with historical ranges observed in the past, as seen in Figure 3-10.

Copper concentrations in the 1380 Portal catchment were typically below the detection limit at the surface water stations, including the 1380 Portal discharge (SDH-S2). At the receiving environment and downstream surface water stations, total copper concentrations ranged from below the detection limit (0.00050 mg/L) to 0.00290 mg/L in 2022. At the groundwater monitoring wells, the 2022 copper concentrations ranged from below the detection limit



(0.00020 mg/L) to 0.00085 mg/L, which is within the range of the historical dataset. Overall, copper concentrations within the 1380 portal catchment are quite minimal.

Dissolved lead concentrations triggered the AMP ST1 at MW13-08. In 2022 lead concentrations at the three groundwater stations were consistent with their historical ranges, as discussed in Section 0. The 2022 annual average at MW13-01, MW13-08 and MW13-13 were 0.0011 mg/L, 0.00017 mg/L and 0.0014 mg/L, respectively, compared to their historical averages of 0.0017 mg/L, 0.00050 mg/L and 0.0013 mg/L. At the surface water stations MH-04, MH-11 and MH-13, total lead concentrations were consistent with their historical dataset and no increasing or decreasing trends were identified (Appendix E).

Dissolved zinc concentrations also triggered the AMP ST1 in 2022 at MW13-08. Zinc concentrations in the rest of the 1380 Portal drainage area did not show any discerning increasing or decreasing trends. The 2022 annual average dissolved zinc concentrations at the groundwater and surface water stations were within the range of concentrations observed in the historical dataset. At MW13-08, the 2022 average dissolved zinc concentration was 0.0028 mg/L, which was marginally higher than the historical average of 0.00224 mg/L. Similarly, wells MW13-01 and MW13-13 had 2022 dissolved zinc averages of 0.020 mg/L and 0.035 mg/L, respectively, compared to their historical averages of 0.030 mg/L and 0.0461 mg/L, respectively. At the downstream surface water stations and SDH-S2, both total and dissolved zinc concentrations were stable with no indications of an increasing or decreasing trend (Figure 3-15 and Figure 3-17).

3.5.4 LANDFILL GROUNDWATER MONITORING

Waste from the demolition of the Mill was placed in the existing landfill in 2015. The landfill is located near the former North Creek pump house. The landfill contains waste produced during operations and demolition debris from the Mill Site, former camp and office buildings, and miscellaneous debris from the site. The objective of the AMP for the landfill is to detect if there is an increase in the water level such that the landfill would be submerged or detect a change in water quality that might imply that landfill materials are leaching metals or are a source of hydrocarbons. These monitoring wells were drilled and installed in 2014. Routine quarterly monitoring of these stations was initiated in mid-2016.

3.5.4.1 AMP

AMP monitoring locations include MW14-02, MW14-03, and MW14-04, which would detect any changes in water quality and level close to the source (Appendix B). MW14-01 is a background monitoring station for the landfill that is part of the EMSRP. In addition to physical parameters and dissolved metals, samples collected at these groundwater monitoring stations are also analyzed for hydrocarbons to assess potential mobilization and transport from the landfill.

The water quality results are compared to Schedule 3 of the Yukon Contaminated Sites Regulation (YCSR) Water Standards for the protection of Freshwater Aquatic Life (Yukon Government, 2002) and monitored under the AMP. Table 3-17 presents the 2022 averages and historical averages for the metals parameters of interest for each landfill well. The full results are available in Appendix E.

In 2022, monitoring well MW14-03 returned one dissolved cadmium concentration above the AMP ST1 limit in August 2022 (Table 3-6); however, the AMP was not triggered, since cadmium concentrations returned below the threshold below in the following sampling event.



MW14-03 Dissolved Cadmium

In August 2022, MW14-03 returned a dissolved cadmium concentration of 0.000472 mg/L, marginally above the AMP ST1 limit of 0.00045 mg/L. In the following October 2022 monitoring event, cadmium concentrations decreased to 0.000256 mg/L, meaning the AMP ST1 was not officially triggered. In 2021, a similar occurrence was observed as dissolved cadmium concentrations at MW14-03 exceeded the AMP ST3 and YCSR standard with a concentration of 0.0011 mg/L, in August 2021 but then returned concentrations below the AMP ST1 in the following monitoring event in October 2021. MW14-03 is often dry and there is limited data which can be used to draw any insight to these exceedances. Since 2014, only eight samples have successfully been collected at this well, all of which, except the October 2021 and 2022 samples, have returned cadmium concentrations which exceeded the AMP ST1 (Figure 3-19). Ongoing investigations are taking place to continue to understand the source of the dissolved cadmium as it is not occurring at the other landfills wells and downstream surface water environment (MH-12).

Landfill Wells Groundwater Level

Quarterly water level monitoring in the landfill groundwater monitoring wells is required under the AMP. MW14-02 and MW14-03 were dry in February 2022. Monitoring well MW14-03 was also dry in June 2022. Individual and annual average water levels are shown in Table 3-16 and Figure 3-18.

Water levels at all landfill wells are presented in Table 3-16, alongside the historical averages and averages of previous years. Monitoring wells MW14-01, MW14-02 and MW14-04 have had annual water levels above the historical average in the past three years. Further monitoring is required to determine if the water levels at the landfill wells have permanently risen, following the high precipitation in 2020, or if the water level will gradually decrease in the following years. The water levels at all stations were lower than 3.5 m from the base of the landfill; none of the AMP specific water level thresholds were triggered.

Table 3-16: Landfill Groundwater Levels (masl)

Wall ID	2022				2022	2021	2020	Historical
Well ID	Feb	Jun	Aug	Oct	Average	Average	Average	Average ¹
MW14-01	1014.6 ²	1018.1	1017.2	1015.3	1016.3	1016.5	1016.3	1015.7
MW14-02	Dry	1020.7	1020.6	1019.3	1022.2	1022.0	1020.4	1020.2
MW14-03	Dry	Dry	1036.4	1035.1	1035.8	1036.0	1036.4	1036.2
MW14-04	1020.8	1022.4	1020.8	1021.5	1021.6	1020.3	1020.8	1019.3

¹ Average using data from 2013 to 2021

² Not enough water to sample



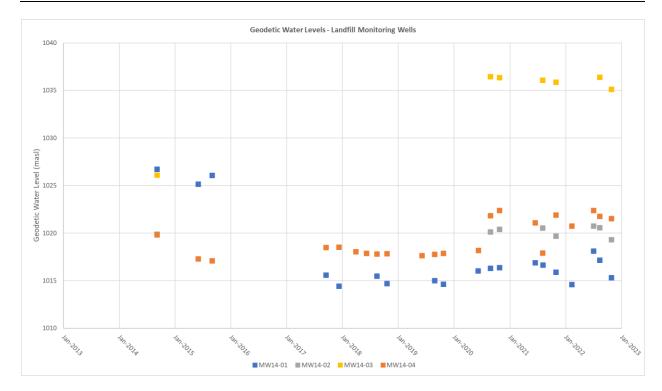


Figure 3-18: Landfill Groundwater Wells Geodetic Water Levels

Table 3-17: Landfill Groundwater Wells Average Comparisons for select YCSR Parameters

	Well ID	Dissolved Cadmium	Dissolved Lead	Dissolved Zinc
weii ib		mg/L	mg/L	mg/L
MW14-01	2022 Annual Average	0.000467	0.000341	0.00227
1010014-01	2013-2021 Historical Average	0.0000467	0.000292	0.00246
MW14-02	2022 Annual Average	0.0000228	0.000170	0.00193
	2013-2021 Historical Average	0.0000255	0.0000101	0.0077
MW14-03	2022 Annual Average	0.000354	0.000108	0.0046
1010014-05	2013-2021 Historical Average	0.00126	0.000624	0.0117
MW14-04	2022 Annual Average	0.0000242	0.000353	0.00243
	2013-2021 Historical Average	0.0000354	0.000322	0.00532



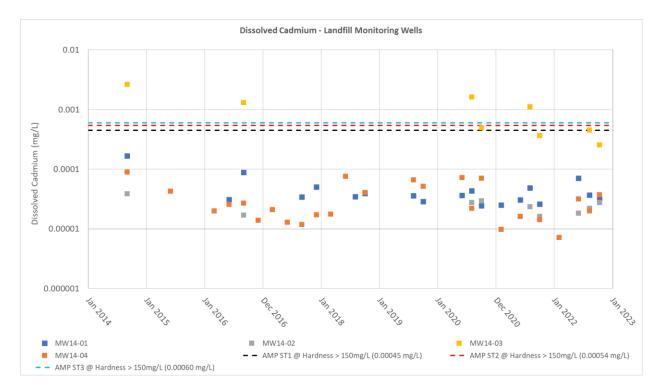


Figure 3-19: Dissolved Cadmium at MW14-01, MW14-02, MW14-03 and MW14-04

3.5.4.2 WATER QUALITY TRENDS

At MW14-01, the 2022 annual average for the field pH was 7.49, while the 2014 to 2021 average of 7.46. Sulphate concentrations in 2022 averaged 4.8 mg/L, which was lower than the historical average of 8.1 mg/L. Hardness levels in 2022 ranged from 217 to 264 mg/L, which was consistent with the ranges observed in the past.

At MW14-04, the 2022 annual field pH was 7.98, which was comparable to the historical average pH of 7.84. The 2022 average sulphate concentration at this well was 4.71 mg/L, slightly lower than the historical average of 7.02 mg/L. Hardness levels at MW14-04 ranged from 145 mg/L to 171 mg/L with a 2022 average of 163 mg/L which was consistent to the historical average of 169 mg/L.

At MW14-02 and MW14-03, there is limited historical data to discern any trends or anomalies from the 2022 sampling. The 2022 average field pH at both wells were 8.05 and 7.02, respectively, compared to their respective historical averages of 8.2 and 7.07. Sulphate concentrations at both wells averaged 5.26 mg/L and 54.9 mg/L, respectively, while their historical averages were 3.11 and 68.9 mg/L. At MW14-02, the 2022 hardness ranged from 165 mg/L to 208 mg/L. The hardness measurement of 165 mg/L, in June 2022, was the lowest hardness concentration observed at this well, however it was also the first time this well was successfully sampled in the summer. The samples in August and October returned hardness concentrations within the wells historical range. At MW14-03, the two sampling events returned hardness of 428 mg/L, in August 2022, and 319 mg/L in October 2022, which were values within the historical range of hardness observed at this well in the past. Plots showing historical and current groundwater concentrations are available in Appendix E.



3.5.5 CONTAMINATED SITES GROUNDWATER MONITORING

An environmental assessment of the site, conducted between 2011 and 2014, found petroleum hydrocarbon in soil that exceeded the YCSR standards in the vicinity of maintenance shops and fuel storage tanks. Similarly, metal concentrations exceeded YCSR standards in soils associated with the mine primary activity areas (i.e., sediment ponds, tailings facilities, waste rock piles) and processing areas (i.e., mill area). The hydrogeological assessment conducted indicated that groundwater quality was not impacted by the identified hydrocarbons or metals soil contamination, and a remediation plan was executed.

The monitoring plan includes three groundwater wells around the site designed to monitor areas downgradient of where soil contamination was identified as part of the Contaminated Site Assessment process:

- MW13-05 (Jewelbox/Main Zone);
- MW13-10 (Mill Site); and
- MW13-07 (Tailings Impoundment Area).

MW13-04 is also monitored for the same parameters as the site assessment wells, although it is not monitored under the AMP. MW13-04 is considered to reflect baseline conditions. MW13-04 and MW13-05 are located along the main access road and downstream of the Jewelbox zone. MW13-07 is located just downstream the North Dam and tailings pond area, and MW13-10 is located northeast and downstream of the mill site (Figure 3-1).

Water quality results are compared to Schedule 3 of the YCSR Water Quality Standards for the protection of Freshwater Aquatic Life (Yukon Government, 2002). Comparison to YCSR water quality standards is not a requirement of the water licence but is included in water quality reporting for reference. None of the contaminated site assessment wells triggered the AMP during 2022, although there was one exceedance of light extractable petroleum hydrocarbons (LEPH) in August 2022, which was later attributed to sample contamination. This exceedance was initially presented in the 2022 Q3 Quarterly Report, submitted to the Yukon Water Board on September 9, 2022 (Ensero, 2022) and resolved in the 2022 Q4 Quarterly Report, submitted to the Yukon Water Board on January 16, 2023 (Ensero, 2023)

3.5.5.1 AMP

The objective of the AMP for the general CSR groundwater wells is to detect a change in water quality that might imply that a metals or hydrocarbons plume is spreading from historical sources near the mill site or tailings pond area. AMP monitoring sites include MW13-10 (Mill Site), MW13-07 (Tailings Pond Area), and MW13-05 (Jewelbox/Main Zone) which are located to detect any changes in water quality and level close to the source. The thresholds for groundwater quality are based on the YCSR for the protection of aquatic life. The groundwater quality threshold parameters are hydrocarbons and dissolved cadmium, lead, and zinc. 2022 concentrations from the three CSR wells remained below the AMP for all parameters with the exception of LEPH at MW13-10. During the August 2022 monitoring event, monitoring well MW13-10 detected LEPH concentrations of 0.43 mg/L, which was in exceedance of the AMP ST2 limit. The AMP was not triggered, as it requires two consecutive exceedances of the limit. Upon further investigation by the laboratory, it was discovered that the LEPH constituent that was detected in the sample was most likely suspected to be N,N-diethyl-3-methylbenzamide (DEET), which is the most active ingredient in insect repellents. This is illustrated by a single peak in the chromatogram shown in Figure 3-20. It is therefore assumed that this LEPH detection was the result of cross-contamination during the sampling process. In 2022, MW13-04 exceeded the YCSR for dissolved cadmium in August 2022. Lead concentrations at this well also met



the AMP ST1 limit during the August monitoring event. Since MW13-04 is a reference station, it is not monitored under the AMP; however, these exceedances are discussed in this section.

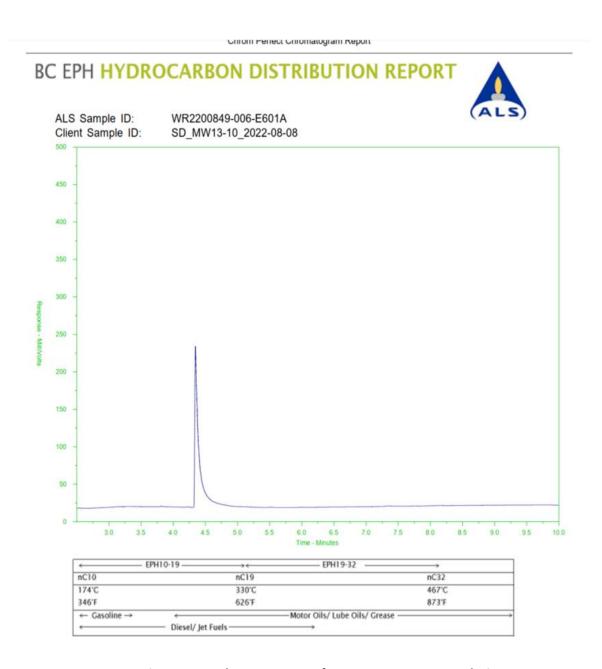


Figure 3-20: Chromatogram of MW13-10 LEPH Re-Analysis

MW13-04 - Cadmium and Lead

The hardness dependent YCSR standard for dissolved cadmium for MW13-04 during the June 2022 and August 2022 sampling events was 0.0005 mg/L and 0.0006 mg/L, respectively. In June 2022, dissolved cadmium concentrations at MW13-04 reached 0.000411 mg/L, which was above the AMP ST1 limit of 0.000375 mg/L (75% of the YCSR standard)), then increased to 0.000621 mg/L in August 2022 (Figure 3-21). Additionally, the August 2022 sample returned lead concentrations of 0.051 mg/L which met the AMP ST1 limit of 0.045 mg/L (Figure 3-22). The August



2022 lead concentration is the highest concentration observed at this well by an order of magnitude, as concentrations, historically, have ranged from 0.00025 mg/L to 0.00211 mg/L. Following the high concentrations in August, monitoring well MW13-04 was dry for the rest of 2022.

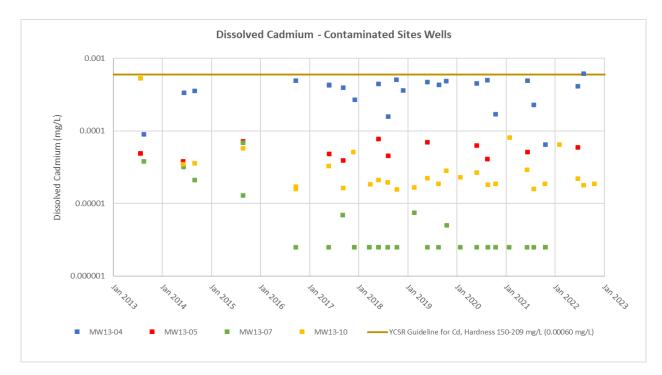


Figure 3-21: Dissolved Cadmium at MW13-04, MW13-05, MW13-07 and MW13-10



Figure 3-22: Dissolved Lead at MW13-04, MW13-05, MW13-07 and MW13-10



Water level monitoring of these wells is required under water licence QZ16-051 and water levels at four groundwater monitoring stations have remained constant historically and throughout 2022. Table 3-18 provides the well water levels and yearly averages for each station visited in 2022.

Table 3-18: Contaminated Sites Groundwater levels (masl 2)

Well ID	2022				2022	2021	2020	Historical
Well ID	Feb	Jun	Aug	Oct	Average	Average	Average	Average ¹
MW13-04	_ 2	1194.6	1182.3	_ 2	1188.4	1187.5	1191.5	1185.8
MW13-05	1193.8	1191.2	_ 2	_ 3	1192.5	1192.9	1192.6	1192.5
MW13-07	1093.5	1095.1	1094.1	1093.6	1094.1	1194.6	1094.4	1094.0
MW13-10	1115.3	1118.7	1115.8	1115.5	1116.3	1117.0	1117.0	1116.4

¹ Average using data from 2013 to 2021

3.5.5.2 WATER QUALITY TRENDS

The historical record for these wells has typically been limited for the 2014 to 2022 dataset, with the most frequent sampling occurring from 2017 onward. The paucity of data limits the identification and interpretation of long-term trends in the dataset. Plots showing historical and current concentrations of samples collected in these monitoring wells are available in Appendix E.

The pH, in 2022, measured at all four wells was circumneutral, ranging from 7.19 to 7.95, consistent with historical data. Sulphate concentrations have also remained relatively stable, in 2022, at all four of the groundwater monitoring locations with a minimum of 4.00 mg/L at station MW13-04 and a maximum of 55.4 mg/L at MW13-05. No significant changes have been observed at any of the wells in 2022.

Alkalinity was also within the range of the historical dataset for each well. Alkalinity concentrations were approximately 220 mg/L and 210 mg/L for stations MW13-07 and MW13-10, respectively; and at approximately 130 mg/L at stations MW13-04 and MW13-05, in 2022. Hardness has remained stable for all monitoring wells with 2022 averages near historical (2013-2021) averages.

The YCSR dissolved cadmium standard is hardness dependent and has a range of 0.0005 mg/L to 0.0006 mg/L for MW13-04 and a value of 0.0006 mg/L for the other three wells. MW13-04 has exceeded the YCSR standard in multiple occasions in the past, with the most recent being in August 2022, where dissolved cadmium concentrations were 0.00062 mg/L, which was a new maximum concentration observed at this well. At the contaminated sites groundwater wells (MW13-05, MW13-07 and MW13-10, dissolved cadmium concentrations remained within the range of their respective historical datasets and no signs of an increasing trend were apparent at any of these wells. In addition, 2022 average cadmium concentrations were consistent with the historical averages (Table 3-19). All the contaminated sites groundwater monitoring stations (MW13-05, MW13-07, and MW13-10) had dissolved cadmium concentrations below the AMP ST2 of 0.00045 mg/L.

The dissolved lead YCSR standard is hardness dependent, with a limit of 0.06 mg/L for MW13-04 and MW13-05 and 0.11 mg/L for MW13-07 and MW13-10. The August 2022 lead concentration was the largest concentration observed

² Unable to sample – Well was dry

³ Unable to sample – Not enough water to sample



at this well by one order of magnitude. The only other successful sample at this well was during the June 2022 monitoring event which returned a dissolved lead concentration of 0.000860 mg/L, compared to the historical average of 0.000487 mg/L (Table 3-19). At MW13-05 dissolved lead averaged 0.000271 mg/L, in 2022, compared to the historical average of 0.000347 mg/L (Table 3-19). Concentrations of dissolved lead at MW13-10 saw a seasonal maximum of 0.00536 mg/L, in February 2022, followed by 0.000266 mg/L in June 2022 and 0.000120 mg/L in August 2022 and October 2022. A similar trend was observed in 2021 where the February 2021 sample returned a concentration one order of magnitude larger than the rest of the dataset. Prior to 2021 lead concentrations at this well typically did not experience such large fluctuations. The 2022 average lead concentration at MW13-10 was 0.00147 mg/L, compared to the historic average of 0.000803 mg/L. Despite the large peaks observed at MW13-10, relative to its historical data, the February 2021 and 2022 concentrations were still one order of magnitude below the applicable AMP ST1 standard (0.0825 mg/L for hardness between 200 and 300 mg/L). At MW13-07 three of four dissolved lead concentrations were below the detection limit, consistent with the historic dataset. None of the 2022 samples taken at MW13-05, MW13-07, and MW13-10 exceeded the AMP ST1 for lead.

The dissolved zinc YCSR standard is hardness dependent, with a limit of 0.9 mg/L for MW13-04 and MW13-05 and 1.65 mg/L for MW13-07 and MW13-10. The highest zinc concentration in 2022 (0.138 mg/L) was recorded at the background monitoring well MW13-04 in February. Following the zinc concentrations from MW13-04, monitoring well MW13-10 was the station with the next highest zinc concentrations, with a 2022 peak concentration of 0.0191 mg/L (February 2022). All dissolved zinc levels measured at MW13-05, MW13-07 and MW13-10 were at least one order of magnitude below the lowest applicable AMP thresholds (ST1) (0.675 mg/L for MW13-05 and 1.24 mg/L for MW13-07 and MW13-10), with yearly averages of 0.00230, 0.00108 and 0.00640 mg/L, respectively (Table 3-19). Table 3-19 summarises the 2022 annual averages of the contaminated sites wells compared to the historical 2013 to 2021 averages.

Table 3-19: Contaminated Sites Groundwater Wells Average Comparisons for YCSR Parameters

	Well ID	Dissolved Cadmium	Dissolved Lead	Dissolved Zinc
weil ID		mg/L	mg/L	mg/L
NAVA42 04	2022 Annual Average	0.000516	0.0259	0.0724
MW13-04	2013-2021 Historical Average	0.000358	0.000487	0.0110
NAVA42 OF	2022 Annual Average	0.0000596	0.000271	0.0023
MW13-05	2013-2021 Historical Average	0.0000536	0.000347	0.00480
NAVA42 07	2022 Annual Average	<0.000050	0.000428	0.00108
MW13-07	2013-2021 Historical Average	0.00000925	0.000225	0.0164
NAVA/12 10	2022 Annual Average	0.0000308	0.00147	0.00640
MW13-10	2013-2021 Historical Average	0.0000681	0.00803	0.00646



4 SURFACE WATER HYDROLOGY

The surface hydrology of the SDH site was first characterized in 1990 during the permitting stage of the mine (SRK 1990). An update was prepared in 1999 to support the 2000 Decommissioning and Reclamation Plan (Teck, 2000). A further update was prepared in 2005 to incorporate site climate and flow data that had been collected over a four-year period from 2000 to 2004. In 2013, another set of updated flow measurements were made for key water sampling locations. The results of the 2013 work were discussed in the 2013 annual water licence report (SRK, 2014a).

The most recent hydrology update was generated in 2014. This updated hydrological information was used in SDH's water and load balance model for predicting post-closure surface water quality. A memorandum (SRK, 2014b) detailing this update was submitted on September 16, 2014. The following sections provide a summary of the hydrology data collected at the site in 2022.

4.1 PRECIPITATION

2022 was marked by heavy precipitation relative to recent years; the meteorological station located at the Watson Lake Airport (Climate ID: 2101200 and 2101204) recorded total precipitation of 405.4 mm in 2022. The station records are available from 1953 and the total precipitation between 1953 and 2022 are presented in Figure 4-1. 2022 had less total precipitation compared to the 68-year average, however it had the second highest total precipitation since 2014. The total precipitation at this station in 2022 was mostly snowfall as winter months saw higher amounts of precipitation compared to recent years.

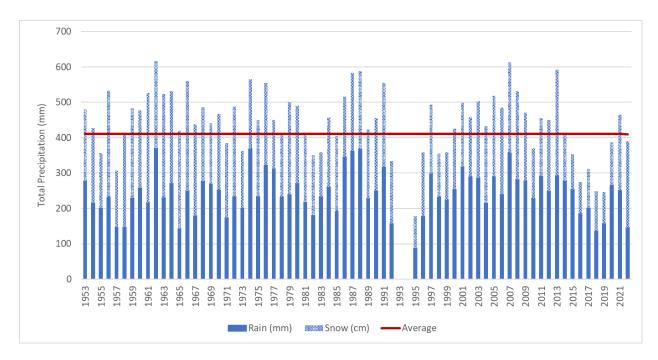


Figure 4-1: Total Precipitation (mm) at the Watson Lake Airport Meteorological Station, 1953-2022



4.2 METHODOLOGY

As part of the SDH water monitoring program, measurements or field estimates of creek discharge were conducted. Flows during open water were measured using a Hach FH950 velocity meter and the United States Geological Survey mid-section method. During the winter months, flows were measured using the salt-dilution gauging method. The dilution gauging procedure method deposits a known amount of salt into the stream and measures the concentration downstream over time. The measurement period covers the time it takes for the conductivity to respond to the tracer and return to background. Two measurements were collected at each station for both the mid-section and salt dilution methods. For MH-22 and MH-02 where a pipe is discharging, the bucket fill method was used in which the time taken to fill a bucket of known volume is recorded. The process was repeated five times and the average was taken. The method used at each site for measuring discharge is shown in Table 4-1.

Table 4-1: Hydrology Methods for 2022 sampling events

Site	February	April	June	August	October	December
MH-02	-	-	BF	BF	BF	BF
MH-04	DG	DG	MS	MS	MS	DG
MH-11	DG	DG	DG	DG	MS	DG
MH-12	-	-	-	-	-	-
MH-13	DG	DG	-	MS	MS	DG
MH-15	DG	DG	MS	MS	MS	DG
MH-22	-	-	_ 1	BF	BF	-
MH-29	DG	-	MS	DG	MS	DG
MH-30	-	-	-	-	-	-
SDH-S2	-	-	-	-	-	-

MS=Mid-Section Open-water Flow

DG=Dilution Gauging

BF= Bucket-fill

4.3 RESULTS

Results of the 2022 flow monitoring are presented in Table 4-2 and in Appendix D. As per to 2020, no flows were conducted at MH-30 in 2021 due to flooding at the site from beaver activity. Figure 4-2 presents all discharge measurements collected by Ensero from 2018 to 2022.

Table 4-2: Discharge Results for 2022 (m³/s)

Site	February	April	June	August	October	December
MH-02	_1	_1	0.0010	0.00033	0.00033	0.00017
MH-04	0.0078	0.0058	0.12	0.020	0.0098	0.0068
MH-11	0.0022	0.0165	0.30	0.061	0.017	0.020
MH-12	_1	_1	_2	_2	_2	_1
MH-13	0.13	0.056	_6	0.23	0.12	0.086

¹ Too fast for bucket flow. Flow was estimated without accurate measurements



Site	February	April	June	August	October	December
MH-15	0.065	0.052	0.25	0.12	0.090	0.064
MH-22	_5	_4	0.015	0.00067	0.00013	_1
MH-29	0.0047	_1	0.080	0.012	0.0052	0.0038
MH-30	_3	_3	_3	_3	_3	_5

¹ Frozen to ground, very low flow, or dry

⁶ Too much flowing water to safely capture discharge

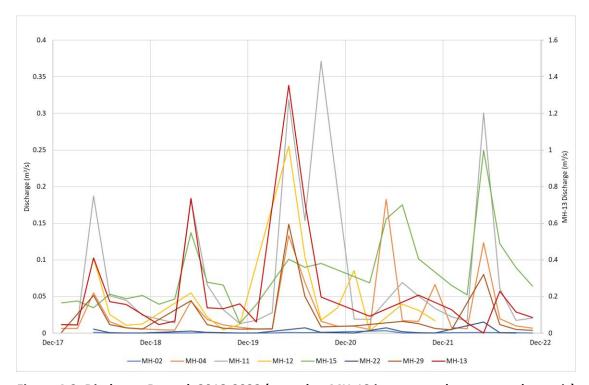


Figure 4-2: Discharge Record, 2018-2022 (note that MH-13 is presented on a secondary axis)

² Flooding

³ Flooded due to beaver activity

⁴ Unable to find station due to weather conditions

⁵ Site not visited due to weather



5 PHYSICAL AND GEOTECHNICAL MONITORING

Part G Clauses 44 to 48 of Licence QZ16-051 outlines the physical monitoring program of constructed and engineered structures remaining at the site. Monitoring of earthworks was conducted in 2022 as per the OMS Manual (SRK, 2015) and the Post-Closure Geotechnical Monitoring Plan (SRK, 2014c).

5.1 NORTH DAM EROSION EVENT

During a routine inspection on June 17, 2022, an area of surface erosion was identified on the north embankment of the Tailings Storage Facility (aka the North Dam). It was determined that the impacted material from this erosion event was dam embankment material only and no release of tailings from the impoundment occurred. In response, the Engineer of Record, Teck representative and contractors were immediately mobilized to site to assess the situation and complete repairs. Repair activities took place from June 25th to June 29th. Additional environmental monitoring and erosion mitigation measures were implemented during the repair work. A detailed memo describing the event, repair and monitoring activities was provided with the 2022 Q2 Quarterly Report, submitted on September 9, 2022 and is attached as Appendix F. Based on the additional results there were no measured changes to the receiving water quality. Additional information regarding the cause of the event and description of the repairs is provided in SRK's Annual Facility Performance Report provided in Appendix G.

5.2 ROUTINE ANNUAL PERFORMANCE MONITORING

Piezometer levels in the North Dam were measured bi-monthly, using a narrow water level meter, to monitor the phreatic surface within the dam. Piezometric levels in North Dam were reviewed on a regular basis by both Teck and SRK. They are included in the annual facility performance report provided in Appendix G. The seasonal fluctuations recorded in 2022 in the piezometers are generally consistent with those in previous years and below the maximum safe levels are within acceptable tolerance limits (SRK, 2021).

A formal geotechnical inspection of the structures and features associated with the Tailings Management Area (TMA) as well as other geotechnical structures was also conducted by Teck in June 18, 2022 and October 13, 2022. The geotechnical facilities inspection report is provided in Appendix G. The report presents Teck's observations of the following structures and features:

- The North Dam;
- The North Creek Channel which includes the decommissioned North Creek Dyke and Second Crossing;
- The relocated Camp Creek Channel;
- The North Channel and South Channel;
- The Sediment Retaining Structure (SRS);
- The Burnick Portals (1200 and 1300) and waste rock dumps; and
- The Jewelbox and Main Zone Waste Rock Dump Areas.

During the routine geotechnical inspections, erosion from the North tailings dam was identified and documented inperson to confirm the satellite imagery siting, as discussed in Section 5.1. Other observations identified general erosion, associated with freshet, around the Jewelbox, Burnick and North Creek areas. Additionally, beaver activity was noted around the North Creek dyke. Overall in 2022, all the structures are stable and are functioning in accordance with the closure design parameters. There were no changes to the structures in 2022.



In addition to the geotechnical inspection, monitoring and maintenance of the roadways is required as part of the QZ16-051.



6 AQUATIC RESOURCES MONITORING PROGRAM

The biennial aquatic resources monitoring at the site was undertaken by Ensero Solutions from August 8 to August 10, 2022. The work included benthic invertebrate, water quality, and stream sediment sampling at the compliance locations (MH-11 and MH-12), stations MH-04 and MH-13, and reference stations (MH-29 and MH-30). Fish sampling is to be conducted at MH-13 and reference location MH-30. Unfortunately, due to increased beaver activity and associated flooding, landing with a helicopter at MH30 was unsuccessful in 2022. Below is a summary of the report; a more detailed version is presented in Appendix H.

No anomalies were apparent in the water quality during the 2022 study. The clear, alkaline waters of the drainage were hard to very hard and concentrations of metals were low where detected. The cadmium concentration at MH-04 exceeded the CCME guideline for the protection of freshwater aquatic life and is consistent with historical concentrations. MH-04 is monitored within the routine water quality of the water license and EMSRP. Due to increased turbidity at MH-12, aluminum, chromium, iron, and lead concentrations slightly exceeded the applicable guidelines in the total metals sample; however, the dissolved values were very low and met all guidelines. MH-12 is monitored bi-monthly and these parameters did not exceed the receiving water quality standards in 2020.

The monitoring program conducted in 2022 represents the third time that licensed requirements for stream sediment and benthic invertebrate monitoring were completed. Although the stream sediment metal concentrations indicate that there could be negative effects on the aquatic biota, the benthic invertebrate communities were diverse and had good representation from the major groups of organisms that are usually present in lotic waters. The abundance of EPT at all sites suggests that the metals documented in the sediments are likely not in a bioavailable form.

Slimy sculpin continues to be the only fish species captured at MH-13. Numbers have been low at this site during the last three sampling events. While the absolute number of captured fish varies over time, the single species captured here continues to be consistent and indicative of a stable fish community. The other licensed fish and benthic invertebrate monitoring site, MH-30, could not be sampled due to flooded conditions as a result of increased beaver activity throughout this reach as well as high rainfall prior to the field work.



7 SPILL CONTINGENCY PLAN REVIEW

No spills or unauthorized discharges occurred in 2022. The Spill Contingency Plan was updated on March 26, 2018 to reflect current activities and contacts at the site. The Spill Contingency Plan was reviewed in March 2022 and no revisions are required.



8 2022 REPORT SUMMARY

Decommissioning activities were completed in 2015 and the site is now in permanent closure. Details of the 2015 decommissioning work are provided in AMEC's 2015 Reclamation Activities and As-Built Report, which were submitted by Teck in November 2015. The current water licence QZ16-051 addressing permanent closure came into effect on April 1, 2017. This report summarizes the annual monitoring work that was completed in 2022 as required by the current water license. The monitoring work at SDH in completed in 2022 included:

- Monitoring of surface and groundwater quality;
- The annual physical and geotechnical inspection and associated earthworks monitoring including monitoring piezometers on the North Dam. Piezometer water levels were consistent with the historical ranges observed at these stations;
- The biennial aquatic resources monitoring was completed in 2022;
- Road maintenance included removing debris from the road culverts; and
- Ongoing maintenance of the center drainage swale which drains to the center of the North Pond Tailings cap and regular clearing of shallow ditches draining in the Northwest end of the Tailings cap.

No freshwater from the on-site water wells was withdrawn for industrial or domestic purposes in 2022. No water was discharged by pumping. The Reclaim Pond Dam has been removed and reclaimed. Water from the South Tailings Pond now freely drains to the downstream environment when water levels reach the level of the South Retaining Structure spillway invert.

In 2022, samples from all the required water quality monitoring stations met the standards in licence QZ16-051 for all water quality parameters, except for total copper which exceeded at MH-12 during the December monitoring event and is discussed in Section 3.5.1.1. Exceedances of the AMP thresholds also occurred in 2022 and are discussed in Section 3.4.

In June 2022 there was an erosion event that removed embankment material from the North Dam. It was determined that there was no release of tailings from the impoundment. The Engineer of Record, Teck representative, and contractors were immediately mobilized to assess the situation and complete the repairs. Additional environmental monitoring and erosion mitigation measures were implemented during the repair work. Subsequently, there were no measured changes to the water quality.

The aquatic resources monitoring was completed in August 2022. Overall benthic metrics across the SDH monitoring stations are indicative of good water quality and productive stream ecology. The 2022 results were consistent with historical findings from past aquatic assessments.



9 REFERENCES

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APPENDIX A: WATER USE LICENCE QZ16-051

YUKON WATER BOARD

Pursuant to the Waters Act and Waters Regulation, the Yukon Water Board hereby grants a Type B water licence for a quartz mining undertaking to:

> Sä Dena Hes Operating Corp. c/o Teck Resources Limited 3300-550 Burrard Street Vancouver, BC V6C 0B3

LICENCE NUMBER:

QZ16-051

LICENCE TYPE:

В

UNDERTAKING: QUARTZ

WATER MANAGEMENT

01 Liard

AREA:

LOCATION:

Upper False Canyon Creek and tributaries of False Canyon

Creek, Sä Dena Hes Mine Site

MAP CO-ORDINATES:

Max Latitude: 60° 42' 21" N Max Longitude: 129° 11' 38" W

Min Latitude: 60° 18' 31" N Max Longitude: 128° 34' 08" W

PURPOSE:

To store/alter flow of water associated with maintenance and decommissioning activities and to deposit a waste to water.

EFFECTIVE DATE:

April 1, 2017

EXPIRY DATE:

December 31, 2040

This licence shall be subject to the restrictions and conditions contained herein and to the restrictions and conditions contained in the Waters Act and the Waters Regulation made thereunder.

Dated this 30 day of

Approved by:

March, 2017

Chairperson

YUKON WATER BOARD

PART A - DEFINITIONS

- "Act" means Waters Act and any amendments thereto.
- "Adaptive Management Plan" means the Sä Dena Hes Mine Post-Relcamation Adaptive Management Plan submitted as part of the Application and included in the Register QZ16-051 as part of exhibit 1.16, and any subsequent revisions.
- "Application" means Application QZ16-051, including any additional submissions and/or revisions submitted to the Yukon Water Board by the Licensee, up to the date of the Board's decision.
- "Board" means the Yukon Water Board.
- "Dam Safety Guidelines" means the most current version of the Dam Safety Guidelines issued by the Canadian Dam Association.
- "Detailed Decommissioning and Reclamation Plan" or "DDRP" means the *Detailed Decommissioning and Reclamation Plan* that was submitted as part of the Application and included in Register QZ16-051 as exhibit 1.3 and any subsequent revisions.
- "Environmental Monitoring, Surveillance and Reporting Plan" or "EMSRP" means the *Environmental Monitoring, Surveillance and Reporting Plan* submitted as part of the Application and included in Register QZ16-051 as Exhibit 1.24, and any subsequent revisions.
- "Freshwater Intake end-of Pipe Fish Screen Guideline" means the most current version of the Freshwater Intake end-of Pipe Fish Screen Guideline issued by the Department of Fisheries and Oceans.
- "Inspector" means any person designated as an Inspector under the Act.
- "Natural Boundary" means the visible high water mark of any lake, river, stream or other body of water where the presence and action of water is so common and usual and so long continued as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be Natural Boundaries.
- "Non-Acid Generating and Non-Metal Leaching" means rock with a paste pH \geq 5.0, a Neutralizing Potential: Acid Generation Potential Ratio (NPR) \geq 3:1 and a sulphur content of < 0.3%.
- "Post-Closure Geotechnical Monitoring Plan" means *Proposed Post Reclamation Geotechnical Monitoring Program* that was submitted as part of the Application and included in Register QZ16-051 as Appendix D in exhibit 1.24, and any subsequent revisions.

- "Watercourse" means a natural watercourse, body of water or water supply, whether usually containing water or not, and includes groundwater, springs, swamps, and gulches.
- "Wetted Perimeter" means the horizontal extent of the present water level while the work is taking place.

PART B – WATER USE AND DEPOSIT OF WASTE

- 1. The Licensee is hereby authorized to
 - a) deposit Waste in the form of;
 - i. water from Burnick 1200, via sub-surface flow, to tributaries of False Canyon Creek; and
 - ii. water from 1380 Portal, via sub-surface flow, to Upper False Canyon Creek.
 - iii. seepage from North dam to Tributary E False Canyon Creek;
 - iv. seepage and runoff from the south sediment retaining structure to Upper False Canyon Creek;
 - v. collected runoff from the Jewelbox Hill dumps to Upper False Canyon Creek;
 - vi. collected runoff from the North Hill dumps to tributaries of False Canyon Creek;
 - b) Store and/or alter flow of water associated with the south sediment retention structure;
 - c) carry out ongoing site monitoring and maintenance, including culvert maintenance and replacement; and
 - d) decommission and reclaim the site road and access road, including culvert removal and bank stabilization,

as described in the Application, and subject to the conditions of this licence. Where there is a discrepancy between the Application and this licence, the conditions of this licence shall prevail.

[&]quot;Regulation" means the Waters Regulation made under the Act.

[&]quot;Spill Contingency Plan" means the *Spill Contingency Plan* that was submitted as part of the Application and included in Register QZ16-051 as exhibit 1.28, and any subsequent revisions.

[&]quot;Waste" means any substance as defined in the Act.

PART C – DESIGN AND CONSTRUCTION

- 2. The Licensee shall submit to the Board final detailed design construction drawings, specifications and quality assurance/quality control procedures for the construction of any works associated with the implementation of the DDRP.
- 3. The design of all structures and facilities associated with the project shall be carried out using sound engineering practices and shall be completed and sealed by a Professional Engineer licenced to practice in Yukon.
- 4. The final detailed design construction drawings, specifications and quality assurance/quality control procedures submitted to the Board shall be consistent with the designs in the DDRP.
- 5. At least ten days prior to the proposed date of commencement of construction of any structure or facility, the Licensee shall submit to the Board a written notification, together with a detailed construction schedule and the name and contact number(s) of the construction superintendent.
- 6. Where site conditions require minor modification to the designs submitted to the Board, the Licensee shall notify the Board, at least 10 days in advance, of the details of the modifications or variations from final detailed designs, specifications and quality assurance/quality control procedures previously submitted to the Board, provide a detailed construction schedule and the name and contact number(s) of the construction superintendent. The notice shall be in writing and include an explanation of the reasons for the change and an assessment of the potential impact on the performance of the works. The notice shall be sealed by a Professional Engineer licensed to practice in Yukon.
- 7. As-constructed (record) drawings and construction reports for all structures and facilities shall be submitted to the Board within ninety days of the completion of construction. Each submission shall be sealed by a Professional Engineer licenced to practice in Yukon.

PART D - OPERATING CONDITIONS

- 8. During the term of this licence, the Licensee shall maintain all works in good order in accordance with sound engineering and environmental practices.
- 9. The Licensee shall maintain the main access road from June through September in a manner such that heavy equipment can be taken to the site until the site has stabilized.
- 10. The Licensee shall maintain facilities and structures and undertake all monitoring in accordance with the requirements of this Licence.
- 11. When conducting any instream works, creek flow must be diverted around the work areas.

- 12. Where fish are present, the Licensee shall salvage all fish prior to de-watering any work area.
- 13. All works associated with the undertaking shall be maintained in good repair.
- 14. Construction and/or maintenance equipment shall be mechanically sound and free of leaks.
- 15. The tracks and/or wheels of heavy equipment are prohibited from entering the Wetted Perimeter of any Watercourse.
- 16. Granular bedding and backfill material shall consist of non-frozen material.
- 17. Except as authorized by this licence, no Waste shall enter any Watercourse as a result of any activities carried out by the Licensee.
- 18. All disturbed ground surfaces shall be stabilized in such a manner so as to prevent erosion and surface runoff.

Water Pumps

- 19. All water pumps shall be contained within an impermeable liner/structure that has the capacity to contain 110% of the maximum combined volumetric capacity of the fuel, lubricants and coolants within the engine of the water pump.
- 20. The Licensee shall provide barriers consisting of fish guards, screens, coverings or nets on all water intakes that are consistent with *Freshwater Intake end-of Pipe Fish Screen Guideline*.
- 21. The Licensee shall cease pumping or decanting and take remedial action if there is alteration to the bed or bank of the water channel as a result of pumping.

Rip-rap

22. Rip-rap shall be hard, dense, angular, Non-Acid Generating and Non-Metal Leaching quarry stone or boulders, free of seams, cracks, structural defects and contaminants, freeze-thaw resistant, non-slaking and free of fine-grained materials including silt and sand. Rip-rap gradation will conform to the specifications provided in the Application in Register QZ16-051 exhibit 1.15.

Geotextile

23. Specifications of the geotextile material shall comply with those described in the Application in Register QZ16-051 exhibit 1.2.

Culvert Removal

- 24. When removing culverts, the following procedures shall be followed:
 - a) schedule removal of culverts so as to avoid concentrations of fish if such

concentrations exist;

- b) install or construct non-erodible cofferdams, silt barriers or other suitable methods to control siltation downstream of the work area;
- c) reshape site to conform to grade of adjacent stream bank following removal of the culvert;
- d) use rip-rap or other suitable methods, if required, to stabilize the bank at the work site; and
- e) remove all silt controls following completion of work and ensure the grade of the drainage course is restored.
- 25. Culvert placement, removal and channel excavation shall be done in the dry, with the exception of connecting the existing channel to the diversion channel.

Spills and Unauthorized Discharges

- 26. Where a spill or an unauthorized discharge occurs, that is of a reportable quantity under the Yukon Spills Regulations, the Licensee shall immediately contact the 24-hour Yukon Spill Report number, (867) 667-7244 and implement the Spill Contingency Plan. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Board not later than 10 days after the occurrence.
- 27. The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report.
- 28. The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the Yukon Spills Regulations. The log book shall be made available at the request of an Inspector. The log book shall include, but not necessarily be limited to:
 - a) the date and time of the spill or unauthorized discharge occurrence;
 - b) the substance spilt or discharged;
 - c) the approximate amount spilt or discharged;
 - d) the location of the spill;
 - e) the distance between the spill or discharge and the nearest Watercourse; and
 - f) remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge.
- 29. The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report.
- 30. All personnel shall be trained in procedures to be followed and the equipment to be used in

the containment of a spill.

- 31. Prior to the commencement of construction, the Licensee shall update the Spill Contingency Plan and provide the updated plan to the Board.
- 32. The Spill Contingency Plan shall be posted on site for the duration of the works. Fuel Transfer and Refueling
- 33. Fuel, lubricants, hydraulic fluids, coolants and similar substances, with the exception with liquid associated with the water pump engine, shall be transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in or allowed to be deposited in waters.
- 34. Water pumps may be refuelled within the Natural Boundary of any Watercourse. Refueling activities shall adhere to the following:
 - a) no refueling shall be conducted within the Wetted Perimeter of any Watercourse;
 - b) the fuel transfer shall be visually and continually monitored;
 - c) fuel transfer nozzles shall be operated manually and will not be locked in the open position;
 - d) spill kits, including absorbent pads shall be maintained in close proximity to the stationary equipment during refuelling operations;
 - e) fuel transfers shall be conducted with an operator at each end of the transfer hose;
 - f) shall only be conducted during daylight hours; and
 - g) fuel transfer equipment components such as pumps, hoses and nozzles shall be visually checked for leaks or damage prior to each refuelling operation.

PART E - PLANS AND STUDIES

EMSRP Update

- 35. The Licensee shall submit an updated EMSRP to the Board within 90 days of the effective date of this licence. The updated plan shall include, but not be limited to:
 - a) The terms and conditions of this licence;
 - b) An updated groundwater monitoring program that includes the following:
 - i. Quarterly monitoring of the groundwater wells in Schedule A;
 - ii. Quarterly reporting of site water monitoring data; and
 - iii. Addition of dissolved oxygen and oxidation-reduction potential as field parameters for the groundwater program.

Adaptive Management Plan

- 36. The Licensee shall submit an updated Adaptive Management Plan to the Board within 90 days of the effective date of this licence. The updated plan shall include, but not be limited to:
 - a) the terms and conditions of this licence;
 - b) the addition of sulphate to the AMP for mine source flow path water quality and receiving environment surface water quality components of the AMP;
 - c) the addition of specific numerical thresholds for the mine source groundwater quality AMP based on scientifically derived thresholds that are proactive and protective of the receiving environment; and
 - d) as part of the annual reporting on the AMP, a detailed assessment of the full suite of paramaters being measured at AMP indicators stations and identification of any additional indicator parameters that should be incorporated into the AMP.

Groundwater-Surface Water Interaction Study

- 37. Within 90 days of the effective date of this licence, the Licensee shall submit to the Board a plan for the assessment of groundwater-surface water interactions at the site including, but not limited to:
 - a) a review of all monitoring results from all wells on site;
 - b) predictions of groundwater-surface water interactions; and
 - c) verification of existing site information including rationale supporting location of receiving water monitoring stations.
- 38. The Licensee shall carryout the assessment according the plan and submit report documenting the results of the program and any recommendations stemming from the study on or before March 31, 2019.
- 39. Subject to any required assessments, authorizations or approvals, the Licensee shall implement all plans required by this section of this licence.

PART F – RECEIVING WATER QUALITY STANDARDS

40. All results of grab sample analysis for MH-11, MH-12 and MH-15 shall meet the following receiving water quality standards.

Parameter	Maximum Concentration in a Grab Sample
Aluminum, dissolved	if pH $\geq 6.5 = 0.05 \text{ mg/L}$
	if pH $< 6.5 = e[1.6-3.327 (median pH)+0.402 (median pH)^2]$
Antimony, total	9 μg/L

Parameter	Maximum Concentration in a Grab Sample
Arsenic, total	5 μg/L
Beryllium, total	0.13 μg/L
Cadmium, dissolved	$=e^{[0.736 x \ln(hardnesss)-4.943]} \text{ in } \mu g/L$
Chromium VI, total	1 μg/L
Cobalt, total	4 μg/L
Copper, total ¹	if hardness $\leq 50 \text{ mg/L} = 2 \mu\text{g/L}$
* **	if hardness $>$ 50 mg/L = 0.04 x (hardness)
Iron, total ²	1 mg/L
Lead, total ³	MH-12 / MH-15 (µg/L) = ${3.31 + e^{[1.273 \ln(hardness) - 4.704]}}$
	MH-11 (µg/L) = $1.928 \times \{3.31 + e^{[1.273 \ln(hardness) - 4.704]}\}$
Molybdenum, total	0.073 mg/L
Nickel, total	if hardness \leq 60 mg/L or unknown = 25 μ g/L
	if hardness > 60 mg/L and \leq 180 mg/L = [e ^{0.76[ln(hardness)]+1.06}] µg/L
	if hardness $> 180 \text{ mg/L} = 150 \mu\text{g/L}$
Selenium, total	2 μg/L
Silver, total	0.25 μg/L
Sulphate, total	if hardness $\leq 30 \text{ mg/L} = 128 \text{ mg/L}$
	if hardness $> 30 \text{ mg/L}$ and $\leq 75 \text{ mg/L} = 218 \text{ mg/L}$
<u>18</u>	if hardness > 75 mg/L and \leq 180 mg/L =309 mg/L
	if hardness $> 180 \text{ mg/L} = 429 \text{ mg/L}$
Thallium, total	0.8 μg/L
Zinc, total ³	MH-12 / MH-15 if hardness \leq 90 mg/L = 7.5 μg/L if hardness $>$ 90 mg/L = [7.5 + 0.75(hardness - 90)] μg/L MH-11
Hardness is managered in mall Co	if hardness $\leq 90 \text{ mg/L} = 18.75 \mu\text{g/L}$ if hardness $> 90 \text{ mg/L} = 2.5 x [7.5 + 0.75(hardness - 90)] \mu\text{g/L}$

Hardness is measured in mg/L CaCO3 at monitoring station

PART G - MONITORING AND SURVEILLANCE

- 41. The Licensee shall comply with the water quality monitoring program and surveillance network program as outlined in the EMSRP and in accordance with Schedule A of this licence and shall submit the data that is compiled as a result of these programs and studies as a component of the required annual reports.
- 42. Laboratory analyses shall be performed by a laboratory accredited under the International Organization for Standardization ISO/IEC 17025:2005 standard and the accreditation must include the actual tests being performed by the laboratory.

¹ Standard for Copper during month of May is 4 μ g/L if hardness \leq 50 mg/L or 0.08 x [hardness] if hardness > 50 mg/L

² Standard for Iron during month of May is 3.9 mg/L

^{3.} Apply to dissolved fraction when TSS is 4 mg/L or higher

- 43. Monitoring and sampling shall be carried out in accordance with the procedures and standards described in:
 - a) Guidance Document for the Sampling and Analysis of Metal Mining Effluents, April 2001, (Report: EPS 2/MM/5), Minerals and Metals Division, Environment Canada;
 - b) Guidance Document for Flow Measurement of Metal Mining Effluents, April 2001, (Report: EPS 2/MM/4), Minerals and Metals Division, Environment Canada;
 - c) Standard Guide for Sampling Ground-Water Monitoring Wells, ASTM D4448-01, ASTM International, PA, USA.

Physical Monitoring Program

- 44. The Licensee shall comply with the physical monitoring program as outlined in the EMSRP and Schedule B of this licence and shall submit the data that is compiled as a result of these programs and studies as a component of the required annual reports.
- 45. All earthworks and water retaining structures including, but not limited to, open pits, waste dumps, ditches, dams, dykes, weirs and appurtenances shall be inspected by a Professional Engineer licenced to practice in Yukon as per the Post-Closure Geotechnical Monitoring Plan. The results of the inspection, including all problems identified, remedial measures proposed, and remedial measures implemented, shall be compiled in a report that shall be submitted to the Board as part of the annual report.
- 46. The Licensee shall complete a dam safety review for all water retaining structures, including but not limited to dams, dykes, weirs and appurtenances at least once every ten years, with the first review to be completed no later than 2026. The review shall be conducted in accordance with the most recent Dam Safety Guidelines published by the Canadian Dam Association.
- 47. Details of any maintenance, inspection and/or surveillance activities undertaken in the previous year in relation to dam safety shall be included in the annual report.
- 48. The North tailings dam shall be monitored by the use of instrumentation as required by the Engineer of Record in the Post-Closure Geotechnical Monitoring Plan to ensure long term stability.

Fisheries Monitoring Program

- 49. A fisheries monitoring program shall be conducted in accordance to Schedule A-Part 3 of this licence and the EMSRP. The sample locations shall be marked in the field in a manner that ensures that replicate surveys can be made.
- 50. The Licensee shall survey sites MH-13, and MH-30 beginning in 2018, to confirm:
 - a) a generalized stream bed and substrate characterization and to identify changes since the previous sampling, and

- b) through generally accepted methodology, a catch per unit effort and the general implications of any changes observed as compared to prior sampling periods.
- 51. The results of the fisheries monitoring program shall be included in the Annual Report.

Benthic Invertebrate Monitoring

- 52. Benthic invertebrate monitoring shall be conducted in accordance with Schedule A-Part 3 of this licence and the EMSRP beginning in 2018.
- 53. The Licensee shall collect representative samples in accordance to the Canadian Aquatic Biomonitoring Network (CABIN) Field Manual for wadeable streams, and accepted preservation, enumerative and identification procedures.
- 54. Sample collection, identification, enumeration and data interpretation shall be performed by an individual having qualifications, expertise and experience in the subject.
- 55. Water sampling shall be conducted at each of the collection sites during the sample period per Schedule A.
- 56. Results of the benthic invertebrate monitoring and the water sampling and analysis shall be included in the Annual Report.

Sediment Monitoring

- 57. Sediment monitoring shall be conducted in accordance with Schedule A-Part 3 of this licence and the EMSRP.
- 58. The timing of the sediment monitoring shall coincide with the benthic invertebrate monitoring program. Triplicate samples shall be collected at each of the five sites indicated in the benthic invertebrate monitoring program.
- 59. All data collection shall be conducted in accordance to a nationally recognized sampling protocol (e.g. CCME Protocols Manual for Water Quality Sampling in Canada, 2011). The results shall be included in the Annual Report.

PART H – GENERAL CONDITIONS

60. The Licensee shall ensure a copy of this Licence is maintained at the site during operations at all times.

Other Laws

- 61. No condition of the water use licence limits the applicability of any statutory authority.
- 62. All construction or installation of works authorized by this licence shall occur on property that the Licensee has the right to enter upon and use for that purpose.

Non-Compliance

63. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, subject to the Act, cancel the licence.

Correspondence

- 64. Where any direction, notice, order or report under this licence is required to be in writing, it shall be given:
 - a) To the Licensee, if delivered, or mailed by registered mail, to the address identified on page 1 of this licence, and shall be deemed to have been given to the Licensee on the day it was delivered, or 7 days after the day it was mailed, as the case may be; or
 - b) To the Board, if delivered, faxed or mailed by registered mail, to the following address:

Yukon Water Board Suite 106, 419 Range Road Whitehorse YT Y1A 3V1

Fax#: (867) 456-3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

c) The Board or the Licensee may, by notice in writing, change its address for delivery.

Annual Reports

- 65. The Licensee shall submit annual reports to the Board on or before March 31 of the year following the year reported. The report shall include the information required by the Regulation including, but not necessarily limited to:
 - a) summaries of all data generated as a result of the monitoring requirements of this licence, including analysis and interpretation by a qualified individual or firm and a discussion of any variances from baseline conditions or from previous years' data:
 - b) a detailed record of any major post-reclamation maintenance work carried out on the waste dumps, diversion works, roads or any other aspect on the property that may have an impact on water;
 - c) documentation of any activities carried out at the site including those carried out under the requirements of the DDRP or Adaptive Management Plan;
 - d) reporting on the Adaptive Management Plan; and
 - e) an identification of any recommendations from the physical monitoring program, or from the most recent dam inspections or safety reviews, that were either not implemented, or that did not comply with the schedule proposed in the report, or in the review, including an explanation of why the recommendations was not implemented.

Quarterly Reports

66. Unless otherwise specified in this licence, the Licensee shall forward to the Board a copy of all data collected as part of the monitoring programs of this licence no more than 30 days after the conclusion of each quarterly sampling event in which that data was collected.

Reports

- 67. The Licensee shall provide to the Board one unbound, single-sided, paper copy of all reports required by this licence. All reports must be reproducible by standard photocopier.
- 68. The Licensee shall upload electronic copies of all reports required by this licence to the Yukon Water Board's online licensing registry, Waterline. Electronic copies shall be submitted in one of the following formats: MS Word, MS Excel, or Adobe .pdf format.
- 69. All water quality, water quantity and water level data shall also be submitted in Excel format. Water quality results must be uploaded to Waterline in the format outlined in the most recent version of Yukon's "Laboratory Data Submission Standards for Water Quality". This guide is available on the Yukon Water Board website.

SCHEDULE A – PART 1 SURVEILLANCE MONITORING SITES

Station ID	Station Description	Coordinates		
Station ID	Station Description	Northing	Easting	
MH-11	Camp Creek located 2 km downstream of the Reclaim Pond (Upper False Canyon Creek)	6707788	509460	
MH-12	East Fork of Tributary E – of False Canyon Creek, approximately 2 km downstream of the north tailings dam	6712755	509688	
MH-02	North Dam seepage	6711477	508060	
MH-22	Burnick 1200 Portal discharge	6712946	506767	
SDH-S2	Drainage from the 1380 Portal, present as a seep in the downslope waste rock dump	6709558	506325	
MH-13	False Canyon Creek main channel located 10 km downstream of the mine site	6709113	512541	
MH-04	Located near the Camp Creek headwaters above the former Reclaim Pond	6710292	507267	
MH-15	West Fork of Tributary E	6718408	510041	
MH-29	Access Creek Upstream of Camp Creek	6708895	509146	
MH-30	Unnamed Tributary Upstream of False Canyon Creek	6707568	510985	
MW13-01	Jewelbox/Main Zone – in 1380 Gully, downgradient of 1380 Portal.	6710202	506635	
MW13-04	Main Access Road	6708729	507240	
MW13-05	Main Access Road – south of the Mill Site on the Main Access Road.	6709392	507318	
MW13-06	Burnick 1200 Portal	6713001	506761	
MW13-07	North Dam – north of the North Dam and tailings pond area.	671-1502	507904	
MW13-10	Mill site - northeast of the Mill Site	6709866	507774	
MW13-08	Downgradient of 1380 Portal	6710234	507325	
MW13-13	Downgradient of 1380 Portal	6709814	506452	
MW14-01	In proximity to the landfill.	6712303	507861	
MW14-02	In proximity to the landfill.	6712330	507967	
MW14-03	In proximity to the landfill.	6712442	507922	
MW14-04			508005	

SCHEDULE A – PART 2 WATER MONITORING SURVEILLANCE PROGRAM

Station	Station ID	Flow	Water	Field Measurements		External Analytical Suite	
Category	Station ID	riow	Level	Frequency	Parameters	Frequency	Analytical Suite
Compliance	MH-11	BM		BM	C	BM	A
Point	MH-12	BM		BM	С	BM	Α
T OILL	MH-15	BM		BM	C	BM	A
Diagharas	MH-02	BM		BM	С	BM	Α
Discharge Source	MH-22	BM		BM	C	BM	A
- Bource	SDH-S2	BM		BM	С	BM	Α
Additional	MH-13	BM		BM	С	BM	A
Surface Water	MH-04	BM		BM	С	BM	A
Stations	MH-29	BM		BM	С	BM	A
	MH-30	BM		BM	С	BM	Α
	MW13-01		Q	Q	D	Q	В
	MW13-04		Q	Q =	D	Q	B,H
	MW13-05		Q	Q	D	Q	В,Н
	MW13-06		Q	Q	D	Q	В
	MW13-07		Q	Q	D	Q	B,H
Groundwater	MW13-10		Q	Q	D	Q	B,H
Groundwater	MW13-08		Q	Q	D	Q	В
	MW13-13		Q	Q	D	Q	В
	MW14-01		Q	Q	D	Q	В,Н
	MW14-02		Q	Q	D	Q	B,H
	MW14-03		Q	Q	D	Q	В,Н
	MW14-04		Q	Q	D	Q	В,Н

BM: Bi-monthly; S/F: Spring and Fall (freshet and low flow periods); Q:Quarterly (to include freshet and low flow periods

- C: pH, specific conductance, water temperature
- D: pH, specific conductance, water temperature, dissolved oxygen, ORP
- A: pH, specific conductance, total alkalinity, TSS, TDS, total and dissolved metals, total ammonia-N, nitrate-N, nitrate-N, dissolved sulphate, hardness
- B: pH, specific conductance, total alkalinity, dissolved metals, total ammonia-N, nitrate-N, nitrite-N, dissolved sulphate, hardness
- H: hydrocarbons including BTEX, LEPH, HEPH, VPH, PAH

SCHEDULE A – PART 3 AQUATIC RESOURCES MONITORING PROGRAM

Station ID	Benthics/ Sediments	Fisheries
MH-11	BA-LFF	
MH-12	BA-LFF	
MH-13	BA-LFF	BA-LFF
MH-04	BA-LFF	
MH-29	BA-LFF	
MH-30	BA-LFF	BA-LFF

BA-LFF: Every two years during the low flow period (August or September)

Benthics: field collection and laboratory taxonomy using CABIN wadeable stream protocol.

Sediment: metals, total organic carbon and particle size

Fisheries: population and fish size

SCHEDULE B - PHYSICAL MONITORING

Inspection of Relevant Mine Components

Year	Frequency		
2017- 2026	Annually		
2027-2040	Years 2031, 2036, 2040	-	



APPENDIX B: ADAPTIVE MANAGEMENT PLAN



Sä Dena Hes Mine

Post-Reclamation Adaptive Management Plan

12/02/2018

Prepared for:

SÄ DENA HES OPERATING CORPORATION C/O TECK RESOURCES LIMITED



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1. INTRODUCTION

1.1 OVERVIEW

The Sä Dena Hes (SDH) mine is a lead/zinc mine located 45 km north of Watson Lake in southeastern Yukon within the Traditional Territory of the Kaska First Nation, specifically Liard First Nation (LFN). The SDH mine was constructed in 1991 and operated between August 1991 and December 1992 by Curragh Resources Inc. under Water Licence IN90-002 pursuant to the *Northern Inland Waters Act*. Approximately 700,000 tonnes of ore were mined and processed onsite during the 16-month operation of the mine. The mine has not been in operation since that time.

After 14 years in Temporary Closure, on January 26, 2012, Teck Resources Limited (Teck), on behalf of the Sä Dena Hes Operating Corporation (SDHOC), informed YG of its intention to enter the SDH mine into permanent closure and begin to implement the approved Detailed Decommissioning and Reclamation Plan (DDRP) on January 29, 2013. The decommissioning, closure and reclamation activities to permanently close the SDH mine was conducted from 2013 to 2015 in accordance with the licensed and approved DDRP.

During the 25-year post-reclamation phase, Teck proposes:

- To continue to deposit a waste from the discharges of the Main Zone 1380 Portal, the Burnick 1200 Portal and seepage from the Tailings Management Facility;
- To maintain and replace (if necessary) culverts and crossings on the Main Access Road and Site Access Road; and
- To store/alter water flow (to maintain dry construction conditions) for removal of culverts and back stabilization during decommissioning of the Main Access Road and Site Access Road.

This Adaptive Management Plan (AMP) is a tool used to address uncertainty or conditions in water quality beyond those anticipated in post-reclamation. AMPs outline a range of possible but unexpected outcomes and the responses that will be undertaken to curb possible negative impacts associated with these unexpected situations.

There are several very prescriptive and detailed management plans required for both operational control and regulatory approval for the post-reclamation period. Teck has developed a number of operational management plans which describe the management and response actions for expected conditions at the site. These plans currently include:

- Detailed Decommissioning and Reclamation Plan (Teck, 2015); and,
- Environmental Monitoring, Surveillance, Reporting Plan EMSRP (Teck, 2017).

This AMP provides a framework for responses to conditions beyond those expected and identified in these decision-based management plans. Consequently, this AMP addresses a limited range of components related to water quality. It is expected that the AMP will be reviewed and revised as the closure measures are evaluated over



time. The AMP has also been updated to reflect the conditions described in Water Use License, QZ16-051, which came into effect April 1, 2017.

1.2 ADAPTIVE MANAGEMENT PLANNING

Adaptive management is an approach to environmental management that is appropriate when a mitigation measure may not function as intended or when broad-scale environmental change is possible. Adaptive management plans are precautionary in nature, and provide a level of security in long term environmental planning. Adaptive management plans also allow for the inclusion of improved science into mitigation measures as they are continually revised.

Adaptive management has been evolving since its emergence in the 1970s. Adaptive approaches include an ability to incorporate knowledge into the management plan as the knowledge is gleaned and circumstances change (Eberhard, et al., 2009). Eberhard, et al., described the categories of knowledge that may trigger changes to water quality management plans; system understanding, measuring progress, and anticipating changes. These categories allow for the inclusion of knowledge and adaptation of management to changed conditions. Embedding adaptation into environmental plans involves thinking about how the results of monitoring will change management actions. Adaptive management plans are a way to accept uncertainties and build a structured framework to respond to changing conditions.

Adaptive management constructs a flexible path with actions to take when specific triggers occur. AMPs are a formalization of a plan for performance monitoring and project re-evaluation in the future. The general structure of adaptive management can be described by the following steps:

- 1. Identify risk triggers associated with vulnerabilities or uncertainties;
- 2. Quantify impacts and uncertainties;
- 3. Develop a monitoring network to understand variability and detect changes in water quality;
- 3. Evaluate strategies and define implementation path that allows for multiple options at specific triggers;
- 4. Monitor the performance and critical variables in the system; and
- 5. Implement or re-evaluate strategies when triggers are reached.

While the nomenclature used in AMPs varies, the steps listed above are representative of typical AMP processes. Within AMPs, triggers provide decision points in a stepwise decision-making framework that identifies how and when management action should be taken. A key characteristic of adaptive management is monitoring, which is used to document and track the status of the system of interest and to adjust management policies in an iterative process. Adaptive management is a rigorous method for addressing uncertainties in natural systems to meet performance objectives.



1.3 ADAPTIVE MANAGEMENT PLAN OBJECTIVES

This document identifies areas of uncertainty within the operational phase of Permanent Closure at Sä Dena Hes Mine and provides an AMP framework for each. The AMP describes monitoring commitments, thresholds, triggers and responses to underperforming elements or emerging risks for water quality. The steps laid out in the AMP framework are proactive, and describe progressively intensifying actions taken before adverse environmental impacts are observed.

Response planning, and results for anticipated, known and/or planned events are contained within site management plans. This AMP provides a framework for responding to a range of future events that are uncertain such as the loss of attenuation capacity, increased rates of metal release or other events that can result in the exceedance of the site water quality objectives.

AMPs do not prescribe specific responses to range of events, which is a function of Management plans. AMPs are designed to expand from monitoring data and must be flexible to do this. It is difficult to predict the specific environmental conditions that may arise which require a response from management and, therefore, the AMP does not provide specific detailed descriptions of responses to a situation. The AMP provides a range of possible responses to use as a guide to respond to specific environmental conditions encountered. Management should use the information provided in the AMP and undertake the appropriate response.

1.4 ADAPTIVE MANAGEMENT PLAN APPROACH

In addition to the conclusions drawn from monitoring, the approach presented in this AMP follows the Environment Canada Environmental Code of Practice for Metal Mines, Section 4.1.17 on Adaptive Management, which states that:

Mine owners/operators should use adaptive management methods to revise and refine the environmental management strategy. Adaptive management should consider a wide range of factors, including:

- results of environmental audits or other evaluation activities;
- results of environmental monitoring;
- results of monitoring of the performance or condition of environmental infrastructure, such as containment structures, water management systems or treatment facilities;
- technological developments; and
- changing environmental conditions. (Environment Canada, 2009)

In addition to the guidance provided by the Environmental Code of Practice for Metal Mines, the AMP meets the Yukon Government's Protocol for the Contaminated Sites Regulation under the Environment Act Protocol 13: Adaptive Management.



1.4.1 AMP FRAMEWORK

This AMP is laid out using a common element approach to consistently implement the AMP protocol as illustrated in Figure 1-1. The common elements are:

- 1. Description of the site water quality components and associated risk narratives:
 - Description and understanding of the component leads to risk narrative and specific performance thresholds.
 - *Risk Narrative* describes the possible environmental impacts and environmental conditions to water quality that implementation of the AMP will prevent.

2. Monitoring site water quality:

- Specific Indicators are the environmental or physical parameters to be monitored and assessed. Specific indicators are measurable or observable, and are indicative of changes from the designed or expected condition, such as select water chemistry parameters and groundwater levels.
- Monitoring Requirements describes the monitoring regime for the component including frequency, type of data required, and interpretation of results. The monitoring sites and schedule for the entire SDH mine site during reclamation and closure are already set out in the Environmental Monitoring, Surveillance, Reporting Plan (Teck, 2017). The AMP identifies specific monitoring sites described in the EMSRP that would identify potential changes and uses those sites and monitoring schedule to prompt an appropriate response. One of the possible actions that can come out of the AMP if triggered is to examine the water quality results from appropriate additional monitoring sites described in EMSRP, or to request additional sampling beyond those in the EMSRP.
- Specific Performance Thresholds define the conditions, in terms of specific indicators, when action is triggered. Performance thresholds are specific to each AMP component and are staged to accommodate levels of concern and a diversity of actions. To the extent possible, specific performance thresholds will include early warning thresholds.

3. Responding to unexpected conditions of the component:

 Specific Responses are staged according to specific performance thresholds and describe the actions to be implemented if those thresholds are crossed.

The actions to be implemented are the following:

- a) Notification notify the appropriate parities based on which component and level of specific performance threshold is exceeded.
- b) Review verification of data appropriate to the level of specific threshold exceeded.
- c) Evaluation an investigation into the cause of the exceedance appropriate to the level of the specific threshold exceeded. Can include trend analysis, resampling, or a more thorough investigation into root causes.



d) Action – an appropriate response based on the level of the specific threshold exceeded.

4. Annual Reporting and Review:

Annual Reporting would include the rationale for modifying the AMP if site conditions were to change. The AMP should be modified whenever monitoring data demonstrate a sustained deviation from previous trends in the data, the monitoring plan is revised and/or the best available conventional technology or practice to characterize or mitigate the water quality becomes available. The annual review will include a review of the relevant monitored data and AMP elements. Updates, amendments, performance thresholds crossed, and trigger(s) activated will be provided to the appropriate governmental organizations as required and will be part of the annual report.

In year 10 of the EMSRP monitoring schedule, data will be reviewed to evaluate if data variability and trends have been adequately characterized to reduce the monitoring frequency. The AMP will be reviewed and potentially revised such that the AMP is consistent with the proposed monitoring schedule from year 11 and onwards.



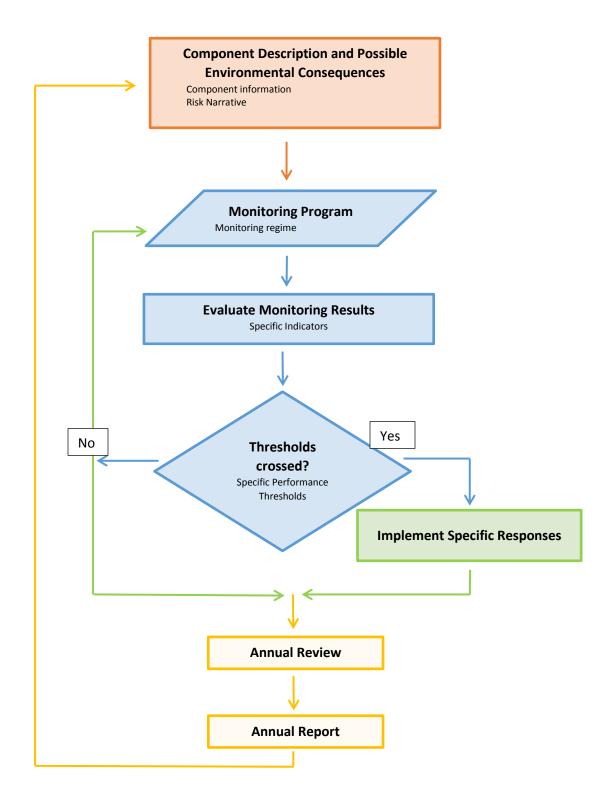


Figure 1-1: Sequential Components of the AMP (Adapted from AECOM 2010).



1.4.2 SITE SPECIFIC LOADING

This AMP was developed to protect water quality in the receiving water (Camp Creek, Tributary E, and False Canyon Creek) downgradient of the site.

This AMP does not consider physical stability or waste covers as mine components requiring AMP triggers and thresholds as the purpose of an AMP is to provide a management framework for facilities and performance that have a relatively high degree of uncertainty. The physical stability of the covers and the engineered geotechnical facilities will be monitored and maintained during post-reclamation according to the *Geotechnical Monitoring Program* (SRK, 2014b), and the *Environmental Monitoring, Surveillance, and Reporting Plan* (Teck, 2017). If during regular monitoring and maintenance further issues are identified they will be dealt with under these two plans. These plans also account for additional inspections that can be triggered by extraordinary circumstances such as after a significant storm or seismic event.

1.5 DESCRIPTION OF AMP LOADING SOURCES AND FLOW PATHS

There are three loading sources (North Dam Seepage, Burnick Portal and 1380 Portal) at SDH. Loadings from these sources infiltrate into the ground near their sources. Loading from the sources would then travel along groundwater flowpaths to surface water features. Constituent loading from the sources has not been observed in the receiving water and the mass loadings have been inferred to be attenuated. This section, adapted from the *Draft Adaptive Management Plan, Sä Dena Hes Mine* (SRK, 2014a) describes each loading source, the geochemical conceptual model and the drainage flow path.

1.5.1 NORTH DAM SEEPAGE

During operations, tailings were discharged to the North Tailings Dam. Currently, there is no ponded water behind the North Tailings Dam. The tailings are saturated within a meter of the surface. Seepage from the toe of the North Dam is routinely monitored at MH-02 as required by the existing WUL QZ15-082 (previously QZ99-045). The seepage at MH-02 is tailings porewater that mixes with groundwater from the valley sides and runoff from the North Dam face (SRK 2000). The seepage quality at MH-02 is routinely in compliance for all WUL parameters.

Seepage from the North Tailings Dam flows throughout the entire year. Flow at MH-02 is highest during freshet and lowest during the winter. The seepage flows above ground for a short distance from the North Dam before infiltrating into the ground. It then flows as groundwater before eventually discharging to North Creek and the headwaters of the East Fork of Tributary E. From the East Fork of Tributary E, the water flows to Tributary E and then to False Canyon Creek. The flow path is shown in Figure 1-2, Figure 1-3, and Figure 1-4.

Metal attenuation along this pathway has not been evaluated. The flowpath between the point of infiltration and discharge to surface water is shorter than the flowpaths at the Burnick Portal and 1380 Portal. For the purposes of the post-reclamation water quality predictions, it was conservatively assumed that the entire constituent load from the seepage discharges to North Creek above MH-12 and that there was no attenuation of metals by the soil (SRK 2014a).



1.5.1.1 Specific Issues

The objective of the AMP for the North Dam seepage is to detect any deterioration in water quality in the tailings dam seepage and manage and mitigate these changes before any effects are observed in the downstream receiving surface waters. AMP monitoring locations include tailings seepage monitoring at MH-02 located at the toe of the dam and surface water monitoring station MH-12 in North Creek.

Monitoring MH-02 would detect any changes in water quality close to the loading source. Downstream of this station, tailings seepage flows as groundwater. Any potential change in surface water quality in the receiving waters would therefore be a function of groundwater reactive transport. Any water quality changes are expected to be slow and would be detected by monitoring over multiple years.

1.5.2 BURNICK PORTAL DISCHARGE

The Burnick Portal is located 3 km from the former SDH mill site and was constructed to access the Burnick Zone ore body. There are two portals (1200 and 1300) at the Burnick Zone. The lower portal previously discharged continuously and has been routinely monitored during temporary closure at MH-22 as part of WUL QZ15-082 (previously QZ99-045). Now discharge from MH-22 is ephemeral (June to November). The discharge water quality exceeds the WUL limits for zinc during low flow months.

MH-22 discharge flows through a buried culvert, cascades over the crest of the Burnick waste rock dump, and then infiltrates under the waste rock dump. It then flows downgradient to the east-northeast as groundwater to the headwaters of the West Fork of Tributary E, which is more than 1.5 km downgradient of the portal, as shown on Figure 1-2, Figure 1-3, and Figure 1-4. The headwaters of the West Fork of Tributary E are marshy and channeled surface flow is intermittent. Surface water flows to the east-northeast from the West Fork of Tributary E into Tributary E at MH-15 and then to False Canyon Creek. There is currently no evidence of the zinc load from the Burnick Portal in Tributary E or False Canyon Creek (SRK 2005). SRK (2000) concluded zinc is attenuated through extensive contact with the soils between the Burnick Portal and the West Fork of Tributary E.

Column experiments using discharge from the Burnick Portal and downstream soils were used to evaluate the attenuation mechanism (SRK 2007). The test work concluded that downgradient soils have the potential to significantly attenuate zinc concentrations at the levels observed in the discharge for much longer than 200 years. Column tests showed the attenuation capacity was not exhausted and no secondary minerals were formed. The studies confirmed that zinc is passively removed by contact with downgradient soils.

Because the zinc attenuation mechanism has more than 200 years of capacity, the attenuation capacity of the soils is considered to last for the duration of the licenced post-reclamation period.

1.5.2.1 Specific Issues

The objective of the AMP for the Burnick Portal discharge is to detect any deterioration in water quality in the drainage flowing from the Burnick Portal and downgradient surface water. AMP monitoring locations include the Burnick portal drainage (MH-22), groundwater monitoring well MW13-06 adjacent to and downgradient of the



Burnick portal and surface water monitoring station MH-15 in the West Fork of Tributary E. The sampling locations and flow path are shown on Figure 1-2, Figure 1-3, Figure 1-4.

Monitoring at MH-22 and MW13-06 would detect any changes in water quality in the portal drainage. Downstream of these stations, the drainage flows as groundwater. Any potential change in surface water quality in the receiving waters would be a function of reactive transport along the groundwater flowpath. Any changes are expected occur slowly and would be detected by monitoring over time.

1.5.3 1380 PORTAL DISCHARGE

The Main Zone Pit is a box cut located in the headwaters of Camp Creek. The 1380 Portal is located at the south end of the cut. In June 1999, drainage from the portal was observed. The drainage is monitored at MH-25 as part of WUL QZ99-045. MH-25 was sampled for the first time in 1999 to support the closure plan and was found to contain 41 mg/L dissolved zinc. The 1380 Portal was decommissioned in 2014 resulting in the portal drainage (and station MH-25) becoming inaccessible. Currently seepage within the downstream waste rock sump is the closest water quality sample to the 1380 portal drainage and is opportunistically sampled at station SDH-S2¹.

Drainage from the 1380 Portal is ephemeral (June to October) and consistently exceeded the previous WUL QZ99-045 (now QZ15-082) limits for zinc and cadmium and less frequently for lead. The zinc is leached from oxidizing exposed rock and talus around the portal area, which contain sphalerite. The source water is likely shallow groundwater with minor contributions from Jewelbox Pit (SRK 2000).

In 2000, MH-25 was monitored continuously for two months to assess variations in flow and chemistry. SRK (2000) reported that the drainage from the Main Zone pit portal contained elevated zinc, cadmium, and lead concentrations. Flow was estimated at 1 L/s. Flow decreased following freshet, but constituent concentrations were relatively constant. The constituent load associated with this flow was not detected in Camp Creek or False Canyon Creek at any time during the summer, suggesting attenuation along the flow path.

The 1380 Portal drainage flows through the marble Main Zone waste rock dump immediately downstream of the portal. Flow within the waste rock dump is audible but difficult to locate and/or access, resulting in infrequent monitoring. The dissolution of the marble attenuates zinc, cadmium, and lead by precipitation of metal carbonates. This attenuation mechanism of drainage from MH-25 is considered to last in perpetuity. Station SDH-S2 located within the waste rock below the 1380 Portal characterizes concentrations after attenuation by the waste rock. MH-25 and SDH-S2 have similar sulphate levels, but the zinc concentration is approximately four times lower at SDH-S2 than at MH-25, the level of cadmium is approximately five times lower, and the level of lead is approximately 1.5 times lower. Geochemical modelling indicates that that precipitation of zinc, cadmium, and lead carbonates is the probable attenuation mechanism resulting from the interaction of MH-25 drainage with marble waste rock (Day and Bowles 2005).

¹ The dump in its entirety is surveyed monthly for seepage. Samples are collected opportunistically at locations other than SDH-S2 when observed and accessible. Data are screened and reported as SDH-S2 if results are comparable.



After passing through the waste rock dump, the 1380 Portal drainage is further attenuated downstream as groundwater flows through the soils along the flow path to Camp Creek. There may eventually be a loss of attenuation capacity in the soils. The groundwater flow discharges to surface as a spring near the headwaters of Camp Creek. The length of the flow path from the 1380 Portal to the spring near the headwaters of Camp Creek is approximately 900 m. The spring is relatively large and is located where the southern fork of Camp Creek originates which mixes about 100 m downstream with water from a second groundwater spring on the southwestern flank of Mt. Hundere. Camp Creek flows to the south and is a tributary to False Canyon Creek, as shown on Figure 1-2 and Figure 1-3.

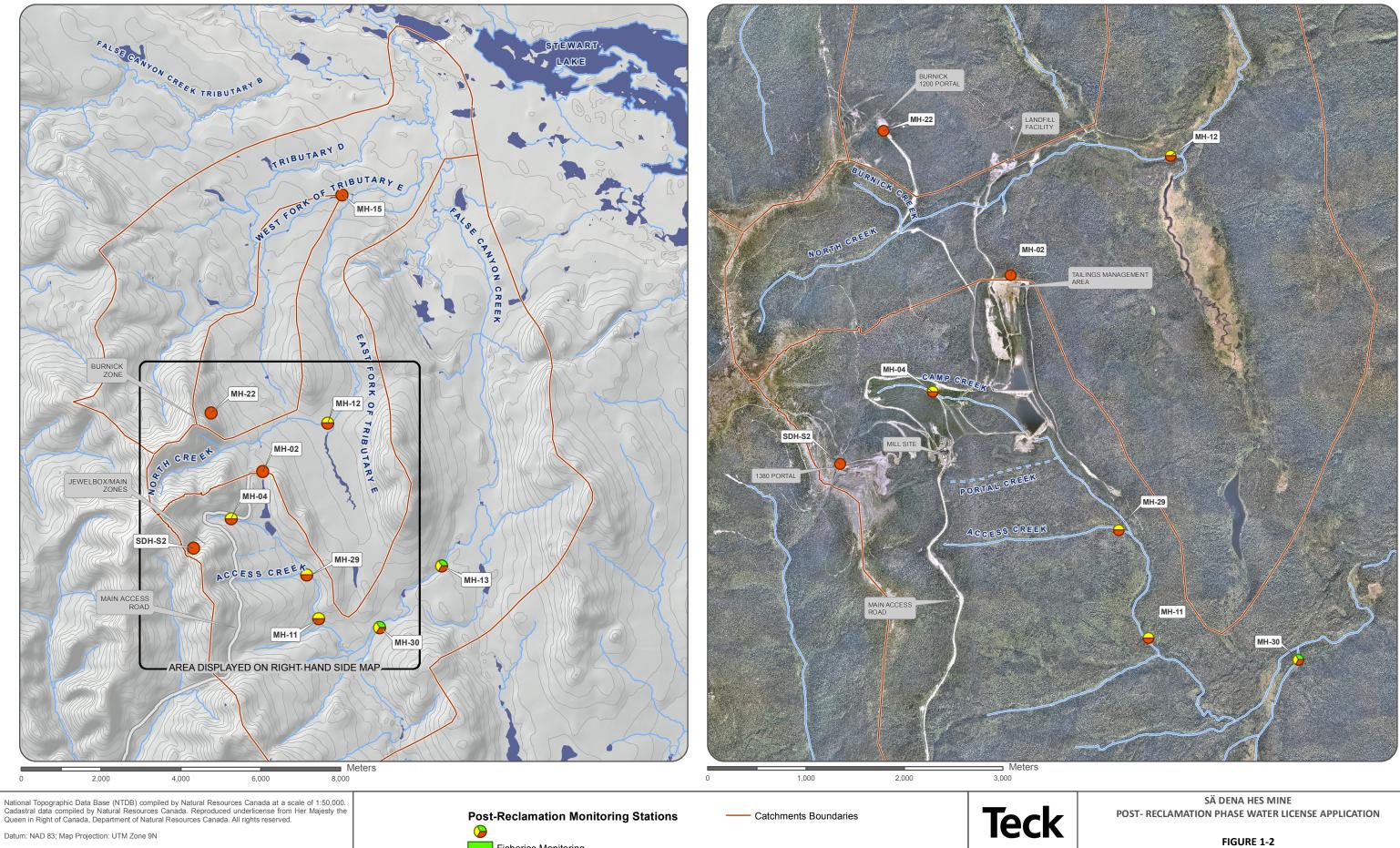
1.5.3.1 Specific Issues

The objective of the AMP for the 1380 Portal drainage is to detect any deterioration in the portal drainage water quality within the waste rock dump and monitor for the potential loss of attenuation capacity of the soils upstream of Camp Creek. AMP monitoring locations include:

- Seepage monitoring at station SDH-S2¹ within the Main Zone waste rock dump,
- Groundwater monitoring at MW13-01, MW13-08, and MW13-13 located downgradient of SDH-S2 and upstream of Camp Creek, and
- Surface water monitoring at MH-11 upper False Canyon Creek.

All the locations are shown on Figure 1-2, Figure 1-3, and Figure 1-4.

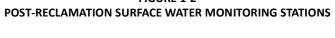
Any potential change in surface water quality in the receiving waters would be a function of reactive transport along the groundwater flowpath. Any changes are expected to be slow and would be detected by monitoring over time.



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Fisheries Monitoring

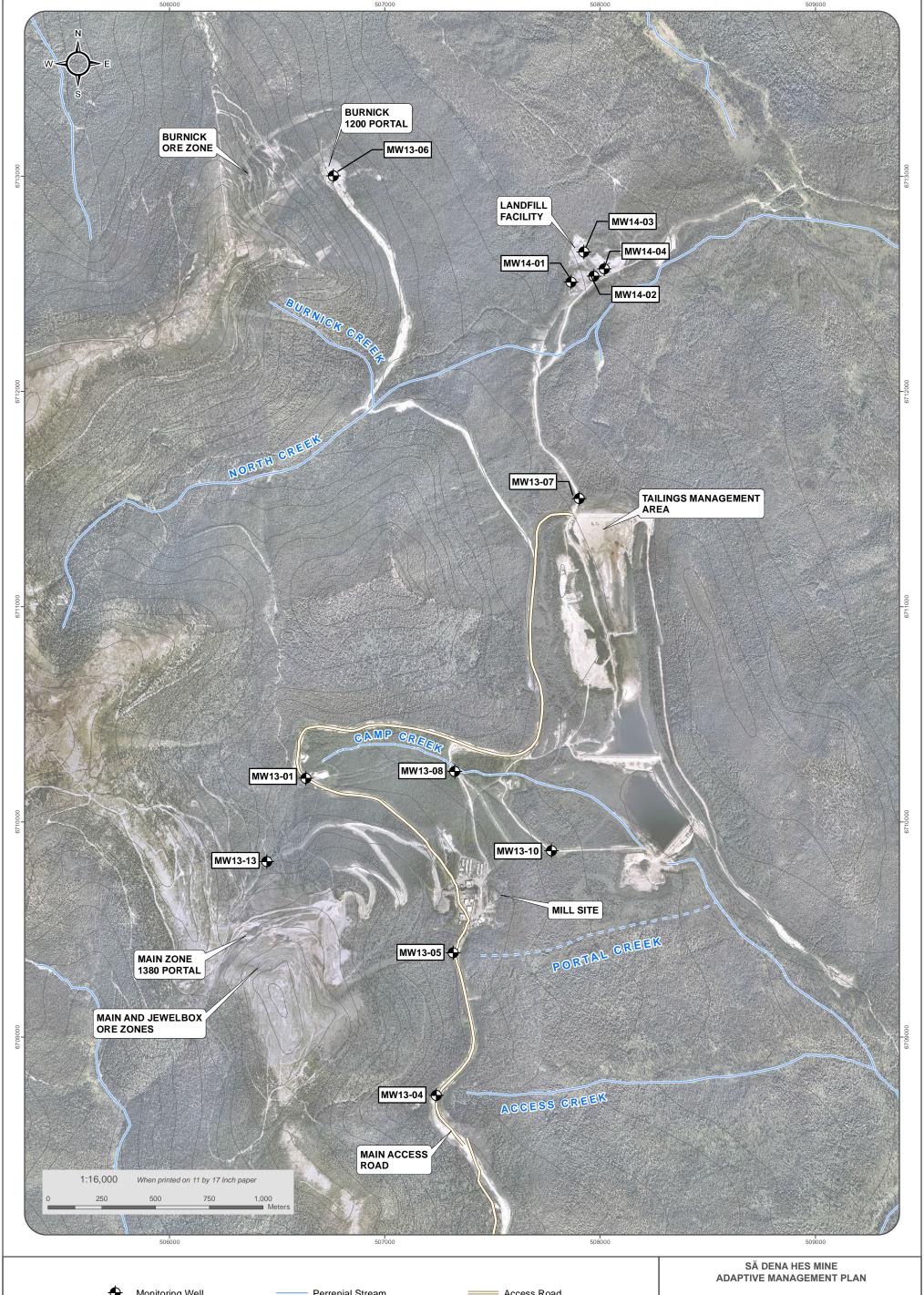
Benthos/Sediment Monitoring Surface Water Quality Monitoring



ACCESS

JULY 2015

It\Sa_Dena_Hess\GIS\Maps\02-Permitting\04-Closure WUL 2015\Fig-5-1_Post_Reclamation_MonitoringProgram_20150708.mxd (Last edited by: mducharme;7/8/2015/14:09 PM)



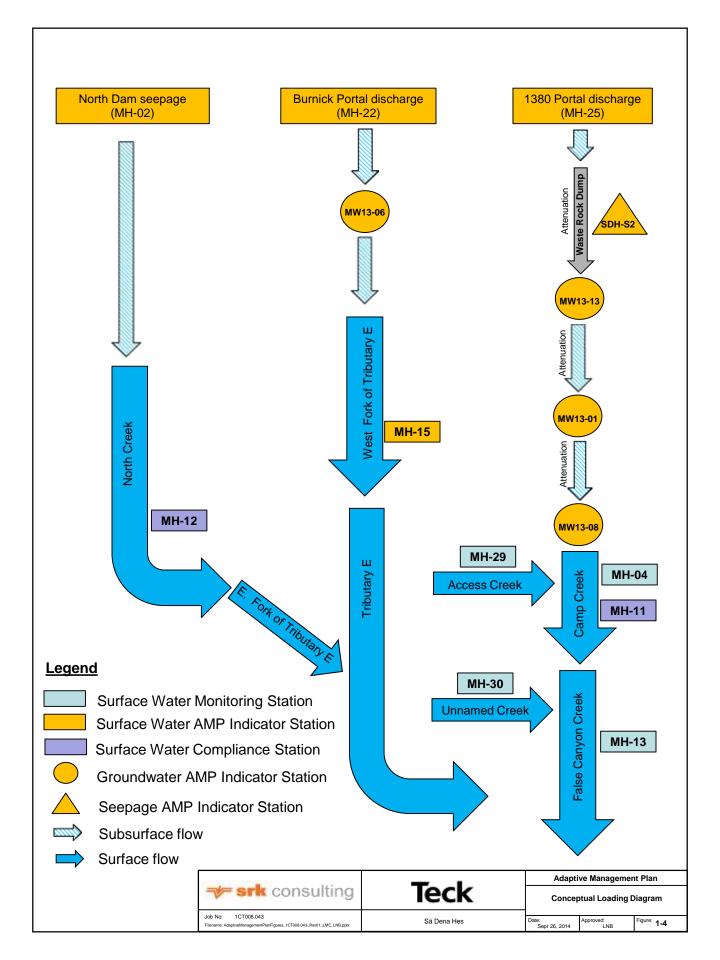
Monitoring Well Perrenial Stream — Access Road **Ephemeral Stream** Contour

FIGURE 1-3 POST-RECLAMATION GROUNDWATER MONITORING WELL LOCATIONS

APRIL 2017

alional topographic Data Base (NTDB) compiled by Natural Resources Canada at a scale of 1:50,000. Reproduced under license from Her Majesty the Queen, as represented by the Minister of Natural Resources anada. All rights reserved.
erial Imagery Captures in 2012 (Pre-decomissioning and reclamation) Datum: NAD 83: Projection: UTM Zone 9N
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1.6 DESCRIPTION OF AMP LANDFILL COMPONENT AND FLOW PATHS

Waste from the demolition of the Mill was placed in the existing landfill in 2015. The landfill is located near the former North Creek pump house. The landfill contains waste produced during operations and demolition debris from the Mill Site, former camp and office buildings, and miscellaneous debris from the site. The direction of groundwater flow inferred from the potentiometric gradient is east across the site and ultimately discharges along North Creek (Golder, 2015b). Investigation in the vicinity of the landfill found that the groundwater is within a shallow, unconfined aquifer that is composed primarily of unconsolidated sand with silt, gravel, and cobbles (Golder, 2015b). Data collected in September, 2015 estimate the groundwater velocity across the landfill to be approximately 60 m/year, such that groundwater would discharge to North Creek after a two to three-year period (Golder, 2015b).

The groundwater table around the landfill has been generally greater than three meters below the base of the landfill. SDHOC Waste Management Permit (#81-020) for the landfill requires that the base of the landfill cells remain a minimum of three (3) meters higher than observed water table elevations. Water quality is also being monitored around the landfill to detect if any buried materials are leaching metals or are a source of hydrocarbons.

1.6.1 SPECIFIC ISSUES

The objective of the AMP for the Landfill is to detect if there is an increase in the water level such that the landfill would be submerged or detect a change in water quality that might imply that landfill materials are leaching metals or are a source of hydrocarbons. AMP monitoring locations include MW14-02, MW14-03, MW14-04, which would detect any changes in water quality and level close to the source. MW14-01 is a background monitoring station for the landfill that is part of the EMSRP. Any changes in water quality downgradient are expected to be slow and would be detected by monitoring over time.

1.7 DESCRIPTION OF AMP CONTAMINATED SITE GROUNDWATER COMPONENTS AND FLOW PATHS

An environmental assessment was completed by Golder between 2011 and 2014, and identified areas of the site as having concentrations of petroleum hydrocarbons and metals in soil in excess of the Yukon Contaminated Site Regulation (CSR) standards. A conceptual groundwater model for the site, from data collected in September 2015, estimated groundwater flow velocity through the overburden to be 80 m/year from the Mill Site to Camp Creek. The distance between these sites is ~ 800 m so that any contamination that originated at the Mill Site would arrive at Camp Creek within 10 years. The Mill site has been in place for greater than 20 years so it is likely that if any contamination had reached groundwater it would have already been detected.

1.7.1 SPECIFIC ISSUES

The objective of the AMP for the general CSR groundwater wells is to detect a change in water quality that might imply that metals or hydrocarbons plume is spreading from historical sources near the mill site or tailings pond area. AMP monitoring locations include MW13-10 (Mill Site), MW13-07 (Tailings Pond Area), and Jewelbox (13-05)



it would which would detect any changes in water quality and level close to the source. Any changes in water quality downgradient are expected to be slow and would be detected by monitoring over time.

Ultimately, overburden groundwater from these sites would discharge into Camp Creek (MH-11) and North Creek (MH-12).

2. AMP FOR MINE SOURCE FLOWPATH WATER QUALITY

2.1 MINE SOURCE WATER QUALITY

The AMP for the mine source water quality component has been adapted from the Draft Adaptive Management Plan, Sä Dena Hes Mine (SRK, 2014). The geochemical conceptual model and flow paths for each mine loading source are described in Section 1.5.

2.1.1 DESCRIPTION

Water quality monitoring has been conducted as a condition of the current WUL since 1991. As part of the WUL mine related source load water quality is monitored at:

- North Tailings Dam Seepage (MH-02);
- Burnick Portal (MH-22); and
- 1380 Portal (SDH-S2² as MH-25 has been decommissioned).

Water from these sources infiltrates to groundwater near the source and then migrates downgradient to areas of groundwater discharge. Monthly and quarterly water quality monitoring results currently meet the permit limits in the WUL at the receiving environment stations.

Water quality will be monitored after reclamation to observe any potential changes indicative of loading from the North Dam, Burnick Portal and 1380 Portal. The monitoring schedule for the source monitoring sites is presented in Table 2-1.

Table 2-1: Mine Source Water Monitoring Schedule

Stations	Monitoring Frequency ³
MH-02, MH-22, and SDH-S2	Every 2 Months

² As discussed in Section 1.5.3, constituent concentrations in the 1380 Portal drainage at SDH-S2 are lower because of attenuation within the waste rock pile

³ The frequency presented reflects the current water license conditions, which are not intended to remain at this frequency for the duration of the licence. A reduced frequency may be proposed in the future and the water licence subsequently amended.



2.1.2 RISK NARRATIVE

The objective of the AMP is to detect changes from existing conditions and ensure that mine source water quality does not negatively affect receiving aquatic environments. As described in Section 1.5 and shown on Figure 1-2 and Figure 1-3, mine source water does not report to the surface water compliance points (MH-11 and MH-12) directly, but goes to ground and is naturally attenuated upstream of these points. However, an increase in constituent loading from one of the three mine site sources (MH-02, MH-22, and SDH-S2) may result in potential deterioration in water quality at the downgradient surface water monitoring stations (MH-11, MH-12, and MH-15). As such, monitoring the water quality at these loadings sources could provide an early indication for the framework discussed in Section 2.2.

2.1.3 Specific Indicators, Performance Thresholds and Responses

Indicators, specific performance thresholds and responses specific to source water quality and the monitoring program are provided in Table 2-2. The source concentrations (MH-02, MH-22, and SDH-S2) have been relatively stable over the observed period (temporary closure through to current), such that increases of 25% or 50% above the above the maximum observed concentrations would indicate a change worth investigating. However, the contaminant load model suggests that increases in the order of 25% to 50% over the maximum observed concentration at these sources would not likely result in exceedances of site water quality limits downstream. As such, these increase thresholds are considered appropriate indicators for the mine source water quality. Additionally, one of the evaluation responses to Specific Threshold 2 in the Mine Source AMP is to evaluate if the data show an upward trend.

In addition, the AMP for Mine Source Flow Path Water Quality is designed to monitor the potential loss of attenuation capacity downgradient of the mine sources and not the changes in source loads. If source concentrations double or even increase by an order of magnitude, there may still be sufficient attenuation capacity to prevent an exceedance of downstream water quality limits. It is better to monitor for changes along the flowpath not at the source. The rate at which concentrations change downstream is a function of the travel time, dispersion, mixing with other groundwater sources, and the loss of attenuation capacity. The potential increase in downstream concentrations that may occur in response to the increase in source concentrations would occur over years, well within the temporal resolution of the monitoring program. Evaluating changes in concentrations over time (e.g., trend analysis) is an evaluation aspect of the groundwater flowpath AMP and is designed to monitor the potential impact of these changes on downstream water quality.



Table 2-2: Specific Indicators, Performance Thresholds and Responses for Mine Source Water Quality

Specific Indicators	Specific Perfo	rmance Thr	esholds			Specific Responses
Concentrations, in mg/L at stations MH-02, MH-22 and SDH-S2 of: Cadmium		nreshold for % above the	r these constituents is an increase of e maximum observed concentrations.			Notification Teck Representative/Environmental Monitor. Include in scheduled annual reporting. Review Follow QA/QC investigative protocol: Review laboratory QA/QC report
	Parameter	MH-02	MH-22	Parameter	SDH-S2	o Validate original result, and re-run lab sample if a laboratory error is suspected
• Lead	Total Zn	0.40	2.3	Dissolved Zn	15.3	 Evaluation Compare with appropriate mine source flow path groundwater wells (MW13-13 and
• Zinc	Total Cd	0.014	0.011	Dissolved Cd	0.13	MW13-01, or MW13-06) and with the appropriate receiving environment water
 Sulphate 	Total Pb	0.006	0.05	Dissolved Pb	0.51	quality results (MH-11, MH-12, or MH-15).
	SO ₄	600	134	SO ₄	290	 Action During next scheduled sampling event collect a duplicate sample at monitoring site
	Units are mg/L.					that exceeded ST1.
Concentrations, in mg/L at stations MH-02, MH-22 and SDH-S2 of: Cadmium	· ·	hreshold fo % above the	r these cons e maximum	stituents is an inc observed concer		Notification Teck Representative/Environmental Monitor. Include in scheduled annual reporting. Review Follow QA/QC investigative protocol: Validate original result, or re-run lab sample if a laboratory error is indicated
• Lead	Parameter	MH-02	MH-22	Parameter	SDH-S2	Evaluation
• Zinc	Total Zn	0.48	2.7	Dissolved Zn	18.3	Compare with appropriate mine source flow path groundwater wells (MW13-13 and NW142-24
 Sulphate 	Total Cd	0.016	0.013	Dissolved Cd	0.15	MW13-01, or MW13-06) and with the appropriate receiving environment water quality results (MH-11, MH-12, or MH-15).
• Sulphate	Total Pb	0.007	0.06	Dissolved Pb	0.61	Qualified professional reviews all monitoring data, conducts trend analysis,
	SO ₄	720	161	SO ₄	348	determines if action is required based on risk narrative, and develops
	Units are mg/L.					recommendations.
						 Action Conduct recommendations as warranted by qualified professional, if it is determined that there could be an impact downgradient at the compliance points, which could include: Increased monitoring frequency, and Expanding monitoring network. Depending on the findings of the investigation, the water quality model may be revised to re-evaluate potential changes to downstream water quality.



2.2 GROUNDWATER QUALITY

2.2.1 DESCRIPTION

Several groundwater wells were installed along some of the mine source flows paths to be able to monitor the flow paths of the mine sources when they go to ground. In the case of the 1380 discharge the wells also monitor attenuation capacity (MW13-13, MW13-08, and MW13-01).

The long term groundwater monitoring plan for the mine loading source discharge wells is provided in Table 2-3, and is discussed in the Sa Dena Hes Environmental Monitoring, Surveillance and Report Plan (Teck, 2017).

Table 2-3: Groundwater Monitoring Schedule

Stations	Monitoring Frequency 4
Mine Loading Source Discharge Wells	Quarterly
(MW13-01, MW13-06,	
MW13-08 & MW13-13)	

2.2.2 RISK NARRATIVE

If mine source water quality has deteriorated significantly or has breached or exhausted the attenuation occurring onsite then adverse effects may occur at the receiving environment (MH-11, MH-12, and MH-15). The mine loading source discharge wells (MW13-01, MW13-06, MW13-08, and MW13-13) are along the flow paths from the mine loading sources to the receiving environment and may provide an indication of this potential.

2.2.3 Specific Indicators, Performance Thresholds and Responses

Groundwater chemistry data, collected since the monitoring wells were installed in 2013, show constituent concentrations have varied by more than an order of magnitude in individual wells without effecting downgradient surface water quality. Concentrations in several wells increased an order of magnitude and then decreased an order of magnitude by the next sampling event. As such the most effective thresholds for these groundwater wells is assessing if the concentration increases are consistent and sustained. This first threshold for groundwater chemistry at these wells, which would act as a warning for any potential effect on receiving surface waters, is if three consecutive monitoring events or four of the last six monitoring events show progressively increasing concentrations (ST1). The next threshold (ST2) would be a single exceedance of the concentrations provided in Table 2-4, which are calculated to provide a conservative warning. These concentration limits are based on estimates of the groundwater concentration that could result in an exceedance site water quality limits downstream and anticipated attenuation capacity.

The final threshold (ST3) is a sustained increase in concentration over 3 sampling events that has resulted in a concentration increase greater than the ST2 concentrations. Where ST2 is a single, potentially anomalous

⁴ The frequency presented reflects the current water license conditions, which are not intended to remain at this frequency for the duration of the licence. A reduced frequency may be proposed in the future and the water licence subsequently amended.



exceedance of the Table 2-4 concentrations with no forewarning of an increasing trend, as has occurred previously, ST3 is an exceedance of the Table 2-4 concentrations combined with an upward trend in concentrations. The upward trend combined with the exceedance of numeric criteria is cause for greater response than just an exceedance of the two lower thresholds.

Progressively increasing concentrations means each concentration is greater than the subsequent measurement. Changes in groundwater concentrations along the flow path between sources and the receiving water occur slowly because the travel time between the source and receiving water is on the order of years. Furthermore, over twenty years of monitoring data show the sources have not affected surface water quality. As such, assessing changes in concentrations (e.g., increasing trends) over the time scale of groundwater transport (i.e., years) is an appropriate indicator of a risk to downstream water quality. The method to analyze data trends will be selected based on the statistical characteristics of the data and will follow regulatory guidance for conducting trend analysis.

The indicators, performance thresholds and responses specific to groundwater quality, and the monitoring program are provided in Table 2-5.

Table 2-4. Specific Threshold 2 Groundwater Concentrations

			Catchi	ment
		Camp Creek		West Fork of Tributary E
Parameter	MW13-01	MW13-08	MW13-13	MW13-06
Zn-D	0.5	0.5	0.5	0.5
Cd-D	0.005	0.005	0.02	0.001
Pb-D	0.035	0.035	0.035	0.015
				No concentration threshold. The
Sulphate	55	55	110	source (MH-22) concentration is less
				than well (MW13-06) concentration.

^{*}Units are mg/L.



Table 2-5: Specific Indicators, Performance Thresholds and Responses for Mine Source Groundwater Quality

Specific Indicators	Specific Performance Thresholds	Specific Responses
List 1 monitoring wells	Specific Threshold 1 (ST1)	Notification
Aqueous concentrations of	(for D-Cd, D-Pb, D-Zn, and SO ₄)	Teck Representative/Environmental Monitor
parameters for monitoring wells: MW13-01, MW13-06, MW13-08,		Include in scheduled annual reporting Parisass
and MW13-13.	3 consecutive monitoring results with progressively increasing concentrations	Review Review laboratory QA/QC report: validate original result or re-run sample in lab if error is indicated.
a.ia 25 25.	or	Evaluation
	4 of the last 6 monitoring events show progressively increasing concentrations.	Compare with upstream and receiving environment water quality results.
		Action
		 During next scheduled sampling event conduct a duplicate at monitoring site that exceeded ST1.
	Specific Threshold 2 (ST2)	Notification
	(for D-Cd, D-Pb, D-Zn, and SO ₄)	• Same as Specific Threshold 1
	Cinale assessment of the colosileted CT2 concentrations are sided in Table 2.4	Review
	Single exceedance of the calculated ST2 concentrations provided in Table 2-4.	• Same as Specific Threshold 1 Evaluation
		• A review of the groundwater data by a qualified professional and appropriate recommendations to be developed
		 Any review must consider the risk narrative (i.e. impact on surface water compliance point MH-11, MH-12, or MH-15)
		Action
		• Resample within 6 months (if not already part of the monitoring schedule) and appropriate upgradient and downgradient sample sites along the flowpath to
		evaluate if concentrations remain elevated
	Specific Threshold 3 (ST3)	Notification
	(for D-Cd, D-Pb, D-Zn, and SO ₄)	Same as Specific Threshold 1
	A sustained in susses in assessmention over 2 assessing a suspent that has security of in-	Review • Same as Specific Threshold 1
	A sustained increase in concentration over 3 sampling events that has resulted in a concentration increase greater than the ST2 levels.	Evaluation
	concentration increase greater than the 312 levels.	A qualified person compares new results with mine source loading results. If comparison indicates that mine loadings are responsible for exceedance, and
		validation confirms results, then:
		o Develop investigation plan
		 Trend analysis and water balance model used to predict if an exceedance of the guideline at the site compliance points downgradient with one year Resample within 6 months (if not already part of the monitoring schedule) and appropriate upgradient and downgradient sample sites along the flowpath to
		evaluate if concentrations remain elevated
		Action
		 Action Follow recommendations arising from review undertaken by qualified professional, which could include:
		o Increased monitoring frequency
		o Begin the development of mitigation alternatives to maintain effluent water quality objectives below effluent quality standards if the water and load
		balance model results indicate sustained exceedances of water quality objectives.
		Examples of Potential Mitigation Actions
		If model indicates potential for sustained exceedances of effluent standards at MH-11 or MH-12, then potential mitigation measures could include:
		Groundwater extraction and treatment
		Source Control, including mine pool treatment

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2.3 RECEIVING ENVIRONMENT SURFACE WATER QUALITY

2.3.1 DESCRIPTION

The monitoring points where the AMP for receiving environment water quality is applicable are MH-11, MH-12, and MH-15. The AMP for these monitoring points is the final management component of the protection of the receiving environment (Camp Creek, North Creek, and ultimately False Canyon Creek) from the impact of mine sources. The monitoring for MH-11, MH-12, and MH-15 is outlined in the Environmental Monitoring, Surveillance and Reporting Plan (Teck, 2017), as well provided in Table 2-6.

There are three mine site drainage source loads: 1380 Portal, the Burnick Portal, and seepage from the North Dam of the tailings impoundment. Discharge from both the 1380 Portal and Burnick Portal flow through the downgradient waste rock dumps, after which the flow infiltrates into the ground and is naturally attenuated. Groundwater from these sources ultimately discharges to False Canyon Creek. There will be no on site water collection or treatment during the post-reclamation time period. Only neutral mine water will be naturally discharged during this time.

Table 2-6: Receiving Surface Water Monitoring Schedule

Stations	Monitoring Frequency ⁵
MH-11,MH-12, and MH-15	Every 2 Months

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⁵ The frequency presented reflects the current water license conditions, which are not intended to remain at this frequency for the duration of the licence. A reduced frequency may be proposed in the future and the water licence subsequently amended.



2.3.2 RISK NARRATIVE

There are two different surface water receiving environment risks associated with the reclamation and closure of the mine site:

- An increase in metal contaminant loading from mine sources and reporting to the compliance points would mean a potential negative impact on the receiving environment; and
- An increase in suspended solids due to erosion and sedimentation from the reclaimed mine site could negatively effect the aquatic receiving environment in the years immediately following the completion of closure activities.

2.3.3 SPECIFIC INDICATORS, PERFORMANCE THRESHOLDS, AND RESPONSES

The applicable water quality guidelines were adopted from the most recently updated guidelines between CCME and BC MOE as the permit limits for most constituents. In the case of lead and zinc, alternative methods were used to develop permit limits for MH-11, MH-12, and MH-15 (Azimuth, 2016). The indicator parameters selected for the receiving environment AMP are dissolved cadmium, total and dissolved lead, and total and dissolved zinc with the corresponding proposed effluent quality standards provided for these parameters in Table 2-7. Table 2-8 provides the adaptive management framework to monitoring and response to concentrations of key metal contaminants reporting to the site receiving environment.

Zinc, cadmium, and lead have been shown to be attenuated along the groundwater flowpath from the source areas to the receiving environment. As previously mentioned, the purpose of the adaptive management plan is to monitor the change in the attenuation capacity along the groundwater flowpath. Although sulphate is another constituent associated with the mine source areas, sulphate is not attenuated along the groundwater flowpath and is not included as an indicator parameter within the receiving environment.



Table 2-7: Surface Water AMP Specific Thresholds

Parameters, water	UNITS	WUL Effluent Quality Standards	Specific Threshold 1 (ST1)	Specific Threshold 2 (ST2)
Cadmium, Dissolved				
$Cd = e^{[0.736*ln(hardness) - 4.943]}$	μg/L	Calculated	75% of Calculated EQS	90% of Calculated EQS
Lead ¹				
Site MH-12 and MH-15, use $Pb_{MH-12} = 3.31 + e^{[1.273*ln(hardness) - 4.704]}$	μg/L	Calculated	75% of Calculated EQS	90% of Calculated EQS
Site MH-11, use Pb _{MH-11} =1.928* (3.31 + e ^[1.273*ln(hardness) - 4.704])	μg/L	Calculated	75% of Calculated EQS	90% of Calculated EQS
Zinc ¹				
Site MH-12 and MH-15, Hardness ≥ 90 use, Zn = 7.5 + 0.75*(hardness - 90)	μg/L	Calculated	75% of Calculated	90% of Calculated EQS
Site MH-11, Hardness ≥ 90 use, Zn = 7.5 + 1.875*(hardness – 90)	μg/L	Calculated	75% of Calculated EQS	90% of Calculated EQS
Sulphate				
Hardness: >75 and ≤ 180 mg/L	mg/L	309	278	232
Hardness: >180 mg/L	mg/L	429	386	322

^{*} Where standards are hardness based. The unit is µg CaCO₃/L, unless otherwise specified

Table 2-9 provides the AMP for erosion and sedimentation potential related to reclamation activities at the site. The highest likelihood of this effect is in the years immediately following the completion of the reclamation activities. As such, the TSS AMP applies only during Year 1 to Year 4 of the post-closure schedule, which coincides with the period of more frequent monitoring so that Teck can respond to any excursions from expected conditions.

The TSS AMP thresholds are based on CCME TSS guidelines. The background used to calculate the site specific guideline is determined by the reference monitoring site, MH-30. A synoptic sampling result from MH-30 sets the guideline for the indicator sites MH-11, MH-12, and MH-15 for that monitoring event. The thresholds are steps up to the guideline level.

¹When TSS is >4, apply standard to dissolved fraction, otherwise apply to total fraction.



Table 2-8: Specific Indicators, Performance Thresholds and Responses for Receiving Environment Surface Water Quality, related to Risk from Metal Contaminant Loading

Specific Indicators	Specific Performance Thresholds	Specific Responses
(for D-Cd, T-Pb & D-Pb,	Specific Threshold 1	Notification
T-Zn & D-Zn, and SO₄)		Teck Representative/Environmental Monitor
• Aquaque concentrations at surface	Exceedance of 75% of the concentration of the	Include in scheduled annual reporting
Aqueous concentrations at surface water monitoring stations MH 11	standards in Table 2.11 at MH-11, MH-12, or	Review
water monitoring stations MH-11, MH-12, and MH-15.	MH-15.	• Review laboratory QA/QC report, validate original result, or re-run lab sample if a laboratory error is indicated
IVIN-12, aliu IVIN-15.		Evaluation
See Table 2-6 for specific threshold		Compare with upstream monitoring stations.
values.		Action
		During next scheduled sampling event conduct a duplicate at monitoring site that exceeded ST1.
	Specific Threshold 2	Notification
	Table 2.6	Same as Specific Threshold 1
	Greater than 75% of the concentration of the	Review
	standards for two (2) consecutive sampling	Same as Specific Threshold 1
	events (scheduled or resample) OR greater than	Evaluation
	90% of the standards for a single event at MH11,	A qualified professional compares results with appropriate upgradient samples along the mine source loading flow path.
	MH-12, or MH-15.	o Evaluate causes for load contributions and develop investigation plan
		o Trend analysis is conducted by a qualified person to evaluate if there is a trend and if it is likely to result in an exceedance of effluent standards within a one-year period.
		Action
		Implement investigation plan, including at a minimum:
		o Re-sample the site that triggered ST2 within 6 months (if not already scheduled), and also sample the appropriate mine source flow path monitoring sites (i.e., a synoptic event of MH-11, M13-
		01, MW13-13, and SDH-S2, OR MH-12 and MH-02).
		o Site investigation of candidate load contributions.
		Review results of investigation and prepare recommendations if appropriate, based on risk narrative
	Specific Threshold 3	Notification
	Table 2.6	• Same as Specific Threshold 1,
	Greater than 90% of the concentration of the	• plus, notification of YG Inspector if a single exceedance of a standard
	standards for two (2) consecutive sampling	Review
	events (scheduled or resample) OR a single	Same as Specific Threshold 1
	exceedance of the standards at MH11, MH-12, or	Evaluation
	MH-15.	• A qualified professional compares results with appropriate up gradient samples along the mine south loading flow path. If comparison indicates that mine loadings are responsible for exceedance,
		and lab validation confirms results, then:
		o Evaluate causes for load contributions and develop investigation plan
		o Trend analysis is conducted by a qualified person to determine if upward trend is likely to increase passed the effluent standards more than once in a one-year period.
		Action
		• Conduct recommendations as put forward by the qualified professional
		• Re-sample the site that triggered ST2 with 6 months (if not already scheduled), and also sample the appropriate mine source flow path monitoring sites (i.e. a synoptic event of MH-11, M13-01,
	Charific Threshold 4	MW13-13, and SDH-S2, OR MH-12 and MH-02).
	Specific Threshold 4	Notification
	Table 2.6	Same as Specific Threshold 3 Same as Specific Threshold 3 Same as Specific Threshold 3
	Two (2) consecutive exceedances (scheduled or resample) of the effluent standards in Table 2.6	Plus, Liard First Nation Parisass
	at MH11, MH-12, or MH-15, where evaluation	Review
	confirmed mine loading was responsible for the	Same as Specific Threshold 1 Fuglishing
	first exceedance.	Evaluation
	mst excecuance.	• A qualified professional compares results with appropriate upgradient samples along the mine south loading flow path. If comparison indicates that mine loadings are responsible for exceedance, and lab validation confirms results, then:
		O Evaluate causes for load contributions and develop investigation plan
		o Trend analysis is conducted by a qualified person.
		Action
		• Conduct recommendations as put forward by the qualified professional, may include impact study or an aquatic survey
		 Actions will continue until specific threshold values are no longer exceeded, such as those listed in Potential Mitigation Actions.
		Examples of Potential Mitigation Actions
		 Mitigation measures could include groundwater extraction and treatment and permeable reactive barriers, source control such as mine pool treatment, and/or passive treatment alternatives such
		as bioreactors or constructed wetland treatment systems.
		us bioreactors or constructed wettains treatment systems.

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Table 2-9: Specific Indicators, Performance Thresholds and Responses for Receiving Environment Surface Water Quality, related to Risk from Erosion

	Specific						
Specific Indicators	Performance Thresholds	Specific Responses					
Total Suspended Solids	Specific Threshold 1	Notification					
at stations MH-11, MH-	MH-30 TSS mg/L +	Teck Representative/Environmental Monitor Include in scheduled annual reporting					
12, and MH-15	10 mg/L	Review					
Applies to the first 4		Review laboratory QA/QC report: validate original result or re-run sample in lab if error is indicated.					
years of post-closure		Evaluation					
monitoring (Years 1 to 4).		 Review monitoring data upstream of compliance point that exceeded the ST1. Action					
4).		Collect duplicate at site that exceeded the ST1 during the next scheduled monitoring event.					
	Specific Threshold 2	Notification					
		Same as Specific Threshold 1					
	MH-30 TSS result +	Review					
	20 mg/L	Same as Specific Threshold 1 Evaluation					
		• Evaluation from ST1, and resample the station that exceeded ST2 within 10 days of getting original lab result (if not					
		already scheduled), collect duplicate TSS sample at the site that exceeded the ST2 (if the original lab result was validated)					
		Action					
		 Inspect mine site catchment upgradient of compliance site that exceeded – look for signs of erosion and sedimentation from reclamation activities and conduct necessary maintenance as required. 					
	Specific Threshold 3	Notification					
		Same as Specific Threshold 1					
	MH-30 TSS result +	Plus, notification of YG Inspector and Liard First Nation					
	25 mg/L	Review					
		Same as Specific Threshold 1 Evaluation					
		Evaluation Evaluation from ST1 and ST2					
		Action					
		• Inspect mine site catchment upgradient of compliance site that exceeded – look for signs of erosion and sedimentation					
		from reclamation activities and conduct necessary maintenance as required.					
		 Have qualified professional assess stability of reclaimed mine site for long term trend of erosion or sedimentation from mine site and provide recommendations to mitigate issues. 					
		Implement recommendations from qualified professional until TSS has dropped below the ST1 Threshold. These may					
		include runoff control, additional revegetation, soil stabilization with natural or synthetic materials, and/or aggressive					
		sediment control if runoff and erosion control measures are not effective enough					



3. AMP FOR LANDFILL AND GENERAL SITE WATER QUALITY

3.1 LANDFILL GROUNDWATER MONITORING

3.1.1 DESCRIPTION

The landfill contains waste produced during operations and demolition debris from the Mill Site, former camp and office buildings, and miscellaneous debris from the site. The purpose of post-closure monitoring is to monitor the water levels and quality around the landfill to detect if any changes occur over time. The AMP is used to provide responses if water levels in the landfill monitoring wells (MW14-02, MW14-03, and MW-14-04) get too high around the landfill or the water quality in those same wells indicates metal leaching or a hydrocarbon plume is coming from the facility. The EMSRP provides the monitoring schedule for these wells, but is also summarized in Table 3-1.

Table 3-1: Landfill Monitoring Schedule

Stations	Monitoring Frequency ⁶
Landfill Wells	Quarterly
(MW14-01, MW14-02, MW14-03, & MW-14-04)	

3.1.2 RISK NARRATIVE

The risk if metals or hydrocarbons are detected leaching from the landfill is that they would flow through the shallow groundwater system and would ultimately enter North Creek and could potentially be an adverse impact on the receiving environment water quality (MH-12). Additionally, if water levels should rise within 3.0 meters of the base of the landfill, the landfill would be out of compliance of the landfill permit.

3.1.3 Specific Indicators, Performance Thresholds and Responses

The thresholds for groundwater quality are based on the Yukon Contaminated Sites Regulations for the protection of aquatic life. The groundwater quality threshold parameters are hydrocarbons and dissolved Cadmium, Lead and Zinc. Indicators, performance thresholds and responses specific to groundwater quality and quantity, which are detailed in Table 3-2 and Table 3-3.

The groundwater table around the landfill has been generally greater than three meters below the base of the landfill. SDHOC Waste Management Permit (#81-020) for the landfill requires that the base of the landfill cells remain a minimum of three (3) meters higher than observed water table elevations. Water quality is also being monitored around the landfill to detect if any buried materials are leaching metals or are a source of hydrocarbons.

⁶ The frequency presented reflects the current water license conditions, which are not intended to remain at this frequency for the duration of the licence. A reduced frequency may be proposed in the future and the water licence subsequently amended.



The AMP Table describing the specific indicators, thresholds, and responses for landfill water quality is Table 3-4, and the AMP for the landfill water levels is Table 3-5.

Table 3-2: Groundwater Metals Concentrations

Parameters, water	UNITS	SCHEDULE 3 - GENERIC NUMERICAL WATER STANDARDS - AQUATIC LIFE (AW)	90% (ST2)	75% (ST1)
Cadmium Dissolved *				
Cadmium Hardness < 30	μg/L	0.1	0.09	0.075
Cadmium Hardness = 30 - < 90	μg/L	0.3	0.27	0.225
Cadmium Hardness = 90 - < 150	μg/L	0.5	0.45	0.375
Cadmium Hardness = 150 - < 210	μg/L	0.6	0.54	0.45
Lead Dissolved*				
Lead Hardness < 50	μg/L	40	36	30
Lead Hardness = 50 - < 100	μg/L	50	45	37.5
Lead Hardness = 100 - < 200	μg/L	60	54	45
Lead Hardness = 200 - < 300	μg/L	110	99	82.5
Lead Hardness ≥ 300	μg/L	160	144	120
Zinc Dissolved *				
Zinc Hardness < 90	μg/L	75	67.5	56.25
Zinc Hardness = 90 - < 100	μg/L	150	135	112.5
Zinc Hardness = 100 - < 200	μg/L	900	810	675
Zinc Hardness = 2000 - < 300	μg/L	1,650	1485	1237.5
Zinc Hardness = 300 - < 400	μg/L	2,400	2160	1800

Yukon Contaminated Sites Regulation Standards are for the protection of FRESHWATER aquatic life, based on 2002 version. These guidelines should be updated as new versions are issued by Yukon Environment.



Table 3-3: Groundwater Hydrocarbon Concentrations

	UNITS	SCHEDULE 3 - GENERIC NUMERICAL WATER STANDARDS - AQUATIC LIFE (AW)	90% (ST2)	75% (ST1)	
Volatiles – Water			(1)	- (c)	
VPHs (VHs6-10 minus BTEX)	μg/L	1,500	1,350	1,125	
Benzene	μg/L	4,000	3,600	3,000	
Toluene	μg/L	390	351	293	
Ethylbenzene	μg/L	2,000	1,800	1,500	
Polycyclic Aromatic Hydrocarbons – Water					
Acenaphthene	μg/L	60	54	45	
Acridine	μg/L	0.5	0.45	0.38	
Anthracene	μg/L	1	0.9	0.75	
Benzo(a)anthracene	μg/L	1	0.9	0.75	
Benzo(a)pyrene	μg/L	0.1	0.09	0.08	
Fluoranthene	μg/L	2	1.8	1.5	
Fluorene	μg/L	120	108	90	
Naphthalene	μg/L	10	9	7.5	
Phenanthrene	μg/L	3	2.7	2.25	
Pyrene	μg/L	0.2	0.18	0.15	
Quinoline	μg/L	34	30.6	25.5	
Extractable Petroleum Hydrocarbons - Water					
LEPHs (C10-C19 less PAH)	μg/L	500	450	375	
EPH (C10-C19)	μg/L	5,000	4,500	3,750	

Yukon Contaminated Sites Regulation Standards are for the protection of FRESHWATER aquatic life, based on 2002 version. These guidelines should be updated as new versions are issued by Yukon Environment.



Table 3-4: Specific Indicators, Performance Thresholds and Responses for Landfill Groundwater Quality

Specific Indicators	Specific Performance Thresholds	Specific Responses
Aqueous concentrations of parameters described in Table 3-2 and Table 3-3 for monitoring wells: MW14-02, -03, and -04	Exceedance of 75% of the guideline concentrations provided in Table 3-2 and Table 3-3 in 2 consecutive samples collected from any of the indicator wells.	Notification Teck Representative/Environmental Monitor Include in scheduled annual reporting Review Review laboratory QA/QC report: validate original result or re-run sample in lab if error is indicated. Evaluation Compare results with past results with all landfill wells monitored. Action
	Specific Threshold 2 Exceedance of 90% of the guideline concentrations provided in Table 3-2 and Table 3-3 in 2 consecutive samples collected (scheduled or re-sampled) from any of the indicator wells.	 During next scheduled sampling event conduct a duplicate at monitoring site that exceeded ST1. Notification Same as Specific Threshold 1 Review Same as Specific Threshold 1 Evaluation A review of the landfill groundwater data by a qualified professional and appropriate recommendations to be developed, which must consider the risk narrative. Evaluate causes for load contributions and develop investigation plan Action Follow recommendations arising from review undertaken by qualified professional. Resample appropriate wells within 6 months (unless monitoring schedule calls for sampling within the period already); collect duplicate samples at the indicator wells that exceeded ST2, and sample surface water monitoring station MH-12 for metals and hydrocarbons.
	Exceedance of the guideline concentrations provided in Table 3-2 and Table 3-3 collected during a single sampling event (scheduled or resampled) collected from any of the indicator wells.	 Review all newly collected sample data within two weeks of receiving the results. Notification Same as Specific Threshold 1 Plus, Inspector and Liard First Nation Review Same as Specific Threshold 1 Evaluation A review of the landfill groundwater data by a qualified professional and appropriate recommendations to be developed, which must consider the risk narrative. Data review is conducted by a qualified person to determine if exceedance is an anomaly or a trend that will continue and need to be addressed. Action Follow recommendations arising from review undertaken by qualified professional.



Table 3-5: Specific Indicators, Performance Thresholds and Responses for Landfill Groundwater Elevation

Specific Indicators	Specific Performance Thresholds	Specific Responses
Groundwater elevation below landfill determined by monitoring wells: MW14-02, -03, and -04	Water table measurements are within 3.5 m of the base of the landfill for 2 sampling event at one or both of the indicator wells.	Notification Teck Representative/Environmental Monitor Include in scheduled annual reporting Review Confirm groundwater level data: validate original result. Evaluation Compare groundwater elevations to base of landfill and nearby well in regular EMSRP Action Collect additional water levels with 6 months (if not already scheduled) of ST1 being exceeded, at all 4 landfill wells, not just the indicator wells.
	Specific Threshold 2	Notification
	Water table measurements are within 3.5 m of the base of the landfill for 3 consecutive sampling events (scheduled or re- sampled) at all of the indicator wells.	 Same as Specific Threshold 1 Review Same as Specific Threshold 1 Evaluation A review of the groundwater elevation data and trend analysis by a qualified professional and appropriate recommendations to be developed, which must consider the risk narrative. Action Collect additional water levels with 6 months (if not already scheduled) of the ST2 being exceeded, at all 4 landfill wells (MW14-01,02,03, and 04). Install a water level datalogger within one of the indicator wells to collect continuous water level data. Follow recommendations of qualified professional.
	Specific Threshold 3	Notification
	Water table measurements are within 3.0 m of the base of the landfill for 1 sampling event (scheduled or re-sampled) at all of the indicator wells.	 Same as Specific Threshold 1 Inspector and Liard First Nation Review Same as Specific Threshold 1 Evaluation A review of the all of groundwater elevation data by a qualified professional and appropriate recommendations to be developed, which must consider the risk narrative. Investigation into root cause of elevated groundwater levels and if they will continue to remain elevated. Action Review remedial options proposed by qualified professional with regulators and LFN and develop implementation plan and schedule. Examples of Mitigation Actions Construction of additional drainage features, placement of lower permeability cover material to further reduce surface infiltration in the vicinity of the landfill.



3.2 CSR GROUNDWATER MONITORING

3.2.1 DESCRIPTION

Between 2011 and 2014, Golder conducted an environmental site assessment of the site, which found petroleum hydrocarbon and metal concentrations in soil that exceeded the Yukon Contaminated Site Regulations at the vicinity of maintenance shops and fuel storage tanks, and metals associated with the mine primary activity areas (i.e., sediment ponds, tailings facilities, waste rock piles) and processing areas (i.e., mill area). The hydrogeological assessment conducted has indicated that groundwater quality has not been impacted by the identified hydrocarbons or metals soil contamination. The remediation plan for the hydrocarbon and metal impacted areas was to cover the areas with fill material to reduce the pathway and exposure to ecological receptors⁷.

The EMSRP includes three groundwater wells around the site designed to monitor areas downgradient of where soil contamination has been identified as part of the Contaminated Site Assessment process MW13-05, MW13-10, and MW13-07 as described in Table 3-6. MW13-04 is considered a background conditions well and is monitored for the same parameters as the site assessment wells.

Table 3-6: Groundwater Monitoring Schedule

Stations	Monitoring Frequency 8
MW13-04, MW13-05, MW13-10, & MW13-07	Quarterly

3.2.2 RISK NARRATIVE

If a hydrocarbon plume or metal leaching was detected in one of the indicator wells for the Tailings Reclaim Pond Site (MW13-07), Mill site (MW13-10), or the Jewelbox (13-05) it would eventually flow into Camp Creek or North Creek, ultimately, impacting surface water quality prior to compliance sites MH-11 and MH-12.

3.2.3 Specific Indicators, Performance Thresholds and Responses

The thresholds for groundwater quality are based on the Yukon contaminated sites regulations for the protection of aquatic life. The groundwater quality threshold parameters are hydrocarbons, and dissolved cadmium, lead and zinc, which are detailed in Table 3-2 and Table 3-3. Indicators, performance thresholds and responses specific to groundwater quality and quantity, and the monitoring program are provided below in Table 3-7.

As discussed in Section 1.7, the estimated groundwater flow velocity through the overburden is approximately 80 m/year from the Mill Site to Camp Creek. The distance between these sites is approximately 800 m so that any contamination that originated at the Mill Site would arrive at Camp Creek within 10 years. The Mill site has been in place for greater than 20 years. If contamination had migrated along the groundwater flowpath without attenuation, it would have already been detected in surface water. The proposed sampling frequency provides sufficient time to identify and react, as necessary, when AMP thresholds are triggered.

⁷ Although most of the metal impacted areas were covered, a few areas were not covered due to very steep terrain limiting access.

⁸ The frequency presented reflects the current water license conditions, which are not intended to remain at this frequency for the duration of the licence. A reduced frequency may be proposed in the future and the water licence subsequently amended.



Table 3-7: Specific Indicators, Performance Thresholds and Responses for General Site Groundwater Quality

Specific Indicators	Specific Performance Thresholds	Specific Responses
Aqueous concentrations of parameters described in Table 3-2 and 3-3 in monitoring wells: MW13-05, MW13-07 & MW13-10.	 Specific Threshold 1 Exceedance of 75% of the guideline concentrations provided in Table 3-2 and 3-3 in two (2) consecutive samples collected from the indicator wells 	Notification Teck Representative/Environmental Monitor Include in scheduled annual reporting Review Review laboratory QA/QC report: validate original result or re-run sample in lab if error is indicated. Evaluation Review groundwater data trends for all stations to assess for potential systematic contamination due to sampling. Action During next scheduled sampling event conduct a duplicate at monitoring site that exceeded ST1.
	Exceedance of 90% of the guideline concentrations provided Table 3-2 and 3-3 in two (2) consecutive collected (scheduled or re-sampled) from the indicator wells	 Notification Same as Specific Threshold 1 Review Same as Specific Threshold 1 Evaluation A review of the appropriate general site condition groundwater well data and a qualified professional conducts a trend analysis in order to develop appropriate recommendations, which must consider the risk narrative.
	 Specific Threshold 3 Exceedance of the guideline concentrations provided in Table 3-2 and 3-3 collected during a single sampling event (scheduled or re-sampled) from the indicator wells 	Notification Same as Specific Threshold 1 Review Same as Specific Threshold 1 Evaluation A review of the relevant groundwater data by a qualified professional and appropriate recommendations to be developed, which must consider the risk narrative. Trend analysis is conducted by a qualified person to determine if exceedance is an anomaly or a trend that will continue and needs to be addressed. anomaly or a trend that will continue and need to be addressed. Action Follow recommendations arising from review undertaken by qualified professional.

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4. REPORTING

The reporting associated with AMP will part of the annual Quartz Mining License and Water Use Licence report and will include:

- Summary of monitoring data collected as part of the AMP;
- Trend analysis in water quality in at compliance points MH-11, MH12- and MH-15;
- Trend analysis in mine source water quality stations;
- Trend analysis for groundwater quantity and quality;
- A detailed assessment of the full suite of parameters being measured at AMP indicators stations;
- Identification of any additional indicator parameters that should be incorporated into the AMP;
- Summary of any thresholds exceeded and any activities undertaken in relation the AMP; and
- Proposed updates and revisions to the AMP.



5. REFERENCES

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- Azimuth Consulting Group, 2016. Sä Dena Hes Proposed Permit Limits for the Water Use Licence Application. Technical Memorandum dated June 20, 2016.
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- Day, S. and R. Bowles. 2005. *Atypical and typical zinc geochemistry in a carbonate setting, Sä Dena Hes Mine, Yukon Territory, Canada*. Geochemistry: Exploration, Environment, Analysis, Vol. 5 2005, pp. 255–266.
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- SRK Consulting (Canada) Inc. (SRK). 2000. 2000 Geochemical Studies. Sä Dena Hes Mine. November.
- SRK. 2005. Sä Dena Hes Mine Water Quality and Loading Re-Assessment. January.
- SRK Consulting, 2014. Draft Adaptive Management Plan, Sä Dena Hes Mine. Prepared for Teck Resources.
- SRK Consulting, 2014b. *Proposed Post Reclamation Geotechnical Monitoring Program Memo*. Prepared for Teck Resources.
- Teck Resources Limited, 2017. Sä Dena Hes Mine Environmental Monitoring, Reporting, and Surveillance Plan.
- Teck Resources Limited, 2015. Sä Dena Hes Mine Detailed Decommisioning & Reclmation Plan. August 2015.



APPENDIX C: LAB REPORTS



: Michelle Unger

CERTIFICATE OF ANALYSIS

Work Order : WR2200110

Client : Teck Metals Ltd

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : 250 427 8404
Project : ECA21YT00086

PO : 10145 C-O-C number : ----

Sampler : ----Site : Sa D

Site : Sa Dena Hes
Quote number : Q62635
No. of samples received : 7

Page : 1 of 10

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 11-Feb-2022 14:50

Date Analysis Commenced : 15-Feb-2022

Issue Date : 23-Feb-2022 14:41

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:

: 6

- General Comments
- Analytical Results

No. of samples analysed

Surrogate Control Limits

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

Contact

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
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



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
μg/L	micrograms per litre
μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
pH units	pH units

<: less 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.

Sample Comments

Sample	Client Id	Comment
WR2200110-001	MW13-01	Sample(002,004,006,007) : Water sample for VOC analysis contained > 5% headspace. Results may be biased low.

Qualifiers

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).

>: greater than.

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Groundwater			Cli	ient sample ID	MW13-01	MW13-07	MW13-08	MW13-10	MW14-04
(Matrix: Water)									
			Client samp	ling date / time	10-Feb-2022	09-Feb-2022	07-Feb-2022	10-Feb-2022	09-Feb-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200110-001	WR2200110-002	WR2200110-003	WR2200110-004	WR2200110-006
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	151	224	306	211	160
conductivity		E100	2.0	μS/cm	307	457	579	450	294
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	169	251	351	254	168
pH		E108	0.10	pH units	7.80	8.10	7.89	8.10	8.21
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	0.144	0.0056	0.0080	0.0136
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.CI	0.50	mg/L	<0.50	<0.50	0.58	<0.50	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	0.346	0.294	0.055	0.058	0.041
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.289	0.0056	0.315	0.510	0.144
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	0.0019	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	11.1	29.4	19.7	35.6	3.77
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0041	0.0012	0.0276	0.879	0.0087
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00012	<0.00010	0.00018	0.00024	0.00017
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00038	0.00157	0.00028	0.00786	0.00048
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0220	0.0403	0.233	0.0228	0.0858
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	<0.000020	0.000050	<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	0.022	<0.010	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000740	<0.0000050	0.0000604	0.0000649	0.0000072
calcium, dissolved	7440-70-2	E421	0.050	mg/L	61.2	72.5	121	87.4	57.6
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00210	0.00137
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00069	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0.00102	0.00266	0.00025
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	0.674	0.055	0.984	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.00154	<0.000050	0.000141	0.00536	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0014	0.0095	0.0022	0.0025	0.0013
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	3.93	17.1	11.9	8.75	5.92
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00148	0.0922	0.00189	0.0168	0.00033
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
				3.					

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 : 4 of 10

 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Client sampling date / fire CAS Number Method LOR Unit WR2200110-001 WR2200110-002 WR2200110-003 WR2200110-0	Sub-Matrix: Groundwater			Cli	ent sample ID	MW13-01	MW13-07	MW13-08	MW13-10	MW14-04
CAS Number Method LOR Method LOR Method Met	(Matrix: Water)									
CAS Number Method LOR Method LOR Method Met				Client samp	ling date / time	10-Feb-2022	09-Feb-2022	07-Feb-2022	10-Feb-2022	09-Feb-2022
	Analyte	CAS Number	Method							
Marche M	, many to					Result	Result	Result	Result	Result
mickel, dissolved 7440-02-0 E421 0.00050 mg/L < 0.00050 < 0.00050 0.00050 0.00155 < 0.00050 phospharus, dissolved 7722-14-0 E421 0.0000 mg/L < 0.00050 < 0.0050 0.0050 0.0050 < 0.0050 0.0050 < 0.0050 phospharus, dissolved 7740-007 E421 0.100 mg/L < 0.0037 2.82 0.761 1.33 0.509	Dissolved Metals									
phosphorus, dissolved 7723-14-0 F421 0.050 mg/L <0.050 <0.050 <0.050 <0.050 <0.050 <0.086 <0.050 <0.086 <0.050 <0.086 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0.085 <0	molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000659	0.00303	0.000755	0.00142	0.000801
Potassium, dissolved	nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00165	<0.00050
Selenium, dissolved 7782-49-2	phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	0.096	<0.050
Section Sect	potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.637	2.82	0.761	1.33	0.596
Section Sect	selenium, dissolved	7782-49-2	E421	0.050	μg/L	1.57	<0.050	1.55	1.77	0.506
Sodium, dissolved 7440-23-5 E421 0.050 mg/L 0.764 4.61 1.30 1.89 2.42	silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.32	7.61	4.23	5.70	3.99
strontium, dissolved 7440-24-6 E421 0.00020 mg/L 0.177 0.542 0.390 0.385 0.193 sulfur, dissolved 7704-34-9 E421 0.500 mg/L 3.85 10.6 7.60 12.6 1.76 tallium, dissolved 7440-28-0 E421 0.000010 mg/L <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 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000011 <0.000010 <0.000011 <0.00000 <0.00000 <0.00000 <0.00000 <0.00000 <0.00000 <0.00000 <0.00000 <0.00000 <0.000000 <0.000000 <0.000000	silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	0.000054	<0.000010
sulfur, dissolved 7704-34-9 E421 0.50 mg/L 3.85 10.6 7.60 12.6 1.76 thalliur, dissolved 7440-28-0 E421 0.000010 mg/L <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 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 </td <td>sodium, dissolved</td> <td>7440-23-5</td> <td>E421</td> <td>0.050</td> <td>mg/L</td> <td>0.764</td> <td>4.61</td> <td>1.30</td> <td>1.89</td> <td>2.42</td>	sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.764	4.61	1.30	1.89	2.42
thillum, dissolved 7440-28-0 E421 0.000010 mg/L <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 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.0000167 <0.00025 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.0000	strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.177	0.542	0.390	0.385	0.193
tin, dissolved	sulfur, dissolved	7704-34-9	E421	0.50	mg/L	3.85	10.6	7.60	12.6	1.76
titanium, dissolved	thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	0.000014	<0.000010
uranium, dissolved 7440-61-1 E421 0.000010 mg/L 0.000867 0.00637 0.00187 0.00295 0.000433 vanadium, dissolved 7440-62-2 E421 0.00050 mg/L <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <t< td=""><td>tin, dissolved</td><td>7440-31-5</td><td>E421</td><td>0.00010</td><td>mg/L</td><td><0.00010</td><td><0.00010</td><td><0.00010</td><td><0.00010</td><td><0.00010</td></t<>	tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
vanadium, dissolved 7440-62-2 E421 0.00050 mg/L <0.00050 <0.00050 <0.00050 0.000050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050	titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	0.00111	<0.0366 DLM	<0.00030
zinc, dissolved 7440-66-6 E421 0.0010 mg/L 0.0310 0.0011 0.0034 0.0191 <0.0010 zirconlum, dissolved 7440-67-7 E421 0.00020 mg/L <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 dissolved mercury filtration location	uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000867	0.00637	0.00187	0.00295	0.000433
zirconium, dissolved 7440-67-7 E421 0.00020 mg/L <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 dissolved mercury filtration location	vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00301	<0.00050
EP509 - - Field Fiel	zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0310	0.0011	0.0034	0.0191	<0.0010
Colatile Organic Compounds [Fuels] Field	zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00080 DLM	<0.00020
Volatile Organic Compounds [Fuels] benzene 71-43-2 E611A 0.50 µg/L <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.40 <0.40 <0.40 <0.40 <0.40 <0.40	dissolved mercury filtration location		EP509	-	-	Field	Field	Field	Field	Field
benzene 71-43-2 E611A 0.50 µg/L <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50	dissolved metals filtration location		EP421	-	-	Field	Field	Field	Field	Field
ethylbenzene 100-41-4 E611A 0.50 µg/L <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0	Volatile Organic Compounds [Fuels]									
methyl-tert-butyl ether [MTBE] 1634-04-4 E611A 0.50 µg/L < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.5	benzene	71-43-2	E611A	0.50	μg/L		<0.50		<0.50	<0.50
styrene 100-42-5 E611A 0.50 μg/L <0.50 <0.50 <0.50 toluene 108-88-3 E611A 0.50 μg/L <0.50 <0.50 <0.50 xylene, m+p- 179601-23-1 E611A 0.40 μg/L <0.40 <0.40 <0.40 <0.40 xylene, o- 95-47-6 E611A 0.30 μg/L <0.30 <0.30 <0.30 xylenes, total 1330-20-7 E611A 0.50 μg/L <0.50 <0.50 <0.50 <0.30 <0.30 <0.30 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.	ethylbenzene	100-41-4	E611A	0.50	μg/L		<0.50		<0.50	<0.50
toluene 108-88-3 E611A 0.50 µg/L < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0.50 < 0	methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L		<0.50		<0.50	<0.50
xylene, m+p- 179601-23-1 E611A 0.40 μg/L <0.40 <0.40 <0.40 <0.40 xylene, o- 95-47-6 E611A 0.30 μg/L <0.30 <0.30 <0.30 <0.30 xylenes, total 1330-20-7 E611A 0.50 μg/L <0.50 <0.50 <0.50 Volatile Organic Compounds Surrogates bromofluorobenzene, 4- 460-00-4 E611A 1.0 % 98.2 101 98.5 difluorobenzene, 1,4- 540-36-3 E611A 1.0 % 97.8 98.1 97.4	styrene	100-42-5	E611A	0.50	μg/L		<0.50		<0.50	<0.50
xylene, o- 95-47-6 E611A 0.30 μg/L < 0.30 < 0.30 < 0.30 xylenes, total 1330-20-7 E611A 0.50 μg/L < 0.50 < 0.50 < 0.50	toluene	108-88-3	E611A	0.50	μg/L		<0.50		<0.50	<0.50
xylenes, total 1330-20-7 E611A 0.50 µg/L <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.50 <0.	xylene, m+p-	179601-23-1	E611A	0.40	μg/L		<0.40		<0.40	<0.40
Volatile Organic Compounds Surrogates bromofluorobenzene, 4- 460-00-4 E611A 1.0 % 98.2 101 98.5 difluorobenzene, 1,4- 540-36-3 E611A 1.0 % 97.8 98.1 97.4	xylene, o-	95-47-6	E611A	0.30	μg/L		<0.30		<0.30	<0.30
bromofluorobenzene, 4- 460-00-4 E611A 1.0 % 98.2 101 98.5 difluorobenzene, 1,4- 540-36-3 E611A 1.0 % 97.8 98.1 97.4	xylenes, total	1330-20-7	E611A	0.50	μg/L		<0.50		<0.50	<0.50
difluorobenzene, 1,4- 540-36-3 E611A 1.0 % 97.8 98.1 97.4	Volatile Organic Compounds Surrogates									
	bromofluorobenzene, 4-	460-00-4	E611A	1.0	%		98.2		101	98.5
Hydrocarbons	difluorobenzene, 1,4-	540-36-3	E611A	1.0	%		97.8		98.1	97.4
	Hydrocarbons									

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 : 5 of 10

 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Groundwater			Ci	lient sample ID	MW13-01	MW13-07	MW13-08	MW13-10	MW14-04
(Matrix: Water)									
			Client samp	oling date / time	10-Feb-2022	09-Feb-2022	07-Feb-2022	10-Feb-2022	09-Feb-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200110-001	WR2200110-002	WR2200110-003	WR2200110-004	WR2200110-006
					Result	Result	Result	Result	Result
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L		<250		<250	<250
EPH (C19-C32)		E601A	250	μg/L		<250		<250	<250
VHw (C6-C10)		E581.VH+F1	100	μg/L		<100		<100	<100
HEPHw		EC600A	250	μg/L		<250		<250	<250
LEPHw		EC600A	250	μg/L		<250		<250	<250
VPHw		EC580A	100	μg/L		<100		<100	<100
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%		81.6		84.8	89.8
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%		92.8		111	105
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L		<0.010		<0.010	<0.010
acenaphthylene	208-96-8	E641A	0.010	μg/L		<0.010		<0.010	<0.010
acridine	260-94-6	E641A	0.010	μg/L		<0.010		<0.010	<0.010
anthracene	120-12-7	E641A	0.010	μg/L		<0.010		<0.010	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	μg/L		<0.010		<0.010	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L		<0.0050		<0.0050	<0.0050
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L		<0.010		<0.010	<0.010
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L		<0.015		<0.015	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L		<0.010		<0.010	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L		<0.010		<0.010	<0.010
chrysene	218-01-9	E641A	0.010	μg/L		<0.010		<0.010	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L		<0.0050		<0.0050	<0.0050
fluoranthene	206-44-0	E641A	0.010	μg/L		<0.010		<0.010	<0.010
fluorene	86-73-7	E641A	0.010	μg/L		<0.010		<0.010	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L		<0.010		<0.010	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L		<0.010		<0.010	<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L		0.013		<0.010	<0.010
naphthalene	91-20-3	E641A	0.050	μg/L		<0.050		<0.050	<0.050
phenanthrene	85-01-8	E641A	0.020	μg/L		<0.020		<0.020	<0.020
pyrene	129-00-0	E641A	0.010	μg/L		<0.010		<0.010	0.012
quinoline	91-22-5	E641A	0.050	μg/L		<0.050		<0.050	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates									
Janes									

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Analytical Results

Sub-Matrix: Groundwater Client sample ID				MW13-01	MW13-07	MW13-08	MW13-10	MW14-04	
(Matrix: Water)									
			Client samp	ling date / time	10-Feb-2022	09-Feb-2022	07-Feb-2022	10-Feb-2022	09-Feb-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200110-001	WR2200110-002	WR2200110-003	WR2200110-004	WR2200110-006
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%		98.6		95.9	106
naphthalene-d8	1146-65-2	E641A	0.1	%		101		99.5	105
phenanthrene-d10	1517-22-2	E641A	0.1	%		106		102	108

Please refer to the General Comments section for an explanation of any qualifiers detected.

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 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Groundwater			Cl	ient sample ID	MW-GW	 		
(Matrix: Water)								
			Client samp	ling date / time	09-Feb-2022	 		
Analyte	CAS Number	Method	LOR	Unit	WR2200110-007	 		
				Ì	Result	 		
Physical Tests								
alkalinity, total (as CaCO3)		E290	1.0	mg/L	160	 		
conductivity		E100	2.0	μS/cm	300	 		
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	169	 		
pH		E108	0.10	pH units	8.26	 		
Anions and Nutrients								
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	 		
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	 		
chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	 		
fluoride	16984-48-8	E235.F	0.020	mg/L	0.042	 		
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.149	 		
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	 		
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	3.92	 		
Dissolved Metals								
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0044	 		
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00023	 		
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00046	 		
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0861	 		
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	 		
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	 		
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	 		
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000091	 		
calcium, dissolved	7440-70-2	E421	0.050	mg/L	57.9	 		
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00136	 		
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	 		
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	 		
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	 		
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	 		
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0012	 		
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	6.05	 		
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00021	 		
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	 		
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000734	 		
,,	1-33-30-1		1 3.555550	g/ =	3.333.31		l	I

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 Client
 : Teck Metals Ltd

 Project
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(Matrix: Water)				ent sample ID	MW-GW	 	
(Matrix. Water)							
			Client samn	ling date / time	09-Feb-2022	 	
Analyte	CAS Number	Method	LOR	Unit	WR2200110-007	 	
Tinalyto	O/10 / tallibor				Result	 	
Dissolved Metals							
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	 	
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	 	
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.578	 	
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.486	 	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.89	 	
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	 	
sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.28	 	
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.197	 	
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.71	 	
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	 	
tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	 	
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	 	
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000422	 	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	 	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	 	
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	 	
dissolved mercury filtration location		EP509	-	-	Field	 	
dissolved metals filtration location		EP421	-	-	Field	 	
Volatile Organic Compounds [Fuels]							
benzene	71-43-2	E611A	0.50	μg/L	<0.50	 	
ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	 	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	 	
styrene	100-42-5	E611A	0.50	μg/L	<0.50	 	
toluene	108-88-3	E611A	0.50	μg/L	<0.50	 	
xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	 	
xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	 	
xylenes, total	1330-20-7	E611A	0.50	μg/L	<0.50	 	
Volatile Organic Compounds Surrogates							
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	97.0	 	
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	97.8	 	
Hydrocarbons							
EPH (C10-C19)		E601A	250	μg/L	<250	 	

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 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Groundwater			Ci	lient sample ID	MW-GW	 		
(Matrix: Water)								
			Client samp	oling date / time	09-Feb-2022	 		
Analyte	CAS Number	Method	LOR	Unit	WR2200110-007	 		
					Result	 		
Hydrocarbons								
EPH (C19-C32)		E601A	250	μg/L	<250	 		
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	 		
HEPHw		EC600A	250	μg/L	<250	 		
LEPHw		EC600A	250	μg/L	<250	 		
VPHw		EC580A	100	μg/L	<100	 		
Hydrocarbons Surrogates								
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%	85.1	 		
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	107	 		
Polycyclic Aromatic Hydrocarbons								
acenaphthene	83-32-9	E641A	0.010	μg/L	<0.010	 		
acenaphthylene	208-96-8	E641A	0.010	μg/L	<0.010	 		
acridine	260-94-6	E641A	0.010	μg/L	<0.010	 		
anthracene	120-12-7	E641A	0.010	μg/L	<0.010	 		
benz(a)anthracene	56-55-3	E641A	0.010	μg/L	<0.010	 		
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L	<0.0050	 		
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L	<0.010	 		
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L	<0.015	 		
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L	<0.010	 		
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L	<0.010	 		
chrysene	218-01-9	E641A	0.010	μg/L	<0.010	 		
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L	<0.0050	 		
fluoranthene	206-44-0	E641A	0.010	μg/L	<0.010	 		
fluorene	86-73-7	E641A	0.010	μg/L	<0.010	 		
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L	<0.010	 		
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L	<0.010	 		
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L	<0.010	 		
naphthalene	91-20-3	E641A	0.050	μg/L	<0.050	 		
phenanthrene	85-01-8	E641A	0.020	μg/L	<0.020	 		
pyrene	129-00-0	E641A	0.010	μg/L	<0.010	 		
quinoline	91-22-5	E641A	0.050	μg/L	<0.050	 		
Polycyclic Aromatic Hydrocarbons Surrogates								I
chrysene-d12	1719-03-5	E641A	0.1	%	103	 		
i •			I	1 1			l	I

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 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	MW-GW	 	
(Matrix: Water)							
			Client samp	oling date / time	09-Feb-2022	 	
Analyte	CAS Number	Method	LOR	Unit	WR2200110-007	 	
					Result	 	
Polycyclic Aromatic Hydrocarbons Surrogates							
naphthalene-d8	1146-65-2	E641A	0.1	%	106	 	
phenanthrene-d10	1517-22-2	E641A	0.1	%	110	 	

Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : WR2200110 Page : 1 of 18

Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Michelle Unger : Can Dang

: 601 Knighton Road Address : #12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

 Telephone
 : 250 427 8404
 Telephone
 : +1 867 668 6689

 Project
 : ECA21YT00086
 Date Samples Received
 : 11-Feb-2022 14:50

 PO
 : 10145
 Issue Date
 : 23-Feb-2022 14:41

PO : 10145 C-O-C number :----

Kimberley BC Canada V1A 3E1

Sampler : ----

Site : Sa Dena Hes
Quote number : Q62635
No. of samples received : 7

No. of samples analysed : 6

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

Address

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.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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 • Quality Control Sample Frequency Outliers occur - please see following pages for full details.

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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: **x** = Holding time exceedance; ✓ = Within Holding Time Analyte Group Sampling Date Extraction / Preparation Analysis Method Container / Client Sample ID(s) **Holding Times** Eval Analysis Date Holding Times Eval Preparation Rec Actual Rec Actual Date Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) F298 07-Feb-2022 16-Feb-2022 1 MW13-08 17-Feb-2022 28 days 11 days Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) MW13-01 E298 10-Feb-2022 16-Feb-2022 17-Feb-2022 28 days 8 days ✓ ----Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) MW13-10 E298 10-Feb-2022 16-Feb-2022 17-Feb-2022 28 days 8 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) MW13-07 E298 09-Feb-2022 16-Feb-2022 17-Feb-2022 28 days 9 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) MW14-04 F298 09-Feb-2022 16-Feb-2022 17-Feb-2022 28 days 9 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) MW-GW F298 09-Feb-2022 16-Feb-2022 17-Feb-2022 28 days 9 days --------Anions and Nutrients : Bromide in Water by IC (Low Level) HDPE E235.Br-L 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ MW13-01

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Matrix: Water

Evaluation: x = Holding time exceedance · ✓ = Within Holding Time

Method Sampling Date Existation (Preparation Preparation Prepa											= Holding time exceedance ; ✓ = Within Holding Ti					
Date Rec Actual	yte Group	Method	Sampling Date	Ex	traction / Pi	reparation		Analysis								
Dale Rec Actual Rec Actual Rec Actual	ntainer / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval					
## HOPE MW13-10 E235.Br-L 10-Feb-2022 15-Feb-2022 28 days 6 days ✓				•	Rec	Actual			Rec	Actual						
MW13-10	ns and Nutrients : Bromide in Water by IC (Low Level)															
Monte and Nutrients : Bromide in Water by IC (Low Level)	PE															
HOPE MW13-07 E 235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days ** ** ** ** ** ** ** ** **	IW13-10	E235.Br-L	10-Feb-2022					15-Feb-2022	28 days	6 days	✓					
HOPE MW13-07 E 235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days ** ** ** ** ** ** ** ** **																
MW/13-07 E235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days \top \text{Intens and Nutrients : Bromide in Water by IC (Low Level)}	ns and Nutrients : Bromide in Water by IC (Low Level)															
Note	PE															
HDPE MV14-04 E235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ MW-GW E235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ 15-Feb-2022 28 days 7 days ✓ MW-GW E235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ MW-GW HDPE MW13-08 E235.Br-L 07-Feb-2022 15-Feb-2022 28 days 9 days ✓ 15-Feb-2022 28 days 9 days ✓ MW13-01 E235.Cl 10-Feb-2022 I15-Feb-2022 28 days 9 days ✓ 15-Feb-2022 28 days 9 days ✓ MW13-01 HDPE MW13-01 E235.Cl 10-Feb-2022 I15-Feb-2022 28 days 6 days ✓ MW13-07 E235.Cl 10-Feb-2022 I15-Feb-2022 28 days 7 days ✓ MW13-07 F235.Cl 10-Feb-2022 I15-Feb-2022 II5-Feb-2022 II5-Feb-2022 II5-Feb-2022 II5-Feb-2022 III-III-III-III-III-III-III-III-III-	IW13-07	E235.Br-L	09-Feb-2022					15-Feb-2022	28 days	7 days	✓					
## HPPE ## MW14-04 ## E235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days \$\forall Adapts of the control																
MV14-04	ns and Nutrients : Bromide in Water by IC (Low Level)															
Inions and Nutrients : Bromide in Water by IC (Low Level) HDPE MW-GW E235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Inions and Nutrients : Bromide in Water by IC (Low Level) HDPE MW13-08 E235.Br-L 07-Feb-2022 15-Feb-2022 28 days 9 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-01 E235.CI 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-10 E235.CI 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-07 E235.CI 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-07 E235.CI 09-Feb-2022																
HDPE MW-GW E235.Br-L 09-Feb-2022 115-Feb-2022 28 days 7 days ✓ Infons and Nutrients: Bromide in Water by IC (Low Level) HDPE MW13-08 E235.Br-L 07-Feb-2022 115-Feb-2022 28 days 9 days ✓ Infons and Nutrients: Chloride in Water by IC HDPE MW13-01 E235.Cl 10-Feb-2022 115-Feb-2022 28 days 6 days ✓ Infons and Nutrients: Chloride in Water by IC HDPE MW13-10 E235.Cl 10-Feb-2022 115-Feb-2022 28 days 6 days ✓ Infons and Nutrients: Chloride in Water by IC HDPE MW13-10 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Infons and Nutrients: Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Infons and Nutrients: Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022	/IW14-04	E235.Br-L	09-Feb-2022					15-Feb-2022	28 days	7 days	✓					
HDPE MW-GW E235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Intons and Nutrients: Bromide in Water by IC (Low Level) HDPE MW13-08 E235.Br-L 07-Feb-2022 15-Feb-2022 28 days 9 days ✓ Intons and Nutrients: Chloride in Water by IC HDPE MW13-01 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Intons and Nutrients: Chloride in Water by IC HDPE MW13-10 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Intons and Nutrients: Chloride in Water by IC HDPE MW13-10 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Intons and Nutrients: Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Intons and Nutrients: Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022 Intons and Nutrients: Chloride in Water by IC																
MW-GW E 235.Br-L 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Inions and Nutrients : Bromide in Water by IC (Low Level) HDPE MW13-08 E 235.Br-L 07-Feb-2022 15-Feb-2022 28 days 9 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-01 E 235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-10 E 235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-10 E 235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-07 E 235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-07 E 235.Cl 09-Feb-2022																
Minions and Nutrients : Bromide in Water by IC (Low Level) HDPE																
HDPE MW13-08 E235.Br-L 07-Feb-2022 15-Feb-2022 28 days 9 days ✓ Milons and Nutrients: Chloride in Water by IC HDPE MW13-01 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ MW13-10 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ MW13-10 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 7 days ✓ MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ MW13-07 MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ MW13-07	/IW-GW	E235.Br-L	09-Feb-2022					15-Feb-2022	28 days	7 days	✓					
HDPE MW13-08 E235.Br-L 07-Feb-2022 15-Feb-2022 28 days 9 days ✓ Inions and Nutrients: Chloride in Water by IC HDPE MW13-01 E235.Cl 10-Feb-2022 MW13-10 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Inions and Nutrients: Chloride in Water by IC HDPE MW13-10 E235.Cl 09-Feb-2022 MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Inions and Nutrients: Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022 I15-Feb-2022 28 days 7 days ✓ Inions and Nutrients: Chloride in Water by IC HDPE MW13-07 Anions and Nutrients: Chloride in Water by IC HDPE MW13-07 Anions and Nutrients: Chloride in Water by IC																
MW13-08																
Inions and Nutrients : Chloride in Water by IC HDPE MW13-01 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-10 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓																
HDPE	IW13-08	E235.Br-L	07-Feb-2022					15-Feb-2022	28 days	9 days	✓					
HDPE																
MW13-01																
Minions and Nutrients : Chloride in Water by IC HDPE MW13-10 E235.Cl 10-Feb-2022 15-Feb-2022 28 days 6 days ✓ Minions and Nutrients : Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Minions and Nutrients : Chloride in Water by IC HDPE MW13-07 HDPE		F005 OI	40 5 1 0000					45 5 4 0000	00.1	0.1						
HDPE MW13-10	IVV13-01	E235.CI	10-Feb-2022					15-Feb-2022	28 days	6 days	•					
HDPE MW13-10																
MW13-10																
Anions and Nutrients : Chloride in Water by IC HDPE MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE		F225 CI	10 Feb 2022					45 5-4 0000	00 -1	C -1						
HDPE MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE Image: Chloride in Water by IC <	10/13-10	E235.CI	10-Feb-2022					15-Feb-2022	28 days	6 days	•					
HDPE MW13-07 E235.Cl 09-Feb-2022 15-Feb-2022 28 days 7 days ✓ Inions and Nutrients : Chloride in Water by IC HDPE Image: Chloride in Water by IC																
MW13-07						1		1								
Anions and Nutrients : Chloride in Water by IC HDPE		E235 ()	00_Eeb 2022		_			15-Eeb 2022	28 days	7 days	1					
HDPE	1101 13-01	E230.Cl	09-F6D-2022					10-Feb-2022	20 uays	r uays	•					
HDPE																
								I								
10-160-2022 13-160-2022 Zo days / days ▼		F235 CI	00-Feb-2022					15-Feb-2022	28 days	7 days	1					
	18 ¥ 1· 1·1 ·∪· 1	EZ33.CI	09-1 60-2022					10-1 60-2022	20 days	r uays	•					

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						valuation. • -	nolding time exce	suarice , ,	_ vvitiiiii	riolaling riiii
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW-GW	E235.CI	09-Feb-2022					15-Feb-2022	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MW13-08	E235.CI	07-Feb-2022					15-Feb-2022	28 days	9 days	✓
WW 10-00	L200.01	07-1 05-2022					10-1 60-2022	20 days	3 days	•
Anions and Nutrients : Fluoride in Water by IC						I				
HDPE	F005 F	40 5 1 2000					45 5 1 0000	00.1		,
MW13-01	E235.F	10-Feb-2022					15-Feb-2022	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW13-10	E235.F	10-Feb-2022					15-Feb-2022	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW13-07	E235.F	09-Feb-2022					15-Feb-2022	28 days	7 days	✓
								-		
Anions and Nutrients : Fluoride in Water by IC										
HDPE							1			
MW14-04	E235.F	09-Feb-2022					15-Feb-2022	28 days	7 days	✓
WW 14-04	L200.1	00-1 05-2022					10-1 CD-2022	20 days	7 days	•
Anions and Nutrients : Fluoride in Water by IC										
HDPE	F005 F	00 5 4 0000					45.5 1.0055			,
MW-GW	E235.F	09-Feb-2022					15-Feb-2022	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MW13-08	E235.F	07-Feb-2022					15-Feb-2022	28 days	9 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW13-01	E235.NO3-L	10-Feb-2022					15-Feb-2022	3 days	6 days	sc
										EHT

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Matrix: **Water** Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

wattix: water			_			diddion. * =	nolaing time exce	Analys		Tiolding Til
Analyte Group	Method	Sampling Date	Ex	traction / Pr						
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW13-10	E235.NO3-L	10-Feb-2022					15-Feb-2022	3 days	6 days	30
										EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW13-07	E235.NO3-L	09-Feb-2022					15-Feb-2022	3 days	7 days	3C
										EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW14-04	E235.NO3-L	09-Feb-2022					15-Feb-2022	3 days	7 days	30
										EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW-GW	E235.NO3-L	09-Feb-2022					15-Feb-2022	3 days	7 days	3c
								_		EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MW13-08	E235.NO3-L	07-Feb-2022					15-Feb-2022	3 davs	9 days	æ
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)							<u> </u>			
HDPE										
MW13-01	E235.NO2-L	10-Feb-2022					15-Feb-2022	3 days	6 days	32
		.0.022022					10 1 02 2022	o dayo		EHT
Anima and Nutrients - Nitrite in Metan by 10 (1 and 1 and 1)										
Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE							I	I		
MW13-10	E235.NO2-L	10-Feb-2022					15-Feb-2022	3 days	6 days	*
WW 13-10	LZ00.NOZ-L	10-1 CD-2022					10-1 60-2022	5 days	0 days	EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)				1				T		
HDPE	F225 NO2 1	00 Feb 2022					15 Feb 2022	2 days	7 dove	
MW13-07	E235.NO2-L	09-Feb-2022					15-Feb-2022	3 days	7 days	*
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MW14-04	E235.NO2-L	09-Feb-2022					15-Feb-2022	3 days	7 days	*
										EHT

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						valuation. • -	noiding time exce	suarice , ,	_ vvitiiiii	Tiolaling Tilli	
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation		Analysis				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE											
MW-GW	E235.NO2-L	09-Feb-2022					15-Feb-2022	3 days	7 days	*	
										EHT	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE											
MW13-08	E235.NO2-L	07-Feb-2022					15-Feb-2022	3 days	9 days	*	
WW 10-00	2200102 2	0 02 2022					10 1 05 2022	o dayo	o dayo	EHTR	
										LIIIX	
Anions and Nutrients : Sulfate in Water by IC					I			T			
HDPE	E005.004	10 5 1 0000					45 5 1 0000	00.1	0.1	,	
MW13-01	E235.SO4	10-Feb-2022					15-Feb-2022	28 days	6 days	✓	
Anions and Nutrients : Sulfate in Water by IC											
HDPE											
MW13-10	E235.SO4	10-Feb-2022					15-Feb-2022	28 days	6 days	✓	
Anions and Nutrients : Sulfate in Water by IC											
HDPE											
MW13-07	E235.SO4	09-Feb-2022					15-Feb-2022	28 days	7 days	✓	
								-	-		
Anions and Nutrients : Sulfate in Water by IC											
HDPE											
MW14-04	E235.SO4	09-Feb-2022					15-Feb-2022	28 days	7 days	✓	
		00 : 02 2022					10 1 02 2022	20 00,0	,.		
Anions and Nutrients : Sulfate in Water by IC											
HDPE	E005 004	00 Fat 2000					45 5-1-0000	00 4	7	,	
MW-GW	E235.SO4	09-Feb-2022					15-Feb-2022	28 days	/ days	✓	
Anions and Nutrients : Sulfate in Water by IC											
HDPE											
MW13-08	E235.SO4	07-Feb-2022					15-Feb-2022	28 days	9 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial dissolved (hydrochloric acid)											
MW13-08	E509	07-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	11 days	✓	

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Matrix: Water					E۱	/aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation		Times	Eval	Analysis Date	Holding		Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW13-01	E509	10-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW13-10	E509	10-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW13-07	E509	09-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS					1					
Glass vial dissolved (hydrochloric acid) MW14-04	E509	09-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) MW-GW	E509	09-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	9 days	4
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS					<u> </u>					
HDPE dissolved (nitric acid) MW13-01	E421	10-Feb-2022	20-Feb-2022				22-Feb-2022	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW13-10	E421	10-Feb-2022	20-Feb-2022				22-Feb-2022	180 days	13 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW13-07	E421	09-Feb-2022	20-Feb-2022				22-Feb-2022	180 days	14 days	√
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) MW14-04	E421	09-Feb-2022	20-Feb-2022				22-Feb-2022	180 days	14 days	4

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Matrix: Water

Evaluation:	 – Holding time 	exceedance ·	/ - Within	Holding Time

1	Sampling Date 09-Feb-2022	Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Analys. Holding Rec		Eval
l	09-Feb-2022	Date			Eval	Analysis Date			Eval
1	09-Feb-2022	Date	Rec	Actual		-	Rec	Actual	
1	09-Feb-2022								
1	09-Feb-2022			1					
1	09-Feb-2022		1						
		20-Feb-2022				22-Feb-2022	180	14 days	✓
							days		
1	07-Feb-2022	20-Feb-2022				22-Feb-2022	180	16 days	✓
							days		
Α	09-Feb-2022	18-Feb-2022	14	10	✓	19-Feb-2022	40 days	1 days	✓
			days	days					
							1		
Α	09-Feb-2022	18-Feb-2022	14	10	1	19-Feb-2022	40 days	1 days	✓
				days				-	
Α	09-Feb-2022	18-Feb-2022	14	10	✓	19-Feb-2022	40 days	1 davs	1
				_					
			,	,					
							1		
Α	10-Feb-2022	18-Feb-2022	14	9 davs	√	19-Feb-2022	40 davs	1 davs	1
								,	
			,-						
1+F1	10-Feb-2022	18-Feb-2022				19-Feh-2022	14 days	10 days	1
	.0.02 2022	10 1 05 2022				10 1 00 2022	11 days	10 dayo	
1+F1	09-Feb-2022	18-Feb-2022				19-Feb-2022	14 days	11 days	1
	30 1 35 2022	10 1 05-2022				10 1 05-2022	aays	. i dayo	•
						4	1 /		
1+F1	09-Feb-2022	18-Feb-2022				19-Feb-2022	14 days	11 days	1
	A A	A 09-Feb-2022 A 09-Feb-2022 A 10-Feb-2022 H+F1 10-Feb-2022	A 09-Feb-2022 18-Feb-2022 A 09-Feb-2022 18-Feb-2022 A 10-Feb-2022 18-Feb-2022 H+F1 10-Feb-2022 18-Feb-2022	A 09-Feb-2022 18-Feb-2022 14 days A 09-Feb-2022 18-Feb-2022 14 days A 09-Feb-2022 18-Feb-2022 14 days A 10-Feb-2022 18-Feb-2022 14 days	A 09-Feb-2022 18-Feb-2022 14 10 days days A 09-Feb-2022 18-Feb-2022 14 10 days days A 09-Feb-2022 18-Feb-2022 14 10 days days A 10-Feb-2022 18-Feb-2022 14 9 days H+F1 10-Feb-2022 18-Feb-2022	A 09-Feb-2022 18-Feb-2022 14 10 days days A 09-Feb-2022 18-Feb-2022 14 10 days days A 09-Feb-2022 18-Feb-2022 14 10 days days A 10-Feb-2022 18-Feb-2022 14 9 days H+F1 10-Feb-2022 18-Feb-2022	A 09-Feb-2022 18-Feb-2022 14 10	A 09-Feb-2022 18-Feb-2022 14 10	A 09-Feb-2022 18-Feb-2022 14 10

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Matrix: **Water** Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

* * *							Holding time exce			
Analyte Group	Method	Extraction / Preparation				Analysis				
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
MW-GW	E581.VH+F1	09-Feb-2022	18-Feb-2022				19-Feb-2022	14 days	11 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW13-01	E290	10-Feb-2022					15-Feb-2022	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW13-10	E290	10-Feb-2022					15-Feb-2022	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW13-07	E290	09-Feb-2022					15-Feb-2022	14 days	7 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW14-04	E290	09-Feb-2022					15-Feb-2022	14 days	7 days	✓
									,	
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW-GW	E290	09-Feb-2022					15-Feb-2022	14 days	7 days	1
								_		
Physical Tests : Alkalinity Species by Titration										
HDPE										
MW13-08	E290	07-Feb-2022					15-Feb-2022	14 days	9 days	1
									,	
Physical Tests : Conductivity in Water										
HDPE										
MW13-01	E100	10-Feb-2022					15-Feb-2022	28 days	6 davs	1
								-	, ,-	
Physical Tests : Conductivity in Water										
HDPE										
MW13-10	E100	10-Feb-2022					15-Feb-2022	28 days	6 davs	1
······································				T.					,-	

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						diddion.	noiding time exce	oddiioo ,	***************************************	riolaning rinii
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE										
MW13-07	E100	09-Feb-2022					15-Feb-2022	28 days	7 days	✓
									_	
Physical Tests : Conductivity in Water										
HDPE							I			
MW14-04	E100	09-Feb-2022					15-Feb-2022	28 days	7 days	✓
WW 14-04	2100	00 1 05 2022					10-1 05-2022	20 days	7 days	,
Physical Tests : Conductivity in Water							I		I	
HDPE	E100	09-Feb-2022					15-Feb-2022	28 days	7 days	√
MW-GW	E100	09-Feb-2022					15-Feb-2022	20 days	7 days	•
Physical Tests : Conductivity in Water										
HDPE										
MW13-08	E100	07-Feb-2022					15-Feb-2022	28 days	9 days	✓
Physical Tests : pH by Meter										
HDPE										
MW13-01	E108	10-Feb-2022					15-Feb-2022	0.25	143 hrs	.x
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MW13-10	E108	10-Feb-2022					15-Feb-2022	0.25	143 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE							I			
MW13-07	E108	09-Feb-2022					15-Feb-2022	0.25	167 hrs	JE .
1V1VV 13-07	2100	00-1 05-2022					10-1 60-2022	hrs	107 1113	EHTR-FM
								1113		∠1111X-11VI
Physical Tests : pH by Meter										
HDPE	F400	00 5-1-0000					45 5-1 0000		407 1	
MW14-04	E108	09-Feb-2022					15-Feb-2022	0.25	167 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MW-GW	E108	09-Feb-2022					15-Feb-2022	0.25	167 hrs	3¢
								hrs		EHTR-FM

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 Project
 : ECA21YT00086



Matrix: Water Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water					E	/aluation: 🗴 =	Holding time exce	edance ; 🕦	/ = Within	Holding Ti
Analyte Group	Method	Sampling Date	ate Extraction / Preparation An			Analys	ılysis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
MW13-08	E108	07-Feb-2022					15-Feb-2022	0.25	215 hrs	3 0
								hrs		EHTR-F
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW13-07	E641A	09-Feb-2022	18-Feb-2022	14	10	✓	19-Feb-2022	40 days	1 days	✓
				days	days					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW14-04	E641A	09-Feb-2022	18-Feb-2022	14	10	✓	19-Feb-2022	40 days	1 days	✓
				days	days					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW-GW	E641A	09-Feb-2022	18-Feb-2022	14	10	✓	19-Feb-2022	40 days	1 days	✓
				days	days					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
MW13-10	E641A	10-Feb-2022	18-Feb-2022	14	9 days	✓	19-Feb-2022	40 days	1 days	✓
				days						
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS				-						
Glass vial (sodium bisulfate)										
MW13-10	E611A	10-Feb-2022	18-Feb-2022				19-Feb-2022	14 days	10 days	✓
									_	
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW13-07	E611A	09-Feb-2022	18-Feb-2022				19-Feb-2022	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
MW14-04	E611A	09-Feb-2022	18-Feb-2022				19-Feb-2022	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)							I			
MW-GW	E611A	09-Feb-2022	18-Feb-2022				19-Feb-2022	14 davs	11 days	1
								,0	,-	

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

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EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Frequency (%) Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	411072	1	17	5.8	5.0	✓
Ammonia by Fluorescence	E298	411836	1	18	5.5	5.0	√
Bromide in Water by IC (Low Level)	E235.Br-L	411076	1	16	6.2	5.0	√
BTEX by Headspace GC-MS	E611A	413819	1	9	11.1	5.0	1
Chloride in Water by IC	E235.CI	411075	1	16	6.2	5.0	<u> </u>
Conductivity in Water	E100	411073	1	17	5.8	5.0	<u> </u>
Dissolved Mercury in Water by CVAAS	E509	413246	1	20	5.0	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	414936	2	30	6.6	5.0	<u> </u>
Fluoride in Water by IC	E235.F	411074	1	16	6.2	5.0	<u>√</u>
Nitrate in Water by IC (Low Level)	E235.NO3-L	411077	1	17	5.8	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	411078	1	17	5.8	5.0	√
pH by Meter	E108	411071	1	17	5.8	5.0	1
Sulfate in Water by IC	E235.SO4	411079	1	17	5.8	5.0	<u> </u>
VH and F1 by Headspace GC-FID	E581.VH+F1	413818	1	6	16.6	5.0	<u>√</u>
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	411072	1	17	5.8	5.0	1
Ammonia by Fluorescence	E298	411836	1	18	5.5	5.0	✓
BC PHCs - EPH by GC-FID	E601A	413223	1	18	5.5	5.0	1
Bromide in Water by IC (Low Level)	E235.Br-L	411076	1	16	6.2	5.0	<u>√</u>
BTEX by Headspace GC-MS	E611A	413819	1	9	11.1	5.0	√
Chloride in Water by IC	E235.CI	411075	1	16	6.2	5.0	<u> </u>
Conductivity in Water	E100	411073	1	17	5.8	5.0	√
Dissolved Mercury in Water by CVAAS	E509	413246	1	20	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	414936	2	30	6.6	5.0	✓
Fluoride in Water by IC	E235.F	411074	1	16	6.2	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	411077	1	17	5.8	5.0	1
Nitrite in Water by IC (Low Level)	E235.NO2-L	411078	1	17	5.8	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	413224	1	4	25.0	5.0	1
pH by Meter	E108	411071	1	17	5.8	5.0	✓
Sulfate in Water by IC	E235.SO4	411079	1	17	5.8	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	413818	1	6	16.6	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	411072	1	17	5.8	5.0	1
Ammonia by Fluorescence	E298	411836	1	18	5.5	5.0	<u>√</u>
BC PHCs - EPH by GC-FID	E601A	413223	1	18	5.5	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	411076	1	16	6.2	5.0	√
BTEX by Headspace GC-MS	E611A	413819	1	9	11.1	5.0	√

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Matrix: Water Evaluation: × = QC frequency outside specification; √ = QC frequency within specification.

Matrix: Water	Evaluation: × = QC trequency outside specification; ✓ = QC trequency within spec							
Quality Control Sample Type								
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB) - Continued								
Chloride in Water by IC	E235.Cl	411075	1	16	6.2	5.0	✓	
Conductivity in Water	E100	411073	1	17	5.8	5.0	✓	
Dissolved Mercury in Water by CVAAS	E509	413246	1	20	5.0	5.0	√	
Dissolved Metals in Water by CRC ICPMS	E421	414936	2	30	6.6	5.0	✓	
Fluoride in Water by IC	E235.F	411074	1	16	6.2	5.0	√	
Nitrate in Water by IC (Low Level)	E235.NO3-L	411077	1	17	5.8	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	411078	1	17	5.8	5.0	✓	
PAHs by Hexane LVI GC-MS	E641A	413224	0	4	0.0	5.0)£	
Sulfate in Water by IC	E235.SO4	411079	1	17	5.8	5.0	✓	
VH and F1 by Headspace GC-FID	E581.VH+F1	413818	1	6	16.6	5.0	✓	
Matrix Spikes (MS)								
Ammonia by Fluorescence	E298	411836	1	18	5.5	5.0	✓	
Bromide in Water by IC (Low Level)	E235.Br-L	411076	1	16	6.2	5.0	✓	
BTEX by Headspace GC-MS	E611A	413819	1	9	11.1	5.0	✓	
Chloride in Water by IC	E235.Cl	411075	1	16	6.2	5.0	✓	
Dissolved Mercury in Water by CVAAS	E509	413246	1	20	5.0	5.0	✓	
Dissolved Metals in Water by CRC ICPMS	E421	414936	2	30	6.6	5.0	✓	
Fluoride in Water by IC	E235.F	411074	1	16	6.2	5.0	✓	
Nitrate in Water by IC (Low Level)	E235.NO3-L	411077	1	17	5.8	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	411078	1	17	5.8	5.0	✓	
Sulfate in Water by IC	E235.SO4	411079	1	17	5.8	5.0	✓	
VH and F1 by Headspace GC-FID	E581.VH+F1	413818	1	6	16.6	5.0		

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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 $20 \pm 5^{\circ}$ C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
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.CI 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.
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).

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 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.
VH and F1 by Headspace GC-FID	E581.VH+F1 Vancouver - Environmental	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
BC PHCs - EPH by GC-FID	E601A Vancouver - Environmental	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A Vancouver - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A Vancouver - Environmental	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	АРНА 2340В	"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.
VPH: VH-BTEX-Styrene	EC580A Vancouver - Environmental	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A Vancouver - Environmental	Water	BC MOE Lab Manual (LEPH and HEPH) (mod)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver - Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCI.
	Vancouver - Environmental			
VOCs Preparation for Headspace Analysis	EP581 Vancouver - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 Vancouver - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.



QUALITY CONTROL REPORT

Work Order :WR2200110 Page

Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Michelle Unger : Can Dang

:601 Knighton Road Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

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 Telephone
 :250 427 8404
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 Project
 :ECA21YT00086
 Date Samples Received
 :11-Feb-2022 14:50

 Project
 : ECA21YT00086
 Date Samples Received
 : 11-Feb-2022 1

 PO
 : 10145
 Date Analysis Commenced
 : 15-Feb-2022

C-O-C number : 23-Feb-2022 14:41

Sampler :---

Site : Sa Dena Hes

No. of samples received : 7
No. of samples analysed : 6

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

Kimberley BC Canada V1A 3E1

- Matrix Spike (MS) Report; Recovery and Acceptance Limits
- Reference Material (RM) Report; Recovery and Acceptance Limits

:Q62635

- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

Address

Quote number

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
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

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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.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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	Matrix: Water						Labora	tory Duplicate (D	UP) 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 WR2200110-002	MW13-07	рН		E108	0.10	pH units	8.10	8.12	0.247%	4%	
Physical Tests (QC	C Lot: 411072)										
WR2200110-002	MW13-07	alkalinity, total (as CaCO3)		E290	1.0	mg/L	224	225	0.491%	20%	
Physical Tests (QC	C Lot: 411073)										
WR2200110-002	MW13-07	conductivity		E100	2.0	μS/cm	457	458	0.218%	10%	
Anions and Nutrien	nts (QC Lot: 411074)										
WR2200109-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.058	0.058	0.0001	Diff <2x LOR	
	its (QC Lot: 411075)										
WR2200109-001	Anonymous	chloride	16887-00-6	E235.CI	0.50	mg/L	1.09	1.06	0.02	Diff <2x LOR	
	nts (QC Lot: 411076)										
WR2200109-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	
	its (QC Lot: 411077)										
WR2200109-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Anions and Nutrien	its (QC Lot: 411078)										
WR2200109-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrien	nts (QC Lot: 411079)										
WR2200109-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	10.0	10.2	1.77%	20%	
Anions and Nutrien	nts (QC Lot: 411836)										
VA22A2769-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	1.00	mg/L	61.7	61.9	0.346%	20%	
Dissolved Metals (QC Lot: 413246)										
FJ2200431-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 414936)										
FJ2200419-006	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0017	0.0019	0.0002	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00059	0.00059	0.000002	Diff <2x LOR	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00035	0.00031	0.00004	Diff <2x LOR	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0878	0.0902	2.70%	20%	
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	0.066	0.068	0.002	Diff <2x LOR	
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000212	0.0000249	0.0000037	Diff <2x LOR	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	96.2	98.0	1.85%	20%	

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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) 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: 414936) - conti	nued									
FJ2200419-006	Anonymous	chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00050	0.00049	0.000008	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	0.121	0.122	0.714%	20%	
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	140	139	0.462%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00657	0.00679	3.35%	20%	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00206	0.00207	0.199%	20%	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00167	0.00166	0.00001	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	4.22	4.35	3.14%	20%	
		selenium, dissolved	7782-49-2	E421	0.050	mg/L	37.8 μg/L	0.0386	2.05%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.57	1.64	4.67%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	23.3	23.4	0.533%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.601	0.599	0.300%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	200	203	1.79%	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	0.00075	0.00076	0.000007	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	0.00639	0.00639	0.104%	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 (OC Lot: 414937)										
CG2201618-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0020	mg/L	<0.0020	<0.0020	0	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00020	mg/L	0.00186	0.00185	0.000010	Diff <2x LOR	
		arsenic, dissolved	7440-38-2	E421	0.00020	mg/L	0.00024	0.00022	0.00002	Diff <2x LOR	
		barium, dissolved	7440-39-3	E421	0.00020	mg/L	0.0234	0.0234	0.0337%	20%	
		beryllium, dissolved	7440-41-7	E421	0.040	mg/L	<0.040 µg/L	<0.000040	0	Diff <2x LOR	
		bismuth, dissolved	7440-69-9	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	
		boron, dissolved	7440-42-8	E421	0.020	mg/L	0.104	0.105	0.0010	Diff <2x LOR	
		cadmium, dissolved	7440-43-9	E421	0.0100	mg/L	0.741 μg/L	0.000737	0.453%	20%	
		calcium, dissolved	7440-70-2	E421	0.100	mg/L	578	580	0.358%	20%	
	I	,	1			J. –		1			1

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
issolved Metals (QC Lot: 414937) - coi	ntinued									
G2201618-001	Anonymous	chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.20	mg/L	48.0 μg/L	0.0476	0.780%	20%	
		copper, dissolved	7440-50-8	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	
		iron, dissolved	7439-89-6	E421	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	
		lead, dissolved	7439-92-1	E421	0.000100	mg/L	<0.000100	<0.000100	0	Diff <2x LOR	
		lithium, dissolved	7439-93-2	E421	0.0020	mg/L	1.09	1.07	1.98%	20%	
		magnesium, dissolved	7439-95-4	E421	0.0100	mg/L	243	240	1.23%	20%	
		manganese, dissolved	7439-96-5	E421	0.00020	mg/L	0.321	0.320	0.344%	20%	
		molybdenum, dissolved	7439-98-7	E421	0.000100	mg/L	0.00654	0.00659	0.772%	20%	
		nickel, dissolved	7440-02-0	E421	0.00100	mg/L	0.332	0.330	0.560%	20%	
		phosphorus, dissolved	7723-14-0	E421	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR	
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	16.5	16.3	1.68%	20%	
		selenium, dissolved	7782-49-2	E421	0.100	mg/L	7.62 µg/L	0.00762	0.102%	20%	
		silicon, dissolved	7440-21-3	E421	0.100	mg/L	3.00	3.05	1.52%	20%	
		silver, dissolved	7440-22-4	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.100	mg/L	29.8	29.2	2.14%	20%	
		strontium, dissolved	7440-24-6	E421	0.00040	mg/L	0.995	0.986	0.899%	20%	
		sulfur, dissolved	7704-34-9	E421	1.00	mg/L	436	442	1.27%	20%	
		thallium, dissolved	7440-28-0	E421	0.000020	mg/L	0.000192	0.000190	0.000003	Diff <2x LOR	
		tin, dissolved	7440-31-5	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
		titanium, dissolved	7440-32-6	E421	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	
		uranium, dissolved	7440-61-1	E421	0.000020	mg/L	0.0371	0.0365	1.43%	20%	
		vanadium, dissolved	7440-62-2	E421	0.00100	mg/L	<0.00100	<0.00100	0	Diff <2x LOR	
		zinc, dissolved	7440-66-6	E421	0.0020	mg/L	0.0658	0.0653	0.706%	20%	
		zirconium, dissolved	7440-67-7	E421	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	
alatila Ouvania Ca		·				<u> </u>					
A22A2879-002	mpounds (QC Lot: 4 Anonymous	benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
	, alonymous	ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
			100-42-3	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		toluene	179601-23-1	E611A	0.40		<0.40	<0.40	0	Diff <2x LOR	
		xylene, m+p-	95-47-6	E611A	0.40	μg/L μg/L	<0.40	<0.40	0	Diff <2x LOR	
		xylene, o-	90-47-0	LUTIA	0.50	µg/L	~0.30	~0.30	U	DIII \ZX LUK	
lydrocarbons (QC		VIII. (00.040)		E504 MU: 54	100	"	4400	4400	0.007	2007	
/A22A2879-002	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	

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 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



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

DUD-INIALITA. WALEI					
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 411072)					
ılkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 411073)					
conductivity	E100	1	μS/cm	<1.0	
Anions and Nutrients (QCLot: 411074)					
uoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 411075)					
hloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 411076)					
romide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 411077)					
itrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
nions and Nutrients (QCLot: 411078)					
itrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
nions and Nutrients (QCLot: 411079)					
ulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 411836)					
mmonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 413246)					
nercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.0000050	
Dissolved Metals (QCLot: 414936)					
luminum, dissolved	7429-90-5 E421	0.001	mg/L	<0.0010	
ntimony, dissolved	7440-36-0 E421	0.0001	mg/L	<0.00010	
rsenic, dissolved	7440-38-2 E421	0.0001	mg/L	<0.00010	
arium, dissolved	7440-39-3 E421	0.0001	mg/L	<0.00010	
eryllium, dissolved	7440-41-7 E421	0.00002	mg/L	<0.000020	
ismuth, dissolved	7440-69-9 E421	0.00005	mg/L	<0.000050	
oron, dissolved	7440-42-8 E421	0.01	mg/L	<0.010	
admium, dissolved	7440-43-9 E421	0.000005	mg/L	<0.0000050	
alcium, dissolved	7440-70-2 E421	0.05	mg/L	<0.050	
hromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	
obalt, dissolved	7440-48-4 E421	0.0001	mg/L	<0.00010	
opper, dissolved	7440-50-8 E421	0.0002	mg/L	<0.00020	
ron, dissolved	7439-89-6 E421	0.01	mg/L	<0.010	

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 414936) -	continued					
ead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	
thium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	
nagnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	
nanganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	
nolybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	
ickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	
ootassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	
elenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	
ilicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	
ilver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	
odium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	
trontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	
ulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	
hallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	
in, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	
itanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	
ıranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	
ranadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	
inc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	
rirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 414937)						
luminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	
intimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	
parium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	
eryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	
sismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	
ooron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	
admium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	
alcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	
hromium, 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	
ron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	

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 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 414937) -	continued					
ithium, 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	
nolybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	
ickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	
ootassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	
elenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	
ilicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	
odium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	
trontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	
ulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	
nallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	
n, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	
tanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	
ranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	
anadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	
inc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	
irconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	
/olatile Organic Compounds (QCLo	ot: 413819)					
enzene	71-43-2	E611A	0.5	μg/L	<0.50	
thylbenzene	100-41-4	E611A	0.5	μg/L	<0.50	
nethyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	<0.50	
tyrene	100-42-5	E611A	0.5	μg/L	<0.50	
bluene	108-88-3	E611A	0.5	μg/L	<0.50	
ylene, m+p-	179601-23-1	E611A	0.4	μg/L	<0.40	
ylene, o-	95-47-6	E611A	0.3	μg/L	<0.30	
lydrocarbons (QCLot: 413223)						1
EPH (C10-C19)		E601A	250	μg/L	<250	
EPH (C19-C32)		E601A	250	μg/L	<250	
Hydrocarbons (QCLot: 413818)						I
/Hw (C6-C10)		E581.VH+F1	100	μg/L	<100	

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



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 Con	trol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 411071)									
рН		E108		pH units	7 pH units	99.8	98.0	102	
Physical Tests (QCLot: 411072)									
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	102	85.0	115	
Physical Tests (QCLot: 411073)									
conductivity		E100	1	μS/cm	146.9 μS/cm	100	90.0	110	
Anions and Nutrients (QCLot: 411074)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 411075)									
chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 411076)									I
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	100	85.0	115	
Anions and Nutrients (QCLot: 411077)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 411078)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.5	90.0	110	
Anions and Nutrients (QCLot: 411079)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 411836)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	95.8	85.0	115	
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	98.8	80.0	120	
Dissolved Metals (QCLot: 414936)									1
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	99.1	80.0	120	
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	98.4	80.0	120	
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.1	80.0	120	
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	100	80.0	120	
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	99.9	80.0	120	
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.1	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	95.8	80.0	120	
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.7	80.0	120	

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Water						-	ntrol Sample (LCS)		
					Spike	Recovery (%)		Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifi
Dissolved Metals (QCLot: 414936) - continued									
copper, dissolved	7440-50-8		0.0002	mg/L	0.25 mg/L	96.0	80.0	120	
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	92.8	80.0	120	
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	101	80.0	120	
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	95.0	80.0	120	
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	97.4	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	102	80.0	120	
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.6	80.0	120	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	108	80.0	120	
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.2	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	97.8	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	97.4	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	88.6	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	98.6	80.0	120	
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	96.8	80.0	120	
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	96.2	80.0	120	
hallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	102	80.0	120	
in, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.6	80.0	120	
itanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.1	80.0	120	
ıranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	104	80.0	120	
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.4	80.0	120	
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	94.3	80.0	120	
Dissolved Metals (QCLot: 414937)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	104	80.0	120	
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	99.8	80.0	120	
parium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	98.9	80.0	120	
peryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	95.6	80.0	120	
oismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	100	80.0	120	
poron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	97.2	80.0	120	
eadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	97.6	80.0	120	
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	104	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	98.1	80.0	120	
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.6	80.0	120	
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	93.5	80.0	120	
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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Water						Laboratory Con	trol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 414937) - con	tinued								
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	102	80.0	120	
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	98.3	80.0	120	
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	102	80.0	120	
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.5	80.0	120	
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	103	80.0	120	
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	97.5	80.0	120	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	98.3	80.0	120	
ootassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	99.6	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.7	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	89.6	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	99.8	80.0	120	
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	100	80.0	120	
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	104	80.0	120	
hallium, 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	99.3	80.0	120	
itanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	97.4	80.0	120	
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	101	80.0	120	
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.9	80.0	120	
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	96.2	80.0	120	
,				•					
Volatile Organic Compounds (QCLot: 41	2940)								
penzene	71-43-2	E611A	0.5	μg/L	100 μg/L	91.6	70.0	130	
ethylbenzene	100-41-4	E611A	0.5	μg/L	100 μg/L	88.6	70.0	130	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	100 μg/L	104	70.0	130	
styrene	100-42-5		0.5	μg/L	100 µg/L	98.5	70.0	130	
toluene	108-88-3		0.5	μg/L	100 μg/L	86.4	70.0	130	
cylene, m+p-	179601-23-1		0.4	μg/L	200 μg/L	99.0	70.0	130	
kylene, o-	95-47-6		0.3	μg/L	100 μg/L	93.3	70.0	130	
9				13	100 μg/2	00.0	7 0.0	.00	
Hydrocarbons (QCLot: 413223)									
EPH (C10-C19)		E601A	250	μg/L	6491 µg/L	110	70.0	130	
EPH (C19-C32)		E601A	250	μg/L	3363 µg/L	110	70.0	130	
Hydrocarbons (QCLot: 413818)					13.				
VHw (C6-C10)		E581.VH+F1	100	μg/L	6310 µg/L	88.3	70.0	130	
(/				. 5		13.0		. 30	
Polycyclic Aromatic Hydrocarbons (QCL	ot: 442224)								

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons(C	CLot: 413224) - continue	ed							
acenaphthene	83-32-9	E641A		μg/L	0.5 μg/L	114	60.0	130	
acenaphthylene	208-96-8	E641A		μg/L	0.5 μg/L	112	60.0	130	
acridine	260-94-6	E641A		μg/L	0.5 μg/L	106	60.0	130	
anthracene	120-12-7	E641A		μg/L	0.5 μg/L	122	60.0	130	
benz(a)anthracene	56-55-3	E641A		μg/L	0.5 μg/L	108	60.0	130	
benzo(a)pyrene	50-32-8	E641A		μg/L	0.5 μg/L	119	60.0	130	
benzo(b+j)fluoranthene	n/a	E641A		μg/L	0.5 μg/L	126	60.0	130	
benzo(g,h,i)perylene	191-24-2	E641A		μg/L	0.5 μg/L	125	60.0	130	
benzo(k)fluoranthene	207-08-9	E641A		μg/L	0.5 μg/L	124	60.0	130	
chrysene	218-01-9	E641A		μg/L	0.5 μg/L	117	60.0	130	
dibenz(a,h)anthracene	53-70-3	E641A		μg/L	0.5 μg/L	116	60.0	130	
fluoranthene	206-44-0	E641A		μg/L	0.5 μg/L	121	60.0	130	
fluorene	86-73-7	E641A		μg/L	0.5 μg/L	114	60.0	130	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A		μg/L	0.5 μg/L	115	60.0	130	
methylnaphthalene, 1-	90-12-0	E641A		μg/L	0.5 μg/L	115	60.0	130	
methylnaphthalene, 2-	91-57-6	E641A		μg/L	0.5 μg/L	112	60.0	130	
naphthalene	91-20-3	E641A		μg/L	0.5 μg/L	115	50.0	130	
phenanthrene	85-01-8	E641A		μg/L	0.5 μg/L	117	60.0	130	
pyrene	129-00-0	E641A		μg/L	0.5 μg/L	118	60.0	130	
quinoline	91-22-5	E641A		μg/L	0.5 μg/L	122	60.0	130	

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



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 Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ients (QCLot: 411074)									
WR2200110-001	MW13-01	fluoride	16984-48-8	E235.F	0.968 mg/L	1 mg/L	96.8	75.0	125	
Anions and Nutr	ients (QCLot: 411075)									
WR2200110-001	MW13-01	chloride	16887-00-6	E235.CI	94.0 mg/L	100 mg/L	94.0	75.0	125	
Anions and Nutr	ients (QCLot: 411076)									
WR2200110-001	MW13-01	bromide	24959-67-9	E235.Br-L	0.460 mg/L	0.5 mg/L	92.0	75.0	125	
Anions and Nutr	ients (QCLot: 411077)								I	
WR2200110-001	MW13-01	nitrate (as N)	14797-55-8	E235.NO3-L	2.33 mg/L	2.5 mg/L	93.4	75.0	125	
Anions and Nutr	ients (QCLot: 411078)									
WR2200110-001	MW13-01	nitrite (as N)	14797-65-0	E235.NO2-L	0.438 mg/L	0.5 mg/L	87.5	75.0	125	
Anions and Nutr	ients (QCLot: 411079)									
WR2200110-001	MW13-01	sulfate (as SO4)	14808-79-8	E235.SO4	93.3 mg/L	100 mg/L	93.3	75.0	125	
Anions and Nutr	ients (QCLot: 411836)					Ü				
VA22A2773-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	MS-B
Dissolved Metals	(QCLot: 413246)					-				
FJ2200431-002	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000987 mg/L	0.0001 mg/L	98.7	70.0	130	
Dissolved Metals	(QCLot: 414936)					-				
VA22A2740-006	Anonymous	aluminum, dissolved	7429-90-5	E421	0.195 mg/L	0.2 mg/L	97.4	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	
		barium, dissolved	7440-39-3	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	
		beryllium, dissolved	7440-41-7	E421	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00882 mg/L	0.01 mg/L	88.2	70.0	130	
		boron, dissolved	7440-42-8	E421	0.102 mg/L	0.1 mg/L	102	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00404 mg/L	0.004 mg/L	101	70.0	130	
		calcium, dissolved	7440-70-2	E421	3.95 mg/L	4 mg/L	98.8	70.0	130	
		chromium, dissolved	7440-47-3	E421	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	
		iron, dissolved	7439-89-6	E421	2.00 mg/L	2 mg/L	99.8	70.0	130	

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	/ Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	(QCLot: 414936) - (continued								
VA22A2740-006	Anonymous	lead, dissolved	7439-92-1	E421	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.0995 mg/L	0.1 mg/L	99.5	70.0	130	
		magnesium, dissolved	7439-95-4	E421	0.978 mg/L	1 mg/L	97.8	70.0	130	
		manganese, dissolved	7439-96-5	E421	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	
		molybdenum, dissolved	7439-98-7	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	9.78 mg/L	10 mg/L	97.8	70.0	130	
		potassium, dissolved	7440-09-7	E421	3.91 mg/L	4 mg/L	97.7	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0418 mg/L	0.04 mg/L	104	70.0	130	
		silicon, dissolved	7440-21-3	E421	9.62 mg/L	10 mg/L	96.2	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	
		sodium, dissolved	7440-23-5	E421	2.00 mg/L	2 mg/L	99.8	70.0	130	
		strontium, dissolved	7440-24-6	E421	0.0202 mg/L	0.02 mg/L	101	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	0.00379 mg/L	0.004 mg/L	94.8	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	
		uranium, dissolved	7440-61-1	E421	0.00408 mg/L	0.004 mg/L	102	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.0987 mg/L	0.1 mg/L	98.7	70.0	130	
		zinc, dissolved	7440-66-6	E421	0.423 mg/L	0.4 mg/L	106	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0416 mg/L	0.04 mg/L	104	70.0	130	
issolved Metals	(QCLot: 414937)									
G2201618-002	Anonymous	antimony, dissolved	7440-36-0	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0429 mg/L	0.04 mg/L	107	70.0	130	
		barium, dissolved	7440-39-3	E421	0.0378 mg/L	0.04 mg/L	94.5	70.0	130	
		beryllium, dissolved	7440-41-7	E421	0.0753 mg/L	0.08 mg/L	94.1	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.0165 mg/L	0.02 mg/L	82.7	70.0	130	
		boron, dissolved	7440-42-8	E421	0.197 mg/L	0.2 mg/L	98.6	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00761 mg/L	0.008 mg/L	95.2	70.0	130	
		calcium, dissolved	7440-70-2	E421	ND mg/L	8 mg/L	ND	70.0	130	
		chromium, dissolved	7440-47-3	E421	0.0788 mg/L	0.08 mg/L	98.6	70.0	130	
		cobalt, dissolved	7440-48-4	E421	ND mg/L	0.04 mg/L	ND	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0352 mg/L	0.04 mg/L	87.9	70.0	130	
		iron, dissolved	7439-89-6	E421	3.88 mg/L	4 mg/L	97.1	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0360 mg/L	0.04 mg/L	89.9	70.0	130	
	I	lithium, dissolved	7439-93-2	E421	ND mg/L	0.2 mg/L	ND	70.0	130	

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 Work Order
 : WR2200110

 Client
 : Teck Metals Ltd

 Project
 : ECA21YT00086



Sub-Matrix: Water							Matrix Spik	re (MS) Report		
					Sp	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	(QCLot: 414937) - c	continued								
CG2201618-002	Anonymous	magnesium, dissolved	7439-95-4	E421	ND mg/L	2 mg/L	ND	70.0	130	
		manganese, dissolved	7439-96-5	E421	ND mg/L	0.04 mg/L	ND	70.0	130	
		molybdenum, dissolved	7439-98-7	E421	0.0437 mg/L	0.04 mg/L	109	70.0	130	
		nickel, dissolved	7440-02-0	E421	ND mg/L	0.08 mg/L	ND	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	20.7 mg/L	20 mg/L	103	70.0	130	
		potassium, dissolved	7440-09-7	E421	ND mg/L	8 mg/L	ND	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0970 mg/L	0.08 mg/L	121	70.0	130	
		silicon, dissolved	7440-21-3	E421	20.4 mg/L	20 mg/L	102	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00751 mg/L	0.008 mg/L	93.9	70.0	130	
		sodium, dissolved	7440-23-5	E421	ND mg/L	4 mg/L	ND	70.0	130	
		strontium, dissolved	7440-24-6	E421	ND mg/L	0.04 mg/L	ND	70.0	130	
		sulfur, dissolved	7704-34-9	E421	ND mg/L	40 mg/L	ND	70.0	130	
		thallium, dissolved	7440-28-0	E421	0.00703 mg/L	0.008 mg/L	87.8	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0823 mg/L	0.08 mg/L	103	70.0	130	
		uranium, dissolved	7440-61-1	E421	ND mg/L	0.008 mg/L	ND	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.206 mg/L	0.2 mg/L	103	70.0	130	
		zinc, dissolved	7440-66-6	E421	0.725 mg/L	0.8 mg/L	90.6	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0876 mg/L	0.08 mg/L	109	70.0	130	
Volatile Organic	Compounds (QCLot	: 413819)								
VA22A2926-003	Anonymous	benzene	71-43-2	E611A	80.7 μg/L	100 μg/L	80.7	70.0	130	
		ethylbenzene	100-41-4	E611A	85.3 μg/L	100 μg/L	85.3	70.0	130	
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	101 μg/L	100 µg/L	101	70.0	130	
		styrene	100-42-5	E611A	96.8 µg/L	100 μg/L	96.8	70.0	130	
		toluene	108-88-3	E611A	84.1 µg/L	100 µg/L	84.1	70.0	130	
		xylene, m+p-	179601-23-1	E611A	ND µg/L	200 μg/L	ND	70.0	130	
		xylene, o-	95-47-6	E611A	ND μg/L	100 μg/L	ND	70.0	130	
Hydrocarbons (0	QCLot: 413818)									
WR2200110-002	MW13-07	VHw (C6-C10)		E581.VH+F1	4810 μg/L	6310 µg/L	76.2	60.0	140	

Qualifiers

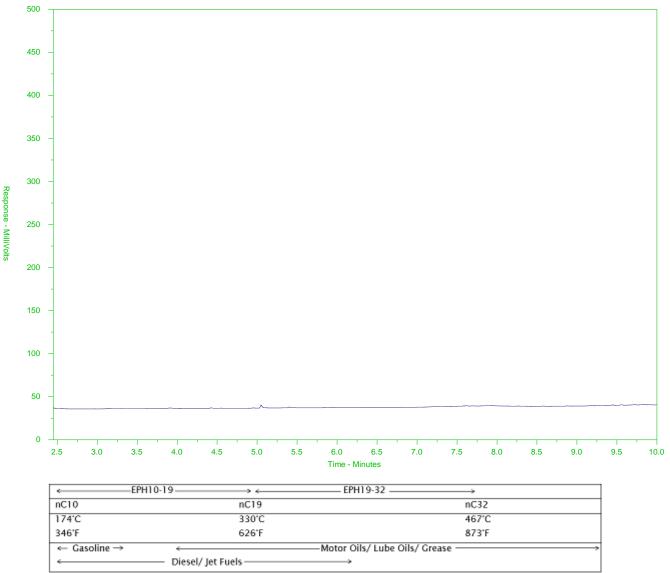
Qualifier Description

MS-B Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.



ALS Sample ID: WR2200110-002-E601A

Client Sample ID: MW13-07



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

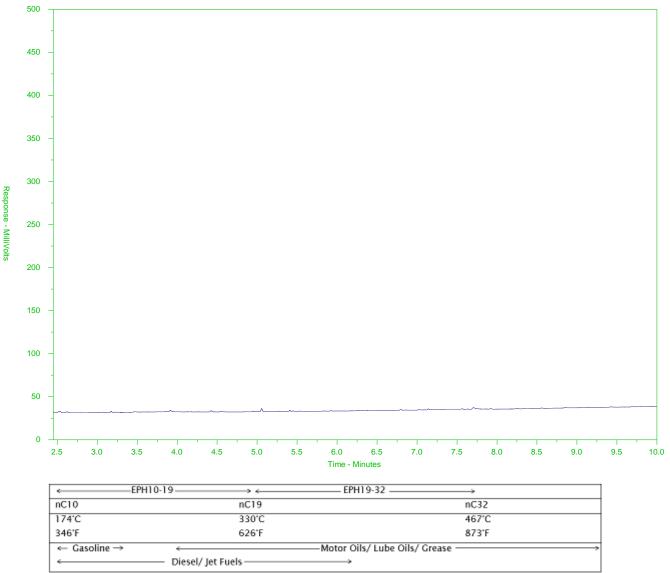
Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Printed on 2022-02-20 11:49:23 Page 1 of 1



ALS Sample ID: WR2200110-004-E601A

Client Sample ID: MW13-10



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

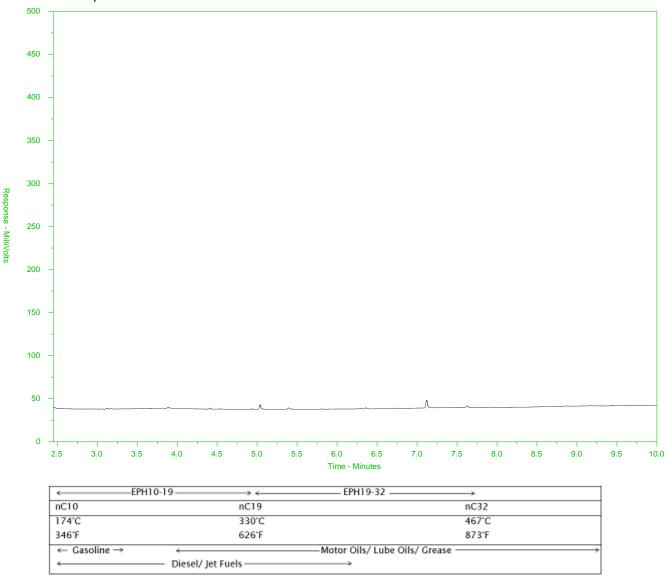
Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

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ALS Sample ID: WR2200110-006-E601A

Client Sample ID: MW14-04



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

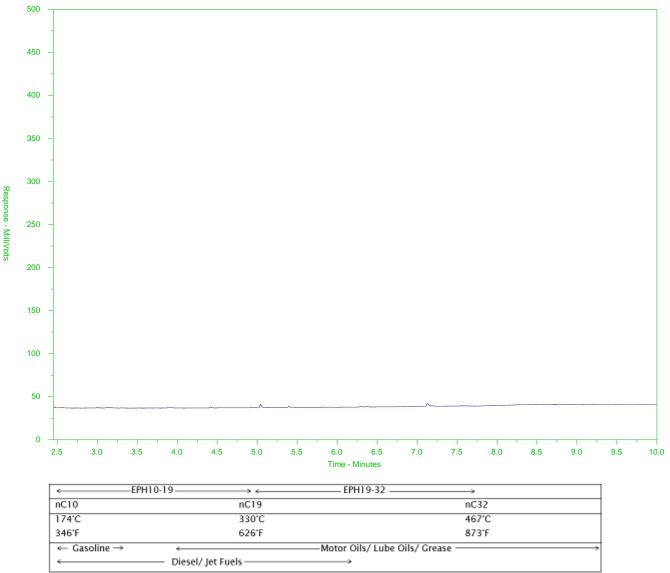
Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Printed on 2022-02-20 11:49:29 Page 1 of 1



ALS Sample ID: WR2200110-007-E601A

Client Sample ID: MW-GW



The BC EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Note: This chromatogram was produced using GC conditions that are specific to the ALS Canada EPH method. Refer to the ALS Canada EPH Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

Printed on 2022-02-20 11:49:37 Page 1 of 1

(ALS) Environmental

Chain of Custody / Analytical Request Form Canada Toll Free: 1 800 668 9878

www.alsglobal.com

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Telephone: +1 867 668 6689 Service Requested (Rush for routine analysis subject to availability) Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TA O Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TA Please indicate below Filtered, Preserved or both (F, Same Day or Weekend Emergency - Contact ALS to Confirm TAT Analysis Request Regular (Standard Turnaround Times - Business Days) HA9, HAV × × × × × ۵ втех, серн, нерн × × × × × × × × × × × × ۵ Anions (nitrate, nitrite, CI, F, Br) × × × × × × × × × F/P gH+ level wol alstern bevlossit × × × × × × H, SPC, alkalinity, hardness × × × × × × × × × × Email 1: azheng@ensero.com, ebouchard@ensero.com Sample Type Groundwater ☐ Fax ✓ Digital 17:00 11:30 11:00 14:45 Time (hh:mm) Email 2: michelle.unger@teck.com Sampler: Email 3: chanson@ensero.com Report Format / Distribution Client / Project Information Project # ECA21YT00086 PO / AFE: TECK PO9516 Date (dd-mmm-yy) 07-Feb-22 10-Feb-22 10-Feb-22 09-Feb-22 Other ✓Excel Can Dang Q62635 ✓ Standard ALS Contact: Quote #: SD: (This description will appear on the report) Sample Identification % _____ No S Yes > 601 Knightton Road Hardcopy of Invoice with Report? Same as Report ? TECK Metals Ltd Michelle Unger MW13-08 (LP) MW13-07 (LP) MW13-10 (LP) 250-427-8422 MW13-01 (LP) Kimberly, BC Lab Work Order # (lab use only) nvoice To Sample Report To Company: 3 t Company: Contact: Address: Address:

Contact:

Phone:

Phone:

Number of Containers

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details General B: pH, EC, TSS (low), anions-all Yukon EQWin and ACC200 digital formats. General A: pH, EC, TSS (low)

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Groundwater Groundwater Groundwater

13:20

09-Feb-22 09-Feb-22

MW-GW (LQR)

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MW14-03 (LP) MW14-04 (LP) ×

General C: pH, EC, TSS (low), anions-all, ion balance, alkalinity General D: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab. Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

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Report To

Chain of Custody / Analytical Request Form Canada Toll Free: 1 800 668 9878 www.alsgiobal.com

Report Format / Distribution

Environmental Division
Whitehorse
Work Order Reference
WR2200110

Page

Service Requested (Rush for routine analysis subject to availability)

867 868 8689

Company: TECK Metals Ltd	Standard ☐ Other			Reg	Jular (S	 Regular (Standard Turnaround Times - Business Days) 	Turnan	T bruce	mes -	Busine	ss Day	5)						
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Released by:

SHIPMENT RELEASE (client use)

Date (dd-mmm-yy)

Time (hh-mm)

Received by:

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RECEPTION (lab use only)

Verified by

Date:

Time:

SHIPMENT VERIFICATION (lab use on

2/15/2016 (1302m

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab

eliure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

balance, alkalinity General D: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance

General B: pH, EC, TSS (low), anions-all



: Michelle Unger

CERTIFICATE OF ANALYSIS

Work Order : WR2200111

Client : Teck Metals Ltd

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : 250 427 8404
Project : Sa Dena Hes

PO : 10145

C-O-C number : --Sampler : --Site : ---

Quote number : Q62635

No. of samples received : 10

No. of samples analysed : 10

Page : 1 of 10

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 11-Feb-2022 14:50

Date Analysis Commenced : 15-Feb-2022

Laboratory Department

Issue Date : 25-Feb-2022 17:18

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

Signatories

Contact

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	1 OSITION	Laboratory Department
Angela Ren	Team Leader - Metals	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia

Position

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 : WR2200111

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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
μg/L	micrograms per litre
μg/L μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
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).
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
HTD	Hold time exceeded for re-analysis or dilution, but initial testing was conducted within hold time.
RRV	Reported result verified by repeat analysis.

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 : 3 of 10

 Work Order
 : WR2200111

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water			Cli	ient sample ID	MH-12	MH-04	MH-11	MH-29	MH-13
(Matrix: Water)									
			Client samp	ling date / time	02-Feb-2022 16:30	07-Feb-2022 16:35	09-Feb-2022 16:30	09-Feb-2022 17:45	06-Feb-2022 13:45
Analyte	CAS Number	Method	LOR	Unit	WR2200111-001	WR2200111-002	WR2200111-003	WR2200111-004	WR2200111-005
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	171	153	215	204	212
conductivity		E100	2.0	μS/cm	339	321	405	372	390
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	188	174	230	217	229
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	190	176	242	215	222
рН		E108	0.10	pH units	8.29	8.22	8.32	8.29	8.29
solids, total dissolved [TDS]		E162	10	mg/L	200	198	258	232	227
solids, total suspended [TSS]		E160-L	1.0	mg/L	4.0	6.1	<1.0	18.9	4.1
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0254
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.CI	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	0.109	0.147	0.085	0.049	0.056
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.126	0.953	0.123	0.124	0.111
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	10.6	15.9	14.0	5.64	8.73
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0128	0.0045	0.0056	0.0063	0.0066
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00021	0.00014	0.00014	0.00016	0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00076	0.00039	0.00049	0.00059	0.00039
barium, total	7440-39-3	E420	0.00010	mg/L	0.0785	0.0249	0.0754	0.0548	0.173
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	0.0000522	0.000278	0.0000525	0.0000563	0.0000204
calcium, total	7440-70-2	E420	0.050	mg/L	64.5	64.2	80.6	74.5	61.8
chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	0.00245	<0.00050	<0.00050
cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<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	0.020	<0.010	0.088	0.017	0.276
lead, total	7439-92-1	E420	0.000050	mg/L	0.000313	0.000187	0.000154	<0.000050	<0.000050
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 Work Order
 : WR2200111

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water			Cli	ient sample ID	MH-12	MH-04	MH-11	MH-29	MH-13
(Matrix: Water)									
			Client samp	ling date / time	02-Feb-2022 16:30	07-Feb-2022 16:35	09-Feb-2022 16:30	09-Feb-2022 17:45	06-Feb-2022 13:45
Analyte	CAS Number	Method	LOR	Unit	WR2200111-001	WR2200111-002	WR2200111-003	WR2200111-004	WR2200111-005
					Result	Result	Result	Result	Result
Total Metals									
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0021	0.0021	0.0023	0.0018	0.0016
magnesium, total	7439-95-4	E420	0.100	mg/L	7.15	3.87	9.90	7.12	16.4
manganese, total	7439-96-5	E420	0.00010	mg/L	0.00143	0.00064	0.0103	0.00604	0.0135
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.000050	<0.0000050	<0.000050	<0.000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00142	0.000768	0.000867	0.000679	0.00114
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<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	0.470	0.436	0.468	0.291	0.415
selenium, total	7782-49-2	E420	0.050	μg/L	0.862	0.987	0.733	0.614	0.713
silicon, total	7440-21-3	E420	0.10	mg/L	4.51	3.92	4.58	4.69	3.90
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	1.19	0.939	1.38	1.01	1.05
strontium, total	7440-24-6	E420	0.00020	mg/L	0.257	0.246	0.340	0.292	0.244
sulfur, total	7704-34-9	E420	0.50	mg/L	4.15	6.54	5.67	2.07	3.66
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	<0.00060 DLM	<0.00030	<0.00030	0.00041	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.00112	0.000998	0.00137	0.000842	0.00160
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	0.0031	0.0063	0.0061	<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	0.0023	0.0034	0.0014	0.0022	0.0010
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00021	0.00015	0.00012	0.00016	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00073	0.00041	0.00036	0.00053	0.00024
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0738	0.0232	0.0683	0.0515	0.164
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	0.0000393	0.000280	0.0000468	0.0000419	0.0000131
calcium, dissolved	7440-70-2	E421	0.050	mg/L	64.3	64.1	77.5	76.2	65.6
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 Work Order
 : WR2200111

 Client
 : Teck Metals Ltd

 Project
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Sub-Matrix: Water			Cli	ent sample ID	MH-12	MH-04	MH-11	MH-29	MH-13
(Matrix: Water)									
			Client sampl	ling date / time	02-Feb-2022 16:30	07-Feb-2022 16:35	09-Feb-2022 16:30	09-Feb-2022 17:45	06-Feb-2022 13:45
Analyte	CAS Number	Method	LOR	Unit	WR2200111-001	WR2200111-002	WR2200111-003	WR2200111-004	WR2200111-005
					Result	Result	Result	Result	Result
Dissolved Metals	7440.47.0	E421	0.00050		<0.00050	0.00051	<0.00050	<0.00050	<0.00050
chromium, dissolved	7440-47-3			mg/L				<0.00030	
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010 0.00085 DTC	<0.00010		<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00045		<0.00020	0.00021	0.00024
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0.021	<0.010	0.023
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000064	0.000165	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0013	0.0015	0.0017	0.0014	0.0012
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	6.68	3.43	8.77	6.57	15.8
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00045	0.00072	0.00824	0.00483	0.00955
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.000050	<0.000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00138	0.000743	0.00800	0.000641	0.00115
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
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	0.536	0.461	0.413	0.271	0.414
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.924	0.985	0.741	0.529	0.751
silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.26	3.55	4.08	3.99	3.52
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	1.14	0.957	1.17	1.02	1.04
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.237	0.228	0.298	0.255	0.226
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	3.70	5.52	4.85	1.58	3.28
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	0.000981	0.000868	0.00113	0.000765	0.00155
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	0.0036	0.0077	0.0061	0.0020	0.0013
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
Speciated Metals									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	0.00245	<0.00050	<0.00050

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 Work Order
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 Client
 : Teck Metals Ltd

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 : Sa Dena Hes



Please refer to the General Comments section for an explanation of any qualifiers detected.

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
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Sub-Matrix: Water			Cli	ient sample ID	MH-30	MH-15	MH-SW	MH-FB	Trip Blank
(Matrix: Water)									
			Client samp	ling date / time	06-Feb-2022 11:45	07-Feb-2022 11:00	10-Feb-2022	10-Feb-2022	11-Feb-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200111-006	WR2200111-007	WR2200111-008	WR2200111-009	WR2200111-010
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	174	203	214	<1.0	<1.0
conductivity		E100	2.0	μS/cm	320	368	409	<2.0	<2.0
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	196	216	237	<0.60	
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	197	207	225	<0.60	<0.60
pH		E108	0.10	pH units	8.08	8.28	8.26	5.37	5.51
solids, total dissolved [TDS]		E162	10	mg/L	178 HTD	208	248	<10	<10
solids, total suspended [TSS]		E160-L	1.0	mg/L	3.1	2.0	<1.0	<1.0	<1.0
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0710	0.0093	0.0096	<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.CI	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	0.053	0.093	0.086	<0.020	<0.020
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0641	0.0720	0.125	<0.0050	<0.0050
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.72	4.18	14.4	<0.30	<0.30
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0103	0.0092	0.0050	<0.0030	<0.0030
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00019	0.00013	0.00013	<0.00010	<0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00034	0.00040	0.00045	<0.00010	<0.00010
barium, total	7440-39-3	E420	0.00010	mg/L	0.256	0.197	0.0674	<0.00010	0.00010 RRV
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	0.0000436	0.0000114	0.0000427	<0.0000050	<0.0000050
calcium, total	7440-70-2	E420	0.050	mg/L	49.3	60.4	75.2	<0.050	<0.050
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	0.00012	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L	0.00141	<0.00050	<0.00050	<0.00050	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L	0.717	0.258	0.048	<0.010	<0.010
lead, total	7439-92-1	E420	0.000050	mg/L	0.000273	<0.000050	0.000125	<0.000050	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0011	0.0014	0.0019	<0.0010	<0.0010

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Sub-Matrix: Water			Cli	ient sample ID	MH-30	MH-15	MH-SW	MH-FB	Trip Blank
(Matrix: Water)									
			Client samp	ling date / time	06-Feb-2022 11:45	07-Feb-2022 11:00	10-Feb-2022	10-Feb-2022	11-Feb-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200111-006	WR2200111-007	WR2200111-008	WR2200111-009	WR2200111-010
					Result	Result	Result	Result	Result
Total Metals									
magnesium, total	7439-95-4	E420	0.100	mg/L	17.9	13.7	8.96	<0.100	<0.100
manganese, total	7439-96-5	E420	0.00010	mg/L	0.0317	0.0171	0.00939	<0.00010	<0.00010
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00152	0.00195	0.000814	<0.000050	<0.000050
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00079	<0.00050	<0.00050	<0.00050	<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	0.827	0.422	0.432	<0.100	<0.100
selenium, total	7782-49-2	E420	0.050	μg/L	0.634	0.740	0.732	<0.050	<0.050
silicon, total	7440-21-3	E420	0.10	mg/L	3.89	4.54	4.22	<0.10	<0.10
silver, total	7440-22-4	E420	0.000010	mg/L	0.000019	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	1.01	1.07	1.29	<0.050	<0.050
strontium, total	7440-24-6	E420	0.00020	mg/L	0.146	0.204	0.311	<0.00020	<0.00020
sulfur, total	7704-34-9	E420	0.50	mg/L	2.09	1.66	5.30	<0.50	<0.50
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	<0.00030	<0.00030	<0.00030	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.00165	0.000926	0.00117	<0.000010	<0.000010
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	0.0467	<0.0030	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	0.0015	0.0017 RRV	
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	0.00012	0.00012	<0.00010	
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00020	0.00028	0.00039	<0.00010	
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.243	0.202	0.0701	<0.00010	
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<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	
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000275	0.0000108	0.0000430	<0.0000050	
calcium, dissolved	7440-70-2	E421	0.050	mg/L	49.7	64.6	79.7	<0.050	
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	
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 : Teck Metals Ltd

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Sub-Matrix: Water			Clie	ent sample ID	MH-30	MH-15	MH-SW	MH-FB	Trip Blank
(Matrix: Water)									
			Client sampl	ing date / time	06-Feb-2022 11:45	07-Feb-2022 11:00	10-Feb-2022	10-Feb-2022	11-Feb-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200111-006	WR2200111-007	WR2200111-008	WR2200111-009	WR2200111-010
					Result	Result	Result	Result	Result
Dissolved Metals									
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00036	0.00047	<0.00020	<0.00020	
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.179	0.051	0.021	<0.010	
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000072	<0.000050	<0.000050	<0.000050	
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	0.0012	0.0017	<0.0010	
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	17.4	13.4	9.23	<0.100	
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0281	0.00980	0.00837	<0.00010	
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.000050	<0.0000050	<0.000050	
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00147	0.00205	0.000808	0.000131 RRV	
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00054	<0.00050	<0.00050	<0.00050	
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.503	0.454	0.430	<0.100	
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.591	0.775	0.748	<0.050	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.56	4.17	3.96	<0.050	
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.857	1.06	1.23	<0.050	
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.129	0.198	0.302	<0.00020	
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.89	1.52	5.14	<0.50	
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<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	
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00157	0.000930	0.00123	<0.000010	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0164	0.0014	0.0062	<0.0010	
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	
dissolved mercury filtration location		EP509	-	-	Field	Field	Field	Field	
dissolved metals filtration location		EP421	-	-	Field	Field	Field	Field	
Speciated Metals									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	

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Please refer to the General Comments section for an explanation of any qualifiers detected.



Kimberley BC Canada V1A 3E1

QUALITY CONTROL INTERPRETIVE REPORT

Work Order :WR2200111 Page : 1 of 26

Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Michelle Unger **Account Manager** : Can Dang Address

: 601 Knighton Road Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone 250 427 8404 Telephone : +1 867 668 6689 **Project** Sa Dena Hes **Date Samples Received** : 11-Feb-2022 14:50

PO Issue Date : 25-Feb-2022 17:19 : 10145

C-O-C number Sampler Site

Quote number : Q62635 No. of samples received : 10 No. of samples analysed : 10

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.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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.		

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 Client
 : Teck Metals Ltd

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 : Sa Dena Hes



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.

atrix: Water					E	/aluation: 🗴 =	Holding time exce	edance ; 🔻	= Within	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MH-04	E298	07-Feb-2022	16-Feb-2022				17-Feb-2022	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MH-15	E298	07-Feb-2022	16-Feb-2022				17-Feb-2022	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MH-13	E298	06-Feb-2022	16-Feb-2022				17-Feb-2022	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MH-30	E298	06-Feb-2022	16-Feb-2022				17-Feb-2022	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MH-12	E298	02-Feb-2022	16-Feb-2022				17-Feb-2022	28 days	15 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)		,								,
MH-SW	E298	10-Feb-2022	16-Feb-2022				17-Feb-2022	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
MH-11	E298	09-Feb-2022	16-Feb-2022				17-Feb-2022	28 days	8 days	✓

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Matrix: Water

Evaluation:	- Holding tin	ne exceedance :	— Within	Holding Time

Analyte Group Method Sampling Date Extraction / Preparation Container / Client Sample ID(s) Preparation Date Holding Times Rec Actual Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) MH-29 E298 09-Feb-2022 16-Feb-2022	Analysis Date	Rec	g Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid)		Rec		Eval
Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid)	17-Feb-2022			
Amber glass total (sulfuric acid)	17-Feb-2022			
	17-Feb-2022			
		28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence				
Amber glass total (sulfuric acid) E298 10-Feb-2022 16-Feb-2022	17-Feb-2022	28 days	8 days	~
Anions and Nutrients : Ammonia by Fluorescence				
Amber glass total (sulfuric acid) E298 11-Feb-2022 18-Feb-2022	19-Feb-2022	28 days	9 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)				
HDPE E235.Br-L 02-Feb-2022	15-Feb-2022	28 days	13 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)				
HDPE E235.Br-L 10-Feb-2022	15-Feb-2022	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)				
HDPE E235.Br-L 09-Feb-2022	15-Feb-2022	28 days	6 days	~
Anions and Nutrients : Bromide in Water by IC (Low Level)				
HDPE E235.Br-L 09-Feb-2022	15-Feb-2022	28 days	6 days	~
Anions and Nutrients : Bromide in Water by IC (Low Level)				
HDPE E235.Br-L 10-Feb-2022	15-Feb-2022	28 days	6 days	~
Anions and Nutrients : Bromide in Water by IC (Low Level)				
HDPE E235.Br-L 07-Feb-2022	15-Feb-2022	28 days	8 days	~

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Matrix: Water					Εν	/aluation: <mark>≭</mark> =	Holding time exce	edance ; 🔻	= Within	Holding Ti
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MH-15	E235.Br-L	07-Feb-2022					15-Feb-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE Trip Blank	E235.Br-L	11-Feb-2022					18-Feb-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MH-13	E235.Br-L	06-Feb-2022					15-Feb-2022	28 days	9 days	√
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE MH-30	E235.Br-L	06-Feb-2022					15-Feb-2022	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MH-12	E235.CI	02-Feb-2022					15-Feb-2022	28 days	13 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MH-SW	E235.CI	10-Feb-2022					15-Feb-2022	28 days	5 days	~
Anions and Nutrients : Chloride in Water by IC										
HDPE MH-11	E235.CI	09-Feb-2022					15-Feb-2022	28 days	6 days	~
Anions and Nutrients : Chloride in Water by IC										
HDPE MH-29	E235.CI	09-Feb-2022					15-Feb-2022	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE MH-FB	E235.CI	10-Feb-2022					15-Feb-2022	28 days	6 days	✓

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Matrix: **Water** Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

viaurix: water							Holding time exce	,		
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation		Analysis			
Container / Client Sample ID(s)			Preparation Hole		Holding Times		Analysis Date	Holding Times		Eval
			Date	Rec	Actual		-	Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MH-04	E235.CI	07-Feb-2022					15-Feb-2022	28 days	8 davs	✓
		••••							,-	
Anions and Nutrients : Chloride in Water by IC								T		
HDPE	E235.CI	07-Feb-2022					45 E-h 0000	00 4	0 -1	1
MH-15	E235.CI	07-Feb-2022					15-Feb-2022	28 days	8 days	•
Anions and Nutrients : Chloride in Water by IC										
HDPE										
Trip Blank	E235.CI	11-Feb-2022					18-Feb-2022	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
MH-13	E235.CI	06-Feb-2022					15-Feb-2022	28 days	9 days	✓
Anione and Nutricute - Oblaside in Water by 10										
Anions and Nutrients : Chloride in Water by IC HDPE							I			
MH-30	E235.CI	06-Feb-2022					15-Feb-2022	28 days	O dovo	√
MH-30	E235.CI	00-Feb-2022					15-Feb-2022	20 days	9 days	•
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MH-12	E235.F	02-Feb-2022					15-Feb-2022	28 days	13 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MH-SW	E235.F	10-Feb-2022					15-Feb-2022	28 days	5 days	✓
								-		
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MH-11	E235.F	09-Feb-2022					15-Feb-2022	28 days	6 days	1
WHT II	L200.1	00-1 00-2022					10-1 05-2022	20 days	Judys	•
Anions and Nutrients : Fluoride in Water by IC										
HDPE										_
MH-29	E235.F	09-Feb-2022					15-Feb-2022	28 days	6 days	✓

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					on. * - Holding time exceedance , * - Within Holding					
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MH-FB	E235.F	10-Feb-2022					15-Feb-2022	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MH-04	E235.F	07-Feb-2022					15-Feb-2022	28 days	8 davs	✓
								,-	, -	
Anima and Nationae a Florenida in Water by 10										
Anions and Nutrients : Fluoride in Water by IC						l	I	I		
HDPE MH-15	E235.F	07-Feb-2022					15-Feb-2022	28 days	8 days	√
MIT-13	E233.F	07-Feb-2022					15-Feb-2022	20 uays	o uays	•
Anions and Nutrients : Fluoride in Water by IC				1		ı		1		
HDPE										,
Trip Blank	E235.F	11-Feb-2022					18-Feb-2022	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MH-13	E235.F	06-Feb-2022					15-Feb-2022	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
MH-30	E235.F	06-Feb-2022					15-Feb-2022	28 days	9 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MH-12	E235.NO3-L	02-Feb-2022					15-Feb-2022	3 davs	13 days	x
, <u>-</u>								,-		EHTR
Asiana and Nutrianta - Nitrata in Water hards (Laure Laure)										
Anions and Nutrients : Nitrate in Water by IC (Low Level)							I			
HDPE MH-SW	E235.NO3-L	10-Feb-2022					15-Feb-2022	3 days	5 days	æ
IVIIT-OVV	EZ33.NU3-L	10-F60-2022					10-F60-2022	3 uays	o uays	EHT
										ЕПІ
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
MH-11	E235.NO3-L	09-Feb-2022					15-Feb-2022	3 days	6 days	3¢
										EHT

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Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation		Times	Eval	Analysis Date		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)								1		
MH-29	E235.NO3-L	09-Feb-2022					15-Feb-2022	3 days	6 days	x EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
MH-FB	E235.NO3-L	10-Feb-2022					15-Feb-2022	3 days	6 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
MH-04	E235.NO3-L	07-Feb-2022					15-Feb-2022	3 days	8 days	* EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
MH-15	E235.NO3-L	07-Feb-2022					15-Feb-2022	3 days	8 days	* EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE Trip Blank	E235.NO3-L	11-Feb-2022					18-Feb-2022	3 days	8 days	* EHT
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
MH-13	E235.NO3-L	06-Feb-2022					15-Feb-2022	3 days	9 days	* EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
MH-30	E235.NO3-L	06-Feb-2022					15-Feb-2022	3 days	9 days	* EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
MH-12	E235.NO2-L	02-Feb-2022					15-Feb-2022	3 days	13 days	# EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE MH-SW	E235.NO2-L	10-Feb-2022					15-Feb-2022	3 days	5 days	# EHT

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Matrix: water				raidation. • =	on. × - Holding time exceedance, v - within Holding i					
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MH-11	E235.NO2-L	09-Feb-2022					15-Feb-2022	3 days	6 days	*
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MH-29	E235.NO2-L	09-Feb-2022					15-Feb-2022	3 days	6 days	3c
25								,-	, -	EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)								<u> </u>		
HDPE	E235.NO2-L	10-Feb-2022					15-Feb-2022	2 days	6 days	*
MH-FB	E235.NO2-L	10-Feb-2022					15-Feb-2022	3 days	6 days	
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MH-04	E235.NO2-L	07-Feb-2022					15-Feb-2022	3 days	8 days	3¢
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MH-15	E235.NO2-L	07-Feb-2022					15-Feb-2022	3 days	8 days	3¢
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Trip Blank	E235.NO2-L	11-Feb-2022					18-Feb-2022	3 days	8 days	*
The State								,-	, -	EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE	E235.NO2-L	06-Feb-2022					15 Feb 2022	2 days	O days	*
MH-13	E235.NO2-L	06-Feb-2022					15-Feb-2022	3 days	9 days	
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
MH-30	E235.NO2-L	06-Feb-2022					15-Feb-2022	3 days	9 days	*
										EHTR
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MH-12	E235.SO4	02-Feb-2022					15-Feb-2022	28 days	13 days	✓

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Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date Holding		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MH-SW	E235.SO4	10-Feb-2022					15-Feb-2022	28 days	5 days	✓
								-	-	
Anions and Nutrients : Sulfate in Water by IC										
HDPE								I		
MH-11	E235.SO4	09-Feb-2022					15-Feb-2022	28 days	6 days	√
MП-11	L233.004	09-1 60-2022					13-1 60-2022	20 days	0 uays	•
Anions and Nutrients : Sulfate in Water by IC				_						
HDPE										
MH-29	E235.SO4	09-Feb-2022					15-Feb-2022	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MH-FB	E235.SO4	10-Feb-2022					15-Feb-2022	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
MH-04	E235.SO4	07-Feb-2022					15-Feb-2022	28 days	8 days	1
1VII 1-0-4	2200.001	01 1 05 2022					10-1 CD-2022	20 days	o days	·
Anions and Nutrients : Sulfate in Water by IC							1			
HDPE										
MH-15	E235.SO4	07-Feb-2022					15-Feb-2022	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Trip Blank	E235.SO4	11-Feb-2022					18-Feb-2022	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC							1	1		
HDPE										
MH-13	E235.SO4	06-Feb-2022					15-Feb-2022	28 days	9 days	1
		-0.52 2522							2 44,0	
Anions and Nutrients : Sulfate in Water by IC							I			
HDPE	E005 00 t	00 5 1 0000					45 5 4 0000	00.1	0.1	
MH-30	E235.SO4	06-Feb-2022					15-Feb-2022	28 days	9 days	✓
	I	1								

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Exti	raction / Pre	eparation			Analys	is	
Container / Client Sample ID(s)				Analysis						
			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MH-04	E509	07-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MH-15	E509	07-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS									'	
Glass vial dissolved (hydrochloric acid)										
MH-13	E509	06-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	12 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS									'	
Glass vial dissolved (hydrochloric acid)										
MH-30	E509	06-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	12 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MH-12	E509	02-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	16 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MH-29	E509	09-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MH-FB	E509	10-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MH-SW	E509	10-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
MH-11	E509	09-Feb-2022	18-Feb-2022				18-Feb-2022	28 days	9 days	✓
į l		1						I .		

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Matrix: Water

Evaluation:	 – Holding time 	exceedance ·	/ - Within	Holding Time

atrix: Water					/aluation: 🗴 =	n: × = Holding time exceedance ; √ = Within Holding T					
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis		
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid)											
MH-SW	E421	10-Feb-2022	20-Feb-2022				22-Feb-2022	180	12 days	✓	
								days			
issolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid)											
MH-11	E421	09-Feb-2022	20-Feb-2022				22-Feb-2022	180	13 days	✓	
								days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid)											
MH-29	E421	09-Feb-2022	20-Feb-2022				22-Feb-2022	180	13 days	✓	
								days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS									1		
HDPE dissolved (nitric acid)											
MH-FB	E421	10-Feb-2022	20-Feb-2022				22-Feb-2022	180	13 days	✓	
								days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid)											
MH-04	E421	07-Feb-2022	20-Feb-2022				22-Feb-2022	180	15 days	✓	
								days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid)											
MH-15	E421	07-Feb-2022	20-Feb-2022				22-Feb-2022	180	15 days	✓	
								days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid)											
MH-13	E421	06-Feb-2022	20-Feb-2022				22-Feb-2022	180	16 days	✓	
								days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid)											
MH-30	E421	06-Feb-2022	20-Feb-2022				22-Feb-2022	180	16 days	✓	
								days			
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS											
HDPE dissolved (nitric acid)											
	The second secon							1	1		
MH-12	E421	02-Feb-2022	20-Feb-2022				22-Feb-2022	180	20 days	✓	

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Wattrx: water				raidation. • =	. * - Holding time exceedance , * - within Holding 11					
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
MH-12	E290	02-Feb-2022					15-Feb-2022	14 days	13 days	✓
									-	
Physical Tests : Alkalinity Species by Titration							<u> </u>			
HDPE										
MH-SW	E290	10-Feb-2022					15-Feb-2022	14 days	5 days	✓
IVII 1-0 VV	L230	10-1 CD-2022					10-1 eb-2022	14 days	Juays	•
Physical Tests : Alkalinity Species by Titration										
HDPE										,
MH-11	E290	09-Feb-2022					15-Feb-2022	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MH-29	E290	09-Feb-2022					15-Feb-2022	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MH-FB	E290	10-Feb-2022					15-Feb-2022	14 days	6 davs	✓
							10 1 02 2022		o dayo	
Physical Tests : Alkalinity Species by Titration					I			<u> </u>		
HDPE	F200	07 5-6 0000					45 E-h 0000	44	0 4	✓
MH-04	E290	07-Feb-2022					15-Feb-2022	14 days	8 days	•
Physical Tests : Alkalinity Species by Titration										
HDPE										
Trip Blank	E290	11-Feb-2022					18-Feb-2022	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
MH-13	E290	06-Feb-2022					15-Feb-2022	14 days	9 days	✓
Dhysical Tests - Alkelinity Species by Titustica										
Physical Tests : Alkalinity Species by Titration HDPE							I			
MH-15	E290	07-Feb-2022					15-Feb-2022	14 days	0 days	✓
IVII P 13	L230	07-1 60-2022					10-1 60-2022	14 uays	Juays	•

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Matrix: Water						raiuation. * =	on: × = Holding time exceedance ; ✓ = Within Holding				
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis		
Container / Client Sample ID(s)			Preparation Date	Holdin Rec	g Times Actual	Eval	Analysis Date	Holding Rec	7 Times Actual	Eval	
Physical Tests : Alkalinity Species by Titration											
HDPE											
MH-30	E290	06-Feb-2022					15-Feb-2022	14 days	9 days	✓	
Physical Tests : Conductivity in Water											
MH-12	E100	02-Feb-2022					15-Feb-2022	28 days	13 days	✓	
Physical Tests : Conductivity in Water											
HDPE											
MH-SW	E100	10-Feb-2022					15-Feb-2022	28 days	5 days	✓	
Physical Tests : Conductivity in Water											
HDPE MH-11	E100	09-Feb-2022					15-Feb-2022	28 days	6 days	✓	
Physical Tests : Conductivity in Water											
MH-29	E100	09-Feb-2022					15-Feb-2022	28 days	6 days	✓	
Physical Tests : Conductivity in Water											
HDPE MH-FB	E100	10-Feb-2022					15-Feb-2022	28 days	6 days	✓	
Physical Tests : Conductivity in Water											
MH-04	E100	07-Feb-2022					15-Feb-2022	28 days	8 days	✓	
Physical Tests : Conductivity in Water											
HDPE Trip Blank	E100	11-Feb-2022					18-Feb-2022	28 days	8 days	✓	
Physical Tests : Conductivity in Water							1				
MH-13	E100	06-Feb-2022					15-Feb-2022	28 days	9 days	✓	

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Matrix: water								on. × - Holding time exceedance, v - within Holding Tir				
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Physical Tests : Conductivity in Water												
HDPE												
MH-15	E100	07-Feb-2022					15-Feb-2022	28 days	9 days	✓		
Physical Tests : Conductivity in Water												
HDPE												
MH-30	E100	06-Feb-2022					15-Feb-2022	28 days	9 davs	✓		
55									,			
Physical Tests : pH by Meter												
HDPE							1					
MH-SW	E108	10-Feb-2022					15-Feb-2022	0.25	128 hrs	3 2		
WIFOW	2100	10 1 05 2022					10 1 05 2022	hrs	1201110	EHTR-FM		
								1113		Littivi		
Physical Tests : pH by Meter					I			1	I			
HDPE	F400	40 E-h 0000					45 E-1 0000		440 5	44		
MH-FB	E108	10-Feb-2022					15-Feb-2022	0.25	143 hrs	*		
								hrs		EHTR-FM		
Physical Tests : pH by Meter												
HDPE												
MH-29	E108	09-Feb-2022					15-Feb-2022	0.25	149 hrs	*		
								hrs		EHTR-FM		
Physical Tests : pH by Meter												
HDPE												
MH-11	E108	09-Feb-2022					15-Feb-2022	0.25	150 hrs	*		
								hrs		EHTR-FM		
Physical Tests : pH by Meter												
HDPE												
Trip Blank	E108	11-Feb-2022					18-Feb-2022	0.25	186 hrs	×		
								hrs		EHTR-FM		
Physical Tests : pH by Meter												
HDPE							1					
MH-04	E108	07-Feb-2022					15-Feb-2022	0.25	198 hrs	×		
WII I-O4	2100	07-1 CD-2022					10-1 05-2022	hrs	1001113	EHTR-FM		
								1113				
Physical Tests : pH by Meter												
HDPE	F400	07 5 1 0000					45 5 1 0000		0041			
MH-15	E108	07-Feb-2022					15-Feb-2022	0.25	204 hrs	*		
								hrs		EHTR-FM		

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Matrix: water					on. × - Holding time exceedance , v - Within Holding					
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual		-	Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
MH-13	E108	06-Feb-2022					15-Feb-2022	0.25	225 hrs	*
								hrs		EHTR-FM
								1113		LITTICITION
Physical Tests : pH by Meter										
HDPE										
MH-30	E108	06-Feb-2022					15-Feb-2022	0.25	227 hrs	×
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
MH-12	E108	02-Feb-2022					15-Feb-2022	0.25	318 hrs	×
								hrs		EHTR-FM
Physical Tasta - TDO by Considerator										1
Physical Tests : TDS by Gravimetry HDPE						<u> </u>	I	I	I	
MH-30	E162	06-Feb-2022					16-Feb-2022	7 days	10 days	×
MH-30	E102	06-Feb-2022					10-Feb-2022	7 days	10 days	
										EHT
Physical Tests : TDS by Gravimetry										
HDPE										
MH-12	E162	02-Feb-2022					16-Feb-2022	7 days	13 days	*
										EHTR
Physical Tests : TDS by Gravimetry										
HDPE										
MH-SW	E162	10-Feb-2022					16-Feb-2022	7 days	5 days	✓
								, -	,-	
Physical Tests : TDS by Gravimetry										
HDPE	F400	00 5 1 0000								
MH-11	E162	09-Feb-2022					16-Feb-2022	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
MH-29	E162	09-Feb-2022					16-Feb-2022	7 days	6 days	✓
Physical Tests : TDS by Crayimetry										
Physical Tests : TDS by Gravimetry HDPE							I			
	E162	10-Feb-2022					16-Feb-2022	7 days	6 days	✓
MH-FB	E102	10-Feb-2022					10-Feb-2022	ruays	o days	•

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Matrix: water				aluation. • -	in. × = Holding time exceedance, v = within Holding					
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
MH-04	E162	07-Feb-2022					16-Feb-2022	7 days	8 days	*
								,		EHT
PL STAIT AND TROUGH ON THE STAIR										
Physical Tests : TDS by Gravimetry HDPE										
	E162	11-Feb-2022					18-Feb-2022	7 -1	0 4	×
Trip Blank	E 102	11-Feb-2022					10-Feb-2022	7 days	8 days	
										EHT
Physical Tests : TDS by Gravimetry										
HDPE										
MH-13	E162	06-Feb-2022					16-Feb-2022	7 days	9 days	*
										EHT
Physical Tests : TDS by Gravimetry										
HDPE										
MH-15	E162	07-Feb-2022					16-Feb-2022	7 days	9 days	*
								, -	,-	EHT
Physical Tests : TSS by Gravimetry (Low Level)					ı					
HDPE [TSS-WB]	E400 I	00 5 1 0000					40 5 1 0000		40.1	
MH-30	E160-L	06-Feb-2022					16-Feb-2022	/ days	10 days	30
										EHT
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
MH-12	E160-L	02-Feb-2022					16-Feb-2022	7 days	13 days	*
										EHTR
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
MH-SW	E160-L	10-Feb-2022					16-Feb-2022	7 days	5 days	✓
Will F-GVV	2.002	.0.002022					10 1 05 2022	, dayo	o dayo	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]								<u> </u> .		
MH-11	E160-L	09-Feb-2022					16-Feb-2022	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
MH-29	E160-L	09-Feb-2022					16-Feb-2022	7 days	6 days	✓

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							nolaing time exce			
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
MH-FB	E160-L	10-Feb-2022					16-Feb-2022	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
MH-04	E160-L	07-Feb-2022					16-Feb-2022	7 days	8 days	×
										EHT
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
Trip Blank	E160-L	11-Feb-2022					18-Feb-2022	7 days	8 days	*
тр ышк	2100 2	111 05 2022					10 1 05 2022	, dayo	o dayo	EHT
Physical Tests : TSS by Gravimetry (Low Level)				l l	I I			T T	1 1	
HDPE [TSS-WB]	E400 I	00 5-4 0000					40 F-k 2022	7	0 -1	
MH-13	E160-L	06-Feb-2022					16-Feb-2022	7 days	9 days	*
										EHT
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE [TSS-WB]										
MH-15	E160-L	07-Feb-2022					16-Feb-2022	7 days	9 days	*
										EHT
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
HDPE - total (sodium hydroxide)										
MH-13	E532	06-Feb-2022					16-Feb-2022	28 days	10 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
HDPE - total (sodium hydroxide)										
MH-30	E532	06-Feb-2022					16-Feb-2022	28 days	10 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
HDPE - total (sodium hydroxide)										
MH-12	E532	02-Feb-2022					16-Feb-2022	28 days	14 days	✓
		12.02.2022					-5 - 55 - 55-	aujo	,0	•
Consideral Material Total Harmonian Character (C. 200) 10										
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC HDPE - total (sodium hydroxide)							I			
	The second secon	1		T.						
MH-SW	E532	10-Feb-2022					16-Feb-2022	28 days	6 days	✓

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Matrix: Water						aluation: × =	Holding time exce	edance ; •	✓ = Within	Holding Ti
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	g Times Actual	Eval
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
HDPE - total (sodium hydroxide) MH-11	E532	09-Feb-2022					16-Feb-2022	28 days	7 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
HDPE - total (sodium hydroxide)										
MH-29	E532	09-Feb-2022					16-Feb-2022	28 days	7 days	√
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
HDPE - total (sodium hydroxide) MH-FB	E532	10-Feb-2022					16-Feb-2022	28 days	7 days	4
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
HDPE - total (sodium hydroxide) MH-04	E532	07-Feb-2022					16-Feb-2022	28 days	9 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
HDPE - total (sodium hydroxide) MH-15	E532	07-Feb-2022					16-Feb-2022	28 days	9 days	4
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) MH-04	E508	07-Feb-2022					18-Feb-2022	28 days	10 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) MH-15	E508	07-Feb-2022					18-Feb-2022	28 days	11 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) MH-13	E508	06-Feb-2022					18-Feb-2022	28 days	12 days	~
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid) MH-30	E508	06-Feb-2022					18-Feb-2022	28 days	12 days	✓

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wattix: water						aluation. *	noiding time exce	cuarice,	- vvicinii	riolaling rill	
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation		Analysis				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Total Metals : Total Mercury in Water by CVAAS											
Glass vial total (hydrochloric acid)											
MH-12	E508	02-Feb-2022					18-Feb-2022	28 days	15 days	✓	
Total Metals : Total Mercury in Water by CVAAS											
Glass vial total (hydrochloric acid)											
MH-SW	E508	10-Feb-2022					18-Feb-2022	28 days	7 days	✓	
Total Metals : Total Mercury in Water by CVAAS											
Glass vial total (hydrochloric acid)											
MH-11	E508	09-Feb-2022					18-Feb-2022	28 days	8 days	✓	
Total Metals : Total Mercury in Water by CVAAS											
Glass vial total (hydrochloric acid)											
MH-29	E508	09-Feb-2022					18-Feb-2022	28 days	8 davs	✓	
25		** * * * * * * * * * * * * * * * * *							,-		
Total Metals : Total Mercury in Water by CVAAS											
Glass vial total (hydrochloric acid)											
MH-FB	E508	10-Feb-2022					18-Feb-2022	28 days	8 davs	✓	
5									,-		
Total Metals : Total Mercury in Water by CVAAS							<u> </u>				
Glass vial total (hydrochloric acid)											
Trip Blank	E508	11-Feb-2022					18-Feb-2022	28 days	8 davs	✓	
Total Metals : Total Metals in Water by CRC ICPMS							<u> </u>				
HDPE total (nitric acid)											
MH-11	E420	09-Feb-2022					19-Feb-2022	180	10 days	✓	
								days			
Total Metals : Total Metals in Water by CRC ICPMS											
<u> </u>											
HDPE total (nitric acid) MH-29	E420	09-Feb-2022					19-Feb-2022	180	10 days	1	
WI 1-23	L-120	03-1 65-2022					19-1 66-2022	days	10 days	•	
								uays			
Total Metals : Total Metals in Water by CRC ICPMS							I				
HDPE total (nitric acid)	E420	10-Feb-2022					19-Feb-2022	400	10 day:-	1	
MH-FB	E42U	10-Feb-2022					19-Feb-2022	180	10 days	*	
								days			

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Matrix: Water Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

atrix. Water					_	varaation.	riolaling time exceed	, autiou	***************************************	riolaling
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analy	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holdin	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
MH-04	E420	07-Feb-2022					19-Feb-2022	180	12 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
MH-15	E420	07-Feb-2022					19-Feb-2022	180	12 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
MH-13	E420	06-Feb-2022					19-Feb-2022	180	13 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
MH-30	E420	06-Feb-2022					19-Feb-2022	180	13 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
MH-12	E420	02-Feb-2022					19-Feb-2022	180	17 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
MH-SW	E420	10-Feb-2022					19-Feb-2022	180	9 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS									'	
HDPE total (nitric acid)										
Trip Blank	E420	11-Feb-2022					19-Feb-2022	180	9 days	✓
								days		

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type			C	ount		Frequency (%)
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	411072	2	29	6.9	5.0	/
Ammonia by Fluorescence	E298	411836	2	35	5.7	5.0	<u> </u>
Bromide in Water by IC (Low Level)	E235.Br-L	411076	2	25	8.0	5.0	<u>√</u>
Chloride in Water by IC	E235.CI	411075	2	26	7.6	5.0	
Conductivity in Water	E100	411073	2	27	7.4	5.0	<u> </u>
Dissolved Mercury in Water by CVAAS	E509	413247	1	16	6.2	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	414928	2	40	5.0	5.0	√
Fluoride in Water by IC	E235.F	411074	2	26	7.6	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	411077	2	27	7.4	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	411078	2	27	7.4	5.0	√
pH by Meter	E108	411071	2	29	6.9	5.0	_
Sulfate in Water by IC	E235.SO4	411079	2	27	7.4	5.0	√
TDS by Gravimetry	E162	411191	2	13	15.3	5.0	<u>-</u> ✓
Total Hexavalent Chromium (Cr VI) by IC	E532	411779	1	20	5.0	5.0	√
Total Mercury in Water by CVAAS	E508	413243	2	37	5.4	5.0	✓
Total Metals in Water by CRC ICPMS	E420	414128	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	411072	2	29	6.9	5.0	✓
Ammonia by Fluorescence	E298	411836	2	35	5.7	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	411076	2	25	8.0	5.0	✓
Chloride in Water by IC	E235.CI	411075	2	26	7.6	5.0	✓
Conductivity in Water	E100	411073	2	27	7.4	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	413247	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	414928	2	40	5.0	5.0	✓
Fluoride in Water by IC	E235.F	411074	2	26	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	411077	2	27	7.4	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	411078	2	27	7.4	5.0	✓
pH by Meter	E108	411071	2	29	6.9	5.0	✓
Sulfate in Water by IC	E235.SO4	411079	2	27	7.4	5.0	✓
TDS by Gravimetry	E162	411191	2	13	15.3	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	411779	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	413243	2	37	5.4	5.0	✓
Total Metals in Water by CRC ICPMS	E420	414128	1	20	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	411202	2	18	11.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	411072	2	29	6.9	5.0	✓
Ammonia by Fluorescence	E298	411836	2	35	5.7	5.0	√

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Matrix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Matrix: Water		Evaluat	ion: 🗴 = QC trequ	ency outside sp	ecification; \checkmark =	QC trequency wit	nın specificatio
Quality Control Sample Type			C	ount		Frequency (%))
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Bromide in Water by IC (Low Level)	E235.Br-L	411076	2	25	8.0	5.0	1
Chloride in Water by IC	E235.CI	411075	2	26	7.6	5.0	✓
Conductivity in Water	E100	411073	2	27	7.4	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	413247	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	414928	2	40	5.0	5.0	✓
Fluoride in Water by IC	E235.F	411074	2	26	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	411077	2	27	7.4	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	411078	2	27	7.4	5.0	✓
Sulfate in Water by IC	E235.SO4	411079	2	27	7.4	5.0	✓
TDS by Gravimetry	E162	411191	2	13	15.3	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	411779	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	413243	2	37	5.4	5.0	✓
Total Metals in Water by CRC ICPMS	E420	414128	1	20	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	411202	2	18	11.1	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	411836	2	35	5.7	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	411076	2	25	8.0	5.0	✓
Chloride in Water by IC	E235.CI	411075	2	26	7.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	413247	1	16	6.2	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	414928	2	40	5.0	5.0	✓
Fluoride in Water by IC	E235.F	411074	2	26	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	411077	2	27	7.4	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	411078	2	27	7.4	5.0	✓
Sulfate in Water by IC	E235.SO4	411079	2	27	7.4	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	411779	1	20	5.0	5.0	✓
Total Mercury in Water by CVAAS	E508	413243	2	37	5.4	5.0	✓
Total Metals in Water by CRC ICPMS	E420	414128	1	20	5.0	5.0	✓

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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 $20 \pm 5^{\circ}$ C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry (Low Level)	E160-L 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.
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^{\circ}$ C for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Alkalinity Species by Titration	E290	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
	Vancouver - Environmental			alkalinity values.
Ammonia by Fluorescence	E1Vironmental E298	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).
	Vancouver - Environmental		2003, 7, 37-42 (11104)	alter reaction with orthophthaldialderryde (OFA).
Total Metals in Water by CRC ICPMS	E420	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver - Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver - Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.
Total Mercury in Water by CVAAS	E508 Vancouver -	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
	Environmental			
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.
Total Hexavalent Chromium (Cr VI) by IC	E532	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection.
	Vancouver - Environmental			Results are based on an un-filtered, field-preserved sample.
Dissolved Hardness (Calculated)	EC100	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
	Vancouver - Environmental			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	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
	Vancouver - Environmental			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.
Total Trivalent Chromium (Cr III) by Calculation	EC535 Vancouver -	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results. The Limit of Reporting for Chromium (III) varies as a function of the test results.
	Environmental			

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	\/			
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	V			
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
•	2. 555			
	Vancouver -			
	Environmental			



QUALITY CONTROL REPORT

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Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

: Michelle Unger **Account Manager** : Can Dang Address Address :601 Knighton Road :#12 151 Industrial Road

Kimberley BC Canada V1A 3E1 Whitehorse, Yukon Canada Y1A 2V3

: 250 427 8404 Telephone :+1 867 668 6689

Project : Sa Dena Hes Date Samples Received :11-Feb-2022 14:50

Date Analysis Commenced : 15-Feb-2022 :10145

:25-Feb-2022 17:18 C-O-C number Issue Date

Sampler Site

No. of samples received : 10 No. of samples analysed : 10

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

:Q62635

- Method Blank (MB) Report; Recovery and Acceptance Limits
- Laboratory Control Sample (LCS) Report; Recovery and Acceptance Limits

Signatories

Contact

Telephone

Quote number

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
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Monica Ko	Lab Assistant	Metals, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia

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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.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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							Labora	atory Duplicate (D	UP) 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: 411071)										
WR2200110-002	Anonymous	pH		E108	0.10	pH units	8.10	8.12	0.247%	4%	
Physical Tests (QC	Lot: 411072)										
WR2200110-002	Anonymous	alkalinity, total (as CaCO3)		E290	1.0	mg/L	224	225	0.491%	20%	
Physical Tests (QC	Lot: 411073)										
WR2200110-002	Anonymous	conductivity		E100	2.0	μS/cm	457	458	0.218%	10%	
Physical Tests (QC	Lot: 411191)										
VA22A3024-001	Anonymous	solids, total dissolved [TDS]		E162	20	mg/L	324	326	0.770%	20%	
Physical Tests (QC	Lot: 413762)										
VA22A3342-001	Anonymous	рН		E108	0.10	pH units	7.32	7.31	0.137%	4%	
Physical Tests (QC	Lot: 413763)										
VA22A3342-001	Anonymous	conductivity		E100	2.0	μS/cm	94.8	94.8	0.00%	10%	
Physical Tests (QC	Lot: 413764)										
VA22A3342-001	Anonymous	alkalinity, total (as CaCO3)		E290	1.0	mg/L	13.3	12.8	3.83%	20%	
Physical Tests (QC	,	3, (3, 3, 3, 4,									
WR2200111-010	Trip Blank	solids, total dissolved [TDS]		E162	10	mg/L	<10	<10	0	Diff <2x LOR	
Anione and Nutrien	·					3			-		
WR2200109-001	ts (QC Lot: 411074) Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.058	0.058	0.0001	Diff <2x LOR	
	,	as.iias			3.72.5	9.=					
Anions and Nutrien WR2200109-001	ts (QC Lot: 411075) Anonymous	chloride	16887-00-6	E235.CI	0.50	mg/L	1.09	1.06	0.02	Diff <2x LOR	
	,	Cilionae	10007-00-0	L200.01	0.30	IIIg/L	1.00	1.00	0.02	DIII 12X LOIX	
Anions and Nutrien WR2200109-001	ts (QC Lot: 411076) Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	
	,	bromide	24939-07-9	E233.BI-L	0.030	IIIg/L	<0.050	<0.050	U	DIII \ZX LOR	
Anions and Nutrien WR2200109-001	ts (QC Lot: 411077)	# 4 A N	14797-55-8	Eggs NO2 I	0.0050	/I	40.0050	*0.0050	0	D:# 40I OD	
	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
	ts (QC Lot: 411078)								_		
WR2200109-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
	ts (QC Lot: 411079)										
WR2200109-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	10.0	10.2	1.77%	20%	
	ts (QC Lot: 411836)										
VA22A2769-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	1.00	mg/L	61.7	61.9	0.346%	20%	
Anions and Nutrien	ts (QC Lot: 413766)										
WR2200111-010	Trip Blank	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	<0.30	<0.30	0	Diff <2x LOR	

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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) 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 Nutrient	ts (QC Lot: 413767)										
WR2200111-010	Trip Blank	chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 413768)										
WR2200111-010	Trip Blank	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 413769)										
WR2200111-010	Trip Blank	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 413770)										
WR2200111-010	Trip Blank	fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 413772)										
WR2200111-010	Trip Blank	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	
Anions and Nutrient	ts (QC Lot: 413832)										
WR2200111-010	Trip Blank	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Total Metals (QC Lo	ot: 413243)										
WR2200109-001	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Total Metals (QC Lo	ot: 413910)										
VA22A3165-002	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	0.0000060	0.0000010	Diff <2x LOR	
Total Metals (QC Lo	ot: 414128)										
CG2201589-001	Anonymous	aluminum, total	7429-90-5	E420	0.0060	mg/L	<0.0060	<0.0060	0	Diff <2x LOR	
		antimony, total	7440-36-0	E420	0.00020	mg/L	0.00307	0.00306	0.513%	20%	
		arsenic, total	7440-38-2	E420	0.00020	mg/L	0.00136	0.00136	0.000006	Diff <2x LOR	
		barium, total	7440-39-3	E420	0.00020	mg/L	0.0174	0.0167	4.16%	20%	
		beryllium, total	7440-41-7	E420	0.040	mg/L	<0.040 µg/L	<0.000040	0	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	0.119	0.117	0.002	Diff <2x LOR	
		cadmium, total	7440-43-9	E420	0.0100	mg/L	1.32 µg/L	0.00130	1.33%	20%	
		calcium, total	7440-70-2	E420	0.100	mg/L	628	618	1.59%	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	0.20	mg/L	82.9 µg/L	0.0809	2.45%	20%	
		copper, total	7440-50-8	E420	0.00100	mg/L	0.00136	0.00137	0.000007	Diff <2x LOR	
		iron, total	7439-89-6	E420	0.020	mg/L	0.054	0.050	0.004	Diff <2x LOR	
		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	1.29	1.28	0.693%	20%	
		magnesium, total	7439-95-4	E420	0.0100	mg/L	290	279	3.90%	20%	
		manganese, total	7439-96-5	E420	0.00020	mg/L	0.628	0.610	2.94%	20%	
		molybdenum, total	7439-98-7	E420	0.000100	mg/L	0.00855	0.00861	0.648%	20%	
		nickel, total	7440-02-0	E420	0.00100	mg/L	0.410	0.397	3.36%	20%	

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ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Fotal Metals (QC Lo	ot: 414128) - continued										
CG2201589-001	Anonymous	phosphorus, total	7723-14-0	E420	0.100	mg/L	2.34	2.20	6.29%	20%	
		potassium, total	7440-09-7	E420	0.100	mg/L	21.5	21.1	1.70%	20%	
		selenium, total	7782-49-2	E420	0.100	mg/L	21.7 μg/L	0.0206	5.32%	20%	
		silicon, total	7440-21-3	E420	0.20	mg/L	3.42	3.24	5.26%	20%	
		silver, total	7440-22-4	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR	
		sodium, total	7440-23-5	E420	0.100	mg/L	54.0	52.3	3.24%	20%	
		strontium, total	7440-24-6	E420	0.00040	mg/L	1.72	1.71	0.606%	20%	
		sulfur, total	7704-34-9	E420	1.00	mg/L	514	491	4.48%	20%	
		thallium, total	7440-28-0	E420	0.000020	mg/L	0.000401	0.000376	6.30%	20%	
		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	0.0424	0.0418	1.42%	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	0.108	0.107	1.37%	20%	
		zirconium, total	7440-67-7	E420	0.00040	mg/L	<0.00040	<0.00040	0	Diff <2x LOR	
Dissolved Metals (C	OC L ot: 413247)										
WR2200111-001	MH-12	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (C	C Lot: 414928)										
J2200419-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00040	0.00041	0.00001	Diff <2x LOR	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0176	0.0178	1.10%	20%	
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	0.072	0.072	0.0002	Diff <2x LOR	
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	94.2	93.4	0.863%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00010	mg/L	0.00023	0.00010	0.000001	Diff <2x LOR	
		iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	0.000001	Diff <2x LOR	
		lead, dissolved	7439-69-6	E421	0.000050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		, ,	7439-92-1	E421	0.00050	•	0.121	0.118	2.20%	20%	
		lithium, dissolved				mg/L					
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	143	143	0.0139%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00014	0.00012	0.00002	Diff <2x LOR	

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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) 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 (C	QC Lot: 414928) - contin	ued									
FJ2200419-001	Anonymous	molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00275	0.00289	5.05%	20%	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00565	0.00569	0.776%	20%	
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.234	0.236	0.002	Diff <2x LOR	
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	2.54	2.54	0.123%	20%	
		selenium, dissolved	7782-49-2	E421	0.050	mg/L	114 µg/L	0.114	0.0821%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.942	0.968	2.73%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	23.3	23.6	1.22%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.637	0.644	1.20%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	198	203	2.39%	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	0.00119	0.00122	1.90%	20%	
		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	0.00805	0.00787	2.19%	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	0.0062	0.0063	0.00010	Diff <2x LOR	
		zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	
Dissolved Metals (C	QC Lot: 414936)										
FJ2200419-006	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0017	0.0019	0.0002	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00059	0.00059	0.000002	Diff <2x LOR	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00035	0.00031	0.00004	Diff <2x LOR	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0878	0.0902	2.70%	20%	
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	0.066	0.068	0.002	Diff <2x LOR	
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000212	0.0000249	0.0000037	Diff <2x LOR	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	96.2	98.0	1.85%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00050	0.00049	0.000008	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	0.121	0.122	0.714%	20%	
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	140	139	0.462%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00657	0.00679	3.35%	20%	
		manganese, alssolved	1 -100-00-0		0.00010	g/ L	0.00001	0.00070	0.0070	2070	

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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) 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: 414936) - conti	nued									
FJ2200419-006	Anonymous	molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00206	0.00207	0.199%	20%	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00167	0.00166	0.00001	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	4.22	4.35	3.14%	20%	
		selenium, dissolved	7782-49-2	E421	0.050	mg/L	37.8 μg/L	0.0386	2.05%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.57	1.64	4.67%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	23.3	23.4	0.533%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.601	0.599	0.300%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	200	203	1.79%	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	0.00075	0.00076	0.000007	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	0.00639	0.00639	0.104%	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	
Speciated Metals (QC Lot: 411779)										
KS2200436-001	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	

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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.

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 411072)					
alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 411073)					
conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 411191)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 411202)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 413763)					
conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 413764)					
alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 414096)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 414097)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 411074)					
fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 411075)					
chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 411076)					
bromide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 411077)					
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 411078)					
nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 411079)					
sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 411836)					
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 413766)					
sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 413767)					
chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	

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Anions and Nutrients (QCLot: 413768	·				
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 413769	·				
itrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 413770	•				
luoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 413772					
promide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 413832					
mmonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Fotal Metals (QCLot: 413243)					
nercury, total	7439-97-6 E508	0.000005	mg/L	<0.0000050	
Total Metals (QCLot: 413910)					
nercury, total	7439-97-6 E508	0.000005	mg/L	<0.0000050	
Total Metals (QCLot: 414128)					
luminum, total	7429-90-5 E420	0.003	mg/L	<0.0030	
ntimony, total	7440-36-0 E420	0.0001	mg/L	<0.00010	
rsenic, total	7440-38-2 E420	0.0001	mg/L	<0.00010	
parium, total	7440-39-3 E420	0.0001	mg/L	<0.00010	
eryllium, total	7440-41-7 E420	0.00002	mg/L	<0.000020	
sismuth, total	7440-69-9 E420	0.00005	mg/L	<0.000050	
oron, total	7440-42-8 E420	0.01	mg/L	<0.010	
admium, total	7440-43-9 E420	0.000005	mg/L	<0.0000050	
alcium, total	7440-70-2 E420	0.05	mg/L	<0.050	
hromium, total	7440-47-3 E420	0.0005	mg/L	<0.00050	
obalt, total	7440-48-4 E420	0.0001	mg/L	<0.00010	
opper, total	7440-50-8 E420	0.0005	mg/L	<0.00050	
ron, total	7439-89-6 E420	0.01	mg/L	<0.010	
ead, total	7439-92-1 E420	0.00005	mg/L	<0.000050	
thium, total	7439-93-2 E420	0.001	mg/L	<0.0010	
nagnesium, total	7439-95-4 E420	0.005	mg/L	<0.0050	
nanganese, total	7439-96-5 E420	0.0001	mg/L	<0.00010	
nolybdenum, 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	
otassium, total	7440-09-7 E420	0.05	mg/L	<0.050	
selenium, total	7782-49-2 E420	0.00005	mg/L	<0.000050	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 414128) - c	continued					
ilicon, total	7440-21-3	E420	0.1	mg/L	<0.10	
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	
odium, total	7440-23-5	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	
hallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	
in, total	7440-31-5	E420	0.0001	mg/L	<0.00010	
itanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	
ıranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	
anadium, 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	
Dissolved Metals (QCLot: 41324	7)					
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	
Dissolved Metals (QCLot: 41492	8)					
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	
intimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	
rsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	
parium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	
peryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	
sismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	
oron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	
admium, 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	
ron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	
thium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	
nagnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	
nanganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	
nolybdenum, 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	
ootassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	

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A <i>nalyt</i> e	CAS Number Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 414928)	- continued				
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	
odium, dissolved	7440-23-5 E421	0.05	mg/L	<0.050	
trontium, dissolved	7440-24-6 E421	0.0002	mg/L	<0.00020	
ulfur, dissolved	7704-34-9 E421	0.5	mg/L	<0.50	
nallium, dissolved	7440-28-0 E421	0.00001	mg/L	<0.000010	
n, dissolved	7440-31-5 E421	0.0001	mg/L	<0.00010	
tanium, dissolved	7440-32-6 E421	0.0003	mg/L	<0.00030	
ranium, dissolved	7440-61-1 E421	0.00001	mg/L	<0.000010	
vanadium, dissolved	7440-62-2 E421	0.0005	mg/L	<0.00050	
inc, dissolved	7440-66-6 E421	0.001	mg/L	<0.0010	
irconium, dissolved	7440-67-7 E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 414936)					
luminum, dissolved	7429-90-5 E421	0.001	mg/L	<0.0010	
ntimony, dissolved	7440-36-0 E421	0.0001	mg/L	<0.00010	
rsenic, dissolved	7440-38-2 E421	0.0001	mg/L	<0.00010	
arium, dissolved	7440-39-3 E421	0.0001	mg/L	<0.00010	
eryllium, dissolved	7440-41-7 E421	0.00002	mg/L	<0.000020	
ismuth, dissolved	7440-69-9 E421	0.00005	mg/L	<0.000050	
oron, dissolved	7440-42-8 E421	0.01	mg/L	<0.010	
admium, dissolved	7440-43-9 E421	0.000005	mg/L	<0.000050	
alcium, dissolved	7440-70-2 E421	0.05	mg/L	<0.050	
hromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	
obalt, dissolved	7440-48-4 E421	0.0001	mg/L	<0.00010	
opper, dissolved	7440-50-8 E421	0.0002	mg/L	<0.00020	
on, dissolved	7439-89-6 E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1 E421	0.00005	mg/L	<0.000050	
thium, dissolved	7439-93-2 E421	0.001	mg/L	<0.0010	
nagnesium, dissolved	7439-95-4 E421	0.005	mg/L	<0.0050	
nanganese, dissolved	7439-96-5 E421	0.0001	mg/L	<0.00010	
olybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	<0.000050	
ickel, dissolved	7440-02-0 E421	0.0005	mg/L	<0.00050	
phosphorus, dissolved	7723-14-0 E421	0.05	mg/L	<0.050	
otassium, dissolved	7440-09-7 E421	0.05	mg/L	<0.050	
selenium, dissolved	7782-49-2 E421	0.00005	mg/L	<0.000050	

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Analyte	CAS Number Met	nod	L	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 414936) - co	ontinued						
silicon, dissolved	7440-21-3 E42	1	0	0.05	mg/L	<0.050	
silver, dissolved	7440-22-4 E42	1	0.0	00001	mg/L	<0.000010	
sodium, dissolved	7440-23-5 E42	1	0	0.05	mg/L	<0.050	
strontium, dissolved	7440-24-6 E42	1	0.0	0002	mg/L	<0.00020	
sulfur, dissolved	7704-34-9 E42	1	(0.5	mg/L	<0.50	
thallium, dissolved	7440-28-0 E42	1	0.0	00001	mg/L	<0.000010	
tin, dissolved	7440-31-5 E42	1	0.0	0001	mg/L	<0.00010	
titanium, dissolved	7440-32-6 E42	1	0.0	0003	mg/L	<0.00030	
uranium, dissolved	7440-61-1 E42	1	0.0	00001	mg/L	<0.000010	
vanadium, dissolved	7440-62-2 E42	1	0.0	0005	mg/L	<0.00050	
zinc, dissolved	7440-66-6 E42	1	0.	.001	mg/L	<0.0010	
zirconium, dissolved	7440-67-7 E42	1	0.0	0002	mg/L	<0.00020	
Speciated Metals (QCLot: 411779)							
chromium, hexavalent [Cr VI], total	18540-29-9 E53	2	0.0	0005	mg/L	<0.00050	

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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 Cor	trol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 411071)									
рН		E108		pH units	7 pH units	99.8	98.0	102	
Physical Tests (QCLot: 411072)									
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	102	85.0	115	
Physical Tests (QCLot: 411073)									
conductivity		E100	1	μS/cm	146.9 µS/cm	100	90.0	110	
Physical Tests (QCLot: 411191)									I
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	102	85.0	115	
Physical Tests (QCLot: 411202)									I
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	90.7	85.0	115	
Physical Tests (QCLot: 413762)									I
pH		E108		pH units	7 pH units	100	98.0	102	
Physical Tests (QCLot: 413763)									I
conductivity		E100	1	μS/cm	146.9 μS/cm	106	90.0	110	
Physical Tests (QCLot: 413764)									
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	101	85.0	115	
					3333,2		22.2		
Physical Tests (QCLot: 414096) solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	89.7	85.0	115	
					100 mg/E	30.7	30.0	110	
Physical Tests (QCLot: 414097) solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	100	85.0	115	
Solido, total dissolved [150]				g/.	1000 Hig/L	100	00.0	113	
Astronomical No. 1 de 1 de 100 de 1440 de 1									
Anions and Nutrients (QCLot: 411074) fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110	
	.555. 40 0		5.52	9, =	i ilig/L	101	30.0	110	
Anions and Nutrients (QCLot: 411075) chloride	16887-00-6	F235 CI	0.5	mg/L	100 mg/l	102	90.0	110	
	10007-00-0	2200.01	0.0	IIIg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 411076)	24959-67-9	E225 Pr I	0.05	m~/l	0.5 "	400	05.0	445	
	24959-07-9	EZJJ.DI-L	0.05	mg/L	0.5 mg/L	100	85.0	115	
Anions and Nutrients (QCLot: 411077)	44707 55 0	Eggs NOO I	0.005						1
nitrate (as N)	14/9/-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 411078)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.5	90.0	110	
Anions and Nutrients (QCLot: 411079)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 411836)									
·									

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 Client
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Sub-Matrix: Water					Laboratory Co	ntrol Sample (LCS)	Report	
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Anions and Nutrients (QCLot: 411836) - cont	tinued							
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	0.2 mg/L	95.8	85.0	115	
Anions and Nutrients (QCLot: 413766)								
sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 413767)								
chloride	16887-00-6 E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 413768)								
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: 413769)								
nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	0.5 mg/L	100	90.0	110	
Anions and Nutrients (QCLot: 413770)								
fluoride	16984-48-8 E235.F	0.02	mg/L	1 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 413772)								
bromide	24959-67-9 E235.Br-L	0.05	mg/L	0.5 mg/L	104	85.0	115	
Anions and Nutrients (QCLot: 413832)								
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	0.2 mg/L	97.2	85.0	115	
Total Metals (QCLot: 413243)								
mercury, total	7439-97-6 E508	0.000005	mg/L	0.0001 mg/L	100	80.0	120	
Total Metals (QCLot: 413910)								
mercury, total	7439-97-6 E508	0.000005	mg/L	0.0001 mg/L	99.4	80.0	120	
Total Metals (QCLot: 414128)								
aluminum, total	7429-90-5 E420	0.003	mg/L	2 mg/L	98.1	80.0	120	
antimony, total	7440-36-0 E420	0.0001	mg/L	1 mg/L	99.1	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	92.4	80.0	120	
beryllium, total	7440-41-7 E420	0.00002	mg/L	0.1 mg/L	96.4	80.0	120	
bismuth, total	7440-69-9 E420	0.00005	mg/L	1 mg/L	87.6	80.0	120	
boron, total	7440-42-8 E420	0.01	mg/L	1 mg/L	94.5	80.0	120	
cadmium, total	7440-43-9 E420	0.000005	mg/L	0.1 mg/L	81.4	80.0	120	
calcium, total	7440-70-2 E420	0.05	mg/L	50 mg/L	94.4	80.0	120	
chromium, total	7440-47-3 E420	0.0005	mg/L	0.25 mg/L	95.0	80.0	120	
cobalt, total	7440-48-4 E420	0.0001	mg/L	0.25 mg/L	94.2	80.0	120	
copper, total	7440-50-8 E420	0.0005	mg/L	0.25 mg/L	93.7	80.0	120	
iron, total	7439-89-6 E420	0.01	mg/L	1 mg/L	93.5	80.0	120	
lead, total	7439-92-1 E420	0.00005	mg/L	0.5 mg/L	89.1	80.0	120	
lithium, total	7439-93-2 E420	0.001	mg/L	0.25 mg/L	97.2	80.0	120	
magnesium, total	7439-95-4 E420	0.005	mg/L	50 mg/L	101	80.0	120	

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Sub-Matrix: Water					Laboratory Co	entrol Sample (LCS)	Report	
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 414128) - continued	d							
manganese, total	7439-96-5 E420	0.0001	mg/L	0.25 mg/L	95.3	80.0	120	
molybdenum, total	7439-98-7 E420	0.00005	mg/L	0.25 mg/L	92.7	80.0	120	
nickel, total	7440-02-0 E420	0.0005	mg/L	0.5 mg/L	94.8	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	95.3	80.0	120	
selenium, total	7782-49-2 E420	0.00005	mg/L	1 mg/L	93.2	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	85.1	80.0	120	
sodium, total	7440-23-5 E420	0.05	mg/L	50 mg/L	102	80.0	120	
strontium, total	7440-24-6 E420	0.0002	mg/L	0.25 mg/L	104	80.0	120	
sulfur, total	7704-34-9 E420	0.5	mg/L	50 mg/L	100	80.0	120	
thallium, total	7440-28-0 E420	0.00001	mg/L	1 mg/L	91.7	80.0	120	
tin, total	7440-31-5 E420	0.0001	mg/L	0.5 mg/L	85.1	80.0	120	
titanium, total	7440-32-6 E420	0.0003	mg/L	0.25 mg/L	95.1	80.0	120	
uranium, total	7440-61-1 E420	0.00001	mg/L	0.005 mg/L	89.2	80.0	120	
vanadium, total	7440-62-2 E420	0.0005	mg/L	0.5 mg/L	96.6	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	92.9	80.0	120	
mercury, dissolved	7439-97-6 E509	0.000005	mg/L	0.0001 mg/L	98.4	80.0	120	
Dissolved Metals (QCLot: 414928)								
aluminum, dissolved	7429-90-5 E421	0.001	mg/L	2 mg/L	104	80.0	120	
antimony, dissolved	7440-36-0 E421	0.0001	mg/L	1 mg/L	102	80.0	120	
arsenic, dissolved	7440-38-2 E421	0.0001	mg/L	1 mg/L	99.0	80.0	120	
barium, dissolved	7440-39-3 E421	0.0001	mg/L	0.25 mg/L	101	80.0	120	
beryllium, dissolved	7440-41-7 E421	0.00002	mg/L	0.1 mg/L	94.5	80.0	120	
bismuth, dissolved	7440-69-9 E421	0.00005	mg/L	1 mg/L	98.4	80.0	120	
boron, dissolved	7440-42-8 E421	0.01	mg/L	1 mg/L	97.6	80.0	120	
cadmium, dissolved	7440-43-9 E421	0.000005	mg/L	0.1 mg/L	96.7	80.0	120	
calcium, dissolved	7440-70-2 E421	0.05	mg/L	50 mg/L	100	80.0	120	
chromium, dissolved	7440-47-3 E421	0.0005	mg/L	0.25 mg/L	99.3	80.0	120	
cobalt, dissolved	7440-48-4 E421	0.0001	mg/L	0.25 mg/L	96.0	80.0	120	
copper, dissolved	7440-50-8 E421	0.0002	mg/L	0.25 mg/L	97.2	80.0	120	
iron, dissolved	7439-89-6 E421	0.01	mg/L	1 mg/L	96.3	80.0	120	
lead, dissolved	7439-92-1 E421	0.00005	mg/L	0.5 mg/L	99.7	80.0	120	
lithium, dissolved	7439-93-2 E421	0.001	mg/L	0.25 mg/L	95.4	80.0	120	
magnesium, dissolved	7439-95-4 E421	0.005	mg/L	50 mg/L	101	80.0	120	
manganese, dissolved	7439-96-5 E421	0.0001	mg/L	0.25 mg/L	100	80.0	120	

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Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 414928) - continued									
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	103	80.0	120	
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	101	80.0	120	
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.5	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	102	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	102	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	88.9	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	99.2	80.0	120	
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	101	80.0	120	
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	101	80.0	120	
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	100	80.0	120	
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	101	80.0	120	
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	100	80.0	120	
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	95.0	80.0	120	
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	100.0	80.0	120	
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.8	80.0	120	
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	94.9	80.0	120	
Dissolved Metals (QCLot: 414936)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	99.1	80.0	120	
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	104	80.0	120	
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	98.4	80.0	120	
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.2	80.0	120	
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.1	80.0	120	
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	100	80.0	120	
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	99.9	80.0	120	
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	96.1	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	95.8	80.0	120	
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.7	80.0	120	
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	96.0	80.0	120	
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	92.8	80.0	120	
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	101	80.0	120	
lithium, dissolved	7439-93-2		0.001	mg/L	0.25 mg/L	95.0	80.0	120	
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	97.4	80.0	120	
manganese, dissolved				_	,				
-	7439-96-5	E421	0.0001	mg/L	0.25 ma/L	98.8	80.0	120	
molybdenum, dissolved	7439-96-5 7439-98-7		0.0001 0.00005	mg/L mg/L	0.25 mg/L 0.25 mg/L	98.8 102	80.0 80.0	120 120	

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Sub-Matrix: Water						Laboratory Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 414936) - cont	inued								
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	108	80.0	120	
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.2	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	97.8	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	97.4	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	88.6	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	98.6	80.0	120	
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	96.8	80.0	120	
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	96.2	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	97.6	80.0	120	
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	99.1	80.0	120	
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	104	80.0	120	
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	98.8	80.0	120	
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	96.4	80.0	120	
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	94.3	80.0	120	
Speciated Metals (QCLot: 411779)									1
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	102	90.0	110	

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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 Spik	e (MS) Report		
					Spil	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutr	ients (QCLot: 411074)									
WR2200110-001	Anonymous	fluoride	16984-48-8	E235.F	0.968 mg/L	1 mg/L	96.8	75.0	125	
Anions and Nutr	ients (QCLot: 411075)									
WR2200110-001	Anonymous	chloride	16887-00-6	E235.CI	94.0 mg/L	100 mg/L	94.0	75.0	125	
Anions and Nutr	ients (QCLot: 411076)									
WR2200110-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.460 mg/L	0.5 mg/L	92.0	75.0	125	
Anions and Nutr	ients (QCLot: 411077)									
WR2200110-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.33 mg/L	2.5 mg/L	93.4	75.0	125	
Anions and Nutr	ients (QCLot: 411078)									
WR2200110-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.438 mg/L	0.5 mg/L	87.5	75.0	125	
Anions and Nutr	ients (QCLot: 411079)									
WR2200110-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	93.3 mg/L	100 mg/L	93.3	75.0	125	
Anions and Nutr	ients (QCLot: 411836)									
VA22A2773-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	MS-B
Anions and Nutr	ients (QCLot: 413766)									
WR2200111-010	Trip Blank	sulfate (as SO4)	14808-79-8	E235.SO4	116 mg/L	100 mg/L	116	75.0	125	
Anions and Nutr	ients (QCLot: 413767)									
WR2200111-010	Trip Blank	chloride	16887-00-6	E235.CI	116 mg/L	100 mg/L	116	75.0	125	
Anions and Nutr	ients (QCLot: 413768)									
WR2200111-010	Trip Blank	nitrate (as N)	14797-55-8	E235.NO3-L	2.92 mg/L	2.5 mg/L	117	75.0	125	
Anions and Nutr	ients (QCLot: 413769)									
WR2200111-010	Trip Blank	nitrite (as N)	14797-65-0	E235.NO2-L	0.568 mg/L	0.5 mg/L	114	75.0	125	
Anions and Nutr	ients (QCLot: 413770)									
WR2200111-010	Trip Blank	fluoride	16984-48-8	E235.F	1.14 mg/L	1 mg/L	114	75.0	125	
Anions and Nutr	ients (QCLot: 413772)									
WR2200111-010	Trip Blank	bromide	24959-67-9	E235.Br-L	0.590 mg/L	0.5 mg/L	118	75.0	125	
Anions and Nutr	ients (QCLot: 413832)									
WR2200116-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0939 mg/L	0.1 mg/L	93.9	75.0	125	

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Sub-Matrix: Water							Matrix Spike	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QC	Lot: 413243)									
WR2200111-001	MH-12	mercury, total	7439-97-6	E508	0.0000957 mg/L	0.0001 mg/L	95.7	70.0	130	
Total Metals (QC	Lot: 413910)									
VA22A3165-003	Anonymous	mercury, total	7439-97-6	E508	0.0000867 mg/L	0.0001 mg/L	86.7	70.0	130	
Total Metals (QC	Lot: 414128)									
CG2201589-002	Anonymous	aluminum, total	7429-90-5	E420	0.414 mg/L	0.4 mg/L	104	70.0	130	
		antimony, total	7440-36-0	E420	0.0438 mg/L	0.04 mg/L	110	70.0	130	
		arsenic, total	7440-38-2	E420	0.0434 mg/L	0.04 mg/L	109	70.0	130	
		barium, total	7440-39-3	E420	0.0405 mg/L	0.04 mg/L	101	70.0	130	
		beryllium, total	7440-41-7	E420	0.0820 mg/L	0.08 mg/L	102	70.0	130	
		bismuth, total	7440-69-9	E420	0.0186 mg/L	0.02 mg/L	92.8	70.0	130	
		boron, total	7440-42-8	E420	0.224 mg/L	0.2 mg/L	112	70.0	130	
		cadmium, total	7440-43-9	E420	0.00816 mg/L	0.008 mg/L	102	70.0	130	
		calcium, total	7440-70-2	E420	ND mg/L	8 mg/L	ND	70.0	130	
		chromium, total	7440-47-3	E420	0.0830 mg/L	0.08 mg/L	104	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	0.0367 mg/L	0.04 mg/L	91.7	70.0	130	
		iron, total	7439-89-6	E420	4.01 mg/L	4 mg/L	100	70.0	130	
		lead, total	7439-92-1	E420	0.0389 mg/L	0.04 mg/L	97.3	70.0	130	
		lithium, total	7439-93-2	E420	ND mg/L	0.2 mg/L	ND	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	0.0458 mg/L	0.04 mg/L	115	70.0	130	
		nickel, total	7440-02-0	E420	ND mg/L	0.08 mg/L	ND	70.0	130	
		phosphorus, total	7723-14-0	E420	23.0 mg/L	20 mg/L	115	70.0	130	
		potassium, total	7440-09-7	E420	ND mg/L	8 mg/L	ND	70.0	130	
		selenium, total	7782-49-2	E420	0.0879 mg/L	0.08 mg/L	110	70.0	130	
		silicon, total	7440-21-3	E420	20.6 mg/L	20 mg/L	103	70.0	130	
		silver, total	7440-22-4	E420	0.00836 mg/L	0.008 mg/L	104	70.0	130	
		sodium, total	7440-23-5	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	0.00740 mg/L	0.008 mg/L	92.5	70.0	130	
		tin, total	7440-31-5	E420	0.0422 mg/L	0.04 mg/L	105	70.0	130	
		titanium, total	7440-32-6	E420	0.0864 mg/L	0.08 mg/L	108	70.0	130	
		uranium, total	7440-61-1	E420	ND mg/L	0.008 mg/L	ND	70.0	130	
	T.	vanadium, total	7440-62-2	E420	0.215 mg/L	0.2 mg/L	107	70.0	130	

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 Work Order
 : WR2200111

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recover	y Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	Lot: 414128) - continu	ıed								
CG2201589-002	Anonymous	zinc, total	7440-66-6	E420	0.778 mg/L	0.8 mg/L	97.2	70.0	130	
		zirconium, total	7440-67-7	E420	0.0948 mg/L	0.08 mg/L	118	70.0	130	
Dissolved Metals	(QCLot: 413247)									
WR2200111-002	MH-04	mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0.0001 mg/L	101	70.0	130	
Dissolved Metals	(QCLot: 414928)									
FJ2200419-002	Anonymous	aluminum, dissolved	7429-90-5	E421	0.195 mg/L	0.2 mg/L	97.6	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0203 mg/L	0.02 mg/L	101	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	102	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	0.0371 mg/L	0.04 mg/L	92.7	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00781 mg/L	0.01 mg/L	78.1	70.0	130	
		boron, dissolved	7440-42-8	E421	0.099 mg/L	0.1 mg/L	99.0	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00373 mg/L	0.004 mg/L	93.3	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	0.0381 mg/L	0.04 mg/L	95.3	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0179 mg/L	0.02 mg/L	89.7	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0176 mg/L	0.02 mg/L	87.8	70.0	130	
		iron, dissolved	7439-89-6	E421	1.87 mg/L	2 mg/L	93.5	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0179 mg/L	0.02 mg/L	89.7	70.0	130	
		lithium, dissolved	7439-93-2	E421	ND mg/L	0.1 mg/L	ND	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	0.0213 mg/L	0.02 mg/L	107	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0352 mg/L	0.04 mg/L	87.9	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	9.95 mg/L	10 mg/L	99.5	70.0	130	
		potassium, dissolved	7440-09-7	E421	3.81 mg/L	4 mg/L	95.4	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0476 mg/L	0.04 mg/L	119	70.0	130	
		silicon, dissolved	7440-21-3	E421	9.94 mg/L	10 mg/L	99.4	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00372 mg/L	0.004 mg/L	92.9	70.0	130	
		sodium, dissolved	7440-23-5	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	0.00346 mg/L	0.004 mg/L	86.6	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0194 mg/L	0.02 mg/L	97.3	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0388 mg/L	0.02 mg/L	97.0	70.0	130	
		uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130	

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 Client
 : Teck Metals Ltd

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Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	(QCLot: 414928) -	continued								
FJ2200419-002	Anonymous	vanadium, dissolved	7440-62-2	E421	0.0980 mg/L	0.1 mg/L	98.0	70.0	130	
		zinc, dissolved	7440-66-6	E421	0.374 mg/L	0.4 mg/L	93.6	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0426 mg/L	0.04 mg/L	107	70.0	130	
Dissolved Metals	(QCLot: 414936)									
VA22A2740-006	Anonymous	aluminum, dissolved	7429-90-5	E421	0.195 mg/L	0.2 mg/L	97.4	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0196 mg/L	0.02 mg/L	97.9	70.0	130	
		barium, dissolved	7440-39-3	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	
		beryllium, dissolved	7440-41-7	E421	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00882 mg/L	0.01 mg/L	88.2	70.0	130	
		boron, dissolved	7440-42-8	E421	0.102 mg/L	0.1 mg/L	102	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00404 mg/L	0.004 mg/L	101	70.0	130	
		calcium, dissolved	7440-70-2	E421	3.95 mg/L	4 mg/L	98.8	70.0	130	
		chromium, dissolved	7440-47-3	E421	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0198 mg/L	0.02 mg/L	99.0	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0199 mg/L	0.02 mg/L	99.4	70.0	130	
		iron, dissolved	7439-89-6	E421	2.00 mg/L	2 mg/L	99.8	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0197 mg/L	0.02 mg/L	98.4	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.0995 mg/L	0.1 mg/L	99.5	70.0	130	
		magnesium, dissolved	7439-95-4	E421	0.978 mg/L	1 mg/L	97.8	70.0	130	
		manganese, dissolved	7439-96-5	E421	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	
		molybdenum, dissolved	7439-98-7	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	9.78 mg/L	10 mg/L	97.8	70.0	130	
		potassium, dissolved	7440-09-7	E421	3.91 mg/L	4 mg/L	97.7	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0418 mg/L	0.04 mg/L	104	70.0	130	
		silicon, dissolved	7440-21-3	E421	9.62 mg/L	10 mg/L	96.2	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	
		sodium, dissolved	7440-23-5	E421	2.00 mg/L	2 mg/L	99.8	70.0	130	
		strontium, dissolved	7440-24-6	E421	0.0202 mg/L	0.02 mg/L	101	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	0.00379 mg/L	0.004 mg/L	94.8	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0197 mg/L	0.02 mg/L	98.7	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0396 mg/L	0.04 mg/L	98.9	70.0	130	
		uranium, dissolved	7440-61-1	E421	0.00408 mg/L	0.004 mg/L	102	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.0987 mg/L	0.1 mg/L	98.7	70.0	130	

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 414936) - cont	inued								
VA22A2740-006	Anonymous	zinc, dissolved	7440-66-6	E421	0.423 mg/L	0.4 mg/L	106	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0416 mg/L	0.04 mg/L	104	70.0	130	
Speciated Metals	(QCLot: 411779)									
KS2200436-003	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.255 mg/L	0.25 mg/L	102	85.0	115	

Qualifiers

Qualifier	Description
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Chain of Custody (COC) / Analytical

Request Form

Canada Toll Free: 1 800 668 9878

Report Format / Distribution

Quality Control (QC) Report with Report

Select Distribution:

Company address below will appear on the final report

Select Report Format:

Contact and company name below will appear on the final report

Environmental

www.alsglobal.com

TECK Metals Ltd Michelle Unger 250-4278422

Report To Company: Contact: Phone:

Affix ALS barcode label here (lab use only)

COC Number:

1 of Page **Environmental Division** Whitehorse Work Order Reference WRZ22001

Select Service Level Below - Please confirm all E&P TATs with y

4 day [P4] 3 day [P3] Regular [R]

PRIORITY (Business Days

2 day [P2]

)				1			/			
Street:	601 Knightton Road	Em	Email 1 or Fax az	zheng@ensero.o	azheng@ensero.com, ebouchard@ensero.com	@ensero.com	Da	te and T	ime Requ	ired for a	Date and Time Required for all E&P TATs:	Ts:		/			
City/Province:	Kimberly, BC	Em	Email 2 m	michelle.unger@teck.com	eck.com		For tests th	at can no	t be perfo	med acco	rding to th	For tests that can not be performed according to the service lev	. >	İ	2		
Postal Code:	V1A 3E1	Em	Email 3 ct	chanson@ensero.com	.com						Ar	Analysis R	. ~		, i		
Invoice To	Same as Report To			Invoice Distribution	stribution			Indicate	Filtered (F), Preser	ved (P) or	Indicate Filtered (F), Preserved (P) or Filtered an			5	F	9
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Company:		E	iail 1 or Fax M	Email 1 or Fax Michelle.unger@teck.com	eck.com				-				. –	-			
Contact:		Em	Email 2 ro	roxanne.menear@teck.com	Dteck.com				(18 ,								S.
	Project Information		Oil ar	nd Gas Require	Oil and Gas Required Fields (client use)	nse)			J 'IC					į			iner
ALS Account # / Quote #	# / Quote #: Q62635	AFE	AFE/Cost Center:		#Od			6н	te, (,		onta
Job #:	ECA21YT00086	Majo	Major/Minor Code:		Routing Code:		-					-					t Co
PO / AFE:	Teck PO-9516	Rec	Requisitioner:				1000	-				ι) 190
LSD:		Pool	Location:				7000	12 15				noitsi					qwn
ALS Lab Wo	ALS Lab Work Order # (lab use only)	ALS	S Contact:	Can Dang	Sampler:	•	10 13 142,000	Ollego 1897 S		8	(wol)S	m Spec					N
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	Total Me	Dissolve PH, SPC)snoinA	inommA	ST , SQT	Chromiu					
-	MH-12 (LP)			2-Feb-22	16:30	Water	œ	м М	2	œ	œ	œ				H	ω
N	MH-04 (LP)	,		7-Feb-22	16:35	Water	œ	ж ж	п.	œ	œ	œ					∞
n	MH-11 (LP)			9-Feb-22	16:30	Water	œ	2	м М	œ	œ	œ		j	_		ω
3	MH-29 (LP)	-		9-Feb-22	17:45	Water	œ	м	2	œ	œ	œ					ω
						Water	œ	м	м м	œ	œ	œ					ω
V	MH-13 (LP)			6-Feb-22	13:45	Water	œ	2	~	œ	œ	œ					ω
e	MH-30 (LP)			6-Feb-22	11:45	Water	œ	С.	<u>к</u>	œ	œ	œ					ω
	MH-15 (LP)			7-Feb-22	11:00	Water	œ	2	<u>к</u>	œ	œ	œ					ω
8	MH-SW (LQR)			10-Feb-22		Water	œ	2	м М	œ	œ	œ					ω
0	MH-FB (LQFB)			10-Feb-22		Water	œ	м п	<u>к</u>	œ	œ	œ					7
						Water	œ	а.	ж ж	œ	œ	œ			,	l	
03	Trip Blank (LQTB)					Water	œ	п.	R R	œ	œ						*
Drinking	Drinking Water (DW) Samples¹ (client use)	Special Instructions / Specify		a to add on report by cli	Criteria to add on report by clicking on the drop-down list below (alectronic COC only)	-down list below	00000		SAI	PLEC	ONDITION	SAMPLE CONDITION AS RECE	ECE				
			o social	(60000000000000000000000000000000000000			LIOZEII		ב י			DSGO LIG	ואמוו		-	-	
Are samples tal	Are samples taken from a Regulated DW System?						Ice Packs	s)	8	ce Cubes		Custody seal i	seal i		1		8
							Cooling Initiated	Initiate	P				1			1	F.
Are samples to	Are samples for human drinking water use?						C	NI IAL	COULTR	IEMPER	MILIAL COOLER LEMPERALURES "C	y					

Fallure 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 REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

SHIPMENT REC

Received by:

Time:

INITIAL SHIPMENT RECEPTION (lab use only)

Received by:

SHIPMENT RELEASE (client use)

Released by:

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

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:

Environmental Division

Contact and company name below will appear on the final report Report Format / Distribution Whitehorse Select Service Level Below - Please confirm all E&P TATs with y Report To Work Order Reference TECK Metais Ltd Select Report Format: Regular [R] Company: WR2200111 Quality Control (QC) Report with Report Michelle Unger 4 day [P4] Contact: 250-4278422 3 day [P3] Phone: Company address below will appear on the final report Select Distribution: 2 day [P2] Email 1 or Fax_azheng@ensero.com, ebouchard@ensero.com Street: 601 Knightton Road Date and Time Required for all E&P TATs: michelle.unger@teck.com City/Province: Kimberly, BC Email 2 For tests that can not be performed according to the service lev Postal Code: V1A 3E1 Email 3 chanson@ensero.com Analysis R Invoice Distribution Same as Report To Indicate Filtered (F), Preserved (P) or Filtered ar Invoice To F/P Select Invoice Distribution: Copy of Invoice with Report Email 1 or Fax .Michelle.unger@teck.com Company 뜐 roxanne.menear@teck.com Contact: Number of Containers Project Information Oil and Gas Required Fields (client use) ਹੁ Q62635 PO# (low level) +Hg Sulphate, ALS Account # / Quote #: AFE/Cost Center: ECA21YT00086 Routing Code: Job #: Major/Minor Code PO / AFE: Teck PO-9516 Requisitioner: Chromium Speciation LSD: Location: Dissolved Metals TDS, TSS(low) ALS Lab Work Order # (lab use only) ALS Contact: Sampler: Can Dang Sample Identification and/or Coordinates Date Time ALS Sample # ota Sample Type (lab use only) (This description will appear on the report) (dd-mmm-yy) (hh:mm) MH-12 (LP) 2-Feb-22 16:30 R R R R R R R Water 8 MH-04 (LP) 7-Feb-22 16:35 R R R R R R R Water 8 9-Feb-22 16:30 R R R R R R MH-11 (LP) Water R 8 R MH-29 (LP) 9-Feb-22 17:45 R R R R R R Water 8 R R R R Water R R R 8 R MH-13 (LP) R R 6-Feb-22 13:45 Water R R R 8 R 8 MH-30 (LP) 6-Feb-22 11:45 Water R R R R R R MH-15 (LP) 7-Feb-22 11:00 Water R R R R-R R R 8 10-Feb-22 R R MH-SW (LQR) Ŗ R R R R 8 Water MH-FB (LQFB) 10-Feb-22 Water R R. R R R R R R R Ŕ Water W Trip Blank (LQTB) -R R R R R R SAMPLE CONDITION AS RECE Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below Drinking Water (DW) Samples (client use) (electronic COG only) Are samples taken from a Regulated DW System? ice Packs Cooling Initiated NITIAL COOLER TEMPERATURES Are samples for human drinking water use? SHIPMENT-RELEASE (client.use).. INITIAL SHIPMENT RECEPTION (lab use only) FINAL SHIPMENT REC Time: Released by: Date: Received by: Time: Received by: FEB 15 2022 2

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.



: Wendy McBain

CERTIFICATE OF ANALYSIS

Work Order : WR2200280

Client : Teck Metals Ltd

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : ---

Contact

Project : Sa Dena Hes
PO : PO 10289

C-O-C number : --Sampler : --

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 11

No. of samples analysed : 11

Page : 1 of 13

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 08-Apr-2022 10:10

Date Analysis Commenced : 12-Apr-2022

Issue Date : 27-Apr-2022 12:15

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
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia
Dee Lee	Analyst	Metals, Burnaby, British Columbia
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Parnian Sane	Analsyt	Metals, Burnaby, British Columbia

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 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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
μg/L	micrograms per litre
μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
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
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
DTMF	Dissolved concentration exceeds total for field-filtered metals sample. Metallic
	contaminants may have been introduced to dissolved sample during field filtration.
RRV	Reported result verified by repeat analysis.

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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Client sampling date / time	D_MH-12_202 SD_MH-13_2	SD_MH-11_202	SD_MH-04_202	SD_MH-02_202	ient sample ID	Cli			Sub-Matrix: Surface Water
Analyse	2-04-04 2-04-04	2-04-04	2-04-04	2-04-04					(Matrix: Water)
Physical Tests		· ·	·	·	ling date / time	Client samp			
Physical Tests alkalinity, total (as CaCO3)	R2200280-004 WR2200280-00	WR2200280-003	WR2200280-002	WR2200280-001	Unit	LOR	Method	CAS Number	Analyte
Section Sect	Result Result	Result	Result	Result					
Conductivity									
hardness (as CaCO3), dissolved EC100 0.60 mg/L 598 168 218 175 hardness (as CaCO3), from total Ca/Mg pH EC100A 0.60 mg/L 655 192 246 192 pH E108 0.10 pH units 8.10 8.35 8.36 8.42 solids, total dissolved [TDS] E160-L 1.0 mg/L 825 193 238 210 solids, total suspended [TSS] E160-L 1.0 mg/L 2.9 <1.0					-				alkalinity, total (as CaCO3)
hardness (as CaCO3), from total Ca/Mg	346 392	414	323	1100	μS/cm	2.0	E100		conductivity
pH	175 204	218	168	598	mg/L	0.60	EC100		hardness (as CaCO3), dissolved
Solids, total dissolved [TDS]	192 224	246	192	655	mg/L	0.60	EC100A		hardness (as CaCO3), from total Ca/Mg
Solids, total suspended [TSS]	8.42 8.41	8.36	8.35	8.10	pH units	0.10	E108		pH
Anions and Nutrients ammonia, total (as N) 7664-41-7 E298 0.0050 mg/L <0.0050 <0.0050 0.0087 <0.0050 choride 24959-67-9 E235.Br-L 0.050 mg/L <0.250 0.050 <0.050 <0.050 <0.050 <0.050 choride 16887-00-6 E235.Cl 0.50 mg/L 18.5 <0.50 <0.50 <0.50 <0.50 choride 16984-48-8 E235.F 0.020 mg/L 0.0050 0.050 0.050 <0.050 choride (as N) 14797-55-8 E235.NO3-L 0.0050 mg/L 0.0262 0.245 0.152 0.086 0.109 choride (as N) 14797-65-0 E235.NO3-L 0.0050 mg/L 0.0262 0.245 0.158 0.133 choride (as SO4) 14808-79-8 E235.SO4 0.30 mg/L 376 17.0 14.3 11.0 choride (as SO4) 14808-79-8 E235.SO4 0.30 mg/L 0.0050 0.0050 0.0030 0.0033 0.0085 choride (as SO4) 7440-36-0 E420 0.00010 mg/L <0.00010 0.00014 0.00014 0.00013 0.00021 choride (as SO4) 7440-38-2 E420 0.00010 mg/L 0.0050 0.0040 0.00040 0.00046 0.00066 choride (as SO4) 7440-39-3 E420 0.00010 mg/L 0.0050 0.0040 0.00040 0.00046 0.00066 choride (as SO4) 7440-41-7 E420 0.000020 mg/L <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.	210 219	238	193	825	mg/L	10	E162		solids, total dissolved [TDS]
ammonia, total (as N) 7664-41-7 E298 0.0050 mg/L <0.0050 <0.0050 0.0087 <0.0050	2.8 2.0	<1.0	<1.0	2.9	mg/L	1.0	E160-L		solids, total suspended [TSS]
Description Promide									Anions and Nutrients
chloride 16887-00-6 E235.Cl 0.50 mg/L 18.5 <0.50	<0.0050 0.0067	0.0087	<0.0050	<0.0050	mg/L	0.0050	E298	7664-41-7	ammonia, total (as N)
Fluoride 16984-48-8 E235.F 0.020 mg/L <0.100 0.105 0.152 0.086 0.109	<0.050 <0.050	<0.050	<0.050	<0.250 DLDS	mg/L	0.050	E235.Br-L	24959-67-9	bromide
nitrate (as N) 14797-55-8 E235.NO3-L 0.0050 mg/L 0.0262 0.245 0.158 0.133 nitrite (as N) 14797-65-0 E235.NO2-L 0.0010 mg/L <0.0050	<0.50 <0.50	<0.50	<0.50		mg/L	0.50	E235.CI	16887-00-6	chloride
nitrite (as N) 14797-65-0 E235.NO2-L 0.0010 mg/L <0.0050	0.109 0.058	0.086	0.152	<0.100 DLDS	mg/L	0.020	E235.F	16984-48-8	fluoride
sulfate (as SO4) 14808-79-8 E235.SO4 0.30 mg/L 376 17.0 14.3 11.0 Total Metals aluminum, total 7429-90-5 E420 0.0030 mg/L <0.0030	0.133 0.126	0.158	0.245		mg/L	0.0050	E235.NO3-L	14797-55-8	nitrate (as N)
Total Metals aluminum, total 7429-90-5 E420 0.0030 mg/L <0.0030 <0.0030 0.0033 0.0085	<0.0010 <0.0010	<0.0010	<0.0010	<0.0050 DLDS	mg/L	0.0010	E235.NO2-L	14797-65-0	nitrite (as N)
aluminum, total 7429-90-5 E420 0.0030 mg/L <0.0030	11.0 8.98	14.3	17.0	376	mg/L	0.30	E235.SO4	14808-79-8	sulfate (as SO4)
antimony, total 7440-36-0 E420 0.00010 mg/L <0.00010	· ·								Total Metals
arsenic, total 7440-38-2 E420 0.00010 mg/L 0.00050 0.00040 0.00046 0.00066 barium, total 7440-39-3 E420 0.00010 mg/L 0.0548 0.0258 0.0720 0.0723 beryllium, total 7440-41-7 E420 0.000020 mg/L <0.000020	0.0085 0.0040	0.0033	<0.0030	<0.0030	mg/L	0.0030	E420	7429-90-5	aluminum, total
barium, total 7440-39-3 E420 0.00010 mg/L 0.0548 0.0258 0.0720 0.0723 beryllium, total 7440-41-7 E420 0.000020 mg/L <0.000020	0.00021 0.00010	0.00013	0.00014	<0.00010	mg/L	0.00010	E420	7440-36-0	antimony, total
beryllium, total 7440-41-7 E420 0.000020 mg/L <0.000020	0.00066 0.00033	0.00046	0.00040	0.00050	mg/L	0.00010	E420	7440-38-2	arsenic, total
bismuth, total 7440-69-9 E420 0.000050 mg/L <0.000050 <0.000050 <0.000050 <0.000050 <0.000050	0.0723 0.164	0.0720	0.0258	0.0548	mg/L	0.00010	E420	7440-39-3	barium, total
	<0.000020 <0.000020	<0.000020	<0.000020	<0.000020	mg/L	0.000020	E420	7440-41-7	beryllium, total
boron, total 7440-42-8 E420 0.010 mg/L <0.010 <0.010 <0.010 <0.010	<0.000050 <0.000050	<0.000050	<0.000050	<0.000050	mg/L	0.000050	E420	7440-69-9	bismuth, total
	<0.010 <0.010	<0.010	<0.010	<0.010	mg/L	0.010	E420	7440-42-8	boron, total
cadmium, total 7440-43-9 E420 0.000050 mg/L 0.0000144 0.000273 0.0000430 0.0000392 0.0	0.0000392 0.0000163	0.0000430	0.000273	0.0000144	mg/L	0.0000050	E420	7440-43-9	cadmium, total
calcium, total 7440-70-2 E420 0.050 mg/L 231 71.1 83.0 65.7	65.7 63.6	83.0	71.1	231	mg/L	0.050	E420	7440-70-2	calcium, total
chromium, total 7440-47-3 E420 0.00050 mg/L < 0.00050	<0.00050 <0.00050	<0.00050	<0.00050	<0.00050	mg/L	0.00050	E420	7440-47-3	chromium, total
cobalt, total 7440-48-4 E420 0.00010 mg/L 0.00058 <0.00010	<0.00010 <0.00010	<0.00010	<0.00010	0.00058	mg/L	0.00010	E420	7440-48-4	cobalt, total
copper, total 7440-50-8 E420 0.00050 mg/L < 0.00050	<0.00050 <0.00050	<0.00050	<0.00050	<0.00050	mg/L	0.00050	E420	7440-50-8	copper, total
iron, total 7439-89-6 E420 0.010 mg/L 0.099 <0.010 0.023 0.014	0.014 0.215	0.023	<0.010	0.099	mg/L	0.010	E420	7439-89-6	iron, total
lead, total 7439-92-1 E420 0.000050 mg/L 0.000099 0.000125 <0.000050 0.000188 <0	0.000188 < 0.000050	<0.000050	0.000125	0.000099	mg/L	0.000050	E420	7439-92-1	lead, total

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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-04-04	2-04-04	2-04-04	2-04-04	2-04-04
			Client samp	ling date / time	06-Apr-2022 17:50	06-Apr-2022 11:50	06-Apr-2022 15:15	05-Apr-2022 17:10	07-Apr-2022 11:30
Analyte	CAS Number	Method	LOR	Unit	WR2200280-001	WR2200280-002	WR2200280-003	WR2200280-004	WR2200280-005
					Result	Result	Result	Result	Result
Total Metals									
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0010	0.0018	0.0020	0.0014	0.0014
magnesium, total	7439-95-4	E420	0.100	mg/L	19.0	3.58	9.32	6.89	15.9
manganese, total	7439-96-5	E420	0.00010	mg/L	0.189	0.00049	0.00797	0.00108	0.00873
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000298	0.000784	0.00197	0.00622	0.00124
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<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	1.80	0.438	0.446	0.428	0.383
selenium, total	7782-49-2	E420	0.050	μg/L	0.129	1.05	0.754	0.737	0.703
silicon, total	7440-21-3	E420	0.10	mg/L	5.07	3.81	4.44	4.25	3.74
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	10.2	0.948	1.28	1.05	0.978
strontium, total	7440-24-6	E420	0.00020	mg/L	0.749	0.265	0.350	0.261	0.241
sulfur, total	7704-34-9	E420	0.50	mg/L	140	6.35	5.31	4.01	3.30
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	<0.00030	<0.00030	<0.00030	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.00183	0.00107	0.00142	0.00116	0.00178
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	0.0218	0.0062	0.0043	0.0130	<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	0.0386 DTC	0.0035	0.0032	0.0021	0.0011
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	0.00012	0.00012	0.00018	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00266 DTC	0.00036	0.00045	0.00068	0.00024
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0611	0.0237	0.0712	0.0782	0.162
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	0.0000594 DTC	0.000224	0.0000404	0.0000346	0.0000138
calcium, dissolved	7440-70-2	E421	0.050	mg/L	210	61.6	73.7	59.6	58.1
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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-04-04	2-04-04	2-04-04	2-04-04	2-04-04
			Client sampl	ing date / time	06-Apr-2022 17:50	06-Apr-2022 11:50	06-Apr-2022 15:15	05-Apr-2022 17:10	07-Apr-2022 11:30
Analyte	CAS Number	Method	LOR	Unit	WR2200280-001	WR2200280-002	WR2200280-003	WR2200280-004	WR2200280-005
					Result	Result	Result	Result	Result
Dissolved Metals									
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	0.00076	<0.00010	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00033	0.00051	0.00027	<0.00020	0.00028
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.630 DTC	<0.010	0.036	<0.010	0.018
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.00400 DTC	0.000161	0.000077	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0011	0.0015	0.0018	0.0014	0.0013
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	17.8	3.38	8.36	6.37	14.4
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.422 DTC	0.00075 DTMF	0.00821	<0.00010	0.00465
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.000050	<0.000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000240	0.000756	0.00517 DTMF	0.00126	0.00670 DTMF
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
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	1.69	0.445	0.427	0.433	0.386
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.078	0.950	0.721	0.807	0.660
silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.01	3.31	3.94	4.05	3.44
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	9.55	0.988	1.25	1.09	1.03
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.673	0.215	0.285	0.229	0.208
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	130	5.42	4.69	3.64	3.09
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	0.00069 DTC	<0.00030	<0.00030	<0.00030	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00170	0.000959	0.00131	0.00114	0.00171
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	0.0305 DTC	0.0088	0.0049	0.0020	<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
Speciated Metals									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Please refer to the General Comments section for an explanation of any qualifiers detected.

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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Clent sampling date / Hime 07-App-2022 06-App-2022 07-App-2022	Sub-Matrix: Surface Water			Cl	ient sample ID	SD_MH-15_202	SD_MH-29_202	SD_MH-30_202	SD_MH-FB_202	SD_MH-FD_202
12.45 18.00 10.30 11.3	(Matrix: Water)					2-04-04	2-04-04	2-04-04	2-04-04	2-04-04
Physical Tests				Client samp	ling date / time	•	· ·	•	· ·	06-Apr-2022 14:00
Physical Tests	Analyte	CAS Number	Method	LOR	Unit	WR2200280-006	WR2200280-007	WR2200280-008	WR2200280-009	WR2200280-010
						Result	Result	Result	Result	Result
conductivity E100 2.0 μS/cm 371 385 361 <2.0										
hardness (as CaCO3), dissolved										291
hardness (as CaCQ3), from total CarMig pH	<u> </u>				μS/cm		385			1100
pH	hardness (as CaCO3), dissolved		EC100	0.60	mg/L	193	199	185	0.67	607
solids, total dissolved [TDS]	hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	209	222	207	<0.60	695
Solids, total suspended [TSS]	рН		E108	0.10	pH units	8.45	8.38	8.18	5.38	8.09
Anions and Nutrients	solids, total dissolved [TDS]		E162	10	mg/L	200	210	177	<10	750
ammonia, total (as N) 7664-41-7 E298 0.0050 mg/L 0.0098 <0.0050	solids, total suspended [TSS]		E160-L	1.0	mg/L	1.7	<1.0	2.4	<1.0	3.7
bromide 24959-67-9 E235.Br-L 0.050 mg/L <0.050	Anions and Nutrients									
chloride 16887-00-6 E235.CI 0.50 mg/L <0.50	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0098	<0.0050	0.0279	<0.0050	<0.0050
Fluoride 16984-48-8 E235.F 0.020 mg/L 0.090 0.046 0.072 <0.020	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.250 DLDS
nitrate (as N) 14797-55-8 E235.NO3-L 0.0050 mg/L 0.0776 0.138 0.0929 <0.0050	chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	18.5
nitrite (as N) 14797-65-0 te235.NO2-L te35.NO2-L te35.NO2-L te35.NO2-L te35.SO4 0.0010 mg/L te35.SO4 <0.0010 mg/L te33.85	fluoride	16984-48-8	E235.F	0.020	mg/L	0.090	0.046	0.072	<0.020	<0.100 DLDS
sulfate (as SO4) 14808-79-8 E235.SO4 0.30 mg/L 3.85 4.53 5.58 <0.30	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0776	0.138	0.0929	<0.0050	0.0317
Total Metals aluminum, total 7429-90-5 E420 0.0030 mg/L 0.0073 0.0031 0.0065 <0.0030	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050 DLDS
aluminum, total 7429-90-5 E420 0.0030 mg/L 0.0073 0.0031 0.0065 <0.0030	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	3.85	4.53	5.58	<0.30	378
antimony, total 7440-36-0 E420 0.00010 mg/L 0.00012 0.00015 <0.00010 <0.00010 arsenic, total 7440-38-2 E420 0.00010 mg/L 0.00036 0.00056 0.00030 <0.00010 barium, total 7440-39-3 E420 0.00010 mg/L 0.217 0.0520 0.278 <0.00010 beryllium, total 7440-41-7 E420 0.00020 mg/L <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.0	Total Metals									
arsenic, total 7440-38-2 E420 0.00010 mg/L 0.00036 0.00056 0.00030 <0.00010 larium, total 7440-39-3 E420 0.00010 mg/L 0.217 0.0520 0.278 <0.00010 larium, total 0.00036 0.00020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0073	0.0031	0.0065	<0.0030	0.0298
barium, total 7440-39-3 E420 0.00010 mg/L 0.217 0.0520 0.278 <0.00010	antimony, total	7440-36-0	E420	0.00010	mg/L	0.00012	0.00015	<0.00010	<0.00010	0.00011
beryllium, total	arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00036	0.00056	0.00030	<0.00010	0.00243
bismuth, total 7440-69-9 E420 0.000050 mg/L <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <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 <0.00050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00	barium, total	7440-39-3	E420	0.00010	mg/L	0.217	0.0520	0.278	<0.00010	0.0620
boron, total 7440-42-8 E420 0.010 mg/L <0.010	beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
cadmium, total 7440-43-9 E420 0.0000050 mg/L 0.0000110 0.0000485 0.0000509 <0.0000050	bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
calcium, total 7440-70-2 E420 0.050 mg/L 63.0 77.6 52.6 <0.050	boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
chromium, total 7440-47-3 E420 0.00050 mg/L <0.00050	cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000110	0.0000485	0.0000509	<0.000050	0.0000621
cobalt, total 7440-48-4 E420 0.00010 mg/L <0.00010	calcium, total	7440-70-2	E420	0.050	mg/L	63.0	77.6	52.6	<0.050	245
copper, total 7440-50-8 E420 0.00050 mg/L <0.00050	chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
copper, total 7440-50-8 E420 0.00050 mg/L <0.00050	cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00079
iron, total 7439-89-6 E420 0.010 mg/L 0.222 0.016 0.555 <0.010	copper, total		E420	0.00050		<0.00050	<0.00050	0.00091	<0.00050	<0.00050
	iron, total		E420	0.010		0.222	0.016	0.555	<0.010	0.631
	·		E420	0.000050	_	<0.000050	<0.000050	0.000165	<0.000050	0.00449
lithium, total 7439-93-2 E420 0.0010 mg/L 0.0013 0.0015 <0.0010 <0.0010	·				'					0.0012

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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-15_202 2-04-04	SD_MH-29_202 2-04-04	SD_MH-30_202 2-04-04	SD_MH-FB_202 2-04-04	SD_MH-FD_202 2-04-04
(Matrix: Water)					2-04-04	2-04-04	2-04-04	2-04-04	2-04-04
			Client sample	ling date / time	07-Apr-2022 12:45	06-Apr-2022 16:00	07-Apr-2022 10:30	07-Apr-2022 11:30	06-Apr-2022 14:00
Analyte	CAS Number	Method	LOR	Unit	WR2200280-006	WR2200280-007	WR2200280-008	WR2200280-009	WR2200280-010
					Result	Result	Result	Result	Result
Total Metals									
magnesium, total	7439-95-4	E420	0.100	mg/L	12.6	6.79	18.3	<0.100	20.2
manganese, total	7439-96-5	E420	0.00010	mg/L	0.0140	0.00721	0.0287	<0.00010	0.434
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.000050	<0.000050	<0.0000050	<0.000050	<0.000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00200	0.000640	0.00658	0.00464 RRV	0.00284
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<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	0.412	0.270	0.579	<0.100	1.70
selenium, total	7782-49-2	E420	0.050	μg/L	0.755	0.565	0.633	<0.050	0.098
silicon, total	7440-21-3	E420	0.10	mg/L	4.24	4.36	3.82	<0.10	5.49
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	1.01	0.956	0.908	<0.050	10.1
strontium, total	7440-24-6	E420	0.00020	mg/L	0.211	0.285	0.155	<0.00020	0.798
sulfur, total	7704-34-9	E420	0.50	mg/L	1.55	1.93	2.00	<0.50	140
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	<0.00030	<0.00030	<0.00030	0.00052
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000997	0.000877	0.00189	<0.000010	0.00194
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	0.0197	<0.0030	0.0272
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	0.0018	0.0071	0.0069	<0.0010	0.0015
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00011	0.00014	0.00012	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00026	0.00056	0.00020	<0.00010	0.00046
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.198	0.0503	0.246	0.00028 RRV	0.0539
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	<0.000050	0.0000486	0.000161 DTC	<0.0000050	0.0000161
calcium, dissolved	7440-70-2	E421	0.050	mg/L	57.8	69.5	46.2	0.268 RRV	215
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Dissolved Metals	Sub-Matrix: Surface Water			Clie	ent sample ID	SD_MH-15_202	SD_MH-29_202	SD_MH-30_202	SD_MH-FB_202	SD_MH-FD_202
Analyse	(Matrix: Water)					2-04-04	2-04-04	2-04-04	2-04-04	2-04-04
Dissolved Metals				Client sampl	ing date / time	•	·			
Dissolved Metals Cookin, dissolved 7440-84 E421 0.00010 mg/L 0.00010 0.000010 0.00010 0.00010 0.00010 0.00010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.000010 0.0	Analyte	CAS Number	Method	LOR	Unit	WR2200280-006	WR2200280-007	WR2200280-008	WR2200280-009	WR2200280-010
cobsts. (dissolved) 744-08-64 E421 0.00010 mg/L <0.00010						Result	Result	Result	Result	Result
copper, dissolved 7440-50-8 E421 0.00020 mgL <0.00020	Dissolved Metals									
Form. dissolved	cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010		<0.00010	0.00049
Each dissolved	copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	0.00021	0.00313 DTC	<0.00020	0.00036
Ithium, dissolved	iron, dissolved	7439-89-6	E421	0.010	mg/L	0.045	0.012	0.095	<0.010	0.090
magnesium, dissolved 7439-95-4 E421 0.100 mg/L 11.8 6.20 17.0 <0.100	lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	<0.000050	0.000584 DTC	<0.000050	0.000126
manganese, dissolved 7439-96.5 E421 0.00010 mg/L 0.00702 0.00591 0.0216 < 0.00010 0.179 mercury, dissolved 7439-97.6 E509 0.0000050 mg/L <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.	lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0012	0.0014	<0.0010	<0.0010	0.0010
mercury, dissolved	magnesium, dissolved	7439-95-4	E421	0.100	mg/L	11.8	6.20	17.0	<0.100	17.1
molybdenum, dissolved 7439-98-7 E421 0.000050 mg/L 0.00194 0.000582 0.00613 0.00067 mm/ mm/ mm/ mm/ mm/ mm/ mm/ mm/ mm/ mm	manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00702	0.00591	0.0216	<0.00010	0.179
nickel, dissolved 7440-02-0 E421 0.00050 mg/L <0.00050	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.000050	<0.0000050	<0.000050	<0.000050
phosphorus, dissolved 7723-14-0 potassium, dissolved 421 potassium, dissolved 0.050 potassium, dissolved <0.050 potassium, dissolved	molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00194	0.000582	0.00613	0.000087 RRV	0.000264
potassium, dissolved 7440-09-7 (240-09-7) E421 (240-0000) 0.100 (240-0000) mg/L (240-0000) 0.415 (240-0000) 0.272 (240-0000) 0.937 (240-0000) <t< th=""><th>nickel, dissolved</th><th>7440-02-0</th><th>E421</th><th>0.00050</th><th>mg/L</th><th><0.00050</th><th><0.00050</th><th>0.00241 DTC</th><th><0.00050</th><th><0.00050</th></t<>	nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0.00241 DTC	<0.00050	<0.00050
selenium, dissolved 7782-49-2 E421 0.050 μg/L 0.658 0.512 0.623 <0.050	phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
silicon, dissolved 7440-21-3 E421 0.050 mg/L 4.05 4.02 3.60 <0.050	potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.415	0.272	0.937 DTC	<0.100	1.60
silver, dissolved 7440-22-4 E421 0.000010 mg/L <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 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.00010 <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 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010	selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.658	0.512	0.623	<0.050	0.095
sodium, dissolved 7440-23-5 E421 0.050 mg/L 1.06 0.924 1.18 <0.050	silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.05	4.02	3.60	<0.050	4.81
strontium, dissolved 7440-24-6 E421 0.00020 mg/L 0.182 0.250 0.127 0.00099 ™ 0.692 sulfur, dissolved 7704-34-9 E421 0.50 mg/L 1.24 1.46 1.86 < 0.50 120 thallium, dissolved 7440-28-0 E421 0.00010 mg/L <0.00010 <0.000010 <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 <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 <0.00030 <0.00030 vanadium, dissolved 7440-61-1 E421 0.00050 mg/L <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050	silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sulfur, dissolved 7704-34-9 E421 0.50 mg/L 1.24 1.46 1.86 <0.50	sodium, dissolved	7440-23-5	E421	0.050	mg/L	1.06	0.924	1.18	<0.050	9.33
thallium, dissolved 7440-28-0 E421 0.000010 mg/L <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 <0.000010 tit, dissolved 7440-31-5 E421 0.00010 mg/L <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00010 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.0	strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.182	0.250	0.127	0.00099 RRV	0.692
tin, dissolved 7440-31-5 E421 0.00010 mg/L <0.00010 <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 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00030 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0	sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.24	1.46	1.86	<0.50	120
titanium, dissolved 7440-32-6 E421 0.00030 mg/L <0.00030	thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
uranium, dissolved 7440-61-1 E421 0.000010 mg/L 0.000944 0.000845 0.00179 <0.000010	tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
vanadium, dissolved 7440-62-2 E421 E421 0.00050 mg/L <0.00050	titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
zinc, dissolved 7440-66-6 E421 0.0010 mg/L <0.0010	uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000944	0.000845	0.00179	<0.000010	0.00180
zirconium, dissolved 7440-67-7 E421 0.00020 mg/L <0.00020	vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
dissolved mercury filtration location EP509 Field F	zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	0.0038	0.0200	<0.0010	0.0186
dissolved metals filtration location EP421 - - Field	zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Speciated Metals Chromium, hexavalent [Cr VI], total 18540-29-9 E532 0.00050 mg/L <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.	dissolved mercury filtration location		EP509	-	-	Field	Field	Field	Field	Field
chromium, hexavalent [Cr VI], total 18540-29-9 E532 0.00050 mg/L <0.00050	dissolved metals filtration location		EP421	-	-	Field	Field	Field	Field	Field
	Speciated Metals									
chromium trivalent [Cr III] total 40055 92.4 EC525 0.00050 20.00050 20.00050 20.00050	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Circumum, trivalent [ci mj, total 10005-85-1 10005-	chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Please refer to the General Comments section for an explanation of any qualifiers detected.

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 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Surface Water			Cli	ient sample ID	SD_MH-TB_202		 	
(Matrix: Water)					2-04-04			
			Client samp	ling date / time	07-Apr-2022 11:50		 	
Analyte	CAS Number	Method	LOR	Unit	WR2200280-011		 	
					Result		 	
Physical Tests								
alkalinity, total (as CaCO3)		E290	1.0	mg/L	<1.0		 	
conductivity		E100	2.0	μS/cm	<2.0		 	
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	<0.60		 	
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	<0.60		 	
pH		E108	0.10	pH units	5.37		 	
solids, total dissolved [TDS]		E162	10	mg/L	<10		 	
solids, total suspended [TSS]		E160-L	1.0	mg/L	<1.0		 	
Anions and Nutrients								
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050		 	
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050		 	
chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50		 	
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.020		 	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050		 	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010		 	
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	<0.30		 	
Total Metals								
aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030		 	
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010		 	
arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010		 	
barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010		 	
beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020		 	
bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050		 	
boron, total	7440-42-8	E420	0.010	mg/L	<0.010		 	
cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050		 	
calcium, total	7440-70-2	E420	0.050	mg/L	<0.050		 	
chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050		 	
cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010		 	
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050		 	
iron, total	7439-89-6	E420	0.010	mg/L	<0.010		 	
lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050		 	
lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010		 	
I	1400-00-2					ı		I

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 : Teck Metals Ltd

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 : Sa Dena Hes



Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-TB_202		 	
(Matrix: Water)					2-04-04			
			Client samp	ling date / time	07-Apr-2022 11:50		 	
Analyte	CAS Number	Method	LOR	Unit	WR2200280-011		 	
					Result		 	
Total Metals								
magnesium, total	7439-95-4	E420	0.100	mg/L	<0.100		 	
manganese, total	7439-96-5	E420	0.00010	mg/L	<0.00010		 	
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050		 	
molybdenum, total	7439-98-7	E420	0.000050	mg/L	<0.000050		 	
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050		 	
phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050		 	
potassium, total	7440-09-7	E420	0.100	mg/L	<0.100		 	
selenium, total	7782-49-2	E420	0.050	μg/L	<0.050		 	
silicon, total	7440-21-3	E420	0.10	mg/L	<0.10		 	
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010		 	
sodium, total	7440-23-5	E420	0.050	mg/L	<0.050		 	
strontium, total	7440-24-6	E420	0.00020	mg/L	<0.00020		 	
sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50		 	
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010		 	
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010		 	
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030		 	
uranium, total	7440-61-1	E420	0.000010	mg/L	<0.000010		 	
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050		 	
zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030		 	
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020		 	
Dissolved Metals								
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010		 	
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010		 	
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010		 	
barium, dissolved	7440-39-3	E421	0.00010	mg/L	<0.00010		 	
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020		 	
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050		 	
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010		 	
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.000050		 	
calcium, dissolved	7440-70-2	E421	0.050	mg/L	<0.050		 	
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050		 	
				J J			ı	l l

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Analytical Results

Sub-Matrix: Surface Water			Cl	ient sample ID	SD_MH-TB_202	 	
(Matrix: Water)					2-04-04		
			Client samp	ling date / time	07-Apr-2022 11:50	 	
Analyte CA	AS Number	Method	LOR	Unit	WR2200280-011	 	
					Result	 	
Dissolved Metals							
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	 	
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	 	
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	 	
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	 	
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	 	
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	<0.100	 	
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010	 	
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	 	
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050	 	
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	 	
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	 	
potassium, dissolved	7440-09-7	E421	0.100	mg/L	<0.100	 	
selenium, dissolved	7782-49-2	E421	0.050	μg/L	<0.050	 	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	<0.050	 	
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	 	
sodium, dissolved	7440-23-5	E421	0.050	mg/L	<0.050	 	
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	<0.00020	 	
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	 	
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	 	
tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	 	
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	 	
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010	 	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	 	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010	 	
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	 	
dissolved mercury filtration location		EP509	-	-	Field	 	
dissolved metals filtration location		EP421	-	-	Field	 	

Please refer to the General Comments section for an explanation of any qualifiers detected.



Kimberley BC Canada V1A 3E1

QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **WR2200280** Page : 1 of 28

Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Wendy McBain Account Manager : Can Dang

: 601 Knighton Road Address : #12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone : ---- Telephone : +1 867 668 6689

Project : Sa Dena Hes Date Samples Received : 08-Apr-2022 10:10

 Project
 : Sa Dena Hes
 Date Samples Received
 : 08-Apr-2022 10:10

 PO
 : PO 10289
 Issue Date
 : 27-Apr-2022 12:15

C-O-C number : ---- Sampler : ----

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 11

No. of samples analysed : 11

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

Address

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.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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.		

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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: **x** = Holding time exceedance; ✓ = Within Holding Time Analyte Group Extraction / Preparation Analysis Method Sampling Date Container / Client Sample ID(s) **Holding Times** Eval Analysis Date Holding Times Eval Preparation Rec Actual Rec Actual Date Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) F298 07-Apr-2022 18-Apr-2022 1 SD MH-13 2022-04-04 19-Apr-2022 28 days 12 days Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) SD_MH-15_2022-04-04 E298 07-Apr-2022 18-Apr-2022 19-Apr-2022 28 days 12 days ✓ ----Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) SD MH-30 2022-04-04 E298 07-Apr-2022 18-Apr-2022 19-Apr-2022 28 days 12 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD_MH-FB_2022-04-04 E298 07-Apr-2022 18-Apr-2022 19-Apr-2022 28 days 12 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD MH-TB 2022-04-04 E298 07-Apr-2022 18-Apr-2022 19-Apr-2022 28 days 12 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) E298 06-Apr-2022 28 days 13 days SD MH-02 2022-04-04 18-Apr-2022 19-Apr-2022 --------Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD MH-04 2022-04-04 E298 06-Apr-2022 19-Apr-2022 28 days 13 days ✓ 18-Apr-2022

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8 06- 8 06- 8 05-	6-Apr-2022 6-Apr-2022 5-Apr-2022	18-Apr-2022 18-Apr-2022 18-Apr-2022	raction / Pr Holding Rec	g Times Actual	Eval	19-Apr-2022 19-Apr-2022 19-Apr-2022	Analysis Holding Rec 28 days 28 days 28 days	13 days 13 days	Eval
8 06- 8 06-	6-Apr-2022 6-Apr-2022 5-Apr-2022	18-Apr-2022 18-Apr-2022	Rec		Eval	19-Apr-2022 19-Apr-2022	28 days 28 days 28 days	13 days 13 days	✓
8 06- 8 06-	6-Apr-2022 6-Apr-2022 5-Apr-2022	18-Apr-2022 18-Apr-2022				19-Apr-2022	28 days	13 days	✓
8 06- 8 06-	6-Apr-2022 6-Apr-2022 5-Apr-2022	18-Apr-2022 18-Apr-2022				19-Apr-2022	28 days	13 days	✓
8 06- 8 06-	6-Apr-2022 6-Apr-2022 5-Apr-2022	18-Apr-2022 18-Apr-2022				19-Apr-2022	28 days	13 days	√
8 06-	6-Apr-2022 5-Apr-2022	18-Apr-2022				19-Apr-2022	28 days	13 days	✓
8 06-	6-Apr-2022 5-Apr-2022	18-Apr-2022				19-Apr-2022	28 days	13 days	✓
8 06-	6-Apr-2022 5-Apr-2022	18-Apr-2022				19-Apr-2022	28 days	13 days	✓
8 05-	5-Apr-2022								
8 05-	5-Apr-2022								
8 05-	5-Apr-2022								
		18-Apr-2022				19-Apr-2022	28 days	14 days	✓
		18-Apr-2022				19-Apr-2022	28 days	14 days	✓
		18-Apr-2022				19-Apr-2022	28 days	14 days	✓
3r-L 07-	7-Apr-2022								
3r-L 07-	7-Apr-2022								
3r-L 07-	7-Apr-2022								
						14-Apr-2022	28 days	7 days	✓
3r-L 07-	7-Apr-2022					14-Apr-2022	28 days	7 days	✓
3r-L 07-	7-Apr-2022					14-Apr-2022	28 days	7 days	✓
3r-L 07-	7-Apr-2022					14-Apr-2022	28 days	7 days	✓
Br-L 07-	7-Apr-2022					14-Apr-2022	28 days		✓

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Matrix: Water						valuation. • -	Holding time exce	cuarice, .	_ vviti iii i	Tiolaing Till
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-02_2022-04-04	E235.Br-L	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-04_2022-04-04	E235.Br-L	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-11_2022-04-04	E235.Br-L	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD MH-29 2022-04-04	E235.Br-L	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD MH-FD 2022-04-04	E235.Br-L	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
							·	,	,	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-12_2022-04-04	E235.Br-L	05-Apr-2022					14-Apr-2022	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD MH-13 2022-04-04	E235.CI	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
							· ·		,	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD MH-15 2022-04-04	E235.CI	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
							ļ	,0	,	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-30_2022-04-04	E235.CI	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
		3							,0	•

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Matrix: water							Holding time excee	, ,		
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-FB_2022-04-04	E235.CI	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC									1	
HDPE										
SD_MH-TB_2022-04-04	E235.CI	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-02_2022-04-04	E235.CI	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
								_	-	
Anions and Nutrients : Chloride in Water by IC									<u> </u>	
HDPE										
SD_MH-04_2022-04-04	E235.CI	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
							i i	_		
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD MH-11 2022-04-04	E235.CI	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
							i i		,	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-29_2022-04-04	E235.CI	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
							i i			
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-FD_2022-04-04	E235.CI	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
							i i		,	
Anions and Nutrients : Chloride in Water by IC										
HDPE								<u> </u>		
SD MH-12 2022-04-04	E235.CI	05-Apr-2022					14-Apr-2022	28 days	9 days	✓
							,	-	, ,	
Anions and Nutrients : Fluoride in Water by IC										
HDPE							I			
	E235.F	07-Apr-2022					14-Apr-2022	28 days	7 days	1
SD_MH-13_2022-04-04	L EZ30.F	U/-AUI-ZU//								

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Wallix: Waler							nolding time exce			
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-15_2022-04-04	E235.F	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD MH-30 2022-04-04	E235.F	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
							·			
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD MH-FB 2022-04-04	E235.F	07-Apr-2022					14-Apr-2022	28 days	7 davs	✓
55 5_ <u>-</u> 1022		,							, -	
Action with the first to the fi										
Anions and Nutrients : Fluoride in Water by IC HDPE							I			
SD MH-TB 2022-04-04	E235.F	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
3D_WIT-1B_2022-04-04	L255.1	07-Api-2022					14-Αρι-2022	20 days	1 uays	•
Anions and Nutrients : Fluoride in Water by IC								T		
HDPE	E235.F	06-Apr-2022					44 4 2000	00 -1	0 4	✓
SD_MH-02_2022-04-04	E235.F	06-Apr-2022					14-Apr-2022	28 days	8 days	•
Anions and Nutrients : Fluoride in Water by IC										
HDPE	5005 F							00.1		,
SD_MH-04_2022-04-04	E235.F	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-11_2022-04-04	E235.F	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-29_2022-04-04	E235.F	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-FD_2022-04-04	E235.F	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
	1	1		1	1		I .	1		

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watirx: water										Analysis					
Analyte Group	Method	Sampling Date	Ex	traction / Pr □	reparation										
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		g Times	Eval					
			Date	Rec	Actual			Rec	Actual						
Anions and Nutrients : Fluoride in Water by IC															
HDPE															
SD_MH-12_2022-04-04	E235.F	05-Apr-2022					14-Apr-2022	28 days	9 days	✓					
Anions and Nutrients : Nitrate in Water by IC (Low Level)															
HDPE	5005 NO. 1	07.4 0000													
SD_MH-13_2022-04-04	E235.NO3-L	07-Apr-2022					14-Apr-2022	3 days	7 days	*					
										EHT					
Anions and Nutrients : Nitrate in Water by IC (Low Level)								1							
HDPE	Eggs NGO I	07.40000					44.4 0000	0.1	7						
SD_MH-15_2022-04-04	E235.NO3-L	07-Apr-2022					14-Apr-2022	3 days	7 days	# EHT					
										EHI					
Anions and Nutrients : Nitrate in Water by IC (Low Level)								1							
HDPE	E005 NO. 1	07 4 0000					44 4 2000	0 4	7 -1	44					
SD_MH-30_2022-04-04	E235.NO3-L	07-Apr-2022					14-Apr-2022	3 days	7 days	*					
										EHT					
Anions and Nutrients : Nitrate in Water by IC (Low Level)															
HDPE	E225 NO2 I	07-Apr-2022					44 4 2000	0 4	7 -1	*					
SD_MH-FB_2022-04-04	E235.NO3-L	07-Apr-2022					14-Apr-2022	3 days	7 days	EHT					
										ЕПІ					
Anions and Nutrients : Nitrate in Water by IC (Low Level)															
HDPE	E235.NO3-L	07-Apr-2022					14-Apr-2022	3 days	7 days	*					
SD_MH-TB_2022-04-04	E233.NO3-L	07-Apr-2022					14-Apr-2022	3 uays	/ uays	EHT					
										LIII					
Anions and Nutrients : Nitrate in Water by IC (Low Level)								I							
HDPE SD MH-02 2022-04-04	E235.NO3-L	06-Apr-2022					14-Apr-2022	3 days	8 days	×					
SD_WIT-02_2022-04-04	L255.1105-L	00-Apr-2022					14-Apr-2022	5 days	0 days	EHT					
										-111					
Anions and Nutrients : Nitrate in Water by IC (Low Level)															
HDPE SD MH-04 2022-04-04	E235.NO3-L	06-Apr-2022					14-Apr-2022	3 days	8 days	×					
3D_NIT-04_2022-04-04	L233.NO3-L	00-Api-2022					14-Apr-2022	5 days	0 days	EHT					
Anions and Nutrients : Nitrate in Water by IC (Low Level)							I								
HDPE SD_MH-11_2022-04-04	E235.NO3-L	06-Apr-2022					14-Apr-2022	3 days	8 days	×					
OD_IVII I= I I_2022=04=04	L200.INO0-L	00-Api-2022					14-Api-2022	Juays	o days	EHT					
										CHI					

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 : Teck Metals Ltd

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Wattrix: water			-	((D		diddion.	Analysis				
Analyte Group	Method					·					
Container / Client Sample ID(s)			Preparation		g Times	Eval Analysis Date				Eval	
			Date	Rec	Actual			Rec	Actual		
Anions and Nutrients : Nitrate in Water by IC (Low Level)				l I	I		ı	1			
HDPE	E235.NO3-L	06-Apr-2022					14-Apr-2022	2 days	8 days	s:	
SD_MH-29_2022-04-04	E235.NO3-L	06-Apr-2022					14-Apr-2022	3 days	o days	EHT	
										ЕПІ	
Anions and Nutrients : Nitrate in Water by IC (Low Level)							I	T			
HDPE SD MH-FD 2022-04-04	E235.NO3-L	06-Apr-2022					14-Apr-2022	3 days	8 days	×	
3D_WIN-FD_2022-04-04	L233.NO3-L	00-Apr-2022					14-Apr-2022	3 uays	o uays	EHT	
										<u> </u>	
Anions and Nutrients : Nitrate in Water by IC (Low Level)							I				
HDPE SD_MH-12_2022-04-04	E235.NO3-L	05-Apr-2022					14-Apr-2022	3 days	9 days	*	
OD_WIT-12_2022-04-04	L200.1100-L	00-7 tp1-2022					147101-2022	o days	Judys	EHT	
Astronomia de la Nicola Marcala de Marcala de Nicola de la Companio de Nicola de Nicol											
Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE							l e	l l			
SD MH-13 2022-04-04	E235.NO2-L	07-Apr-2022					14-Apr-2022	3 days	7 days	*	
35_WIT-10_2022 04-04	2200.1102 2	01 7tp1 2022					1174012022	o dayo	, dayo	EHT	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE											
SD MH-15 2022-04-04	E235.NO2-L	07-Apr-2022					14-Apr-2022	3 davs	7 days	3¢	
		·					, ,	,		EHT	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE											
SD_MH-30_2022-04-04	E235.NO2-L	07-Apr-2022					14-Apr-2022	3 days	7 days	sc	
								_		EHT	
Anions and Nutrients : Nitrite in Water by IC (Low Level)								1			
HDPE											
SD_MH-FB_2022-04-04	E235.NO2-L	07-Apr-2022					14-Apr-2022	3 days	7 days	sc .	
										EHT	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE											
SD_MH-TB_2022-04-04	E235.NO2-L	07-Apr-2022					14-Apr-2022	3 days	7 days	3¢	
										EHT	
Anions and Nutrients : Nitrite in Water by IC (Low Level)											
HDPE											
SD_MH-02_2022-04-04	E235.NO2-L	06-Apr-2022					14-Apr-2022	3 days	8 days	se	
										EHT	

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Matrix: water						raidation. • -	noiding time exce	suarroc , .	_ vvitiiiii	Tiolding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	alysis Date Holding Times		Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-04_2022-04-04	E235.NO2-L	06-Apr-2022					14-Apr-2022	3 days	8 days	*
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD MH-11 2022-04-04	E235.NO2-L	06-Apr-2022					14-Apr-2022	3 days	8 days	x
		· ·					· ·	,		EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-29_2022-04-04	E235.NO2-L	06-Apr-2022					14-Apr-2022	3 days	8 days	3 £
OB_WII125_2022-04-04	2200.1102.2	0074912022					117012022	o dayo	o dayo	EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)				l	l l			I	I I	
HDPE	Egge NOg I	06 Apr 2022					14 Apr 2022	2 days	O daya	×
SD_MH-FD_2022-04-04	E235.NO2-L	06-Apr-2022					14-Apr-2022	3 days	8 days	
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-12_2022-04-04	E235.NO2-L	05-Apr-2022					14-Apr-2022	3 days	9 days	3 0
										EHT
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-13_2022-04-04	E235.SO4	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-15_2022-04-04	E235.SO4	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC									ı	
HDPE										
SD MH-30 2022-04-04	E235.SO4	07-Apr-2022					14-Apr-2022	28 days	7 davs	✓
									,5	
Anima and Nationa a Cultura in Water by 10										
Anions and Nutrients : Sulfate in Water by IC HDPE							I			
SD_MH-FB_2022-04-04	E235.SO4	07-Apr-2022					14-Apr-2022	28 days	7 days	√
3D_IVII I-I D_2022-04-04	L233.304	01-Api-2022					14-Api-2022	20 days	r uays	,

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Matrix: water						valuation. * =	noiding time exce	euance , •	- vviti iii i	Tioluling Tilli
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-TB_2022-04-04	E235.SO4	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD MH-02 2022-04-04	E235.SO4	06-Apr-2022					14-Apr-2022	28 days	8 davs	✓
		·					1		,	
Anions and Nutrients : Sulfate in Water by IC										
HDPE							I			
SD_MH-04_2022-04-04	E235.SO4	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
35_W1701_E32E 31 31	2200.00	007.p. 2022						20 44,0	o aayo	
Anions and Nutrients : Sulfate in Water by IC HDPE							I			
SD MH-11 2022-04-04	E235.SO4	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
SD_WIN-11_2022-04-04	E233.304	00-Apr-2022					14-Api-2022	20 uays	o uays	•
Anions and Nutrients : Sulfate in Water by IC										
HDPE	E005 004	00 4 0000					44.4	00.1	0.1	,
SD_MH-29_2022-04-04	E235.SO4	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-FD_2022-04-04	E235.SO4	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-12_2022-04-04	E235.SO4	05-Apr-2022					14-Apr-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-13_2022-04-04	E509	07-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-15_2022-04-04	E509	07-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	7 days	✓

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Matrix: Water						raidation. • -	nolding time exce	cuarice, .	- vvicinii	Tiolaing Till
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Analysis Date Holding		Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-30_2022-04-04	E509	07-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	7 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD MH-FB 2022-04-04	E509	07-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	7 days	✓
			•							
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-TB_2022-04-04	E509	07-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	7 davs	✓
			,				, ,			
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)							1			
SD MH-02 2022-04-04	E509	06-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	8 days	✓
OD_WI 1-02_2022-04-04	2000	00-71p1-2022	1-7 (p1-2022				14-7101-2022	20 days	o days	•
Dissolved Metals : Dissolved Mercury in Water by CVAAS								1		
Glass vial dissolved (hydrochloric acid)	E509	06-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	O days	√
SD_MH-04_2022-04-04	€309	00-Apr-2022	14-Apr-2022				14-Apr-2022	20 days	o days	,
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	E500	00 4 0000	11 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2				44.4	00.1	0.1	✓
SD_MH-11_2022-04-04	E509	06-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	8 days	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	F-00	00 4 0005								
SD_MH-29_2022-04-04	E509	06-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-FD_2022-04-04	E509	06-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	8 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
	E509	05-Apr-2022	14-Apr-2022				14-Apr-2022	28 days	Q daye	✓
SD_MH-12_2022-04-04	E509	05-Apr-2022	14-Api-2022				14-Api-2022	20 days	3 days	•

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Matrix: Water						raidation. • –	Holding time excee	dance,	- vvicinii	riolaling riiii
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-13_2022-04-04	E421	07-Apr-2022	20-Apr-2022				20-Apr-2022	180	13 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-15_2022-04-04	E421	07-Apr-2022	20-Apr-2022				20-Apr-2022	180	13 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-30_2022-04-04	E421	07-Apr-2022	20-Apr-2022				20-Apr-2022	180	13 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-FB_2022-04-04	E421	07-Apr-2022	20-Apr-2022				20-Apr-2022	180	13 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-TB_2022-04-04	E421	07-Apr-2022	20-Apr-2022				20-Apr-2022	180	13 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-02_2022-04-04	E421	06-Apr-2022	20-Apr-2022				20-Apr-2022	180	14 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-04_2022-04-04	E421	06-Apr-2022	20-Apr-2022				20-Apr-2022	180	14 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-11_2022-04-04	E421	06-Apr-2022	20-Apr-2022				20-Apr-2022	180	14 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-29_2022-04-04	E421	06-Apr-2022	20-Apr-2022				20-Apr-2022	180	14 days	✓
								days		

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Matrix: Water

Evaluation:	- Holding tim	e exceedance :	/ -	Within Holding Time	

				⊏V	/aluation. * -	Holding time exce	edance, v	_ vviuiiii	Holding I
Method	Sampling Date	Ex	traction / Pr	reparation			Analys	is	
		Preparation Date			Eval	Analysis Date	Holding Times Rec Actual		Eval
		Date	7100	71010101			7100	7101001	
E421	06-Apr-2022	20-Apr-2022				20-Apr-2022	180 days	14 days	✓
E421	05-Apr-2022	20-Apr-2022				20-Apr-2022	180 days	15 days	✓
E290	07-Apr-2022					14-Apr-2022	14 days	7 days	✓
E290	07-Apr-2022					14-Apr-2022	14 days	7 days	√
E290	07-Apr-2022					14-Apr-2022	14 days	7 days	√
E290	07-Apr-2022					14-Apr-2022	14 days	7 days	✓
E290	07-Apr-2022					14-Apr-2022	14 days	7 days	✓
E290	06-Apr-2022					14-Apr-2022	14 days	8 days	✓
E290							T		√
	E421 E421 E290 E290 E290 E290	E421 06-Apr-2022 E421 05-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022	E421 06-Apr-2022 20-Apr-2022 E421 05-Apr-2022 20-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 06-Apr-2022	E421 06-Apr-2022 20-Apr-2022 E421 05-Apr-2022 20-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 06-Apr-2022	Method Sampling Date Extraction / Preparation Date Holding Times Rec Actual E421 06-Apr-2022 20-Apr-2022 E421 05-Apr-2022 20-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 06-Apr-2022	Method Sampling Date Extraction / Preparation Preparation Holding Times Rec Eval E421 06-Apr-2022 20-Apr-2022 E421 05-Apr-2022 20-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 07-Apr-2022 E290 06-Apr-2022	Method Sampling Date Extraction / Preparation Date Eval Analysis Date Fee Actual Analysis Date Eval Analysis Date E421 06-Apr-2022 20-Apr-2022 20-Apr-2022 E421 05-Apr-2022 20-Apr-2022 20-Apr-2022 E290 07-Apr-2022 14-Apr-2022 E290 07-Apr-2022 14-Apr-2022 E290 07-Apr-2022 14-Apr-2022 E290 07-Apr-2022 14-Apr-2022 E290 07-Apr-2022 14-Apr-2022	Method Sampling Date Extraction / Preparation Analysis Date Holding Times Rec Actual Analysis Date Holding Rec Actual Rec Actual Rec Holding Rec Rec Actual Rec Actual Rec Holding Rec Actual Rec Actual Rec Holding Rec Actual Analysis Date Holding Rec Actual Holding Rec Actual Analysis Date Analysis Dat	Preparation Date Holding Times Rec Actual Analysis Date Holding Times Rec Actual Analysis Date Holding Times Rec Actual Analysis Date Holding Times Rec Actual Actual Analysis Date Holding Times Rec Actual Actual Actual Analysis Date Holding Times Rec Actual Actu

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Analyte Group										
Analyte Group	Method Sampling Date Extraction / Preparation A				Analys	is				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-11_2022-04-04	E290	06-Apr-2022					14-Apr-2022	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD MH-29 2022-04-04	E290	06-Apr-2022					14-Apr-2022	14 days	8 days	✓
		' '							,-	
District Total All all to O and a last Thorse										
Physical Tests : Alkalinity Species by Titration HDPE							I			
NDPE SD_MH-FD_2022-04-04	E290	06-Apr-2022					14-Apr-2022	14 days	8 days	√
SD_WIH-FD_2022-04-04	E290	00-Apr-2022					14-Apr-2022	14 uays	o uays	•
Physical Tests : Alkalinity Species by Titration				1				1		
HDPE										,
SD_MH-12_2022-04-04	E290	05-Apr-2022					14-Apr-2022	14 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-13_2022-04-04	E100	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-15_2022-04-04	E100	07-Apr-2022					14-Apr-2022	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD MH-30 2022-04-04	E100	07-Apr-2022					14-Apr-2022	28 days	7 davs	✓
55		' '							, -	
Division Tests - Conductivity in Weter							1			
Physical Tests : Conductivity in Water							I			
HDPE SD MH-FB 2022-04-04	E100	07-Apr-2022					14-Apr-2022	28 days	7 days	√
3D_WI FI D_2022-04-04	L 100	01-Api-2022					14-Apr-2022	20 uays	, uays	•
Physical Tests : Conductivity in Water										
HDPE	E400									,
SD_MH-TB_2022-04-04	E100	07-Apr-2022					14-Apr-2022	28 days	/ days	✓

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						valuation. • -	Holding time exce	cuarice, .	- vvicini	Tioluling Tilli
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date Holding Time		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-02_2022-04-04	E100	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD MH-04 2022-04-04	E100	06-Apr-2022					14-Apr-2022	28 days	8 davs	1
							i i		,	
Physical Tests : Conductivity in Water										
HDPE							I			
SD_MH-11_2022-04-04	E100	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
OB_WITHT_2022-04-04	2.00	00 / tp: 2022					117101 2022	20 dayo	o dayo	·
Physical Tests : Conductivity in Water					l l	I	I	l l	I	
HDPE	E400	00 4 0000					44 4 - 2000	00 4	0 -1	√
SD_MH-29_2022-04-04	E100	06-Apr-2022					14-Apr-2022	28 days	8 days	•
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-FD_2022-04-04	E100	06-Apr-2022					14-Apr-2022	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-12_2022-04-04	E100	05-Apr-2022					14-Apr-2022	28 days	9 days	✓
Physical Tests : pH by Meter										
HDPE										
SD_MH-15_2022-04-04	E108	07-Apr-2022					14-Apr-2022	0.25	167 hrs	×
								hrs		EHTR-FM
Physical Tests : pH by Meter							-	1	1	
HDPE										
SD MH-13 2022-04-04	E108	07-Apr-2022					14-Apr-2022	0.25	168 hrs	32
05 10_000		3. 7.1. 2022						hrs		EHTR-FM
District Control of the Control of t								1113		
Physical Tests : pH by Meter							I	1	I	
HDPE	E108	07-Apr-2022					14 Apr 2022	0.05	160 hrs	×
SD_MH-FB_2022-04-04	E100	01-Api-2022					14-Apr-2022	0.25	168 hrs	
								hrs		EHTR-FM

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

							noiding time excee	,,		
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation					
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_MH-TB_2022-04-04	E108	07-Apr-2022					14-Apr-2022	0.25	168 hrs	×
' ' '							·	hrs		EHTR-FM
								1110		
Physical Tests : pH by Meter								1	I	
HDPE	E108	07-Apr-2022					44 4 2000	0.05	400 5	*
SD_MH-30_2022-04-04	E108	07-Apr-2022					14-Apr-2022	0.25	169 hrs	
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MH-02_2022-04-04	E108	06-Apr-2022					14-Apr-2022	0.25	186 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD MH-29 2022-04-04	E108	06-Apr-2022					14-Apr-2022	0.25	188 hrs	×
OD_IVII 1-23_2022-04-04	2100	00-7 tp1-2022					14701-2022	hrs	1001113	EHTR-FM
								1115		LIIIIX-I IVI
Physical Tests : pH by Meter										
HDPE										
SD_MH-11_2022-04-04	E108	06-Apr-2022					14-Apr-2022	0.25	189 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MH-FD_2022-04-04	E108	06-Apr-2022					14-Apr-2022	0.25	190 hrs	3 0
								hrs		EHTR-FM
Dhysical Tests will by Mateu										
Physical Tests : pH by Meter HDPE								I	I	
SD_MH-04_2022-04-04	E108	06-Apr-2022					14-Apr-2022	0.25	192 hrs	×
3D_NIT-04_2022-04-04	L 100	00-Api-2022					14-Apr-2022		192 1113	EHTR-FM
								hrs		EHIK-FIV
Physical Tests : pH by Meter										
HDPE										
SD_MH-12_2022-04-04	E108	05-Apr-2022					14-Apr-2022	0.25	211 hrs	35
								hrs		EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-13_2022-04-04	E162	07-Apr-2022					14-Apr-2022	7 days	7 days	✓
<u>-</u>		/ · · · · · · · · · · · ·						,		
SD_MH-13_2022-04-04	E162	u7-Apr-2022					14-Apr-2022	/ days	/ days	~

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						valuation. • -	Holding time exce	suarroc , .	- vvicinii	riolaling riili
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation					
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-15_2022-04-04	E162	07-Apr-2022					14-Apr-2022	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD MH-30 2022-04-04	E162	07-Apr-2022					14-Apr-2022	7 days	7 days	✓
		·					,	,		
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-FB_2022-04-04	E162	07-Apr-2022					14-Apr-2022	7 days	7 days	✓
OB_WITH B_2022-04-04	2102	07 7 (P) 2022					117101 2022	radyo	, dayo	
Physical Tests : TDS by Gravimetry				l l	l l	I	1	I	1 1	
HDPE	F160	07 Apr 2022					14 Apr 2022	7 days	7 days	✓
SD_MH-TB_2022-04-04	E162	07-Apr-2022					14-Apr-2022	7 days	7 days	•
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-04_2022-04-04	E162	06-Apr-2022					14-Apr-2022	7 days	8 days	3 0
										EHT
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-11_2022-04-04	E162	06-Apr-2022					14-Apr-2022	7 days	8 days	34
										EHT
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-29_2022-04-04	E162	06-Apr-2022					14-Apr-2022	7 days	8 days	x
										EHT
Physical Tests : TDS by Gravimetry										
HDPE										
SD MH-FD 2022-04-04	E162	06-Apr-2022					14-Apr-2022	7 days	8 days	3c
		' '					,		, , ,	EHT
Physical Tests - TDC by Cyspinstry										
Physical Tests : TDS by Gravimetry HDPE							I			
SD_MH-02_2022-04-04	E162	06-Apr-2022					14-Apr-2022	7 days	8 days	×
OD_ VII -02_2022 - 04 - 04	L102	00-Αρι-2022					14-Αμι-2022	, uays	o days	~

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						valuation. * =	Holding time exce	euanice , ·	- vviti iii i	riolaling rilli
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation					
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date Holding		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-12_2022-04-04	E162	05-Apr-2022					13-Apr-2022	7 days	8 days	3 0
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MH-13 2022-04-04	E160-L	07-Apr-2022					14-Apr-2022	7 days	7 days	✓
		·								
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-15_2022-04-04	E160-L	07-Apr-2022					14-Apr-2022	7 days	7 days	✓
OB_WIT-10_2022 04-04	2100 2	07 7 PT 2022					117101 2022	, dayo	, dayo	
Physical Tests : TSS by Gravimetry (Low Level)					l l	I	1	T T	1	
HDPE	E160 I	07 Apr 2022					14 Apr 2022	7 days	7 daya	√
SD_MH-30_2022-04-04	E160-L	07-Apr-2022					14-Apr-2022	7 days	7 days	•
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-FB_2022-04-04	E160-L	07-Apr-2022					14-Apr-2022	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-TB_2022-04-04	E160-L	07-Apr-2022					14-Apr-2022	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-04_2022-04-04	E160-L	06-Apr-2022					14-Apr-2022	7 days	8 days	*
										EHT
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MH-11 2022-04-04	E160-L	06-Apr-2022					14-Apr-2022	7 days	8 days	3 0
								,-	, ,	EHT
Dhysical Tests - TSS by Cysylmator // and such										
Physical Tests : TSS by Gravimetry (Low Level) HDPE							I			
SD_MH-29_2022-04-04	E160-L	06-Apr-2022					14-Apr-2022	7 days	8 days	×
OD_WII 1-20_2022-04-04	L 100-L	00-Api-2022					14-Api-2022	, days	Juays	EHT
										LIII

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analysis				
Container / Client Sample ID(s)			Preparation	Holding Times Eval		Analysis Date Holdin		g Times	Eval			
			Date	Rec	Actual			Rec	Actual			
Physical Tests : TSS by Gravimetry (Low Level)												
HDPE												
SD_MH-FD_2022-04-04	E160-L	06-Apr-2022					14-Apr-2022	7 days	8 days	*		
										EHT		
Physical Tests : TSS by Gravimetry (Low Level)												
HDPE												
SD MH-02 2022-04-04	E160-L	06-Apr-2022					14-Apr-2022	7 days	8 days	3c		
		· ·					, ,	,	,			
Physical Tests : TSS by Gravimetry (Low Level)												
HDPE							I					
SD_MH-12_2022-04-04	E160-L	05-Apr-2022					13-Apr-2022	7 days	8 days	×		
OB_WIT 12_2022-04-04	2100 2	00 / tp: 2022					107101 2022	, dayo	o dayo			
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC							I					
UV-inhibited HDPE - total (sodium hydroxide)	E520	07 Amr 2022					10 Am 2022	20 days	E dovo	1		
SD_MH-13_2022-04-04	E532	07-Apr-2022					12-Apr-2022	28 days	5 days	•		
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC	,											
UV-inhibited HDPE - total (sodium hydroxide)	F500											
SD_MH-15_2022-04-04	E532	07-Apr-2022					12-Apr-2022	28 days	5 days	✓		
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC												
UV-inhibited HDPE - total (sodium hydroxide)												
SD_MH-30_2022-04-04	E532	07-Apr-2022					12-Apr-2022	28 days	5 days	✓		
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC												
UV-inhibited HDPE - total (sodium hydroxide)												
SD_MH-FB_2022-04-04	E532	07-Apr-2022					12-Apr-2022	28 days	5 days	✓		
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC												
UV-inhibited HDPE - total (sodium hydroxide)												
SD_MH-02_2022-04-04	E532	06-Apr-2022					12-Apr-2022	28 days	6 days	✓		
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC												
UV-inhibited HDPE - total (sodium hydroxide)												
				T. Control of the Con	1		To the second se	1	1			
SD_MH-04_2022-04-04	E532	06-Apr-2022					12-Apr-2022	28 days	6 days	✓		

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Matrix: Water					Ev	aluation: 🗴 =	Holding time excee	edance ; 🗸	= Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-11_2022-04-04	E532	06-Apr-2022					12-Apr-2022	28 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-29_2022-04-04	E532	06-Apr-2022					12-Apr-2022	28 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-FD_2022-04-04	E532	06-Apr-2022					12-Apr-2022	28 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-12_2022-04-04	E532	05-Apr-2022					12-Apr-2022	28 days	7 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-13_2022-04-04	E508	07-Apr-2022					12-Apr-2022	28 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	E500	07.40000					40.40000	00 1	5	,
SD_MH-15_2022-04-04	E508	07-Apr-2022					12-Apr-2022	28 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS	_									
Glass vial total (hydrochloric acid)	F500	07 4 0000					40.40000	00 1	5	✓
SD_MH-30_2022-04-04	E508	07-Apr-2022					12-Apr-2022	28 days	5 days	∀
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	E508	07 Am- 0000					10 4= 0000	00 d	E deve	✓
SD_MH-FB_2022-04-04	E508	07-Apr-2022					12-Apr-2022	28 days	5 days	•
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	E508	07 Apr 2022					12 Apr 2022	20 days	E dove	√
SD_MH-TB_2022-04-04	⊏50δ	07-Apr-2022					12-Apr-2022	28 days	o uays	*

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Matrix: **Water** Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

wattrx: water						aldation. • -	nolding time exce	oudinoo ,	***************************************	riolaling in
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation			Analysis		
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-02_2022-04-04	E508	06-Apr-2022					12-Apr-2022	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										,
SD_MH-04_2022-04-04	E508	06-Apr-2022					12-Apr-2022	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS Glass vial total (hydrochloric acid)							I			
SD_MH-11_2022-04-04	E508	06-Apr-2022					12-Apr-2022	28 days	6 days	1
OD_MIT*11_2022 04*04	2000	00 / Ipi 2022					12 / (p) 2022	20 dayo	o dayo	
Total Metals : Total Mercury in Water by CVAAS									<u> </u>	
Glass vial total (hydrochloric acid)										
SD_MH-29_2022-04-04	E508	06-Apr-2022					12-Apr-2022	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	5500									,
SD_MH-FD_2022-04-04	E508	06-Apr-2022					12-Apr-2022	28 days	6 days	✓
Total Matela - Total Marsum: in Water by CVAAC										
Total Metals : Total Mercury in Water by CVAAS Glass vial total (hydrochloric acid)							1			
SD_MH-12_2022-04-04	E508	05-Apr-2022					12-Apr-2022	28 days	7 days	✓
		·								
Total Metals : Total Metals in Water by CRC ICPMS									1	
HDPE total (nitric acid)										
SD_MH-13_2022-04-04	E420	07-Apr-2022					18-Apr-2022	180	11 days	✓
								days		
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)	E400	07 4					40. 4 0000		44 3	,
SD_MH-15_2022-04-04	E420	07-Apr-2022					18-Apr-2022	180	11 days	✓
TO LINE OF THE OFFICE O								days		
Fotal Metals : Total Metals in Water by CRC ICPMS HDPE total (nitric acid)							I			
SD_MH-30_2022-04-04	E420	07-Apr-2022					18-Apr-2022	180	11 days	1
	7							days	,0	

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Matrix: Water Evaluation: × = Holding time exceedance: ✓ = Within Holding Time

Matrix: Water					EV	aluation: 🗴 =	Holding time excee	edance ; •	= vvitnin	Holding
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-FB_2022-04-04	E420	07-Apr-2022					18-Apr-2022	180	11 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-TB_2022-04-04	E420	07-Apr-2022					18-Apr-2022	180	11 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-02_2022-04-04	E420	06-Apr-2022					18-Apr-2022	180	12 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-04_2022-04-04	E420	06-Apr-2022					18-Apr-2022	180	12 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-11_2022-04-04	E420	06-Apr-2022					18-Apr-2022	180	12 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-29_2022-04-04	E420	06-Apr-2022					18-Apr-2022	180	12 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-FD_2022-04-04	E420	06-Apr-2022					18-Apr-2022	180	12 days	✓
								days		
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-12_2022-04-04	E420	05-Apr-2022					18-Apr-2022	180	13 days	✓
								days		

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type		Evaluat	C	ount	nt Frequency (%)			
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation	
Laboratory Duplicates (DUP)						,		
Alkalinity Species by Titration	E290	458536	1	13	7.6	5.0	1	
Ammonia by Fluorescence	E298	460885	1	15	6.6	5.0	√	
Bromide in Water by IC (Low Level)	E235.Br-L	458529	1	13	7.6	5.0	√	
Chloride in Water by IC	E235.CI	458528	1	13	7.6	5.0	<u> </u>	
Conductivity in Water	E100	458535	1	13	7.6	5.0	√	
Dissolved Mercury in Water by CVAAS	E509	458653	1	18	5.5	5.0	√	
Dissolved Metals in Water by CRC ICPMS	E421	462600	1	18	5.5	5.0	√	
Fluoride in Water by IC	E235.F	458527	1	13	7.6	5.0	<u>√</u>	
Nitrate in Water by IC (Low Level)	E235.NO3-L	458530	1	14	7.1	5.0	√	
Nitrite in Water by IC (Low Level)	E235.NO2-L	458531	1	14	7.1	5.0	✓	
pH by Meter	E108	458534	1	13	7.6	5.0	√	
Sulfate in Water by IC	E235.SO4	458532	1	13	7.6	5.0	1	
TDS by Gravimetry	E162	457392	3	41	7.3	5.0	<u>√</u>	
Total Hexavalent Chromium (Cr VI) by IC	E532	456059	1	17	5.8	5.0	✓	
Total Mercury in Water by CVAAS	E508	456402	2	28	7.1	5.0	1	
Total Metals in Water by CRC ICPMS	E420	459579	1	16	6.2	5.0	✓	
Laboratory Control Samples (LCS)								
Alkalinity Species by Titration	E290	458536	1	13	7.6	5.0	1	
Ammonia by Fluorescence	E298	460885	1	15	6.6	5.0	✓	
Bromide in Water by IC (Low Level)	E235.Br-L	458529	1	13	7.6	5.0	✓	
Chloride in Water by IC	E235.CI	458528	1	13	7.6	5.0	✓	
Conductivity in Water	E100	458535	1	13	7.6	5.0	✓	
Dissolved Mercury in Water by CVAAS	E509	458653	1	18	5.5	5.0	✓	
Dissolved Metals in Water by CRC ICPMS	E421	462600	1	18	5.5	5.0	✓	
Fluoride in Water by IC	E235.F	458527	1	13	7.6	5.0	✓	
Nitrate in Water by IC (Low Level)	E235.NO3-L	458530	1	14	7.1	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	458531	1	14	7.1	5.0	✓	
pH by Meter	E108	458534	1	13	7.6	5.0	✓	
Sulfate in Water by IC	E235.SO4	458532	1	13	7.6	5.0	✓	
TDS by Gravimetry	E162	457392	3	41	7.3	5.0	✓	
Total Hexavalent Chromium (Cr VI) by IC	E532	456059	1	17	5.8	5.0	✓	
Total Mercury in Water by CVAAS	E508	456402	2	28	7.1	5.0	✓	
Total Metals in Water by CRC ICPMS	E420	459579	1	16	6.2	5.0	✓	
TSS by Gravimetry (Low Level)	E160-L	457410	4	44	9.0	5.0	✓	
Method Blanks (MB)								
Alkalinity Species by Titration	E290	458536	1	13	7.6	5.0	✓	
Ammonia by Fluorescence	E298	460885	1	15	6.6	5.0	1	

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Total Metals in Water by CRC ICPMS



Matrix: Water		Evaluati	ion: × = QC freque	ency outside spe	ecification; ✓ = 0	QC frequency wit	thin specification
Quality Control Sample Type			Co	ount		Frequency (%))
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Bromide in Water by IC (Low Level)	E235.Br-L	458529	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.CI	458528	1	13	7.6	5.0	✓
Conductivity in Water	E100	458535	1	13	7.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	458653	1	18	5.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	462600	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	458527	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	458530	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	458531	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	458532	1	13	7.6	5.0	✓
TDS by Gravimetry	E162	457392	3	41	7.3	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	456059	1	17	5.8	5.0	✓
Total Mercury in Water by CVAAS	E508	456402	2	28	7.1	5.0	✓
Total Metals in Water by CRC ICPMS	E420	459579	1	16	6.2	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	457410	4	44	9.0	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	460885	1	15	6.6	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	458529	1	13	7.6	5.0	✓
Chloride in Water by IC	E235.CI	458528	1	13	7.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	458653	1	18	5.5	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	462600	1	18	5.5	5.0	✓
Fluoride in Water by IC	E235.F	458527	1	13	7.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	458530	1	14	7.1	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	458531	1	14	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	458532	1	13	7.6	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	456059	1	17	5.8	5.0	✓
Total Mercury in Water by CVAAS	E508	456402	2	28	7.1	5.0	✓

E420

459579

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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 $20 \pm 5^{\circ}$ C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry (Low Level)	E160-L 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.
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^{\circ}$ C for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.

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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 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.
Total Hexavalent Chromium (Cr VI) by IC	E532 Vancouver - Environmental	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
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.
Total Trivalent Chromium (Cr III) by Calculation	EC535 Vancouver - Environmental	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results. The Limit of Reporting for Chromium (III) varies as a function of the test results.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	\/			
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	V			
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
•	2. 555			
	Vancouver -			
	Environmental			



QUALITY CONTROL REPORT

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Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Wendy McBain Account Manager : Can Dang

: 601 Knighton Road Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

 Telephone
 :-- Telephone
 :+1 867 668 6689

 Project
 :Sa Dena Hes
 Date Samples Received
 :08-Apr-2022 10:10

PO 10289 Date Analysis Commenced: 12-Apr-2022

C-O-C number : ---- Issue Date : 27-Apr-2022 12:15

Sampler :---Site : Sa Dena Hes

Quote number :VA22-TECK150-001

No. of samples analysed : 11

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

Kimberley BC Canada V1A 3E1

• Matrix Spike (MS) Report; Recovery and Acceptance Limits

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- 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

No. of samples received

Address

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	
Angelo Salandanan	Lab Assistant	Metals, Burnaby, British Columbia	
Caleb Deroche	Lab Analyst	Metals, Burnaby, British Columbia	
Dee Lee	Analyst	Metals, Burnaby, British Columbia	
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia	
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia	
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia	
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia	
Parnian Sane	Analsyt	Metals, Burnaby, British Columbia	

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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.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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							Labora	tory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Physical Tests (QC	C Lot: 457392)										
VA22A7315-012	Anonymous	solids, total dissolved [TDS]		E162	20	mg/L	307	267	14.0%	20%	
Physical Tests (QC	Lot: 458416)										
VA22A7422-006	Anonymous	solids, total dissolved [TDS]		E162	13	mg/L	126	136	8.15%	20%	
Physical Tests (QC	C Lot: 458534)										
WR2200280-001	SD_MH-02_2022-04-04	pH		E108	0.10	pH units	8.10	8.09	0.111%	4%	
Physical Tests (QC	C Lot: 458535)										
WR2200280-001	SD_MH-02_2022-04-04	conductivity		E100	2.0	μS/cm	1100	1100	0.00%	10%	
Physical Tests (QC	C Lot: 458536)										
WR2200280-001	SD_MH-02_2022-04-04	alkalinity, total (as CaCO3)		E290	1.0	mg/L	290	290	0.0689%	20%	
Physical Tests (QC	Lot: 459291)										
VA22A7367-001	Anonymous	solids, total dissolved [TDS]		E162	13	mg/L	89	88	1	Diff <2x LOR	
Anions and Nutrien	its (QC Lot: 458527)										
/A22A7559-001	Anonymous	fluoride	16984-48-8	E235.F	0.200	mg/L	0.301	0.304	0.004	Diff <2x LOR	
Anions and Nutrien	its (QC Lot: 458528)										
VA22A7559-001	Anonymous	chloride	16887-00-6	E235.CI	5.00	mg/L	42.5	42.4	0.11	Diff <2x LOR	
Anions and Nutrien	its (QC Lot: 458529)										
VA22A7559-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.500	mg/L	<0.500	<0.500	0	Diff <2x LOR	
Anions and Nutrien	its (QC Lot: 458530)										
VA22A7559-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0500	mg/L	1.13	1.14	0.481%	20%	
Anions and Nutrien	nts (QC Lot: 458531)										
VA22A7559-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0100	mg/L	0.0389	0.0373	0.0016	Diff <2x LOR	
Anions and Nutrien	its (QC Lot: 458532)										
VA22A7559-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	3.00	mg/L	914	912	0.153%	20%	
Anions and Nutrien	its (QC Lot: 460885)										
VA22A6983-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.724	0.758	4.63%	20%	
otal Metals (QC Lo	ot: 456402)										
WR2200278-013	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Fotal Metals (QC Lo	ot: 456403)	•									
WR2200280-009	SD MH-FB 2022-04-04	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
otal Metals (QC Lo		**				<u> </u>					
Otal Wetals (QC L	01. 4 59579)	aluminum, total									

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ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
otal Metals (QC Lo	ot: 459579) - continued										
VR2200278-020	Anonymous	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	0.00050	0.00048	0.00002	Diff <2x LOR	
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0434	0.0427	1.53%	20%	
		beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<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	0.0000050	mg/L	0.0000500	0.0000414	0.0000086	Diff <2x LOR	
		calcium, total	7440-70-2	E420	0.050	mg/L	74.4	73.2	1.62%	20%	
		chromium, total	7440-47-3	E420	0.00050	mg/L	0.00063	0.00056	0.00008	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	<0.010	<0.010	0	Diff <2x LOR	
		lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR	
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0039	0.0037	0.0001	Diff <2x LOR	
		magnesium, total	7439-95-4	E420	0.0050	mg/L	33.2	32.3	2.70%	20%	
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00034	0.00039	0.00005	Diff <2x LOR	
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000791	0.000786	0.698%	20%	
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00054	<0.00050	0.00004	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	0.930	0.900	3.29%	20%	
		selenium, total	7782-49-2	E420	0.000050	mg/L	0.000488	0.000530	8.27%	20%	
		silicon, total	7440-21-3	E420	0.10	mg/L	5.15	5.01	2.60%	20%	
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, total	7440-23-5	E420	0.050	mg/L	3.77	3.65	3.28%	20%	
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.278	0.276	0.700%	20%	
		sulfur, total	7704-34-9	E420	0.50	mg/L	68.8	66.3	3.57%	20%	
		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	0.00575	0.00562	2.24%	20%	
		vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		zinc, total	7440-66-6	E420	0.0030	mg/L	0.0220	0.0227	0.0007	Diff <2x LOR	
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.0020	0	Diff <2x LOR	
issolved Metals (0	QC Lot: 458653)										
'A22A7479-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	

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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	Qualifie
Dissolved Metals (G	QC Lot: 462600)										
S2201170-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010	0.0010	0.000002	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00028	0.00027	0.000008	Diff <2x LOR	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00164	0.00166	1.53%	20%	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0520	0.0521	0.212%	20%	
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	0.019	0.018	0.0007	Diff <2x LOR	
		cadmium, dissolved	7440-43-9	E421	0.000130	mg/L	<0.000130	<0.000130	0	Diff <2x LOR	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	306	300	1.96%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.129	0.131	1.71%	20%	
		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	0.0066	0.0063	0.0002	Diff <2x LOR	
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	83.5	84.1	0.782%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00177	0.00183	3.47%	20%	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.341	0.341	0.0469%	20%	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00094	0.00095	0.00001	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	7.18	7.37	2.50%	20%	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00135	0.00139	2.97%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	9.85	9.78	0.699%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	0.000010	<0.000010	0.000001	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	83.9	85.0	1.34%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	5.01	4.97	0.725%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	244	231	5.75%	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	0.00060	mg/L	<0.00060	<0.00060	0	Diff <2x LOR	
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.0186	0.0183	1.58%	20%	
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.00096	0.00095	0.00001	Diff <2x LOR	
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0141	0.0139	1.18%	20%	
		zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	

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Sub-Matrix: Water							Labora	tory Duplicate (Dl	JP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Speciated Metals (C	QC Lot: 456059) - continu	ued									
VA22A7236-003	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	0.00100	0.00090	0.00010	Diff <2x LOR	

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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: 457392)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 457410)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 458416)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 458422)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 458423)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 458535)					
conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 458536)					
alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 459288)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 459291)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 458527)	10004 10 0 15005 5				
fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 458528)	40007.00.0 5005.01	0.5		.0.50	
chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 458529)	04050 07 0 F005 P-1	0.05		*0.050	
bromide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 458530)	14797-55-8 E235.NO3-L	0.005	ma II	<0.0050	
nitrate (as N)	14797-55-6 E255.NO5-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 458531)	14797-65-0 E235.NO2-L	0.001	ma/l	<0.0010	
nitrite (as N)	147 97 -00-0 E233.INOZ-L	0.001	mg/L	\0.0010	
Anions and Nutrients (QCLot: 458532)	14808-79-8 E235.SO4	0.3	mall	<0.30	
sulfate (as SO4)	14000-73-0 E233.3U4	0.3	mg/L	\0.30	
Anions and Nutrients (QCLot: 460885) ammonia, total (as N)	7664-41-7 E298	0.005	ma/l	<0.0050	
, ,	1004-41-1	0.005	mg/L	\U.U00U	
Total Metals (QCLot: 456402)	7439-97-6 E508	0.000005	ma/l	<0.000050	
mercury, total	1439-91-0	0.000005	mg/L	<0.0000000	

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Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 456403)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.000050	
Fotal Metals (QCLot: 459579)						
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	
parium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	
eryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	
sismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	
oron, 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	
hromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	
obalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	
ron, total	7439-89-6	E420	0.01	mg/L	<0.010	
ead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	
thium, total	7439-93-2	E420	0.001	mg/L	<0.0010	
nagnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	
nanganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	
nolybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	
ickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	
phosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	
otassium, total	7440-09-7	E420	0.05	mg/L	<0.050	
elenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	
ilicon, total	7440-21-3	E420	0.1	mg/L	<0.10	
ilver, total	7440-22-4	E420	0.00001	mg/L	<0.00010	MBRR
odium, total	7440-23-5	E420	0.05	mg/L	<0.050	
trontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	
ulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	
hallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	
n, total	7440-31-5	E420	0.0001	mg/L	<0.00010	
tanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	
ıranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	
vanadium, total	7440-62-2		0.0005	mg/L	<0.00050	
tinc, total	7440-66-6		0.003	mg/L	<0.0030	
rirconium, total	7440-67-7		0.0002	mg/L	<0.00020	

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Sub-Matrix: Water

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 458653)					
mercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.000050	
Dissolved Metals (QCLot: 462600)					
aluminum, dissolved	7429-90-5 E421	0.001	mg/L	<0.0010	MBRR
antimony, dissolved	7440-36-0 E421	0.0001	mg/L	<0.00010	
arsenic, dissolved	7440-38-2 E421	0.0001	mg/L	<0.00010	
parium, dissolved	7440-39-3 E421	0.0001	mg/L	<0.00010	
peryllium, dissolved	7440-41-7 E421	0.00002	mg/L	<0.000020	
pismuth, dissolved	7440-69-9 E421	0.00005	mg/L	<0.000050	
poron, dissolved	7440-42-8 E421	0.01	mg/L	<0.010	
cadmium, dissolved	7440-43-9 E421	0.000005	mg/L	<0.000050	
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	
ron, dissolved	7439-89-6 E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1 E421	0.00005	mg/L	<0.000050	
ithium, dissolved	7439-93-2 E421	0.001	mg/L	<0.0010	
nagnesium, dissolved	7439-95-4 E421	0.005	mg/L	<0.0050	
nanganese, dissolved	7439-96-5 E421	0.0001	mg/L	<0.00010	
nolybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	<0.000050	
nickel, dissolved	7440-02-0 E421	0.0005	mg/L	<0.00050	
hosphorus, dissolved	7723-14-0 E421	0.05	mg/L	<0.050	
ootassium, 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	7440-23-5 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	
hallium, dissolved	7440-28-0 E421	0.00001	mg/L	<0.000010	
in, dissolved	7440-31-5 E421	0.0001	mg/L	<0.00010	
itanium, 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	

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Sub-Matrix: Water

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Speciated Metals (QCLot: 456059)					
chromium, hexavalent [Cr VI], total	18540-29-9 E532	0.0005	mg/L	<0.00050	

Qualifiers

Qualifier Description

MBRR Initial MB for th

Initial MB for this submission had positive results for flagged analyte (data not shown). Low level samples were repeated with new QC (2nd MB results shown). High level results (>5x initial MB level) and non-detect results were reported and are defensible

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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 Con	trol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 457392)									
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	96.4	85.0	115	
Physical Tests (QCLot: 457410)									
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	98.5	85.0	115	
Physical Tests (QCLot: 458416)									
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	96.5	85.0	115	
Physical Tests (QCLot: 458422)									
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	103	85.0	115	
Physical Tests (QCLot: 458423)									
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	97.3	85.0	115	
Physical Tests (QCLot: 458534)									
рН		E108		pH units	7 pH units	100	98.0	102	
Physical Tests (QCLot: 458535)									
conductivity		E100	1	μS/cm	146.9 μS/cm	99.9	90.0	110	
Physical Tests (QCLot: 458536)									
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	102	85.0	115	
Physical Tests (QCLot: 459288)									
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	90.3	85.0	115	
Physical Tests (QCLot: 459291)									
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	98.2	85.0	115	
Anions and Nutrients (QCLot: 458527)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	107	90.0	110	
Anions and Nutrients (QCLot: 458528)									
chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 458529)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	
Anions and Nutrients (QCLot: 458530)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	105	90.0	110	
Anions and Nutrients (QCLot: 458531)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	106	90.0	110	
Anions and Nutrients (QCLot: 458532)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	106	90.0	110	
Anions and Nutrients (QCLot: 460885)									

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Analyte CAS Number Method LOR Unit Anions and Nutrients (QCLot: 460885) - continued	Spike Concentration	Recovery (%) LCS	Recovery Low	Limits (%) High	Qualifier
maye		LCS	Low	Uinh	Ouglitie-
Anions and Nutrients (QCLot: 460885) - continued	0.2 mg/l			піун	Quaimer
	0.2 ma/l				
ammonia, total (as N) 7664-41-7 E298 0.005 mg/L	0.2 mg/L	105	85.0	115	
Total Metals (QCLot: 456402)					
mercury, total 7439-97-6 E508 0.000005 mg/L	0.0001 mg/L	92.6	80.0	120	
Total Metals (QCLot: 456403)					
mercury, total 7439-97-6 E508 0.000005 mg/L	0.0001 mg/L	94.6	80.0	120	
Total Metals (QCLot: 459579)					
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	114	80.0	120	
arsenic, total 7440-38-2 E420 0.0001 mg/L	1 mg/L	97.5	80.0	120	
barium, total 7440-39-3 E420 0.0001 mg/L	0.25 mg/L	104	80.0	120	
beryllium, total 7440-41-7 E420 0.00002 mg/L	0.1 mg/L	102	80.0	120	
bismuth, total 7440-69-9 E420 0.00005 mg/L	1 mg/L	116	80.0	120	
boron, total 7440-42-8 E420 0.01 mg/L	1 mg/L	99.7	80.0	120	
cadmium, total 7440-43-9 E420 0.000005 mg/L	0.1 mg/L	101	80.0	120	
calcium, total 7440-70-2 E420 0.05 mg/L	50 mg/L	106	80.0	120	
chromium, total 7440-47-3 E420 0.0005 mg/L	0.25 mg/L	96.6	80.0	120	
cobalt, total 7440-48-4 E420 0.0001 mg/L	0.25 mg/L	99.4	80.0	120	
copper, total 7440-50-8 E420 0.0005 mg/L	0.25 mg/L	100	80.0	120	
iron, total 7439-89-6 E420 0.01 mg/L	1 mg/L	110	80.0	120	
lead, total 7439-92-1 E420 0.00005 mg/L	0.5 mg/L	101	80.0	120	
lithium, total 7439-93-2 E420 0.001 mg/L	0.25 mg/L	103	80.0	120	
magnesium, total 7439-95-4 E420 0.005 mg/L	50 mg/L	99.9	80.0	120	
manganese, total 7439-96-5 E420 0.0001 mg/L	0.25 mg/L	106	80.0	120	
molybdenum, total 7439-98-7 E420 0.00005 mg/L	0.25 mg/L	107	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	107	80.0	120	
potassium, total 7440-09-7 E420 0.05 mg/L	50 mg/L	101	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	104	80.0	120	
silver, total 7440-22-4 E420 0.00001 mg/L	0.1 mg/L	99.8	80.0	120	
sodium, total 7440-23-5 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	108	80.0	120	
sulfur, total 7704-34-9 E420 0.5 mg/L	50 mg/L	101	80.0	120	
thallium, total 7440-28-0 E420 0.00001 mg/L	1 mg/L	117	80.0	120	
tin, total 7440-31-5 E420 0.0001 mg/L	0.5 mg/L	101	80.0	120	
titanium, total 7440-32-6 E420 0.0003 mg/L	0.25 mg/L	95.5	80.0	120	

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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: 459579) - continued										
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	105	80.0	120		
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	102	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	106	80.0	120		
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	94.4	80.0	120		
Dissolved Metals (QCLot: 462600)										
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	96.9	80.0	120		
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	97.2	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	103	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	97.2	80.0	120		
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.2	80.0	120		
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	98.4	80.0	120		
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	96.6	80.0	120		
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	101	80.0	120		
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	96.6	80.0	120		
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.9	80.0	120		
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	97.4	80.0	120		
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.5	80.0	120		
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	93.9	80.0	120		
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	96.1	80.0	120		
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.9	80.0	120		
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	99.9	80.0	120		
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.0	80.0	120		
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	100	80.0	120		
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.2	80.0	120		
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	99.9	80.0	120		
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	95.7	80.0	120		
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	89.8	80.0	120		
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	99.4	80.0	120		
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	98.2	80.0	120		
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	84.9	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	93.6	80.0	120		
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	98.3	80.0	120		
uranium, dissolved	7440-61-1		0.00001	mg/L	0.005 mg/L	106	80.0	120		

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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: 462600) - conti	nued										
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	97.3	80.0	120			
zinc, dissolved	7440-66-6 I	E421	0.001	mg/L	0.5 mg/L	97.3	80.0	120			
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	95.5	80.0	120			
Speciated Metals (QCLot: 456059)											
chromium, hexavalent [Cr VI], total	18540-29-9 I	E532	0.0005	mg/L	0.25 mg/L	104	90.0	110			

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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						
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ients (QCLot: 458527)									
VA22A7559-002	Anonymous	fluoride	16984-48-8	E235.F	10.4 mg/L	10 mg/L	104	75.0	125	
Anions and Nutr	ients (QCLot: 458528)								1	
VA22A7559-002	Anonymous	chloride	16887-00-6	E235.CI	1030 mg/L	1000 mg/L	103	75.0	125	
Anions and Nutr	ients (QCLot: 458529)									
VA22A7559-002	Anonymous	bromide	24959-67-9	E235.Br-L	5.22 mg/L	5 mg/L	104	75.0	125	
Anions and Nutr	ients (QCLot: 458530)									
VA22A7559-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	25.8 mg/L	25 mg/L	103	75.0	125	
Anions and Nutr	ients (QCLot: 458531)									
VA22A7559-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	5.19 mg/L	5 mg/L	104	75.0	125	
Anions and Nutr	ients (QCLot: 458532)								1	
VA22A7559-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	1010 mg/L	1000 mg/L	101	75.0	125	
Anions and Nutr	ients (QCLot: 460885)								I	
VA22A6983-010	Anonymous	ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	MS-B
Total Metals (QC	Lot: 456402)									
WR2200278-014	Anonymous	mercury, total	7439-97-6	E508	0.0000858 mg/L	0.0001 mg/L	85.8	70.0	130	
Total Metals (QC	Lot: 456403)									
WR2200280-010	SD_MH-FD_2022-04-04	mercury, total	7439-97-6	E508	0.0000910 mg/L	0.0001 mg/L	91.0	70.0	130	
Total Metals (QC	CLot: 459579)									
WR2200278-021	Anonymous	aluminum, total	7429-90-5	E420	0.189 mg/L	0.2 mg/L	94.7	70.0	130	
		antimony, total	7440-36-0	E420	0.0216 mg/L	0.02 mg/L	108	70.0	130	
		arsenic, total	7440-38-2	E420	0.0180 mg/L	0.02 mg/L	90.2	70.0	130	
		barium, total	7440-39-3	E420	0.0190 mg/L	0.02 mg/L	95.0	70.0	130	
		beryllium, total	7440-41-7	E420	0.0411 mg/L	0.04 mg/L	103	70.0	130	
		bismuth, total	7440-69-9	E420	0.0101 mg/L	0.01 mg/L	101	70.0	130	
		boron, total	7440-42-8	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	
		cadmium, total	7440-43-9	E420	0.00386 mg/L	0.004 mg/L	96.4	70.0	130	
		calcium, total	7440-70-2	E420	3.88 mg/L	4 mg/L	97.0	70.0	130	
		chromium, total	7440-47-3	E420	0.0368 mg/L	0.04 mg/L	92.1	70.0	130	
	•	cobalt, total	7440-48-4	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	

 Page
 : 16 of 17

 Work Order
 : WR2200280

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	Lot: 459579) - continu	ed								
WR2200278-021	Anonymous	copper, total	7440-50-8	E420	0.0190 mg/L	0.02 mg/L	94.8	70.0	130	
		iron, total	7439-89-6	E420	1.90 mg/L	2 mg/L	95.2	70.0	130	
		lead, total	7439-92-1	E420	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	
		lithium, total	7439-93-2	E420	0.103 mg/L	0.1 mg/L	103	70.0	130	
		magnesium, total	7439-95-4	E420	1.01 mg/L	1 mg/L	101	70.0	130	
		manganese, total	7439-96-5	E420	0.0184 mg/L	0.02 mg/L	91.8	70.0	130	
		molybdenum, total	7439-98-7	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	
		nickel, total	7440-02-0	E420	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	
		phosphorus, total	7723-14-0	E420	8.73 mg/L	10 mg/L	87.3	70.0	130	
		potassium, total	7440-09-7	E420	3.72 mg/L	4 mg/L	92.9	70.0	130	
		selenium, total	7782-49-2	E420	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	
		silicon, total	7440-21-3	E420	9.78 mg/L	10 mg/L	97.8	70.0	130	
		silver, total	7440-22-4	E420	0.00427 mg/L	0.004 mg/L	107	70.0	130	
		sodium, total	7440-23-5	E420	1.89 mg/L	2 mg/L	94.3	70.0	130	
		strontium, total	7440-24-6	E420	0.0200 mg/L	0.02 mg/L	99.8	70.0	130	
		sulfur, total	7704-34-9	E420	18.7 mg/L	20 mg/L	93.6	70.0	130	
		thallium, total	7440-28-0	E420	0.00384 mg/L	0.004 mg/L	96.0	70.0	130	
		tin, total	7440-31-5	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	
		titanium, total	7440-32-6	E420	0.0373 mg/L	0.04 mg/L	93.2	70.0	130	
		uranium, total	7440-61-1	E420	0.00396 mg/L	0.004 mg/L	99.1	70.0	130	
		vanadium, total	7440-62-2	E420	0.0961 mg/L	0.1 mg/L	96.1	70.0	130	
		zinc, total	7440-66-6	E420	0.381 mg/L	0.4 mg/L	95.2	70.0	130	
		zirconium, total	7440-67-7	E420	0.0432 mg/L	0.04 mg/L	108	70.0	130	
issolved Metals	(QCLot: 458653)									
VA22A7532-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000894 mg/L	0.0001 mg/L	89.4	70.0	130	
issolved Metals	(QCLot: 462600)									
KS2201170-002	Anonymous	aluminum, dissolved	7429-90-5	E421	0.201 mg/L	0.2 mg/L	101	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0204 mg/L	0.02 mg/L	102	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0212 mg/L	0.02 mg/L	106	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	0.0379 mg/L	0.04 mg/L	94.9	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00872 mg/L	0.01 mg/L	87.2	70.0	130	
		boron, dissolved	7440-42-8	E421	0.103 mg/L	0.1 mg/L	103	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00383 mg/L	0.004 mg/L	95.8	70.0	130	
		calcium, dissolved	7440-70-2	E421	ND mg/L	4 mg/L	ND	70.0	130	
	T	chromium, dissolved	7440-47-3	E421	0.0404 mg/L	0.04 mg/L	101	70.0	130	

: 17 of 17 : WR2200280 Page Work Order Client : Teck Metals Ltd Project : Sa Dena Hes



Sub-Matrix: Water							Matrix Spik	re (MS) Report		
					Spi	ike	Recovery (%)	Recovery	/ Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 462600) -	continued								
KS2201170-002	Anonymous	cobalt, dissolved	7440-48-4	E421	0.0191 mg/L	0.02 mg/L	95.6	70.0	130	
		copper, dissolved	7440-50-8	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		iron, dissolved	7439-89-6	E421	1.96 mg/L	2 mg/L	98.1	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.0973 mg/L	0.1 mg/L	97.3	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	0.0201 mg/L	0.02 mg/L	100	70.0	130	
		molybdenum, dissolved	7439-98-7	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	11.0 mg/L	10 mg/L	110	70.0	130	
		potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0428 mg/L	0.04 mg/L	107	70.0	130	
		silicon, dissolved	7440-21-3	E421	ND mg/L	10 mg/L	ND	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00391 mg/L	0.004 mg/L	97.8	70.0	130	
		sodium, dissolved	7440-23-5	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	0.00361 mg/L	0.004 mg/L	90.2	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0422 mg/L	0.04 mg/L	106	70.0	130	
		uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.106 mg/L	0.1 mg/L	106	70.0	130	
		zinc, dissolved	7440-66-6	E421	0.375 mg/L	0.4 mg/L	93.7	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0397 mg/L	0.04 mg/L	99.2	70.0	130	
Speciated Metals	(QCLot: 456059)									
VA22A7369-001	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.264 mg/L	0.25 mg/L	106	85.0	115	

Qualifiers

Qualifier Description

Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

MS-B

Environmental

Report To

Contact and company name below will appear on the final report

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here

(lab use only)

Canada Toll Free: 1 800 668 9878

Report Format / Distribution

Are samples for human drinking water use? Are samples taken from a Regulated DW System? PO / AFE: Job #: ALS Account # / Quote #: Street: Phone: Released by: Contact: ALS Sample # (lab use only) LSD: Invoice To City/Province: Company: ostal Code: Contact: Company: ALS Lab Work Order# (lab use only) Drinking Water (DW) Samples (client use) ECA22YT00199 V1A 3E1 Teck PO-9516 Same as Report To Kimberly, BC Copy of Invoice with Report 601 Knightton Road TECK Metals Ltd 250-4278422 Michelle Unger Company address below will appear on the final report Sample Identification and/or Coordinates SHIPMENT RELEASE (client use) (This description will appear on the report) Project Information SD_MH-FD_2022-04-04 SD_MH-FB_2022-04-04 SD_MH-30_2022-04-04 SD_MH-29_2022-04-04 SD_MH-15_2022-04-04 SD_MH-13_2022-04-04 SD_MH-04_2022-04-04 SD_MH-02_2022-04-04 SD_MH-TB_2022-04-04 SD_MH-12_2022-04-04 SD_MH-11_2022-04-04 Date: Q62635 Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below Time: (SYS_LOC_CODE) Sample Location SD_MH-TB SD_MH-FD SD_MH-FB SD_MH-30 SD_MH-29 SD_MH-15 SD_MH-13 SD_MH-12 SD_MH-11 SD_MH-04 SD_MH-02 Received by: ALS Contact: Email 1 or Fax azheng@ensero.com, ebouchard@ensero.com Requisitioner: AFE/Cost Center: Email 2 Email 1 or Fax Michelle.unger@teck.com Select Invoice Distribution: Email 3 Email 2 Select Distribution: Quality Control (QC) Report with Report Select Report Format: Major/Minor Code: ocation: (electronic COC only) Oil and Gas Required Fields (client use) legacy.ap@teck.com michelle.unger@teck.com, wendy.mcbain@teck.cdFor tests that can not be performed according to the service level 3 INITIAL SHIPMEN chanson@ensero.com,teckkimb@equisonline.cor (dd-mmm-yy) Can Dang 7-Apr-22 6-Apr-22 7-Apr-22 7-Apr-22 6-Apr-22 7-Apr-22 7-Apr-22 5-Apr-22 6-Apr-22 6-Apr-22 6-Apr-22 Date Invoice Distribution Sampler: P0# Routing Code: RECEPTION (lab use only) (hh:mm) 11:30 11:50 14:00 11:30 17:50 11:50 10:30 16:00 12:45 17:10 15:15 Time Field Matrix NS. SW NS. **SW** SW WS SW **SW SW** WS WS Time: Frozen Cooling Initiated Ice Packs PRIORITY Business Day Select Service Level Below - Please confirm all E&P TATs with yo N Z N Total Metals (low level) + Hg N N N Z N N Z Z F/P Date and Time Required for all E&P TATs: N Z Z Z Ø Z N Z Z Z Z Dissolved Metals (low level) +Hg Regular [R] Indicate Filtered (F), Preserved (P) or Filtered and 3 day [P3] 2 day [P2] 4 day [P4] Received by: N N Z N N N N N Z N Z pH, SPC, alkalinity, hardness U SAMPLE CONDITION AS RI Ice Cubes Z Z N N N Z Z N Z N Z Anions(Nitrate, Nitrite, Sulphate, Cl, F, Br) TEMPERATURES °C U Z Z Z Z N W Z Z Z N Z Ammonia FINAL SHIPMENT N Z N Z Z W IJ Z Z Z מג TDS, TSS(low) Analysis Re Custody s ס SIF Obser N N N N Z N N N N Chromium Speciation EMERGENCY Telephone: +1 867 668 6689

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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form 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.

YELLOW - CLIENT COPY

Whitehorse **Environmental Division** Work Order Reference WR2200280



Number of Containers

Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

Affix ALS barcode label here

(lab use only)

COC Number:

Environmental Division Whitehorse

	www.aisglobal.com												<u>l</u> :		_		Vork (eference	
Report To	Contact and company name below will appear on the fina	report		Report Format	/ Distribution		Select	Service I	evel Ba	low - Ple	ase conf	irm all E	&P TAT	s with y	T.	j	Λ/F	えゔつ	0028	•
Company:	TECK Metals Ltd		Select Report F	ormat:				Re	gular	[R]]	,	V V I	ובבי	0020	U
Contact:	Michelle Unger		Quality Control	(QC) Report with R	Report		T Days)	4	day [l	24]			VCY.	1	Ē					1 3
Phone:	250-4278422						RIORI	3	day [l	23]			EMERGENCY	s	ii					ıl
	Company address below will appear on the final report		Select Distribut	ion:		·	(Bus	. 2	day [l	22]	*****		EME		5					ıl
Street:	601 Knightton Road		Email 1 or Fax	azheng@ensero.d	com, ebouchard(@ensero.com		Date a	nd Tim	e Requi	red for a	il E&P	TATs:	_	Ė			17 / 17		ıl
City/Province:	Kimberly, BC		Email 2	michelle.unger@t	eck.com, wendy	.mcbain@teck.co	For tes	ts that c	an not b	e perfor	ned acco	rding to	the serv	ice leve				1,210,1		Ш
Postal Code:	V1A 3E1		Email 3	chanson@ensero	.com,teckkimb@	equisonline.com							Analy	sis Re	ġ	Telen	hone ·	+ 1 867 66	8 86 8 9	
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Company:			Email 1 or Fax	Michelle.unger@t	eck.com								T						1	-
Contact:			Email 2	legacy.ap@teck.c	om .					(a					.			1	: ي	1
	Project Information		Oil	and Gas Require	d Fields (client	use)				CI, F,	-:				.				inel	1
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ALS Lab Wor	k Order# (lab use only)		ALS Contact:	Can Dang	Sampler:		tals (low	Dissolved Metals (low	SPC, alkalinity,	Anions (Nitrate, 1		TSS(low)	m Speciation						z	
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Drinking	Water (DW) Samples ¹ (client use)	structions / 2		tronic COC only)	cking on the thop	-down list below	Froze	en				0.110.		Obser	,	1//				
Are samples taki	en from a Regulated DW System?	1.1					Ice P	acks		lce (Cubes			ody s	, <i>*</i>	,ر_	-	- 1		
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Fallure 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.



: Wendy McBain

CERTIFICATE OF ANALYSIS

Work Order : WR2200593

Client : Teck Metals Ltd

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : ---

Contact

Project : Sa Dena Hes
PO : PO# 10289

C-O-C number : -Sampler : --

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 3
No. of samples analysed : 3

Page : 1 of 6

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 22-Jun-2022 11:50

Date Analysis Commenced : 23-Jun-2022

Issue Date : 24-Jun-2022 21:05

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
Ann Joby	Lab Assistant	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

Page : 2 of 6

Work Order : WR2200593
Client : Teck Metals Ltd
Project : Sa Dena Hes



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
μg/L	micrograms per litre
μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
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.

Workorder Comments

Sample #3- nutrient container marked as dissolved. a cut will be taken.

Qualifiers

Qualifier	Description
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.
DTMF	Dissolved concentration exceeds total for field-filtered metals sample. Metallic
	contaminants may have been introduced to dissolved sample during field filtration.

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 Work Order
 : WR2200593

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	SD_SDH-MH02-	SD_SDH_MH02-	SD_SDH_MH02-		
(Matrix: Water)					17	18	19		
			Client samp	ling date / time	17-Jun-2022 20:20	18-Jun-2022 13:38	18-Jun-2022 18:55		
Analyte	CAS Number	Method	LOR	Unit	WR2200593-001	WR2200593-002	WR2200593-003		
					Result	Result	Result		
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	232	248	249		
conductivity		E100	2.0	μS/cm	643	657	669		
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	311	336	335		
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	317	319	337		
pH		E108	0.10	pH units	8.26	8.26	8.28		
solids, total dissolved [TDS]		E162	10	mg/L	390	412	409		
solids, total suspended [TSS]		E160-L	1.0	mg/L	1.0	<1.0	<1.0		
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050		
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.250 DLDS	<0.250 DLDS	<0.250 DLDS		
chloride	16887-00-6	E235.CI	0.50	mg/L	<2.50 DLDS	<2.50 DLDS	<2.50 DLDS		
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.100 DLDS	<0.100 DLDS	<0.100 DLDS		
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0250 DLDS	<0.0250 DLDS	<0.0250 DLDS		
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0050 DLDS	<0.0050 DLDS	<0.0050 DLDS		
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	130	129	138		
Total Metals								,	
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0040	0.0039	0.0040		
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00016	0.00017	0.00018		
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00038	0.00036	0.00039		
barium, total	7440-39-3	E420	0.00010	mg/L	0.115	0.122	0.129		
beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	<0.000020		
bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050		
boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	<0.010		
cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.000215	0.000214	0.000206		
calcium, total	7440-70-2	E420	0.050	mg/L	115	116	122		
chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050		
cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00021	0.00022	0.00022		
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050		
iron, total	7439-89-6	E420	0.010	mg/L	0.018	0.019	0.019		
lead, total	7439-92-1	E420	0.000050	mg/L	0.000254	0.000239	0.000232		
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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	SD_SDH-MH02-	SD_SDH_MH02-	SD_SDH_MH02-	
(Matrix: Water)					17	18	19	
			Client sampl	ling date / time	17-Jun-2022 20:20	18-Jun-2022 13:38	18-Jun-2022 18:55	
Analyte	CAS Number	Method	LOR	Unit	WR2200593-001	WR2200593-002	WR2200593-003	
					Result	Result	Result	
Total Metals								
lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
magnesium, total	7439-95-4	E420	0.100	mg/L	7.23	7.13	7.81	
manganese, total	7439-96-5	E420	0.00010	mg/L	0.155	0.182	0.172	
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.000050	<0.000050	
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000624	0.000652	0.000729	
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	<0.050	
potassium, total	7440-09-7	E420	0.100	mg/L	0.988	1.02	1.14	
selenium, total	7782-49-2	E420	0.050	μg/L	1.03	0.863	0.771	
silicon, total	7440-21-3	E420	0.10	mg/L	3.35	3.33	3.51	
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
sodium, total	7440-23-5	E420	0.050	mg/L	8.39	8.77	9.10	
strontium, total	7440-24-6	E420	0.00020	mg/L	0.397	0.413	0.423	
sulfur, total	7704-34-9	E420	0.50	mg/L	42.2	43.0	45.0	
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	<0.00030	
uranium, total	7440-61-1	E420	0.000010	mg/L	0.00114	0.00117	0.00117	
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
zinc, total	7440-66-6	E420	0.0030	mg/L	0.0266	0.0200	0.0240	
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	
Dissolved Metals								
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0054	0.0079	0.0062	
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00013	0.00014	0.00016	
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00035	0.00036	0.00041	
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.115	0.121	0.124	
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	<0.000020	
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	<0.010	
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000212	0.000232	0.000198	
calcium, dissolved	7440-70-2	E421	0.050	mg/L	112	122	122	
1,	7.1.3-70-2		1	9/-	- · -			

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 : Teck Metals Ltd

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 : Sa Dena Hes



Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	SD_SDH-MH02-	SD_SDH_MH02-	SD_SDH_MH02-	
(Matrix: Water)					17	18	19	
			Client sampl	ling date / time	17-Jun-2022 20:20	18-Jun-2022 13:38	18-Jun-2022 18:55	
Analyte	CAS Number	Method	LOR	Unit	WR2200593-001	WR2200593-002	WR2200593-003	
					Result	Result	Result	
Dissolved Metals								
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00017	0.00023	0.00021	
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00030	0.00038	0.00034	
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.013	0.027	0.024	
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000170	0.000380 DTMF	0.000353 DTMF	
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	7.54	7.57	7.32	
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.124	0.182	0.167	
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.000050	<0.000050	
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000612	0.000650	0.000691	
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	
potassium, dissolved	7440-09-7	E421	0.100	mg/L	1.01	1.08	1.09	
selenium, dissolved	7782-49-2	E421	0.050	μg/L	1.16	0.997	0.884	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.22	3.31	3.39	
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
sodium, dissolved	7440-23-5	E421	0.050	mg/L	8.41	9.06	8.80	
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.393	0.399	0.417	
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	44.6	44.8	46.2	
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00116	0.00118	0.00121	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0271	0.0211	0.0232	
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	
dissolved mercury filtration location		EP509	-	-	Field	Field	Field	
dissolved metals filtration location		EP421	-	-	Field	Field	Field	
Speciated Metals								
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	

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Client : Teck Metals Ltd
Project : Sa Dena Hes



Please refer to the General Comments section for an explanation of any qualifiers detected.



Kimberley BC Canada V1A 3E1

QUALITY CONTROL INTERPRETIVE REPORT

Work Order : WR2200593 Page : 1 of 14

Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Wendy McBain Account Manager : Can Dang

: 601 Knighton Road Address : #12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

 Telephone
 : -- Telephone
 : +1 867 668 6689

 Project
 : Sa Dena Hes
 Date Samples Received
 : 22-Jun-2022 11:50

 Project
 : Sa Dena Hes
 Date Samples Received
 : 22-Jun-2022 11:50

 PO
 : PO# 10289
 Issue Date
 : 24-Jun-2022 21:05

C-O-C number : ----Sampler : ----

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

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

Address

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 Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers: Quality Control Samples

- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- Method Blank value 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.



Page : 3 of 14 : WR2200593 Work Order Client : Teck Metals Ltd : Sa Dena Hes Project



Outliers: Quality Control Samples
Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Water

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Anions and Nutrients	QC-MRG11-536585		nitrate (as N)	14797-55-8	E235.NO3-L	0.0083 B	0.005 mg/L	Blank result exceeds
	001					mg/L		permitted value

Result Qualifiers

Qualifier	Description
В	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.

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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: **x** = Holding time exceedance; ✓ = Within Holding Time Analyte Group Sampling Date Extraction / Preparation Analysis Method Container / Client Sample ID(s) **Holding Times** Eval Analysis Date Holding Times Eval Preparation Rec Actual Rec Actual Date Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD SDH MH02-18 F298 18-Jun-2022 23-Jun-2022 1 23-Jun-2022 28 days 5 days Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) SD SDH-MH02-17 E298 17-Jun-2022 23-Jun-2022 23-Jun-2022 28 days 6 days ✓ ----Anions and Nutrients : Ammonia by Fluorescence Amber glass total (lab preserved) SD SDH MH02-19 E298 18-Jun-2022 23-Jun-2022 3 days 5 days æ 23-Jun-2022 28 days 0 days **EHTL** Anions and Nutrients: Bromide in Water by IC (Low Level) HDPE 28 days 5 days SD_SDH_MH02-18 E235.Br-L 18-Jun-2022 24-Jun-2022 Anions and Nutrients: Bromide in Water by IC (Low Level) HDPE SD SDH MH02-19 E235.Br-L 18-Jun-2022 24-Jun-2022 28 days 5 days Anions and Nutrients : Bromide in Water by IC (Low Level) HDPE E235.Br-L 17-Jun-2022 24-Jun-2022 SD SDH-MH02-17 28 days 6 days --------Anions and Nutrients : Chloride in Water by IC HDPE E235.CI 18-Jun-2022 24-Jun-2022 28 days 5 days ✓ SD SDH MH02-18

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						raidation. • -	noiding time exce	cuarioc ,	- vviciniii	riolaling riili
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_SDH_MH02-19	E235.CI	18-Jun-2022					24-Jun-2022	28 days	5 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD SDH-MH02-17	E235.CI	17-Jun-2022					24-Jun-2022	28 days	6 davs	✓
									, -	
Aniana and Nutrianta - Fluorida in Water by IC										
Anions and Nutrients : Fluoride in Water by IC HDPE								I		
SD_SDH_MH02-18	E235.F	18-Jun-2022					24-Jun-2022	28 days	5 days	√
3D_3D11_W1102-10	L255.1	10-3411-2022					24-0011-2022	20 days	Juays	*
Anions and Nutrients : Fluoride in Water by IC						ı				
HDPE	F005 F	40.1.0000					04.1.0000	00.1		,
SD_SDH_MH02-19	E235.F	18-Jun-2022					24-Jun-2022	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_SDH-MH02-17	E235.F	17-Jun-2022					24-Jun-2022	28 days	6 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_SDH_MH02-19	E235.NO3-L	18-Jun-2022					24-Jun-2022	3 days	5 days	36
										EHTL
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_SDH_MH02-18	E235.NO3-L	18-Jun-2022					24-Jun-2022	3 days	5 days	×
										EHTR
Aniana and Nutrianta - Nitrata in Water by IC (Law Lavel)										
Anions and Nutrients : Nitrate in Water by IC (Low Level) HDPE										
SD SDH-MH02-17	E235.NO3-L	17-Jun-2022					24-Jun-2022	3 days	6 days	×
OD_ODTI-WII 102-17		17-Juli-2022					24-0011-2022	Juays	Juays	EHTR
										LITTIN
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE		101 005					04.1.0055			
SD_SDH_MH02-19	E235.NO2-L	18-Jun-2022					24-Jun-2022	3 days	5 days	*
										EHTL

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 : Sa Dena Hes



Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						raidation. • –	noiding time exce	cuarioc ,	- vvicinii	Tioluling Tilli
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_SDH_MH02-18	E235.NO2-L	18-Jun-2022					24-Jun-2022	3 days	5 days	x
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD SDH-MH02-17	E235.NO2-L	17-Jun-2022					24-Jun-2022	3 days	6 days	×
									, ,	EHTR
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_SDH_MH02-18	E235.SO4	18-Jun-2022					24-Jun-2022	28 days	5 days	√
OD_OD11_W1102-10	L200.004	10-0411-2022					24-0u11-2022	20 days	o days	•
Anions and Nutrients : Sulfate in Water by IC					I	I		1		
HDPE	F225 CO4	10 lun 2022					24 lum 2022	20 days	E dovo	√
SD_SDH_MH02-19	E235.SO4	18-Jun-2022					24-Jun-2022	28 days	5 days	v
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_SDH-MH02-17	E235.SO4	17-Jun-2022					24-Jun-2022	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_SDH_MH02-19	E509	18-Jun-2022	24-Jun-2022				24-Jun-2022	28 days	5 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_SDH_MH02-18	E509	18-Jun-2022	24-Jun-2022				24-Jun-2022	28 days	6 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS							1	1	1	
Glass vial dissolved (hydrochloric acid)										
SD SDH-MH02-17	E509	17-Jun-2022	24-Jun-2022				24-Jun-2022	28 days	6 days	✓
_										
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)							l l			
SD_SDH_MH02-18	E421	18-Jun-2022	23-Jun-2022				23-Jun-2022	180	5 days	√
05_0511_M102-10		.0 0411 2022	20 0411 2022				20 0411 2022	days	Jaays	
								uays		

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 : Teck Metals Ltd

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 : Sa Dena Hes



Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: water						raidation. • -	Holding time exce	cuarioc , ·	_ vviti iii i	Tiolding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_SDH_MH02-19	E421	18-Jun-2022	23-Jun-2022				23-Jun-2022	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD SDH-MH02-17	E421	17-Jun-2022	23-Jun-2022				23-Jun-2022	180	6 days	✓
_ ·								days		
Physical Tests : Alkalinity Species by Titration								,		
HDPE										
SD_SDH_MH02-19	E290	18-Jun-2022					24-Jun-2022	14 days	5 days	✓
05_05/1_WIND2 10		10 04.11 2022					2.042022		o aayo	
Physical Tests : Alkalinity Species by Titration							I	1		
HDPE	E290	18-Jun-2022					24-Jun-2022	14 days	6 days	✓
SD_SDH_MH02-18	E290	10-Juli-2022					24-Jun-2022	14 days	6 days	,
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_SDH-MH02-17	E290	17-Jun-2022					24-Jun-2022	14 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_SDH_MH02-19	E100	18-Jun-2022					24-Jun-2022	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_SDH_MH02-18	E100	18-Jun-2022					24-Jun-2022	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_SDH-MH02-17	E100	17-Jun-2022					24-Jun-2022	28 days	6 days	✓
_										
Physical Tests : pH by Meter										
HDPE										
SD_SDH_MH02-19	E108	18-Jun-2022					24-Jun-2022	0.25	130 hrs	*
							2.05.1.2022	hrs		EHTR-FM
								1113		□1111X-11VI

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Matrix: **Water**Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Maurix: water						valuation. • -	Holding time exce	suarroc , .	- vviciiii	Tiolding Time
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_SDH_MH02-18	E108	18-Jun-2022					24-Jun-2022	0.25	135 hrs	3c
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD SDH-MH02-17	E108	17-Jun-2022					24-Jun-2022	0.25	153 hrs	*
95_95.7.111102 17								hrs		EHTR-FM
PLANT OF TROP OF THE										
Physical Tests : TDS by Gravimetry						I	I			
HDPE	E162	18-Jun-2022					23-Jun-2022	7 days	5 days	√
SD_SDH_MH02-18	E 102	10-Juli-2022					23-Juli-2022	7 days	5 days	,
Physical Tests : TDS by Gravimetry										
HDPE										
SD_SDH_MH02-19	E162	18-Jun-2022					23-Jun-2022	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_SDH-MH02-17	E162	17-Jun-2022					23-Jun-2022	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)						1				
HDPE										
SD_SDH_MH02-18	E160-L	18-Jun-2022					23-Jun-2022	7 days	5 days	✓
Dhysical Tests - TSS by Crevinsetm / Level avel)										
Physical Tests : TSS by Gravimetry (Low Level) HDPE							I	I		
SD SDH MH02-19	E160-L	18-Jun-2022					23-Jun-2022	7 days	5 days	✓
3D_3DH_MH02-19	L 100-L	10-0411-2022					25-5411-2022	/ days	Juays	·
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE	E400 1	47 1. 2005					00 1. 0005	7.1		
SD_SDH-MH02-17	E160-L	17-Jun-2022					23-Jun-2022	7 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_SDH_MH02-18	E532	18-Jun-2022					24-Jun-2022	28 days	6 days	✓
				1		l .				

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Matrix: Water Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

natrix: water					⊏\	aluation. * -	Holding time exce	edance, v	– vvitriiri	Holding 11
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual		,	Rec	Actual	
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_SDH_MH02-19	E532	18-Jun-2022					24-Jun-2022	28 days	6 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_SDH-MH02-17	E532	17-Jun-2022					24-Jun-2022	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										,
SD_SDH_MH02-19	E508	18-Jun-2022					24-Jun-2022	28 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	5500	40.1.0000					04 1 0000	00.1		,
SD_SDH_MH02-18	E508	18-Jun-2022					24-Jun-2022	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	5500	47.1 0000								
SD_SDH-MH02-17	E508	17-Jun-2022					24-Jun-2022	28 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE - total (lab preserved)										
SD_SDH_MH02-18	E420	18-Jun-2022					24-Jun-2022	180 days	6 days	✓
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)	F400	40 100 0000					04 1. 2005			,
SD_SDH_MH02-19	E420	18-Jun-2022					24-Jun-2022	180 days	6 days	✓
otal Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)	F420	17 Jun 2022					24 lun 2022	400	7 dove	✓
SD_SDH-MH02-17	E420	17-Jun-2022					24-Jun-2022	180	7 days	*
								days		

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

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).

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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.

Quality Control Sample Type		Evaluat	C	ount)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Frequency (%) Expected	Evaluation
Laboratory Duplicates (DUP)						,	
Alkalinity Species by Titration	E290	536583	1	5	20.0	5.0	1
Ammonia by Fluorescence	E298	536455	1	3	33.3	5.0	1
Bromide in Water by IC (Low Level)	E235.Br-L	536590	1	4	25.0	5.0	√
Chloride in Water by IC	E235.CI	536589	1	4	25.0	5.0	<u> </u>
Conductivity in Water	E100	536581	1	6	16.6	5.0	√
Dissolved Mercury in Water by CVAAS	E509	536752	1	20	5.0	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	536516	1	12	8.3	5.0	√
Fluoride in Water by IC	E235.F	536588	1	4	25.0	5.0	<u>√</u>
Nitrate in Water by IC (Low Level)	E235.NO3-L	536586	1	4	25.0	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	536587	1	5	20.0	5.0	√
pH by Meter	E108	536582	1	7	14.2	5.0	√
Sulfate in Water by IC	E235.SO4	536585	1	4	25.0	5.0	1
TDS by Gravimetry	E162	536514	1	8	12.5	5.0	<u>√</u>
Total Hexavalent Chromium (Cr VI) by IC	E532	536854	1	14	7.1	5.0	√
Total Mercury in Water by CVAAS	E508	536712	1	8	12.5	5.0	1
Total Metals in Water by CRC ICPMS	E420	536639	1	10	10.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	536583	1	5	20.0	5.0	✓
Ammonia by Fluorescence	E298	536455	1	3	33.3	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	536590	1	4	25.0	5.0	✓
Chloride in Water by IC	E235.CI	536589	1	4	25.0	5.0	✓
Conductivity in Water	E100	536581	1	6	16.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	536752	1	20	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	536516	1	12	8.3	5.0	✓
Fluoride in Water by IC	E235.F	536588	1	4	25.0	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	536586	1	4	25.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	536587	1	5	20.0	5.0	✓
pH by Meter	E108	536582	1	7	14.2	5.0	✓
Sulfate in Water by IC	E235.SO4	536585	1	4	25.0	5.0	✓
TDS by Gravimetry	E162	536514	1	8	12.5	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	536854	1	14	7.1	5.0	✓
Total Mercury in Water by CVAAS	E508	536712	1	8	12.5	5.0	✓
Total Metals in Water by CRC ICPMS	E420	536639	1	10	10.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	536513	1	8	12.5	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	536583	1	5	20.0	5.0	✓
Ammonia by Fluorescence	E298	536455	1	3	33.3	5.0	1

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Matrix: **Water**Evaluation: **×** = *QC frequency outside specification*; ✓ = *QC frequency within specification*.

victiix. **atei		Lvaldatio	on Qo neque	oney outside spi	comodition, v	cation, • - QO frequency within specific			
Quality Control Sample Type			Co	ount		Frequency (%)			
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation		
Method Blanks (MB) - Continued									
Bromide in Water by IC (Low Level)	E235.Br-L	536590	1	4	25.0	5.0	✓		
Chloride in Water by IC	E235.CI	536589	1	4	25.0	5.0	✓		
Conductivity in Water	E100	536581	1	6	16.6	5.0	✓		
Dissolved Mercury in Water by CVAAS	E509	536752	1	20	5.0	5.0	✓		
Dissolved Metals in Water by CRC ICPMS	E421	536516	1	12	8.3	5.0	✓		
Fluoride in Water by IC	E235.F	536588	1	4	25.0	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	536586	1	4	25.0	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	536587	1	5	20.0	5.0	✓		
Sulfate in Water by IC	E235.SO4	536585	1	4	25.0	5.0	✓		
TDS by Gravimetry	E162	536514	1	8	12.5	5.0	✓		
Total Hexavalent Chromium (Cr VI) by IC	E532	536854	1	14	7.1	5.0	✓		
Total Mercury in Water by CVAAS	E508	536712	1	8	12.5	5.0	✓		
Total Metals in Water by CRC ICPMS	E420	536639	1	10	10.0	5.0	✓		
TSS by Gravimetry (Low Level)	E160-L	536513	1	8	12.5	5.0	✓		
Matrix Spikes (MS)									
Ammonia by Fluorescence	E298	536455	1	3	33.3	5.0	✓		
Bromide in Water by IC (Low Level)	E235.Br-L	536590	1	4	25.0	5.0	✓		
Chloride in Water by IC	E235.CI	536589	1	4	25.0	5.0	✓		
Dissolved Mercury in Water by CVAAS	E509	536752	1	20	5.0	5.0	✓		
Dissolved Metals in Water by CRC ICPMS	E421	536516	1	12	8.3	5.0	✓		
Fluoride in Water by IC	E235.F	536588	1	4	25.0	5.0	✓		
Nitrate in Water by IC (Low Level)	E235.NO3-L	536586	1	4	25.0	5.0	✓		
Nitrite in Water by IC (Low Level)	E235.NO2-L	536587	1	5	20.0	5.0	✓		
Sulfate in Water by IC	E235.SO4	536585	1	4	25.0	5.0	✓		
Total Hexavalent Chromium (Cr VI) by IC	E532	536854	1	14	7.1	5.0	✓		
Total Mercury in Water by CVAAS	E508	536712	1	8	12.5	5.0	✓		
Total Metals in Water by CRC ICPMS	E420	536639	1	10	10.0	5.0	√		

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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 $20 \pm 5^{\circ}$ C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry (Low Level)	E160-L 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.
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at $180 \pm 2^{\circ}$ C for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.

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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 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.
Total Hexavalent Chromium (Cr VI) by IC	E532 Vancouver - Environmental	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
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.
Total Trivalent Chromium (Cr III) by Calculation	EC535 Vancouver - Environmental	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results. The Limit of Reporting for Chromium (III) varies as a function of the test results.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	\/			
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	V			
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
•	2. 555			
	Vancouver -			
	Environmental			



QUALITY CONTROL REPORT

Work Order :WR2200593

Client : Teck Metals Ltd
Contact : Wendy McBain

:601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : ----

Project : Sa Dena Hes
PO : PO# 10289

C-O-C number :--Sampler :---

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 3
No. of samples analysed : 3

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Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone :+1 867 668 6689

Date Samples Received :22-Jun-2022 11:50

Date Analysis Commenced : 23-Jun-2022

Issue Date : 24-Jun-2022 21:05

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 Percent Difference (RPD) and Data Quality Objectives

- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

Address

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	Vancouver Metals, Burnaby, British Columbia
Ann Joby	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Owen Cheng		Vancouver Metals, Burnaby, British Columbia

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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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							Labora	tory Duplicate (D	UP) 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 VA22B3691-009	Lot: 536514) Anonymous	solids, total dissolved [TDS]		E162	20	mg/L	992	939	5.49%	20%	
Physical Tests (QC	C Lot: 536581)										
WR2200593-002	SD_SDH_MH02-18	conductivity		E100	2.0	μS/cm	657	656	0.152%	10%	
Physical Tests (QC WR2200593-002	SD_SDH_MH02-18	рН		E108	0.10	pH units	8.26	8.26	0.0121%	4%	
Physical Tests (QC	C Lot: 536583)										
WR2200593-002	SD_SDH_MH02-18	alkalinity, total (as CaCO3)		E290	1.0	mg/L	248	254	2.35%	20%	
Anions and Nutrien WR2200593-001	ts (QC Lot: 536455) SD_SDH-MH02-17	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Anions and Nutrien	its (QC Lot: 536585)										
VA22B4206-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	62800 µg/L	62.7	0.0677%	20%	
Anions and Nutrien	its (QC Lot: 536586) Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	36600 µg/L	36.6	0.131%	20%	
	•	Tilliate (as iv)	14737-33-0	E230.1403-E	0.0230	mg/L	30000 μg/L	30.0	0.10170	2070	
VA22B4206-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	344 µg/L	0.343	0.281%	20%	
	its (QC Lot: 536588)										
VA22B4206-001	Anonymous	fluoride	16984-48-8	E235.F	0.100	mg/L	<100 µg/L	<0.100	0	Diff <2x LOR	
	its (QC Lot: 536589)										
VA22B4206-001	Anonymous	chloride	16887-00-6	E235.Cl	2.50	mg/L	81000 μg/L	80.9	0.100%	20%	
	ts (QC Lot: 536590)										
VA22B4206-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.250	mg/L	<250 μg/L	<0.250	0	Diff <2x LOR	
Total Metals (QC L			7.400.00.5	= 100		,,	0.000			D.W. 0. 1.0D	
CG2207851-001	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0230	0.0230	0.000004	Diff <2x LOR	
		antimony, total	7440-36-0	E420	0.00010	mg/L	0.00068	0.00067	0.000006	Diff <2x LOR	
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00014	0.00013	0.00001	Diff <2x LOR	
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0311	0.0322	3.38%	20%	
		beryllium, total	7440-41-7	E420	0.000020	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	0.024	0.023	0.0002	Diff <2x LOR	
		cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.423 µg/L	0.000451	6.41%	20%	
		calcium, total	7440-70-2	E420	0.050	mg/L	178	178	0.583%	20%	

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 Client
 : Teck Metals Ltd

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 : Sa Dena Hes



ub-Matrix: Water	: Water					Laboratory Duplicate (DUP) Report							
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie		
otal Metals (QC Lo	ot: 536639) - continued												
CG2207851-001	Anonymous	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	0.22 µg/L	0.00023	0.000005	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	0.018	0.018	0.0004	Diff <2x LOR			
		lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR			
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.242	0.232	3.78%	20%			
		magnesium, total	7439-95-4	E420	0.0050	mg/L	97.3	98.8	1.53%	20%			
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00183	0.00189	3.60%	20%			
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00454	0.00450	0.671%	20%			
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.0281	0.0283	0.691%	20%			
		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	4.86	4.91	1.07%	20%			
		selenium, total	7782-49-2	E420	0.000050	mg/L	117 μg/L	0.119	1.66%	20%			
		silicon, total	7440-21-3	E420	0.10	mg/L	1.51	1.55	2.25%	20%			
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR			
		sodium, total	7440-23-5	E420	0.050	mg/L	7.61	7.61	0.0228%	20%			
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.282	0.284	0.607%	20%			
		sulfur, total	7704-34-9	E420	0.50	mg/L	171	174	1.50%	20%			
		thallium, total	7440-28-0	E420	0.000010	mg/L	0.000033	0.000033	0.00000008	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	0.00072	0.00078	0.00006	Diff <2x LOR			
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.00913	0.00906	0.752%	20%			
		vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR			
		zinc, total	7440-66-6	E420	0.0030	mg/L	0.0225	0.0227	0.0002	Diff <2x LOR			
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR			
		Zirconium, totai	7440-07-7	L420	0.00020	IIIg/L	40.00020	~ 0.00020	0	DIII VZX LOIX			
otal Metals (QC Lo A22B3766-005	ot: 536712) Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0050 µg/L	<0.0000050	0	Diff <2x LOR			
issolved Metals (C	OC L ot: 536516)												
G2207851-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0011	<0.0010	0.0001	Diff <2x LOR			
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00061	0.00062	0.000009	Diff <2x LOR			
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR			
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0283	0.0293	3.72%	20%			
		beryllium, dissolved	7440-41-7	E421	0.000020	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			
		biomati, algorived	7-1-10 00-0		0.000000	g/ L	-0.000000	-0.000000		Z.III -Z.X EOIX			

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ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
issolved Metals (QC Lot: 536516) - cor	ntinued									
G2207851-001	Anonymous	cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.416 μg/L	0.000437	4.97%	20%	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	181	180	0.560%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.19 μg/L	0.00019	0.0000004	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00031	0.00030	0.000010	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	0.256	0.242	5.27%	20%	
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	96.7	95.6	1.19%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00073	0.00069	0.00004	Diff <2x LOR	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00307	0.00308	0.373%	20%	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.0272	0.0269	0.921%	20%	
		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	5.04	5.02	0.488%	20%	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	132 µg/L	0.135	2.48%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	1.35	1.35	0.0160%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	7.48	7.28	2.75%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.277	0.282	1.93%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	171	170	0.305%	20%	
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000032	0.000034	0.000002	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	0.00922	0.00923	0.102%	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	0.0228	0.0229	0.324%	20%	
		zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	
ssolved Metals (QC Lot: 536752)										
G2207918-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
peciated Metals(QC Lot: 536854)										
A22B3168-002	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	0.00110	0.00110	0	Diff <2x LOR	

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 : Teck Metals Ltd

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 : Sa Dena Hes



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

Jub-iviatiix. Water					
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 536513)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 536514)					
olids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 536581)					
conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 536583)					
kalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Anions and Nutrients (QCLot: 536455)					
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 536585)					
sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 536586)					
itrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	# 0.0083	В
Anions and Nutrients (QCLot: 536587)					
itrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 536588)					
luoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 536589)					
hloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 536590)					
romide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
otal Metals (QCLot: 536639)					
luminum, total	7429-90-5 E420	0.003	mg/L	<0.0030	
ntimony, total	7440-36-0 E420	0.0001	mg/L	<0.00010	
rsenic, total	7440-38-2 E420	0.0001	mg/L	<0.00010	
arium, total	7440-39-3 E420	0.0001	mg/L	<0.00010	
eryllium, total	7440-41-7 E420	0.00002	mg/L	<0.000020	
ismuth, total	7440-69-9 E420	0.00005	mg/L	<0.000050	
oron, total	7440-42-8 E420	0.01	mg/L	<0.010	
admium, total	7440-43-9 E420	0.000005	mg/L	<0.000050	
alcium, 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	

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Sub-Matrix: Water

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 536639) -	continued					
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	
ron, total	7439-89-6	E420	0.01	mg/L	<0.010	
ead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	
thium, total	7439-93-2	E420	0.001	mg/L	<0.0010	
nagnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	
nanganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	
nolybdenum, total	7439-98-7	E420	0.00005	mg/L	<0.000050	
ickel, total	7440-02-0	E420	0.0005	mg/L	<0.00050	
hosphorus, total	7723-14-0	E420	0.05	mg/L	<0.050	
ootassium, total	7440-09-7	E420	0.05	mg/L	<0.050	
elenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	
ilicon, total	7440-21-3	E420	0.1	mg/L	<0.10	
ilver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	
odium, total	7440-23-5	E420	0.05	mg/L	<0.050	
trontium, total	7440-24-6	E420	0.0002	mg/L	<0.00020	
ulfur, total	7704-34-9	E420	0.5	mg/L	<0.50	
nallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	
n, total	7440-31-5	E420	0.0001	mg/L	<0.00010	
anium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	
ranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	
anadium, total	7440-62-2		0.0005	mg/L	<0.00050	
inc, total	7440-66-6		0.003	mg/L	<0.0030	
irconium, total	7440-67-7		0.0002	mg/L	<0.00020	
Total Metals (QCLot: 536712) nercury, total	7439-97-6	E508	0.000005	mg/L	<0.000050	
•		2000	3.55555	9,2	0.000000	
Dissolved Metals (QCLot: 53651 Iuminum, dissolved	7429-90-5	F421	0.001	mg/L	<0.0010	
ntimony, dissolved	7440-36-0		0.0001	mg/L	<0.0010	
rsenic, dissolved	7440-38-2		0.0001	mg/L	<0.00010	
	7440-38-2		0.0001		<0.00010	
arium, dissolved	7440-39-3 7440-41-7		0.0001	mg/L	<0.00010	
eryllium, dissolved				mg/L		
ismuth, dissolved	7440-69-9		0.00005	mg/L	<0.000050	
oron, dissolved	7440-42-8		0.01	mg/L	<0.010	
admium, dissolved	7440-43-9		0.000005	mg/L	<0.000050	
calcium, dissolved	7440-70-2		0.05	mg/L	<0.050	
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	

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Sub-Matrix: Water

Sub-Iviatiix. VVatei					
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 536516) - co	ntinued				
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	
ithium, 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	
ootassium, 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	7440-23-5 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	
hallium, dissolved	7440-28-0 E421	0.00001	mg/L	<0.000010	
in, dissolved	7440-31-5 E421	0.0001	mg/L	<0.00010	
itanium, 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	
circonium, dissolved	7440-67-7 E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 536752)					
nercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.0000050	
Speciated Metals (QCLot: 536854)					
chromium, hexavalent [Cr VI], total	18540-29-9 E532	0.0005	mg/L	<0.00050	

Qualifiers

Qualifier Description

B Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.

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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 Cor	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 536513)									
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	89.2	85.0	115	
Physical Tests (QCLot: 536514)									
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	98.3	85.0	115	
Physical Tests (QCLot: 536581)									
conductivity		E100	1	μS/cm	146.9 μS/cm	100	90.0	110	
Physical Tests (QCLot: 536582)									
рН		E108		pH units	7 pH units	99.6	98.0	102	
Physical Tests (QCLot: 536583)									
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	101	85.0	115	
Anions and Nutrients (QCLot: 536455)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	107	85.0	115	
Anions and Nutrients (QCLot: 536585)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 536586)									
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: 536587)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 536588)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 536589)									
chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 536590)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	105	85.0	115	
Total Metals (QCLot: 536639)									
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	104	80.0	120	
arsenic, total	7440-38-2		0.0001	mg/L	1 mg/L	101	80.0	120	
barium, total	7440-39-3		0.0001	mg/L	0.25 mg/L	104	80.0	120	
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	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		0.01	mg/L	1 mg/L	92.6	80.0	120	
cadmium, total	7440-43-9	E420	0.000005	mg/L	0.1 mg/L	98.7	80.0	120	

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 Work Order
 : WR2200593

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 536639) - continu	ued								
calcium, total	7440-70-2	E420	0.05	mg/L	50 mg/L	99.8	80.0	120	
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.8	80.0	120	
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	99.5	80.0	120	
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.6	80.0	120	
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	107	80.0	120	
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	99.8	80.0	120	
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	99.6	80.0	120	
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	99.2	80.0	120	
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	98.5	80.0	120	
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	99.8	80.0	120	
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	99.5	80.0	120	
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	105	80.0	120	
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	100	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	101	80.0	120	
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	96.1	80.0	120	
sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	102	80.0	120	
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	106	80.0	120	
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	99.9	80.0	120	
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	104	80.0	120	
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	98.2	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	98.3	80.0	120	
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	98.2	80.0	120	
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	98.9	80.0	120	
Total Metals (QCLot: 536712)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	97.7	80.0	120	
•									
Dissolved Metals (QCLot: 536516)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	105	80.0	120	
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.3	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	105	80.0	120	
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.1	80.0	120	
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	102	80.0	120	
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.4	80.0	120	

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 Work Order
 : WR2200593

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water					Laboratory Co	ntrol Sample (LCS) Report	
				Spike	Recovery (%)	Recover	/ Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 536516) - cor	ntinued							
cadmium, dissolved	7440-43-9 E421	0.000005	mg/L	0.1 mg/L	97.5	80.0	120	
calcium, dissolved	7440-70-2 E421	0.05	mg/L	50 mg/L	101	80.0	120	
chromium, dissolved	7440-47-3 E421	0.0005	mg/L	0.25 mg/L	101	80.0	120	
cobalt, dissolved	7440-48-4 E421	0.0001	mg/L	0.25 mg/L	97.6	80.0	120	
copper, dissolved	7440-50-8 E421	0.0002	mg/L	0.25 mg/L	97.9	80.0	120	
iron, dissolved	7439-89-6 E421	0.01	mg/L	1 mg/L	109	80.0	120	
lead, dissolved	7439-92-1 E421	0.00005	mg/L	0.5 mg/L	105	80.0	120	
lithium, dissolved	7439-93-2 E421	0.001	mg/L	0.25 mg/L	98.0	80.0	120	
magnesium, dissolved	7439-95-4 E421	0.005	mg/L	50 mg/L	100.0	80.0	120	
manganese, dissolved	7439-96-5 E421	0.0001	mg/L	0.25 mg/L	104	80.0	120	
molybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	0.25 mg/L	98.9	80.0	120	
nickel, dissolved	7440-02-0 E421	0.0005	mg/L	0.5 mg/L	100	80.0	120	
phosphorus, dissolved	7723-14-0 E421	0.05	mg/L	10 mg/L	108	80.0	120	
potassium, dissolved	7440-09-7 E421	0.05	mg/L	50 mg/L	100	80.0	120	
selenium, dissolved	7782-49-2 E421	0.00005	mg/L	1 mg/L	104	80.0	120	
silicon, dissolved	7440-21-3 E421	0.05	mg/L	10 mg/L	99.6	80.0	120	
silver, dissolved	7440-22-4 E421	0.00001	mg/L	0.1 mg/L	98.2	80.0	120	
sodium, dissolved	7440-23-5 E421	0.05	mg/L	50 mg/L	101	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	96.5	80.0	120	
thallium, dissolved	7440-28-0 E421	0.00001	mg/L	1 mg/L	103	80.0	120	
tin, dissolved	7440-31-5 E421	0.0001	mg/L	0.5 mg/L	95.9	80.0	120	
titanium, dissolved	7440-32-6 E421	0.0003	mg/L	0.25 mg/L	99.4	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	100	80.0	120	
zinc, dissolved	7440-66-6 E421	0.001	mg/L	0.5 mg/L	104	80.0	120	
zirconium, dissolved	7440-67-7 E421	0.0002	mg/L	0.1 mg/L	99.5	80.0	120	
mercury, dissolved	7439-97-6 E509	0.000005	mg/L	0.0001 mg/L	95.8	80.0	120	
Speciated Metals (QCLot: 536854)	18540-29-9 E532	0.0005	me/l	0.05 "	00.0	00.0	110	
chromium, hexavalent [Cr VI], total	18540-29-9 E532	0.0005	mg/L	0.25 mg/L	99.0	90.0	110	

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 Work Order
 : WR2200593

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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.

							Mandada Dada	- (MO) D		
ub-Matrix: Water					0-			e (MS) Report	· I ::4- (0/)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Sp Concentration	Target	Recovery (%) MS	Low	/ Limits (%) High	Qualifie
)	Chefit Sample 15	Allalyte	CAS Number	Wethou	Concentration	rarget	WS	LOW	High	Qualific
nions and Nutri	ents (QCLot: 536455)									
WR2200593-002	SD_SDH_MH02-18	ammonia, total (as N)	7664-41-7	E298	0.107 mg/L	0.1 mg/L	107	75.0	125	
Anions and Nutri	ents (QCLot: 536585)									
WR2200593-001	SD_SDH-MH02-17	sulfate (as SO4)	14808-79-8	E235.SO4	483 mg/L	500 mg/L	96.6	75.0	125	
nions and Nutri	ents (QCLot: 536586)									
WR2200593-001	SD_SDH-MH02-17	nitrate (as N)	14797-55-8	E235.NO3-L	12.2 mg/L	12.5 mg/L	97.7	75.0	125	
nions and Nutri	ents (QCLot: 536587)				3	3	-			
WR2200593-001	SD_SDH-MH02-17	nitrite (as N)	14797-65-0	E235.NO2-L	2.38 mg/L	2.5 mg/L	95.1	75.0	125	
	ents (QCLot: 536588)	, ,	14797-03-0	L233.NO2-L	2.30 Hig/L	Z.3 Hig/L	95.1	73.0	123	
WR2200593-001	SD SDH-MH02-17	fluoride	10001 10 0	5005 5	4.04	- n	00.0	75.0	405	
	_		16984-48-8	E235.F	4.84 mg/L	5 mg/L	96.9	75.0	125	
	ents (QCLot: 536589)									
WR2200593-001	SD_SDH-MH02-17	chloride	16887-00-6	E235.CI	483 mg/L	500 mg/L	96.5	75.0	125	
Anions and Nutri	ents (QCLot: 536590)									
WR2200593-001	SD_SDH-MH02-17	bromide	24959-67-9	E235.Br-L	2.49 mg/L	2.5 mg/L	99.6	75.0	125	
otal Metals (QC	Lot: 536639)									
CG2207851-002	Anonymous	aluminum, total	7429-90-5	E420	0.186 mg/L	0.2 mg/L	93.0	70.0	130	
		antimony, total	7440-36-0	E420	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	
		arsenic, total	7440-38-2	E420	0.0200 mg/L	0.02 mg/L	100	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	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	
		bismuth, total	7440-69-9	E420	0.00924 mg/L	0.01 mg/L	92.4	70.0	130	
		boron, total	7440-42-8	E420	0.088 mg/L	0.1 mg/L	87.7	70.0	130	
		cadmium, total	7440-43-9	E420	0.00386 mg/L	0.004 mg/L	96.4	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	0.0388 mg/L	0.04 mg/L	97.0	70.0	130	
		cobalt, total	7440-48-4	E420	0.0188 mg/L	0.02 mg/L	94.1	70.0	130	
		copper, total	7440-50-8	E420	0.0180 mg/L	0.02 mg/L	90.1	70.0	130	
		iron, total	7439-89-6	E420	1.90 mg/L	2 mg/L	94.9	70.0	130	
		lead, total	7439-92-1	E420	0.0181 mg/L	0.02 mg/L	90.7	70.0	130	
		lithium, total	7439-93-2	E420	ND mg/L	0.02 mg/L	ND	70.0	130	
		magnesium, total	7439-95-4	E420	ND mg/L	1 mg/L	ND	70.0	130	

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 Work Order
 : WR2200593

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water				Matrix Spike (MS) Report						
					Spi	ke	Recovery (%)	Recovery	y Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
	Lot: 536639) - cont	inued								
CG2207851-002	Anonymous	manganese, total	7439-96-5	E420	0.0191 mg/L	0.02 mg/L	95.3	70.0	130	
		molybdenum, total	7439-98-7	E420	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	
		nickel, total	7440-02-0	E420	0.0357 mg/L	0.04 mg/L	89.3	70.0	130	
		phosphorus, total	7723-14-0	E420	9.97 mg/L	10 mg/L	99.7	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	ND mg/L	0.04 mg/L	ND	70.0	130	
		silicon, total	7440-21-3	E420	8.96 mg/L	10 mg/L	89.6	70.0	130	
		silver, total	7440-22-4	E420	0.00369 mg/L	0.004 mg/L	92.3	70.0	130	
		sodium, total	7440-23-5	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	ND mg/L	20 mg/L	ND	70.0	130	
		thallium, total	7440-28-0	E420	0.00365 mg/L	0.004 mg/L	91.3	70.0	130	
		tin, total	7440-31-5	E420	0.0186 mg/L	0.02 mg/L	93.2	70.0	130	
		titanium, total	7440-32-6	E420	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	
		uranium, total	7440-61-1	E420	ND mg/L	0.004 mg/L	ND	70.0	130	
		vanadium, total	7440-62-2	E420	0.101 mg/L	0.1 mg/L	101	70.0	130	
		zinc, total	7440-66-6	E420	0.365 mg/L	0.4 mg/L	91.2	70.0	130	
		zirconium, total	7440-67-7	E420	0.0387 mg/L	0.04 mg/L	96.8	70.0	130	
otal Metals (QC	Lot: 536712)									
'A22B4243-001	Anonymous	mercury, total	7439-97-6	E508	0.0000929 mg/L	0.0001 mg/L	92.9	70.0	130	
ssolved Metals	(QCLot: 536516)									
G2207851-002	Anonymous	aluminum, dissolved	7429-90-5	E421	0.209 mg/L	0.2 mg/L	104	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0216 mg/L	0.02 mg/L	108	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	0.0361 mg/L	0.04 mg/L	90.4	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00875 mg/L	0.01 mg/L	87.5	70.0	130	
		boron, dissolved	7440-42-8	E421	0.088 mg/L	0.1 mg/L	88.0	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00384 mg/L	0.004 mg/L	96.0	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	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0181 mg/L	0.02 mg/L	90.5	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0178 mg/L	0.02 mg/L	89.2	70.0	130	
		iron, dissolved	7439-89-6	E421	1.79 mg/L	2 mg/L	89.6	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0192 mg/L	0.02 mg/L	96.0	70.0	130	
	I	lithium, dissolved	7439-93-2	E421	ND mg/L	0.1 mg/L	ND	70.0	130	

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 Work Order
 : WR2200593

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 536516) - c	ontinued								
CG2207851-002	Anonymous	magnesium, dissolved	7439-95-4	E421	ND mg/L	1 mg/L	ND	70.0	130	
		manganese, dissolved	7439-96-5	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	
		molybdenum, dissolved	7439-98-7	E421	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0349 mg/L	0.04 mg/L	87.3	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	11.1 mg/L	10 mg/L	111	70.0	130	
		potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	
		selenium, dissolved	7782-49-2	E421	ND mg/L	0.04 mg/L	ND	70.0	130	
		silicon, dissolved	7440-21-3	E421	8.81 mg/L	10 mg/L	88.1	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00371 mg/L	0.004 mg/L	92.8	70.0	130	
		sodium, dissolved	7440-23-5	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	0.00370 mg/L	0.004 mg/L	92.4	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0408 mg/L	0.04 mg/L	102	70.0	130	
		uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.100 mg/L	0.1 mg/L	100	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: 536752)									
CG2207918-002	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000975 mg/L	0.0001 mg/L	97.5	70.0	130	
Speciated Metals	(QCLot: 536854)									
VA22B4276-001	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.254 mg/L	0.25 mg/L	102	85.0	115	

LS Environmental

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COC Number: 15 -

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Report To									Select Service Level Below - Please confirm all E&P TATs with your AM - surcharges will apply									٠				
Company:	TECK Metals Ltd			Select Report F	ormat:			Regular [Ŕ]									_					
Contact:	Michelle Unger				Quality Control (QC) Report with Report			्हें 4 day [P4]					ξ 1 Business day [E1]									
Phone:	250-4278422			Select Distribution:					Same Day, Weekend or													
	Company address below will appear on the final re	eport		Select Distributi	ion:		· <u> </u>	Bus	2	day [F	2]			EME	Statutory holiday [E0]							
Street:	601 Knightton Road		Email 1 or Fax azheng@ensero.com, slyons@ensero.com Date and Time Required for all E&P TATs:							dg-m	mm-y	y hhim	nm	\Box								
City/Province:	Kimberly, BC			Email 2	wendy.mcbain@te	eck.com, colin.ly	nch@teck.com	For tes	ts that c	an not b	e perfori	ned acco	rding to	the ser	ne service level selected, you will be contacted.				\Box			
Postal Code:	V1A 3E1			Email 3	chanson@ensero	.com.teckkimb@	equisonline.com	<u> </u>	<u>.</u>		•		- 1	Analys	Environmental Division				District	•		
Invoice To	Same as Report To	·		·	Invoice Dis	stribution		<u> </u>	Indi	cate Fil	tered (F), Preser	ved (P)	or Filte	red ar	nd!	W	hite	nore	anai e	Divisior	n
	Copy of Invoice with Report			Select Invoice [Distribution:		<u> </u>	P.	F/P		P	Ρ.		Р		1		Work	COrd	er Det	ference	
Company:	teck metals Itd.	<u> </u>		Email 1 or Fax	Michelle.unger@te	eck.com	·	1			Br)							W	R۶	ソクC	059	2
Contact:	Wendy mabain'			Email 2	legacy.ap@teck.c			ļ			F, B	.	ļ		i '						,000,	J
	Rioject Information				and Gas Require		use)	1			Ö		ľ		ĺ	İ	ſ			WAX	## #_ 188 1_107	
ALS Account #			_,	AFE/Cost Center:	 -	PO#	<u> </u>	_ '	Ŧ	يب	hate				i		- 1		Mar.			
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ALS Lab Wor	k Order # (lab use only)			ALS Contact:	Can Dang	Sampler:		Total Metals (low	ed Metals	S, alkalinity,	Anions(Nitrate,	<u>0</u>	TSS(low)	ım Speciation		γ .	Telepi	none :	+186	7 668 66	389	
ALS Sample #	Sample Identification and/or Coor	dinates	Sam	ple Location	Date	Time	Field Matrix	Ĭž	Dissolved	pH, SPC,)suc	Ammonia		Chromium	i	'	[]	1	}	1	-	1
(lab use only)	(This description will appear on the	report)	(SYS_	LOC_CODE)	(dd-mmm-yy)	(hh:mm)	Fleta Matrix	of 1	Dis	F.	Anic	¥.	TDS,	ਹੁੰ								
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		Special Instructi	ions / Sr	ecify Criteria to	add on report by clic	king on the drop	-down list below	_	<u> </u>	L	SAMI	PLE CO	ONDI	⊥ Fj							Ī	\dashv
Drinking	Water (DW) Samples¹ (client use)				etronic COC only)			Froz	en					=							1	ヿ
Are samples tak	en from a Regulated DW System?	Ruch	<u>4na</u>	lucie - "	1. day			Ice F	acks	Ø	Ice C	Subes					1)				ב	
Are samples taken from a Regulated DW System? NO Rush Ana			19:313	, aug			Cool	ing Init	iated				:			///	L					
Are samples for	human drinking water use?						· ·		INIIT	IAL CO	OLER T	EMPER	ATURE	§-		9	11	\mathcal{O}	1.5		C	\dashv
	<i>Ν</i> ο	= -	- -	~			·		14					1	6/23/2022 IPM							
Bologed him	SHIPMENT RELEASE (client use)		Timo:		INITIAL SHIPMEN	IT RECEPTION	(lab use only)	TT:					VAL S	H			,	•				\neg
Released by:	esarich June 21.		Time: 2:10 10	Received by	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	we.	22, 2022	Time	50	Rece	eived b	y: (\mathcal{M}			61	122	la	()?	,	16.4	-
REFER TO BACK	PAGE FOR ALS LOCATIONS AND SAMPLIN			~ / ~ ()	WH	ITE - LABORATO			CLIEN	TCOP	Υ		_كالل	-		-)	~ >	/~	سدر	-	P V 2015 FF	RONT



CERTIFICATE OF ANALYSIS

Work Order : WR2200650

Client : Teck Metals Ltd : Wendy McBain

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone

Contact

Project Sa Dena Hes : PO# 10289

C-O-C number Sampler

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 15 : 15 No. of samples analysed

Page : 1 of 15

> Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689 Date Samples Received : 04-Jul-2022 13:15

Date Analysis Commenced : 07-Jul-2022

Issue Date : 21-Jul-2022 15:34

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
- Surrogate Control Limits

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
Anshim Anshim	Lab Assistant	Metals, Burnaby, British Columbia
Chau Tran	Analsyt	Inorganics, Burnaby, British Columbia
Erin Sanchez		Metals, Burnaby, British Columbia
Hamideh Moradi	Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Paul Cushing	Team Leader - Organics	Organics, Burnaby, British Columbia
Ruby Pham	Lab Assistant	Metals, Burnaby, British Columbia

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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).

pH units	pH units
mg/L	milligrams per litre
μg/L μS/cm	Microsiemens per centimetre
μg/L	micrograms per litre
-	No Unit
Unit	Description

<: less 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.

Workorder Comments

Sample SD_ MW13-04 D-METAL Insufficient Sample. Sub sample taken for the analysis.

Sample Comments

Sample	Client Id	Comment
WR2200650-009	SD_MW14-01_2022-06-26	Samples WR2200650-9,10,12,14: Water sample for VOC analysis contained > 5% headspace. Results may be biased low.
WR2200650-010	SD_MW14-02_2022-06-26	Samples WR2200650-9,10,12,14: Water sample for VOC analysis contained > 5% headspace. Results may be biased low.
WR2200650-012	SD_MW14-042022-06-26	Samples WR2200650-9,10,12,14: Water sample for VOC analysis contained > 5% headspace. Results may be biased low.
WR2200650-014	SD_MW-FD_2022-06-26	Samples WR2200650-9,10,12,14: Water sample for VOC analysis contained > 5% headspace. Results may be biased low.

Qualifiers

Qualifier Description	
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>: greater than.

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



DLDS Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical

Conductivity.

RRV Reported result verified by repeat analysis.

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Groundwater			Cli	ient sample ID	SD_MW13-01_	SD_MW13-04_	SD_MW13-05_	SD_MW13-06_	SD_MW13-07_
(Matrix: Water)					2022-06-26	2022-06-26	2022-06-26	2022-06-26	2022-06-26
			Client samp	ling date / time	29-Jun-2022 10:00	28-Jun-2022 15:00	29-Jun-2022 09:15	29-Jun-2022 13:30	28-Jun-2022 16:00
Analyte	CAS Number	Method	LOR	Unit	WR2200650-001	WR2200650-002	WR2200650-003	WR2200650-004	WR2200650-005
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	154	121	125	187	226
conductivity		E100	2.0	μS/cm	312	235	358	794	451
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	158	124	171	406	231
pH		E108	0.10	pH units	8.33	8.27	8.25	8.20	8.30
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	0.0112	0.0106	0.0172	0.152
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.250 DLDS	<0.050
chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	<0.50	<2.50 DLDS	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	0.440	0.059	0.061	0.486	0.293
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.290	0.217	1.63	<0.0250 DLDS	<0.0050
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0050 DLDS	0.0015
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	13.1	4.00	55.4	253	30.9
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0036	0.0046	0.0034	0.0022	0.0040
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00021	0.00027	0.00032	0.00015	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00071	0.00099	0.00064	0.0447	0.00156
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0180	0.0300	0.0578	0.0234	0.0394
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	0.012	0.022
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000273	0.000411	0.0000596	0.0000590	<0.000050
calcium, dissolved	7440-70-2	E421	0.050	mg/L	55.8	45.4	62.4	144	66.2
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	0.00238	0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00025	0.00032	0.00067	<0.00020	0.00023
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	<0.010	0.507	0.675
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000928	0.000860	0.000271	0.000399	0.000096
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0027	0.0024	0.0017	0.0084	0.0097
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	4.50	2.64	3.73	11.3	16.0
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00034	0.00021	0.00054	0.311	0.174
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Groundwater			Cli	ent sample ID	SD_MW13-01_	SD_MW13-04_	SD_MW13-05_	SD_MW13-06_	SD_MW13-07_
(Matrix: Water)					2022-06-26	2022-06-26	2022-06-26	2022-06-26	2022-06-26
			Client sampl	ling date / time	29-Jun-2022 10:00	28-Jun-2022 15:00	29-Jun-2022 09:15	29-Jun-2022 13:30	28-Jun-2022 16:00
Analyte	CAS Number	Method	LOR	Unit	WR2200650-001	WR2200650-002	WR2200650-003	WR2200650-004	WR2200650-005
					Result	Result	Result	Result	Result
Dissolved Metals		5500	0.0000050		0.000050	0.000050	0.000050	0.000050	0.000050
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.000050	<0.000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00157	0.000649	0.000774	0.0340	0.00302
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.0290	<0.00050
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	0.146	<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.627	0.408	0.626	2.18	3.00
selenium, dissolved	7782-49-2	E421	0.050	μg/L	1.21	1.28	2.56	0.066	<0.050
silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.31	3.95	4.89	16.4	8.32
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.962	0.573	0.888	5.24	4.72
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.230	0.109	0.191	0.518	0.526
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	5.01	1.59	19.8	93.5	11.7
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	0.000013	<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	0.00186	0.000570	0.000856	0.0123	0.00682
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	0.0094	0.0068	0.0023	0.107	0.0015
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	Laboratory	Field	Field	Field
Volatile Organic Compounds [Fuels]									
benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	<0.50		<0.50
ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	<0.50		<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	<0.50		<0.50
styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	<0.50		<0.50
toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	<0.50		<0.50
xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	<0.40		<0.40
xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	<0.30		<0.30
xylenes, total	1330-20-7	E611A	0.50	μg/L	<0.50	<0.50	<0.50		<0.50
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	88.2	86.9	84.8		86.4
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 Work Order
 : WR2200650

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Groundwater (Matrix: Water)			CI	ient sample ID	SD_MW13-01_ 2022-06-26	SD_MW13-04_ 2022-06-26	SD_MW13-05_ 2022-06-26	SD_MW13-06_ 2022-06-26	SD_MW13-07_ 2022-06-26
(WIGHTAL TYGLET)			Client samp	ling date / time	29-Jun-2022 10:00	28-Jun-2022 15:00	29-Jun-2022 09:15	29-Jun-2022 13:30	28-Jun-2022 16:00
Analyte	CAS Number	Method	LOR	Unit	WR2200650-001	WR2200650-002	WR2200650-003	WR2200650-004	WR2200650-005
					Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates									
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	99.5	98.0	98.4		99.5
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L	<250	<250	<250		<250
EPH (C19-C32)		E601A	250	μg/L	<250	<250	<250		1180
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	<100		<100
HEPHw		EC600A	250	μg/L	<250	<250	<250		1180
LEPHw		EC600A	250	μg/L	<250	<250	<250		<250
VPHw		EC580A	100	μg/L	<100	<100	<100		<100
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%	84.0	82.0	90.1		91.1
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	108	96.5	104		90.1
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
acenaphthylene	208-96-8	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
acridine	260-94-6	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
anthracene	120-12-7	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
benz(a)anthracene	56-55-3	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L	<0.0050	<0.0050	<0.0050		<0.0050
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L	<0.015	<0.015	<0.015		<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
chrysene	218-01-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L	<0.0050	<0.0050	<0.0050		<0.0050
fluoranthene	206-44-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
fluorene	86-73-7	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
naphthalene	91-20-3	E641A	0.050	μg/L	<0.050	<0.050	<0.050		<0.050
phenanthrene	85-01-8	E641A	0.020	μg/L	<0.020	<0.020	<0.020		<0.020
productions	00-01-6	LOTIN	0.020	P9/L	-0.020	10.020	10.020		10.020

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 Work Order
 : WR2200650

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW13-01_	SD_MW13-04_	SD_MW13-05_	SD_MW13-06_	SD_MW13-07_
(Matrix: Water)					2022-06-26	2022-06-26	2022-06-26	2022-06-26	2022-06-26
			Client samp	ling date / time	29-Jun-2022 10:00	28-Jun-2022 15:00	29-Jun-2022 09:15	29-Jun-2022 13:30	28-Jun-2022 16:00
Analyte	CAS Number	Method	LOR	Unit	WR2200650-001	WR2200650-002	WR2200650-003	WR2200650-004	WR2200650-005
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons									
pyrene	129-00-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010		<0.010
quinoline	91-22-5	E641A	0.050	μg/L	<0.050	<0.050	<0.050		<0.050
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%	92.6	110	121		106
naphthalene-d8	1146-65-2	E641A	0.1	%	103	94.1	107		96.4
phenanthrene-d10	1517-22-2	E641A	0.1	%	113	103	117		104

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Sub-Matrix: Groundwater (Matrix: Water)			Cli	ient sample ID	SD_MW13-08_ 2022-06-26	SD_MW13-10_ 2022-06-26	SD_MW13-13_ 2022-06-26	SD_MW14-01_ 2022-06-26	SD_MW14-02_ 2022-06-26
			Client samp	ling date / time	29-Jun-2022 14:45	29-Jun-2022 16:00	29-Jun-2022 11:00	30-Jun-2022 11:00	30-Jun-2022 10:30
Analyte	CAS Number	Method	LOR	Unit	WR2200650-006	WR2200650-007	WR2200650-008	WR2200650-009	WR2200650-010
					Result	Result	Result	Result	Result
Physical Tests		F000	4.0	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	040	000	00.4	040	000
alkalinity, total (as CaCO3)		E290	1.0	mg/L	212	206	80.1	240	200
conductivity		E100	2.0	μS/cm	393	429	199	447	375
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	206	229	94.2	264	165
рН		E108	0.10	pH units	8.09	8.10	8.09	8.10	8.28
Anions and Nutrients	7004 44 =	E209	0.0050	me://	0.0207	0.0454	0.0050	0.0439	0.0242
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0207	0.0151	0.0058	0.0138	0.0342
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.CI	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	0.063	0.049	0.105	0.066	0.077
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.387	0.516	0.137	0.300	0.173
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	7.76	28.6	20.1	6.75	5.62
Dissolved Metals	7400.00.5	E421	0.0010	ma #/I	0.0070	0.0029	0.0110	0.150	0.0076
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0070	0.0029	0.00110	0.00018	0.0076
antimony, dissolved	7440-36-0		0.00010	mg/L					0.00032
arsenic, dissolved	7440-38-2	E421 E421	0.00010	mg/L	0.00048 0.100	0.00109 0.0118	0.00071 0.0129	0.00062 0.255	0.00078
barium, dissolved beryllium, dissolved	7440-39-3		0.00010	mg/L	<0.000020	<0.00020	<0.00020	<0.00020	<0.000020
_ · ·	7440-41-7	E421 E421	0.000020	mg/L	<0.000020	<0.00020	<0.000020	<0.000020	<0.000020
bismuth, dissolved	7440-69-9	E421	0.000030	mg/L	<0.010	<0.010	<0.000	<0.000	<0.000
boron, dissolved	7440-42-8			mg/L	0.0000655	0.0000220	0.00207	0.000709	0.0000183
cadmium, dissolved	7440-43-9	E421 E421	0.0000050 0.050	mg/L	71.3	77.8	35.4	84.2	52.9
calcium, dissolved	7440-70-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00093	0.00107
chromium, dissolved cobalt, dissolved	7440-47-3	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	0.00093	<0.00107
copper, dissolved	7440-48-4	E421	0.00010	mg/L	0.00010	0.00035	0.0010	0.00022	0.00626
iron, dissolved	7440-50-8 7439-89-6	E421	0.00020	mg/L mg/L	0.00083	<0.010	0.00137	0.0008	<0.010
lead, dissolved	7439-89-6	E421	0.00050	mg/L	0.000502	0.000266	0.00278	0.000846	0.000293
lithium, dissolved		E421	0.000030	mg/L	0.000302	0.0015	<0.00278	0.0016	0.000293
magnesium, dissolved	7439-93-2 7439-95-4	E421	0.100	mg/L	6.86	8.44	1.41	13.0	7.96
manganese, dissolved		E421	0.00010	_	0.00264	0.00041	0.00231	0.0146	0.00053
mercury, dissolved	7439-96-5	E509	0.00010	mg/L mg/L	<0.00204	<0.000050	<0.00251	<0.000050	<0.000050
mercury, dissolved	7439-97-6	L303	0.0000000	mg/L	40.0000000	VO.0000000	~0.0000000	~0.000000	-0.0000000

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Sub-Matrix: Groundwater			Cli	ient sample ID	SD_MW13-08_	SD_MW13-10_	SD_MW13-13_	SD_MW14-01_	SD_MW14-02_
(Matrix: Water)					2022-06-26	2022-06-26	2022-06-26	2022-06-26	2022-06-26
			Client samp	ling date / time	29-Jun-2022 14:45	29-Jun-2022 16:00	29-Jun-2022 11:00	30-Jun-2022 11:00	30-Jun-2022 10:30
Analyte	CAS Number	Method	LOR	Unit	WR2200650-006	WR2200650-007	WR2200650-008	WR2200650-009	WR2200650-010
					Result	Result	Result	Result	Result
Dissolved Metals									
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00144	0.00168	0.000210	0.00166	0.00331
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00058
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	0.710	1.07	0.580	0.793	1.01
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.573	1.50	0.626	0.735	0.293
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.87	4.50	2.02	5.95	4.81
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	1.90	1.96	0.521	2.36	19.8
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.235	0.356	0.0659	0.287	0.168
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	3.02	11.3	7.98	2.95	2.54
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	0.00497	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00126	0.00265	0.000233	0.00138	0.00104
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00065	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0068	0.0019	0.0617	0.0042	0.0020
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
Volatile Organic Compounds [Fuels]									
benzene	71-43-2	E611A	0.50	μg/L		<0.50		<0.50	<0.50
ethylbenzene	100-41-4	E611A	0.50	μg/L		<0.50		<0.50	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L		<0.50		<0.50	<0.50
styrene	100-42-5	E611A	0.50	μg/L		<0.50		<0.50	<0.50
toluene	108-88-3	E611A	0.50	μg/L		<0.50		<0.50	<0.50
xylene, m+p-	179601-23-1	E611A	0.40	μg/L		<0.40		<0.40	<0.40
xylene, o-	95-47-6	E611A	0.30	μg/L		<0.30		<0.30	<0.30
xylenes, total	1330-20-7	E611A	0.50	μg/L		<0.50		<0.50	<0.50
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%		85.8		87.3	89.5
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%		98.0		99.0	96.6
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Sub-Matrix: Groundwater			Ci	ient sample ID	SD_MW13-08_	SD_MW13-10_	SD_MW13-13_	SD_MW14-01_	SD_MW14-02_
(Matrix: Water)					2022-06-26	2022-06-26	2022-06-26	2022-06-26	2022-06-26
			Client samp	oling date / time	29-Jun-2022 14:45	29-Jun-2022 16:00	29-Jun-2022 11:00	30-Jun-2022 11:00	30-Jun-2022 10:30
Analyte	CAS Number	Method	LOR	Unit	WR2200650-006	WR2200650-007	WR2200650-008	WR2200650-009	WR2200650-010
					Result	Result	Result	Result	Result
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L		<250		<250	<250
EPH (C19-C32)		E601A	250	μg/L		<250		<250	<250
VHw (C6-C10)		E581.VH+F1	100	μg/L		<100		<100	<100
HEPHw		EC600A	250	μg/L		<250		<250	<250
LEPHw		EC600A	250	μg/L		<250		<250	<250
VPHw		EC580A	100	μg/L		<100		<100	<100
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%		89.8		84.8	89.1
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%		102		111	112
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L		<0.010		<0.010	<0.010
acenaphthylene	208-96-8	E641A	0.010	μg/L		<0.010		<0.010	<0.010
acridine	260-94-6	E641A	0.010	μg/L		<0.010		<0.010	<0.010
anthracene	120-12-7	E641A	0.010	μg/L		<0.010		<0.010	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	μg/L		<0.010		<0.010	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L		<0.0050		<0.0050	<0.0050
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L		<0.010		<0.010	<0.010
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L		<0.015		<0.015	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L		<0.010		<0.010	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L		<0.010		<0.010	<0.010
chrysene	218-01-9	E641A	0.010	μg/L		<0.010		<0.010	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L		<0.0050		<0.0050	<0.0050
fluoranthene	206-44-0	E641A	0.010	μg/L		<0.010		<0.010	<0.010
fluorene	86-73-7	E641A	0.010	μg/L		<0.010		<0.010	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L		<0.010		<0.010	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L		<0.010		<0.010	<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L		<0.010		<0.010	<0.010
naphthalene	91-20-3	E641A	0.050	μg/L		<0.050		<0.050	<0.050
phenanthrene	85-01-8	E641A	0.020	μg/L		<0.020		<0.020	<0.020
pyrene	129-00-0	E641A	0.010	μg/L		<0.010		<0.010	<0.010
quinoline	91-22-5	E641A	0.050	μg/L		<0.050		<0.050	<0.050
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 : Sa Dena Hes



Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW13-08_	SD_MW13-10_	SD_MW13-13_	SD_MW14-01_	SD_MW14-02_
(Matrix: Water)					2022-06-26	2022-06-26	2022-06-26	2022-06-26	2022-06-26
			Client samp	ling date / time	29-Jun-2022 14:45	29-Jun-2022 16:00	29-Jun-2022 11:00	30-Jun-2022 11:00	30-Jun-2022 10:30
Analyte	CAS Number	Method	LOR	Unit	WR2200650-006	WR2200650-007	WR2200650-008	WR2200650-009	WR2200650-010
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%		96.1		78.6	91.2
naphthalene-d8	1146-65-2	E641A	0.1	%		109		97.0	105
phenanthrene-d10	1517-22-2	E641A	0.1	%		113		106	102

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Sub-Matrix: Groundwater (Matrix: Water)			Cli	ient sample ID	SD_MW14-04 2022-06-26	SD_MW-FB_20 22-06-26	SD_MW-FD_20 22-06-26	SD_MW-FD3_2 022-06-26	SD_MW-FD2_2 022-06-26
			Client samp	ling date / time	30-Jun-2022 09:50	28-Jun-2022	30-Jun-2022	29-Jun-2022	29-Jun-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200650-012	WR2200650-013	WR2200650-014	WR2200650-015	WR2200650-016
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	174	<1.0	160	79.5	186
conductivity		E100	2.0	μS/cm	312	<2.0	303	203	804
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	145	<0.60	141	96.9	403
рН		E108	0.10	pH units	8.33	5.06	8.34	8.11	8.32
Anions and Nutrients		5000	0.0050		0.0400	0.0400 PPW	0.0454	0.0050	0.0440
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0162	0.0123 RRV	0.0154	0.0056	0.0142
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.250 DLDS
chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<2.50 DLDS
fluoride	16984-48-8	E235.F	0.020	mg/L	0.038	<0.020	0.045	0.111	0.494
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.161	<0.0050	0.156	0.142	<0.0250 DLDS
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050 DLDS
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	3.32	<0.30	2.91	21.2	258
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0084	<0.0010	0.0070	0.0116	0.0022
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00021	<0.00010	0.00019	0.00011	0.00015
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00045	<0.00010	0.00046	0.00049	0.0441
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0827	0.00013 RRV	0.0914	0.0128	0.0240
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	0.012
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000320	<0.000050	0.0000219	0.00208	0.0000636
calcium, dissolved	7440-70-2	E421	0.050	mg/L	49.1	0.062 RRV	47.7	36.4	143
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00147	<0.00050	0.00140	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00242
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00131	<0.00020	0.00131	0.00086	0.00026
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	<0.010	0.016	0.498
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.00124	0.000196 RRV	0.000093	0.00285	0.000821
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0013	<0.0010	0.0012	<0.0010	0.0083
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	5.37	<0.100	5.37	1.45	11.2
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00076	0.00013 RRV	0.00055	0.00077	0.309
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050

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Sub-Matrix: Groundwater			Cli	ient sample ID	SD_MW14-04	SD_MW-FB_20	SD_MW-FD_20	SD_MW-FD3_2	SD_MW-FD2_2
(Matrix: Water)					2022-06-26	22-06-26	22-06-26	022-06-26	022-06-26
			Client samp	ling date / time	30-Jun-2022 09:50	28-Jun-2022	30-Jun-2022	29-Jun-2022	29-Jun-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200650-012	WR2200650-013	WR2200650-014	WR2200650-015	WR2200650-016
					Result	Result	Result	Result	Result
Dissolved Metals					2 22 1 12	D D D D D D D D D D D D D D D D D D D			
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00149	0.000088 RRV	0.00147	0.000200	0.0346
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.0297
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	0.175
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.895	<0.100	0.704	0.528	2.25
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.402	<0.050	0.426	0.552	0.052
silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.18	<0.050	4.12	2.00	16.1
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	3.93	0.114 RRV	3.79	0.498	5.28
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.203	<0.00020	0.194	0.0679	0.521
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.14	<0.50	1.37	7.67	93.3
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	0.000013
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	0.00035	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000463	<0.000010	0.000461	0.000226	0.0122
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	0.0031	<0.0010	0.0024	0.0614	0.108
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
Volatile Organic Compounds [Fuels]									
benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	<0.50		
ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	<0.50		
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	<0.50		
styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	<0.50		
toluene	108-88-3	E611A	0.50	μg/L	<0.50	0.72	<0.50		
xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	<0.40		
xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	<0.30		
xylenes, total	1330-20-7	E611A	0.50	μg/L	<0.50	<0.50	<0.50		
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	86.3	87.3	81.8		
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	96.3	98.3	97.3		
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Sub-Matrix: Groundwater			C	lient sample ID	SD_MW14-04	SD_MW-FB_20	SD_MW-FD_20	SD_MW-FD3_2	SD_MW-FD2_2
(Matrix: Water)					2022-06-26	22-06-26	22-06-26	022-06-26	022-06-26
			Client samp	oling date / time	30-Jun-2022 09:50	28-Jun-2022	30-Jun-2022	29-Jun-2022	29-Jun-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200650-012	WR2200650-013	WR2200650-014	WR2200650-015	WR2200650-016
					Result	Result	Result	Result	Result
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L	<250	<250	<250		
EPH (C19-C32)		E601A	250	μg/L	<250	<250	<250		
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	<100		
HEPHw		EC600A	250	μg/L	<250	<250	<250		
LEPHw		EC600A	250	μg/L	<250	<250	<250		
VPHw		EC580A	100	μg/L	<100	<100	<100		
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%	80.6	87.3	83.5		
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	79.1	104	98.2		
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
acenaphthylene	208-96-8	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
acridine	260-94-6	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
anthracene	120-12-7	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
benz(a)anthracene	56-55-3	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L	<0.0050	<0.0050	<0.0050		
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L	<0.015	<0.015	<0.015		
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
chrysene	218-01-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L	<0.0050	<0.0050	<0.0050		
fluoranthene	206-44-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
fluorene	86-73-7	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
naphthalene	91-20-3	E641A	0.050	μg/L	<0.050	<0.050	<0.050		
phenanthrene	85-01-8	E641A	0.020	μg/L	<0.020	<0.020	<0.020		
pyrene	129-00-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010		
quinoline	91-22-5	E641A	0.050	μg/L	<0.050	<0.050	<0.050		
quinomic	91-22-5	LOTIN	0.000	P9/L	-0.000	-0.000	-0.000		

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Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW14-04	SD_MW-FB_20	SD_MW-FD_20	SD_MW-FD3_2	SD_MW-FD2_2
(Matrix: Water)					2022-06-26	22-06-26	22-06-26	022-06-26	022-06-26
			Client samp	ling date / time	30-Jun-2022 09:50	28-Jun-2022	30-Jun-2022	29-Jun-2022	29-Jun-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200650-012	WR2200650-013	WR2200650-014	WR2200650-015	WR2200650-016
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%	90.5	109	86.1		
naphthalene-d8	1146-65-2	E641A	0.1	%	105	90.8	102		
phenanthrene-d10	1517-22-2	E641A	0.1	%	104	103	110		

Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL INTERPRETIVE REPORT

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Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Wendy McBain Account Manager : Can Dang

Address : 601 Knighton Road Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Kimberley BC Canada V1A 3E1 Telephone Telephone : +1 867 668 6689

Project Date Samples Received : 04-Jul-2022 13:15 Sa Dena Hes Issue Date

PO PO# 10289 : 21-Jul-2022 15:35 C-O-C number

Sampler

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 15 No. of samples analysed : 15

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 Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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.



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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: **x** = Holding time exceedance; ✓ = Within Holding Time Analyte Group Sampling Date Extraction / Preparation Analysis Method Container / Client Sample ID(s) **Holding Times** Eval Analysis Date Holding Times Eval Preparation Rec Actual Rec Actual Date Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD_MW14-01_2022-06-26 F298 30-Jun-2022 12-Jul-2022 1 14-Jul-2022 28 days 14 days Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) SD_MW14-02_2022-06-26 E298 30-Jun-2022 12-Jul-2022 14-Jul-2022 28 days 14 days ✓ ----Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) SD MW14-04- 2022-06-26 E298 30-Jun-2022 12-Jul-2022 14-Jul-2022 28 days 14 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD_MW13-01_2022-06-26 E298 29-Jun-2022 12-Jul-2022 14-Jul-2022 28 days 15 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) 12-Jul-2022 14-Jul-2022 SD MW13-05 2022-06-26 F298 29-Jun-2022 28 days 15 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) F298 29-Jun-2022 12-Jul-2022 14-Jul-2022 28 days 15 days SD MW13-06 2022-06-26 --------Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) E298 29-Jun-2022 12-Jul-2022 14-Jul-2022 28 days 15 days ✓ SD MW13-08 2022-06-26

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Matrix: Water

Evaluation: x = Holding time exceedance: <	= Within Holding Time
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Matrix: Water					E	valuation: 🗴 =	Holding time exce	edance ; 🕦	= Within	Holding T
Analyte Group	Method	Sampling Date	Ex	traction / Pi	reparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-10_2022-06-26	E298	29-Jun-2022	12-Jul-2022				14-Jul-2022	28 days	15 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-13_2022-06-26	E298	29-Jun-2022	12-Jul-2022				14-Jul-2022	28 days	15 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-04_2022-06-26	E298	28-Jun-2022	12-Jul-2022				14-Jul-2022	28 days	16 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-07_2022-06-26	E298	28-Jun-2022	12-Jul-2022				14-Jul-2022	28 days	16 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW-FD_2022-06-26	E298	30-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	20 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW-FD2_2022-06-26	E298	29-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	21 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW-FD3_2022-06-26	E298	29-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	21 days	✓
Anions and Nutrients : Ammonia by Fluorescence						I				
Amber glass total (sulfuric acid) SD MW-FB 2022-06-26	E298	28-Jun-2022	12-Jul-2022				20-Jul-2022	28 davs	22 days	1
									,	
Anions and Nutrients : Bromide in Water by IC (Low Level)					I					
HDPE SD MW14-01 2022-06-26	E235.Br-L	30-Jun-2022					07-Jul-2022	28 days	7 davs	✓
									,-	
		-				1				

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Maurix: water						/aiuation. * =	Holding time exce	euance , •	_ vviti iii i	riolaling rill
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										_
SD_MW14-02_2022-06-26	E235.Br-L	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE	E005 B- I	20 1 2022					07 1.1 0000	00.1	7 1	1
SD_MW14-042022-06-26	E235.Br-L	30-Jun-2022					07-Jul-2022	28 days	/ days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)				T.	I					
HDPE SD_MW-FD_2022-06-26	E235.Br-L	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
3D_WW-FD_2022-00-20	LZ33.DI-L	30-3u11-2022					07-Jui-2022	20 days	1 days	•
Action with the product with the first transfer										
Anions and Nutrients : Bromide in Water by IC (Low Level) HDPE							I	<u> </u>		
SD MW13-01 2022-06-26	E235.Br-L	29-Jun-2022					07-Jul-2022	28 days	8 davs	√
050 05022 00 20									,-	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-05_2022-06-26	E235.Br-L	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-06_2022-06-26	E235.Br-L	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE	5005 B	00 1 0000					07 1.1 2225	00 :	0.1	,
SD_MW13-08_2022-06-26	E235.Br-L	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE SD MW13-10 2022-06-26	E235.Br-L	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
3D_INIW 13-10_2022-00-20	L200.DI-L	29-0011-2022					01-Jui-2022	20 days	Juays	•
Aniana and Nutrianta - Drawida in Materilas 16 (Law Laws)										
Anions and Nutrients : Bromide in Water by IC (Low Level) HDPE							I			
SD_MW13-13_2022-06-26	E235.Br-L	29-Jun-2022					07-Jul-2022	28 days	8 days	√
									,, c	

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Width. Water						/aiuation. • –	riolaing time exce	cuarice,	- vviti iii i	Holding Till
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW-FD2_2022-06-26	E235.Br-L	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW-FD3_2022-06-26	E235.Br-L	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-04_2022-06-26	E235.Br-L	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-07_2022-06-26	E235.Br-L	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW-FB_2022-06-26	E235.Br-L	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW14-01_2022-06-26	E235.CI	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW14-02_2022-06-26	E235.CI	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW14-042022-06-26	E235.CI	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW-FD_2022-06-26	E235.CI	30-Jun-2022					07-Jul-2022	28 days	7 days	✓

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Matrix: water						raidation. • -	nolding time exce			riolaling riiii
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW13-01_2022-06-26	E235.CI	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD MW13-05 2022-06-26	E235.CI	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW13-06_2022-06-26	E235.CI	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
OB_WW 10 00_2022-00 20	2200.01	20 0411 2022					07 047 2022	20 dayo	o dayo	
Anions and Nutrients : Chloride in Water by IC				l I	I			1		
HDPE	F00F CI	00 1 0000					07 1 0000	00 -1	0 4	,
SD_MW13-08_2022-06-26	E235.CI	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW13-10_2022-06-26	E235.CI	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW13-13_2022-06-26	E235.CI	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW-FD2_2022-06-26	E235.CI	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD MW-FD3 2022-06-26	E235.CI	29-Jun-2022					07-Jul-2022	28 days	8 davs	✓
Anione and Nutricutes Obligate in Western 10										
Anions and Nutrients : Chloride in Water by IC							I			
HDPE SD MW43 04 2022 06 26	E235.CI	28-Jun-2022					07-Jul-2022	28 days	0 days	✓
SD_MW13-04_2022-06-26	E233.01	20-Juli-2022					07-Jui-2022	20 uays	a uays	•

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Maurix: water						raidation.	Holding time exce	oddiioo ,	***************************************	Troiding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MW13-07_2022-06-26	E235.CI	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD MW-FB 2022-06-26	E235.CI	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
								-	-	
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MW14-01_2022-06-26	E235.F	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
									,	
Aniana and Nutrianta - Fluorida in Matar by IC										
Anions and Nutrients : Fluoride in Water by IC HDPE							<u> </u>			
SD MW14-02 2022-06-26	E235.F	30-Jun-2022					07-Jul-2022	28 days	7 days	√
OD_IMW14-02_2022-00-20	L200.1	00-0011-2022					07-04I-2022	20 days	r days	•
Anions and Nutrients : Fluoride in Water by IC HDPE							I	I		
SD_MW14-042022-06-26	E235.F	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
3D_MW14-042022-00-20	L233.1	30-3011-2022					07-3ui-2022	20 days	1 uays	•
Anions and Nutrients : Fluoride in Water by IC HDPE							I	I		
SD_MW-FD_2022-06-26	E235.F	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
3D_IMW-FD_2022-00-20	L233.1	30-3u11-2022					07-3ui-2022	20 days	1 uays	•
Anions and Nutrients : Fluoride in Water by IC							I			
HDPE	E235.F	29-Jun-2022					07-Jul-2022	20 days	9 days	✓
SD_MW13-01_2022-06-26	E235.F	29-Jun-2022					07-Jul-2022	28 days	8 days	•
Anions and Nutrients : Fluoride in Water by IC										
HDPE	F005 F	00 1 0000					07 11 0000	00 4	0 4	,
SD_MW13-05_2022-06-26	E235.F	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE	F005 5	00 1. 0000					07 1.1 0005	00.1	0.1	,
SD_MW13-06_2022-06-26	E235.F	29-Jun-2022					07-Jul-2022	28 days	8 days	✓

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iviaurix: water						valuation. * =	noiding time exce	euance,	- vviti iii i	Holding Till
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MW13-08_2022-06-26	E235.F	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD MW13-10 2022-06-26	E235.F	29-Jun-2022					07-Jul-2022	28 days	8 davs	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE							I			
SD_MW13-13_2022-06-26	E235.F	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
05_111110 10_2022 00 20	2200	20 00 2022					0. 00. 2022		o aayo	
Anions and Nutrients : Fluoride in Water by IC HDPE					1	l	I			
	E235.F	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
SD_MW-FD2_2022-06-26	E235.F	29-Juli-2022					07-Jui-2022	20 uays	o uays	•
Anions and Nutrients : Fluoride in Water by IC										
HDPE	F025 F	00 lun 0000					07 1-1 0000	00.1	0.1	,
SD_MW-FD3_2022-06-26	E235.F	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MW13-04_2022-06-26	E235.F	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MW13-07_2022-06-26	E235.F	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MW-FB_2022-06-26	E235.F	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW14-01_2022-06-26	E235.NO3-L	30-Jun-2022					07-Jul-2022	3 days	7 days	sc
									•	EHTR
										•

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Matrix: water						valuation. * =	noiding time exce	euance,	- vviti iii i	Tioluling Tilli
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW14-02_2022-06-26	E235.NO3-L	30-Jun-2022					07-Jul-2022	3 days	7 days	30
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW14-042022-06-26	E235.NO3-L	30-Jun-2022					07-Jul-2022	3 days	7 days	3¢
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW-FD_2022-06-26	E235.NO3-L	30-Jun-2022					07-Jul-2022	3 days	7 days	32
05 5_2022 00 20		00 0						, -	, -	EHTR
A transport No. (1) of the NY										
Anions and Nutrients : Nitrate in Water by IC (Low Level) HDPE					1		I			
SD MW13-01 2022-06-26	E235.NO3-L	29-Jun-2022					07-Jul-2022	3 days	8 days	×
SD_IVIV 13-01_2022-00-20	E235.NO3-L	29-Juli-2022					07-Jui-2022	3 uays	o uays	EHTR
										EHIK
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE	Eggs NOO I	00 1 0000					07.1.10000			
SD_MW13-05_2022-06-26	E235.NO3-L	29-Jun-2022					07-Jul-2022	3 days	8 days	*
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-06_2022-06-26	E235.NO3-L	29-Jun-2022					07-Jul-2022	3 days	8 days	*
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-08_2022-06-26	E235.NO3-L	29-Jun-2022					07-Jul-2022	3 days	8 days	*
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-10_2022-06-26	E235.NO3-L	29-Jun-2022					07-Jul-2022	3 days	8 days	*
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE							I			
SD_MW13-13_2022-06-26	E235.NO3-L	29-Jun-2022					07-Jul-2022	3 days	8 days	30
									,5	EHTR

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Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation		Times	Eval	Analysis Date		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW-FD2_2022-06-26	E235.NO3-L	29-Jun-2022					07-Jul-2022	3 days	8 days	* EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW-FD3_2022-06-26	E235.NO3-L	29-Jun-2022					07-Jul-2022	3 days	8 days	# EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW13-04_2022-06-26	E235.NO3-L	28-Jun-2022					07-Jul-2022	3 days	9 days	* EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW13-07_2022-06-26	E235.NO3-L	28-Jun-2022					07-Jul-2022	3 days	9 days	* EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW-FB_2022-06-26	E235.NO3-L	28-Jun-2022					07-Jul-2022	3 days	9 days	* EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MW14-01_2022-06-26	E235.NO2-L	30-Jun-2022					07-Jul-2022	3 days	7 days	* EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MW14-02_2022-06-26	E235.NO2-L	30-Jun-2022					07-Jul-2022	3 days	7 days	* EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MW14-042022-06-26	E235.NO2-L	30-Jun-2022					07-Jul-2022	3 days	7 days	* EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MW-FD_2022-06-26	E235.NO2-L	30-Jun-2022					07-Jul-2022	3 days	7 days	* EHTR

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Analyte Group Method Sampling Date Extraction / Preparation Preparation Holding Time Container / Client Sample ID(s) Date Rec Acc			Analy	sis	
The parameter of the pa	maa Fyal				
Date Rec Ac	nies Evai	Analysis Date	Holdin	g Times	Eval
	ctual		Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)					
HDPE					
SD_MW13-01_2022-06-26		07-Jul-2022	3 days	8 days	36
					EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)					
HDPE					
		07-Jul-2022	3 days	8 days	æ
					EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)					
HDPE					
		07-Jul-2022	3 days	8 days	3c
					EHTR
Anima and National Militain Water by 10 (Land Land)					
Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE		1		1 1	
		07-Jul-2022	3 days	8 days	×
SB_MW10 00_2022-00 20		07 GGI 2022	o dayo	o dayo	EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE		I			
505,1001		07-Jul-2022	3 days	8 days	æ
SD_WW13-10_2022-00-20	·	07-Jui-2022	3 uays	o uays	EHTR
					LIIIIX
Anions and Nutrients : Nitrite in Water by IC (Low Level)					
HDPE E235.NO2-L 29-Jun-2022		07-Jul-2022	2 4010	8 days	*
SD_MW13-13_2022-06-26		07-Jul-2022	3 days	o days	EHTR
					ЕПІК
Anions and Nutrients : Nitrite in Water by IC (Low Level)					
HDPE		07.1.10000			
SD_MW-FD2_2022-06-26		07-Jul-2022	3 days	8 days	*
					EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)					
HDPE					
SD_MW-FD3_2022-06-26		07-Jul-2022	3 days	8 days	30
					EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)					
HDPE					
SD_MW13-04_2022-06-26		07-Jul-2022	3 days	9 days	3c
					EHTR

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Matrix: water					L\	valuation. • -	noiding time exce	euance, •	_ vviti iii i	Holding Hill
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-07_2022-06-26	E235.NO2-L	28-Jun-2022					07-Jul-2022	3 days	9 days	x
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD MW-FB 2022-06-26	E235.NO2-L	28-Jun-2022					07-Jul-2022	3 days	9 days	×
								_		EHTR
Anions and Nutrients : Sulfate in Water by IC										
HDPE							I			
SD_MW14-01_2022-06-26	E235.SO4	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
05									, -	
Astronomia National Astronomia National Astronomia National Astronomia National Astronomia National Astronomia										
Anions and Nutrients : Sulfate in Water by IC							I			
HDPE SD MW14-02 2022-06-26	E235.SO4	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
3D_WW 14-02_2022-00-20	L233.304	30-3011-2022					07-Jui-2022	20 days	1 days	
Anions and Nutrients : Sulfate in Water by IC										
HDPE	F22F CO4	20 lun 2022					07 1 0000	20 4	7 -1	√
SD_MW14-042022-06-26	E235.SO4	30-Jun-2022					07-Jul-2022	28 days	7 days	∀
Anions and Nutrients : Sulfate in Water by IC					1	ı		1		
HDPE	5005.004						07.1.10000	00.1		
SD_MW-FD_2022-06-26	E235.SO4	30-Jun-2022					07-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-01_2022-06-26	E235.SO4	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-05_2022-06-26	E235.SO4	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-06_2022-06-26	E235.SO4	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
								1		

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Proparation Proparation	Matrix: water						valuation. * =	noiding time exce	euance, •	_ vvitiiiii	Holding Till
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-10_2022-06-26 E235.SO4 29-Jun-2022	Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MV13-0B_2022-06-26 E235.SO4 29-Jun-2022	Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
## PERIOR Factor				Date	Rec	Actual			Rec	Actual	
E235.SQ4 29-Jun-2022 07-Jul-2022 28 days 8 days \times	Anions and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-10_2022-06-26 E235.SO4 29-Jun-2022	HDPE										
## Pipe	SD_MW13-08_2022-06-26	E235.SO4	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
## Pipe											
## Pipe	Anions and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-13_2022-06-26 E235.SO4 29-Jun-2022 07-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW-FD2_2022-06-26 E235.SO4 29-Jun-2022 07-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW-FD3_2022-06-26 E235.SO4 29-Jun-2022 07-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-04_2022-06-26 E235.SO4 28-Jun-2022 07-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-07_2022-06-26 E235.SO4 28-Jun-2022 07-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-07_2022-06-26 E235.SO4 28-Jun-2022 07-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-07_2022-06-26 E235.SO4 28-Jun-2022											
## SD_MW13-13_2022-06-26	SD_MW13-10_2022-06-26	E235.SO4	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
## SD_MW13-13_2022-06-26											
## SD_MW13-13_2022-06-26	Anions and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW-FD2_2022-06-26 E235.SO4 29-Jun-2022 07-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW-FD3_2022-06-26 E235.SO4 29-Jun-2022											
## DPE	SD_MW13-13_2022-06-26	E235.SO4	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
## DPE											
## DPE	Anions and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW-FD3_2022-06-26 E235.SO4 29-Jun-2022											
HDPE SD_MW-FD3_2022-06-26	SD_MW-FD2_2022-06-26	E235.SO4	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
HDPE SD_MW-FD3_2022-06-26											
E235.SO4 29-Jun-2022 07-Jul-2022 28 days 8 days ✓	Anions and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-04_2022-06-26 Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-07_2022-06-26 E235.SO4 E235.S	HDPE										
HDPE SD_MW13-04_2022-06-26	SD_MW-FD3_2022-06-26	E235.SO4	29-Jun-2022					07-Jul-2022	28 days	8 days	✓
HDPE SD_MW13-04_2022-06-26											
HDPE SD_MW13-04_2022-06-26	Anions and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-07_2022-06-26 E235.SO4	HDPE										
HDPE SD_MW13-07_2022-06-26	SD_MW13-04_2022-06-26	E235.SO4	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
HDPE SD_MW13-07_2022-06-26											
HDPE SD_MW13-07_2022-06-26	Anions and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW-FB_2022-06-26 E235.SO4 E23											
HDPE SD_MW-FB_2022-06-26 E235.SO4 28-Jun-2022 07-Jul-2022 28 days 9 days ✓ Dissolved Metals: Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid) Image: Control of the control o	SD_MW13-07_2022-06-26	E235.SO4	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
HDPE SD_MW-FB_2022-06-26 E235.SO4 28-Jun-2022 07-Jul-2022 28 days 9 days ✓ Dissolved Metals: Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid) Image: Control of the control o											
HDPE SD_MW-FB_2022-06-26 E235.SO4 28-Jun-2022 07-Jul-2022 28 days 9 days ✓ Dissolved Metals: Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid) Image: Control of the control o	Anions and Nutrients : Sulfate in Water by IC										
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid)											
Glass vial dissolved (hydrochloric acid)	SD_MW-FB_2022-06-26	E235.SO4	28-Jun-2022					07-Jul-2022	28 days	9 days	✓
Glass vial dissolved (hydrochloric acid)											
Glass vial dissolved (hydrochloric acid)	Dissolved Metals : Dissolved Mercury in Water by CVAAS										
SD_MW13-01_2022-06-26											
	SD_MW13-01_2022-06-26	E509	29-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	10 days	✓

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Analyte Group	Method	Method Sampling Date Extraction / Preparation						Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW13-05_2022-06-26	E509	29-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW13-06_2022-06-26	E509	29-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW13-08_2022-06-26	E509	29-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW13-10_2022-06-26	E509	29-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW13-13_2022-06-26	E509	29-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW-FD2_2022-06-26	E509	29-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW-FD3_2022-06-26	E509	29-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	10 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW13-04_2022-06-26	E509	28-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW13-07_2022-06-26	E509	28-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	11 days	✓

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Matrix: Water							Holding time exce	,		Troiding Time
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW-FB_2022-06-26	E509	28-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD MW14-01 2022-06-26	E509	30-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	9 days	✓
									-	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW14-02_2022-06-26	E509	30-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW14-042022-06-26	E509	30-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	9 days	✓
OB_INIVITY-042022-00-20	2000	00 0411 2022	00 041 2022				00 041 2022	20 dayo	o dayo	
District Market Birela Market Nation 1 (1974)										
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid)										
, ,	E509	30-Jun-2022	09-Jul-2022				09-Jul-2022	28 days	0 days	1
SD_MW-FD_2022-06-26	L309	30-3011-2022	09-Jul-2022				09-Jui-2022	20 uays	9 uays	•
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS				1				I	l I	
HDPE dissolved (nitric acid)	E421	29-Jun-2022	08-Jul-2022				08-Jul-2022		10 -1	1
SD_MW13-01_2022-06-26	E421	29-Jun-2022	00-Jul-2022				06-Jul-2022	180	10 days	•
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)		00 1 2225								
SD_MW13-05_2022-06-26	E421	29-Jun-2022	08-Jul-2022				08-Jul-2022	180	10 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-06_2022-06-26	E421	29-Jun-2022	08-Jul-2022				08-Jul-2022	180	10 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-08_2022-06-26	E421	29-Jun-2022	08-Jul-2022				08-Jul-2022	180	10 days	✓
	1	1						days		

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Matrix: Water

Evaluation:	 – Holding time 	exceedance ·	/ - Within	Holding Time

atrix: Water					E۱	/aluation: 🗴 =	Holding time excee	edance ; •	/ = Within	Holding
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-10_2022-06-26	E421	29-Jun-2022	08-Jul-2022				08-Jul-2022	180	10 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-13_2022-06-26	E421	29-Jun-2022	08-Jul-2022				08-Jul-2022	180	10 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW-FD2_2022-06-26	E421	29-Jun-2022	08-Jul-2022				08-Jul-2022	180	10 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW-FD3_2022-06-26	E421	29-Jun-2022	08-Jul-2022				08-Jul-2022	180	10 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-07_2022-06-26	E421	28-Jun-2022	08-Jul-2022				08-Jul-2022	180	11 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW-FB_2022-06-26	E421	28-Jun-2022	08-Jul-2022				08-Jul-2022	180	11 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-04_2022-06-26	E421	28-Jun-2022	10-Jul-2022				11-Jul-2022	180	13 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW14-01_2022-06-26	E421	30-Jun-2022	08-Jul-2022				08-Jul-2022	180	9 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
	E 404	00 1 0000		1					0.1	
SD_MW14-02_2022-06-26	E421	30-Jun-2022	08-Jul-2022				08-Jul-2022	180	9 days	✓

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 : Sa Dena Hes



Matrix: Water

Evaluation:	x = Holding time	evceedance : V	= Within	Holding Time

Matrix: Water					E۱	/aluation: 🗴 =	Holding time exce	edance ; 🕦	= Within	Holding Tir
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) SD_MW14-042022-06-26	E421	30-Jun-2022	08-Jul-2022				08-Jul-2022	180	9 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW-FD_2022-06-26	E421	30-Jun-2022	08-Jul-2022				08-Jul-2022	180 days	9 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW13-05_2022-06-26	E601A	29-Jun-2022	10-Jul-2022	14	11	✓	13-Jul-2022	40 days	3 days	✓
				days	days					
Hydrocarbons : BC PHCs - EPH by GC-FID					I			I		
Amber glass/Teflon lined cap (sodium bisulfate) SD MW14-01 2022-06-26	E601A	30-Jun-2022	12-Jul-2022	14	12	✓	12-Jul-2022	40 days	0 days	1
3D_IVIVV14-01_2022-00-20	LOUIA	30-3u11-2022	12-341-2022	days	days	•	12-341-2022	40 days	0 days	•
Hydrocarbons : BC PHCs - EPH by GC-FID				uajo	uaye					
Amber glass/Teflon lined cap (sodium bisulfate)										
SD MW14-02 2022-06-26	E601A	30-Jun-2022	12-Jul-2022	14	12	✓	12-Jul-2022	40 days	0 days	✓
				days	days					
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW14-042022-06-26	E601A	30-Jun-2022	12-Jul-2022	14	12	✓	12-Jul-2022	40 days	0 days	✓
				days	days					
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW-FD_2022-06-26	E601A	30-Jun-2022	12-Jul-2022	14	12	✓	12-Jul-2022	40 days	0 days	✓
				days	days					
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)	E601A	28-Jun-2022	10-Jul-2022		40	✓	13-Jul-2022	40 days	2 days	✓
SD_MW13-04_2022-06-26	EOUTA	20-Jun-2022	10-Jui-2022	14 days	12 days	•	13-Jul-2022	40 days	3 days	•
Hydrocarbons : BC PHCs - EPH by GC-FID				,5						
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW13-07_2022-06-26	E601A	28-Jun-2022	10-Jul-2022	14	12	✓	13-Jul-2022	40 days	3 days	✓
				days	days					
	-							-		

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atrix: Water						aluation: * =	Holding time exce			Holding
nalyte Group	Method	Sampling Date	Ex	traction / Pr				Analys		
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
ydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW-FB_2022-06-26	E601A	28-Jun-2022	10-Jul-2022	14	12	✓	13-Jul-2022	40 days	3 days	✓
				days	days					
ydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW13-01_2022-06-26	E601A	29-Jun-2022	12-Jul-2022	14	13	✓	12-Jul-2022	40 days	0 days	✓
				days	days					
ydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW13-10_2022-06-26	E601A	29-Jun-2022	12-Jul-2022	14	13	✓	12-Jul-2022	40 days	0 days	1
35 10_2022 00 20				days	days			,-	,-	
Library No. 1945 Harden Of FIR				dayo	dayo					
ydrocarbons : VH and F1 by Headspace GC-FID							I	1		
Glass vial (sodium bisulfate)	E581.VH+F1	28-Jun-2022	11-Jul-2022				12-Jul-2022	14 days	13 days	1
SD_MW13-04_2022-06-26	L361.VIIII 1	20-3011-2022	11-Jui-2022				12-Jui-2022	14 days	15 days	•
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)	E504.VII. E4	00 1 0000	44 1 1 0000				40 1 1 0000		40.1	,
SD_MW13-07_2022-06-26	E581.VH+F1	28-Jun-2022	11-Jul-2022				12-Jul-2022	14 days	13 days	✓
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW13-10_2022-06-26	E581.VH+F1	29-Jun-2022	12-Jul-2022				13-Jul-2022	14 days	13 days	✓
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-01_2022-06-26	E581.VH+F1	30-Jun-2022	13-Jul-2022				13-Jul-2022	14 days	13 days	✓
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-02_2022-06-26	E581.VH+F1	30-Jun-2022	13-Jul-2022				13-Jul-2022	14 days	13 days	✓
ydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)							I			
SD MW14-04- 2022-06-26	E581.VH+F1	30-Jun-2022	13-Jul-2022				13-Jul-2022	14 days	13 days	~
35_mm17-07L022-00-20	2001.71171	00 0011-2022	10 001-2022				10 001-2022	i i days	. o days	•

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watrix: water						araaraara.	Holding time exce	, , , , , , , , , , , , , , , , , , ,	**********		
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation		Analysis				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval	
			Date	Rec	Actual		-	Rec	Actual		
Hydrocarbons : VH and F1 by Headspace GC-FID											
Glass vial (sodium bisulfate)											
SD_MW-FB_2022-06-26	E581.VH+F1	28-Jun-2022	11-Jul-2022				12-Jul-2022	14 days	13 days	✓	
Hydrocarbons : VH and F1 by Headspace GC-FID											
Glass vial (sodium bisulfate)											
SD_MW-FD_2022-06-26	E581.VH+F1	30-Jun-2022	13-Jul-2022				13-Jul-2022	14 days	13 days	✓	
Hydrocarbons : VH and F1 by Headspace GC-FID											
Glass vial (sodium bisulfate)											
SD_MW13-01_2022-06-26	E581.VH+F1	29-Jun-2022	12-Jul-2022				13-Jul-2022	14 days	14 days	✓	
Hydrocarbons : VH and F1 by Headspace GC-FID											
Glass vial (sodium bisulfate)											
SD_MW13-05_2022-06-26	E581.VH+F1	29-Jun-2022	12-Jul-2022				13-Jul-2022	14 days	14 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE											
SD_MW13-01_2022-06-26	E290	29-Jun-2022					09-Jul-2022	14 days	10 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE											
SD_MW13-05_2022-06-26	E290	29-Jun-2022					09-Jul-2022	14 days	10 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE											
SD_MW13-06_2022-06-26	E290	29-Jun-2022					09-Jul-2022	14 days	10 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE											
SD_MW13-08_2022-06-26	E290	29-Jun-2022					09-Jul-2022	14 days	10 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE											
SD_MW13-10_2022-06-26	E290	29-Jun-2022					09-Jul-2022	14 days	10 days	✓	
							I				

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Analyte Group											
Tinalyte Croup	Method	Sampling Date	Ext	raction / Pr	eparation		Analysis				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Physical Tests : Alkalinity Species by Titration											
HDPE											
SD_MW13-13_2022-06-26	E290	29-Jun-2022					09-Jul-2022	14 days	10 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE											
SD MW-FD2 2022-06-26	E290	29-Jun-2022					09-Jul-2022	14 days	10 days	✓	
								-	-		
Physical Tests : Alkalinity Species by Titration											
HDPE											
SD_MW-FD3_2022-06-26	E290	29-Jun-2022					09-Jul-2022	14 days	10 days	✓	
352									,		
Dhysical Tasta : Alkalinity Species by Titustics											
Physical Tests : Alkalinity Species by Titration HDPE							<u> </u>				
SD_MW13-04_2022-06-26	E290	28-Jun-2022					09-Jul-2022	14 days	11 days	✓	
OD_IWW10-04_2022-00-20	L230	20-0011-2022					03-041-2022	1+ days	11 days	•	
Physical Tests : Alkalinity Species by Titration HDPE							I	I			
SD_MW13-07_2022-06-26	E290	28-Jun-2022					09-Jul-2022	14 days	11 days	✓	
3D_WW13-07_2022-00-20	LZ90	20-0011-2022					09-Jul-2022	14 days	11 uays	•	
Physical Tests : Alkalinity Species by Titration HDPE							I	I			
SD_MW-FB_2022-06-26	E290	28-Jun-2022					09-Jul-2022	14 days	11 days	√	
3D_WW-FB_2022-00-20	L290	20-3011-2022					09-Jul-2022	14 days	11 uays	•	
Physical Tests : Alkalinity Species by Titration											
HDPE	E290	30-Jun-2022					09-Jul-2022	14 days	0 days	✓	
SD_MW14-01_2022-06-26	L290	30-3011-2022					09-Jul-2022	14 uays	9 uays	•	
Physical Tests : Alkalinity Species by Titration											
HDPE	F200	20 1 2000					00 1.1 0000	44 -1	0 4	,	
SD_MW14-02_2022-06-26	E290	30-Jun-2022					09-Jul-2022	14 days	9 days	✓	
Physical Tests : Alkalinity Species by Titration											
HDPE	5000						00 1 1 0055			,	
SD_MW14-042022-06-26	E290	30-Jun-2022					09-Jul-2022	14 days	9 days	✓	

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		1						Analys		Holding Till
Analyte Group	Method	Sampling Date		traction / Pr	eparation					
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MW-FD_2022-06-26	E290	30-Jun-2022					09-Jul-2022	14 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD MW13-01 2022-06-26	E100	29-Jun-2022					09-Jul-2022	28 days	10 days	1
GB_WW10-01_2022-00-20	2.00	20 04 2022					00 001 2022	20 dayo	10 dayo	
Physical Tests : Conductivity in Water										
HDPE										,
SD_MW13-05_2022-06-26	E100	29-Jun-2022					09-Jul-2022	28 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-06_2022-06-26	E100	29-Jun-2022					09-Jul-2022	28 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-08_2022-06-26	E100	29-Jun-2022					09-Jul-2022	28 days	10 days	√
3D_WW 13-00_2022-00-20	2100	23-3011-2022					09-301-2022	20 days	10 days	•
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-10_2022-06-26	E100	29-Jun-2022					09-Jul-2022	28 days	10 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-13_2022-06-26	E100	29-Jun-2022					09-Jul-2022	28 days	10 days	✓
									-	
Physical Tasta - Candusticity in Mater										
Physical Tests : Conductivity in Water				I			I			
HDPE	E100	29-Jun-2022					09-Jul-2022	28 days	10 days	√
SD_MW-FD2_2022-06-26	E100	29-Juli-2022					09-Jui-2022	20 uays	10 days	•
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-FD3_2022-06-26	E100	29-Jun-2022					09-Jul-2022	28 days	10 days	✓
	1	1								

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Matrix: water						valuation. * =	noiding time exce	euance,	_ vviti iii i	Holding Hill
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-04_2022-06-26	E100	28-Jun-2022					09-Jul-2022	28 days	11 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-07_2022-06-26	E100	28-Jun-2022					09-Jul-2022	28 days	11 days	✓
									,	
Physical Tests : Conductivity in Water										
HDPE							I			
SD_MW-FB_2022-06-26	E100	28-Jun-2022					09-Jul-2022	28 days	11 days	✓
OB_MW-1 B_2022-00 20	2100	20 0411 2022					00 001 2022	20 dayo	11 days	
Physical Tests : Conductivity in Water				ı	I	l	1	1		
HDPE	F400	20 1 2022					00 11 0000	00 -1	0 -1	,
SD_MW14-01_2022-06-26	E100	30-Jun-2022					09-Jul-2022	28 days	9 days	~
Physical Tests : Conductivity in Water										
HDPE										
SD_MW14-02_2022-06-26	E100	30-Jun-2022					09-Jul-2022	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW14-042022-06-26	E100	30-Jun-2022					09-Jul-2022	28 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-FD_2022-06-26	E100	30-Jun-2022					09-Jul-2022	28 days	9 days	✓
Physical Tests : pH by Meter										
HDPE										
SD MW-FD 2022-06-26	E108	30-Jun-2022					09-Jul-2022	0.25	211 hrs	*
55		30 00 2022					30 00. 2022	hrs		EHTR-FM
District Control of the Control of t								1113		
Physical Tests : pH by Meter							I			
HDPE	E108	30-Jun-2022					00 14 2022	0.05	215 bee	*
SD_MW14-01_2022-06-26	E108	30-Jun-2022					09-Jul-2022	0.25	215 hrs	
								hrs		EHTR-FM

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Matrix: Water						valuation. ^ =	Holding time excee	dance ,	- vvitiiii	Holding Tilli
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation			Analy	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holdin	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_MW14-02_2022-06-26	E108	30-Jun-2022					09-Jul-2022	0.25	215 hrs	3c
								hrs		EHTR-FM
Divisional Treate will be Maken										
Physical Tests : pH by Meter										
HDPE	E108	30-Jun-2022					09-Jul-2022	0.05	216 hrs	×
SD_MW14-042022-06-26	L 100	30-3u11-2022					09-Jul-2022	0.25	2101115	EHTR-FM
								hrs		EU I K-LIN
Physical Tests : pH by Meter										
HDPE										
SD_MW13-10_2022-06-26	E108	29-Jun-2022					09-Jul-2022	0.25	234 hrs	3 0
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MW13-08_2022-06-26	E108	29-Jun-2022					09-Jul-2022	0.25	235 hrs	3c
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE								<u> </u>	<u> </u>	
SD_MW-FD2_2022-06-26	E108	29-Jun-2022					09-Jul-2022	0.25	235 hrs	Je .
3D_IVIVV-I DZ_2022-00-20	2100	25 -0dii 2022					03-041-2022	0.25 hrs	200 1113	EHTR-FM
								IIIS		LITTIN-I IVI
Physical Tests : pH by Meter	_									
HDPE										
SD_MW-FD3_2022-06-26	E108	29-Jun-2022					09-Jul-2022	0.25	235 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MW13-06_2022-06-26	E108	29-Jun-2022					09-Jul-2022	0.25	236 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD MW13-13 2022-06-26	E108	29-Jun-2022					09-Jul-2022	0.25	239 hrs	Je
35_MTT 0 10_2022 00 20	2.00	20 04 2022					00 04. 2022	hrs	2000	EHTR-FM
								1113		
Physical Tests : pH by Meter										
HDPE	F100	00 1 0000					00 141 0000		040	
SD_MW13-01_2022-06-26	E108	29-Jun-2022					09-Jul-2022	0.25	240 hrs	*
								hrs		EHTR-FM

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Matrix: water						valuation.	noiding time exce	oddiioo ,	***************************************	Troluing Till
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_MW13-05_2022-06-26	E108	29-Jun-2022					09-Jul-2022	0.25	240 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD MW13-07 2022-06-26	E108	28-Jun-2022					09-Jul-2022	0.25	258 hrs	×
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE							I			
SD_MW13-04_2022-06-26	E108	28-Jun-2022					09-Jul-2022	0.25	259 hrs	×
050 02022 00 20								hrs		EHTR-FM
District 17 (1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1								10		
Physical Tests : pH by Meter HDPE					l	l	I		I	
SD MW-FB 2022-06-26	E108	28-Jun-2022					09-Jul-2022	0.25	259 hrs	*
3D_WW-1 B_2022-00-20	L100	20-3011-2022					09-3ui-2022	0.25 hrs	2001113	EHTR-FM
								1115		LITTIX-I IVI
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)	E641A	29-Jun-2022	10-Jul-2022			✓	13-Jul-2022	40 days	2 days	✓
SD_MW13-05_2022-06-26	E041A	29-Juli-2022	10-Jul-2022	14	11	,	13-Jul-2022	40 days	3 days	•
				days	days					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW14-01_2022-06-26	E641A	30-Jun-2022	12-Jul-2022	14	12	✓	12-Jul-2022	40 days	0 days	✓
				days	days					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW14-02_2022-06-26	E641A	30-Jun-2022	12-Jul-2022	14	12	✓	12-Jul-2022	40 days	0 days	✓
				days	days					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW14-042022-06-26	E641A	30-Jun-2022	12-Jul-2022	14	12	✓	12-Jul-2022	40 days	0 days	✓
				days	days					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS									1	
					1	I			1	
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW-FD_2022-06-26	E641A	30-Jun-2022	12-Jul-2022	14	12	✓	12-Jul-2022	40 days	0 days	✓

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Matrix: Water

Evaluation: x = Holding time exceedance · ✓ = Within Holding Time

Matrix: Water					Ev	/aluation: 🗴 =	Holding time exce	edance ; •	= Within	Holding T
Analyte Group	Method	Sampling Date	Ex	traction / Pi	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW13-04_2022-06-26	E641A	28-Jun-2022	10-Jul-2022	14	12	1	13-Jul-2022	40 days	3 days	1
55				days	days			,.	, .	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW13-07_2022-06-26	E641A	28-Jun-2022	10-Jul-2022	14 days	12 days	✓	13-Jul-2022	40 days	3 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW-FB_2022-06-26	E641A	28-Jun-2022	10-Jul-2022	14	12	✓	13-Jul-2022	40 days	3 days	✓
Dilate Parkers (Call Land Land Ball La Harris 1970 NO.				days	days					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS Amber glass/Teflon lined cap (sodium bisulfate)										
SD MW13-01 2022-06-26	E641A	29-Jun-2022	12-Jul-2022	14	13	1	12-Jul-2022	40 days	0 days	1
				days	days				,	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW13-10_2022-06-26	E641A	29-Jun-2022	12-Jul-2022	14	13	✓	12-Jul-2022	40 days	0 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS				days	days					
Glass vial (sodium bisulfate)							I			
SD_MW13-04_2022-06-26	E611A	28-Jun-2022	11-Jul-2022				12-Jul-2022	14 days	13 days	1
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)	50444									
SD_MW13-07_2022-06-26	E611A	28-Jun-2022	11-Jul-2022				12-Jul-2022	14 days	13 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SD_MW13-10_2022-06-26	E611A	29-Jun-2022	12-Jul-2022				13-Jul-2022	14 days	13 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SD_MW14-01_2022-06-26	E611A	30-Jun-2022	13-Jul-2022				13-Jul-2022	14 days	13 days	~

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Matrix: Water

Evaluation: **x** = Holding time exceedance ; ✓ = Within Holding Time

auix. water						raidation. • =	Holding time exce	cuarioc , .	- *************************************	riolaling
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analysis		
Container / Client Sample ID(s)				Preparation Holding Times		Eval	Analysis Date	Holding Times		Eva
			Date	Rec	Actual			Rec	Actual	
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW14-02_2022-06-26	E611A	30-Jun-2022	13-Jul-2022				13-Jul-2022	14 days	13 days	✓
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW14-042022-06-26	E611A	30-Jun-2022	13-Jul-2022				13-Jul-2022	14 days	13 days	✓
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW-FB_2022-06-26	E611A	28-Jun-2022	11-Jul-2022				12-Jul-2022	14 days	13 days	✓
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW-FD_2022-06-26	E611A	30-Jun-2022	13-Jul-2022				13-Jul-2022	14 days	13 days	✓
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW13-01_2022-06-26	E611A	29-Jun-2022	12-Jul-2022				13-Jul-2022	14 days	14 days	✓
olatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW13-05_2022-06-26	E611A	29-Jun-2022	12-Jul-2022				13-Jul-2022	14 days	14 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type		·	С	ount		Frequency (%))
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)					•		
Alkalinity Species by Titration	E290	552311	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	558919	2	39	5.1	5.0	<u> </u>
Bromide in Water by IC (Low Level)	E235.Br-L	552315	1	15	6.6	5.0	<u> </u>
BTEX by Headspace GC-MS	E611A	558176	3	37	8.1	5.0	
Chloride in Water by IC	E235.CI	552314	1	15	6.6	5.0	<u> </u>
Conductivity in Water	E100	552312	1	20	5.0	5.0	<u>√</u>
Dissolved Mercury in Water by CVAAS	E509	555516	2	28	7.1	5.0	<u> </u>
Dissolved Metals in Water by CRC ICPMS	E421	554026	2	24	8.3	5.0	<u> </u>
Fluoride in Water by IC	E235.F	552313	1	15	6.6	5.0	<u>√</u>
Nitrate in Water by IC (Low Level)	E235.NO3-L	552316	1	15	6.6	5.0	<u> </u>
Nitrite in Water by IC (Low Level)	E235.NO2-L	552317	1	20	5.0	5.0	
pH by Meter	E108	552310	1	20	5.0	5.0	<u> </u>
Sulfate in Water by IC	E235.SO4	552318	1	15	6.6	5.0	<u> </u>
VH and F1 by Headspace GC-FID	E581.VH+F1	558175	3	31	9.6	5.0	
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	552311	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	558919	2	39	5.1	5.0	
BC PHCs - EPH by GC-FID	E601A	556480	2	22	9.0	5.0	
Bromide in Water by IC (Low Level)	E235.Br-L	552315	1	15	6.6	5.0	<u>√</u>
BTEX by Headspace GC-MS	E611A	558176	3	37	8.1	5.0	<u>√</u>
Chloride in Water by IC	E235.CI	552314	1	15	6.6	5.0	√
Conductivity in Water	E100	552312	1	20	5.0	5.0	√
Dissolved Mercury in Water by CVAAS	E509	555516	2	28	7.1	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	554026	2	24	8.3	5.0	√
Fluoride in Water by IC	E235.F	552313	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	552316	1	15	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	552317	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	556479	2	28	7.1	5.0	✓
pH by Meter	E108	552310	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	552318	1	15	6.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	558175	3	31	9.6	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	552311	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	558919	2	39	5.1	5.0	
BC PHCs - EPH by GC-FID	E601A	556480	2	22	9.0	5.0	<u>√</u>
Bromide in Water by IC (Low Level)	E235.Br-L	552315	1	15	6.6	5.0	<u>√</u>
BTEX by Headspace GC-MS	E611A	558176	3	37	8.1	5.0	<u> </u>

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Matrix: Water Evaluation: × = QC frequency outside specification; √ = QC frequency within specification.

viatrix: water		Evaluat	ion: 🗴 = QC treque	ency outsiae sp	ecification; 🗸 =	QC trequency with	ının specificati
Quality Control Sample Type			Co	ount			
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Chloride in Water by IC	E235.CI	552314	1	15	6.6	5.0	✓
Conductivity in Water	E100	552312	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	555516	2	28	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	554026	2	24	8.3	5.0	✓
Fluoride in Water by IC	E235.F	552313	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	552316	1	15	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	552317	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	556479	2	28	7.1	5.0	✓
Sulfate in Water by IC	E235.SO4	552318	1	15	6.6	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	558175	3	31	9.6	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	558919	2	39	5.1	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	552315	1	15	6.6	5.0	✓
BTEX by Headspace GC-MS	E611A	558176	3	37	8.1	5.0	✓
Chloride in Water by IC	E235.CI	552314	1	15	6.6	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	555516	2	28	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	554026	2	24	8.3	5.0	✓
Fluoride in Water by IC	E235.F	552313	1	15	6.6	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	552316	1	15	6.6	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	552317	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	552318	1	15	6.6	5.0	✓
/H and F1 by Headspace GC-FID	E581.VH+F1	558175	3	31	9.6	5.0	✓
		+	_	+		+	

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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 $20 \pm 5^{\circ}$ C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
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.
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	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
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 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.
VH and F1 by Headspace GC-FID	E581.VH+F1 Vancouver - Environmental	Water	BC MOE Lab Manual / CCME PHC in Soil - Tier 1 (mod)	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
BC PHCs - EPH by GC-FID	E601A Vancouver - Environmental	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
BTEX by Headspace GC-MS	E611A Vancouver - Environmental	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS. Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
PAHs by Hexane LVI GC-MS	E641A Vancouver - Environmental	Water	EPA 8270E (mod)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
Dissolved Hardness (Calculated)	EC100 Vancouver - Environmental	Water	АРНА 2340В	"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.
VPH: VH-BTEX-Styrene	EC580A Vancouver - Environmental	Water	BC MOE Lab Manual (VPH in Water and Solids) (mod)	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
LEPH and HEPH: EPH-PAH	EC600A Vancouver - Environmental	Water	BC MOE Lab Manual (LEPH and HEPH) (mod)	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene, Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons (EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298 Vancouver - Environmental	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver - Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCI.
	Vancouver - Environmental			
VOCs Preparation for Headspace Analysis	EP581 Vancouver - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 Vancouver - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.



QUALITY CONTROL REPORT

Work Order :WR2200650

Client : Teck Metals Ltd
Contact : Wendy McBain

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : ----

Project : Sa Dena Hes
PO : PO# 10289

C-O-C number : --Sampler : ---

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 15
No. of samples analysed : 15

Page : 1 of 20

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone :+1 867 668 6689

Date Samples Received :04-Jul-2022 13:15

Date Analysis Commenced :07-Jul-2022

Issue Date : 21-Jul-2022 15:35

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 Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

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
Anshim Anshim	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Chau Tran	Analsyt	Vancouver Inorganics, Burnaby, British Columbia
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Owen Cheng		Vancouver Metals, Burnaby, British Columbia
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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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	-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 WR2200650-003	SD_MW13-05_2022-06-26	pH		E108	0.10	pH units	8.25	8.25	0.0485%	4%					
Physical Tests (QC	Lot: 552311)														
WR2200650-003	SD_MW13-05_2022-06-26	alkalinity, total (as CaCO3)		E290	1.0	mg/L	125	124	0.964%	20%					
Physical Tests (QC WR2200650-003	Lot: 552312) SD_MW13-05_2022-06-26	conductivity		E100	2.0	μS/cm	358	361	0.834%	10%					
Anions and Nutrien	ts (QC Lot: 552313)														
WR2200650-001	SD_MW13-01_2022-06-26	fluoride	16984-48-8	E235.F	0.020	mg/L	0.440	0.436	0.904%	20%					
Anions and Nutrien WR2200650-001	sts (QC Lot: 552314) SD_MW13-01_2022-06-26	chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR					
Anions and Nutrien	ts (QC Lot: 552315)														
WR2200650-001	SD_MW13-01_2022-06-26	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR					
Anions and Nutrien WR2200650-001	sts (QC Lot: 552316) SD_MW13-01_2022-06-26	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.290	0.291	0.296%	20%					
Anions and Nutrien	ts (QC Lot: 552317)														
WR2200650-001	SD_MW13-01_2022-06-26	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR					
Anions and Nutrien WR2200650-001	sp_MW13-01_2022-06-26	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	13.1	13.1	0.158%	20%					
Anions and Nutrien	its (QC Lot: 558919)														
FJ2201752-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.456	0.456	0.0704%	20%					
Anions and Nutrien	ts (QC Lot: 558923)														
WR2200645-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	0.0051	0.0001	Diff <2x LOR					
Dissolved Metals (QC Lot: 554026)														
WR2200650-001	SD_MW13-01_2022-06-26	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0036	0.0039	0.0003	Diff <2x LOR					
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00021	0.00020	0.000008	Diff <2x LOR					
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00071	0.00069	0.00001	Diff <2x LOR					
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0180	0.0188	4.40%	20%					
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	<0.010	<0.010	0	Diff <2x LOR					
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000273	0.000282	3.19%	20%					
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	55.8	56.7	1.54%	20%					

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Sub-Matrix: Water					Laboratory Duplicate (DUP) Report							
aboratory 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: 554026) - contir	nued										
VR2200650-001	SD_MW13-01_2022-06-26	chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR		
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR		
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00025	0.00025	0.000006	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	0.000928	0.000812	13.3%	20%		
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0027	0.0027	0.00002	Diff <2x LOR		
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	4.50	4.71	4.63%	20%		
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00034	0.00037	0.00003	Diff <2x LOR		
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00157	0.00153	2.13%	20%		
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	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	0.100	mg/L	0.627	0.642	0.015	Diff <2x LOR		
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	1.21 µg/L	0.00114	6.21%	20%		
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.31	4.21	2.23%	20%		
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR		
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.962	0.991	2.98%	20%		
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.230	0.225	2.25%	20%		
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	5.01	4.89	0.12	Diff <2x LOR		
		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	0.00186	0.00193	3.65%	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	0.0094	0.0095	0.0001	Diff <2x LOR		
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR		
		Zirodilum, dissolved	7440 07 7	E-12 1	0.00020	mg/L	-0.00020	10.00020		DIII EX LOT		
Dissolved Metals(/A22B4424-016	QC Lot: 555516) Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR		
	-	mercury, dissolved	7439-97-0	L309	0.0000030	IIIg/L	<0.0000030	<0.0000000	0	DIII \ZX LOIX		
Dissolved Metals (7420 07 0	F500	0.0000050	/I	10 0000050	*0.0000050		D:# 40I OD		
VR2200650-008	SD_MW13-13_2022-06-26	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.0000050	0	Diff <2x LOR		
issolved Metals (= 10.1			0.0:			0.000		
'A22B5186-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0127	0.0123	3.18%	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	0.00016	0.00016	0.000006	Diff <2x LOR		
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00472	0.00476	0.850%	20%		
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR		

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ub-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: 556466) - conti	nued											
VA22B5186-001	Anonymous	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	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR			
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	7.98	8.01	0.370%	20%			
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR			
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR			
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00057	0.00054	0.00003	Diff <2x LOR			
		iron, dissolved	7439-89-6	E421	0.010	mg/L	0.031	0.031	0.0005	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	0.0017	0.0017	0.000008	Diff <2x LOR			
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	0.983	0.958	0.0255	Diff <2x LOR			
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00094	0.00091	0.00004	Diff <2x LOR			
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000064	0.000052	0.000012	Diff <2x LOR			
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	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	2.00	mg/L	<2.00	<2.00	0	Diff <2x LOR			
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	0.000054	0.000004	Diff <2x LOR			
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.30	2.25	2.13%	20%			
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR			
		sodium, dissolved	7440-23-5	E421	2.00	mg/L	3.42	3.40	0.017	Diff <2x LOR			
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0329	0.0314	4.83%	20%			
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR			
		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	<0.000010	<0.000010	0	Diff <2x LOR			
		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			
olatile Organic Co	mpounds (QC Lot: 558	176)											
(S2202375-003	Anonymous	benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			
		toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR			

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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Co	mpounds (QC Lot: 5581	76) - continued									
KS2202375-003	Anonymous	xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
Volatile Organic Co	mpounds (QC Lot: 5597	95)									
KS2202375-008	Anonymous	benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
Volatile Organic Co	mpounds (QC Lot: 5606	340)									
FJ2201741-020	Anonymous	benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
Hydrocarbons (QC	Lot: 558175)										
KS2202375-003	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	
Hydrocarbons (QC	Lot: 559794)										
KS2202375-008	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	
Hydrocarbons (QC	Lot: 560639)										
FJ2201741-020	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	

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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.

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 552311)					
alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 552312)					
conductivity	E100	1	μS/cm	<1.0	
Anions and Nutrients (QCLot: 552313)					
fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 552314)					
chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 552315)					
bromide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 552316)					
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 552317)					
nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 552318)					
sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 558919)					
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 558923)					
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 554026)					
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	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 554026)	- continued					
ead, dissolved	7439-92-1	E421	0.00008	5 mg/L	<0.000050	
ithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	
nagnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	
nolybdenum, dissolved	7439-98-7	E421	0.00008	5 mg/L	<0.000050	
ickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	
ootassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	
elenium, dissolved	7782-49-2	E421	0.00008	5 mg/L	<0.000050	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	
silver, dissolved	7440-22-4	E421	0.0000	mg/L	<0.000010	
odium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	
trontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	
ulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	
nallium, dissolved	7440-28-0	E421	0.0000	mg/L	<0.000010	
n, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	
tanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	
ıranium, dissolved	7440-61-1	E421	0.0000	mg/L	<0.000010	
ranadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	
inc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	
irconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 555516)						
nercury, dissolved	7439-97-6	E509	0.00000	5 mg/L	<0.0000050	
Dissolved Metals (QCLot: 555517)						
nercury, dissolved	7439-97-6	E509	0.00000	5 mg/L	<0.0000050	
Dissolved Metals (QCLot: 556466)						
luminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	
ntimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	
rsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	
parium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	
eryllium, dissolved	7440-41-7	E421	0.00002	2 mg/L	<0.000020	
oismuth, dissolved	7440-69-9	E421	0.00008	5 mg/L	<0.000050	
oron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	
admium, dissolved	7440-43-9	E421	0.00000	5 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	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 556466) -	continued					
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	
ron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	
ithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	
nagnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	
nolybdenum, 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	
ootassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	
elenium, dissolved	7782-49-2	E421	0.00005	mg/L	<0.000050	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	<0.050	
ilver, dissolved	7440-22-4	E421	0.00001	mg/L	<0.000010	
odium, dissolved	7440-23-5	E421	0.05	mg/L	<0.050	
trontium, dissolved	7440-24-6	E421	0.0002	mg/L	<0.00020	
ulfur, dissolved	7704-34-9	E421	0.5	mg/L	<0.50	
nallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	
n, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	
itanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	
ıranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	
anadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	
inc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	
irconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	
/olatile Organic Compounds (QCLo	ot: 558176)					
enzene	71-43-2	E611A	0.5	μg/L	<0.50	
thylbenzene	100-41-4	E611A	0.5	μg/L	<0.50	
nethyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	<0.50	
tyrene	100-42-5	E611A	0.5	μg/L	<0.50	
oluene	108-88-3	E611A	0.5	μg/L	<0.50	
ylene, m+p-	179601-23-1	E611A	0.4	μg/L	<0.40	
ylene, o-	95-47-6	E611A	0.3	μg/L	<0.30	
/olatile Organic Compounds (QCLc	ot: 559795)					
penzene	71-43-2	E611A	0.5	μg/L	<0.50	
ethylbenzene	100-41-4	E611A	0.5	μg/L	<0.50	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	<0.50	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCL	ot: 559795) - continued					
styrene	100-42-5	E611A	0.5	μg/L	<0.50	
oluene	108-88-3	E611A	0.5	μg/L	<0.50	
kylene, m+p-	179601-23-1	E611A	0.4	μg/L	<0.40	
kylene, o-	95-47-6	E611A	0.3	μg/L	<0.30	
Volatile Organic Compounds (QCL	ot: 560640)					'
penzene	71-43-2	E611A	0.5	μg/L	<0.50	
ethylbenzene	100-41-4	E611A	0.5	μg/L	<0.50	
nethyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	<0.50	
styrene	100-42-5	E611A	0.5	μg/L	<0.50	
oluene	108-88-3	E611A	0.5	μg/L	<0.50	
kylene, m+p-	179601-23-1	E611A	0.4	μg/L	<0.40	
xylene, o-	95-47-6	E611A	0.3	μg/L	<0.30	
Hydrocarbons (QCLot: 556480)						
EPH (C10-C19)		E601A	250	μg/L	<250	
EPH (C19-C32)		E601A	250	μg/L	<250	
Hydrocarbons (QCLot: 558175)						
/Hw (C6-C10)		E581.VH+F1	100	μg/L	<100	
Hydrocarbons (QCLot: 558449)				10		
EPH (C10-C19)		E601A	250	μg/L	<250	
EPH (C19-C32)		E601A	250	μg/L	<250	
				P3'-		
Hydrocarbons (QCLot: 559794) VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	
		2501.41111	100	pg/L	100	
Hydrocarbons (QCLot: 560639) /Hw (C6-C10)		E581.VH+F1	100	μg/L	<100	
, ,		L301.VIIII 1	100	μg/L	100	
Polycyclic Aromatic Hydrocarbons	(QCLot: 556479) 83-32-9	E6/1/A	0.01	uall	<0.010	
acenaphthene	208-96-8		0.01	μg/L	<0.010	
acenaphthylene				μg/L		
acridine	260-94-6		0.01	μg/L	<0.010	
anthracene	120-12-7		0.01	μg/L	<0.010	
enz(a)anthracene	56-55-3		0.01	μg/L 	<0.010	
enzo(a)pyrene	50-32-8		0.005	μg/L	<0.0050	
penzo(b+j)fluoranthene		E641A	0.01	μg/L	<0.010	
penzo(g,h,i)perylene	191-24-2	E641A	0.01	μg/L	<0.010	
penzo(k)fluoranthene	207-08-9	E641A	0.01	μg/L	<0.010	
chrysene	218-01-9	E641A	0.01	μg/L	<0.010	
dibenz(a,h)anthracene	53-70-3	E641A	0.005	μg/L	<0.0050	

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Sub-Matrix: Water						
Analyte	CAS Number		LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbon						
fluoranthene	206-44-0		0.01	μg/L	<0.010	
fluorene	86-73-7	E641A	0.01	μg/L	<0.010	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	μg/L	<0.010	
methylnaphthalene, 1-	90-12-0	E641A	0.01	μg/L	<0.010	
methylnaphthalene, 2-	91-57-6	E641A	0.01	μg/L	<0.010	
naphthalene	91-20-3	E641A	0.05	μg/L	<0.050	
phenanthrene	85-01-8	E641A	0.02	μg/L	<0.020	
pyrene	129-00-0	E641A	0.01	μg/L	<0.010	
quinoline	91-22-5	E641A	0.05	μg/L	<0.050	
Polycyclic Aromatic Hydrocarbon	s (QCLot: 558448)					
acenaphthene	83-32-9	E641A	0.01	μg/L	<0.010	
acenaphthylene	208-96-8	E641A	0.01	μg/L	<0.010	
acridine	260-94-6	E641A	0.01	μg/L	<0.010	
anthracene	120-12-7	E641A	0.01	μg/L	<0.010	
penz(a)anthracene	56-55-3	E641A	0.01	μg/L	<0.010	
penzo(a)pyrene	50-32-8	E641A	0.005	μg/L	<0.0050	
penzo(b+j)fluoranthene	n/a	E641A	0.01	μg/L	<0.010	
penzo(g,h,i)perylene	191-24-2	E641A	0.01	μg/L	<0.010	
penzo(k)fluoranthene	207-08-9	E641A	0.01	μg/L	<0.010	
chrysene	218-01-9	E641A	0.01	μg/L	<0.010	
dibenz(a,h)anthracene	53-70-3	E641A	0.005	μg/L	<0.0050	
luoranthene	206-44-0	E641A	0.01	μg/L	<0.010	
luorene	86-73-7	E641A	0.01	μg/L	<0.010	
ndeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	μg/L	<0.010	
methylnaphthalene, 1-	90-12-0	E641A	0.01	μg/L	<0.010	
nethylnaphthalene, 2-	91-57-6	E641A	0.01	μg/L	<0.010	
naphthalene	91-20-3	E641A	0.05	μg/L	<0.050	
phenanthrene	85-01-8	E641A	0.02	μg/L	<0.020	
pyrene	129-00-0	E641A	0.01	μg/L	<0.010	
quinoline	91-22-5	E641A	0.05	μg/L	<0.050	

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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	Qualifie
Physical Tests (QCLot: 552310)									
рН		E108		pH units	7 pH units	99.9	98.0	102	
Physical Tests (QCLot: 552311)									
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	101	85.0	115	
Physical Tests (QCLot: 552312)									'
conductivity		E100	1	μS/cm	146.9 μS/cm	99.6	90.0	110	
Anions and Nutrients (QCLot: 552313)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.0	90.0	110	
Anions and Nutrients (QCLot: 552314)									
chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 552315)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	97.7	85.0	115	
Anions and Nutrients (QCLot: 552316)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 552317)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.6	90.0	110	
Anions and Nutrients (QCLot: 552318)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110	
Anions and Nutrients (QCLot: 558919)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	92.8	85.0	115	
Anions and Nutrients (QCLot: 558923)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.6	85.0	115	
Dissolved Metals (QCLot: 554026)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	103	80.0	120	
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	98.3	80.0	120	
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	97.8	80.0	120	
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	98.6	80.0	120	
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	101	80.0	120	
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	96.2	80.0	120	
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	96.0	80.0	120	
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	100.0	80.0	120	
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	98.1	80.0	120	
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	97.3	80.0	120	

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Sub-Matrix: Water						Laboratory Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Meti	hod L	OR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 554026) -	continued								
cobalt, dissolved	7440-48-4 E42	1 0.0	001	mg/L	0.25 mg/L	99.1	80.0	120	
copper, dissolved	7440-50-8 E42	1 0.0	002	mg/L	0.25 mg/L	96.1	80.0	120	
iron, dissolved	7439-89-6 E42	1 0	01	mg/L	1 mg/L	104	80.0	120	
lead, dissolved	7439-92-1 E42	1 0.0	0005	mg/L	0.5 mg/L	97.4	80.0	120	
lithium, dissolved	7439-93-2 E42	1 0.	001	mg/L	0.25 mg/L	102	80.0	120	
magnesium, dissolved	7439-95-4 E42	1 0.	005	mg/L	50 mg/L	97.5	80.0	120	
manganese, dissolved	7439-96-5 E42	1 0.0	001	mg/L	0.25 mg/L	99.6	80.0	120	
molybdenum, dissolved	7439-98-7 E42	1 0.0	0005	mg/L	0.25 mg/L	99.6	80.0	120	
nickel, dissolved	7440-02-0 E42	1 0.0	005	mg/L	0.5 mg/L	96.8	80.0	120	
phosphorus, dissolved	7723-14-0 E42	1 0	.05	mg/L	10 mg/L	91.5	80.0	120	
potassium, dissolved	7440-09-7 E42	1 0	.05	mg/L	50 mg/L	106	80.0	120	
selenium, dissolved	7782-49-2 E42	1 0.0	0005	mg/L	1 mg/L	100.0	80.0	120	
silicon, dissolved	7440-21-3 E42	1 0	.05	mg/L	10 mg/L	102	80.0	120	
silver, dissolved	7440-22-4 E42	1 0.0	0001	mg/L	0.1 mg/L	95.2	80.0	120	
sodium, dissolved	7440-23-5 E42	1 0	.05	mg/L	50 mg/L	100	80.0	120	
strontium, dissolved	7440-24-6 E42	1 0.0	002	mg/L	0.25 mg/L	99.2	80.0	120	
sulfur, dissolved	7704-34-9 E42	1 (.5	mg/L	50 mg/L	106	80.0	120	
thallium, dissolved	7440-28-0 E42	1 0.0	0001	mg/L	1 mg/L	97.8	80.0	120	
tin, dissolved	7440-31-5 E42	1 0.0	001	mg/L	0.5 mg/L	98.1	80.0	120	
titanium, dissolved	7440-32-6 E42	1 0.0	003	mg/L	0.25 mg/L	96.2	80.0	120	
uranium, dissolved	7440-61-1 E42	1 0.0	0001	mg/L	0.005 mg/L	102	80.0	120	
vanadium, dissolved	7440-62-2 E42	1 0.0	005	mg/L	0.5 mg/L	100	80.0	120	
zinc, dissolved	7440-66-6 E42	1 0.	001	mg/L	0.5 mg/L	97.6	80.0	120	
zirconium, dissolved	7440-67-7 E42	1 0.0	002	mg/L	0.1 mg/L	97.2	80.0	120	
mercury, dissolved	7439-97-6 E509	9 0.00	0005	mg/L	0.0001 mg/L	94.3	80.0	120	
mercury, dissolved	7439-97-6 E50	9 0.00	0005	mg/L	0.0001 mg/L	94.8	80.0	120	
Dissolved Metals (QCLot: 556466)									
aluminum, dissolved	7429-90-5 E42	1 0.	001	mg/L	2 mg/L	100	80.0	120	
antimony, dissolved	7440-36-0 E42	1 0.0	001	mg/L	1 mg/L	101	80.0	120	
arsenic, dissolved	7440-38-2 E42	0.0	001	mg/L	1 mg/L	102	80.0	120	
barium, dissolved	7440-39-3 E42	1 0.0	001	mg/L	0.25 mg/L	104	80.0	120	
beryllium, dissolved	7440-41-7 E42	1 0.0	0002	mg/L	0.1 mg/L	96.5	80.0	120	
bismuth, dissolved	7440-69-9 E42	1 0.0	0005	mg/L	1 mg/L	106	80.0	120	
boron, dissolved	7440-42-8 E42	1 0	.01	mg/L	1 mg/L	97.5	80.0	120	
cadmium, dissolved	7440-43-9 E42	0.00	0005	mg/L	0.1 mg/L	103	80.0	120	
calcium, dissolved	7440-70-2 E42	1 0	.05	mg/L	50 mg/L	101	80.0	120	
chromium, dissolved	7440-47-3 E42	1 0.0		mg/L	0.25 mg/L	99.7	80.0	120	
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Sub-Matrix: Water			Laboratory Control Sample (LCS) Report						
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 556466) - continue	d								
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	99.4	80.0	120	
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	100	80.0	120	
ron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	111	80.0	120	
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	107	80.0	120	
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	92.8	80.0	120	
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	100	80.0	120	
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	102	80.0	120	
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	102	80.0	120	
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	102	80.0	120	
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	103	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	108	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	106	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	97.2	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	109	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	94.9	80.0	120	
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	106	80.0	120	
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	101	80.0	120	
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	95.4	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	98.9	80.0	120	
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	96.7	80.0	120	
					·				
Volatile Organic Compounds (QCLot: 558176)									
benzene	71-43-2	E611A	0.5	μg/L	100 μg/L	91.6	70.0	130	
ethylbenzene	100-41-4	E611A	0.5	μg/L	100 μg/L	91.8	70.0	130	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	100 μg/L	95.1	70.0	130	
styrene	100-42-5	E611A	0.5	μg/L	100 μg/L	89.1	70.0	130	
toluene	108-88-3	E611A	0.5	μg/L	100 μg/L	101	70.0	130	
xylene, m+p-	179601-23-1	E611A	0.4	μg/L	200 μg/L	100	70.0	130	
xylene, o-	95-47-6	E611A	0.3	μg/L	100 μg/L	92.0	70.0	130	
Volatile Organic Compounds (QCLot: 559795)									
benzene	71-43-2	E611A	0.5	μg/L	100 μg/L	93.9	70.0	130	
ethylbenzene	100-41-4	E611A	0.5	μg/L	100 μg/L	90.6	70.0	130	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	100 μg/L	98.9	70.0	130	

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Sub-Matrix: Water						Laboratory Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Volatile Organic Compounds (QCLot	: 559795) - continued								
styrene	100-42-5	E611A	0.5	μg/L	100 μg/L	96.1	70.0	130	
toluene	108-88-3	E611A	0.5	μg/L	100 μg/L	98.2	70.0	130	
xylene, m+p-	179601-23-1	E611A	0.4	μg/L	200 μg/L	97.3	70.0	130	
kylene, o-	95-47-6	E611A	0.3	μg/L	100 μg/L	93.4	70.0	130	
Volatile Organic Compounds (QCLot	: 560640)								1
penzene	71-43-2	E611A	0.5	μg/L	100 μg/L	91.6	70.0	130	
ethylbenzene	100-41-4	E611A	0.5	μg/L	100 μg/L	88.2	70.0	130	
nethyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	100 μg/L	100	70.0	130	
styrene	100-42-5	E611A	0.5	μg/L	100 μg/L	92.8	70.0	130	
oluene	108-88-3	E611A	0.5	μg/L	100 μg/L	97.0	70.0	130	
kylene, m+p-	179601-23-1	E611A	0.4	μg/L	200 μg/L	94.6	70.0	130	
kylene, o-	95-47-6	E611A	0.3	μg/L	100 μg/L	91.2	70.0	130	
lydrocarbons (QCLot: 556480)									
PH (C10-C19)		E601A	250	μg/L	6491 µg/L	104	70.0	130	
EPH (C19-C32)		E601A	250	μg/L	3363 μg/L	107	70.0	130	
Hydrocarbons (QCLot: 558175)									
/Hw (C6-C10)		E581.VH+F1	100	μg/L	6310 μg/L	73.1	70.0	130	
Hydrocarbons (QCLot: 558449)									
EPH (C10-C19)		E601A	250	μg/L	6491 μg/L	104	70.0	130	
EPH (C19-C32)		E601A	250	μg/L	3363 µg/L	106	70.0	130	
Hydrocarbons (QCLot: 559794)									
/Hw (C6-C10)		E581.VH+F1	100	μg/L	6310 µg/L	105	70.0	130	
Hydrocarbons (QCLot: 560639)									
/Hw (C6-C10)		E581.VH+F1	100	μg/L	6310 µg/L	79.9	70.0	130	
Polycyclic Aromatic Hydrocarbons (
cenaphthene	83-32-9		0.01	μg/L	0.5 μg/L	99.1	60.0	130	
acenaphthylene	208-96-8		0.01	μg/L	0.5 μg/L	103	60.0	130	
acridine	260-94-6		0.01	μg/L	0.5 μg/L	102	60.0	130	
anthracene	120-12-7		0.01	μg/L	0.5 μg/L	108	60.0	130	
enz(a)anthracene	56-55-3		0.01	μg/L	0.5 μg/L	97.0	60.0	130	
enzo(a)pyrene	50-32-8	E641A	0.005	μg/L	0.5 μg/L	116	60.0	130	
penzo(b+j)fluoranthene	n/a	E641A	0.01	μg/L	0.5 μg/L	112	60.0	130	
penzo(g,h,i)perylene	191-24-2	E641A	0.01	μg/L	0.5 μg/L	112	60.0	130	
penzo(k)fluoranthene	207-08-9	E641A	0.01	μg/L	0.5 μg/L	122	60.0	130	
chrysene	218-01-9	E641A	0.01	μg/L	0.5 μg/L	106	60.0	130	

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Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte CAS	Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons (QCLot: 556479) - c	ontinue	d							
dibenz(a,h)anthracene	53-70-3	E641A	0.005	μg/L	0.5 μg/L	108	60.0	130	
fluoranthene	206-44-0	E641A	0.01	μg/L	0.5 µg/L	117	60.0	130	
fluorene	86-73-7	E641A	0.01	μg/L	0.5 µg/L	104	60.0	130	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	μg/L	0.5 µg/L	102	60.0	130	
methylnaphthalene, 1-	90-12-0	E641A	0.01	μg/L	0.5 µg/L	96.7	60.0	130	
methylnaphthalene, 2-	91-57-6	E641A	0.01	μg/L	0.5 µg/L	90.8	60.0	130	
naphthalene	91-20-3	E641A	0.05	μg/L	0.5 μg/L	100	50.0	130	
phenanthrene	85-01-8	E641A	0.02	μg/L	0.5 μg/L	113	60.0	130	
pyrene	129-00-0	E641A	0.01	μg/L	0.5 μg/L	116	60.0	130	
quinoline	91-22-5	E641A	0.05	μg/L	0.5 μg/L	104	60.0	130	
Polycyclic Aromatic Hydrocarbons (QCLot: 558448)									
acenaphthene	83-32-9	E641A	0.01	μg/L	0.5 μg/L	100	60.0	130	
acenaphthylene	208-96-8	E641A	0.01	μg/L	0.5 µg/L	99.8	60.0	130	
acridine	260-94-6	E641A	0.01	μg/L	0.5 µg/L	85.9	60.0	130	
anthracene	120-12-7	E641A	0.01	μg/L	0.5 μg/L	103	60.0	130	
benz(a)anthracene	56-55-3	E641A	0.01	μg/L	0.5 μg/L	76.0	60.0	130	
benzo(a)pyrene	50-32-8	E641A	0.005	μg/L	0.5 μg/L	96.9	60.0	130	
benzo(b+j)fluoranthene	n/a	E641A	0.01	μg/L	0.5 μg/L	93.7	60.0	130	
benzo(g,h,i)perylene	191-24-2	E641A	0.01	μg/L	0.5 μg/L	102	60.0	130	
benzo(k)fluoranthene	207-08-9	E641A	0.01	μg/L	0.5 μg/L	105	60.0	130	
chrysene	218-01-9	E641A	0.01	μg/L	0.5 μg/L	92.0	60.0	130	
dibenz(a,h)anthracene	53-70-3	E641A	0.005	μg/L	0.5 μg/L	94.9	60.0	130	
fluoranthene	206-44-0	E641A	0.01	μg/L	0.5 μg/L	104	60.0	130	
fluorene	86-73-7	E641A	0.01	μg/L	0.5 μg/L	110	60.0	130	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	μg/L	0.5 μg/L	91.6	60.0	130	
methylnaphthalene, 1-	90-12-0	E641A	0.01	μg/L	0.5 μg/L	104	60.0	130	
methylnaphthalene, 2-	91-57-6	E641A	0.01	μg/L	0.5 μg/L	98.7	60.0	130	
naphthalene	91-20-3	E641A	0.05	μg/L	0.5 μg/L	104	50.0	130	
phenanthrene	85-01-8	E641A	0.02	μg/L	0.5 μg/L	112	60.0	130	
pyrene	129-00-0	E641A	0.01	μg/L	0.5 μg/L	105	60.0	130	
quinoline	91-22-5	E641A	0.05	μg/L	0.5 μg/L	96.3	60.0	130	

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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: Water						Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
	ients (QCLot: 552313)									
WR2200650-002	SD_MW13-04_2022-06-26	fluoride	16984-48-8	E235.F	1.06 mg/L	1 mg/L	106	75.0	125	
Anions and Nutri	ients (QCLot: 552314)									
WR2200650-002	SD_MW13-04_2022-06-26	chloride	16887-00-6	E235.CI	106 mg/L	100 mg/L	106	75.0	125	
nions and Nutri	ients (QCLot: 552315)									
WR2200650-002	SD_MW13-04_2022-06-26	bromide	24959-67-9	E235.Br-L	0.484 mg/L	0.5 mg/L	96.8	75.0	125	
nions and Nutri	ients (QCLot: 552316)									
WR2200650-002	SD_MW13-04_2022-06-26	nitrate (as N)	14797-55-8	E235.NO3-L	2.73 mg/L	2.5 mg/L	109	75.0	125	
nions and Nutri	ients (QCLot: 552317)									
WR2200650-002	SD_MW13-04_2022-06-26	nitrite (as N)	14797-65-0	E235.NO2-L	0.503 mg/L	0.5 mg/L	100	75.0	125	
nions and Nutri	ients (QCLot: 552318)								1	
WR2200650-002	SD_MW13-04_2022-06-26	sulfate (as SO4)	14808-79-8	E235.SO4	107 mg/L	100 mg/L	107	75.0	125	
nions and Nutri	ients (QCLot: 558919)									
FJ2201752-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	MS-B
nions and Nutri	ients (QCLot: 558923)									
WR2200645-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.1000 mg/L	0.1 mg/L	100.0	75.0	125	
issolved Metals	(QCLot: 554026)									
WR2200650-003	SD_MW13-05_2022-06-26	aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	97.0	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0196 mg/L	0.02 mg/L	98.0	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	0.0401 mg/L	0.04 mg/L	100	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00890 mg/L	0.01 mg/L	89.0	70.0	130	
		boron, dissolved	7440-42-8	E421	0.098 mg/L	0.1 mg/L	97.5	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00388 mg/L	0.004 mg/L	97.0	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	0.0386 mg/L	0.04 mg/L	96.5	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0190 mg/L	0.02 mg/L	95.1	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0185 mg/L	0.02 mg/L	92.6	70.0	130	
		iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	94.8	70.0	130	

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Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 554026) - con	tinued								
WR2200650-003	SD_MW13-05_2022-06-26	lithium, dissolved	7439-93-2	E421	0.0972 mg/L	0.1 mg/L	97.2	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	0.0192 mg/L	0.02 mg/L	95.8	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	0.0368 mg/L	0.04 mg/L	91.9	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	9.76 mg/L	10 mg/L	97.6	70.0	130	
		potassium, dissolved	7440-09-7	E421	4.10 mg/L	4 mg/L	102	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0413 mg/L	0.04 mg/L	103	70.0	130	
		silicon, dissolved	7440-21-3	E421	9.84 mg/L	10 mg/L	98.4	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00383 mg/L	0.004 mg/L	95.7	70.0	130	
		sodium, dissolved	7440-23-5	E421	1.96 mg/L	2 mg/L	97.9	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	21.6 mg/L	20 mg/L	108	70.0	130	
		thallium, dissolved	7440-28-0	E421	0.00378 mg/L	0.004 mg/L	94.6	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0384 mg/L	0.04 mg/L	96.1	70.0	130	
		uranium, dissolved	7440-61-1	E421	0.00389 mg/L	0.004 mg/L	97.4	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.0978 mg/L	0.1 mg/L	97.8	70.0	130	
		zinc, dissolved	7440-66-6	E421	0.389 mg/L	0.4 mg/L	97.2	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0398 mg/L	0.04 mg/L	99.6	70.0	130	
Dissolved Metals	(QCLot: 555516)									
VA22B5668-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000947 mg/L	0.0001 mg/L	94.7	70.0	130	
Dissolved Metals	(QCLot: 555517)									
WR2200650-009	SD_MW14-01_2022-06-26	mercury, dissolved	7439-97-6	E509	0.0000942 mg/L	0.0001 mg/L	94.2	70.0	130	
Dissolved Metals	(QCLot: 556466)									
VA22B5188-001	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	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	
		barium, dissolved	7440-39-3	E421	0.0183 mg/L	0.02 mg/L	91.3	70.0	130	
		beryllium, dissolved	7440-41-7	E421	0.0387 mg/L	0.04 mg/L	96.7	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	0.095 mg/L	0.1 mg/L	95.4	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00400 mg/L	0.004 mg/L	99.9	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	0.0371 mg/L	0.04 mg/L	92.8	70.0	130	
	T .	cobalt, dissolved	7440-48-4	E421	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	

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Sub-Matrix: Water						Matrix Spik	Matrix Spike (MS) Report						
					Spi	ke	Recovery (%)	Recovery	Limits (%)				
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie			
issolved Metal	s (QCLot: 556466) -	continued											
VA22B5188-001	Anonymous	copper, dissolved	7440-50-8	E421	0.0186 mg/L	0.02 mg/L	93.2	70.0	130				
		iron, dissolved	7439-89-6	E421	1.83 mg/L	2 mg/L	91.6	70.0	130				
		lead, dissolved	7439-92-1	E421	0.0191 mg/L	0.02 mg/L	95.7	70.0	130				
		lithium, dissolved	7439-93-2	E421	0.0907 mg/L	0.1 mg/L	90.7	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	0.0184 mg/L	0.02 mg/L	92.2	70.0	130				
		molybdenum, dissolved	7439-98-7	E421	0.0191 mg/L	0.02 mg/L	95.6	70.0	130				
		nickel, dissolved	7440-02-0	E421	0.0377 mg/L	0.04 mg/L	94.3	70.0	130				
		phosphorus, dissolved	7723-14-0	E421	10.2 mg/L	10 mg/L	102	70.0	130				
		potassium, dissolved	7440-09-7	E421	3.77 mg/L	4 mg/L	94.3	70.0	130				
		selenium, dissolved	7782-49-2	E421	0.0435 mg/L	0.04 mg/L	109	70.0	130				
		silicon, dissolved	7440-21-3	E421	9.15 mg/L	10 mg/L	91.5	70.0	130				
		silver, dissolved	7440-22-4	E421	0.00376 mg/L	0.004 mg/L	94.0	70.0	130				
		sodium, dissolved	7440-23-5	E421	1.94 mg/L	2 mg/L	96.8	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	19.6 mg/L	20 mg/L	98.1	70.0	130				
		thallium, dissolved	7440-28-0	E421	0.00380 mg/L	0.004 mg/L	95.0	70.0	130				
		tin, dissolved	7440-31-5	E421	0.0189 mg/L	0.02 mg/L	94.6	70.0	130				
		titanium, dissolved	7440-32-6	E421	0.0368 mg/L	0.04 mg/L	91.9	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	0.0960 mg/L	0.1 mg/L	96.0	70.0	130				
		zinc, dissolved	7440-66-6	E421	0.388 mg/L	0.4 mg/L	97.0	70.0	130				
		zirconium, dissolved	7440-67-7	E421	0.0398 mg/L	0.04 mg/L	99.4	70.0	130				
olatile Organic	Compounds (QCLot	: 558176)											
KS2202375-003	Anonymous	benzene	71-43-2	E611A	93.0 μg/L	100 μg/L	93.0	60.0	140				
		ethylbenzene	100-41-4	E611A	89.6 μg/L	100 μg/L	89.6	60.0	140				
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	98.2 μg/L	100 μg/L	98.2	60.0	140				
		styrene	100-42-5	E611A	92.4 μg/L	100 μg/L	92.4	60.0	140				
		toluene	108-88-3	E611A	99.2 μg/L	100 μg/L	99.2	60.0	140				
		xylene, m+p-	179601-23-1	E611A	193 µg/L	200 μg/L	96.6	60.0	140				
		xylene, o-	95-47-6	E611A	91.8 μg/L	100 μg/L	91.8	60.0	140				
olatile Organic	Compounds (QCLot	: 559795)											
KS2202375-008	Anonymous	benzene	71-43-2	E611A	95.7 μg/L	100 μg/L	95.7	60.0	140				
		ethylbenzene	100-41-4	E611A	87.5 μg/L	100 μg/L	87.5	60.0	140				
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	96.4 μg/L	100 μg/L	96.4	60.0	140				
	I .	styrene	100-42-5	E611A	89.9 µg/L	100 μg/L	89.9	60.0	140				

 Page
 : 20 of 20

 Work Order
 : WR2200650

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Volatile Organic	Compounds (QCLot: 55	9795) - continued								
KS2202375-008	Anonymous	toluene	108-88-3	E611A	98.2 μg/L	100 μg/L	98.2	60.0	140	
		xylene, m+p-	179601-23-1	E611A	188 μg/L	200 μg/L	94.1	60.0	140	
		xylene, o-	95-47-6	E611A	89.6 µg/L	100 μg/L	89.6	60.0	140	
Volatile Organic	Compounds (QCLot: 56	0640)								
FJ2201741-021	Anonymous	benzene	71-43-2	E611A	91.6 µg/L	100 μg/L	91.6	60.0	140	
		ethylbenzene	100-41-4	E611A	88.7 µg/L	100 μg/L	88.7	60.0	140	
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	97.0 μg/L	100 μg/L	97.0	60.0	140	
		styrene	100-42-5	E611A	89.3 µg/L	100 μg/L	89.3	60.0	140	
		toluene	108-88-3	E611A	97.3 μg/L	100 μg/L	97.3	60.0	140	
		xylene, m+p-	179601-23-1	E611A	192 μg/L	200 μg/L	96.0	60.0	140	
		xylene, o-	95-47-6	E611A	91.1 μg/L	100 μg/L	91.1	60.0	140	
Hydrocarbons (0	QCLot: 558175)									
KS2202375-004	Anonymous	VHw (C6-C10)		E581.VH+F1	4310 μg/L	6310 µg/L	68.2	60.0	140	
Hydrocarbons (0	QCLot: 559794)									
KS2202375-011	Anonymous	VHw (C6-C10)		E581.VH+F1	4160 μg/L	6310 µg/L	65.9	60.0	140	
Hydrocarbons (0	QCLot: 560639)									
FJ2201741-022	Anonymous	VHw (C6-C10)		E581.VH+F1	4600 μg/L	6310 µg/L	72.9	60.0	140	

Qualifiers

Qualifier Description

MS-B Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

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Report To			Report Format / Distribution	Distribution			Serv	ice R	Service Requested (Rush for routine analysis subject to availability)	ted (F	ush f	or Lon	tine a	inalys	Sis SL	bject	to a	vaila	bility	-								
Company:	TECK Metals Ltd		✓ Standard	Other			● Re	gular (Regular (Standard Turnaround Times - Business Days)	Turna	round	Times	- Bus	iness	Days	1000			п	2	3	nn	en	tal	D	Vis	Environmental Division	
Contact:	Michelle Unger		✓ PDF	✓ Excel	✓ Digital	Fax	OPI	ority (2	Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to C	ess Da	ys) - !	2 %0	ırchar	ge - C	ontac	E ALS	6			<u> </u>	Ellylloling	2	SP I					
Address:	601 Knightton Road		Email 1:	azheng@enser	azheng@ensero.com, slyons@ensero.com	nsero.com	OEn	ergeno	Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to	us. Da	/s) - 1	00%	urcha	rge -	Conta	Ct AL	S to			× ×	2	ô s	rde	R	fer	enc	1)
	Kimberly, BC		Email 2:	wendy.mcbain@	wendy.mcbain@teck.com, colin.lynch@teck.cor	ynch@teck.com	O Sa	me Day	Same Day or Weekend Emergency - Contact ALS to Confirm TAT	kend E	merge	ncy -	Conta	t ALS	to Co	onfirn	TAT			_	>	n	3	O	\geq	7	10000000000000000000000000000000000000	Ć
Phone:	250-427-8422 Fax:		Email 3:	chanson@ense	chanson@ensero.com, teckkimb@equisonline.c	@equisonline.co						7	Analysis Request	Sis	Requ	est					5	-	7	1	(-	-	
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Hardcopy of	Hardcopy of Invoice with Report? ☐ Yes	√ No	Select Email Distribution:	ribution:				F/P		ס	ס	ס	\neg	\dashv	_								G	E	1	ď		=
Client / Proj	Client / Project Information		Email 1 or Fax: michelle.unger@teck.com	nichelle.unger@t	eck.com			g	te,				\neg	\dashv	_									5		-		=
Project #	ECA22YT00199		Email 2: legacy.ap@teck.com	p@teck.com			iess	ı +H	pha													-			7	3		=
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	SD_MW13-04_2022-06-26	SD_MW13-04)4	28-Jun-22	15:00	Groundwater	×	×	×	×	×	×			_													
	SD_MW13-05_2022-06-26	SD_MW13-05)5	29-Jun-22	9:15	Groundwater	×	×	×	×	×	×																
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	SD_MW14-02_2022-06-26	SD_MW14-02)2	30-Jun-22	10:30	Groundwater	×	×	×	×	×	×																
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	Special Instructions / Reg	Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/	d use (CCME-Fr	eshwater Aquat	ic Life/BC CSR	- Commercial/Al	3 Tier	1-N	NB Tier 1 - Natural, etc) / Hazardous Details	etc)	/ Haz	ardo] su)etai	S													
General C: p	Yukon EQWin and ACC200 digital formats. General A: pH, EC, TSS (low) General B: pH, EC, TSS (low), anions-all General E: pH, EC, TSS (low), SO4, ion balance, alkalinity General D: pH, EC, TSS (low), SO4, ion balance, alkalinity General D: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance	General D: pH, EC, TSS (Ic	B: pH, EC, TSS (pw), SO4, ion bala	low), anions-all ance, alkalinity G	eneral E: pH, E	C, TSS (low), SO	4, ion	balan	ce															-				

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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 RECEPTION (lab use only)

Verified by:

SHIPMENT VERIFICATION (lab use Date:

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

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Yukon EQWin and ACC200 digital formats. General A: pH, EC, TSS (low) General B: pH, EC, TSS (low), anions-all General E: pH, EC, TSS (low), anions-all, ion balance, alkalinity General D: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion ba

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses. By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

SHIPMENT RECEPTION (lab use only)

Verified by:

Date:

Time:

SHIPMENT VERIFICATION (lab use

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

Released by:

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		+			×	×	×	Groundwater	NA	29-Jun-22	SD_MW14-FD2_2022-06-26	SD_MW14-F	SD_MW-FD2_2022-06-26	SD_MW-	416
				20.5	^ ×	×	×	Groundwater	NA	29-Jun-22	GW_DUP	GV	SD_MW-FD3_2022-06-26	SD_MW-	N
		,	K	*	1	1	*	Groundwater -	NA	Empty TB	SD_MW-TripBlank	SD_MV	SD_MW-TB_2022-06-26	SD_MW	4
Nui					CI,			Sample Type	(hh:mm)	(dd-mmm-yy)	This description will appear on the bottle	This description w	(This description will appear on the report)	(This description	#
mbe			H, PA		F, Br			Cample Type	_	Date	Sample Location	Sampl	Sample Identification	Sample	Sample
r of C			0.00/20	EPH,)	d meta	C, alka		Sampler:	Can Dang	ALS Contact:			(lab use only)	(lat
ontai				HEPH						Q62635	Quote #:			lah Mork Order#	LSD:
ners		_												TECK PO10289	PO / AFE:
										ap@teck.com	Email 2: legacy.ap@teck.com			ECA22YT00199	Project #
									teck.com	Email 1 or Fax: michelle.unger@teck.com	Email 1 or Fax: I			Client / Project Information	Client / Proje
			ס	ס	ס	Ū	F/P			stribution:	Select Email Distribution:	√ No	∐ Yes	Hardcopy of Invoice with Report?	Hardcopy of
P)	Please indicate below Filtered, Preserved or both (F, P, F/P)	d, Presei	w Filtere	te belo	indica	Please			Invoice Distribution	Invoice D		□ No	✓ Yes	Same as Report?	Invoice To
	luest	Analysis Request	Analy					@equisonline.co	chanson@ensero.com, teckkimb@equisonline.co	chanson@enser	Email 3:		Fax:	250-427-8422	Phone:
	O Same Day or Weekend Emergency - Contact ALS to Confirm TAT	act ALS to C	ency - Conta	Emerge.	Veekend	Day or V) Same	_	wendy.mcbain@teck.com, colin.lynch@teck.com	wendy.mcbain@	Email 2:			Kimberly, BC	
	O Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	arge - Cont	00% Surcha	ays) - 10	-2 Bus. D	gency (1-) Emer		azheng@ensero.com, slyons@ensero.com	azheng@enser	Email 1:			601 Knightton Road	Address:
	O Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	rge - Conta	0% Surcha	ays) - 5	usiness L	ty (2-4 B)	Priorit	Fax	✓ Digital	✓ Excel	✓ PDF			Michelle Unger	Contact:
	(S)	 Regular (Standard Turnaround Times - Business Days) 	Times - But	naround	dard Turr	lar (Stanc	Regul	0		Other	✓ Standard			TECK Metals Ltd	Company:
	Service Requested (Rush for routine analysis subject to availability)	analysis s	or routine a	Rush fo	ested (Requ	ervice	S		/ Distribution	Report Format / Distribution				Report To

GENF 20.00 Front



CERTIFICATE OF ANALYSIS

Work Order : WR2200652

Client : **Teck Metals Ltd**Contact : Wendy McBain

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : ---

Project : Sa Dena Hes
PO : PO# 10289

C-O-C number : -Sampler : --

Site : ECA22YT00199

Quote number : VA22-TECK150-001

No. of samples received : 13
No. of samples analysed : 13

Page : 1 of 14

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 04-Jul-2022 13:15

Date Analysis Commenced : 06-Jul-2022

Issue Date : 21-Jul-2022 15:49

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	Inorganics, Burnaby, British Columbia	
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia	
Erin Sanchez		Metals, Burnaby, British Columbia	
Hamideh Moradi	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	
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia	
Parnian Sane	Analyst	Metals, Burnaby, British Columbia	
Sam Silveira	Lab Assistant	Metals, Burnaby, British Columbia	

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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
μg/L	micrograms per litre
μg/L μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
pH units	pH units

<: less 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.

Workorder Comments

The sample "SD-MH-30 2022-06-26" was not received.

Qualifiers

Qualifier	Description
DLA	Detection Limit adjusted for required dilution.
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DTC	Dissolved concentration exceeds total. Results were confirmed by re-analysis.
DTMF	Dissolved concentration exceeds total for field-filtered metals sample. Metallic contaminants may have been introduced to dissolved sample during field filtration.
RRV	Reported result verified by repeat analysis.

>: greater than.

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 Work Order
 : WR2200652

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cli	ient sample ID	SD_MH-02_202 2-06-26	SD_MH-04_202 2-06-26	SD_MH-11_202 2-06-26	SD_MH-12_202 2-06-26	SD_MH-13_202 2-06-26
(Matrix: Water)					2-00-20	2-00-20	2-00-20	2-00-20	2-00-20
			Client samp	ling date / time	27-Jun-2022 17:00	28-Jun-2022 17:00	30-Jun-2022 12:30	27-Jun-2022 16:00	28-Jun-2022 10:30
Analyte	CAS Number	Method	LOR	Unit	WR2200652-001	WR2200652-002	WR2200652-003	WR2200652-004	WR2200652-005
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	249	143	161	134	156
conductivity		E100	2.0	μS/cm	730	265	319	257	293
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	413	135	160	128	152
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	427	137	167	138	161
рН		E108	0.10	pH units	8.16	8.26	8.36	8.28	8.34
solids, total dissolved [TDS]		E162	10	mg/L	534	144	174	132	145
solids, total suspended [TSS]		E160-L	1.0	mg/L	1.5	<1.0	2.0	5.1	3.4
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0.0124	0.0100	<0.0050
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.250 DLDS	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.CI	0.50	mg/L	<2.50 DLDS	<0.50	<0.50	<0.50	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.100 DLDS	0.128	0.086	0.082	0.056
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0250 DLDS	0.120	0.138	0.0936	0.0601
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0050 DLDS	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	196	13.1	12.4	5.72	6.75
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0088	0.0039	0.0291	0.102	0.0356
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00017	0.00015	0.00023	0.00032	0.00016
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00066	0.00033	0.00063	0.00124	0.00051
barium, total	7440-39-3	E420	0.00010	mg/L	0.157	0.0175	0.0462	0.0505	0.117
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	0.000219	0.000244	0.000107	0.0000799	0.0000330
calcium, total	7440-70-2	E420	0.050	mg/L	154	50.4	57.4	48.0	48.5
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	0.00051	<0.00010	<0.00010	0.00011	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00199	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L	0.080	<0.010	0.071	0.155	0.169
lead, total	7439-92-1	E420	0.000050	mg/L	0.000391	0.000252	0.000908	0.00194	0.000201
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 Work Order
 : WR2200652

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-02_202 2-06-26	SD_MH-04_202 2-06-26	SD_MH-11_202 2-06-26	SD_MH-12_202 2-06-26	SD_MH-13_202 2-06-26
(Matrix: Water)					2-00-20	∠-∪0-∠0	Z-U0-Z0	∠-∪0-∠0	∠-∪0-∠0
			Client sampl	ling date / time	27-Jun-2022 17:00	28-Jun-2022 17:00	30-Jun-2022 12:30	27-Jun-2022 16:00	28-Jun-2022 10:30
Analyte	CAS Number	Method	LOR	Unit	WR2200652-001	WR2200652-002	WR2200652-003	WR2200652-004	WR2200652-005
					Result	Result	Result	Result	Result
Total Metals									
lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	0.0012	0.0015	0.0013	0.0011
magnesium, total	7439-95-4	E420	0.100	mg/L	10.4	2.64	5.69	4.47	9.65
manganese, total	7439-96-5	E420	0.00010	mg/L	0.452	0.00036	0.00830	0.00979	0.0130
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000974	0.000545	0.000735	0.00102	0.000806
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00056	<0.00050	<0.00050	0.00108	<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	1.38	0.373	0.391	0.764	0.320
selenium, total	7782-49-2	E420	0.050	μg/L	0.205	0.604	0.672	0.658	0.636
silicon, total	7440-21-3	E420	0.10	mg/L	4.56	3.10	3.64	4.09	3.15
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	7.71	0.685	0.797	0.983	0.696
strontium, total	7440-24-6	E420	0.00020	mg/L	0.513	0.165	0.206	0.166	0.171
sulfur, total	7704-34-9	E420	0.50	mg/L	66.1	4.38	4.14	1.81	2.14
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	0.00011	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	0.00068	0.00288	0.00071
uranium, total	7440-61-1	E420	0.000010	mg/L	0.00143	0.000569	0.000767	0.000702	0.000893
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00067	<0.00050
zinc, total	7440-66-6	E420	0.0030	mg/L	0.0196	0.0053	0.0060	0.0246	<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	0.0049	0.0056	0.0082	0.0054	0.0046
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00015	0.00012	0.00018	0.00021	0.00014
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00064	0.00035	0.00056	0.00100	0.00039
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.151	0.0172	0.0456	0.0486	0.105
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	0.000168	0.000237	0.0000824	0.0000427	0.0000221
calcium, dissolved	7440-70-2	E421	0.050	mg/L	150	49.9	55.4	44.7	46.0
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 Work Order
 : WR2200652

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-06-26	2-06-26	2-06-26	2-06-26	2-06-26
			Client sampl	ing date / time	27-Jun-2022 17:00	28-Jun-2022 17:00	30-Jun-2022 12:30	27-Jun-2022 16:00	28-Jun-2022 10:30
Analyte	CAS Number	Method	LOR	Unit	WR2200652-001	WR2200652-002	WR2200652-003	WR2200652-004	WR2200652-005
					Result	Result	Result	Result	Result
Dissolved Metals									
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	0.00051	<0.00010	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00038	0.00020	0.00038	0.00062	0.00041
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.053	<0.010	0.021	<0.010	0.082
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000388	0.000434 DTMF	0.000430	0.000240	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	0.0013	0.0015	0.0012	0.0011
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	9.40	2.49	5.28	4.06	9.13
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.421	0.00070 DTMF	0.00350	0.00137	0.00865
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.000050	<0.0000050	<0.000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00104	0.000526	0.000734	0.00102	0.000800
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00061	<0.00050	<0.00050	<0.00050	<0.00050
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	1.37	0.386	0.416	0.509	0.345
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.180	0.591	0.699	0.649	0.594
silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.09	2.75	3.18	3.58	2.76
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	7.90	0.714	0.856	0.843	0.749
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.509	0.169	0.205	0.167	0.169
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	64.3	4.27	4.08	1.79	1.98
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	0.00143	0.000598	0.000771	0.000704	0.000910
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	0.0213	0.0048	0.0052	0.0058	0.0011
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
Speciated Metals									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

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 Work Order
 : WR2200652

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Please refer to the General Comments section for an explanation of any qualifiers detected.

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 Work Order
 : WR2200652

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Surface Water			Cli	ient sample ID	SD_MH-15_202	SD_MH-29_202	SD_MH-FB_202	SD_MH-FD_202	SD_MH-22D_20
(Matrix: Water)					2-06-26	2-06-26	2-06-26	2-06-26	22-06-26
			Client samp	ling date / time	28-Jun-2022 11:00	30-Jun-2022 12:45	28-Jun-2022	27-Jun-2022	29-Jun-2022 14:30
Analyte	CAS Number	Method	LOR	Unit	WR2200652-006	WR2200652-007	WR2200652-009	WR2200652-010	WR2200652-011
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	179	155	<1.0	216	85.8
conductivity		E100	2.0	μS/cm	322	285	<2.0	728	216
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	171	144	<0.60	385	102
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	176	153	<0.60	430	107
pH		E108	0.10	pH units	8.40	8.36	5.27	8.10	8.05
solids, total dissolved [TDS]		E162	10	mg/L	238	159	<10	551	128
solids, total suspended [TSS]		E160-L	1.0	mg/L	1.6	<1.0	<1.0	<1.0	<1.0
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0051	<0.0050	<0.0050	<0.0050	0.0082
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.250 DLDS	<0.050
chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	<0.50	<2.50 DLDS	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	0.085	0.048	<0.020	<0.100 DLDS	0.844
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0073	0.102	<0.0050	<0.0250 DLDS	0.124
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0050 DLDS	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	3.13	3.02	<0.30	196	22.9
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0053	0.0127	<0.0030	0.0093	0.0085
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00014	0.00022	<0.00010	0.00016	0.00182
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00039	0.00075	<0.00010	0.00068	0.00359
barium, total	7440-39-3	E420	0.00010	mg/L	0.175	0.0363	<0.00010	0.162	0.0142
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	0.0000079	0.0000848	<0.0000050	0.000224	0.00308
calcium, total	7440-70-2	E420	0.050	mg/L	51.2	54.4	<0.050	155	35.8
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	<0.00010	<0.00010	0.00051	<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	0.068	0.023	<0.010	0.075	0.025
lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	0.000146	<0.000050	0.000421	0.00257
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0011	0.0013	<0.0010	<0.0010	0.0041
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 Work Order
 : WR2200652

 Client
 : Teck Metals Ltd

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Sub-Matrix: Surface Water (Matrix: Water)			Cli	ent sample ID	SD_MH-15_202 2-06-26	SD_MH-29_202 2-06-26	SD_MH-FB_202 2-06-26	SD_MH-FD_202 2-06-26	SD_MH-22D_20 22-06-26
			Client sampl	ling date / time	28-Jun-2022 11:00	30-Jun-2022 12:45	28-Jun-2022	27-Jun-2022	29-Jun-2022 14:30
Analyte	CAS Number	Method	LOR	Unit	WR2200652-006	WR2200652-007	WR2200652-009	WR2200652-010	WR2200652-011
					Result	Result	Result	Result	Result
Total Metals			2 122		11.2				
magnesium, total	7439-95-4	E420	0.100	mg/L	11.8	4.12	<0.100	10.4	4.25
manganese, total	7439-96-5	E420	0.00010	mg/L	0.00590	0.00367	<0.00010	0.464	0.00335
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.000050	<0.000050	<0.000050	<0.000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00195	0.000596	<0.000050	0.000976	0.00762
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00060	0.00257
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	0.287	0.328	<0.100	1.37	0.590
selenium, total	7782-49-2	E420	0.050	μg/L	0.363	0.596	<0.050	0.167	8.29
silicon, total	7440-21-3	E420	0.10	mg/L	3.42	3.91	<0.10	4.50	4.42
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	0.792	0.646	<0.050	7.73	0.792
strontium, total	7440-24-6	E420	0.00020	mg/L	0.160	0.172	<0.00020	0.499	0.164
sulfur, total	7704-34-9	E420	0.50	mg/L	0.99	0.92	<0.50	65.8	7.66
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	0.00034	<0.00030	<0.00030	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000668	0.000469	<0.000010	0.00144	0.00160
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	0.0202	0.363
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	0.0022	0.0046	<0.0010	0.0097	0.0010
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00012	0.00019	<0.00010	0.00015	0.00167
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00036	0.00073	<0.00010	0.00064	0.00341
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.168	0.0354	<0.00010	0.144	0.0138
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	0.0000099	0.0000740	<0.000050	0.000164	0.00298
calcium, dissolved	7440-70-2	E421	0.050	mg/L	49.9	51.5	<0.050	139	34.3
chromium, dissolved	7440-47-3	E421	0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cinomium, dissolved	1440-41-3	L421	0.00030	mg/L	~ 0.00000	~0.00030	\0.00030	~ 0.00000	~0.00030

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 Work Order
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Sub-Matrix: Surface Water			Clie	ent sample ID	SD_MH-15_202	SD_MH-29_202	SD_MH-FB_202	SD_MH-FD_202	SD_MH-22D_20
(Matrix: Water)					2-06-26	2-06-26	2-06-26	2-06-26	22-06-26
			Client sampl	ing date / time	28-Jun-2022 11:00	30-Jun-2022 12:45	28-Jun-2022	27-Jun-2022	29-Jun-2022 14:30
Analyte	CAS Number	Method	LOR	Unit	WR2200652-006	WR2200652-007	WR2200652-009	WR2200652-010	WR2200652-011
					Result	Result	Result	Result	Result
Dissolved Metals									
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	0.00050	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	0.00040	<0.00020	0.00037	0.00033
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.037	<0.010	<0.010	0.063	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	0.000183	<0.000050	0.000660 DTMF	0.00136
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0011	0.0013	<0.0010	<0.0010	0.0039
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	11.3	3.76	<0.100	9.30	3.98
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00328	0.00092	<0.00010	0.402	0.00161
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.000050	<0.000050	<0.0000050	<0.000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00189	0.000552	0.000248 BTC, RRV	0.000922	0.00687
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	0.00063	0.00243
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	0.311	0.343	<0.100	1.33	0.544
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.470	0.668	<0.050	0.210	7.85
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.06	3.36	<0.050	3.85	3.94
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.879	0.692	<0.050	7.57	0.788
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.167	0.176	<0.00020	0.493	0.164
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.00	0.92	<0.50	61.3	7.30
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	0.000690	0.000492	<0.000010	0.00141	0.00159
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	0.0014	<0.0010	0.0207	0.355
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
Speciated Metals									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
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Please refer to the General Comments section for an explanation of any qualifiers detected.

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 Work Order
 : WR2200652

 Client
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Sub-Matrix: Surface Water			Cl	ient sample ID	SD_MH-SDH-S2	SD_MH-22_202	Dup2	
(Matrix: Water)					_2022-06-26	2-06-26		
			Client samp	ling date / time	29-Jun-2022 12:00	29-Jun-2022 14:00	29-Jun-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2200652-012	WR2200652-013	WR2200652-014	
					Result	Result	Result	
Physical Tests								
alkalinity, total (as CaCO3)		E290	1.0	mg/L	52.2	86.8	47.3	
conductivity		E100	2.0	μS/cm	428	215	427	
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	191	99.7	188	
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	209	107	210	
pH		E108	0.10	pH units	7.59	8.05	7.61	
solids, total dissolved [TDS]		E162	10	mg/L	281	122	288	
solids, total suspended [TSS]		E160-L	1.0	mg/L	19.2	1.4	17.7	
Anions and Nutrients								
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	
chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	<0.50	
fluoride	16984-48-8	E235.F	0.020	mg/L	0.090	0.801	0.093	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.204	0.127	0.202	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	165	21.3	165	
Total Metals								
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.151	0.0039	0.168	
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00050 DLA	0.00205	0.00051	
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00063	0.00394	0.00079	
barium, total	7440-39-3	E420	0.00010	mg/L	0.0193	0.0134	0.0193	
beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000100 DLA	<0.000020	<0.000100 DLA	
bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000250 DLA	<0.000050	<0.000250 DLA	
boron, total	7440-42-8	E420	0.010	mg/L	<0.050 DLA	<0.010	<0.050 DLA	
cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.109	0.00203	0.107	
calcium, total	7440-70-2	E420	0.050	mg/L	79.3	35.8	79.8	
chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00058	<0.00010	0.00058	
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00250 DLA	<0.00050	<0.00250 DLA	
iron, total	7439-89-6	E420	0.010	mg/L	0.354	<0.010	0.420	
lead, total	7439-92-1	E420	0.000050	mg/L	0.442	0.00136	0.558	
lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0050 DLA	0.0041	<0.0050 DLA	
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 Work Order
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 Client
 : Teck Metals Ltd

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Sub-Matrix: Surface Water (Matrix: Water)			Cli	ent sample ID	SD_MH-SDH-S2 _2022-06-26	SD_MH-22_202 2-06-26	Dup2	
			Client sampl	ling date / time	29-Jun-2022 12:00	29-Jun-2022 14:00	29-Jun-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2200652-012	WR2200652-013	WR2200652-014	
					Result	Result	Result	
Total Metals								
magnesium, total	7439-95-4	E420	0.100	mg/L	2.63	4.28	2.58	
manganese, total	7439-96-5	E420	0.00010	mg/L	0.0400	0.00294	0.0384	
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.000050	<0.000050	
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00405	0.0107	0.000589	
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00250 DLA	0.00277	<0.00250 DLA	
phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.250 DLA	<0.050	<0.250 DLA	
potassium, total	7440-09-7	E420	0.100	mg/L	0.632	0.437	0.609	
selenium, total	7782-49-2	E420	0.050	μg/L	3.12	7.78	3.20	
silicon, total	7440-21-3	E420	0.10	mg/L	2.72	4.45	2.78	
silver, total	7440-22-4	E420	0.000010	mg/L	0.000200	<0.000010	0.000268	
sodium, total	7440-23-5	E420	0.050	mg/L	0.363	0.708	0.354	
strontium, total	7440-24-6	E420	0.00020	mg/L	0.0882	0.164	0.0879	
sulfur, total	7704-34-9	E420	0.50	mg/L	53.4	7.05	54.6	
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000050 DLA	0.000014	<0.000050 DLA	
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00050 DLA	0.00015	<0.00050 DLA	
titanium, total	7440-32-6	E420	0.00030	mg/L	0.00341	<0.00030	0.00526	
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000258	0.00161	0.000253	
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00250 DLA	<0.00050	<0.00250 DLA	
zinc, total	7440-66-6	E420	0.0030	mg/L	12.5	0.220	12.2	
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00100 DLA	<0.00020	<0.00100 DLA	
Dissolved Metals								
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0050 DLA	0.0046	<0.0050 DLA	
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00050 DLA	0.00164	<0.00050 DLA	
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00050 DLA	0.00393	<0.00050 DLA	
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0158	0.0128	0.0161	
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000100 DLA	<0.000020	<0.000100 DLA	
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000250 DLA	<0.000050	<0.000250 DLA	
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.050 DLA	<0.010	<0.050 DLA	
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0990	0.00195	0.101	
calcium, dissolved	7440-70-2	E421	0.050	mg/L	72.8	33.3	71.2	
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
1	7440-47-0	_ · _ ·		⊎, ⊏		2.23000	1.3000	

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 Work Order
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 Client
 : Teck Metals Ltd

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Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-SDH-S2	SD_MH-22_202	Dup2	
(Matrix: Water)					_2022-06-26	2-06-26		
			Client sampl	ing date / time	29-Jun-2022 12:00	29-Jun-2022 14:00	29-Jun-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2200652-012	WR2200652-013	WR2200652-014	
					Result	Result	Result	
Dissolved Metals				_	0 000 TO DIA		2 2 2 2 2 DIA	
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00050 DLA	<0.00010	<0.00050 DLA	
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00100 DLA	0.00024	<0.00100 DLA	
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.050 DLA	<0.010	<0.050 DLA	
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.0416	0.000454	0.0369	
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0050 DLA	0.0038	<0.0050 DLA	
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	2.32	4.02	2.37	
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00837	0.00326	0.00883	
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.0000050	<0.000050	
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000449	0.00679	0.000460	
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00250 DLA	0.00250	<0.00250 DLA	
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.250 DLA	<0.050	<0.250 DLA	
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.661	0.437	0.672	
selenium, dissolved	7782-49-2	E421	0.050	μg/L	3.72	7.46	2.66	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.31	3.88	2.18	
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000050 DLA	<0.000010	<0.000050 DLA	
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.393	0.716	0.395	
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0866	0.160	0.0843	
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	56.2	6.73	56.0	
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000050 DLA	0.000012	<0.000050 DLA	
tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00050 DLA	<0.00010	<0.00050 DLA	
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00150 DLA	<0.00030	<0.00150 DLA	
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000201	0.00162	0.000203	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00250 DLA	<0.00050	<0.00250 DLA	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	11.4	0.216	11.6	
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00100 DLA	<0.00020	<0.00100 DLA	
dissolved mercury filtration location	7440-07-7	EP509	0.00020	mg/L	Field	Field	Field	
dissolved metals filtration location		EP421			Field	Field	Field	
		L1 121			. ICIG	7 1010	i ioid	
Speciated Metals chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
• •		EC535	0.00050		<0.00050	<0.00050	<0.00050	
chromium, trivalent [Cr III], total	16065-83-1	ECOSO	0.00050	mg/L	\U.UUUUU	VCUUU.U~	\U.UU0U	

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Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL INTERPRETIVE REPORT

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Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Wendy McBain Account Manager : Can Dang

Address : 601 Knighton Road Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Kimberley BC Canada V1A 3E1 Telephone Telephone : +1 867 668 6689

Project Date Samples Received : 04-Jul-2022 13:15 Sa Dena Hes Issue Date : 21-Jul-2022 15:49

PO PO# 10289 C-O-C number

Sampler Site : ECA22YT00199

Quote number : VA22-TECK150-001

No. of samples received : 13 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 Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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.



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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: **x** = Holding time exceedance; ✓ = Within Holding Time Analyte Group Sampling Date Extraction / Preparation Analysis Method Container / Client Sample ID(s) **Holding Times** Eval Analysis Date Holding Times Eval Preparation Rec Actual Rec Actual Date Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD MH-11_2022-06-26 F298 30-Jun-2022 12-Jul-2022 28 days 20 days 1 20-Jul-2022 Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) SD_MH-29_2022-06-26 E298 30-Jun-2022 12-Jul-2022 20-Jul-2022 28 days 20 days ✓ ----Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid) Dup2 E298 29-Jun-2022 12-Jul-2022 20-Jul-2022 28 days 21 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD_MH-22_2022-06-26 E298 29-Jun-2022 12-Jul-2022 20-Jul-2022 28 days 21 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) 12-Jul-2022 20-Jul-2022 SD_MH-22D_2022-06-26 F298 29-Jun-2022 28 days 21 days Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) F298 29-Jun-2022 12-Jul-2022 SD MH-SDH-S2 2022-06-26 20-Jul-2022 28 days 21 days --------Anions and Nutrients: Ammonia by Fluorescence Amber glass total (sulfuric acid) SD MH-04 2022-06-26 E298 28-Jun-2022 12-Jul-2022 20-Jul-2022 28 days 22 days ✓

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)										
	I .		Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MH-13_2022-06-26	E298	28-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	22 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD MH-15 2022-06-26	E298	28-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	22 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD MH-FB 2022-06-26	E298	28-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	22 days	✓
:										
Anions and Nutrients : Ammonia by Fluorescence							<u> </u>			
Amber glass total (sulfuric acid)								<u> </u>		
SD MH-02 2022-06-26	E298	27-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	23 days	1
ob									,-	
Anions and Nutrients : Ammonia by Fluorescence										
Amons and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid)								T T		
SD_MH-12_2022-06-26	E298	27-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	23 days	1
3D_WIN-12_2022-00-20	LZ30	21-3u11-2022	12-Jul-2022				20-Jul-2022	20 days	25 days	*
Anions and Nutrients : Ammonia by Fluorescence					l		I	<u> </u>		
Amber glass total (sulfuric acid)	E298	27-Jun-2022	12-Jul-2022				20-Jul-2022	28 days	00 days	1
SD_MH-FD_2022-06-26	E290	21-Juli-2022	12-Jui-2022				20-Jui-2022	20 uays	23 uays	,
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE	E005 D- I	20 1 2000					00 1.1 0000	00.1		1
SD_MH-11_2022-06-26	E235.Br-L	30-Jun-2022					06-Jul-2022	28 days	6 days	√
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-29_2022-06-26	E235.Br-L	30-Jun-2022					06-Jul-2022	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
Dup2	E235.Br-L	29-Jun-2022					06-Jul-2022	28 days	7 days	✓

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Wattix. Water					_ v	aluation. • =	riolaling time exce	cuarioc , .	- *************************************	riolaling i
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-22_2022-06-26	E235.Br-L	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-22D_2022-06-26	E235.Br-L	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-SDH-S2_2022-06-26	E235.Br-L	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-04_2022-06-26	E235.Br-L	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-13_2022-06-26	E235.Br-L	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-15_2022-06-26	E235.Br-L	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-FB_2022-06-26	E235.Br-L	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-02_2022-06-26	E235.Br-L	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-12_2022-06-26	E235.Br-L	27-Jun-2022					06-Jul-2022	28 days	9 days	✓

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Preparation Prolifer Times Evel Analysis Date Rec Actual Rec Actu	viatrix: water						raidation. • -	noiding time exce	cuarice , •	_ vviti iii i	riolaling riii
Anions and Nutrients : Bromide in Water by IC (Low Level) HDPE SD_MH-FD_2022-66-26 E235.Br-L 27-Jun-2022	Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Anions and Nutrients : Bromide in Water by IC (Low Level) HDPE SD_MH-PD_2022-06-26 E235.Br.L 27-Jun-2022	Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
## SD_MH-FD_2022-06-26				Date	Rec	Actual			Rec	Actual	
SD_MH-FD_2022-06-26 E235.CI 27-Jun-2022	Anions and Nutrients : Bromide in Water by IC (Low Level)										
Anions and Nutrients : Chloride in Water by IC	HDPE										
## E235.CI 30-Jun-2022	SD_MH-FD_2022-06-26	E235.Br-L	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
## E235.CI 30-Jun-2022											
SD_MH-11_2022-06-26	Anions and Nutrients : Chloride in Water by IC										
Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-29_2022-06-26 E235.Cl 30-Jun-2022	HDPE										
## PE SD_MH-29_2022-08-26	SD_MH-11_2022-06-26	E235.CI	30-Jun-2022					06-Jul-2022	28 days	6 days	✓
## PE SD_MH-29_2022-08-26											
SD_MH-29_2022-08-26	Anions and Nutrients : Chloride in Water by IC										
Anions and Nutrients : Chloride in Water by IC HDPE Dup2 E235.Cl 29-Jun-2022											
## DPE Dup2	SD_MH-29_2022-06-26	E235.CI	30-Jun-2022					06-Jul-2022	28 days	6 days	✓
## DPE Dup2											
Dup2	Anions and Nutrients : Chloride in Water by IC										
Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-22_2022-06-26 E235.Cl 29-Jun-2022	HDPE										
HDPE SD_MH-22_2022-06-26 E235.Cl 29-Jun-2022	Dup2	E235.CI	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
HDPE SD_MH-22_2022-06-26 E235.Cl 29-Jun-2022											
SD_MH-22_2022-06-26 E235.Cl 29-Jun-2022	Anions and Nutrients : Chloride in Water by IC										
Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-22D_2022-06-26 E235.Cl 29-Jun-2022 06-Jul-2022 28 days 7 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-SDH-S2_2022-06-26 E235.Cl 29-Jun-2022 06-Jul-2022 28 days 7 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-04_2022-06-26 E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-04_2022-06-26 E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE HDPE	HDPE										
HDPE SD_MH-22D_2022-06-26	SD_MH-22_2022-06-26	E235.CI	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
HDPE SD_MH-22D_2022-06-26											
SD_MH-22D_2022-06-26	Anions and Nutrients : Chloride in Water by IC										
Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-SDH-S2_2022-06-26 E235.Cl 29-Jun-2022 06-Jul-2022 28 days 7 days Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-04_2022-06-26 E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days Anions and Nutrients : Chloride in Water by IC HDPE HDPE HDPE	HDPE										
HDPE SD_MH-SDH-S2_2022-06-26 E235.Cl 29-Jun-2022 06-Jul-2022 28 days 7 days ✓ Anions and Nutrients : Chloride in Water by IC E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE Image: Chloride in Water by IC Image: Chloride	SD_MH-22D_2022-06-26	E235.CI	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
HDPE SD_MH-SDH-S2_2022-06-26 E235.Cl 29-Jun-2022 06-Jul-2022 28 days 7 days ✓ Anions and Nutrients : Chloride in Water by IC E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE Image: Chloride in Water by IC Image: Chloride											
SD_MH-SDH-S2_2022-06-26 E235.Cl 29-Jun-2022 06-Jul-2022 28 days 7 days ✓ Anions and Nutrients : Chloride in Water by IC SD_MH-04_2022-06-26 E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE Image: Chloride in Water by IC Imag	Anions and Nutrients : Chloride in Water by IC										
Anions and Nutrients : Chloride in Water by IC HDPE SD_MH-04_2022-06-26 E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE	HDPE										
HDPE SD_MH-04_2022-06-26 E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE	SD_MH-SDH-S2_2022-06-26	E235.CI	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
HDPE SD_MH-04_2022-06-26 E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE											
SD_MH-04_2022-06-26 E235.Cl 28-Jun-2022 06-Jul-2022 28 days 8 days ✓ Anions and Nutrients : Chloride in Water by IC HDPE Image: Chloride in Water by IC Image: Chloride in Water b	Anions and Nutrients : Chloride in Water by IC										
Anions and Nutrients : Chloride in Water by IC HDPE											
HDPE	SD_MH-04_2022-06-26	E235.CI	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
HDPE											
	Anions and Nutrients : Chloride in Water by IC										
SD_MH-13_2022-06-26	HDPE										
	SD_MH-13_2022-06-26	E235.CI	28-Jun-2022					06-Jul-2022	28 days	8 days	✓

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Matrix: water						raidation. • -	noiding time exce	cuarice , •	_ vviti iii i	riolaling riiii
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-15_2022-06-26	E235.CI	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD MH-FB 2022-06-26	E235.CI	28-Jun-2022					06-Jul-2022	28 days	8 davs	✓
									,	
Anions and Nutrients : Chloride in Water by IC										
HDPE							I			
SD_MH-02_2022-06-26	E235.CI	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
OB_IMIT 02_E022 00 20		2. 04 2022					00 00. 2022	20 44,0	o aayo	
Anions and Nutrients : Chloride in Water by IC HDPE							I			
SD MH-12 2022-06-26	E235.CI	27-Jun-2022					06-Jul-2022	28 days	0 days	✓
3D_WH-12_2022-00-20	E235.Cl	21-Juli-2022					00-Jui-2022	20 uays	9 uays	•
Anions and Nutrients : Chloride in Water by IC										
HDPE	F225 O	07 him 0000					00 1-1 0000	00 1	0.1	
SD_MH-FD_2022-06-26	E235.Cl	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-11_2022-06-26	E235.F	30-Jun-2022					06-Jul-2022	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-29_2022-06-26	E235.F	30-Jun-2022					06-Jul-2022	28 days	6 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
Dup2	E235.F	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Fluoride in Water by IC							•			
HDPE										
SD_MH-22_2022-06-26	E235.F	29-Jun-2022					06-Jul-2022	28 days	7 days	✓

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Proparation Proparation Proparation Date Rec Actual	viatrix: water						valuation. • -	noiding time exce	cuarice , •	_ vviti iii i	Tiolaing Till
Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-2D_2022-06-26 E235 F 29-Jun-2022	Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-2D_2022-06-26 E235.F 29-Jun-2022 D6-Jul-2022 28 days 7 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-3D_4-32_2022-06-26 E235.F 28-Jun-2022 D6-Jul-2022 28 days 8 days 8 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-13_2022-06-26 E235.F 28-Jun-2022 D6-Jul-2022 28 days 8 days 8 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-13_2022-06-26 E235.F 28-Jun-2022 D6-Jul-2022 28 days 8 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-15_2022-06-26 E235.F 28-Jun-2022 D6-Jul-2022 28 days 8 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-16_2022-06-26 E235.F 28-Jun-2022 D6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-16_2022-06-26 E235.F 28-Jun-2022 D6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-16_2022-06-26 E235.F 28-Jun-2022 D6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-16_2022-06-26 E235.F 27-Jun-2022 D6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 D6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 D6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 D6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 D6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC	Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
BOB_MIH-22D_2022-06-26				Date	Rec	Actual			Rec	Actual	
BOB_MIH-22D_2022-06-26	Anions and Nutrients : Fluoride in Water by IC										
Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-SDH-52_2022-06-26 E235.F 29-Jun-2022	HDPE										
## SD_MH-SDH-S2_2022-06-26	SD_MH-22D_2022-06-26	E235.F	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
## SD_MH-SDH-S2_2022-06-26											
## SD_MH-SDH-S2_2022-06-26	Anions and Nutrients : Fluoride in Water by IC										
SD_MH-SDH-SQ_2022-06-26											
Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-04_2022-06-26 E235.F 28-Jun-2022		E235.F	29-Jun-2022					06-Jul-2022	28 davs	7 davs	✓
HDPE SD_MH-04_2022-06-26 E235.F 28-Jun-2022										,	
HDPE SD_MH-04_2022-06-26 E235.F 28-Jun-2022	Anione and Nutrients : Fluoride in Water by IC										
SD_MH-04_2022-06-26								I			
Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-13_2022-06-26 E235.F 28-Jun-2022 06-Jul-2022 28 days 8 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-15_2022-06-26 E235.F 28-Jun-2022 06-Jul-2022 28 days 8 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-FB_2022-06-26 E235.F 28-Jun-2022 06-Jul-2022 28 days 8 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-O2_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 8 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-O2_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26		F235 F	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
## DPE	35_MT 01_E322 30 20		20 04 2022					00 00. 2022	20 44,0	o aayo	
## DPE											
E235.F 28-Jun-2022								I			
Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-15_2022-06-26 E235.F E235		E235 E	28 Jun 2022					06 141 2022	28 days	8 days	1
## HDPE SD_MH-15_2022-06-26	3D_MIR-13_2022-00-20	E233.F	20-Juli-2022					00-Jui-2022	20 uays	o uays	.
## HDPE SD_MH-15_2022-06-26											
SD_MH-15_2022-06-26 E235.F 28-Jun-2022 06-Jul-2022 28 days 8 days ✓	· · · · · · · · · · · · · · · · · · ·										
Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-FB_2022-06-26 E235.F 28-Jun-2022 O6-Jul-2022 28 days 8 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-02_2022-06-26 E235.F 27-Jun-2022 O6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 O6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 O6-Jul-2022 28 days 9 days Anions and Nutrients : Fluoride in Water by IC HDPE HDPE		E005 E	00 1 0000					00 1-1 0000	00 1	0.1	
HDPE SD_MH-FB_2022-06-26	SD_MH-15_2022-06-26	E235.F	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
HDPE SD_MH-FB_2022-06-26											
SD_MH-FB_2022-06-26											
Anions and Nutrients: Fluoride in Water by IC HDPE SD_MH-02_2022-06-26 E235.F 27-Jun-2022 O6-Jul-2022 28 days 9 days Anions and Nutrients: Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 O6-Jul-2022 28 days 9 days Anions and Nutrients: Fluoride in Water by IC HDPE Anions and Nutrients: Fluoride in Water by IC											
HDPE SD_MH-02_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC 06-Jul-2022 28 days 9 days ✓ HDPE 06-Jul-2022 28 days 9 days ✓	SD_MH-FB_2022-06-26	E235.F	28-Jun-2022					06-Jul-2022	28 days	8 days	√
HDPE SD_MH-02_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC 06-Jul-2022 28 days 9 days ✓ HDPE 06-Jul-2022 28 days 9 days ✓											
SD_MH-02_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC Anions and Nutrients : Fluoride in Water by IC HDPE E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC HDPE Image: Color of the co	Anions and Nutrients : Fluoride in Water by IC										
Anions and Nutrients : Fluoride in Water by IC HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 Anions and Nutrients : Fluoride in Water by IC HDPE HDPE	HDPE										
HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC HDPE I	SD_MH-02_2022-06-26	E235.F	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
HDPE SD_MH-12_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC HDPE I											
SD_MH-12_2022-06-26 E235.F 27-Jun-2022 06-Jul-2022 28 days 9 days ✓ Anions and Nutrients : Fluoride in Water by IC HDPE Image: HDPE Indicated in Water by IC Image:	Anions and Nutrients : Fluoride in Water by IC										
Anions and Nutrients : Fluoride in Water by IC HDPE											
HDPE	SD_MH-12_2022-06-26	E235.F	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
HDPE											
HDPE	Anions and Nutrients : Fluoride in Water by IC				·						
SD_MH-FD_2022-06-26	·										
	SD_MH-FD_2022-06-26	E235.F	27-Jun-2022					06-Jul-2022	28 days	9 days	✓

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Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-11_2022-06-26	E235.NO3-L	30-Jun-2022					06-Jul-2022	3 days	6 days	35
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-29_2022-06-26	E235.NO3-L	30-Jun-2022					06-Jul-2022	3 days	6 days	sc .
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
Dup2	E235.NO3-L	29-Jun-2022					06-Jul-2022	3 days	7 days	*
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-22_2022-06-26	E235.NO3-L	29-Jun-2022					06-Jul-2022	3 days	7 days	×
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-22D_2022-06-26	E235.NO3-L	29-Jun-2022					06-Jul-2022	3 days	7 days	×
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-SDH-S2_2022-06-26	E235.NO3-L	29-Jun-2022					06-Jul-2022	3 days	7 days	*
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-04_2022-06-26	E235.NO3-L	28-Jun-2022					06-Jul-2022	3 days	8 days	×
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-13_2022-06-26	E235.NO3-L	28-Jun-2022					06-Jul-2022	3 days	8 days	*
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
OD AND 45 0000 00 00	E235.NO3-L	28-Jun-2022					06-Jul-2022	3 days	8 days	*
SD_MH-15_2022-06-26	L200.1100-L	LO GUIT LOLL					00 001 2022	o dayo	0 44,0	

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Matrix: water						valuation. • –	noiding time exce	cuarice,	- vvicinii	Tiolaling Tilli
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-FB_2022-06-26	E235.NO3-L	28-Jun-2022					06-Jul-2022	3 days	8 days	36
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD MH-02 2022-06-26	E235.NO3-L	27-Jun-2022					06-Jul-2022	3 days	9 days	æ
										EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-12_2022-06-26	E235.NO3-L	27-Jun-2022					06-Jul-2022	3 days	9 days	*
35_WIT 12_2022 00 20	2200100 2	2. 04 2022					00 04: 2022	o dayo	o days	EHTR
Anions and Nutrients : Nitrate in Water by IC (Low Level)							I			
HDPE	E235.NO3-L	27-Jun-2022					06-Jul-2022	3 days	9 days	×
SD_MH-FD_2022-06-26	E233.NO3-L	27-Juli-2022					00-Jui-2022	3 uays	9 uays	EHTR
										ЕПІК
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE	FOOT NOO!	00 1 0000					00.1.1.0000			
SD_MH-11_2022-06-26	E235.NO2-L	30-Jun-2022					06-Jul-2022	3 days	6 days	*
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-29_2022-06-26	E235.NO2-L	30-Jun-2022					06-Jul-2022	3 days	6 days	30
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
Dup2	E235.NO2-L	29-Jun-2022					06-Jul-2022	3 days	7 days	*
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-22_2022-06-26	E235.NO2-L	29-Jun-2022					06-Jul-2022	3 days	7 days	*
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-22D_2022-06-26	E235.NO2-L	29-Jun-2022					06-Jul-2022	3 days	7 days	sc
										EHTR

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viatrix: water						diddion.	Holding time exce	oddiioo ,	***************************************	Troiding Till
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-SDH-S2_2022-06-26	E235.NO2-L	29-Jun-2022					06-Jul-2022	3 days	7 days	30
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD MH-04 2022-06-26	E235.NO2-L	28-Jun-2022					06-Jul-2022	3 days	8 days	æ
								_	_	EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE								<u> </u>		
SD_MH-13_2022-06-26	E235.NO2-L	28-Jun-2022					06-Jul-2022	3 days	8 days	3c
								,		EHTR
Anima and Nickeinstein Mitrite in Materials (C. (Level 1991)										
Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE							I			
SD MH-15 2022-06-26	E235.NO2-L	28-Jun-2022					06-Jul-2022	3 days	8 days	×
GB_WIT-10_2022-00-20	2200.1102 2	20 0411 2022					00 041 2022	o dayo	o dayo	EHTR
										<u> </u>
Anions and Nutrients : Nitrite in Water by IC (Low Level)								I		
HDPE	E235.NO2-L	28-Jun-2022					06-Jul-2022	3 days	8 days	×
SD_MH-FB_2022-06-26	L233.NO2-L	20-3011-2022					00-Jui-2022	3 uays	o uays	EHTR
										LIIIIX
Anions and Nutrients : Nitrite in Water by IC (Low Level)				l l				1		
HDPE	Egge NOO I	07 1 2000					00 11 0000	0 4	0 4	*
SD_MH-02_2022-06-26	E235.NO2-L	27-Jun-2022					06-Jul-2022	3 days	9 days	EHTR
										ЕПІК
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE	E005 NO0 :	07 1 0000					00 1.1 0000			4.
SD_MH-12_2022-06-26	E235.NO2-L	27-Jun-2022					06-Jul-2022	3 days	9 days	*
										EHTR
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-FD_2022-06-26	E235.NO2-L	27-Jun-2022					06-Jul-2022	3 days	9 days	*
										EHTR
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
	E005.004			1	I .		00 1.1 0000	00 1	C -1	✓
SD_MH-11_2022-06-26	E235.SO4	30-Jun-2022					06-Jul-2022	28 days	o days	•

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iviatrix: water						araation.	Holding time exce			Troiding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys		
Container / Client Sample ID(s)			Preparation		g Times	Eval	Analysis Date	Holding		Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-29_2022-06-26	E235.SO4	30-Jun-2022					06-Jul-2022	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
Dup2	E235.SO4	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
·								_	•	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-22_2022-06-26	E235.SO4	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
OB_WITEE_2022-00-20	2200.001	20 0411 2022					00 041 2022	Lo dayo	, dayo	
Anions and Nutrients : Sulfate in Water by IC								I		
HDPE	E005 004	20 1 2022					00 1.1 0000	20 4	7 -1	,
SD_MH-22D_2022-06-26	E235.SO4	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-SDH-S2_2022-06-26	E235.SO4	29-Jun-2022					06-Jul-2022	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-04_2022-06-26	E235.SO4	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD MH-13 2022-06-26	E235.SO4	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
								,	,	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD MH-15 2022-06-26	E235.SO4	28-Jun-2022					06-Jul-2022	28 days	8 days	✓
OD_WII I- 10_2022-00-20	L200.004	20-3011-2022					00-0ui-2022	20 days	o days	•
Anions and Nutrients : Sulfate in Water by IC										
HDPE	F005 00 t	00 1 0000					00 1/1 0000	00.1	0.1	,
SD_MH-FB_2022-06-26	E235.SO4	28-Jun-2022					06-Jul-2022	28 days	8 days	✓

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Wattix. Water					L1	aluation. • –	riolding time exce	cuarice,	- vviti iii i	riolaling rill
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-02_2022-06-26	E235.SO4	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-12_2022-06-26	E235.SO4	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-FD_2022-06-26	E235.SO4	27-Jun-2022					06-Jul-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	5500	00 1 0000	40 1 1 0000				40 1 1 0000	00.1	40.1	,
SD_MH-11_2022-06-26	E509	30-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	13 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	F500	20 1 2022	40 1-1 0000				40 1.1.0000	00.1	40 1	1
SD_MH-29_2022-06-26	E509	30-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	13 days	•
Dissolved Metals : Dissolved Mercury in Water by CVAAS					l		I	<u> </u>		
Glass vial dissolved (hydrochloric acid) Dup2	E509	29-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	14 days	✓
Dupz	2503	29-0011-2022	13-341-2022				10-341-2022	20 days	14 days	•
Discolus d Matala a Discolus d Marrows in Water has OVA A C										
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid)										
SD_MH-22_2022-06-26	E509	29-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	14 davs	1
									, -	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)							I			
SD_MH-22D_2022-06-26	E509	29-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	14 days	✓
_ -										
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-SDH-S2_2022-06-26	E509	29-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	14 days	✓
		1		1			1			

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viatrix: water						aldation. • -	nolding time exce	cuarioc ,	- vvicinii	Tioluling Til
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-04_2022-06-26	E509	28-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	15 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-13_2022-06-26	E509	28-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	15 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-15_2022-06-26	E509	28-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	15 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-FB_2022-06-26	E509	28-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	15 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-02_2022-06-26	E509	27-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	16 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-12_2022-06-26	E509	27-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	16 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-FD_2022-06-26	E509	27-Jun-2022	13-Jul-2022				13-Jul-2022	28 days	16 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-11_2022-06-26	E421	30-Jun-2022	14-Jul-2022				15-Jul-2022	180	15 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-29_2022-06-26	E421	30-Jun-2022	14-Jul-2022				15-Jul-2022	180	15 days	✓
								days		

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Matrix: water						araaraar.	noiding time excee	Judinoo ,	***********	riolanig riii
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation			Analy	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holdin	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
Dup2	E421	29-Jun-2022	14-Jul-2022				15-Jul-2022	180	16 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD MH-04 2022-06-26	E421	28-Jun-2022	14-Jul-2022				15-Jul-2022	180	16 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS								,		
HDPE dissolved (nitric acid)										
SD MH-22 2022-06-26	E421	29-Jun-2022	14-Jul-2022				15-Jul-2022	180	16 days	✓
05 ==_=022 00 20								days		
Discolud Metals a Discolud Metals in Wetsu by CDC ICRMC								44,0		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS							I	I		
HDPE dissolved (nitric acid) SD MH-22D 2022-06-26	E421	29-Jun-2022	14-Jul-2022				15-Jul-2022	100	16 days	1
SD_MH-22D_2022-00-20	L421	29-Juli-2022	14-301-2022				13-341-2022	180	10 days	•
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)	E404	00 1 0000	44 1 1 0000				45 1 1 0000		40.1	1
SD_MH-SDH-S2_2022-06-26	E421	29-Jun-2022	14-Jul-2022				15-Jul-2022	180	16 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-02_2022-06-26	E421	27-Jun-2022	14-Jul-2022				15-Jul-2022	180	17 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-13_2022-06-26	E421	28-Jun-2022	14-Jul-2022				15-Jul-2022	180	17 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-15_2022-06-26	E421	28-Jun-2022	14-Jul-2022				15-Jul-2022	180	17 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-FB_2022-06-26	E421	28-Jun-2022	14-Jul-2022				15-Jul-2022	180	17 days	✓
								days		

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Matrix. Water					LV	aluation. " -	riolaling time exce	cuarice,	- vvitiiiii	riolaling
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-12_2022-06-26	E421	27-Jun-2022	14-Jul-2022				15-Jul-2022	180	18 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-FD_2022-06-26	E421	27-Jun-2022	14-Jul-2022				15-Jul-2022	180	18 days	✓
								days	-	
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-11_2022-06-26	E290	30-Jun-2022					12-Jul-2022	14 days	12 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-29_2022-06-26	E290	30-Jun-2022					12-Jul-2022	14 days	12 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
Dup2	E290	29-Jun-2022					12-Jul-2022	14 days	13 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-22_2022-06-26	E290	29-Jun-2022					12-Jul-2022	14 days	13 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-22D_2022-06-26	E290	29-Jun-2022					12-Jul-2022	14 days	13 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										_
SD_MH-SDH-S2_2022-06-26	E290	29-Jun-2022					12-Jul-2022	14 days	13 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE	—									
SD_MH-04_2022-06-26	E290	28-Jun-2022					12-Jul-2022	14 days	14 days	✓
		-								

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Matrix: water						raidation. • -	noiding time exce	suarroc , ,	- *************************************	Tiolaing Tilli
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-15_2022-06-26	E290	28-Jun-2022					12-Jul-2022	14 days	14 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD MH-FB 2022-06-26	E290	28-Jun-2022					12-Jul-2022	14 days	14 days	✓
` - ` ` ` ` `										
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-02_2022-06-26	E290	27-Jun-2022					12-Jul-2022	14 days	15 days	3c
OB_WIT 02_2022 00 20		27 0411 2022					12 0di 2022	11 days	10 dayo	EHT
Physical Tests : Alkalinity Species by Titration				l	ı		I	T T		
HDPE	E290	27-Jun-2022					12-Jul-2022	14 days	15 days	×
SD_MH-12_2022-06-26	E290	21-Jun-2022					12-Jul-2022	14 days	15 days	EHT
										EHI
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-13_2022-06-26	E290	28-Jun-2022					12-Jul-2022	14 days	15 days	30
										EHT
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-FD_2022-06-26	E290	27-Jun-2022					12-Jul-2022	14 days	15 days	*
										EHT
Physical Tests : Conductivity in Water									,	
HDPE										
SD_MH-11_2022-06-26	E100	30-Jun-2022					12-Jul-2022	28 days	12 days	✓
Physical Tests : Conductivity in Water							1			
HDPE										
SD MH-29 2022-06-26	E100	30-Jun-2022					12-Jul-2022	28 days	12 days	✓
Physical Tests : Conductivity in Water										
HDPE										
Dup2	E100	29-Jun-2022					12-Jul-2022	28 days	13 days	√
Dupz	2100	20-0011-2022					12-041-2022	20 days	.o dayo	•

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Matrix: water						valuation. * =	Holding time exce	euance , ·	_ vvitiiiii	Tioluling Tilli
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-22_2022-06-26	E100	29-Jun-2022					12-Jul-2022	28 days	13 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD MH-22D 2022-06-26	E100	29-Jun-2022					12-Jul-2022	28 days	13 days	✓
									,	
Physical Tests : Conductivity in Water										
HDPE							I			
SD_MH-SDH-S2_2022-06-26	E100	29-Jun-2022					12-Jul-2022	28 days	13 days	✓
05_W11 0511 02_5022 00 20	2.00	20 04 2022					12 04: 2022		.o dayo	
Physical Tests : Conductivity in Water						I	I			
HDPE	E100	28-Jun-2022					12-Jul-2022	28 days	14 days	✓
SD_MH-04_2022-06-26	E100	20-Juli-2022					12-Jui-2022	20 uays	14 uays	•
Physical Tests : Conductivity in Water	_									
HDPE	5400	00 1 0000								,
SD_MH-15_2022-06-26	E100	28-Jun-2022					12-Jul-2022	28 days	14 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-FB_2022-06-26	E100	28-Jun-2022					12-Jul-2022	28 days	14 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-02_2022-06-26	E100	27-Jun-2022					12-Jul-2022	28 days	15 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-12_2022-06-26	E100	27-Jun-2022					12-Jul-2022	28 days	15 days	✓
Physical Tests : Conductivity in Water								1		
HDPE										
SD_MH-13_2022-06-26	E100	28-Jun-2022					12-Jul-2022	28 davs	15 days	✓
								- ,-	- ,-	
	1									

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Matrix: water						raidation. • -	noiding time exce	cuarice,	- vvitiiii	Tioluling Tilli
Analyte Group	Method Sampling Date Extraction / Preparation Preparation Holding Times Eval							Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-FD_2022-06-26	E100	27-Jun-2022					12-Jul-2022	28 days	15 days	✓
									-	
Physical Tests : pH by Meter										
HDPE							I			
SD MH-29 2022-06-26	E108	30-Jun-2022					12-Jul-2022	0.25	297 hrs	×
3D_WIH-29_2022-00-20	L 100	30-3u11-2022					12-341-2022		231 1113	EHTR-FM
								hrs		EU I K-LINI
Physical Tests : pH by Meter										
HDPE										
SD_MH-11_2022-06-26	E108	30-Jun-2022					12-Jul-2022	0.25	298 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
Dup2	E108	29-Jun-2022					12-Jul-2022	0.25	319 hrs	×
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE								T		
SD MH-22 2022-06-26	E108	29-Jun-2022					12-Jul-2022	0.25	320 hrs	×
35_WH-22_2022-00-20	2.00	20 04.11 2022					12 041 2022	hrs	0201110	EHTR-FM
								1113		Littivi
Physical Tests : pH by Meter					I				T	
HDPE	E100	00 1 0000					40.1.1.0000		0001	
SD_MH-22D_2022-06-26	E108	29-Jun-2022					12-Jul-2022	0.25	320 hrs	36
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MH-SDH-S2_2022-06-26	E108	29-Jun-2022					12-Jul-2022	0.25	322 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD MH-04 2022-06-26	E108	28-Jun-2022					12-Jul-2022	0.25	341 hrs	×
35_WT 01_2022 00 20		20 04.11 2022					12 04: 2022	hrs	0	EHTR-FM
								1113		
Physical Tests : pH by Meter										
HDPE	E400	00 1 0000					10 1-1 0000		0.40 1	
SD_MH-FB_2022-06-26	E108	28-Jun-2022					12-Jul-2022	0.25	343 hrs	*
								hrs		EHTR-FM

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Matrix: water						raidation. • -	noiding time exce	Juanice ,	_ vviti iii	Tioluling Tilling
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_MH-15_2022-06-26	E108	28-Jun-2022					12-Jul-2022	0.25	347 hrs	*
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD MH-13 2022-06-26	E108	28-Jun-2022					12-Jul-2022	0.25	348 hrs	×
								hrs		EHTR-FM
Physical Tests : pH by Meter										
HDPE							I			
SD_MH-02_2022-06-26	E108	27-Jun-2022					12-Jul-2022	0.25	365 hrs	*
05 02_2022 00 20								hrs		EHTR-FM
No. 10 To Company of the Company of								1110		
Physical Tests : pH by Meter HDPE							I	I		
SD MH-12 2022-06-26	E108	27-Jun-2022					12-Jul-2022	0.25	366 hrs	*
3D_MH-12_2022-00-20	L 100	27-Jun-2022					12-Jui-2022	0.25 hrs	300 1115	EHTR-FM
								1115		LITTIX-I IVI
Physical Tests : pH by Meter										
HDPE	E108	07 1 0000					40 1-1 0000		007.1	×
SD_MH-FD_2022-06-26	E108	27-Jun-2022					12-Jul-2022	0.25	367 hrs	EHTR-FM
								hrs		EHIK-FW
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-11_2022-06-26	E162	30-Jun-2022					06-Jul-2022	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-29_2022-06-26	E162	30-Jun-2022					06-Jul-2022	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
Dup2	E162	29-Jun-2022					06-Jul-2022	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-22_2022-06-26	E162	29-Jun-2022					06-Jul-2022	7 days	7 days	✓

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Matrix: Water						raidation. •-	noiding time exce	cuarioc ,	- vvicinii	Tiolaling Till
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-22D_2022-06-26	E162	29-Jun-2022					06-Jul-2022	7 days	7 days	✓
								_		
Physical Tests : TDS by Gravimetry										
HDPE							I			
SD MH-SDH-S2 2022-06-26	E162	29-Jun-2022					06-Jul-2022	7 days	7 days	✓
3D_WI 1-3DI 1-32_2022-00-20	2102	25-0411-2022					00-3ui-2022	7 days	r days	•
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-13_2022-06-26	E162	28-Jun-2022					06-Jul-2022	7 days	8 days	*
										EHT
Physical Tests: TDS by Gravimetry										
HDPE										
SD_MH-15_2022-06-26	E162	28-Jun-2022					06-Jul-2022	7 days	8 days	3¢
										EHT
Physical Tests : TDS by Gravimetry										
HDPE										
SD MH-FB 2022-06-26	E162	28-Jun-2022					06-Jul-2022	7 days	8 days	3c
05 5_2022 00 20								, -	, -	EHT
PL STAIT A TROL OF THE										
Physical Tests : TDS by Gravimetry					I		I	1		
HDPE	F400	00 1 0000					00 11 2022	7	0 4	×
SD_MH-04_2022-06-26	E162	28-Jun-2022					06-Jul-2022	7 days	8 days	*
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-12_2022-06-26	E162	27-Jun-2022					06-Jul-2022	7 days	9 days	*
										EHTL
Physical Tests : TDS by Gravimetry										
HDPE										
SD MH-FD 2022-06-26	E162	27-Jun-2022					06-Jul-2022	7 days	9 days	*
										EHTL
Dhysical Tests - TDC by Crayingstor										
Physical Tests : TDS by Gravimetry							I			
HDPE	E162	27-Jun-2022					06-Jul-2022	7 days	9 days	Je .
SD_MH-02_2022-06-26	E 102	21-Juli-2022					00-Jui-2022	/ uays	a uays	
										EHT

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Maurix: water						valuation. * =	noiding time exce	euanice,	- vviti iii i	Holding Hill
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			sis		
Container / Client Sample ID(s)	Preparation Holding Times E						Analysis Date	g Times	Eval	
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-11_2022-06-26	E160-L	30-Jun-2022					06-Jul-2022	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MH-29 2022-06-26	E160-L	30-Jun-2022					06-Jul-2022	7 days	6 days	✓
								,		
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
Dup2	E160-L	29-Jun-2022					06-Jul-2022	7 days	7 days	✓
Supe	2.002	20 04.1. 2022					00 00. 2022	,	,	
Physical Tests : TSS by Gravimetry (Low Level)							I	1		
HDPE	E160-L	29-Jun-2022					06-Jul-2022	7 days	7 days	✓
SD_MH-22_2022-06-26	E100-L	29-Juli-2022					00-Jui-2022	7 days	1 uays	•
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE	E400 I	20 1 2022					00 1-1 0000	7.1	7	,
SD_MH-22D_2022-06-26	E160-L	29-Jun-2022					06-Jul-2022	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-SDH-S2_2022-06-26	E160-L	29-Jun-2022					06-Jul-2022	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-13_2022-06-26	E160-L	28-Jun-2022					06-Jul-2022	7 days	8 days	*
										EHT
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-15_2022-06-26	E160-L	28-Jun-2022					06-Jul-2022	7 days	8 days	30
										EHT
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-FB_2022-06-26	E160-L	28-Jun-2022					06-Jul-2022	7 days	8 days	sc .
										EHT

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Matrix: water						a.aa	noiding time exce	oudinoo ,	* * * * * * * * * * * * * * * * * * * *	riolaling rii
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation					
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-04_2022-06-26	E160-L	28-Jun-2022					06-Jul-2022	7 days	8 days	*
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-12_2022-06-26	E160-L	27-Jun-2022					06-Jul-2022	7 days	9 days	sc .
										EHTL
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-FD_2022-06-26	E160-L	27-Jun-2022					06-Jul-2022	7 days	9 days	35
										EHTL
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MH-02 2022-06-26	E160-L	27-Jun-2022					06-Jul-2022	7 days	9 days	sc
									-	EHT
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD MH-11 2022-06-26	E532	30-Jun-2022					12-Jul-2022	28 days	12 days	✓
: :::::::::::::::::::::::::::::::									,	
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-29_2022-06-26	E532	30-Jun-2022					12-Jul-2022	28 days	12 days	✓
_										
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
Dup2	E532	29-Jun-2022					12-Jul-2022	28 davs	13 days	✓
'										
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD MH-22 2022-06-26	E532	29-Jun-2022					12-Jul-2022	28 davs	13 days	✓
v 										
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)							I			
O V-IIIIIDICO IIDI E - total (Souldill liyaloxide)	1	1						l	l	
SD_MH-SDH-S2_2022-06-26	E532	29-Jun-2022					12-Jul-2022	28 days	13 days	✓

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Matrix: Water

Evaluation: x = Holding time exceedance · ✓ = Within Holding Time

latrix: Water					LV	aluation. ^ -	Holding time exce	euance,	– vviti iii i	i loluling
Analyte Group	Method	Sampling Date	Ex	traction / Pi	reparation			Analysis		
Container / Client Sample ID(s)			Preparation	Holding Times		Eval	Analysis Date	Holding Times		Eval
			Date	Rec	Actual			Rec	Actual	
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-04_2022-06-26	E532	28-Jun-2022					12-Jul-2022	28 days	14 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-13_2022-06-26	E532	28-Jun-2022					12-Jul-2022	28 days	14 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-15_2022-06-26	E532	28-Jun-2022					12-Jul-2022	28 days	14 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-FB_2022-06-26	E532	28-Jun-2022					12-Jul-2022	28 days	14 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-02_2022-06-26	E532	27-Jun-2022					12-Jul-2022	28 days	15 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-12_2022-06-26	E532	27-Jun-2022					12-Jul-2022	28 days	15 days	✓
Speciated Metals : Total Hexavalent Chromium (Cr VI) by IC										
UV-inhibited HDPE - total (sodium hydroxide)										
SD_MH-FD_2022-06-26	E532	27-Jun-2022					12-Jul-2022	28 days	15 days	✓
Fotal Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-11_2022-06-26	E508	30-Jun-2022					18-Jul-2022	28 days	18 days	✓
Fotal Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD MH-29 2022-06-26	E508	30-Jun-2022					18-Jul-2022		18 days	✓

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iduix. Water						araation.	riolaling time exce	oudinoo ,	***************************************	riolaling
Analyte Group	Method	Sampling Date	Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation	Holding Times		Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
Dup2	E508	29-Jun-2022					18-Jul-2022	28 days	19 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-22_2022-06-26	E508	29-Jun-2022					18-Jul-2022	28 days	19 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-22D_2022-06-26	E508	29-Jun-2022					18-Jul-2022	28 days	19 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-SDH-S2_2022-06-26	E508	29-Jun-2022					18-Jul-2022	28 days	19 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-04_2022-06-26	E508	28-Jun-2022					18-Jul-2022	28 days	20 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	5500	00 1 0000					40.1.1000	00.1	00.1	
SD_MH-13_2022-06-26	E508	28-Jun-2022					18-Jul-2022	28 days	20 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)	E508	28-Jun-2022					40 1.1 2022	00 -1	00 4	√
SD_MH-15_2022-06-26	E306	20-Juli-2022					18-Jul-2022	28 days	20 days	•
Total Metals : Total Mercury in Water by CVAAS							1			
Glass vial total (hydrochloric acid)	E508	28-Jun-2022					18-Jul-2022	28 days	20 days	1
SD_MH-FB_2022-06-26	=306	20-Juli-2022					10-Jui-2022	20 uays	20 uays	*
Fotal Matala : Total Maraum; in Water by CVAAS										
otal Metals : Total Mercury in Water by CVAAS Glass vial total (hydrochloric acid)										
SD_MH-02_2022-06-26	E508	27-Jun-2022					18-Jul-2022	28 days	21 days	✓
55 5E_E0EE 00 E0		2. 0311 2022								-

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Matrix: water							noiding time exce			rioidinig riii		
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation			Analysis				
Container / Client Sample ID(s)			Preparation	Holding Times		Eval	Analysis Date	Holding Times		Eval		
			Date	Rec	Actual			Rec	Actual			
Total Metals : Total Mercury in Water by CVAAS												
Glass vial total (hydrochloric acid)												
SD_MH-12_2022-06-26	E508	27-Jun-2022					18-Jul-2022	28 days	21 days	✓		
Total Metals : Total Mercury in Water by CVAAS												
Glass vial total (hydrochloric acid)												
SD MH-FD 2022-06-26	E508	27-Jun-2022					18-Jul-2022	28 days	21 days	✓		
Total Metals : Total Metals in Water by CRC ICPMS												
HDPE total (nitric acid)												
SD_MH-11_2022-06-26	E420	30-Jun-2022					15-Jul-2022	180	15 days	✓		
								days				
Total Metals : Total Metals in Water by CRC ICPMS												
HDPE total (nitric acid)												
SD MH-29 2022-06-26	E420	30-Jun-2022					15-Jul-2022	180	15 days	✓		
								days				
Total Metals : Total Metals in Water by CRC ICPMS												
HDPE total (nitric acid)												
Dup2	E420	29-Jun-2022					15-Jul-2022	180	16 days	✓		
								days				
Total Metals : Total Metals in Water by CRC ICPMS												
HDPE total (nitric acid)												
SD_MH-22_2022-06-26	E420	29-Jun-2022					15-Jul-2022	180	16 days	✓		
								days				
Total Metals : Total Metals in Water by CRC ICPMS												
HDPE total (nitric acid)												
SD MH-22D 2022-06-26	E420	29-Jun-2022					15-Jul-2022	180	16 days	✓		
								days				
Total Metals : Total Metals in Water by CRC ICPMS								1				
HDPE total (nitric acid)												
SD_MH-SDH-S2_2022-06-26	E420	29-Jun-2022					15-Jul-2022	180	16 days	✓		
_ -								days	-			
Total Metals : Total Metals in Water by CRC ICPMS									<u> </u>			
HDPE total (nitric acid)												
SD_MH-04_2022-06-26	E420	28-Jun-2022					15-Jul-2022	180	17 days	✓		
								days				

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Matrix: Water

Evaluation: x = Holding time exceedance: \checkmark = Within Holding Time

latrix: Water					ΕV	aluation: 🔻 =	Holding time excee	dance;	/ = vvitnin	Holaing
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analysis		
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eva
			Date	Rec	Actual			Rec	Actual	
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-15_2022-06-26	E420	28-Jun-2022					15-Jul-2022	180	17 days	✓
								days		
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-FB_2022-06-26	E420	28-Jun-2022					15-Jul-2022	180	17 days	✓
								days		
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-02_2022-06-26	E420	27-Jun-2022					15-Jul-2022	180	18 days	✓
								days		
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-12_2022-06-26	E420	27-Jun-2022					15-Jul-2022	180	18 days	✓
								days		
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-13_2022-06-26	E420	28-Jun-2022					15-Jul-2022	180	18 days	✓
								days		
Total Metals : Total Metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-FD_2022-06-26	E420	27-Jun-2022					15-Jul-2022	180	18 days	✓
								days		

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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		Evaluat	ion: × = QC frequ		T		
Quality Control Sample Type		1 001 1"		ount		Frequency (%	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	551417	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	558923	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	551426	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.CI	551425	1	20	5.0	5.0	✓
Conductivity in Water	E100	551415	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	561401	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	559860	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	551424	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	551422	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	551423	1	20	5.0	5.0	✓
pH by Meter	E108	551416	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	551421	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	551526	2	28	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	558534	1	18	5.5	5.0	✓
Total Mercury in Water by CVAAS	E508	567082	2	24	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	559859	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	551417	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	558923	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	551426	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.CI	551425	1	20	5.0	5.0	✓
Conductivity in Water	E100	551415	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	561401	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	559860	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	551424	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	551422	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	551423	1	20	5.0	5.0	✓
pH by Meter	E108	551416	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	551421	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	551526	2	28	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	558534	1	18	5.5	5.0	✓
Total Mercury in Water by CVAAS	E508	567082	2	24	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	559859	1	20	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	551501	2	28	7.1	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	551417	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	558923	1	19	5.2	5.0	1

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Matrix: **Water**Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

		Lvaidati	ion. Qo noqui	oney catorac op	comodition,	QC frequency wit	mir opcomoduc
Quality Control Sample Type			Co	ount		Frequency (%)	i .
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Bromide in Water by IC (Low Level)	E235.Br-L	551426	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.CI	551425	1	20	5.0	5.0	✓
Conductivity in Water	E100	551415	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	561401	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	559860	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	551424	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	551422	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	551423	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	551421	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	551526	2	28	7.1	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	558534	1	18	5.5	5.0	✓
Total Mercury in Water by CVAAS	E508	567082	2	24	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	559859	1	20	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	551501	2	28	7.1	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	558923	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	551426	1	19	5.2	5.0	✓
Chloride in Water by IC	E235.CI	551425	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	561401	1	17	5.8	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	559860	1	19	5.2	5.0	✓
Fluoride in Water by IC	E235.F	551424	1	19	5.2	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	551422	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	551423	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	551421	1	20	5.0	5.0	✓
Total Hexavalent Chromium (Cr VI) by IC	E532	558534	1	18	5.5	5.0	✓
Total Mercury in Water by CVAAS	E508	567082	2	24	8.3	5.0	✓
Total Metals in Water by CRC ICPMS	E420	559859	1	20	5.0	5.0	✓

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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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
pH by Meter	Environmental E108	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,
	Vancouver - Environmental			pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry (Low Level)	E160-L	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
	Vancouver - Environmental			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.
TDS by Gravimetry	E162	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight,
	Vancouver - Environmental			with gravimetric measurement of the residue.
Bromide in Water by IC (Low Level)	E235.Br-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver - Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver - Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver - Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver - Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			

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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	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)
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.
Total Hexavalent Chromium (Cr VI) by IC	E532 Vancouver - Environmental	Water	APHA 3500-Cr C (Ion Chromatography)	Hexavalent Chromium is measured by Ion chromatography-Post column reaction and UV detection. Results are based on an un-filtered, field-preserved sample.
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.
Total Trivalent Chromium (Cr III) by Calculation	EC535 Vancouver - Environmental	Water	APHA 3030B/6020A/EPA 7196A (mod)	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results. The Limit of Reporting for Chromium (III) varies as a function of the test results.

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			



QUALITY CONTROL REPORT

Work Order : WR2200652

Contact : Teck Metals Ltd
: Wendy McBain

:601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : ----

Address

Project : Sa Dena Hes
PO : PO# 10289

C-O-C number : --Sampler : ---

 Site
 : ECA22YT00199

 Quote number
 : VA22-TECK150-001

No. of samples received : 13 No. of samples analysed : 13 Page : 1 of 16

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone :+1 867 668 6689

Date Samples Received :04-Jul-2022 13:15

Date Analysis Commenced :06-Jul-2022

Issue Date : 21-Jul-2022 15:49

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 Percent Difference (RPD) and Data Quality Objectives

- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

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	Vancouver Inorganics, Burnaby, British Columbia
Delson Resende	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Erin Sanchez		Vancouver Metals, Burnaby, British Columbia
Hamideh Moradi	Analyst	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Parnian Sane	Analyst	Vancouver Metals, Burnaby, British Columbia
Sam Silveira	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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).

ub-Matrix: Water	Matrix: Water						Laboratory Duplicate (DUP) Report						
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie		
Physical Tests (QC	Lot: 551415)												
/L2200779-001	Anonymous	conductivity		E100	2.0	μS/cm	10200	10200	0.0977%	10%			
hysical Tests (QC	Lot: 551416)												
YL2200779-001	Anonymous	pH		E108	0.10	pH units	8.18	8.18	0.00%	4%			
Physical Tests (QC	Lot: 551417)												
/L2200779-001	Anonymous	alkalinity, total (as CaCO3)		E290	1.0	mg/L	173	170	1.86%	20%			
hysical Tests (QC	Lot: 551526)												
/A22B5038-001	Anonymous	solids, total dissolved [TDS]		E162	20	mg/L	1230	1240	0.445%	20%			
hysical Tests (QC	Lot: 551527)												
VR2200652-010	SD_MH-FD_2022-06-26	solids, total dissolved [TDS]		E162	20	mg/L	551	541	1.92%	20%			
Anions and Nutrien	ts (QC Lot: 551421)												
/A22B5248-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	104	104	0.209%	20%			
Anions and Nutrient	ts (QC Lot: 551422)												
/A22B5248-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	2.60	2.59	0.420%	20%			
nions and Nutrien	ts (QC Lot: 551423)												
VA22B5248-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0430	0.0428	0.498%	20%			
Anions and Nutrien	ts (QC Lot: 551424)												
/A22B5248-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.164	0.162	0.002	Diff <2x LOR			
Anions and Nutrien	ts (QC Lot: 551425)												
VA22B5248-001	Anonymous	chloride	16887-00-6	E235.CI	0.50	mg/L	3.78	3.77	0.003	Diff <2x LOR			
nions and Nutrien	ts (QC Lot: 551426)												
VA22B5248-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR			
nions and Nutrien	ts (QC Lot: 558923)												
WR2200645-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	0.0051	0.0001	Diff <2x LOR			
otal Metals (QC Lo	ot: 559859)												
J2201833-001	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0276	0.0327	16.9%	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	0.00016	0.00014	0.00001	Diff <2x LOR			
		barium, total	7440-39-3	E420	0.00010	mg/L	0.127	0.127	0.0689%	20%			
		beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	0	Diff <2x LOR			
		bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR			
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Sub-Matrix: Water					Laboratory Duplicate (DUP) Report								
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie		
otal Metals (QC Lo	ot: 559859) - continued												
J2201833-001	Anonymous	cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000154	0.0000133	0.0000021	Diff <2x LOR			
		calcium, total	7440-70-2	E420	0.050	mg/L	33.0	33.6	1.72%	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	0.069	0.073	0.004	Diff <2x LOR			
		lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR			
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0076	0.0077	0.00006	Diff <2x LOR			
		magnesium, total	7439-95-4	E420	0.0050	mg/L	14.6	15.0	2.59%	20%			
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00621	0.00638	2.60%	20%			
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000509	0.000508	0.252%	20%			
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00079	0.00085	0.00006	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	0.655	0.670	2.34%	20%			
		selenium, total	7782-49-2	E420	0.000050	mg/L	0.00431	0.00418	2.91%	20%			
		silicon, total	7440-21-3	E420	0.10	mg/L	1.97	2.05	3.88%	20%			
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR			
		sodium, total	7440-23-5	E420	0.050	mg/L	8.27	8.32	0.537%	20%			
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.207	0.205	0.772%	20%			
		sulfur, total	7704-34-9	E420	0.50	mg/L	19.6	19.9	1.88%	20%			
		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	0.00043	0.00013	Diff <2x LOR			
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.000511	0.000509	0.288%	20%			
		vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	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			
otal Metals (QC Lo	ot: 567092\												
A22B5205-001	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR			
	•	y,				<u> </u>			-				
otal Metals (QC Lo J2201783-001	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	0.0000052	0.0000002	Diff <2x LOR			
issolved Metals ((-												
R2200652-001	SD MH-02 2022-06-26	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0049	0.0056	0.0007	Diff <2x LOR			
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00015	0.00014	0.000006	Diff <2x LOR			
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ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Dissolved Metals (QC Lot: 559860) - cont	inued									
VR2200652-001	SD_MH-02_2022-06-26	barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.151	0.165	9.03%	20%	
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	<0.010	<0.010	0	Diff <2x LOR	
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000168	0.000188	11.0%	20%	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	150	150	0.277%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00051	0.00053	0.00002	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00038	0.00039	0.00001	Diff <2x LOR	
		iron, dissolved	7439-89-6	E421	0.010	mg/L	0.053	0.053	0.0002	Diff <2x LOR	
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000388	0.000381	0.000007	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	0.100	mg/L	9.40	10.2	8.12%	20%		
	manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.421	0.446	5.79%	20%		
	molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00104	0.00100	3.84%	20%		
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00061	0.00065	0.00004	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	0.100	mg/L	1.37	1.48	7.27%	20%	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.180 µg/L	0.000205	0.000026	Diff <2x LOR	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.09	3.98	2.69%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	7.90	8.30	4.90%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.509	0.513	0.836%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	64.3	62.2	3.27%	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	0.00143	0.00147	2.60%	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	0.0213	0.0224	4.95%	20%	
	zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR		
issolved Metals (QC Lot: 561401)										
VR2200651-001	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
peciated Metals (QC Lot: 558 <u>534)</u>										
J2201787-001	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	0.00070	0.00060	0.00010	Diff <2x LOR	

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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

oub-iviatrix. water					
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 551415)					
onductivity	E100	1	μS/cm	<1.0	
hysical Tests (QCLot: 551417)					
kalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
hysical Tests (QCLot: 551501)					
lids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
hysical Tests (QCLot: 551502)					
lids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
nysical Tests (QCLot: 551526)					
lids, total dissolved [TDS]	E162	10	mg/L	<10	
hysical Tests (QCLot: 551527)					
lids, total dissolved [TDS]	E162	10	mg/L	<10	
nions and Nutrients (QCLot: 551421)					
lfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
nions and Nutrients (QCLot: 551422)					
rate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
nions and Nutrients (QCLot: 551423)					
rite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
nions and Nutrients (QCLot: 551424)					
oride	16984-48-8 E235.F	0.02	mg/L	<0.020	
nions and Nutrients (QCLot: 551425)					
loride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
nions and Nutrients (QCLot: 551426)					
omide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
nions and Nutrients (QCLot: 558923)					
nmonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
otal Metals (QCLot: 559859)					
ıminum, total	7429-90-5 E420	0.003	mg/L	<0.0030	
timony, total	7440-36-0 E420	0.0001	mg/L	<0.00010	
senic, total	7440-38-2 E420	0.0001	mg/L	<0.00010	
rium, total	7440-39-3 E420	0.0001	mg/L	<0.00010	
ryllium, total	7440-41-7 E420	0.00002	mg/L	<0.000020	
smuth, total	7440-69-9 E420	0.00005	mg/L	<0.000050	
oron, total	7440-42-8 E420	0.01	mg/L	<0.010	

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Sub-Matrix: Water

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 559859) - continue	d				
cadmium, total	7440-43-9 E420	0.000005	mg/L	<0.000050	
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	7440-23-5 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	
hallium, total	7440-28-0 E420	0.00001	mg/L	<0.000010	
in, total	7440-31-5 E420	0.0001	mg/L	<0.00010	
itanium, total	7440-32-6 E420	0.0003	mg/L	<0.00030	
ıranium, 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: 567082)					
mercury, total	7439-97-6 E508	0.000005	mg/L	<0.000050	
Total Metals (QCLot: 567144)					
mercury, total	7439-97-6 E508	0.000005	mg/L	<0.000050	
Dissolved Metals (QCLot: 559860)					
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	

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Sub-Matrix: Water

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 559860) -	continued				
eryllium, dissolved	7440-41-7 E421	0.00002	mg/L	<0.000020	
sismuth, dissolved	7440-69-9 E421	0.00005	mg/L	<0.000050	
oron, dissolved	7440-42-8 E421	0.01	mg/L	<0.010	
admium, dissolved	7440-43-9 E421	0.000005	mg/L	<0.000050	
alcium, dissolved	7440-70-2 E421	0.05	mg/L	<0.050	
hromium, dissolved	7440-47-3 E421	0.0005	mg/L	<0.00050	
obalt, dissolved	7440-48-4 E421	0.0001	mg/L	<0.00010	
opper, dissolved	7440-50-8 E421	0.0002	mg/L	<0.00020	
on, dissolved	7439-89-6 E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1 E421	0.00005	mg/L	<0.000050	
thium, dissolved	7439-93-2 E421	0.001	mg/L	<0.0010	
nagnesium, dissolved	7439-95-4 E421	0.005	mg/L	<0.0050	
nanganese, dissolved	7439-96-5 E421	0.0001	mg/L	<0.00010	
nolybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	<0.000050	
ckel, dissolved	7440-02-0 E421	0.0005	mg/L	<0.00050	
nosphorus, dissolved	7723-14-0 E421	0.05	mg/L	<0.050	
otassium, dissolved	7440-09-7 E421	0.05	mg/L	<0.050	
elenium, dissolved	7782-49-2 E421	0.00005	mg/L	<0.000050	
licon, dissolved	7440-21-3 E421	0.05	mg/L	<0.050	
lver, dissolved	7440-22-4 E421	0.00001	mg/L	<0.000010	
odium, dissolved	7440-23-5 E421	0.05	mg/L	<0.050	
rontium, dissolved	7440-24-6 E421	0.0002	mg/L	<0.00020	
ulfur, dissolved	7704-34-9 E421	0.5	mg/L	<0.50	
allium, dissolved	7440-28-0 E421	0.00001	mg/L	<0.000010	
n, dissolved	7440-31-5 E421	0.0001	mg/L	<0.00010	
tanium, dissolved	7440-32-6 E421	0.0003	mg/L	<0.00030	
ranium, dissolved	7440-61-1 E421	0.00001	mg/L	<0.000010	
anadium, dissolved	7440-62-2 E421	0.0005	mg/L	<0.00050	
nc, dissolved	7440-66-6 E421	0.001	mg/L	<0.0010	
rconium, dissolved	7440-67-7 E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 561401)					
nercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.0000050	
Speciated Metals (QCLot: 558534)					
hromium, hexavalent [Cr VI], total	18540-29-9 E532	0.0005	mg/L	<0.00050	

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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 Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 551415)									
conductivity		E100	1	μS/cm	146.9 μS/cm	96.4	90.0	110	
Physical Tests (QCLot: 551416)									
рН		E108		pH units	7 pH units	100	98.0	102	
Physical Tests (QCLot: 551417)			•						ı
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	102	85.0	115	
Physical Tests (QCLot: 551501)		E400 I	4		150 11	07.0	05.0	445	ı
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	97.2	85.0	115	
Physical Tests (QCLot: 551502)		E160-L	1	mg/l	150 mg/l	00.9	85.0	115	
solids, total suspended [TSS]		L 100-L	I	mg/L	150 mg/L	99.8	00.0	110	
Physical Tests (QCLot: 551526) solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	97.3	85.0	115	
, , ,			10	mg/L	1000 Hig/L	91.3	00.0	. 10	
Physical Tests (QCLot: 551527) solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	99.1	85.0	115	
2525, 15 2.5501704 [1.50]					1000 Hig/L	33.1			
Anions and Nutrients (QCLot: 551421)									I
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110	
Anions and Nutrients (QCLot: 551422)									1
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	
Anions and Nutrients (QCLot: 551423)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.2	90.0	110	
Anions and Nutrients (QCLot: 551424)									
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	99.4	90.0	110	
Anions and Nutrients (QCLot: 551425)									
chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 551426)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	94.2	85.0	115	
Anions and Nutrients (QCLot: 558923)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	99.6	85.0	115	
Total Metals (QCLot: 559859)	7400.00 -	E400	0.000	"		0.5	00.0	400	1
aluminum, total	7429-90-5		0.003	mg/L	2 mg/L	98.0	80.0	120	
antimony, total	7440-36-0 7440-38-2		0.0001	mg/L	1 mg/L	109	80.0 80.0	120 120	
arsenic, total				mg/L	1 mg/L	101	80.0	120	
barium, total	7440-39-3	E42U	0.0001	mg/L	0.25 mg/L	101	80.0	120	

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Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
Oub-IviatiiA. Watei					Spike	Recovery (%)		Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
					Concentration	200	LOW	- mgn	
Total Metals (QCLot: 559859) - continued beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	102	80.0	120	
bismuth, total	7440-69-9	E420	0.00005	mg/L	1 mg/L	100	80.0	120	
boron, total	7440-42-8		0.01	mg/L	1 mg/L	87.7	80.0	120	
cadmium, total	7440-43-9		0.000005	mg/L	0.1 mg/L	100	80.0	120	
calcium, total	7440-70-2		0.05	mg/L	50 mg/L	100	80.0	120	
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	97.2	80.0	120	
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	98.8	80.0	120	
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	97.9	80.0	120	
iron, total	7439-89-6		0.01	mg/L	1 mg/L	100	80.0	120	
lead, total	7439-92-1		0.00005	mg/L	0.5 mg/L	101	80.0	120	
lithium, total	7439-93-2		0.001	mg/L	0.25 mg/L	103	80.0	120	
magnesium, total	7439-95-4		0.005	mg/L	50 mg/L	104	80.0	120	
manganese, total	7439-96-5		0.0001	mg/L	0.25 mg/L	98.6	80.0	120	
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	105	80.0	120	
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	100	80.0	120	
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	109	80.0	120	
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	104	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	108	80.0	120	
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	103	80.0	120	
sodium, total	7440-23-5	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	97.9	80.0	120	
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	89.3	80.0	120	
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	101	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	96.5	80.0	120	
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	100	80.0	120	
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	98.2	80.0	120	
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.9	80.0	120	
Total Metals (QCLot: 567082)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	96.8	80.0	120	
Total Metals (QCLot: 567144)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	98.0	80.0	120	
Dissolved Metals (QCLot: 559860)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	98.4	80.0	120	
		I .			1				1

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Sub-Matrix: Water							ntrol Sample (LCS)		
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 559860) - conti	nued								
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	96.6	80.0	120	
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	99.6	80.0	120	
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	99.3	80.0	120	
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	98.4	80.0	120	
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	101	80.0	120	
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.1	80.0	120	
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	97.2	80.0	120	
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	99.7	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	98.6	80.0	120	
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.9	80.0	120	
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	103	80.0	120	
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	103	80.0	120	
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	99.9	80.0	120	
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.1	80.0	120	
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.0	80.0	120	
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	100	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	106	80.0	120	
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	101	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	98.5	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	97.8	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	95.3	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	103	80.0	120	
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	99.1	80.0	120	
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	92.6	80.0	120	
thallium, dissolved	7440-28-0		0.00001	mg/L	1 mg/L	104	80.0	120	
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	94.9	80.0	120	
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	94.2	80.0	120	
uranium, dissolved	7440-61-1		0.00001	mg/L	0.005 mg/L	108	80.0	120	
vanadium, dissolved	7440-62-2		0.0005	mg/L	0.5 mg/L	102	80.0	120	
zinc, dissolved	7440-66-6		0.001	mg/L	0.5 mg/L	94.5	80.0	120	
zirconium, dissolved	7440-67-7		0.0002	mg/L	0.5 mg/L	95.2	80.0	120	
mercury, dissolved	7439-97-6		0.00005	mg/L	0.0001 mg/L	95.2	80.0	120	
	1400 01-0		3.00000	∌, ⊏	0.0001 Hig/L	55.2	33.0	120	
Speciated Motels (OCI et: FF0F24)									
Speciated Metals (QCLot: 558534) chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	100	90.0	110	
,				J. –	5.25 mg/L				

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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.

counts for the assoc	nated sample (or similar sam	inpics) may be subject to bias. ND	tecovery not determ	illited, baokground lever	- IX Spire level.					
Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifi
nions and Nutri	ients (QCLot: 551421)									
VA22B5249-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	102 mg/L	100 mg/L	102	75.0	125	
Anions and Nutri	ients (QCLot: 551422)									
VA22B5249-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.65 mg/L	2.5 mg/L	106	75.0	125	
nions and Nutri	ients (QCLot: 551423)									
VA22B5249-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.511 mg/L	0.5 mg/L	102	75.0	125	
nions and Nutri	ients (QCLot: 551424)									
VA22B5249-001	Anonymous	fluoride	16984-48-8	E235.F	1.05 mg/L	1 mg/L	105	75.0	125	
Anions and Nutri	ients (QCLot: 551425)									
VA22B5249-001	Anonymous	chloride	16887-00-6	E235.CI	106 mg/L	100 mg/L	106	75.0	125	
Anions and Nutri	ients (QCLot: 551426)									
VA22B5249-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.468 mg/L	0.5 mg/L	93.6	75.0	125	
Anions and Nutri	ients (QCLot: 558923)						7 7 7			
WR2200645-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.1000 mg/L	0.1 mg/L	100.0	75.0	125	
Total Metals (QC	Cl of: 559859)				3.1135 mg/2	g				
FJ2201833-002	Anonymous	aluminum, total	7429-90-5	E420	0.190 mg/L	0.2 mg/L	95.1	70.0	130	
	,	antimony, total	7440-36-0	E420	0.0206 mg/L	0.02 mg/L	103	70.0	130	
		arsenic, total	7440-38-2	E420	0.0194 mg/L	0.02 mg/L	96.9	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	0.0395 mg/L	0.04 mg/L	98.9	70.0	130	
		bismuth, total	7440-69-9	E420	0.00950 mg/L	0.01 mg/L	95.0	70.0	130	
		boron, total	7440-42-8	E420	0.099 mg/L	0.1 mg/L	98.7	70.0	130	
		cadmium, total	7440-43-9	E420	0.00393 mg/L	0.004 mg/L	98.3	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	96.5	70.0	130	
		cobalt, total	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.7	70.0	130	
		copper, total	7440-50-8	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130	
		iron, total	7439-89-6	E420	1.98 mg/L	2 mg/L	98.8	70.0	130	
		lead, total	7439-92-1	E420	0.0196 mg/L	0.02 mg/L	98.0	70.0	130	
					1	_				
		lithium, total	7439-93-2	E420	0.102 mg/L	0.1 mg/L	102	70.0	130	

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Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample D	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
	Lot: 559859) - continu	ied								
FJ2201833-002	Anonymous	manganese, total	7439-96-5	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	
		molybdenum, total	7439-98-7	E420	0.0203 mg/L	0.02 mg/L	102	70.0	130	
		nickel, total	7440-02-0	E420	0.0386 mg/L	0.04 mg/L	96.5	70.0	130	
		phosphorus, total	7723-14-0	E420	9.94 mg/L	10 mg/L	99.4	70.0	130	
		potassium, total	7440-09-7	E420	3.92 mg/L	4 mg/L	98.0	70.0	130	
		selenium, total	7782-49-2	E420	0.0408 mg/L	0.04 mg/L	102	70.0	130	
		silicon, total	7440-21-3	E420	9.51 mg/L	10 mg/L	95.1	70.0	130	
		silver, total	7440-22-4	E420	0.00407 mg/L	0.004 mg/L	102	70.0	130	
		sodium, total	7440-23-5	E420	1.95 mg/L	2 mg/L	97.5	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	19.9 mg/L	20 mg/L	99.6	70.0	130	
		thallium, total	7440-28-0	E420	0.00380 mg/L	0.004 mg/L	94.9	70.0	130	
		tin, total	7440-31-5	E420	0.0197 mg/L	0.02 mg/L	98.6	70.0	130	
		titanium, total	7440-32-6	E420	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	
		uranium, total	7440-61-1	E420	0.00389 mg/L	0.004 mg/L	97.2	70.0	130	
		vanadium, total	7440-62-2	E420	0.0982 mg/L	0.1 mg/L	98.2	70.0	130	
		zinc, total	7440-66-6	E420	0.382 mg/L	0.4 mg/L	95.5	70.0	130	
		zirconium, total	7440-67-7	E420	0.0406 mg/L	0.04 mg/L	102	70.0	130	
otal Metals (QC	Lot: 567082)									
/A22B5205-002	Anonymous	mercury, total	7439-97-6	E508	0.0000945 mg/L	0.0001 mg/L	94.5	70.0	130	
otal Metals (QC	Lot: 567144)									
J2201783-002	Anonymous	mercury, total	7439-97-6	E508	0.0000967 mg/L	0.0001 mg/L	96.7	70.0	130	
issolved Metals	(QCLot: 559860)									
VR2200652-002	SD_MH-04_2022-06-26	aluminum, dissolved	7429-90-5	E421	0.200 mg/L	0.2 mg/L	99.9	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0185 mg/L	0.02 mg/L	92.5	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0206 mg/L	0.02 mg/L	103	70.0	130	
		barium, dissolved	7440-39-3	E421	0.0196 mg/L	0.02 mg/L	98.3	70.0	130	
		beryllium, dissolved	7440-41-7	E421	0.0401 mg/L	0.04 mg/L	100	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00879 mg/L	0.01 mg/L	87.9	70.0	130	
		boron, dissolved	7440-42-8	E421	0.096 mg/L	0.1 mg/L	96.2	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00392 mg/L	0.004 mg/L	98.0	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	0.0411 mg/L	0.04 mg/L	103	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0199 mg/L	0.02 mg/L	99.5	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	
		iron, dissolved	7439-89-6	E421	1.92 mg/L	2 mg/L	96.3	70.0	130	

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Sub-Matrix: Water							Matrix Spike	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	(QCLot: 559860) - co	ntinued								
WR2200652-002	SD_MH-04_2022-06-26	lead, dissolved	7439-92-1	E421	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.0961 mg/L	0.1 mg/L	96.1	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	0.0199 mg/L	0.02 mg/L	99.7	70.0	130	
		molybdenum, dissolved	7439-98-7	E421	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0394 mg/L	0.04 mg/L	98.6	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	4.08 mg/L	4 mg/L	102	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0399 mg/L	0.04 mg/L	99.6	70.0	130	
		silicon, dissolved	7440-21-3	E421	8.93 mg/L	10 mg/L	89.3	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00368 mg/L	0.004 mg/L	91.9	70.0	130	
		sodium, dissolved	7440-23-5	E421	2.15 mg/L	2 mg/L	107	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	20.0 mg/L	20 mg/L	100	70.0	130	
		thallium, dissolved	7440-28-0	E421	0.00390 mg/L	0.004 mg/L	97.4	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0180 mg/L	0.02 mg/L	90.1	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0400 mg/L	0.04 mg/L	99.9	70.0	130	
		uranium, dissolved	7440-61-1	E421	0.00403 mg/L	0.004 mg/L	101	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.104 mg/L	0.1 mg/L	104	70.0	130	
		zinc, dissolved	7440-66-6	E421	0.397 mg/L	0.4 mg/L	99.2	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0376 mg/L	0.04 mg/L	94.0	70.0	130	
issolved Metals	(QCLot: 561401)									
VR2200651-002	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000988 mg/L	0.0001 mg/L	98.8	70.0	130	
peciated Metals	(QCLot: 558534)									
WR2200652-001	SD_MH-02_2022-06-26	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.265 mg/L	0.25 mg/L	106	85.0	115	



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COC Number:

Whitehorse
Work Order Reference
WR2200652 Page nvironmental Division

Number of Containe

	www.alsglobal.com													
Report To	Contact and company name below will appear on the final report	īnal report	Re	Report Format / Distribution	tribution		Select S	ervice L	evel Bel	ow - Ple	ase conf	Select Service Level Below - Please confirm all E&P		Environmental D
Company:	Michaels Ltd	Select Report Format	ort Format:	:			,	Rec	Regular [R]	Z			1 ≶	Whitehorse
Phone:	250-4278422	de la company	seemy come (see) report with report	r wild I topor			ORITY ess Day	ω 1	4 day [P4]	2 £			ZENOV	Work Order Refer
	Company address below will appear on the final report	Select Distribution:	bution:				PRIO (Busine	2 0	2 day [P2]	2 2			ЕНЕВ	WUZZUW
Street:	601 Knightton Road	Email 1 or Fax		azheng@ensero.c	azheng@ensero.com, slyons@ensero.com	ero.com		Date an	d Time	Date and Time Required for all E&P	ed for a		TA.	
City/Province:	Kimberly, BC	Email 2		vendy.mcbain@te	wendy.mcbain@teck.com, colin.lynch@teck.com	ch@teck.com	For test	s that ca	n not be	perform	ed accc		the	
Postal Code:	V1A 3E1	Email 3	0	chanson@ensero	chanson@ensero.com,teckkimb@equ	equisonline.com							Ana	
nvoice To	Same as Report To			Invoice Distribution	rtion			Indic	ate Filte	red (F),	Preser	Indicate Filtered (F), Preserved (P) or I	9	
	Copy of Invoice with Report	Select Invoid	Select Invoice Distribution:				ס	F/P		ס	ס		יס	
Company:		Email 1 or Fax		Michelle.unger@teck.com	eck.com				1				•	4 63
Contact:		Email 2		legacy.ap@teck.com	om					, Br)				
	Project Information		Oil and G	Oil and Gas Required Fields (client use)	lds (client use)					CI, F			-	
ALS Account # / Quote #:	# / Quote #: Q62635	AFE/Cost Center:	er:		PO#			Hg		ate, (
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O / AFE:	Teck PO-10289	Requisitioner:	ï.				el) +	lev	ardn	e, Su				
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ALS Lab Wo	ALS Lab Work Order# (lab use only)	ALS Contact	Ħ	Can Dang	Sampler:		als (lov	d Metals	alkalin	litrate, l	ĺ	S(low)	n Speci	
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Sample Location	on the bottle	Date	Time	Field Matrix	otal Me	issolve	H, SPC	nions(mmonia	OS, TS	hromiu	
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	SD_MH-04_2022-06-26	SD_MH-04		28-Jun-22	17:00	SW	70	70	ZD	70	70	70	20	
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ire samples for	we samples for numan drinking water use (N	N N	NIITIAL COO	ER TH	MPER	ER TEMPERATURES °C	s ဂိ	FINAL COOLER TEMP
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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form. 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. WHITE - LABORATORY COPY YELLOW - CLIENT COPY

CEPTION (lab use only)

Time:

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Page 2 of

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P TATs with your AM - surcharges will apply

1 Business day [E1] Same Day, Weekend or Statutory holiday [E0]

	Canada	Canada Toll Free: 1 800 668 9878		
	www.alsglobal.com			
Report To	Contact and company name below will appear on the final report	Report Format / Distribution	Select Service Level Below - Please confirm all E	Qo
Company:	TECK Metals Ltd	Select Report Format:	Regular [R]	- 1
Contact:	Michelle Unger	Quality Control (QC) Report with Report	ays)	
Phone:	250-4278422		3 day [P3]	_
	Company address below will appear on the final report	Select Distribution:	PRI Busin 2 day [P2]	
Street:	601 Knightton Road	Email 1 or Fax azheng@ensero.com, slyons@ensero.com	Date and Time Required for all E&P	크

Released by:		Are samples for h	Are samples take		Drinking 1										13		11	(lab use only)	ALS Sample #	ALS Lab Wor	LSD:	PO / AFE:	Job #:	ALS Account # / Quote #:		Contact:	Company:		Invoice To	Postal Code:	: "
Date:	SHIPMENT RELEASE (client use)	Are samples for human drinking water use?	Are samples taken from a Regulated DW System?		Drinking Water (DW) Samples¹ (client use)										SD_MH-22_2022-06-26	SD_MH-SDH-S	SD_MH-22D_2022-06-26	(This description will	Sample Identification and/or Coordinates	ALS Lab Work Order # (lab use only)		Teck PO-10289	ECA22YT00199		Project Information			Copy of Invoice with Report	Same as Report To	V1A 3E1	Kimberly, BC
ite:	ASE (client use)		tem?												2022-06-26	SD_MH-SDH-S2_2022-06-26	_2022-06-26	(This description will appear on the report)	n and/or Coordinates					Q62635	formation			Ā			
Time:					I Instructions / Sp													This descrip	S												
Received by:	TINI			COC only)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic									Dup2	SD_MH-22	SD_SDH-S2	SD_MH-22D	This description will appear on the bottle	Sample Location	ALS Contact:	Location:	Requisitioner:	Major/Minor Code:	AFE/Cost Center:	Oil and	Email 2	Email 1 or Fax	Select Invoice Distribution:		Email 3	Email 2
	INITIAL SHIPMENT RECEPTION (lab use			only)	t by clicking on the									29-Jun-22	29-Jun-22	29-Jun-22	29-Jun-22	(dd-mmm-yy)	Date	Can Dang					Oil and Gas Required Fields (client use)	legacy.ap@teck.com	Michelle.unger@teck.com	1:	Invoice Distribution	chanson@enserc	wendy.mcbain@t
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	e only)				ow (electronic									SW	SM	SM	SW	LIEIU MIGUIX	Field Matrix											quisonline.com	
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REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form. 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. WHITE - LABORATORY COPY

YELLOW - CLIENT COPY

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COC Number:

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Company:	TECK Metals Ltd			Select Report Format:	• •			L <u>:</u>	Re	gülar ([R]	٠.		_			orse			
Contact:	Michelle Unger		·	Quality Control (QC) Repo	ort with Report			7 0ays)	4	day [P	4]			ş					erence	
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Street:	601 Knightton Road	- · · · · · · · · · · · · · · ·	- 	Email 1 or Fax	azheng@ensero.	com, slyons@ens	sero.com		Date a	nd Time	Requir	red for a	II E&P	TA				W.A. B	W.T	ини 🗆
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	SD_MH-12_3	2022-06-26		SD_MH-12	27-Jun-22	16:00	ws	R	R	R	R	R	R	R	- -	_	1			7
	SD_MH-13_2	2022-06-26		SD_MH-13	28-Jun-22	10:30	ws -	R	R	R	R	R	R	R						7
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COC Number:

Canada Toli Free: 1 800 668 9878

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Street:	601 Knightton Road	·		Email 1 or Fax	azheng@ensero.d	com, slyons@ens	sero.com		Date a	ıd Time	Requi	red for a	all E&P	TATs:			dd-m	mm-yy hi	imm
City/Province:	Kimberly, BC			Email 2	wendy.mcbain@t	eck.com, colin.lyr	nch@teck.com	For tes	ts that c	an not b	e perfor	med acco	ording to	the serv	ice le vel	selected,	you will b	e contacted.	
Postal Code:	V1A 3E1			Email 3	chanson@ensero	.com.teckkimb@	equisonline.com						- 1	nalys	is Req	uest			
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Drinking	Water (DW) Samples ¹ (clie	ent use)		COC	only)			Froze	en			_			bserva		Yes	☐ No	
Are samples tak	en from a Regulated DW Syst	em?						ice P	acks	乜		Cubes					Yes		
		. [ing Init		П		_				_		-
Are samples for	human drinking water use?	·							INIT	IAL CO	OLER 1	EMPER	ATURE	s°C		FIN	AL COOL	ER TEMPE	RATURES °C
					1.									٠.			<i>[[]</i> . ₹	4	.:
	SHIPMENT RELE	ASE (client use)		INIT	AL SHIPMENT RI	ECEPTION (lab u	ise only)				·	Fi	NAL S	HIPME	NT RE	CEPT	ON (lal	use only	
Released by:	Dat		Time:	Received by:		Date:	 	Time	:	Rece	eived	by:	1			ate:	1		Time:
			l				-						<u> </u>	1		<u>7/s</u>	120	22	Ipm
REFER TO BACK	KPAGE FOR ALS LOCATIONS	AND SAMPLING INFORMA	ATION		WH	ITE - LABORATOR	RY COPY YELI	-WO.	CLIEN'	T COP	Υ			,		/	1		OCTOBER 2015 FRONT



: Wendy McBain

CERTIFICATE OF ANALYSIS

Work Order : WR2200849

Client : Teck Metals Ltd

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : ----

Contact

Project : Sa Dena Hes
PO : PO# 10289

C-O-C number : -Sampler : --

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 16
No. of samples analysed : 16

Page : 1 of 18

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 11-Aug-2022 16:45

Date Analysis Commenced : 15-Aug-2022

Issue Date : 22-Aug-2022 19:05

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
- Surrogate Control Limits

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
ChingXing Yew	Analsyt	Organics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Metals, Burnaby, British Columbia
Erin Sanchez		Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia
Parnian Sane	Analyst	Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Metals, Burnaby, British Columbia

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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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
μg/L	micrograms per litre
μg/L μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
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
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference, colour, turbidity).
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
RRV	Reported result verified by repeat analysis.

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Groundwater			Cl	ient sample ID	SD_MW13-01_	SD_MW13-04_	SD_MW13-06_	SD_MW13-07_	SD_MW13-08_
(Matrix: Water)					2022-08-08	2022-08-08	2022-08-08	2022-08-08	2022-08-08
			Client samp	ling date / time	10-Aug-2022 17:00	08-Aug-2022 15:40	10-Aug-2022 14:00	09-Aug-2022 13:45	08-Aug-2022 16:30
Analyte	CAS Number	Method	LOR	Unit	WR2200849-001	WR2200849-002	WR2200849-003	WR2200849-004	WR2200849-005
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	144	153	176	232	250
conductivity		E100	2.0	μS/cm	307	306	825	480	485
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	155	178	411	235	244
pH		E108	0.10	pH units	7.64	7.89	7.27	7.83	7.55
solids, total dissolved [TDS]		E162	10	mg/L	168	210	620	295	285
solids, total suspended [TSS]		E160-L	1.0	mg/L	30.5	2640	9.1	95.8	353
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	0.0751	0.0164	0.153	0.0192
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.250 DLDS	<0.050	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.223	0.376	<0.0250 DLDS	<0.0050	0.226
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0050 DLDS	0.0028	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	9.36	4.28	258	30.4	7.62
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0013	1.15	0.0013	0.0100	0.0020
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00014	0.00040	0.00021	<0.00010	0.00015
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00048	0.00242	0.0488	0.00167	0.00025
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0191	0.146	0.0237	0.0410	0.159
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	0.000203	<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	0.012	0.021	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000590	0.000621	0.0000962	<0.0000050	0.0000560
calcium, dissolved	7440-70-2	E421	0.050	mg/L	55.8	62.6	146	67.2	83.3
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	0.00313	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	0.00542	0.00264	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	0.0116	0.00108	0.00022	0.00039
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	3.57	0.518	0.674	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000868	0.0510	0.000053	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0014	0.0026	0.0077	0.0090	0.0016
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	3.86	5.35	11.2	16.4	8.86
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00030	0.222	0.306	0.114	0.00051
1 9 111,71111111	1 +00-00-0		1						

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Groundwater			Cli	ent sample ID	SD_MW13-01_	SD_MW13-04_	SD_MW13-06_	SD_MW13-07_	SD_MW13-08_
(Matrix: Water)					2022-08-08	2022-08-08	2022-08-08	2022-08-08	2022-08-08
			Client samp	ling date / time	10-Aug-2022 17:00	08-Aug-2022 15:40	10-Aug-2022 14:00	09-Aug-2022 13:45	08-Aug-2022 16:30
Analyte	CAS Number	Method	LOR	Unit	WR2200849-001	WR2200849-002	WR2200849-003	WR2200849-004	WR2200849-005
					Result	Result	Result	Result	Result
Dissolved Metals		5500	0.000050		0.000050	0.0000404	0.000050	0.000050	0.000050
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	0.0000461	<0.000050	<0.000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000778	0.000426	0.0342	0.00291	0.000675
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	0.00772	0.0286	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	0.231	0.167	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.663	0.693	2.00	2.87	0.609
selenium, dissolved	7782-49-2	E421	0.050	μg/L	1.22	1.14	<0.050	<0.050	1.14
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.50	5.13	15.4	8.17	4.06
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	0.000102	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.741	1.04	4.81	5.20	0.941
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.178	0.173	0.517	0.532	0.283
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	3.87	1.68	96.6	11.4	3.40
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	0.000044	0.000017	<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	0.0223	<0.00030	<0.00030	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000986	0.000933	0.0126	0.00673	0.00126
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	0.00483	<0.00050	<0.00050	<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0197	0.138	0.127	0.0012	<0.0010
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	0.00040	<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
Volatile Organic Compounds [Fuels]									
benzene	71-43-2	E611A	0.50	μg/L		<0.50		<0.50	
ethylbenzene	100-41-4	E611A	0.50	μg/L		<0.50		<0.50	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L		<0.50		<0.50	
styrene	100-42-5	E611A	0.50	μg/L		<0.50		<0.50	
toluene	108-88-3	E611A	0.50	μg/L		0.62		<0.50	
xylene, m+p-	179601-23-1	E611A	0.40	μg/L		<0.40		<0.40	
xylene, o-	95-47-6	E611A	0.30	μg/L		<0.30		<0.30	
xylenes, total	1330-20-7	E611A	0.50	μg/L		<0.50		<0.50	
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%		76.0		74.3	
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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Groundwater (Matrix: Water)			C	ient sample ID	SD_MW13-01_ 2022-08-08	SD_MW13-04_ 2022-08-08	SD_MW13-06_ 2022-08-08	SD_MW13-07_ 2022-08-08	SD_MW13-08_ 2022-08-08
			Client samp	ling date / time	10-Aug-2022 17:00	08-Aug-2022 15:40	10-Aug-2022 14:00	09-Aug-2022 13:45	08-Aug-2022 16:30
Analyte	CAS Number	Method	LOR	Unit	WR2200849-001	WR2200849-002	WR2200849-003	WR2200849-004	WR2200849-005
					Result	Result	Result	Result	Result
Volatile Organic Compounds Surrogates									
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%		98.0		98.8	
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L		<250		<250	
EPH (C19-C32)		E601A	250	μg/L		<250		2620	
VHw (C6-C10)		E581.VH+F1	100	μg/L		<100		<100	
HEPHw		EC600A	250	μg/L		<250		2620	
LEPHw		EC600A	250	μg/L		<250		<250	
VPHw		EC580A	100	μg/L		<100		<100	
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%		85.8		77.2	
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%		93.1		99.6	
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L		<0.010		<0.010	
acenaphthylene	208-96-8	E641A	0.010	μg/L		<0.010		<0.010	
acridine	260-94-6	E641A	0.010	μg/L		<0.010		<0.010	
anthracene	120-12-7	E641A	0.010	μg/L		<0.010		<0.010	
benz(a)anthracene	56-55-3	E641A	0.010	μg/L		<0.010		<0.010	
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L		<0.0050		<0.0050	
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L		<0.010		<0.010	
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L		<0.015		<0.015	
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L		<0.010		<0.010	
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L		<0.010		<0.010	
chrysene	218-01-9	E641A	0.010	μg/L		<0.010		<0.010	
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L		<0.0050		<0.0050	
fluoranthene	206-44-0	E641A	0.010	μg/L		<0.010		<0.010	
fluorene	86-73-7	E641A	0.010	μg/L		<0.010		<0.010	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L		<0.010		<0.010	
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L		<0.010		<0.010	
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L		<0.010		<0.010	
naphthalene	91-20-3	E641A	0.050	μg/L		<0.050		<0.050	
phenanthrene	85-01-8	E641A	0.020	μg/L		<0.020		<0.020	
Productions	00-01-0	LOTIA	0.020	µy/∟		-0.020		-0.020	

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Groundwater			CI	lient sample ID	SD_MW13-01_	SD_MW13-04_	SD_MW13-06_	SD_MW13-07_	SD_MW13-08_
(Matrix: Water)					2022-08-08	2022-08-08	2022-08-08	2022-08-08	2022-08-08
			Client samp	oling date / time	10-Aug-2022 17:00	08-Aug-2022 15:40	10-Aug-2022 14:00	09-Aug-2022 13:45	08-Aug-2022 16:30
Analyte	CAS Number	Method	LOR	Unit	WR2200849-001	WR2200849-002	WR2200849-003	WR2200849-004	WR2200849-005
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons									
pyrene	129-00-0	E641A	0.010	μg/L		<0.010		<0.010	
quinoline	91-22-5	E641A	0.050	μg/L		<0.050		<0.050	
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%		99.9		96.7	
naphthalene-d8	1146-65-2	E641A	0.1	%		104		98.1	
phenanthrene-d10	1517-22-2	E641A	0.1	%		105		108	

Please refer to the General Comments section for an explanation of any qualifiers detected.

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 Work Order
 : WR2200849

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Groundwater (Matrix: Water)			Cl.	ient sample ID	SD_MW13-10_ 2022-08-08	SD_MW13-13_ 2022-08-08	SD_MW14-01_ 2022-08-08	SD_MW14-02_ 2022-08-08	SD_MW14-03_ 2022-08-08
			Client samp	ling date / time	10-Aug-2022 15:25	10-Aug-2022 11:50	09-Aug-2022 18:00	09-Aug-2022 17:15	09-Aug-2022 15:45
Analyte	CAS Number	Method	LOR	Unit	WR2200849-006	WR2200849-007	WR2200849-008	WR2200849-009	WR2200849-010
					Result	Result	Result	Result	Result
Physical Tests		5000	4.0		0.1.1	05.5	0.14	200	070
alkalinity, total (as CaCO3)		E290	1.0	mg/L	211	85.5	244	203	373
conductivity		E100	2.0	μS/cm	474	271	465	385	846
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	237	124	250	187	428
pH		E108	0.10	pH units	7.81	7.75	7.64	8.07	7.44
solids, total dissolved [TDS]		E162	10	mg/L	317	199	264	227	569
solids, total suspended [TSS]		E160-L	1.0	mg/L	828	1740	2470	2560	712
Anions and Nutrients		F202	0.0050		0.0007	0.0000	0.0044	0.0055	0.0400
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0097	0.0233	0.0241	0.0255	0.0102 <0.250 DLDS
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.469	0.313	0.313	0.167	0.524 <0.0050 DLDS
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	0.0031	<0.0010	<0.0010	
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	35.3	43.4	4.27	5.33	90.1
Dissolved Metals	7400 00 5	E421	0.0010	ma/l	0.0024	0.0151	0.0183	0.0050	0.0018
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0024	0.00017	0.0017	0.0030	0.00029
antimony, dissolved	7440-36-0		0.00010	mg/L	0.00012	0.00017	0.00017	0.00024	0.00029
arsenic, dissolved	7440-38-2	E421 E421	0.00010	mg/L	0.00113	0.0033	0.00029	0.00072	0.00015
barium, dissolved beryllium, dissolved	7440-39-3		0.00010	mg/L	<0.00097	<0.00020	<0.000020	<0.00020	<0.000020
· ·	7440-41-7	E421 E421	0.000020	mg/L	<0.000020	<0.00020	<0.000020	<0.000020	<0.000020
bismuth, dissolved boron, dissolved	7440-69-9	E421	0.000030	mg/L	<0.010	<0.010	<0.010	<0.000	0.842
cadmium, dissolved	7440-42-8	E421	0.000050	mg/L	0.0000179	0.000938	0.0000371	0.0000222	0.000453
calcium, dissolved	7440-43-9	E421	0.050	mg/L	81.4	46.6	80.8	60.1	147
chromium, dissolved	7440-70-2 7440-47-3	E421	0.00050	mg/L mg/L	<0.00050	<0.00050	0.00066	0.00115	<0.00050
cobalt, dissolved	7440-47-3	E421	0.00030	mg/L	<0.00030	<0.00010	<0.00010	<0.00113	0.00030
copper, dissolved	7440-48-4	E421	0.00010	mg/L	0.00052	0.00323	0.00112	0.00058	0.00010
iron, dissolved	7439-89-6	E421	0.0020	mg/L	<0.010	0.018	0.037	<0.010	<0.010
lead, dissolved	7439-89-6	E421	0.000050	mg/L	0.000120	0.000752	0.000090	0.000127	0.000116
lithium, dissolved	7439-92-1	E421	0.0000	mg/L	0.0016	<0.0010	0.0015	0.0013	0.00110
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	8.27	1.87	11.6	8.98	14.8
manganese, dissolved	7439-95-4	E421	0.00010	mg/L	0.00041	0.00124	0.00131	0.00042	0.00070
mercury, dissolved	7439-96-5	E509	0.00010	mg/L	<0.00041	<0.000050	<0.000050	<0.000050	<0.00070
meroury, dissolved	1439-91-0	2009	0.000000	mg/L	-0.000000	-0.000000	-0.000000	-0.000000	-0.000000

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 Client
 : Teck Metals Ltd

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Sub-Matrix: Groundwater			Cli	ent sample ID	SD_MW13-10_	SD_MW13-13_	SD_MW14-01_	SD_MW14-02_	SD_MW14-03_
(Matrix: Water)					2022-08-08	2022-08-08	2022-08-08	2022-08-08	2022-08-08
			Client samp	ling date / time	10-Aug-2022 15:25	10-Aug-2022 11:50	09-Aug-2022 18:00	09-Aug-2022 17:15	09-Aug-2022 15:45
Analyte	CAS Number	Method	LOR	Unit	WR2200849-006	WR2200849-007	WR2200849-008	WR2200849-009	WR2200849-010
					Result	Result	Result	Result	Result
Dissolved Metals									
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00186	0.000394	0.00132	0.00149	0.000574
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	0.00082	<0.00050	<0.00050	0.00070
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	1.15	0.869	0.707	0.698	1.20
selenium, dissolved	7782-49-2	E421	0.050	μg/L	1.95	1.35	0.837	0.238	1.03
silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.17	2.39	5.58	4.78	5.12
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	1.89	0.898	2.27	6.84	14.4
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.375	0.0848	0.278	0.188	0.482
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	13.5	15.9	2.71	2.33	34.8
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	0.00021	0.00015	<0.00010	<0.00010	<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00060 DLM	<0.00030	<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00291	0.000521	0.00122	0.000836	0.00190
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	0.0019	0.0226	0.0016	<0.0010	0.0045
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
Volatile Organic Compounds [Fuels]									
benzene	71-43-2	E611A	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
styrene	100-42-5	E611A	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
toluene	108-88-3	E611A	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40		<0.40	<0.40	<0.40
xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30		<0.30	<0.30	<0.30
xylenes, total	1330-20-7	E611A	0.50	μg/L	<0.50		<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	78.7		77.2	77.4	74.1
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	98.8		98.3	98.2	98.3

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Sub-Matrix: Groundwater			C	lient sample ID	SD_MW13-10_	SD_MW13-13_	SD_MW14-01_	SD_MW14-02_	SD_MW14-03_
(Matrix: Water)					2022-08-08	2022-08-08	2022-08-08	2022-08-08	2022-08-08
			Client samp	oling date / time	10-Aug-2022 15:25	10-Aug-2022 11:50	09-Aug-2022 18:00	09-Aug-2022 17:15	09-Aug-2022 15:45
Analyte	CAS Number	Method	LOR	Unit	WR2200849-006	WR2200849-007	WR2200849-008	WR2200849-009	WR2200849-010
					Result	Result	Result	Result	Result
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L	440		<250	<250	<250
EPH (C19-C32)		E601A	250	μg/L	<250		290	<250	<250
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100		<100	<100	<100
HEPHw		EC600A	250	μg/L	<250		290	<250	<250
LEPHw		EC600A	250	μg/L	440		<250	<250	<250
VPHw		EC580A	100	μg/L	<100		<100	<100	<100
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%	83.5		83.7	82.8	84.0
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	102		102	99.1	76.9
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
acenaphthylene	208-96-8	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
acridine	260-94-6	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
anthracene	120-12-7	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L	<0.0050		<0.0050	<0.0050	<0.0050
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L	<0.015		<0.015	<0.015	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
chrysene	218-01-9	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L	<0.0050		<0.0050	<0.0050	<0.0050
fluoranthene	206-44-0	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
fluorene	86-73-7	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
naphthalene	91-20-3	E641A	0.050	μg/L	<0.050		<0.050	<0.050	<0.050
phenanthrene	85-01-8	E641A	0.020	μg/L	<0.020		<0.020	<0.020	<0.020
pyrene	129-00-0	E641A	0.010	μg/L	<0.010		<0.010	<0.010	<0.010
quinoline	91-22-5	E641A	0.050	μg/L	<0.050		<0.050	<0.050	<0.050
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Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW13-10_	SD_MW13-13_	SD_MW14-01_	SD_MW14-02_	SD_MW14-03_
(Matrix: Water)					2022-08-08	2022-08-08	2022-08-08	2022-08-08	2022-08-08
			Client samp	ling date / time	10-Aug-2022 15:25	10-Aug-2022 11:50	09-Aug-2022 18:00	09-Aug-2022 17:15	09-Aug-2022 15:45
Analyte	CAS Number	Method	LOR	Unit	WR2200849-006	WR2200849-007	WR2200849-008	WR2200849-009	WR2200849-010
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%	105		112	89.8	112
naphthalene-d8	1146-65-2	E641A	0.1	%	102		110	95.5	110
phenanthrene-d10	1517-22-2	E641A	0.1	%	113		119	102	116

Please refer to the General Comments section for an explanation of any qualifiers detected.

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(Matrix: Water)	Sub-Matrix: Groundwater Client sample ID							SD_MW-TB_20	SD_MW-FD2_2
					2022-08-08	22-08-08	022-08-08	22-06-26	022-08-08
			Client samp	ling date / time	09-Aug-2022 16:20	10-Aug-2022	08-Aug-2022	11-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200849-011	WR2200849-012	WR2200849-013	WR2200849-014	WR2200849-015
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	173	1.5	246	<1.0	362
conductivity		E100	2.0	μS/cm	317	<2.0	491	<2.0	838
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	166	<0.60	252		424
pH		E108	0.10	pH units	7.92	5.68	7.59	5.62	7.38
solids, total dissolved [TDS]		E162	10	mg/L	199	<10	277	<10	543
solids, total suspended [TSS]		E160-L	1.0	mg/L	404	1.9	345	25.7	688
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0112	<0.0050	0.0177	0.0163 RRV	0.0098
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.250 DLDS
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.178	<0.0050	0.226	<0.0050	0.506
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0050 DLDS
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.45	<0.30	7.63	<0.30	87.9
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0041	<0.0010	0.0031		0.0032
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00018	<0.00010	0.00020		0.00028
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00039	<0.00010	0.00040		0.00016
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.105	<0.00010	0.148		0.178
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<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
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	<0.010	<0.010		0.851
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000201	<0.0000050	0.0000661		0.000472
calcium, dissolved	7440-70-2	E421	0.050	mg/L	56.7	<0.050	85.9		144
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00122	<0.00050	<0.00050		<0.00050
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010		0.00012
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00084	0.00022	0.00062		0.00185
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	<0.010	<0.010		<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000052	<0.000050	0.000066		0.000154
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0012	<0.0010	0.0017		0.0014
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	5.99	<0.100	9.18		15.7
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00052	<0.00010	0.00165		0.00082
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.000050	<0.000050		<0.000050

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Sub-Matrix: Groundwater			Cli	ient sample ID	SD_MW14-04_	SD_MW-FB_20	SD_MW-FD1_2	SD_MW-TB_20	SD_MW-FD2_2
(Matrix: Water)					2022-08-08	22-08-08	022-08-08	22-06-26	022-08-08
			Client samp	ling date / time	09-Aug-2022 16:20	10-Aug-2022	08-Aug-2022	11-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200849-011	WR2200849-012	WR2200849-013	WR2200849-014	WR2200849-015
					Result	Result	Result	Result	Result
Dissolved Metals									
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000858	<0.000050	0.000726		0.000528
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050		0.00073
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	<0.050		<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.685	<0.100	0.688		1.27
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.586	<0.050	1.24		0.942
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.89	<0.050	3.99		5.16
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010		<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.48	<0.050	1.06		14.6
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.214	<0.00020	0.289		0.494
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.86	<0.50	3.83		35.5
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010		<0.000010
tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	0.00020		<0.00010
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030		<0.00030
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.000451	<0.000010	0.00131		0.00188
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050		<0.00050
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0031	<0.0010	0.0017		0.0054
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020		<0.00020
dissolved mercury filtration location		EP509	-	-	Field	Field	Field		Field
dissolved metals filtration location		EP421	-	-	Field	Field	Field		Field
Volatile Organic Compounds [Fuels]									
benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	<0.40	<0.40	<0.40
xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	<0.30	<0.30	<0.30
xylenes, total	1330-20-7	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	<0.50
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	79.5	73.8	78.5	78.9	77.3
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	99.6	98.3	100	97.3	99.1
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 : Teck Metals Ltd

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Sub-Matrix: Groundwater			Ci	lient sample ID	SD_MW14-04_	SD_MW-FB_20	SD_MW-FD1_2	SD_MW-TB_20	SD_MW-FD2_2
(Matrix: Water)					2022-08-08	22-08-08	022-08-08	22-06-26	022-08-08
			Client samp	oling date / time	09-Aug-2022 16:20	10-Aug-2022	08-Aug-2022	11-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200849-011	WR2200849-012	WR2200849-013	WR2200849-014	WR2200849-015
					Result	Result	Result	Result	Result
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L	<250	<250	<250	<250	<250
EPH (C19-C32)		E601A	250	μg/L	<250	<250	<250	<250	<250
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	<100	<100	<100
HEPHw		EC600A	250	μg/L	<250	<250	<250	<250	<250
LEPHw		EC600A	250	μg/L	<250	<250	<250	<250	<250
VPHw		EC580A	100	μg/L	<100	<100	<100	<100	<100
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%	82.7	83.5	80.9	77.7	63.6
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	102	104	108	103	91.5
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
acenaphthylene	208-96-8	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
acridine	260-94-6	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
anthracene	120-12-7	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L	<0.015	<0.015	<0.015	<0.015	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
chrysene	218-01-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
fluoranthene	206-44-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
fluorene	86-73-7	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
naphthalene	91-20-3	E641A	0.050	μg/L	<0.050	<0.050	<0.050	<0.050	<0.050
phenanthrene	85-01-8	E641A	0.020	μg/L	<0.020	<0.020	<0.020	<0.020	<0.020
pyrene	129-00-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	<0.010
quinoline	91-22-5	E641A	0.050	μg/L	<0.050	<0.050	<0.050	<0.050	<0.050
4	31-22-3		5.555	r⊎′-	0.000	3.000	1 0.000	3.000	0.000

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW14-04_	SD_MW-FB_20	SD_MW-FD1_2	SD_MW-TB_20	SD_MW-FD2_2
(Matrix: Water)					2022-08-08	22-08-08	022-08-08	22-06-26	022-08-08
			Client samp	ling date / time	09-Aug-2022 16:20	10-Aug-2022	08-Aug-2022	11-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200849-011	WR2200849-012	WR2200849-013	WR2200849-014	WR2200849-015
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%	108	111	97.7	104	95.1
naphthalene-d8	1146-65-2	E641A	0.1	%	107	105	103	104	102
phenanthrene-d10	1517-22-2	E641A	0.1	%	112	112	108	112	110

Please refer to the General Comments section for an explanation of any qualifiers detected.

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 : Teck Metals Ltd

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 : Sa Dena Hes



Sub-Matrix: Groundwater			Cli	ient sample ID	SD_MW-FD3_2	 		
(Matrix: Water)					022-08-08			
			Client samp	ling date / time	10-Aug-2022	 		
Analyte	CAS Number	Method	LOR	Unit	WR2200849-016	 		
					Result	 		
Physical Tests alkalinity, total (as CaCO3)		E290	1.0	mg/L	210	 		l
conductivity		E100	2.0	μS/cm	475	 		
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	240	 		
pH		E108	0.10	pH units	7.84	 		
solids, total dissolved [TDS]		E162	10	mg/L	289	 		
solids, total suspended [TSS]		E160-L	1.0	mg/L	553	 		
		E100-E	1.0	IIIg/L	000			
Anions and Nutrients ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0062	 		l
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	 		
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.472	 		
nitrite (as N)	14797-65-0	E235.NO2-L	0.0030	mg/L	<0.0010	 		
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	35.2	 		
	14000-79-0	L233.004	0.50	IIIg/L	33.Z	 		
Dissolved Metals aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0029	 		
antimony, dissolved	7429-90-3	E421	0.00010	mg/L	0.00013	 		
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00116	 		
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00892	 		
beryllium, dissolved	7440-39-3	E421	0.00000	mg/L	<0.000020	 		
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050	 		
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010	 		
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000185	 		
calcium, dissolved	7440-70-2	E421	0.050	mg/L	82.4	 		
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	 		
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	 		
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00041	 		
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	 		
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000308	 		
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0017	 		
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	8.30	 		
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00040	 		
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	 		
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00181	 		
1	1400-30-1						I	I

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Analyte CAS Number Method LOR Unit WR2200849-016	Sub-Matrix: Groundwater			Cl	ient sample ID	SD_MW-FD3_2	 	
Dissolved Metals	(Matrix: Water)					022-08-08		
Dissolved Metals				Client samp	lina date / time	10-Aug-2022	 	
Dissolved Metals	Analyte	CAS Number	Method	· · · · ·	-	-	 	
nickel, dissolved 7440-02-0 E421 0.00050 mg/L <0.00050						Result	 	
nickel, dissolved 7440-02-0 E421 0.00050 mg/L <0.00050	Dissolved Metals							
Dotassium, dissolved		7440-02-0	E421	0.00050	mg/L	<0.00050	 	
Selenlum, dissolved 7782-49-2	phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	 	
silicon, dissolved 7440-21-3 E421 0.050 mg/L 4.25	potassium, dissolved	7440-09-7	E421	0.100	mg/L	1.16	 	
silicon, dissolved 7440-21-3 E421 0.050 mg/L 4.25 silver, dissolved 7440-22-4 E421 0.00010 mg/L -0.000010 strontium, dissolved 7440-24-6 E421 0.00020 mg/L 1.91 sulfur, dissolved 7740-34-9 E421 0.50 mg/L 13.2 thallium, dissolved 7440-28-0 E421 0.50 mg/L -0.000010 <t< th=""><th>selenium, dissolved</th><th>7782-49-2</th><th>E421</th><th>0.050</th><th>μg/L</th><th>1.70</th><th> </th><th> </th></t<>	selenium, dissolved	7782-49-2	E421	0.050	μg/L	1.70	 	
Sodium, dissolved 7440-23-5 E421 0.050 mg/L 1.91	silicon, dissolved	7440-21-3	E421	0.050		4.25	 	
Strontlum, dissolved 7440-24-6 E421 0.00020 mg/L 0.388	silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	 	
Sulfur, dissolved 7704-34-9 E421 0.50 mg/L 13.2	sodium, dissolved	7440-23-5	E421	0.050	mg/L	1.91	 	
thallium, dissolved 7440-28-0 E421 0.000010 mg/L <0.000010	strontium, dissolved	7440-24-6	E421	0.00020		0.388	 	
tin, dissolved 7440-31-5 E421 0.00010 mg/L 0.00016	sulfur, dissolved	7704-34-9	E421	0.50	mg/L	13.2	 	
titanium, dissolved 7440-32-6 E421 0.00030 mg/L <0.00030	thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	 	
uranium, dissolved 7440-61-1 E421 0.000010 mg/L 0.00292	tin, dissolved	7440-31-5	E421	0.00010	mg/L	0.00016	 	
vanadium, dissolved 7440-62-2 E421 0.00050 mg/L <0.00050	titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030	 	
zinc, dissolved 7440-66-6 E421 0.0010 mg/L 0.0023	uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00292	 	
Zirconium, dissolved 7440-67-7 E421 0.00020 mg/L <0.00020	vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050	 	
dissolved mercury filtration location	zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0023	 	
Color Compounds Compoun	zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	 	
Volatile Organic Compounds [Fuels] benzene 71-43-2 E611A 0.50 μg/L <0.50	dissolved mercury filtration location		EP509	-	-	Field	 	
benzene 71-43-2 E611A 0.50 μg/L <0.50	dissolved metals filtration location		EP421	-	-	Field	 	
benzene 71-43-2 E611A 0.50 μg/L <0.50	Volatile Organic Compounds [Fuels]							
methyl-tert-butyl ether [MTBE] 1634-04-4 E611A 0.50 μg/L <0.50		71-43-2	E611A	0.50	μg/L	<0.50	 	
styrene 100-42-5 E611A 0.50 μg/L <0.50	ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	 	
toluene 108-88-3 E611A 0.50 μg/L <0.50 xylene, m+p- 179601-23-1 E611A 0.40 μg/L <0.40	methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	 	
xylene, m+p- 179601-23-1 E611A 0.40 µg/L <0.40	styrene	100-42-5	E611A	0.50	μg/L	<0.50	 	
1	toluene	108-88-3	E611A	0.50	μg/L	<0.50	 	
xylene, ο- 95-47-6 E611A 0.30 μg/L <0.30	xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	 	
	xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	 	
xylenes, total 1330-20-7 E611A 0.50 μg/L <0.50	xylenes, total	1330-20-7	E611A	0.50	μg/L	<0.50	 	
Volatile Organic Compounds Surrogates	Volatile Organic Compounds Surrogates							
bromofluorobenzene, 4- 460-00-4 E611A 1.0 % 77.6		460-00-4	E611A	1.0	%	77.6	 	
difluorobenzene, 1,4- 540-36-3 E611A 1.0 % 98.1	difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	98.1	 	
Hydrocarbons	Hydrocarbons							
EPH (C10-C19) E601A 250 μg/L 430	•		E601A	250	μg/L	430	 	

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Sub-Matrix: Groundwater			Ci	ient sample ID	SD_MW-FD3_2	 	
(Matrix: Water)					022-08-08		
			Client samp	ling date / time	10-Aug-2022	 	
Analyte	CAS Number	Method	LOR	Unit	WR2200849-016	 	
					Result	 	
Hydrocarbons							
EPH (C19-C32)		E601A	250	μg/L	<250	 	
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	 	
HEPHw		EC600A	250	μg/L	<250	 	
LEPHw		EC600A	250	μg/L	430	 	
VPHw		EC580A	100	μg/L	<100	 	
Hydrocarbons Surrogates							
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%	81.1	 	
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	86.2	 	
Polycyclic Aromatic Hydrocarbons							
acenaphthene	83-32-9	E641A	0.010	μg/L	<0.010	 	
acenaphthylene	208-96-8	E641A	0.010	μg/L	<0.010	 	
acridine	260-94-6	E641A	0.010	μg/L	<0.010	 	
anthracene	120-12-7	E641A	0.010	μg/L	<0.010	 	
benz(a)anthracene	56-55-3	E641A	0.010	μg/L	<0.010	 	
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L	<0.0050	 	
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L	<0.010	 	
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L	<0.015	 	
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L	<0.010	 	
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L	<0.010	 	
chrysene	218-01-9	E641A	0.010	μg/L	<0.010	 	
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L	<0.0050	 	
fluoranthene	206-44-0	E641A	0.010	μg/L	<0.010	 	
fluorene	86-73-7	E641A	0.010	μg/L	<0.011 DLQ	 	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L	<0.010	 	
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L	<0.010	 	
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L	<0.010	 	
naphthalene	91-20-3	E641A	0.050	μg/L	<0.050	 	
phenanthrene	85-01-8	E641A	0.020	μg/L	<0.020	 	
pyrene	129-00-0	E641A	0.010	μg/L	<0.010	 	
quinoline	91-22-5	E641A	0.050	μg/L	<0.050	 	
Polycyclic Aromatic Hydrocarbons Surrogates							
chrysene-d12	1719-03-5	E641A	0.1	%	95.4	 	
1 1			l	1 1			

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Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW-FD3_2	 	
(Matrix: Water)					022-08-08		
			Client samp	ling date / time	10-Aug-2022	 	
Analyte	CAS Number	Method	LOR	Unit	WR2200849-016	 	
					Result	 	
Polycyclic Aromatic Hydrocarbons Surrogates							
naphthalene-d8	1146-65-2	E641A	0.1	%	102	 	
phenanthrene-d10	1517-22-2	E641A	0.1	%	106	 	

Please refer to the General Comments section for an explanation of any qualifiers detected.



Kimberley BC Canada V1A 3E1

QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **WR2200849** Page : 1 of 35

Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Wendy McBain Account Manager : Can Dang

: 601 Knighton Road Address : #12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone : ---- Telephone : +1 867 668 6689

 Project
 : Sa Dena Hes
 Date Samples Received
 : 11-Aug-2022 16:45

 PO
 : PO# 10289
 Issue Date
 : 22-Aug-2022 19:06

C-O-C number : ----Sampler : ----

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 16
No. of samples analysed : 16

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

Address

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 Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers: Quality Control Samples

- No Duplicate outliers occur.
- No Matrix Spike outliers occur.
- Method Blank value outliers occur please see following pages for full details.
- Laboratory Control Sample (LCS) 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.



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Outliers : Quality Control Samples

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

Matrix: Water

Analyte Group	Laboratory sample ID	Client/Ref Sample ID	Analyte	CAS Number	Method	Result	Limits	Comment
Method Blank (MB) Values								
Physical Tests	QC-MRG2-6037720		alkalinity, total (as CaCO3)		E290	1.6 mg/L ^B	1.5 mg/L	Blank result exceeds
	01							permitted value

Result Qualifiers

Qualifier	Description
В	Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times
	blank level are considered reliable.

Laboratory Control Sample (LCS) Recover	ries						
Dissolved Metals	QC-MRG2-6038480	 uranium, dissolved	7440-61-1	E421	126 % MES	80.0-120%	Recovery greater than
	02						upper control limit

Result Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

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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: x = Holding time exceedance; √ = Within Holding Time

 Analyte Group
 Method
 Sampling Date
 Extraction / Preparation
 Analysis

Analyte Group	Method	Sampling Date	EXI	raction / Pr	eparation			Anaiys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-04_2022-08-08	E298	08-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence							I	I		
Amber glass total (sulfuric acid) SD MW13-08 2022-08-08	E298	08-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	10 days	✓
3D_IVIVV13-00_2022-00-00	LZ30	00-Aug-2022	10-Aug-2022				10-Aug-2022	20 days	10 days	•
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW-FD1_2022-08-08	E298	08-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	10 days	✓
nions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)	5000	44.4 0000								,
SD_MW-TB_2022-06-26	E298	11-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD MW13-01 2022-08-08	E298	10-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	8 days	✓
		-					-		-	
nions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-06_2022-08-08	E298	10-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)	F005	10.4	10.1 0055				40.4 00			,
SD_MW13-10_2022-08-08	E298	10-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	୪ days	✓

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viaturx: water						araaron.	noiding time exce	oudinoo ,	**********	
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-13_2022-08-08	E298	10-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence									ı	
Amber glass total (sulfuric acid)	5000	40.4 0000								,
SD_MW-FB_2022-08-08	E298	10-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	8 days	✓
Anions and Nutrients : Ammonia by Fluorescence Amber glass total (sulfuric acid)							I			
SD_MW-FD3_2022-08-08	E298	10-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	8 days	1
65_IIIV 1 50_2022 00 00		107149 2022	.07.ug 2022				10 / 10g 2022	20 44,0	o aayo	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-07_2022-08-08	E298	09-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW14-01_2022-08-08	E298	09-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence							I			
Amber glass total (sulfuric acid) SD_MW14-02_2022-08-08	E298	09-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	9 days	√
OD_INV 14 02_2022 00 00		00 / lug 2022	10 / lag 2022				10 7 kg 2022	20 dayo	o dayo	·
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW14-03_2022-08-08	E298	09-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW14-04_2022-08-08	E298	09-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	9 days	✓
Anions and Nutrients : Ammonia by Fluorescence									I	
Amber glass total (sulfuric acid) SD_MW-FD2_2022-08-08	E298	09-Aug-2022	18-Aug-2022				18-Aug-2022	28 days	0 days	1

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iviatrix: water						aluation. • – i	nolding time exce			Tiolding Time
Analyte Group	Method Sampling Date Extraction / Preparation					Analys	is			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-01_2022-08-08	E235.Br-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD MW13-06 2022-08-08	E235.Br-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	✓
		-	· ·					-	,	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-10_2022-08-08	E235.Br-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	✓
OB_WW10-10_2022-00-00	LEGO.BI E	10 / tag 2022	10 / lag 2022				10 Aug 2022	20 dayo	o dayo	
Anions and Nutrients : Bromide in Water by IC (Low Level)				1	I			T T		
HDPE	E005 D- I	44 4 2000	45 A 2000				40 4 2022	00 4	C	,
SD_MW-TB_2022-06-26	E235.Br-L	11-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-07_2022-08-08	E235.Br-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-13_2022-08-08	E235.Br-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW14-01_2022-08-08	E235.Br-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD MW14-02 2022-08-08	E235.Br-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 davs	✓
55		107.69 2022	. 3gu							
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE	E235.Br-L	00 Aug 2022	15 Aug 2022				16 Aug 2022	20 days	6 days	✓
SD_MW14-03_2022-08-08	EZ33.DI-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	o days	•

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Analyte Group	Method	Sampling Date	ampling Date Extraction / Preparation And			Analys	sis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW14-04_2022-08-08	E235.Br-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD MW-FB 2022-08-08	E235.Br-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
OB_INIVI-1 B_2022-00-00	2200.5. 2	107149 2022	10 / lug 2022				10 7 tag 2022	20 dayo	o dayo	
Anions and Nutrients : Bromide in Water by IC (Low Level)								T		
HDPE	E235.Br-L	10 Aug 2022	15 Aug 2022				16 Aug 2022	20 day:-	C days	√
SD_MW-FD3_2022-08-08	E235.BI-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	•
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-04_2022-08-08	E235.Br-L	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-08_2022-08-08	E235.Br-L	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW-FD2_2022-08-08	E235.Br-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	7 davs	✓
			· · · · · · · · · · · · · · · · · · ·					,	,-	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE	E235.Br-L	09 Aug 2022	15 Aug 2022				16 Aug 2022	20 day:-	O days	✓
SD_MW-FD1_2022-08-08	E233.DI-L	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	8 days	•
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-01_2022-08-08	E235.NO3-L	10-Aug-2022	15-Aug-2022	3 days	5 days	*	16-Aug-2022	3 days	0 days	✓
						EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-06_2022-08-08	E235.NO3-L	10-Aug-2022	15-Aug-2022	3 days	5 days	æ	16-Aug-2022	3 days	0 days	✓
	1	1		1	1 1	EHT	1	1	1	

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							nolaing time exce			
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-10_2022-08-08	E235.NO3-L	10-Aug-2022	15-Aug-2022	3 days	5 days	se	16-Aug-2022	3 days	0 days	✓
						EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD MW-TB 2022-06-26	E235.NO3-L	11-Aug-2022	15-Aug-2022	3 days	5 days	æ	16-Aug-2022	3 days	0 days	✓
			Ü			EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-07_2022-08-08	E235.NO3-L	09-Aug-2022	15-Aug-2022	3 days	6 days	se .	16-Aug-2022	3 days	0 days	1
050 07_2022 00 00		00 1 mg 2022	· · · · · · · · · · · · · · · · · · ·	,-	,-	EHT		,-	,-	
Anions and Nutrients : Nitrate in Water by IC (Low Level)							I	1		
HDPE SD MW13-13 2022-08-08	E235.NO3-L	10-Aug-2022	15-Aug-2022	3 days	6 days	æ	16-Aug-2022	3 days	0 days	1
3D_MVV13-13_2022-00-00	L233.NO3-L	10-Aug-2022	13-Aug-2022	3 days	0 days	EHT	10-Aug-2022	3 days	0 days	•
						LIII				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE	F225 NO2 I	00 Aug 2022	45 4 2022	0 -1	0 4		40 4 2022	0 4	0 4	1
SD_MW14-01_2022-08-08	E235.NO3-L	09-Aug-2022	15-Aug-2022	3 days	6 days	≭ EHT	16-Aug-2022	3 days	0 days	•
						EHI				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW14-02_2022-08-08	E235.NO3-L	09-Aug-2022	15-Aug-2022	3 days	6 days	3¢	16-Aug-2022	3 days	0 days	✓
						EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW14-03_2022-08-08	E235.NO3-L	09-Aug-2022	15-Aug-2022	3 days	6 days	sc	16-Aug-2022	3 days	0 days	✓
						EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW14-04_2022-08-08	E235.NO3-L	09-Aug-2022	15-Aug-2022	3 days	6 days	sc sc	16-Aug-2022	3 days	0 days	✓
						EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
··-· =		1		1			40.4 0000		0.1	
SD_MW-FB_2022-08-08	E235.NO3-L	10-Aug-2022	15-Aug-2022	3 days	6 days	*	16-Aug-2022	3 days	0 days	✓

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Analyte Group Container / Client Sample ID(s)	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)										
Container / Orient Sample ID(S)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW-FD3_2022-08-08	E235.NO3-L	10-Aug-2022	15-Aug-2022	3 days	6 days	*	16-Aug-2022	3 days	0 days	✓
						EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-04_2022-08-08	E235.NO3-L	08-Aug-2022	15-Aug-2022	3 days	7 days	*	16-Aug-2022	3 days	0 days	✓
						EHTL				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-08_2022-08-08	E235.NO3-L	08-Aug-2022	15-Aug-2022	3 days	7 days	32	16-Aug-2022	3 days	0 days	✓
						EHTL				
Anions and Nutrients : Nitrate in Water by IC (Low Level)				·						
HDPE										
SD_MW-FD2_2022-08-08	E235.NO3-L	09-Aug-2022	15-Aug-2022	3 days	7 days	36	16-Aug-2022	3 days	0 days	✓
						EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW-FD1_2022-08-08	E235.NO3-L	08-Aug-2022	15-Aug-2022	3 days	8 days	*	16-Aug-2022	3 days	0 days	✓
						EHTL				
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-01_2022-08-08	E235.NO2-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	5 days	30
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)									,	
HDPE										
SD_MW13-06_2022-08-08	E235.NO2-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	5 days	*
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)									,	
HDPE										
SD_MW13-10_2022-08-08	E235.NO2-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	5 days	×
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW_TB_2022_06_26	E235.NO2-L	11-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	5 days	*
SD_MW-TB_2022-06-26	L200.1102 L							, ,		

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Matrix: water						valuation. • -	noiding time exce	cuarioc ,	- vvicinii	riolaling rilli
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-07_2022-08-08	E235.NO2-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	6 days	36
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD MW13-13 2022-08-08	E235.NO2-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	6 days	*
' '- ' '- ' ' ' ' '			ŭ					,		EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW14-01_2022-08-08	E235.NO2-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	6 days	×
35_MM11 01_2022 00 00	2200102	007109 2022	.07.ug 2022				10 7 (49 2022	o days	o days	EHT
										=
Anions and Nutrients : Nitrite in Water by IC (Low Level)						I	I	1		
HDPE	E235.NO2-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	6 days	×
SD_MW14-02_2022-08-08	E233.NO2-L	09-Aug-2022	15-Aug-2022				10-Aug-2022	3 days	0 uays	EHT
										EIII
Anions and Nutrients : Nitrite in Water by IC (Low Level)								1		
HDPE	E005 NO0 I	00 4 0000	45.4 0000				40.4 0000			
SD_MW14-03_2022-08-08	E235.NO2-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	6 days	*
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW14-04_2022-08-08	E235.NO2-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	6 days	30
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW-FB_2022-08-08	E235.NO2-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	6 days	sc .
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW-FD3_2022-08-08	E235.NO2-L	10-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	6 days	*
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-04_2022-08-08	E235.NO2-L	08-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	7 days	x
			ŭ							EHTL

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Matrix: water						raidation.	Holding time excel	Judinoo ,	V V I CI III I	Troiding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-08_2022-08-08	E235.NO2-L	08-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	7 days	3 0
										EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW-FD2_2022-08-08	E235.NO2-L	09-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	7 days	×
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW-FD1_2022-08-08	E235.NO2-L	08-Aug-2022	15-Aug-2022				16-Aug-2022	3 days	8 days	æ
										EHTL
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD MW13-01 2022-08-08	E235.SO4	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	1
352			3 3					,		
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-06_2022-08-08	E235.SO4	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	1
									,-	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-10_2022-08-08	E235.SO4	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	1
05_MV10 10_2022 00 00		107149 2022	.0 / kag _0				107149 2022	20 44,0	o days	
Anisma and National a College in Western Inc. 10										
Anions and Nutrients : Sulfate in Water by IC HDPE										
SD_MW-TB_2022-06-26	E235.SO4	11-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	√
3D_WW-1D_2022-00-20	2200.001	117.tag 2022	10-7 tag-2022				107/49-2022	20 days	o days	
Anions and Nutrients : Sulfate in Water by IC							I			
HDPE SD MW13 07 2022 08 08	E235.SO4	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	√
SD_MW13-07_2022-08-08	E233.3U4	09-Aug-2022	13-Aug-2022				10-Aug-2022	20 uays	o uays	,
Anions and Nutrients : Sulfate in Water by IC										
HDPE	F005 CO4	40 4 2000	45 A				40 4 2000	00 4	C -1	,
SD_MW13-13_2022-08-08	E235.SO4	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	o days	✓

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viatrix: vvater						raidation. • =	nolding time exce			Tiolding Till
Analyte Group	5				Analys	sis				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW14-01_2022-08-08	E235.SO4	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD MW14-02 2022-08-08	E235.SO4	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
			J							
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW14-03_2022-08-08	E235.SO4	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
GB_WW 14-00_2022-00 00	2200.001	00 / lag 2022	10 / tag 2022				10 7 10 2 2022	20 dayo	o dayo	•
Anions and Nutrients : Sulfate in Water by IC				l I	I			1		
HDPE	E005 CO4	00 4 0000	45 A 2000				40 4 2022	00 4	C -l	,
SD_MW14-04_2022-08-08	E235.SO4	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW-FB_2022-08-08	E235.SO4	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW-FD3_2022-08-08	E235.SO4	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-04_2022-08-08	E235.SO4	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	7 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-08_2022-08-08	E235.SO4	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	7 days	✓
55 5 00_E0EE 00 00		55							,0	•
Anions and Nutrients : Sulfate in Water by IC							I	1		
HDPE	E235.SO4	00 Av. 2022	15 Aug 2022				16 Au ~ 2022	20 days	7 days	✓
SD_MW-FD2_2022-08-08	E235.5U4	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	r days	*

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Matrix: Water						raidation. • –	nolding time exce	cuarioc ,	- VVICIIIII	riolaning rini	
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation		Analysis				
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Anions and Nutrients : Sulfate in Water by IC											
HDPE											
SD_MW-FD1_2022-08-08	E235.SO4	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	8 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial dissolved (hydrochloric acid)											
SD_MW13-07_2022-08-08	E509	09-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	10 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial dissolved (hydrochloric acid)											
SD_MW14-01_2022-08-08	E509	09-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	10 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial dissolved (hydrochloric acid)											
SD_MW14-02_2022-08-08	E509	09-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	10 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial dissolved (hydrochloric acid)											
SD_MW14-03_2022-08-08	E509	09-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	10 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial dissolved (hydrochloric acid)											
SD_MW14-04_2022-08-08	E509	09-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	10 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial dissolved (hydrochloric acid)											
SD_MW-FD2_2022-08-08	E509	09-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	10 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS											
Glass vial dissolved (hydrochloric acid)											
SD_MW13-04_2022-08-08	E509	08-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	11 days	✓	
Dissolved Metals : Dissolved Mercury in Water by CVAAS								1			
Glass vial dissolved (hydrochloric acid)											
	The second secon	1		1	T. Control of the Con		I .	T. Control of the Con	1		
SD_MW13-08_2022-08-08	E509	08-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	11 days	✓	

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Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW-FD1_2022-08-08	E509	08-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	11 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW13-01_2022-08-08	E509	10-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	F500	40 4 2002	40 4 2022				40 4 2000	00 -1	0 4	1
SD_MW13-06_2022-08-08	E509	10-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	9 days	•
Dissolved Metals : Dissolved Mercury in Water by CVAAS							I	1	I	
Glass vial dissolved (hydrochloric acid) SD_MW13-10_2022-08-08	E509	10-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	Q daye	1
3D_WW 13-10_2022-00-00	L309	10-Aug-2022	19-Aug-2022				19-Aug-2022	20 days	9 uays	•
Discolved Matala , Discolved Marsum, in Water by CVAAC										
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid)										
SD MW13-13 2022-08-08	E509	10-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	9 davs	1
		3 1							J, -	
Dissolved Metals : Dissolved Mercury in Water by CVAAS									<u> </u>	
Glass vial dissolved (hydrochloric acid)										
SD_MW-FB_2022-08-08	E509	10-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MW-FD3_2022-08-08	E509	10-Aug-2022	19-Aug-2022				19-Aug-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)	540 :	40.4 00.55	40.4 0055				40.4 0000			
SD_MW13-01_2022-08-08	E421	10-Aug-2022	16-Aug-2022				16-Aug-2022	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS									I	
HDPE dissolved (nitric acid)	E424	10 Aug 2022	16 Aug 2022				16 Aug 2022	400	6 days	
SD_MW13-06_2022-08-08	E421	10-Aug-2022	16-Aug-2022				16-Aug-2022	180	6 days	√
								days		

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Matrix: water						araaraar.	noiding time excee	danoo ,	***********	
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-10_2022-08-08	E421	10-Aug-2022	16-Aug-2022				16-Aug-2022	180	6 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-13_2022-08-08	E421	10-Aug-2022	16-Aug-2022				16-Aug-2022	180	6 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MW13-04_2022-08-08	E421	08-Aug-2022	16-Aug-2022				16-Aug-2022	180	7 days	✓
			_				_	days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD MW13-07 2022-08-08	E421	09-Aug-2022	16-Aug-2022				16-Aug-2022	180	7 days	✓
			J					days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD MW14-01 2022-08-08	E421	09-Aug-2022	16-Aug-2022				16-Aug-2022	180	7 days	✓
			3					days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS								,		
HDPE dissolved (nitric acid)										
SD_MW14-02_2022-08-08	E421	09-Aug-2022	16-Aug-2022				16-Aug-2022	180	7 days	✓
			J					days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS								,		
HDPE dissolved (nitric acid)										
SD MW14-03 2022-08-08	E421	09-Aug-2022	16-Aug-2022				16-Aug-2022	180	7 days	✓
			3					days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS								,		
HDPE dissolved (nitric acid)										
SD MW14-04 2022-08-08	E421	09-Aug-2022	16-Aug-2022				16-Aug-2022	180	7 days	✓
			3					days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS								-, -		
HDPE dissolved (nitric acid)							I			
SD_MW-FB_2022-08-08	E421	10-Aug-2022	16-Aug-2022				16-Aug-2022	180	7 days	1
				T. Control of the Con				100	, , ,	

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Matrix: Water

Evaluation:	x = Holding time	evceedance .	$\checkmark = \text{Within}$	Holding Time

Matrix: Water					L'	i: × = Holding time exceedance ; ✓ = Within Holdi				
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation		Analys			
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	g Times Actual	Eval
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS			24.0							
HDPE dissolved (nitric acid)										
SD_MW-FD3_2022-08-08	E421	10-Aug-2022	16-Aug-2022				16-Aug-2022	180 days	7 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) SD_MW13-08_2022-08-08	E421	08-Aug-2022	16-Aug-2022				16-Aug-2022	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) SD_MW-FD2_2022-08-08	E421	09-Aug-2022	16-Aug-2022				16-Aug-2022	180 days	8 days	✓
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid) SD_MW-FD1_2022-08-08	E421	08-Aug-2022	16-Aug-2022				16-Aug-2022	180 days	9 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW13-04_2022-08-08	E601A	08-Aug-2022	18-Aug-2022	14 days	10 days	✓	19-Aug-2022	40 days	1 days	4
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW-FD2_2022-08-08	E601A	09-Aug-2022	18-Aug-2022	14 days	10 days	✓	19-Aug-2022	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW-FD1_2022-08-08	E601A	08-Aug-2022	18-Aug-2022	14 days	11 days	✓	19-Aug-2022	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID									1	
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW13-10_2022-08-08	E601A	10-Aug-2022	18-Aug-2022	14 days	8 days	✓	19-Aug-2022	40 days	1 days	✓
Hydrocarbons : BC PHCs - EPH by GC-FID									l .	
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW-TB_2022-06-26	E601A	11-Aug-2022	18-Aug-2022	14 days	8 days	✓	19-Aug-2022	40 days	1 days	✓

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Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW13-07_2022-08-08	E601A	09-Aug-2022	18-Aug-2022	14	9 days	✓	19-Aug-2022	40 days	1 days	✓
				days						
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW14-01_2022-08-08	E601A	09-Aug-2022	18-Aug-2022	14	9 days	1	19-Aug-2022	40 days	1 days	✓
OB_WW 14-01_2022-00-00	200	007109 2022	10 / tag 2022	days	o dayo		10 / lag 2022	10 dayo	, aayo	
				uays						
Hydrocarbons : BC PHCs - EPH by GC-FID							I	T		
Amber glass/Teflon lined cap (sodium bisulfate)	E601A	00 4 2022	10 10 2022		O days	✓	19-Aug-2022	40 days	1 days	√
SD_MW14-02_2022-08-08	E601A	09-Aug-2022	18-Aug-2022	14	9 days	•	19-Aug-2022	40 days	1 days	•
				days						
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW14-03_2022-08-08	E601A	09-Aug-2022	18-Aug-2022	14	9 days	✓	19-Aug-2022	40 days	1 days	✓
				days						
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW14-04_2022-08-08	E601A	09-Aug-2022	18-Aug-2022	14	9 days	✓	19-Aug-2022	40 days	1 days	✓
				days						
Hydrocarbons : BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD MW-FB 2022-08-08	E601A	10-Aug-2022	18-Aug-2022	14	9 days	✓	19-Aug-2022	40 days	1 days	✓
		ŭ	Ü	days						
Hudrasarhana i BC DHCa. EDH bu CC ED										
Hydrocarbons: BC PHCs - EPH by GC-FID										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW-FD3_2022-08-08	E601A	10-Aug-2022	18-Aug-2022	14	9 days	1	19-Aug-2022	40 days	1 days	✓
3D_MVV-FD3_2022-00-00	LOUTA	10-Aug-2022	10-Aug-2022		9 uays	•	19-Aug-2022	40 days	i uays	•
				days						
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW13-10_2022-08-08	E581.VH+F1	10-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	6 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW-TB_2022-06-26	E581.VH+F1	11-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	6 days	✓

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aun. Water					LV	aluation. • –	riolding time exce	cuarice,	- vvicini	i i ioidii ig i
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analysis		
Container / Client Sample ID(s)			Preparation	Holding Times		Eval	Analysis Date	e Holding Times		Eval
			Date	Rec	Actual			Rec	Actual	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW13-07_2022-08-08	E581.VH+F1	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-01_2022-08-08	E581.VH+F1	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-02_2022-08-08	E581.VH+F1	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-03_2022-08-08	E581.VH+F1	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-04_2022-08-08	E581.VH+F1	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW-FB_2022-08-08	E581.VH+F1	10-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW-FD3_2022-08-08	E581.VH+F1	10-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW13-04_2022-08-08	E581.VH+F1	08-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW-FD2_2022-08-08	E581.VH+F1	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	8 days	✓

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Physical Tests : Alkalinity Species by Titration HDPE	Rec	g Times Actual 9 days	Eval
Hydrocarbons : VH and F1 by Headspace GC-FID	Rec	9 days	
Hydrocarbons: VH and F1 by Headspace GC-FID Glass vial (sodium bisulfate) SD_MW-FD1_2022-08-08 E581.VH+F1 O8-Aug-2022 16-Aug-2022 17-Aug-2022 Physical Tests: Alkalinity Species by Titration HDPE SD_MW13-01_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 Physical Tests: Alkalinity Species by Titration	14 days	9 days	·
Glass vial (sodium bisulfate) SD_MW-FD1_2022-08-08 E581.VH+F1 08-Aug-2022 16-Aug-2022 17-Aug-2022 Physical Tests : Alkalinity Species by Titration HDPE SD_MW13-01_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 Physical Tests : Alkalinity Species by Titration			✓
SD_MW-FD1_2022-08-08 E581.VH+F1 08-Aug-2022 16-Aug-2022 17-Aug-2022 Physical Tests : Alkalinity Species by Titration E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 Physical Tests : Alkalinity Species by Titration			✓
Physical Tests : Alkalinity Species by Titration HDPE SD_MW13-01_2022-08-08 E290 10-Aug-2022 T5-Aug-2022 Physical Tests : Alkalinity Species by Titration			√
HDPE SD_MW13-01_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 Physical Tests: Alkalinity Species by Titration	14 days		
HDPE SD_MW13-01_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 Physical Tests: Alkalinity Species by Titration	14 days		
HDPE SD_MW13-01_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 Physical Tests: Alkalinity Species by Titration	14 days		
Physical Tests : Alkalinity Species by Titration	14 days		
		5 days	✓
SD_MW13-06_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration			
HDPE	·		
SD_MW13-10_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration			
HDPE			
SD_MW-TB_2022-06-26	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration			
HDPE			
SD_MW13-07_2022-08-08 E290 09-Aug-2022 15-Aug-2022 16-Aug-2022	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration			
HDPE			
SD_MW13-13_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration		•	
HDPE			
SD_MW14-01_2022-08-08 E290 09-Aug-2022 15-Aug-2022 16-Aug-2022	14 days	6 days	1
Physical Tests : Alkalinity Species by Titration			
HDPE			
SD_MW14-02_2022-08-08 E290 09-Aug-2022 15-Aug-2022 16-Aug-2022	14 days	6 days	✓

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Physical Tests : Alkalinity Species by Titration	Evaluation: * - Holding time exceedance , * - Within Holding ti
Physical Tests : Alkalinity Species by Titration	Method Sampling Date Extraction / Preparation Analysis
Physical Tosts : Alkalinity Species by Titration	Preparation Holding Times Eval Analysis Date Holding Times Eval
HDPE SD_MW14-03_2022-08-08 E290 09-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 days	Date Rec Actual Rec Actual
SD_MW14-03_2022-08-08	
Physical Tests : Alkalinity Species by Titration	
## HDPE SD_MW14-04_2022-08-08 E290 09-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 days	E290 09-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 days ✓
## HDPE SD_MW14-04_2022-08-08 E290 09-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 days	
SD_MW14-04_2022-08-08	
Physical Tests : Alkalinity Species by Titration	
## DPE	E290 09-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 days ✓
## DPE	
SD_MW-FB_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 day	
Physical Tests : Alkalinity Species by Titration	
## HDPE SD_MW-FD3_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 day	E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 days ✓
## HDPE SD_MW-FD3_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 day	
SD_MW-FD3_2022-08-08 E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 days	
Physical Tests : Alkalinity Species by Titration	
## HDPE SD_MW13-04_2022-08-08	E290 10-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 6 days ✓
## HDPE SD_MW13-04_2022-08-08 E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7	
SD_MW13-04_2022-08-08 E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days Physical Tests : Alkalinity Species by Titration BD_MW13-08_2022-08-08 E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days Physical Tests : Alkalinity Species by Titration HDPE HDPE Incompany of the physical Tests in the physical	
Physical Tests : Alkalinity Species by Titration HDPE SD_MW13-08_2022-08-08 E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days Physical Tests : Alkalinity Species by Titration HDPE Image: Alkalinity Species by Titration Image: Alkalinity Species by Titration	
HDPE SD_MW13-08_2022-08-08 E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days Physical Tests : Alkalinity Species by Titration HDPE Image: Alkalinity Species by Titration Image: Alkalinity Species by Titration Image: Alkalinity Species by Titration	E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days ✓
HDPE SD_MW13-08_2022-08-08 E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days Physical Tests : Alkalinity Species by Titration HDPE Image: Alkalinity Species by Titration Image: Alkalinity Species by Titration Image: Alkalinity Species by Titration	
SD_MW13-08_2022-08-08 E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days Physical Tests : Alkalinity Species by Titration HDPE Image: Color of the physical Tests in the physical T	
Physical Tests : Alkalinity Species by Titration HDPE	
HDPE	E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days ✓
HDPE	
SD_MW-FD2_2022-08-08	
	E290 09-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 7 days ✓
Physical Tests : Alkalinity Species by Titration	
HDPE	
SD_MW-FD1_2022-08-08 E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 8 days	E290 08-Aug-2022 15-Aug-2022 16-Aug-2022 14 days 8 days ✓
Physical Tests : Conductivity in Water	
HDPE	
SD_MW13-01_2022-08-08 E100 10-Aug-2022 15-Aug-2022 16-Aug-2022 28 days 5 days	E100 10-Aug-2022 15-Aug-2022 16-Aug-2022 28 days 5 days ✓

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Matrix: water							Holding time excee	, ,	***************************************		
Analyte Group	Method	Sampling Date	Ext	traction / P	reparation			Analysis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Date Holding Times		Eval	
			Date	Rec	Actual			Rec	Actual		
Physical Tests : Conductivity in Water											
HDPE											
SD_MW13-06_2022-08-08	E100	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	✓	
Physical Tests : Conductivity in Water											
HDPE											
SD_MW13-10_2022-08-08	E100	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	✓	
Physical Tests : Conductivity in Water									1		
HDPE											
SD_MW-TB_2022-06-26	E100	11-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	5 days	✓	
Physical Tests : Conductivity in Water											
HDPE											
SD_MW13-07_2022-08-08	E100	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓	
Physical Tests : Conductivity in Water											
HDPE											
SD_MW13-13_2022-08-08	E100	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓	
Physical Tests : Conductivity in Water									1		
HDPE											
SD_MW14-01_2022-08-08	E100	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓	
Physical Tests : Conductivity in Water											
HDPE											
SD_MW14-02_2022-08-08	E100	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓	
Physical Tests : Conductivity in Water											
HDPE											
SD_MW14-03_2022-08-08	E100	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓	
Physical Tests : Conductivity in Water									<u> </u>		
HDPE											
SD_MW14-04_2022-08-08	E100	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓	
		ı -	_ ~				1	1			

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Matrix: water						raidation.	Holding time exce	oudinoo ,	- VVICIIII	riolaling riiii
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation					
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-FB_2022-08-08	E100	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-FD3_2022-08-08	E100	10-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-04_2022-08-08	E100	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-08_2022-08-08	E100	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-FD2_2022-08-08	E100	09-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-FD1_2022-08-08	E100	08-Aug-2022	15-Aug-2022				16-Aug-2022	28 days	8 days	✓
Physical Tests : pH by Meter										
HDPE										
SD_MW13-01_2022-08-08	E108	10-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MW13-04_2022-08-08	E108	08-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	×
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MW13-06_2022-08-08	E108	10-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	3 0
								hrs	hrs	EHTR-FM

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Matrix: water						valuation.	noiding time excee	dance,	- VVICIIII	riolaling riiii
Analyte Group	Method	Sampling Date	Ex	traction / Pr	reparation					
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	ate Holding Times		Eval
			Date	Rec	Actual	-		Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_MW13-07_2022-08-08	E108	09-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	3 2
S5_IIII 10 07 _E022 00 00		30 1 mg = 1 = 1						hrs	hrs	EHTR-FM
								1113	1113	
Physical Tests : pH by Meter										
HDPE	E100	00.4 0000								
SD_MW13-08_2022-08-08	E108	08-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	æ
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MW13-10_2022-08-08	E108	10-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	×
		-					_	hrs	hrs	EHTR-FM
Division Tests will be Mater										
Physical Tests : pH by Meter						I	I			
HDPE	E100	10 Aug 2022	15 Aug 2022				16 Aug 2022	0.05	- 0-	×
SD_MW13-13_2022-08-08	E108	10-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MW14-01_2022-08-08	E108	09-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE							I			
SD_MW14-02_2022-08-08	E108	09-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	32
OD_IVIVV14-02_2022-00-00	2100	00-7 tug-2022	107 tug 2022				10-7 tag-2022	hrs		EHTR-FM
								IIIS	hrs	EU I K-LIN
Physical Tests : pH by Meter										
HDPE										
SD_MW14-03_2022-08-08	E108	09-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MW14-04_2022-08-08	E108	09-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	×
05_MV1101_2022 00 00	2.00	007149 2022	10 / 10 2022				107149 2022	hrs	hrs	EHTR-FM
								1113	1113	
Physical Tests : pH by Meter										
HDPE							l			
SD_MW-FB_2022-08-08	E108	10-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	3 0
								hrs	hrs	EHTR-FM

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Matrix: Water					L\	valuation. •• –	Holding time excee	suarice,	- vviti iii	riolaling rilling
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation					
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_MW-FD1_2022-08-08	E108	08-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD MW-FD2 2022-08-08	E108	09-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	*
		_	J					hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MW-FD3_2022-08-08	E108	10-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	*
55 55_2522 66 66		1011119						hrs	hrs	EHTR-FM
								1110	1110	
Physical Tests : pH by Meter						l	I			
HDPE SD MW-TB 2022-06-26	E108	11-Aug-2022	15-Aug-2022				16-Aug-2022	0.25	5.25	×
3D_WVV-1D_2022-00-20	2100	11-Aug-2022	10-Aug-2022				10-Aug-2022	hrs	5.25 hrs	EHTR-FM
								1115	1115	LITTIX-I IVI
Physical Tests : TDS by Gravimetry										
HDPE	E162	11-Aug-2022					16-Aug-2022	7 days	5 days	✓
SD_MW-TB_2022-06-26	E102	11-Aug-2022					16-Aug-2022	7 days	5 days	•
Physical Tests : TDS by Gravimetry						I				
HDPE	F400	40. 4 0000					10. 4 0000	7.1	0.1	
SD_MW13-01_2022-08-08	E162	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MW13-06_2022-08-08	E162	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MW13-10_2022-08-08	E162	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MW13-13_2022-08-08	E162	10-Aug-2022					16-Aug-2022	7 days	6 days	✓

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Matrix: water						raidation. • -	noiding time exce	suarroc ,	_ vviti iii i	riolaling riili
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MW-FB_2022-08-08	E162	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD MW-FD3 2022-08-08	E162	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
								,		
Physical Tests : TDS by Gravimetry										
HDPE							I			
SD_MW13-07_2022-08-08	E162	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
35_WW10-07_2022-00-00	2102	00 / lag 2022					10 / tag 2022	radyo	, dayo	
Physical Tests : TDS by Gravimetry					l l	I	1	I	I I	
HDPE	F160	00 Aug 2022					16 Aug 2022	7 days	7 days	✓
SD_MW14-01_2022-08-08	E162	09-Aug-2022					16-Aug-2022	7 days	7 days	•
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MW14-02_2022-08-08	E162	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MW14-03_2022-08-08	E162	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MW14-04_2022-08-08	E162	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD MW-FD2 2022-08-08	E162	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
								,5	,-	
Physical Tasks (TDO by Organization										
Physical Tests : TDS by Gravimetry							I			
HDPE SD_MW13-04_2022-08-08	E162	08-Aug-2022					16-Aug-2022	7 days	8 days	sc sc
3D_INIVI 13-04_2022-00-00	L 102	00-Aug-2022					10-Aug-2022	ruays	o uays	EHT
										ЕПІ

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Matrix: water						valuation. * =	noiding time exce	suarice , •	- vviti iii i	Holding Hill
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analysis		
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MW13-08_2022-08-08	E162	08-Aug-2022					16-Aug-2022	7 days	8 days	3¢
										EHT
Physical Tests : TDS by Gravimetry										
HDPE										
SD MW-FD1 2022-08-08	E162	08-Aug-2022					16-Aug-2022	7 days	8 days	sc sc
05 15 1_2022 00 00		J						,-	,-	EHT
Physical Table 2001 (1997)										
Physical Tests : TSS by Gravimetry (Low Level)						I	I			
HDPE	E160-L	11-Aug-2022					16-Aug-2022	7 days	5 days	✓
SD_MW-TB_2022-06-26	E160-L	11-Aug-2022					16-Aug-2022	7 days	5 days	•
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MW13-01_2022-08-08	E160-L	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MW13-06_2022-08-08	E160-L	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)						1				
HDPE										
SD_MW13-10_2022-08-08	E160-L	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
									,	
Bhysical Tests : TSS by Cravimetry (Law Layel)										
Physical Tests : TSS by Gravimetry (Low Level) HDPE										
SD_MW13-13_2022-08-08	E160-L	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
3D_WVV13-13_2022-00-00	2100-2	10-7 tug-2022					10-Aug-2022	/ days	0 days	•
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE	E400 I	40.4					40 4 2000	7 4	0 4	,
SD_MW-FB_2022-08-08	E160-L	10-Aug-2022					16-Aug-2022	7 days	6 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MW-FD3_2022-08-08	E160-L	10-Aug-2022					16-Aug-2022	7 days	6 days	✓

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Matrix: water						valuation. • -	noiding time exce	euanice,	- vviti iii i	Holding Hill
Analyte Group	Method	Sampling Date	Ext	raction / Pr	reparation					
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MW13-07_2022-08-08	E160-L	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MW14-01 2022-08-08	E160-L	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
		ŭ								
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE							I			
SD_MW14-02_2022-08-08	E160-L	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
OB_WWY14-02_2022-00-00	2.00 2	00 / lag 2022					10 / tag 2022	, dayo	, dayo	
Physical Tests : TSS by Gravimetry (Low Level)					l l	I	1	T T	1 1	
HDPE	E160 I	00 Aug 2022					16 Aug 2022	7 days	7 days	√
SD_MW14-03_2022-08-08	E160-L	09-Aug-2022					16-Aug-2022	7 days	7 days	•
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MW14-04_2022-08-08	E160-L	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MW-FD2_2022-08-08	E160-L	09-Aug-2022					16-Aug-2022	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MW13-04_2022-08-08	E160-L	08-Aug-2022					16-Aug-2022	7 days	8 days	3c
										EHT
Physical Tests : TSS by Gravimetry (Low Level)								1	1	
HDPE										
SD MW13-08 2022-08-08	E160-L	08-Aug-2022					16-Aug-2022	7 days	8 days	3¢
										EHT
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE							I			
SD_MW-FD1_2022-08-08	E160-L	08-Aug-2022					16-Aug-2022	7 days	8 days	æ
55 51_2522 55 55		55						,5	2 24,0	EHT
										L/11

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Matrix: Water

Evaluation:	 – Holding time 	exceedance ·	/ - Within	Holding Time

				E	/aluation: 🔻 =	Holding time exce	edance; v	= vvitnin	Holding I
Method	Sampling Date	Ex	traction / Pro	eparation		Analysis			
		Preparation Date	Holding Times Rec Actual		Eval	Analysis Date	Holding Times Rec Actual		Eval
		Date					1100	1000	
E641A	08-Aug-2022	18-Aug-2022	14 days	10 days	✓	19-Aug-2022	40 days	1 days	✓
E641A	09-Aug-2022	18-Aug-2022	14 days	10 days	✓	19-Aug-2022	40 days	1 days	✓
E641A	08-Aug-2022	18-Aug-2022	14 days	11 days	✓	19-Aug-2022	40 days	1 days	✓
E641A	10-Aug-2022	18-Aug-2022	14 days	8 days	✓	19-Aug-2022	40 days	1 days	✓
E641A	11-Aug-2022	18-Aug-2022	14 days	8 days	✓	19-Aug-2022	40 days	1 days	✓
E641A	09-Aug-2022	18-Aug-2022	14 days	9 days	✓	19-Aug-2022	40 days	1 days	✓
E641A	09-Aug-2022	18-Aug-2022	14 days	9 days	✓	19-Aug-2022	40 days	1 days	✓
E641A	09-Aug-2022	18-Aug-2022	14 days	9 days	✓	19-Aug-2022	40 days	1 days	✓
E641A	09-Aug-2022	18-Aug-2022	14 days	9 days	✓	19-Aug-2022	40 days	1 days	✓
	E641A E641A E641A E641A E641A E641A E641A	E641A 08-Aug-2022 E641A 09-Aug-2022 E641A 10-Aug-2022 E641A 11-Aug-2022 E641A 09-Aug-2022 E641A 09-Aug-2022	Preparation Date E641A 08-Aug-2022 18-Aug-2022 E641A 09-Aug-2022 18-Aug-2022 E641A 10-Aug-2022 18-Aug-2022 E641A 11-Aug-2022 18-Aug-2022 E641A 09-Aug-2022 18-Aug-2022 E641A 09-Aug-2022 18-Aug-2022 E641A 09-Aug-2022 18-Aug-2022	Preparation Date Holding Rec Rec	Method Sampling Date Extraction / Preparation Date Extraction / Preparation Holding Times Rec Actual E641A 08-Aug-2022 18-Aug-2022 14 days 10 days E641A 09-Aug-2022 18-Aug-2022 14 days 10 days E641A 08-Aug-2022 18-Aug-2022 14 days 8 days E641A 10-Aug-2022 18-Aug-2022 14 days 8 days E641A 11-Aug-2022 18-Aug-2022 14 days 9 days E641A 09-Aug-2022 18-Aug-2022 14 days 9 days	Method Sampling Date Extraction / Preparation Date Holding Times Rec Actual Eval E641A 08-Aug-2022 18-Aug-2022 14 10 days days ✓ E641A 09-Aug-2022 18-Aug-2022 14 10 days days ✓ E641A 08-Aug-2022 18-Aug-2022 14 11 days days ✓ E641A 10-Aug-2022 18-Aug-2022 14 8 days days ✓ E641A 11-Aug-2022 18-Aug-2022 14 8 days days ✓ E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓	Method Sampling Date Extraction / Preparation Preparation Holding Times Rec Eval Analysis Date E641A 08-Aug-2022 18-Aug-2022 14 10 √ 19-Aug-2022 E641A 09-Aug-2022 18-Aug-2022 14 10 √ 19-Aug-2022 E641A 08-Aug-2022 18-Aug-2022 14 11 √ 19-Aug-2022 E641A 10-Aug-2022 18-Aug-2022 14 8 days ✓ 19-Aug-2022 E641A 11-Aug-2022 18-Aug-2022 14 8 days ✓ 19-Aug-2022 E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ 19-Aug-2022 E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ 19-Aug-2022 E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ 19-Aug-2022 E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ 19-Aug-2022	Method Sampling Date Extraction / Preparation Preparation Holding Times Rec Eval Analysis Date Analysis Date Holding Rec E641A 08-Aug-2022 18-Aug-2022 14 10 days 10 days 19-Aug-2022 40 days E641A 09-Aug-2022 18-Aug-2022 14 10 days 10 days 19-Aug-2022 40 days E641A 08-Aug-2022 18-Aug-2022 14 11 √ days 19-Aug-2022 40 days E641A 10-Aug-2022 18-Aug-2022 14 8 days ✓ 19-Aug-2022 40 days E641A 11-Aug-2022 18-Aug-2022 14 8 days ✓ 19-Aug-2022 40 days E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ 19-Aug-2022 40 days E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ 19-Aug-2022 40 days E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ 19-Aug-2022 40 days E641A 09-Aug-2022 18-Aug-2022 14 9 days ✓ 19-Aug-2022 40 days	Preparation Problem Preparation Date Rec Actual Analysis Date Holding Times Rec Actual Analysis Date Holding Times Rec Actual Analysis Date Holding Times Rec Actual Analysis Date Analysis Date Analy

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Matrix: water						aldation. • -	Holding time exce	cuarioc , .	- *************************************	riolaling rill
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation					
Container / Client Sample ID(s)			Preparation Holding Times		Eval	Analysis Date	Holding Times		Eval	
			Date	Rec	Actual		,	Rec	Actual	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW14-04_2022-08-08	E641A	09-Aug-2022	18-Aug-2022	14	9 days	✓	19-Aug-2022	40 days	1 days	✓
				days						
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW-FB_2022-08-08	E641A	10-Aug-2022	18-Aug-2022	14	9 days	✓	19-Aug-2022	40 days	1 days	✓
				days						
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate)										
SD_MW-FD3_2022-08-08	E641A	10-Aug-2022	18-Aug-2022	14	9 days	✓	19-Aug-2022	40 days	1 days	✓
				days						
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SD_MW13-10_2022-08-08	E611A	10-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	6 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SD_MW-TB_2022-06-26	E611A	11-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	6 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SD_MW13-07_2022-08-08	E611A	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SD_MW14-01_2022-08-08	E611A	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SD_MW14-02_2022-08-08	E611A	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate)										
SD_MW14-03_2022-08-08	E611A	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓

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Matrix: Water

Evaluation: x = Holding time exceedance · ✓ = Within Holding Time

latrix: Water					E۱	/aluation: 🗴 =	Holding time exce	edance ; 🔻	/ = Within	Holding T		
Analyte Group	Method	Method Sampling Date			Extraction / Preparation				Analysis			
Container / Client Sample ID(s)			Preparation Holdi		g Times	Eval	Analysis Date	Holding Times		Eval		
			Date	Rec	Actual			Rec	Actual			
olatile Organic Compounds [Fuels] : BTEX by Headspace GC-M	s											
Glass vial (sodium bisulfate)												
SD_MW14-04_2022-08-08	E611A	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓		
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-M	s											
Glass vial (sodium bisulfate)												
SD_MW-FB_2022-08-08	E611A	10-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓		
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-M	s											
Glass vial (sodium bisulfate)												
SD_MW-FD3_2022-08-08	E611A	10-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	7 days	✓		
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-M	s											
Glass vial (sodium bisulfate)												
SD_MW13-04_2022-08-08	E611A	08-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	8 days	✓		
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-M	s											
Glass vial (sodium bisulfate)												
SD_MW-FD2_2022-08-08	E611A	09-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	8 days	✓		
/olatile Organic Compounds [Fuels] : BTEX by Headspace GC-M	s											
Glass vial (sodium bisulfate)										_		
SD_MW-FD1_2022-08-08	E611A	08-Aug-2022	16-Aug-2022				17-Aug-2022	14 days	9 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.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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.

Quality Control Sample Type			С	ount)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)					•		
Alkalinity Species by Titration	E290	603772	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	608012	1	19	5.2	5.0	1
Bromide in Water by IC (Low Level)	E235.Br-L	603775	1	20	5.0	5.0	<u>√</u>
BTEX by Headspace GC-MS	E611A	605308	2	37	5.4	5.0	√
Conductivity in Water	E100	603773	1	20	5.0	5.0	1
Dissolved Mercury in Water by CVAAS	E509	609533	2	28	7.1	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	603750	3	27	11.1	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	603776	1	20	5.0	5.0	1
Nitrite in Water by IC (Low Level)	E235.NO2-L	603777	1	20	5.0	5.0	1
pH by Meter	E108	603771	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	603778	1	20	5.0	5.0	1
TDS by Gravimetry	E162	604408	2	40	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	605309	2	37	5.4	5.0	1
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	603772	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	608012	1	19	5.2	5.0	1
BC PHCs - EPH by GC-FID	E601A	609060	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	603775	1	20	5.0	5.0	1
BTEX by Headspace GC-MS	E611A	605308	2	37	5.4	5.0	✓
Conductivity in Water	E100	603773	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	609533	2	28	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	603750	2	27	7.4	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	603776	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	603777	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	609059	1	20	5.0	5.0	✓
pH by Meter	E108	603771	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	603778	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	604408	2	40	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	604402	2	40	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	605309	2	37	5.4	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	603772	1	20	5.0	5.0	✓
Ammonia by Fluorescence	E298	608012	1	19	5.2	5.0	✓
BC PHCs - EPH by GC-FID	E601A	609060	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	603775	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	605308	2	37	5.4	5.0	✓
Conductivity in Water	E100	603773	1	20	5.0	5.0	1

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Matrix: Water Evaluation: × = QC frequency outside specification; √ = QC frequency within specification.

iviauix. water		Lvaluati	ion. × = QC rreque	ericy outside spe	specification, • – QC frequency within spe		
Quality Control Sample Type			Co	ount		Frequency (%)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Method Blanks (MB) - Continued							
Dissolved Mercury in Water by CVAAS	E509	609533	2	28	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	603750	2	27	7.4	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	603776	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	603777	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	609059	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	603778	1	20	5.0	5.0	✓
TDS by Gravimetry	E162	604408	2	40	5.0	5.0	✓
TSS by Gravimetry (Low Level)	E160-L	604402	2	40	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	605309	2	37	5.4	5.0	✓
Matrix Spikes (MS)							
Ammonia by Fluorescence	E298	608012	1	19	5.2	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	603775	1	20	5.0	5.0	✓
BTEX by Headspace GC-MS	E611A	605308	2	37	5.4	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	609533	2	28	7.1	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	603750	2	27	7.4	5.0	✓
Nitrate in Water by IC (Low Level)	E235.NO3-L	603776	1	20	5.0	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	603777	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	603778	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	605309	2	37	5.4	5.0	✓

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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 $20 \pm 5^{\circ}$ C). For high accuracy test results, pH should be measured in the field within the recommended 15 minute hold time.
TSS by Gravimetry (Low Level)	E160-L 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.
TDS by Gravimetry	E162 Vancouver - Environmental	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight, with gravimetric measurement of the residue.
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.
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.
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	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde). This method is approved under US EPA 40 CFR Part 136 (May 2021)

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by
Dissolved Metals III Water by CITC ICF MG	E421	water	6020B (mod)	Valer samples are littered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver -		0020B (mod)	Collision Presention Cell for Mo.
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered
				by this method.
Dissolved Mercury in Water by CVAAS	E509	Water	APHA 3030B/EPA	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation
			1631E (mod)	using bromine monochloride prior to reduction with stannous chloride, and analyzed by
	Vancouver -			CVAAS.
	Environmental			
VH and F1 by Headspace GC-FID	E581.VH+F1	Water	BC MOE Lab Manual /	Volatile Hydrocarbons (VH and F1) is analyzed by static headspace GC-FID. Samples
	Vancouver -		CCME PHC in Soil - Tier	are prepared in headspace vials and are heated and agitated on the headspace
	Environmental		1 (mod)	autosampler, causing VOCs to partition between the aqueous phase and the headspace in accordance with Henry's law.
BC PHCs - EPH by GC-FID	E601A	Water	BC MOE Lab Manual	Sample extracts are analyzed by GC-FID for BC hydrocarbon fractions.
	200171			
	Vancouver -			
	Environmental			
BTEX by Headspace GC-MS	E611A	Water	EPA 8260D (mod)	Volatile Organic Compounds (VOCs) are analyzed by static headspace GC-MS.
				Samples are prepared in headspace vials and are heated and agitated on the
	Vancouver -			headspace autosampler, causing VOCs to partition between the aqueous phase and
PAHs by Hexane LVI GC-MS	Environmental	Water	EPA 8270E (mod)	the headspace in accordance with Henry's law.
FARS by Rexaile LVI GC-IVIS	E641A	vvalei	EPA 62/0E (IIIOU)	Polycyclic Aromatic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI) GC-MS.
	Vancouver -			GC-WG.
	Environmental			
Dissolved Hardness (Calculated)	EC100	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
	Vancouver -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
	Environmental			calculated from dissolved Calcium and Magnesium concentrations, because it is a
VDIL VII BTEV OLUM		10/		property of water due to dissolved divalent cations.
VPH: VH-BTEX-Styrene	EC580A	Water	BC MOE Lab Manual (VPH in Water and	Volatile Petroleum Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile
	Vancouver -		Solids) (mod)	Hydrocarbons (VH6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and styrene.
	Environmental		Collas) (Illoa)	Styrono.
LEPH and HEPH: EPH-PAH	EC600A	Water	BC MOE Lab Manual	Light Extractable Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum
			(LEPH and HEPH)	Hydrocarbons (HEPH) are calculated as follows: LEPH = Extractable Petroleum
	Vancouver -		(mod)	Hydrocarbons (EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene,
	Environmental			Naphthalene and Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons
				(EPH19-32) minus Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Vancouver -			
	Environmental			

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver - Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCI.
	Vancouver - Environmental			
VOCs Preparation for Headspace Analysis	EP581 Vancouver - Environmental	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the headspace autosampler. An aliquot of the headspace is then injected into the GC/MS-FID system.
PHCs and PAHs Hexane Extraction	EP601 Vancouver - Environmental	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are extracted using a hexane liquid-liquid extraction.



QUALITY CONTROL REPORT

Work Order : WR2200849

Client : Teck Metals Ltd
Contact : Wendy McBain

:601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : ----

Address

Project : Sa Dena Hes
PO : PO# 10289

C-O-C number :--Sampler :---

Site : Sa Dena Hes

Quote number : VA22-TECK150-001

No. of samples received : 16
No. of samples analysed : 16

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Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 11-Aug-2022 16:45

Date Analysis Commenced : 15-Aug-2022

Issue Date : 22-Aug-2022 19:05

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 Percent Difference (RPD) and Data Quality Objectives

- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

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	Vancouver Metals, Burnaby, British Columbia
ChingXing Yew	Analsyt	Vancouver Organics, Burnaby, British Columbia
Dan Gebert	Laboratory Analyst	Vancouver Metals, Burnaby, British Columbia
Erin Sanchez		Vancouver Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Vancouver Inorganics, Burnaby, British Columbia
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Sukhman Khosa	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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							Labora	tory Duplicate (D	UP) 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: 603771)										
WR2200848-003	Anonymous	pH		E108	0.10	pH units	8.33	8.33	0.00%	4%	
Physical Tests (QC	Lot: 603772)										
WR2200848-003	Anonymous	alkalinity, total (as CaCO3)		E290	1.0	mg/L	134	135	0.372%	20%	
Physical Tests (QC	Lot: 603773)										
WR2200848-003	Anonymous	conductivity		E100	2.0	μS/cm	275	275	0.00%	10%	
Physical Tests (QC	Lot: 604408)										
VA22B8670-001	Anonymous	solids, total dissolved [TDS]		E162	13	mg/L	87	86	0.3	Diff <2x LOR	
Physical Tests (QC	Lot: 604409)										
WR2200849-008	SD_MW14-01_2022-08-08	solids, total dissolved [TDS]		E162	20	mg/L	264	266	0.566%	20%	
Anions and Nutrien	ts (QC Lot: 603775)										
WR2200853-010	Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 603776)										
WR2200853-010	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0087	0.0086	0.00009	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 603777)										
WR2200853-010	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR	
Anions and Nutrien	ts (QC Lot: 603778)										
WR2200853-010	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	27.0	26.9	0.375%	20%	
Anions and Nutrien	ts (QC Lot: 608012)										
WR2200826-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.100	mg/L	7.87	7.68	2.35%	20%	
Dissolved Metals (0	QC Lot: 603750)										
WR2200849-003	SD_MW13-06_2022-08-08	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0013	0.0030	0.0017	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00021	0.00018	0.00002	Diff <2x LOR	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.0488	0.0513	4.96%	20%	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0237	0.0246	3.56%	20%	
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	0.011	0.0004	Diff <2x LOR	
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000962	0.0000940	2.26%	20%	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	146	148	1.58%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	0.00264	0.00273	3.41%	20%	

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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
<u> </u>	QC Lot: 603750) - contin	ued									
WR2200849-003	SD_MW13-06_2022-08-08	copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00108	0.00116	0.00008	Diff <2x LOR	
		iron, dissolved	7439-89-6	E421	0.010	mg/L	0.518	0.544	4.94%	20%	
		lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000053	0.000057	0.000003	Diff <2x LOR	
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0077	0.0076	0.00003	Diff <2x LOR	
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	11.2	12.1	8.37%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.306	0.321	4.96%	20%	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0342	0.0344	0.735%	20%	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.0286	0.0298	3.99%	20%	
		phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.167	0.147	0.020	Diff <2x LOR	
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	2.00	2.08	4.30%	20%	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.050 µg/L	<0.000050	0	Diff <2x LOR	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	15.4	16.0	3.57%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	4.81	4.99	3.65%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.517	0.528	2.03%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	96.6	98.1	1.61%	20%	
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000017	0.000016	0.000001	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	0.0126	0.0129	2.64%	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	0.127	0.131	2.83%	20%	
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 603848)										
YL2201194-001	Anonymous	cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
		uranium, dissolved	7440-61-1	E421	0.000010	mg/L	0.00215	0.00212	1.37%	20%	
YL2201194-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0194	0.0183	5.53%	20%	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.0351	0.0344	1.83%	20%	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	1.36	1.34	1.43%	20%	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0413	0.0438	5.87%	20%	
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	0.022	0.021	0.0010	Diff <2x LOR	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	29.0	29.5	1.78%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		omornam, dissolved	. 440 47 40		3.00000	1119/1	-0.0000	-0.0000		J.II · LA LOIK	1

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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
· ·	QC Lot: 603848) - contin										
YL2201194-001	Anonymous	cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00062	0.00052	0.00010	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	0.0072	0.0073	0.00008	Diff <2x LOR	
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	18.2	18.0	1.06%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00538	0.00540	0.323%	20%	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000313	0.000295	0.000018	Diff <2x LOR	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	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	3.78	3.81	0.999%	20%	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000077	<0.000050	0.000027	Diff <2x LOR	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	0.121	0.131	0.010	Diff <2x LOR	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	4.96	4.77	4.03%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0873	0.0861	1.39%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	13.6	13.6	0.243%	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	
		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	0.0011	0.00007	Diff <2x LOR	
		zirconium, dissolved	7440-67-7	E421	0.00030	mg/L	<0.00030	<0.00030	0	Diff <2x LOR	
Dissolved Metals (C	QC Lot: 609533)										
WR2200822-010	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (C	QC Lot: 609534)										
WR2200849-008	SD_MW14-01_2022-08-08	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Volatile Organic Co	mpounds (QC Lot: 6053	.08)									
VA22B8718-001	Anonymous	benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
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Sub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifier
Volatile Organic Co	mpounds (QC Lot: 6053	72)									
WR2200849-011	SD_MW14-04_2022-08-08	benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR	
		xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR	
		xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR	
Hydrocarbons (QC	Lot: 605309)										
VA22B8718-001	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	
Hydrocarbons (QC	Lot: 605373)										
WR2200849-011	SD_MW14-04_2022-08-08	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%	

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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.

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 603772)	SAG Hamber method	LON	- Cim	Result	Qualifier
alkalinity, total (as CaCO3)	E290	1	mg/L	# 1.6	В
Physical Tests (QCLot: 603773)			J		_
conductivity	E100	1	μS/cm	<1.0	
·			F-7		
Physical Tests (QCLot: 604402) solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 604403)			3"	-	
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 604408)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 604409)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 603775)					
bromide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 603776)					
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 603777)					
nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 603778)					
sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 608012)					
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 603750)					
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	<0.000050	
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	

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Sub-Matrix: Water					
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 603750)					
copper, dissolved	7440-50-8 E421	0.0002	mg/L	<0.00020	
ron, dissolved	7439-89-6 E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1 E421	0.00005	mg/L	<0.000050	
ithium, dissolved	7439-93-2 E421	0.001	mg/L	<0.0010	
magnesium, dissolved	7439-95-4 E421	0.005	mg/L	<0.0050	
nanganese, dissolved	7439-96-5 E421	0.0001	mg/L	<0.00010	
nolybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	<0.000050	
nickel, dissolved	7440-02-0 E421	0.0005	mg/L	<0.00050	
hosphorus, dissolved	7723-14-0 E421	0.05	mg/L	<0.050	
otassium, dissolved	7440-09-7 E421	0.05	mg/L	<0.050	
selenium, dissolved	7782-49-2 E421	0.00005	mg/L	<0.000050	
ilicon, dissolved	7440-21-3 E421	0.05	mg/L	<0.050	
ilver, dissolved	7440-22-4 E421	0.00001	mg/L	<0.000010	
odium, dissolved	7440-23-5 E421	0.05	mg/L	<0.050	
trontium, dissolved	7440-24-6 E421	0.0002	mg/L	<0.00020	
ulfur, dissolved	7704-34-9 E421	0.5	mg/L	<0.50	
nallium, dissolved	7440-28-0 E421	0.00001	mg/L	<0.000010	
n, dissolved	7440-31-5 E421	0.0001	mg/L	<0.00010	
tanium, dissolved	7440-32-6 E421	0.0003	mg/L	<0.00030	
ranium, dissolved	7440-61-1 E421	0.00001	mg/L	<0.000010	
anadium, dissolved	7440-62-2 E421	0.0005	mg/L	<0.00050	
inc, dissolved	7440-66-6 E421	0.001	mg/L	<0.0010	
irconium, dissolved	7440-67-7 E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 603848)					
luminum, dissolved	7429-90-5 E421	0.001	mg/L	<0.0010	
ntimony, dissolved	7440-36-0 E421	0.0001	mg/L	<0.00010	
rsenic, dissolved	7440-38-2 E421	0.0001	mg/L	<0.00010	
arium, dissolved	7440-39-3 E421	0.0001	mg/L	<0.00010	
eryllium, dissolved	7440-41-7 E421	0.00002	mg/L	<0.000020	
ismuth, dissolved	7440-69-9 E421	0.00005	mg/L	<0.000050	
oron, dissolved	7440-42-8 E421	0.01	mg/L	<0.010	
admium, dissolved	7440-43-9 E421	0.000005	mg/L	<0.000050	
alcium, 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	

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Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
issolved Metals (QCLot: 603848) -	continued				
on, dissolved	7439-89-6 E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1 E421	0.00005	mg/L	<0.000050	
hium, dissolved	7439-93-2 E421	0.001	mg/L	<0.0010	
agnesium, dissolved	7439-95-4 E421	0.005	mg/L	<0.0050	
anganese, dissolved	7439-96-5 E421	0.0001	mg/L	<0.00010	
olybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	<0.000050	
ckel, dissolved	7440-02-0 E421	0.0005	mg/L	<0.00050	
hosphorus, dissolved	7723-14-0 E421	0.05	mg/L	<0.050	
otassium, dissolved	7440-09-7 E421	0.05	mg/L	<0.050	
elenium, dissolved	7782-49-2 E421	0.00005	mg/L	<0.000050	
licon, dissolved	7440-21-3 E421	0.05	mg/L	<0.050	
lver, dissolved	7440-22-4 E421	0.00001	mg/L	<0.000010	
odium, dissolved	7440-23-5 E421	0.05	mg/L	<0.050	
rontium, dissolved	7440-24-6 E421	0.0002	mg/L	<0.00020	
ılfur, dissolved	7704-34-9 E421	0.5	mg/L	<0.50	
allium, dissolved	7440-28-0 E421	0.00001	mg/L	<0.000010	
n, dissolved	7440-31-5 E421	0.0001	mg/L	<0.00010	
anium, dissolved	7440-32-6 E421	0.0003	mg/L	<0.00030	
anium, dissolved	7440-61-1 E421	0.00001	mg/L	<0.000010	
nadium, dissolved	7440-62-2 E421	0.0005	mg/L	<0.00050	
nc, dissolved	7440-66-6 E421	0.001	mg/L	<0.0010	
rconium, dissolved	7440-67-7 E421	0.0002	mg/L	<0.00020	
issolved Metals (QCLot: 609533)					
ercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.000050	
issolved Metals (QCLot: 609534)					
ercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.000050	
olatile Organic Compounds (QCLo	t: 605308)				
enzene	71-43-2 E611A	0.5	μg/L	<0.50	
hylbenzene	100-41-4 E611A	0.5	μg/L	<0.50	
ethyl-tert-butyl ether [MTBE]	1634-04-4 E611A	0.5	μg/L	<0.50	
yrene	100-42-5 E611A	0.5	μg/L	<0.50	
luene	108-88-3 E611A	0.5	μg/L	<0.50	
ylene, m+p-	179601-23-1 E611A	0.4	μg/L	<0.40	
ylene, o-	95-47-6 E611A	0.3	μg/L	<0.30	
olatile Organic Compounds (QCLo	t: 605372)				
enzene	71-43-2 E611A	0.5	μg/L	<0.50	

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Sub-Matrix: Water	2004 1 444				0 175
Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Volatile Organic Compounds (QCLo		0.5	/	10.50	
ethylbenzene	100-41-4 E611A	0.5	μg/L "	<0.50	
methyl-tert-butyl ether [MTBE]	1634-04-4 E611A	0.5	μg/L	<0.50	
styrene	100-42-5 E611A	0.5	μg/L	<0.50	
toluene	108-88-3 E611A	0.5	μg/L	<0.50	
xylene, m+p-	179601-23-1 E611A	0.4	μg/L	<0.40	
xylene, o-	95-47-6 E611A	0.3	μg/L	<0.30	
Hydrocarbons (QCLot: 605309)					
VHw (C6-C10)	E581.VH+F1	100	μg/L	<100	
Hydrocarbons (QCLot: 605373)					
VHw (C6-C10)	E581.VH+F1	100	μg/L	<100	
Hydrocarbons (QCLot: 609060)					
EPH (C10-C19)	E601A	250	μg/L	<250	
EPH (C19-C32)	E601A	250	μg/L	<250	
Polycyclic Aromatic Hydrocarbons	(QCLot: 609059)				
acenaphthene	83-32-9 E641A	0.01	μg/L	<0.010	
acenaphthylene	208-96-8 E641A	0.01	μg/L	<0.010	
acridine	260-94-6 E641A	0.01	μg/L	<0.010	
anthracene	120-12-7 E641A	0.01	μg/L	<0.010	
penz(a)anthracene	56-55-3 E641A	0.01	μg/L	<0.010	
penzo(a)pyrene	50-32-8 E641A	0.005	μg/L	<0.0050	
penzo(b+j)fluoranthene	n/a E641A	0.01	μg/L	<0.010	
penzo(g,h,i)perylene	191-24-2 E641A	0.01	μg/L	<0.010	
penzo(k)fluoranthene	207-08-9 E641A	0.01	μg/L	<0.010	
chrysene	218-01-9 E641A	0.01	μg/L	<0.010	
dibenz(a,h)anthracene	53-70-3 E641A	0.005	μg/L	<0.0050	
luoranthene	206-44-0 E641A	0.01	μg/L	<0.010	
luorene	86-73-7 E641A	0.01	μg/L	<0.010	
ndeno(1,2,3-c,d)pyrene	193-39-5 E641A	0.01	μg/L	<0.010	
methylnaphthalene, 1-	90-12-0 E641A	0.01	μg/L	<0.010	
nethylnaphthalene, 2-	91-57-6 E641A	0.01	μg/L	<0.010	
naphthalene	91-20-3 E641A	0.05	μg/L	<0.050	
phenanthrene	85-01-8 E641A	0.02	μg/L	<0.020	
	129-00-0 E641A	0.02	μg/L	<0.010	
pyrene					
quinoline	91-22-5 E641A	0.05	μg/L	<0.050	

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Qualifiers

Qualifier Description

B Method Blank exceeds ALS DQO. Associated sample results which are < Limit of Reporting or > 5 times blank level are considered reliable.

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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 Cor	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 603771)									
pH		E108		pH units	7 pH units	100	98.0	102	
Physical Tests (QCLot: 603772)									
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	107	85.0	115	
Physical Tests (QCLot: 603773)									
conductivity		E100	1	μS/cm	146.9 μS/cm	99.2	90.0	110	
Physical Tests (QCLot: 604402)									
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	94.3	85.0	115	
Physical Tests (QCLot: 604403)									
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	106	85.0	115	
Physical Tests (QCLot: 604408)									
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	103	85.0	115	
Physical Tests (QCLot: 604409)									
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	106	85.0	115	
Anions and Nutrients (QCLot: 603775)									
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	91.4	85.0	115	
Anions and Nutrients (QCLot: 603776)									
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	97.7	90.0	110	
Anions and Nutrients (QCLot: 603777)									
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.9	90.0	110	
Anions and Nutrients (QCLot: 603778)									
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	99.8	90.0	110	
Anions and Nutrients (QCLot: 608012)									
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	110	85.0	115	
Dissolved Metals (QCLot: 603750)									
aluminum, dissolved	7429-90-5		0.001	mg/L	2 mg/L	107	80.0	120	
antimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	95.5	80.0	120	
arsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	96.0	80.0	120	
barium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	96.8	80.0	120	
beryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	110	80.0	120	
bismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	95.4	80.0	120	
botol, discorded 1116 2 100 conditions									
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	94.7	80.0	120	

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Sub-Matrix: Water					Laboratory Co	ontrol Sample (LCS)	Report	
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 603750) -	continued							
calcium, dissolved	7440-70-2 E421	0.05	mg/L	50 mg/L	101	80.0	120	
chromium, dissolved	7440-47-3 E421	0.0005	mg/L	0.25 mg/L	96.7	80.0	120	
cobalt, dissolved	7440-48-4 E421	0.0001	mg/L	0.25 mg/L	94.0	80.0	120	
copper, dissolved	7440-50-8 E421	0.0002	mg/L	0.25 mg/L	92.3	80.0	120	
iron, dissolved	7439-89-6 E421	0.01	mg/L	1 mg/L	107	80.0	120	
lead, dissolved	7439-92-1 E421	0.00005	mg/L	0.5 mg/L	94.1	80.0	120	
lithium, dissolved	7439-93-2 E421	0.001	mg/L	0.25 mg/L	108	80.0	120	
magnesium, dissolved	7439-95-4 E421	0.005	mg/L	50 mg/L	102	80.0	120	
manganese, dissolved	7439-96-5 E421	0.0001	mg/L	0.25 mg/L	97.5	80.0	120	
molybdenum, dissolved	7439-98-7 E421	0.00005	mg/L	0.25 mg/L	97.1	80.0	120	
nickel, dissolved	7440-02-0 E421	0.0005	mg/L	0.5 mg/L	94.1	80.0	120	
phosphorus, dissolved	7723-14-0 E421	0.05	mg/L	10 mg/L	104	80.0	120	
potassium, dissolved	7440-09-7 E421	0.05	mg/L	50 mg/L	101	80.0	120	
selenium, dissolved	7782-49-2 E421	0.00005	mg/L	1 mg/L	93.7	80.0	120	
silicon, dissolved	7440-21-3 E421	0.05	mg/L	10 mg/L	105	80.0	120	
silver, dissolved	7440-22-4 E421	0.00001	mg/L	0.1 mg/L	88.4	80.0	120	
sodium, dissolved	7440-23-5 E421	0.05	mg/L	50 mg/L	104	80.0	120	
strontium, dissolved	7440-24-6 E421	0.0002	mg/L	0.25 mg/L	97.2	80.0	120	
sulfur, dissolved	7704-34-9 E421	0.5	mg/L	50 mg/L	108	80.0	120	
thallium, dissolved	7440-28-0 E421	0.00001	mg/L	1 mg/L	94.7	80.0	120	
tin, dissolved	7440-31-5 E421	0.0001	mg/L	0.5 mg/L	92.3	80.0	120	
titanium, dissolved	7440-32-6 E421	0.0003	mg/L	0.25 mg/L	98.8	80.0	120	
uranium, dissolved	7440-61-1 E421	0.00001	mg/L	0.005 mg/L	96.2	80.0	120	
vanadium, dissolved	7440-62-2 E421	0.0005	mg/L	0.5 mg/L	98.5	80.0	120	
zinc, dissolved	7440-66-6 E421	0.001	mg/L	0.5 mg/L	97.2	80.0	120	
zirconium, dissolved	7440-67-7 E421	0.0002	mg/L	0.1 mg/L	96.4	80.0	120	
Dissolved Metals (QCLot: 603848)								
aluminum, dissolved	7429-90-5 E421	0.001	mg/L	2 mg/L	99.2	80.0	120	
antimony, dissolved	7440-36-0 E421	0.0001	mg/L	1 mg/L	102	80.0	120	
arsenic, dissolved	7440-38-2 E421	0.0001	mg/L	1 mg/L	98.6	80.0	120	
barium, dissolved	7440-39-3 E421	0.0001	mg/L	0.25 mg/L	99.5	80.0	120	
beryllium, dissolved	7440-41-7 E421	0.00002	mg/L	0.1 mg/L	91.6	80.0	120	
bismuth, dissolved	7440-69-9 E421	0.00005	mg/L	1 mg/L	94.2	80.0	120	
boron, dissolved	7440-42-8 E421	0.01	mg/L	1 mg/L	89.4	80.0	120	
cadmium, dissolved	7440-43-9 E421	0.000005	mg/L	0.1 mg/L	101	80.0	120	
calcium, dissolved	7440-70-2 E421	0.05	mg/L	50 mg/L	96.7	80.0	120	
chromium, dissolved	7440-47-3 E421	0.0005	mg/L	0.25 mg/L	100.0	80.0	120	

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 : Teck Metals Ltd

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Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie
Dissolved Metals (QCLot: 603848) - continu	ıed								
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	97.9	80.0	120	
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	97.7	80.0	120	
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	112	80.0	120	
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	96.6	80.0	120	
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	90.8	80.0	120	
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	99.6	80.0	120	
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	97.2	80.0	120	
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	103	80.0	120	
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	99.2	80.0	120	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	108	80.0	120	
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	100	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	106	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	105	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	93.7	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	102	80.0	120	
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	104	80.0	120	
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	107	80.0	120	
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	98.2	80.0	120	
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	97.5	80.0	120	
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	96.6	80.0	120	
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	# 126	80.0	120	MES
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	101	80.0	120	
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	101	80.0	120	
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	99.8	80.0	120	
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	104	80.0	120	
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	103	80.0	120	
Volatile Organic Compounds (QCLot: 60530	8)								
benzene	71-43-2	E611A	0.5	μg/L	100 μg/L	95.4	70.0	130	
ethylbenzene	100-41-4	E611A	0.5	μg/L	100 μg/L	96.7	70.0	130	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	100 μg/L	106	70.0	130	
styrene	100-42-5	E611A	0.5	μg/L	100 μg/L	96.7	70.0	130	
toluene	108-88-3	E611A	0.5	μg/L	100 μg/L	94.2	70.0	130	
xylene, m+p-	179601-23-1	E611A	0.4	μg/L	200 μg/L	107	70.0	130	
xylene, o-	95-47-6	E611A	0.3	μg/L	100 μg/L	98.7	70.0	130	
Volatile Organic Compounds (QCLot: 60537	(2)								
benzene	71-43-2	E611A	0.5	μg/L	100 μg/L	93.8	70.0	130	

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 : Teck Metals Ltd

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 : Sa Dena Hes



Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Volatile Organic Compounds (QCLot: 605	372) - continued								
ethylbenzene	100-41-4	E611A	0.5	μg/L	100 μg/L	102	70.0	130	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.5	μg/L	100 μg/L	98.1	70.0	130	
styrene	100-42-5	E611A	0.5	μg/L	100 μg/L	88.0	70.0	130	
toluene	108-88-3	E611A	0.5	μg/L	100 μg/L	102	70.0	130	
xylene, m+p-	179601-23-1	E611A	0.4	μg/L	200 μg/L	118	70.0	130	
xylene, o-	95-47-6	E611A	0.3	μg/L	100 μg/L	99.6	70.0	130	
Hydrocarbons (QCLot: 605309)									
VHw (C6-C10)		E581.VH+F1	100	μg/L	6310 µg/L	91.2	70.0	130	
Hydrocarbons (QCLot: 605373)									
VHw (C6-C10)		E581.VH+F1	100	μg/L	6310 µg/L	87.5	70.0	130	
Hydrocarbons (QCLot: 609060)									
EPH (C10-C19)		E601A	250	μg/L	6491 µg/L	105	70.0	130	
EPH (C19-C32)		E601A	250	μg/L	3363 μg/L	110	70.0	130	
Polycyclic Aromatic Hydrocarbons (QCLo		5044	0.04				22.2	400	
acenaphthene	83-32-9		0.01	μg/L 	0.5 μg/L	101	60.0	130	
acenaphthylene	208-96-8		0.01	μg/L 	0.5 μg/L	103	60.0	130	
acridine	260-94-6		0.01	μg/L 	0.5 μg/L	105	60.0	130	
anthracene	120-12-7		0.01	μg/L	0.5 μg/L	104	60.0	130	
benz(a)anthracene	56-55-3		0.01	μg/L	0.5 μg/L	98.6	60.0	130	
benzo(a)pyrene	50-32-8		0.005	μg/L	0.5 μg/L	92.2	60.0	130	
benzo(b+j)fluoranthene		E641A	0.01	μg/L	0.5 μg/L	89.6	60.0	130	
benzo(g,h,i)perylene	191-24-2		0.01	μg/L	0.5 μg/L	99.1	60.0	130	
benzo(k)fluoranthene	207-08-9		0.01	μg/L	0.5 μg/L	102	60.0	130	
chrysene	218-01-9		0.01	μg/L	0.5 μg/L	103	60.0	130	
dibenz(a,h)anthracene	53-70-3		0.005	μg/L	0.5 μg/L	97.7	60.0	130	
fluoranthene	206-44-0	E641A	0.01	μg/L	0.5 μg/L	104	60.0	130	
fluorene	86-73-7		0.01	μg/L	0.5 μg/L	106	60.0	130	
indeno(1,2,3-c,d)pyrene	193-39-5		0.01	μg/L	0.5 μg/L	98.4	60.0	130	
methylnaphthalene, 1-	90-12-0	E641A	0.01	μg/L	0.5 μg/L	102	60.0	130	
methylnaphthalene, 2-	91-57-6	E641A	0.01	μg/L	0.5 μg/L	100	60.0	130	
naphthalene	91-20-3	E641A	0.05	μg/L	0.5 μg/L	100	50.0	130	
phenanthrene	85-01-8	E641A	0.02	μg/L	0.5 μg/L	106	60.0	130	
pyrene	129-00-0	E641A	0.01	μg/L	0.5 μg/L	105	60.0	130	
quinoline	91-22-5	E641A	0.05	μg/L	0.5 μg/L	113	60.0	130	

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 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Qualifiers

Qualifier	Description
MES	Data Quality Objective was marginally exceeded (by < 10% absolute) for < 10% of analytes in a Multi-Element Scan / Multi-Parameter Scan (considered acceptable as per OMOE & CCME).

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 : Teck Metals Ltd

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 : Sa Dena Hes



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	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	ents (QCLot: 603775)									
WR2200848-002	Anonymous	bromide	24959-67-9	E235.Br-L	0.500 mg/L	0.5 mg/L	100	75.0	125	
nions and Nutri	ents (QCLot: 603776)								1	
VR2200848-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.32 mg/L	2.5 mg/L	92.8	75.0	125	
nions and Nutri	ents (QCLot: 603777)									
WR2200848-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.463 mg/L	0.5 mg/L	92.6	75.0	125	
nions and Nutri	ents (QCLot: 603778)									
WR2200848-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	93.0 mg/L	100 mg/L	93.0	75.0	125	
nions and Nutri	ents (QCLot: 608012)					-				
WR2200838-009	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0979 mg/L	0.1 mg/L	97.9	75.0	125	
issolved Metals	(QCLot: 603750)				5.55.5 mg/2	g				
VR2200849-004	SD MW13-07 2022-08-08	aluminum, dissolved	7429-90-5	E421	0.202 mg/L	0.2 mg/L	101	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0200 mg/L	0.02 mg/L	100	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0211 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	0.0382 mg/L	0.04 mg/L	95.5	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00899 mg/L	0.01 mg/L	89.9	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	0.00419 mg/L	0.004 mg/L	105	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	0.0388 mg/L	0.04 mg/L	97.1	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0194 mg/L	0.02 mg/L	96.8	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0190 mg/L	0.02 mg/L	95.2	70.0	130	
		iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	95.0	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0194 mg/L	0.02 mg/L	97.0	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.0926 mg/L	0.1 mg/L	92.6	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	0.0381 mg/L	0.04 mg/L	95.2	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	11.0 mg/L	10 mg/L	110	70.0	130	
	T .	potassium, dissolved	7440-09-7	E421	3.88 mg/L	4 mg/L	96.9	70.0	130	I

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	y Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
	(QCLot: 603750) - cor	ntinued								
WR2200849-004	SD_MW13-07_2022-08-08	selenium, dissolved	7782-49-2	E421	0.0482 mg/L	0.04 mg/L	120	70.0	130	
		silicon, dissolved	7440-21-3	E421	9.32 mg/L	10 mg/L	93.2	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00379 mg/L	0.004 mg/L	94.8	70.0	130	
		sodium, dissolved	7440-23-5	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	22.2 mg/L	20 mg/L	111	70.0	130	
		thallium, dissolved	7440-28-0	E421	0.00368 mg/L	0.004 mg/L	91.9	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0193 mg/L	0.02 mg/L	96.5	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0405 mg/L	0.04 mg/L	101	70.0	130	
		uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	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	0.401 mg/L	0.4 mg/L	100	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0416 mg/L	0.04 mg/L	104	70.0	130	
issolved Metals	(QCLot: 603848)									
L2201194-002	Anonymous	aluminum, dissolved	7429-90-5	E421	0.210 mg/L	0.2 mg/L	105	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0207 mg/L	0.02 mg/L	104	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	102	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	0.0403 mg/L	0.04 mg/L	101	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00846 mg/L	0.01 mg/L	84.6	70.0	130	
		boron, dissolved	7440-42-8	E421	ND mg/L	0.1 mg/L	ND	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00388 mg/L	0.004 mg/L	97.0	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	0.0408 mg/L	0.04 mg/L	102	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0182 mg/L	0.02 mg/L	91.3	70.0	130	
		iron, dissolved	7439-89-6	E421	2.01 mg/L	2 mg/L	101	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0183 mg/L	0.02 mg/L	91.5	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.0940 mg/L	0.1 mg/L	94.0	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	ND mg/L	0.02 mg/L	ND	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0375 mg/L	0.04 mg/L	93.8	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	11.3 mg/L	10 mg/L	113	70.0	130	
		potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0461 mg/L	0.04 mg/L	115	70.0	130	

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 : 19 of 20

 Work Order
 : WR2200849

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	(QCLot: 603848) - cor	ntinued								
YL2201194-002	Anonymous	silicon, dissolved	7440-21-3	E421	10.6 mg/L	10 mg/L	106	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00382 mg/L	0.004 mg/L	95.6	70.0	130	
		sodium, dissolved	7440-23-5	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	0.00345 mg/L	0.004 mg/L	86.2	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0201 mg/L	0.02 mg/L	100	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0439 mg/L	0.04 mg/L	110	70.0	130	
		uranium, dissolved	7440-61-1	E421	ND mg/L	0.004 mg/L	ND	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.107 mg/L	0.1 mg/L	107	70.0	130	
		zinc, dissolved	7440-66-6	E421	0.374 mg/L	0.4 mg/L	93.5	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0452 mg/L	0.04 mg/L	113	70.0	130	
Dissolved Metals	(QCLot: 609533)									
WR2200822-011	Anonymous	mercury, dissolved	7439-97-6	E509	0.000100 mg/L	0.0001 mg/L	100	70.0	130	
issolved Metals	(QCLot: 609534)									
WR2200849-009	SD_MW14-02_2022-08-08	mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0.0001 mg/L	101	70.0	130	
/olatile Organic	Compounds (QCLot: 60	05308)								
VA22B8718-001	Anonymous	benzene	71-43-2	E611A	95.9 µg/L	100 μg/L	95.9	60.0	140	
		ethylbenzene	100-41-4	E611A	94.0 μg/L	100 μg/L	94.0	60.0	140	
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	98.0 μg/L	100 μg/L	98.0	60.0	140	
		styrene	100-42-5	E611A	93.0 μg/L	100 μg/L	93.0	60.0	140	
		styrene toluene	100-42-5 108-88-3	E611A E611A	93.0 µg/L 93.6 µg/L	100 μg/L 100 μg/L	93.0 93.6	60.0 60.0	140 140	
		*			1	1				
		toluene	108-88-3	E611A	93.6 µg/L	100 μg/L	93.6	60.0	140	
olatile Organic	Compounds (QCLot: 60	toluene xylene, m+p- xylene, o-	108-88-3 179601-23-1	E611A E611A	93.6 μg/L 206 μg/L	100 μg/L 200 μg/L	93.6 103	60.0 60.0	140 140	
	Compounds (QCLot: 60 SD_MW14-04_2022-08-08	toluene xylene, m+p- xylene, o-	108-88-3 179601-23-1	E611A E611A	93.6 μg/L 206 μg/L	100 μg/L 200 μg/L	93.6 103	60.0 60.0	140 140	
		toluene xylene, m+p- xylene, o- 05372)	108-88-3 179601-23-1 95-47-6	E611A E611A E611A	93.6 µg/L 206 µg/L 96.9 µg/L	100 μg/L 200 μg/L 100 μg/L	93.6 103 96.9	60.0 60.0 60.0	140 140 140	
		toluene xylene, m+p- xylene, o- 05372) benzene	108-88-3 179601-23-1 95-47-6 71-43-2	E611A E611A E611A	93.6 μg/L 206 μg/L 96.9 μg/L 95.8 μg/L	100 µg/L 200 µg/L 100 µg/L	93.6 103 96.9	60.0 60.0 60.0	140 140 140	
		toluene xylene, m+p- xylene, o- 05372) benzene ethylbenzene	108-88-3 179601-23-1 95-47-6 71-43-2 100-41-4	E611A E611A E611A E611A	93.6 µg/L 206 µg/L 96.9 µg/L 95.8 µg/L 98.0 µg/L	100 μg/L 200 μg/L 100 μg/L 100 μg/L 100 μg/L	93.6 103 96.9 95.8 98.0	60.0 60.0 60.0 60.0	140 140 140 140	
		toluene xylene, m+p- xylene, o- 05372) benzene ethylbenzene methyl-tert-butyl ether [MTBE]	108-88-3 179601-23-1 95-47-6 71-43-2 100-41-4 1634-04-4	E611A E611A E611A E611A E611A	93.6 μg/L 206 μg/L 96.9 μg/L 95.8 μg/L 98.0 μg/L 95.5 μg/L	100 μg/L 200 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	93.6 103 96.9 95.8 98.0 95.5	60.0 60.0 60.0 60.0 60.0 60.0	140 140 140 140 140 140	
/olatile Organic WR2200849-011		toluene xylene, m+p- xylene, o- D5372) benzene ethylbenzene methyl-tert-butyl ether [MTBE] styrene	108-88-3 179601-23-1 95-47-6 71-43-2 100-41-4 1634-04-4 100-42-5	E611A E611A E611A E611A E611A E611A	93.6 µg/L 206 µg/L 96.9 µg/L 95.8 µg/L 98.0 µg/L 95.5 µg/L 88.7 µg/L	100 μg/L 200 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L 100 μg/L	93.6 103 96.9 95.8 98.0 95.5 88.7	60.0 60.0 60.0 60.0 60.0 60.0 60.0	140 140 140 140 140 140 140	
		toluene xylene, m+p- xylene, o- D5372) benzene ethylbenzene methyl-tert-butyl ether [MTBE] styrene toluene	108-88-3 179601-23-1 95-47-6 71-43-2 100-41-4 1634-04-4 100-42-5 108-88-3	E611A E611A E611A E611A E611A E611A E611A	93.6 µg/L 206 µg/L 96.9 µg/L 95.8 µg/L 98.0 µg/L 95.5 µg/L 88.7 µg/L	100 µg/L 200 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L	93.6 103 96.9 95.8 98.0 95.5 88.7 100	60.0 60.0 60.0 60.0 60.0 60.0 60.0	140 140 140 140 140 140 140 140	
	SD_MW14-04_2022-08-08	toluene xylene, m+p- xylene, o- D5372) benzene ethylbenzene methyl-tert-butyl ether [MTBE] styrene toluene xylene, m+p-	108-88-3 179601-23-1 95-47-6 71-43-2 100-41-4 1634-04-4 100-42-5 108-88-3 179601-23-1	E611A E611A E611A E611A E611A E611A E611A E611A	93.6 µg/L 206 µg/L 96.9 µg/L 95.8 µg/L 98.0 µg/L 95.5 µg/L 88.7 µg/L 100 µg/L 217 µg/L	100 µg/L 200 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 100 µg/L 200 µg/L	93.6 103 96.9 95.8 98.0 95.5 88.7 100 108	60.0 60.0 60.0 60.0 60.0 60.0 60.0 60.0	140 140 140 140 140 140 140 140	

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 : 20 of 20

 Work Order
 : WR2200849

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water							Matrix Spil	ke (MS) Report		
				Spike Recovery (%) Recovery Limits (%)						
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Hydrocarbons (C	QCLot: 605373) - continu	ıed								
WR2200849-012	SD_MW-FB_2022-08-08	VHw (C6-C10)		E581.VH+F1	5290 μg/L	6310 μg/L	83.8	60.0	140	

Phone: 250-427-8422
Invoice To Same as Report?
Hardcopy of Invoice with Report?

i Yes - Yes Fax

ole No No

Select Email Distribution:

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> wendy mobain@teck.com, colin.lynch@teck.com azheng@ensero.com_slvons@ensero.com

TVOICE To

Contact: Address:

601 Knightton Road Michelle Unger TECK Metals Ltd

Kimberly, BC

Company:

Chain of Custody / Analytical Request Form Canada Toll Free: 1 800 668 9878

Report Format / Distribution

PDF

√ Excel

⊡ Digital

LFax

COC #

Environmental Division
Whitehorse
Work Order Reference
WORK 2200849

Service Requested (Rush for routine analysis subject to @ Regular (Standard Turnaround Times - Business Days)
Thronty (2-4 Business Days) - 50% surdiarge - Contact ALS to Same Day or Weekend Emergency - Contact ALS to Confirm '77 Chergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Please indicate below Filtered, Preserved or Analysis Request Telephone: +1 867 668 6689

Client / Project Information	Select Em	Select Email Distribution:			_	Ęρ		ē	U	Ü			4	ا -				
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Chain of Custody / Analytical Request Form Canada Toll Free: 1 800 668 9878

Yukon EQWin and ACC200 digital formats. General A: pH, EC, TSS (low)

General B: pH, EC, TSS (low), anions-all

General C: pH, EC, TSS (low), anions-all ion balance, alkalinity General E: pH, EC, TSS (low), so a skalinity General E: pH, EC, TSS (PO / AFE: Client / Project Information
Project # ECA22YT00199 Phone: Contact Report To Address Released by: nvoice To ardcopy of Invoice with Report? ompany: Sample # Lab Work Order # (lab use only) **TECK PO10289** Michelle Unger 601 Knightton Road Same as Report? Kimberly, BC 250-427-8422 TECK Metals Ltd SHIPMENT RELEASE (client use) SD_MW-FD3_2022-08-08 SD_MW-FD2_2022-08-08 SD_MW-TB_2022-06-26 Sample Identification Date (dd-mmm-yy) Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses _ č / Yes Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier i - Natural, etc) / Hazardous Details Fax By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab. Time (hh-mm) This description will appear on the bottle - N Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. No. Sample Location Received by SD_MW-FD2 SD_MW-FD3 SD_MW-TB Quote #: ALS Contact: Email 2: legacy.ap@teck.com Select Email Distribution:
Email 1 or Fax: michelle.unger@teck.com Email 2: 망 =mail 3: Email1: Report Format / Distribution √ Standard SHIPMENT RECEPTION (lab use only) Can Dang Q62635 chanson@ensero.com, teckkimb@equisonline.co azhend@ensero.com.slyons@ensero.com Date (dd-mmm-yy) 09-Aug-22 10-Aug-22 11-Jul-22 Excel Other Invoice Distribution Sampler: Time (hh:mm) ___ Digital Temperature: Sample Type Groundwater Groundwater Groundwater Fax റ് Verified by: Regular (Standard Turnaround Times - Business Days) Same Day or Weekend Emergency - Contact ALS to Confirm TAT Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT Service Requested (Rush for routine analysis subject to availability) × \bigcirc Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT pH, SPC, alkalinity, hardness F/P × dissolved metals low level +Hg Please indicate below Filtered, Preserved or both (F, P, F/P) Anions (nitrate, nitrite, suiphate, Cl. F, Br) × × × × Ammonla Date: × × × BTEX, LEPH, HEPH × VPH, PAH Analysis Request If Ye: If Yes add SIF GENF 20.00 Front Obse Observations: Yes , Yes / No ? Number of Containers

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ALS Environmental

Chain of Custody / Analytical Request Form Canada Toll Free: 1 800 668 9878 www.aisglobai.com

COC#

Environmental Division Whitehorse Work Order Reference WR2200849



Report To			Report Format /	Distribution					equest							to'			/II W	. K Y
Company:	TECK Metals Ltd		/ Standard	Other	·		1		(Standard											JW
Contact:	Michelle Unger	· · · · · · · · · · · · · · · · · · ·	I PDF	_/ Excel		Fax			2-4 Busine		:								ll Ing	AT IN I
Address:	601 Knightton Road		Email 1:	azheng@ense	ro.com, siyons@e	ensero.com	1-		icy (1-2 Bu					٠.					ПPt	, -
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Phone:	250-427-8422 Fax:		Email 3:			@equisonfine.co	4								quest		-	Telepho	ne : +	1 867 66
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	SD_MW13-06_2022-08-08	SD_MW13-	-06	10-Aug-22	14:00	Groundwater	X	Х	Х	Х									T	
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	SD_MW13-07_2022-08-08	SD_MW13-	-07	09-Aug-22	13:45	Groundwater	X	Х	Х	Х	Х	Х								
A	SD_MW13-08_2022-08-08	SD_MW13-	-08	08-Aug-22	16:30	Groundwater	х	Х	Х	Х					. ,				1	\Box
ola jost oli	SD_MW13-10_2022-08-08	SD_MW13-	-10	10-Aug-22	15:25	Groundwater	Х	Х	Х	Х	Х	Х								I
7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7. 7	SD_MW13-13_2022-08-08	SD_MW13-	-13	10-Aug-22	11:50	Groundwater	Х	Х	Х	Х									T	
The Park	SD_MW14-01_2022-08-08	SD_MW14	-01	09-Aug-22	18:00	Groundwater	Х	Х	Х	Х	Х	Х							1	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SD_MW14-02_2022-08-08	SD_MW14-	-02	09-Aug-22	17:15	Groundwater	Х	х	Х	Х	Х	х								
	SD_MW14-03 <u>/</u> 2022-08-08	SD_MW14-	SD_MW14-03		15:45	Groundwater	Х	Х	Х	Х	Х	Х						7.2		
	SD_MW14-04 <u>-</u> 2022-08-08	SD_MW14	-04	09-Aug-22	16:20	Groundwater	Х	Х	Х	Х	Х	Х								
100 mg 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	SD_MW-FB_2022-08-08	SD_MW-F	=B .·	10-Aug-22	,	Groundwater	Х	Х	Х	X	Х	Х			,					
The second second	SD_MW-FD1_2022-08-08	SD_MW-F	D1	08-Aug-22		Groundwater	Х	Х	Х	X	Х	Х								
	Special Instructions / R	egulations with water or la	and use (CCME-F	reshwater Aqua	atic Life/BC CSR	- Commercial/Al	3 Tier	1 - N	atural, e	etc) / (Hazar	dous	Deta	ails						

Yukon EQWin and ACC200 digital formats. General A: pH, EC, TSS (low) General B: pH, EC, TSS (low), anions-alf General C: pH, EC, TSS (low), anions-all, ion balance, alkalinity General D: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance

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 separate 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 us Time (hh-mm) Received by: Temperature: 1115000



CERTIFICATE OF ANALYSIS

Work Order : WR2200850-AA

Client : Teck Metals Ltd
Contact : Michelle Unger

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

 Telephone
 : 250 427 8404

 Project
 : Sa Dena Hes

PO : 10289 C-O-C number : ----

Sampler : ----

Site : ECA22YT00199

Quote number : VA22-TECK150-001

No. of samples received : 11

No. of samples analysed : 11

Page : 1 of 10

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 11-Aug-2022 16:45

Date Analysis Commenced : 15-Aug-2022

Issue Date : 23-Aug-2022 14:11

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
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Hamideh Moradi	Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Kyle Chang	Lab Assistant	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

Page : 2 of 10

Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



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
μg/L	micrograms per litre
μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
pH units	pH units

<: less 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
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference,
	colour, turbidity).

>: greater than.

Page Work Order

: 3 of 10 : WR2200850-AA Client : Teck Metals Ltd Project : Sa Dena Hes



Analytical Results

Conductivity Cond	Sub-Matrix: Surface Water			Cl	ient sample ID	SD_MH-02_202 2-08-08	SD_MH-04_202 2-08-08	SD_MH-11_202 2-08-08	SD_MH-12_202 2-08-08	SD_MH-13_202 2-08-08
Araly/fo	(Matrix: Water)					2-00-00	2-00-00	2-00-00	2-00-00	2-00-00
Physical Tests				Client samp	ling date / time	ŭ	_	-	_	_
Physical Tests	Analyte	CAS Number	Method	LOR	Unit	WR2200850-001	WR2200850-002	WR2200850-003	WR2200850-004	WR2200850-005
						Result	Result	Result	Result	Result
conductivity E100 2.0 µS/cm 1070 297 375 317 388 hardness (as CaCO3), dissolved EC100 0.60 mg/L 584 117 196 170 197 hardness (as CaCO3), from total Ca/Mg EC100A 0.60 mg/L 584 114 196 170 197 Actions, Local (as), Local (as) E108 0.10 pH units 7.98 8.17 8.23 8.30 8.27 solids, total dissolved (TDS) E162 10 mg/L 781 170 201 177 192 solids, total dissolved (TDS) E1662 10 mg/L 7.81 170 201 177 192 solids, total dissolved (TDS) E235 <t< th=""><th>Physical Tests</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></t<>	Physical Tests									
hardness (as CaCO3), dissolved EC100 0.60 mg/L 584 147 196 170 197 hardness (as CaCO3), from total CaMg	alkalinity, total (as CaCO3)		E290	1.0	mg/L	360	142	211	162	190
hardness (as CaCQ), from total CaMdg	conductivity		E100	2.0	μS/cm	1070	297	375	317	358
pH — Besolds, total dissolved [TDS] — Besold Besolved	hardness (as CaCO3), dissolved		EC100	0.60	mg/L	584	147	196	170	197
solids, total dissolved (TDS)	hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	564	144	187	160	185
Solids, total suspended [TSS]	рН		E108	0.10	pH units	7.98	8.17	8.23	8.30	8.27
Annons and Nutrients Annons and Nutrients Annons and Nutrients Co.0050 mg/L <0.0050	solids, total dissolved [TDS]		E162	10	mg/L	781	170	201	177	192
ammonia, total (as N) 7664-41-7 E298 0.0050 mg/L <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0	solids, total suspended [TSS]		E160-L	1.0	mg/L	5.5	<1.0	<1.0	1.0	1.7
bromide 2499-67-9 E235.Br-L 0.050 mg/L <0.250 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.050 <0.05	Anions and Nutrients									
nitrate (as N) 14797-55-8 (as N) E235 NO3-L (as N) 0.0050 mg/L (as N) 0.0250 mg/L (as N) 0.134 (as N) 0.0854 (as N) 0.0412 (as N) 0.0127 (as N) sulfate (as SO4) 14797-65-0 (as N) E235 NO2-L (as N) 0.0010 mg/L (as N) 0.0050 ms/s (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0010 (as N) 0.0011 (as N) 0.0011 (as N) 0.0011 (as N) 0.0011 (as N) 0.0011 (as N) 0.0011 (as N) 0.0011 (as N) 0.0011 (as N) 0.0011 (as N) 0.0012 (as N) 0.0002 (as	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L		<0.0050	<0.0050	0.0089	<0.0050
nitrite (as N) 14797-65-0 bit (as SO4) E235.NO2-L bit (as SO4) 0.0010 bit (as SO4) <0.0010 bit (as SO4)	bromide	24959-67-9	E235.Br-L	0.050	mg/L		<0.050	<0.050	<0.050	<0.050
sulfate (as SO4) 14808-79-8 E235.SO4 0.30 mg/L 267 14.7 12.0 7.93 6.23 Total Metals aluminum, total 7429-90-5 E420 0.0030 mg/L -0.0010 0.0048 0.0085 0.0093 0.0128 antimony, total 7440-36-0 E420 0.00010 mg/L -0.00010 0.00012 0.00015 0.00022 0.00012 arsenic, total 7440-38-2 E420 0.00010 mg/L 0.00074 0.0002 0.0062 0.00087 0.00052 beryllium, total 7440-39-3 E420 0.00010 mg/L <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.000020 <0.0	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0250 DLDS	0.134	0.0854	0.0412	0.0127
Total Motals Total Motals T429-90-5	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0050 DLDS	<0.0010	<0.0010	<0.0010	<0.0010
aluminum, total 7429-90-5 E420 0.0030 mg/L 0.0128 0.0048 0.0085 0.0093 0.0128 antimony, total 7440-36-0 E420 0.00010 mg/L <0.00010	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	267	14.7	12.0	7.93	6.23
antimony, total 7440-36-0 E420 0.00010 mg/L <0.00010	Total Metals									
arsenic, total 7440-38-2 E420 0.00010 mg/L 0.00074 0.00042 0.00062 0.00087 0.00054 barium, total 7440-39-3 E420 0.00010 mg/L 0.193 0.0210 0.0650 0.0738 0.155 beryllium, total 7440-41-7 E420 0.000020 mg/L <0.000020	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0128	0.0048	0.0085	0.0093	0.0128
barium, total 7440-39-3 E420 0.00010 mg/L 0.193 0.0210 0.0650 0.0738 0.155 beryllium, total 7440-41-7 E420 0.000020 mg/L <0.000020	antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	0.00012	0.00015	0.00022	0.00012
beryllium, total 7440-41-7 E420 0.000020 mg/L <0.000020	arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00074	0.00042	0.00062	0.00087	0.00054
bismuth, total 7440-69-9 boron, total E420 0.000050 mg/L <0.000050	barium, total	7440-39-3	E420	0.00010	mg/L	0.193	0.0210	0.0650	0.0738	0.155
boron, total 7440-42-8	beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
cadmium, total 7440-43-9 E420 0.0000050 mg/L 0.000104 0.000261 0.0000691 0.0000410 0.0000250 calcium, total 7440-70-2 E420 0.050 mg/L 198 52.9 62.4 54.6 53.6 chromium, total 7440-47-3 E420 0.00050 mg/L <0.00050	bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
calcium, total 7440-70-2 E420 0.050 mg/L 198 52.9 62.4 54.6 53.6 chromium, total 7440-47-3 E420 0.00050 mg/L <0.00050	boron, total	7440-42-8	E420	0.010	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010
chromium, total 7440-47-3 E420 0.00050 mg/L <0.00050	cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.000104	0.000261	0.0000691	0.0000410	0.0000250
cobalt, total 7440-48-4 E420 0.00010 mg/L 0.00100 <0.00010	calcium, total	7440-70-2	E420	0.050	mg/L	198	52.9	62.4	54.6	53.6
copper, total 7440-50-8 E420 0.00050 mg/L <0.00050	chromium, total	7440-47-3	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 0.121 <0.010	cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00100	<0.00010	<0.00010	<0.00010	<0.00010
lead, total 7439-92-1 E420 0.000050 mg/L 0.000346 0.000239 0.000265 0.000281 0.000132 lithium, total 7439-93-2 E420 0.0010 mg/L <0.0010 0.0014 0.0017 0.0015 0.0012	copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00290
lithium, total 7439-93-2 E420 0.0010 mg/L <0.0010 0.0014 0.0017 0.0015 0.0012	iron, total	7439-89-6	E420	0.010	mg/L	0.121	<0.010	0.054	0.012	0.247
	lead, total	7439-92-1	E420	0.000050	mg/L	0.000346	0.000239	0.000265	0.000281	0.000132
magnesium total 7/30 95 / F420 0 100 mg/l 17 0 3 00 7 58 5 66 12 5	lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	0.0014	0.0017	0.0015	0.0012
1439-90-4 L-720 0.100 mg/L 17.0 0.00 7.00 0.00 12.0	magnesium, total	7439-95-4	E420	0.100	mg/L	17.0	3.00	7.58	5.66	12.5

Page : 4 of 10

Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cli	ient sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client samp	ling date / time	09-Aug-2022 10:02	08-Aug-2022 15:45	10-Aug-2022 10:45	09-Aug-2022 11:45	09-Aug-2022 13:30
Analyte	CAS Number	Method	LOR	Unit	WR2200850-001	WR2200850-002	WR2200850-003	WR2200850-004	WR2200850-005
					Result	Result	Result	Result	Result
Total Metals									
manganese, total	7439-96-5	E420	0.00010	mg/L	2.37	0.00075	0.00869	0.00163	0.0113
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	0.00141	0.000665	0.000851	0.00120	0.00106
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00107	<0.00050	<0.00050	<0.00050	<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	2.21	0.379	0.355	0.422	0.293
selenium, total	7782-49-2	E420	0.050	μg/L	0.088	0.734	0.532	0.579	0.512
silicon, total	7440-21-3	E420	0.10	mg/L	6.14	3.33	3.79	4.32	3.38
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	11.0	0.785	1.04	0.950	0.875
strontium, total	7440-24-6	E420	0.00020	mg/L	0.690	0.186	0.248	0.205	0.202
sulfur, total	7704-34-9	E420	0.50	mg/L	100	5.12	4.38	2.69	2.32
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	<0.00030	<0.00030	<0.00030	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.00140	0.000745	0.000952	0.000854	0.00116
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	0.0145	0.0043	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	0.0020	0.0069	0.0025	0.0029
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00010	0.00014	0.00016	0.00021	0.00011
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00071	0.00042	0.00062	0.00087	0.00050
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.184	0.0204	0.0617	0.0792	0.153
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	0.0000692	0.000261	0.0000576	0.0000416	0.0000149
calcium, dissolved	7440-70-2	E421	0.050	mg/L	205	53.7	65.4	58.2	56.7
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	0.00099	<0.00010	<0.00010	<0.00010	<0.00010
	7 770-40-4		0.000.0	1119/1	0.0000		1 .0.00010		0.00010

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Clie	ent sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client sampl	ing date / time	09-Aug-2022 10:02	08-Aug-2022 15:45	10-Aug-2022 10:45	09-Aug-2022 11:45	09-Aug-2022 13:30
Analyte	CAS Number	Method	LOR	Unit	WR2200850-001	WR2200850-002	WR2200850-003	WR2200850-004	WR2200850-005
					Result	Result	Result	Result	Result
Dissolved Metals		E 404	0.00000		0.0000	0.00040	0.0004	0.0000	0.00040
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00038	0.00048	0.00034	0.00033	0.00048
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.070	<0.010	0.034	<0.010	0.108
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000080	0.000134	0.000114	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	0.0015	0.0018	0.0015	0.0012
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	17.6	3.09	7.84	6.01	13.4
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	2.51	0.00046	0.00745	0.00078	0.00727
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	0.00147	0.000715	0.000930	0.00124	0.00106
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00108	<0.00050	<0.00050	<0.00050	<0.00050
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	2.27	0.399	0.366	0.446	0.325
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.118	0.874	0.680	0.668	0.606
silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.71	3.02	3.64	4.35	3.54
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	11.1	0.814	1.05	1.01	0.934
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.729	0.207	0.276	0.227	0.211
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	92.7	5.13	4.28	2.99	2.44
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	0.00143	0.000765	0.000935	0.000910	0.00127
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	0.0134	0.0045	0.0049	0.0015	<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
Speciated Metals									1
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Please refer to the General Comments section for an explanation of any qualifiers detected.

Page Work Order

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Analytical Results

Sub-Matrix: Surface Water			Cl	ient sample ID	SD_MH-15_202 2-08-08	SD_MH-22_202 2-08-08	SD_MH-29_202 2-08-08	SD_MH-FB_202 2-08-08	SD_MH-FD_202 2-08-08
(Matrix: Water)					2-00-00	2-00-00	2-00-00	2-00-00	2-00-00
			Client samp	ling date / time	09-Aug-2022 12:00	10-Aug-2022 14:20	10-Aug-2022 12:00	10-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-006	WR2200850-007	WR2200850-008	WR2200850-009	WR2200850-010
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	196	106	182	<1.0	196
conductivity		E100	2.0	μS/cm	360	273	337	<2.0	359
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	199	135	182	<0.60	198
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	188	135	180	<0.60	201
рН		E108	0.10	pH units	8.23	7.93	8.25	5.23	8.23
solids, total dissolved [TDS]		E162	10	mg/L	196	158	193	<10	190
solids, total suspended [TSS]		E160-L	1.0	mg/L	1.3	<1.0	<1.0	<1.0	1.3
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0056	<0.0050	<0.0050	<0.0050	0.0059
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0076	0.117	0.0398	<0.0050	0.0076
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.64	33.3	2.79	<0.30	2.64
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0101	<0.0030	0.0066	<0.0030	0.0082
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00011	0.00231	0.00018	<0.00010	0.00011
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00048	0.00383	0.00082	<0.00010	0.00052
barium, total	7440-39-3	E420	0.00010	mg/L	0.194	0.0159	0.0518	<0.00010	0.196
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	0.0000155	0.00316	0.0000609	<0.000050	0.0000086
calcium, total	7440-70-2	E420	0.050	mg/L	54.6	44.1	63.2	<0.050	59.6
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	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0.00062	<0.00050	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L	0.172	<0.010	0.014	<0.010	0.163
lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	0.000223	<0.000050	<0.000050	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0012	0.0052	0.0016	<0.0010	0.0012
magnesium, total	7439-95-4	E420	0.100	mg/L	12.5	5.97	5.42	<0.100	12.7
manganese, total	7439-96-5	E420	0.00010	mg/L	0.0128	0.00038	0.00395	<0.00010	0.0125
	1 400-90-0		1 3.333.3	g, _	0.0.20	3.0000	1 0.0000	1	1 3.5.25

Page Work Order

: 7 of 10 : WR2200850-AA Client : Teck Metals Ltd Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water (Matrix: Water)			Clid	ent sample ID	SD_MH-15_202 2-08-08	SD_MH-22_202 2-08-08	SD_MH-29_202 2-08-08	SD_MH-FB_202 2-08-08	SD_MH-FD_202 2-08-08
(many)			Client sampl	ing date / time	09-Aug-2022 12:00	10-Aug-2022 14:20	10-Aug-2022 12:00	10-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-006	WR2200850-007	WR2200850-008	WR2200850-009	WR2200850-010
					Result	Result	Result	Result	Result
Total Metals									
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.000050	<0.0000050	<0.000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00182	0.00876	0.000655	<0.000050	0.00183
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	0.00333	<0.00050	<0.00050	<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	0.300	0.545	0.254	<0.100	0.279
selenium, total	7782-49-2	E420	0.050	μg/L	0.427	11.5	0.497	<0.050	0.409
silicon, total	7440-21-3	E420	0.10	mg/L	3.91	4.51	4.05	<0.10	3.83
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	0.975	0.834	0.893	<0.050	0.985
strontium, total	7440-24-6	E420	0.00020	mg/L	0.176	0.201	0.220	<0.00020	0.184
sulfur, total	7704-34-9	E420	0.50	mg/L	0.89	11.9	1.22	<0.50	1.37
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	0.000016	<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	0.00042	<0.00030	<0.00030	<0.00030	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000688	0.00286	0.000557	<0.000010	0.000685
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	0.424	<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	0.0029	<0.0010	0.0022	<0.0010	0.0026
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00010	0.00234	0.00017	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00046	0.00378	0.00081	<0.00010	0.00042
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.195	0.0161	0.0540	<0.00010	0.203
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	<0.00050
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	0.0000092	0.00329	0.0000646	<0.000050	0.0000051
calcium, dissolved	7440-70-2	E421	0.050	mg/L	57.7	44.2	63.9	<0.050	57.6
chromium, dissolved		E421	0.00050		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-47-3	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
,	7440-48-4			mg/L					
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00024	0.00037	0.00037	<0.00020	0.00024

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-15_202	SD_MH-22_202	SD_MH-29_202	SD_MH-FB_202	SD_MH-FD_202
(Matrix: Water)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client sampl	ing date / time	09-Aug-2022 12:00	10-Aug-2022 14:20	10-Aug-2022 12:00	10-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-006	WR2200850-007	WR2200850-008	WR2200850-009	WR2200850-010
					Result	Result	Result	Result	Result
Dissolved Metals iron, dissolved	7439-89-6	E421	0.010	mg/L	0.088	<0.010	<0.010	<0.010	0.087
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	0.000189	<0.00050	<0.00050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0012	0.0052	0.0015	<0.0010	0.0012
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	13.3	6.08	5.52	<0.100	13.2
manganese, dissolved	7439-95-4	E421	0.00010	mg/L	0.00549	0.00036	0.00320	<0.00010	0.00553
mercury, dissolved		E509	0.00010	-	<0.000050	<0.000050	<0.000000	<0.000000	<0.000050
•	7439-97-6	E421	0.000050	mg/L	0.00184	0.00886	0.000633	<0.000050	0.00178
molybdenum, dissolved	7439-98-7			mg/L				<0.00050	
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	0.00326	<0.00050		<0.00050
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	0.302	0.557	0.270	<0.100	0.289
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.457	12.0	0.456	<0.050	0.421
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.88	4.63	4.16	<0.050	3.87
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.979	0.813	0.888	<0.050	0.966
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.189	0.217	0.218	<0.00020	0.186
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.92	11.8	1.05	<0.50	1.17
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	0.000018	<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	0.000695	0.00294	0.000589	<0.000010	0.000706
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	0.454	<0.0010	<0.0010	<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
Speciated Metals									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Please refer to the General Comments section for an explanation of any qualifiers detected.

Page Work Order : 9 of 10 : WR2200850-AA Client : Teck Metals Ltd Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water		CI	ient sample ID	SD_MH-TB_202	 	
(Matrix: Water)				2-08-08		
		Client samp	ling date / time	11-Aug-2022	 	
Analyte CAS Number	r Method	LOR	Unit	WR2200850-011	 	
				Result	 	
Physical Tests						
alkalinity, total (as CaCO3)	- E290	1.0	mg/L	<1.0	 	
conductivity	_ E100	2.0	μS/cm	<2.0	 	
hardness (as CaCO3), from total Ca/Mg	EC100A	0.60	mg/L	<0.60	 	
pH	- E108	0.10	pH units	5.23	 	
solids, total dissolved [TDS]	E162	10	mg/L	<10	 	
solids, total suspended [TSS]	_ E160-L	1.0	mg/L	<1.0	 	
Anions and Nutrients						
ammonia, total (as N) 7664-41-	E298	0.0050	mg/L	<0.0050	 	
bromide 24959-67-	E235.Br-L	0.050	mg/L	<0.050	 	
nitrate (as N) 14797-55-	E235.NO3-L	0.0050	mg/L	<0.0050	 	
nitrite (as N) 14797-65-	E235.NO2-L	0.0010	mg/L	<0.0010	 	
sulfate (as SO4) 14808-79-	E235.SO4	0.30	mg/L	<0.30	 	
Total Metals						
aluminum, total 7429-90-	E420	0.0030	mg/L	<0.0030	 	
antimony, total 7440-36-	E420	0.00010	mg/L	<0.00010	 	
arsenic, total 7440-38-	E420	0.00010	mg/L	<0.00010	 	
barium, total 7440-39-	E420	0.00010	mg/L	<0.00010	 	
beryllium, total 7440-41-	E420	0.000020	mg/L	<0.000020	 	
bismuth, total 7440-69-	E420	0.000050	mg/L	<0.000050	 	
boron, total 7440-42-	E420	0.010	mg/L	<0.010	 	
cadmium, total 7440-43-	E420	0.0000050	mg/L	<0.0000050	 	
calcium, total 7440-70-	E420	0.050	mg/L	<0.050	 	
chromium, total 7440-47-	E420	0.00050	mg/L	<0.00050	 	
cobalt, total 7440-48-	£420	0.00010	mg/L	<0.00010	 	
copper, total 7440-50-	E420	0.00050	mg/L	<0.00050	 	
iron, total 7439-89-	E420	0.010	mg/L	<0.010	 	
lead, total 7439-92-	E420	0.000050	mg/L	<0.000050	 	
lithium, total 7439-93-	E420	0.0010	mg/L	<0.0010	 	
magnesium, total 7439-95-	£420	0.100	mg/L	<0.100	 	
manganese, total 7439-96-	E420	0.00010	mg/L	<0.00010	 	
mercury, total 7439-97-	E508	0.0000050	mg/L	<0.0000050	 	
molybdenum, total 7439-98-	E420	0.000050	mg/L	<0.000050	 	

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water		С	lient sample ID	SD_MH-TB_202	 	
(Matrix: Water)				2-08-08		
		Client sam	oling date / time	11-Aug-2022	 	
Analyte CAS Nur.	ber Method	LOR	Unit	WR2200850-011	 	
				Result	 	
Total Metals						
nickel, total 7440-	2-0 E420	0.00050	mg/L	<0.00050	 	
phosphorus, total 7723-	4-0 E420	0.050	mg/L	<0.050	 	
potassium, total 7440-	9-7 E420	0.100	mg/L	<0.100	 	
selenium, total 7782-4	9-2 E420	0.050	μg/L	<0.050	 	
silicon, total 7440-	1-3 E420	0.10	mg/L	<0.10	 	
silver, total 7440-	2-4 E420	0.000010	mg/L	<0.000010	 	
sodium, total 7440-	3-5 E420	0.050	mg/L	<0.050	 	
strontium, total 7440-2	4-6 E420	0.00020	mg/L	<0.00020	 	
sulfur, total 7704-	4-9 E420	0.50	mg/L	<0.50	 	
thallium, total 7440-	8-0 E420	0.000010	mg/L	<0.000010	 	
tin, total 7440-	1-5 E420	0.00010	mg/L	<0.00010	 	
titanium, total 7440-	2-6 E420	0.00030	mg/L	<0.00030	 	
uranium, total 7440-	1-1 E420	0.000010	mg/L	<0.000010	 	
vanadium, total 7440-	2-2 E420	0.00050	mg/L	<0.00050	 	
zinc, total 7440-	6-6 E420	0.0030	mg/L	<0.0030	 	
zirconium, total 7440-	7-7 E420	0.00020	mg/L	<0.00020	 	

Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL REPORT

Work Order :WR2200850-AA

Client : Teck Metals Ltd Contact : Michelle Unger

:601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone 250 427 8404 Project : Sa Dena Hes

: 10289 C-O-C number Sampler

Site : ECA22YT00199 Quote number : VA22-TECK150-001

No. of samples received :11 No. of samples analysed : 11 Page : 1 of 22

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone :+1 867 668 6689 Date Samples Received :11-Aug-2022 16:45 **Date Analysis Commenced**

: 15-Aug-2022

: 23-Aug-2022 14:11 Issue Date

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 Percent Difference (RPD) and Data Quality Objectives

- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

Address

PO

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	Vancouver Metals, Burnaby, British Columbia
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Hamideh Moradi	Analyst	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
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Owen Cheng		Vancouver Metals, Burnaby, British Columbia

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



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).

ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
hysical Tests (QC	Lot: 603737)										
VR2200850-003	SD_MH-11_2022-08-08	pH		E108	0.10	pH units	8.23	8.24	0.121%	4%	
Physical Tests (QC	Lot: 603738)										
VR2200850-003	SD_MH-11_2022-08-08	alkalinity, total (as CaCO3)		E290	1.0	mg/L	211	180	16.0%	20%	
hysical Tests (QC	Lot: 603739)										
VR2200850-003	SD_MH-11_2022-08-08	conductivity		E100	2.0	μS/cm	375	341	9.50%	10%	
hysical Tests (QC	Lot: 604409)										
VR2200849-008	Anonymous	solids, total dissolved [TDS]		E162	20	mg/L	264	266	0.566%	20%	
nions and Nutrien	ts (QC Lot: 603782)										
VR2200850-001	SD_MH-02_2022-08-08	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
otal Metals (QC Lo	ot: 603794)										
VR2200850-007	SD_MH-22_2022-08-08	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	0.00231	0.00238	2.91%	20%	
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00383	0.00387	0.904%	20%	
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0159	0.0155	2.26%	20%	
		beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<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	0.0000050	mg/L	0.00316	0.00325	2.69%	20%	
		calcium, total	7440-70-2	E420	0.050	mg/L	44.1	44.5	1.00%	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	<0.010	<0.010	0	Diff <2x LOR	
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000223	0.000226	0.000004	Diff <2x LOR	
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0052	0.0053	0.00006	Diff <2x LOR	
		magnesium, total	7439-95-4	E420	0.100	mg/L	5.97	5.93	0.741%	20%	
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00038	0.00036	0.00002	Diff <2x LOR	
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00876	0.00919	4.85%	20%	
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00333	0.00332	0.000007	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	0.100	mg/L	0.545	0.543	0.002	Diff <2x LOR	

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Total Metals (QC Lo	ot: 603794) - continued										
WR2200850-007	SD_MH-22_2022-08-08	selenium, total	7782-49-2	E420	0.000050	mg/L	11.5 µg/L	0.0119	3.29%	20%	
		silicon, total	7440-21-3	E420	0.10	mg/L	4.51	4.54	0.501%	20%	
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, total	7440-23-5	E420	0.050	mg/L	0.834	0.837	0.274%	20%	
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.201	0.209	3.77%	20%	
		sulfur, total	7704-34-9	E420	0.50	mg/L	11.9	11.8	0.758%	20%	
		thallium, total	7440-28-0	E420	0.000010	mg/L	0.000016	0.000016	0.0000008	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	0.00286	0.00290	1.25%	20%	
		vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		zinc, total	7440-66-6	E420	0.0030	mg/L	0.424	0.429	1.15%	20%	
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
otal Metals (QC Lo	ot: 603802)										
'A22B8907-021	Anonymous	aluminum, total	7429-90-5	E420	0.0150	mg/L	1.21	1.45	18.2%	20%	
		antimony, total	7440-36-0	E420	0.00050	mg/L	0.00106	0.00113	0.00006	Diff <2x LOR	
		arsenic, total	7440-38-2	E420	0.00050	mg/L	0.0416	0.0417	0.220%	20%	
		barium, total	7440-39-3	E420	0.00050	mg/L	0.0395	0.0398	0.733%	20%	
		beryllium, total	7440-41-7	E420	0.000100	mg/L	0.000200	0.000207	0.000007	Diff <2x LOR	
		bismuth, total	7440-69-9	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	
		boron, total	7440-42-8	E420	0.050	mg/L	1.41	1.44	2.03%	20%	
		cadmium, total	7440-43-9	E420	0.0000250	mg/L	<0.0000250	<0.0000250	0	Diff <2x LOR	
		calcium, total	7440-70-2	E420	0.250	mg/L	796	834	4.59%	20%	
		chromium, total	7440-47-3	E420	0.00050	mg/L	0.00102	0.00102	0.000006	Diff <2x LOR	
		cobalt, total	7440-48-4	E420	0.00050	mg/L	0.00501	0.00510	1.79%	20%	
		copper, total	7440-50-8	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	
		iron, total	7439-89-6	E420	0.050	mg/L	1.01	1.17	14.2%	20%	
		lead, total	7439-92-1	E420	0.000250	mg/L	0.00112	0.00120	0.000079	Diff <2x LOR	
		lithium, total	7439-93-2	E420	0.0050	mg/L	0.0970	0.102	5.43%	20%	
		magnesium, total	7439-95-4	E420	0.0250	mg/L	71.0	73.2	3.05%	20%	
		manganese, total	7439-96-5	E420	0.00050	mg/L	0.0318	0.0347	8.73%	20%	
		molybdenum, total	7439-98-7	E420	0.000250	mg/L	0.00172	0.00182	0.000109	Diff <2x LOR	
		nickel, total	7440-02-0	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	
		phosphorus, total	7723-14-0	E420	0.250	mg/L	0.346	0.327	0.019	Diff <2x LOR	
		potassium, total	7440-09-7	E420	0.250	mg/L	3.69	3.71	0.418%	20%	

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Total Metals (QC Lo	ot: 603802) - continued										
VA22B8907-021	Anonymous	selenium, total	7782-49-2	E420	0.000250	mg/L	0.0124	0.0128	2.95%	20%	
		silicon, total	7440-21-3	E420	0.50	mg/L	26.0	26.5	2.03%	20%	
		silver, total	7440-22-4	E420	0.000050	mg/L	0.000086	0.000097	0.000011	Diff <2x LOR	
		sodium, total	7440-23-5	E420	0.250	mg/L	351	357	1.56%	20%	
		strontium, total	7440-24-6	E420	0.00100	mg/L	9.74	9.86	1.28%	20%	
		sulfur, total	7704-34-9	E420	2.50	mg/L	599	598	0.112%	20%	
		thallium, total	7440-28-0	E420	0.000050	mg/L	0.000180	0.000193	0.000013	Diff <2x LOR	
		tin, total	7440-31-5	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		titanium, total	7440-32-6	E420	0.00150	mg/L	0.0104	0.0119	0.00151	Diff <2x LOR	
		uranium, total	7440-61-1	E420	0.000050	mg/L	0.0137	0.0141	3.44%	20%	
		vanadium, total	7440-62-2	E420	0.00250	mg/L	0.0254	0.0254	0.124%	20%	
		zinc, total	7440-66-6	E420	0.0150	mg/L	<0.0150	<0.0150	0	Diff <2x LOR	
		zirconium, total	7440-67-7	E420	0.00100	mg/L	0.00229	0.00212	0.00017	Diff <2x LOR	
otal Metals (QC Lo	ot: 610976)										
WR2200830-005	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (C	QC Lot: 603752)										
/A22B8907-014	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0048	0.0048	0.00002	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.0100	0.00991	1.35%	20%	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.138	0.140	1.20%	20%	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0399	0.0404	1.22%	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	0.234	0.237	0.900%	20%	
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000158	0.0000137	0.0000021	Diff <2x LOR	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	54.7	54.4	0.432%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00098	0.00096	0.00002	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00068	0.00067	0.00001	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	0.000365	0.000370	0.000005	Diff <2x LOR	
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0884	0.0829	6.40%	20%	
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	9.71	9.81	1.02%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00163	0.00171	4.73%	20%	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0107	0.0104	2.76%	20%	
			1 400-00-1		0.00000			0.010-		2070	

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ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
issolved Metals (QC Lot: 603752) - cont	inued									
'A22B8907-014	Anonymous	phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.535	0.588	9.34%	20%	
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	4.01	4.07	1.53%	20%	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00424	0.00429	1.02%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	10.7	10.8	0.368%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	75.0	75.2	0.264%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	1.24	1.18	4.58%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	45.8	45.4	0.829%	20%	
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000016	0.000014	0.000002	Diff <2x LOR	
		tin, dissolved	7440-31-5	E421	0.00010	mg/L	0.00639	0.00645	0.985%	20%	
		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	0.00251	0.00253	0.554%	20%	
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.0105	0.0105	0.572%	20%	
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0180	0.0190	5.74%	20%	
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
issolved Metals (OC L et: C027F2\										
VR2200850-004	SD MH-12 2022-08-08	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0025	0.0025	0.00003	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00021	0.00021	0.000003	Diff <2x LOR	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00087	0.00089	0.00002	Diff <2x LOR	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0792	0.0734	7.61%	20%	
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	<0.010	<0.010	0	Diff <2x LOR	
			7440-43-9	E421	0.0000050	_	0.0000416	0.0000468	0.0000052	Diff <2x LOR	
		cadmium, dissolved	7440-43-9	E421	0.050	mg/L	58.2	58.3	0.0000032	20%	_
		calcium, dissolved			0.00050	mg/L	<0.00050	<0.00050	0.113%	Diff <2x LOR	
		chromium, dissolved	7440-47-3	E421		mg/L					
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00033	0.00033	0.000002	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	0.0015	0.0014	0.00004	Diff <2x LOR	
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	6.01	6.13	1.85%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00078	0.00082	0.00004	Diff <2x LOR	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00124	0.00119	4.25%	20%	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	

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ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
issolved Metals ((QC Lot: 603753) - conti	nued									
VR2200850-004	SD_MH-12_2022-08-08	phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.446	0.439	0.007	Diff <2x LOR	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.668 µg/L	0.000680	1.70%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.35	4.34	0.164%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	1.01	0.984	2.50%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.227	0.222	2.41%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	2.99	3.26	0.27	Diff <2x LOR	
		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	0.000910	0.000911	0.0904%	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	0.0015	0.0016	0.00007	Diff <2x LOR	
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
issolved Metals(QC Lot: 610979)										
VR2200829-002	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
peciated Metals((QC Lot: 604157)										
(S2202967-008	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
peciated Metals (,	
/A22B8954-021	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	0.00060	0.00060	0	Diff <2x LOR	

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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.

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 603738)					
lkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 603739)					
conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 604403)					
olids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 604409)					
olids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 603740)					
promide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 603741)					
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 603742)					
itrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 603743)					
ulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 603782)					
mmonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Total Metals (QCLot: 603794)					
luminum, total	7429-90-5 E420	0.003	mg/L	<0.0030	
ntimony, total	7440-36-0 E420	0.0001	mg/L	<0.00010	
rsenic, total	7440-38-2 E420	0.0001	mg/L	<0.00010	
arium, total	7440-39-3 E420	0.0001	mg/L	<0.00010	
eryllium, total	7440-41-7 E420	0.00002	mg/L	<0.000020	
ismuth, total	7440-69-9 E420	0.00005	mg/L	<0.000050	
oron, total	7440-42-8 E420	0.01	mg/L	<0.010	
admium, total	7440-43-9 E420	0.000005	mg/L	<0.000050	
alcium, total	7440-70-2 E420	0.05	mg/L	<0.050	
hromium, total	7440-47-3 E420	0.0005	mg/L	<0.00050	
obalt, total	7440-48-4 E420	0.0001	mg/L	<0.00010	
opper, total	7440-50-8 E420	0.0005	mg/L	<0.00050	
on, total	7439-89-6 E420	0.01	mg/L	<0.010	
ead, total	7439-92-1 E420	0.00005	mg/L	<0.000050	
ithium, total	7439-93-2 E420	0.001	mg/L	<0.0010	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
otal Metals (QCLot: 603794) -	continued					
nagnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	
nolybdenum, 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	
ootassium, total	7440-09-7	E420	0.05	mg/L	<0.050	
elenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	
ilver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	
sodium, total	7440-23-5	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	
hallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	
in, total	7440-31-5	E420	0.0001	mg/L	<0.00010	
itanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	
ıranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	
anadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	
inc, total	7440-66-6	E420	0.003	mg/L	<0.0030	
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	
Fotal Metals (QCLot: 603802)						
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	
parium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	
peryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	
sismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	
poron, total	7440-42-8	E420	0.01	mg/L	<0.010	
admium, total	7440-43-9	E420	0.000005	mg/L	<0.000050	
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	
obalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	
ron, total	7439-89-6	E420	0.01	mg/L	<0.010	
ead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	
ithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	

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Analyte Total Metals (QCLot: 603802) - conti	CAS Number Method	LOR	Unit		
			- Omit	Result	Qualifier
manganese, total	nued				
	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	7440-23-5 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: 610976)					
mercury, total	7439-97-6 E508	0.000005	mg/L	<0.000050	
Dissolved Metals (QCLot: 603752)					
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	<0.000050	
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	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 603752	r) - continued					
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	<0.0050	
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	
nolybdenum, 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	
ootassium, 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	7440-23-5	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	
hallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	
n, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	
itanium, dissolved	7440-32-6	E421	0.0003	mg/L	<0.00030	
ranium, dissolved	7440-61-1	E421	0.00001	mg/L	<0.000010	
anadium, dissolved	7440-62-2	E421	0.0005	mg/L	<0.00050	
inc, dissolved	7440-66-6	E421	0.001	mg/L	<0.0010	
irconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 603753	3)					
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	<0.0010	
intimony, dissolved	7440-36-0	E421	0.0001	mg/L	<0.00010	
rsenic, dissolved	7440-38-2	E421	0.0001	mg/L	<0.00010	
arium, dissolved	7440-39-3	E421	0.0001	mg/L	<0.00010	
peryllium, dissolved	7440-41-7	E421	0.00002	mg/L	<0.000020	
sismuth, dissolved	7440-69-9	E421	0.00005	mg/L	<0.000050	
oron, dissolved	7440-42-8	E421	0.01	mg/L	<0.010	
admium, dissolved	7440-43-9	E421	0.000005	mg/L	<0.0000050	
alcium, dissolved	7440-70-2	E421	0.05	mg/L	<0.050	
hromium, dissolved	7440-47-3	E421	0.0005	mg/L	<0.00050	
obalt, dissolved	7440-48-4	E421	0.0001	mg/L	<0.00010	
copper, dissolved	7440-50-8	E421	0.0002	mg/L	<0.00020	
ron, dissolved	7439-89-6	E421	0.01	mg/L	<0.010	
ead, dissolved	7439-92-1	E421	0.00005	mg/L	<0.000050	
ithium, dissolved	7439-93-2	E421	0.001	mg/L	<0.0010	
magnesium, dissolved	7439-95-4		0.005	mg/L	<0.0050	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 603753)	continued					
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	
nolybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	
ickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	
hosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	
ootassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	
elenium, 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	
odium, dissolved	7440-23-5	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	
hallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	
in, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	
itanium, 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	
rirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 610979)						
nercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.000050	
Speciated Metals (QCLot: 604157)						
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	
Speciated Metals (QCLot: 605956)						
hromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	

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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: 603737)										
рН		E108		pH units	7 pH units	100	98.0	102		
Physical Tests (QCLot: 603738)										
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	109	85.0	115		
Physical Tests (QCLot: 603739)									1	
conductivity		E100	1	μS/cm	146.9 μS/cm	99.2	90.0	110		
Physical Tests (QCLot: 604403)										
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	106	85.0	115		
Physical Tests (QCLot: 604409)										
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	106	85.0	115		
				-						
Anions and Nutrients (QCLot: 603740)										
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115		
Anione and Nutrients (OCL at C00744)					J 3					
Anions and Nutrients (QCLot: 603741) nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	98.8	90.0	110		
				3,	2.0 mg/2	00.0				
Anions and Nutrients (QCLot: 603742) nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.8	90.0	110		
,	71101 00 0	2200102 2	0.001	9/2	0.5 mg/L	33.0	00.0			
Anions and Nutrients (QCLot: 603743) sulfate (as SO4)	14808-79-8	E235 SO4	0.3	mg/L	100 mg/L	99.8	90.0	110		
,	14000-73-0	L200.004	0.5	mg/L	100 Hig/L	99.0	30.0	110		
Anions and Nutrients (QCLot: 603782)	7664-41-7	E200	0.005		0.0 #	400	85.0	115		
ammonia, total (as N)	7004-41-7	E290	0.005	mg/L	0.2 mg/L	102	65.0	115		
Total Metals (QCLot: 603794)	7429-90-5	E400	0.000			100	00.0	400	ı	
aluminum, total			0.003	mg/L	2 mg/L	103	80.0	120 120		
antimony, total	7440-36-0		0.0001	mg/L	1 mg/L	103	80.0			
arsenic, total	7440-38-2		0.0001	mg/L	1 mg/L	104	80.0	120		
barium, total	7440-39-3		0.0001	mg/L	0.25 mg/L	106	80.0	120		
beryllium, total	7440-41-7		0.00002	mg/L	0.1 mg/L	102	80.0	120		
bismuth, total	7440-69-9		0.00005	mg/L	1 mg/L	104	80.0	120		
boron, total	7440-42-8		0.01	mg/L	1 mg/L	100	80.0	120		
cadmium, total	7440-43-9		0.000005	mg/L	0.1 mg/L	101	80.0	120		
calcium, total	7440-70-2		0.05	mg/L	50 mg/L	102	80.0	120		
chromium, total	7440-47-3		0.0005	mg/L	0.25 mg/L	101	80.0	120		
cobalt, total	7440-48-4		0.0001	mg/L	0.25 mg/L	99.9	80.0	120		
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.8	80.0	120		

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No. Morias QCLot: 603794) - continued 7439876 2120 0.01 mg/L	Sub-Matrix: Water	b-Matrix: Water						Laboratory Control Sample (LCS) Report					
No. Morias QCLot: 603794) - continued 7439876 2120 0.01 mg/L						Spike	Recovery (%)	Recovery	Limits (%)				
On, Dotal 74369-80 6420 620 0.01 mg/L 1 mg/L 1 164 80.0 12	Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier			
On, Dotal 74369-80 6420 620 0.01 mg/L 1 mg/L 1 164 80.0 12	Total Metals (QCLot: 603794) - continued												
thom, noted 749-94-22 E2D	iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120				
Page Page	lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120				
Angenese, total 7496-86 5 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120	lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	102	80.0	120				
nolybdenum, total	magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	102	80.0	120				
Address Addr	manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120				
Page Page	molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	105	80.0	120				
Description Communication	nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120				
Part Part	phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	97.9	80.0	120				
lilicon, total 7440-21-3 E420	potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	107	80.0	120				
ilver, total 7440-22-4	selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	104	80.0	120				
odium, total 7440-23-5	silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	109	80.0	120				
trontium, total 7440-244 E420	silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	95.6	80.0	120				
utifur, total 7704-34-9 k40-28-0 k420 6420 0.5 mg/L 55 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 103 mg/L 80.0 120 mg/L	sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	109	80.0	120				
hallium, total 7440-28-0	strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	101	80.0	120				
n, total 7440-31-5 E420 0.0001 mg/L 0.5 mg/L 102 80.0 120	sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	102	80.0	120				
tanium, total 7440-32-6 E420 0.0003 mg/L 0.25 mg/L 100.0 80.0 120	thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	103	80.0	120				
ranium, total 7440-61-1	tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120				
anadum, total 7440-62-2 E420 0.0005 mg/L 0.5 mg/L 103 80.0 120	titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100.0	80.0	120				
inc, total 7440-66-6 red 20 0.003 mg/L 0.5 mg/L 100 80.0 120	uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120				
Fotal Metals (QCLot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotals	vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120				
Total Metals (QCLot: 603802) Iuluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 96.6 80.0 120	zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	100	80.0	120				
Huminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 96.6 80.0 120	zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.8	80.0	120				
Huminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 96.6 80.0 120	Total Metals (OCI of: 603802)									ı			
ntimony, total 7440-36-0 E420 0.0001 mg/L 1 mg/L 97.8 80.0 120	aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	96.6	80.0	120				
reseric, total 7440-38-2 E420 0.0001 mg/L 1 mg/L 95.4 80.0 120	antimony, total	7440-36-0	E420	0.0001		_		80.0	120				
radium, total 7440-39-3 E420 0.0001 mg/L 0.25 mg/L 98.9 80.0 120	arsenic, total	7440-38-2	E420	0.0001	_	_		80.0	120				
recyllium, total 7440-41-7 E420 0.00002 mg/L 0.1 mg/L 97.8 80.0 120 120 mg/L 12	barium, total	7440-39-3	E420	0.0001	_	_		80.0	120				
ismuth, total 7440-69-9 E420 0.00005 mg/L 1 mg/L 92.4 80.0 120 admitum, total 7440-42-8 E420 0.00005 mg/L 0.1 mg/L 94.8 80.0 120 admitum, total 7440-43-9 E420 0.000005 mg/L 0.1 mg/L 94.8 80.0 120 admitum, total 7440-70-2 E420 0.05 mg/L 50 mg/L 96.0 80.0 120 admitum, total 7440-47-3 E420 0.0005 mg/L 0.25 mg/L 91.6 80.0 120 admitum, total 7440-48-4 E420 0.0001 mg/L 0.25 mg/L 94.7 80.0 120 admitum, total 7440-48-4 E420 0.0001 mg/L 0.25 mg/L 93.1 80.0 120 admitum, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 admitum, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total	beryllium, total	7440-41-7	E420	0.00002	_			80.0	120				
oron, total 7440-42-8 E420 0.01 mg/L 1 mg/L 88.8 80.0 120	bismuth, total	7440-69-9	E420	0.00005	_	_		80.0	120				
admium, total 7440-43-9 E420 0.000005 mg/L 0.1 mg/L 94.8 80.0 120 alcium, total 7440-70-2 E420 0.05 mg/L 50 mg/L 96.0 80.0 120 thromium, total 7440-47-3 E420 0.0005 mg/L 0.25 mg/L 91.6 80.0 120 thromium, total 7440-48-4 E420 0.0001 mg/L 0.25 mg/L 94.7 80.0 120 thromium, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 93.1 80.0 120 thromium, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 thromium, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 thromium, total 7439-89-6 E420 0.01 mg/L 1 mg/L 97.8 80.0 120	boron, total	7440-42-8	E420	0.01	mg/L	_		80.0	120				
ralcium, total 7440-70-2 E420 0.05 mg/L 50 mg/L 96.0 80.0 120 thromium, total 7440-47-3 E420 0.0005 mg/L 0.25 mg/L 91.6 80.0 120 thromium, total 91.6 total 92.5 mg/L 0.25 mg/L 92.5 mg/L 94.7 80.0 120 thromium, total 92.5 mg/L 0.25 mg/L 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.7 80.0 120 t	cadmium, total	7440-43-9	E420	0.000005		_		80.0	120				
hromium, total 7440-47-3 E420 0.0005 mg/L 0.25 mg/L 91.6 80.0 120 obalt, total 940-48-4 E420 0.0001 mg/L 0.25 mg/L 94.7 80.0 120 opper, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 93.1 80.0 120 on, total 97.8 80.0 120 on, total 97.8 80.0 120	calcium, total				_	_			120				
obalt, total 7440-48-4 E420 0.0001 mg/L 0.25 mg/L 94.7 80.0 120 opper, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 93.1 80.0 120 ron, total 7439-89-6 E420 0.01 mg/L 1 mg/L 97.8 80.0 120	chromium, total	7440-47-3	E420	0.0005		_		80.0	120				
poper, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 93.1 80.0 120 ron, total 7439-89-6 E420 0.01 mg/L 1 mg/L 97.8 80.0 120	cobalt, total				_	_							
ron, total 7439-89-6 E420 0.01 mg/L 1 mg/L 97.8 80.0 120	copper, total				_	_							
	iron, total					_							
	lead, total			0.00005	mg/L	0.5 mg/L	92.6	80.0	120				

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ub-Matrix: Water	Laboratory Control Sample (LCS) Report							
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifi
otal Metals (QCLot: 603802) - continued								
hium, total	7439-93-2 E420	0.001	mg/L	0.25 mg/L	97.5	80.0	120	
nagnesium, total	7439-95-4 E420	0.005	mg/L	50 mg/L	95.8	80.0	120	
anganese, total	7439-96-5 E420	0.0001	mg/L	0.25 mg/L	93.2	80.0	120	
olybdenum, total	7439-98-7 E420	0.00005	mg/L	0.25 mg/L	95.1	80.0	120	
ickel, total	7440-02-0 E420	0.0005	mg/L	0.5 mg/L	93.3	80.0	120	
hosphorus, total	7723-14-0 E420	0.05	mg/L	10 mg/L	89.0	80.0	120	
otassium, total	7440-09-7 E420	0.05	mg/L	50 mg/L	98.0	80.0	120	
elenium, total	7782-49-2 E420	0.00005	mg/L	1 mg/L	95.7	80.0	120	
licon, total	7440-21-3 E420	0.1	mg/L	10 mg/L	103	80.0	120	
lver, total	7440-22-4 E420	0.00001	mg/L	0.1 mg/L	87.5	80.0	120	
odium, total	7440-23-5 E420	0.05	mg/L	50 mg/L	94.9	80.0	120	
rontium, total	7440-24-6 E420	0.0002	mg/L	0.25 mg/L	98.9	80.0	120	
ulfur, total	7704-34-9 E420	0.5	mg/L	50 mg/L	86.3	80.0	120	
nallium, total	7440-28-0 E420	0.00001	mg/L	1 mg/L	94.2	80.0	120	
n, total	7440-31-5 E420	0.0001	mg/L	0.5 mg/L	93.8	80.0	120	
anium, total	7440-32-6 E420	0.0003	mg/L	0.25 mg/L	93.2	80.0	120	
ranium, total	7440-61-1 E420	0.00001	mg/L	0.005 mg/L	97.0	80.0	120	
anadium, total	7440-62-2 E420	0.0005	mg/L	0.5 mg/L	95.6	80.0	120	
nc, total	7440-66-6 E420	0.003	mg/L	0.5 mg/L	94.8	80.0	120	
rconium, total	7440-67-7 E420	0.0002	mg/L	0.1 mg/L	93.7	80.0	120	
otal Metals (QCLot: 610976)								
ercury, total	7439-97-6 E508	0.000005	mg/L	0.0001 mg/L	102	80.0	120	
•			Ū	,				
bissolved Metals (QCLot: 603752)								
luminum, dissolved	7429-90-5 E421	0.001	mg/L	2 mg/L	97.2	80.0	120	
ntimony, dissolved	7440-36-0 E421	0.0001	mg/L	1 mg/L	100	80.0	120	
rsenic, dissolved	7440-38-2 E421	0.0001	mg/L	1 mg/L	95.9	80.0	120	
arium, dissolved	7440-39-3 E421	0.0001	mg/L	0.25 mg/L	95.7	80.0	120	
eryllium, dissolved	7440-41-7 E421	0.00002	mg/L	0.1 mg/L	98.2	80.0	120	
ismuth, dissolved	7440-69-9 E421	0.00005	mg/L	1 mg/L	89.3	80.0	120	
oron, dissolved	7440-42-8 E421	0.01	mg/L	1 mg/L	93.2	80.0	120	
admium, dissolved	7440-43-9 E421	0.000005	mg/L	0.1 mg/L	93.3	80.0	120	
alcium, dissolved	7440-70-2 E421	0.05	mg/L	50 mg/L	94.5	80.0	120	
nromium, dissolved	7440-47-3 E421	0.0005	mg/L	0.25 mg/L	93.4	80.0	120	
obalt, dissolved	7440-48-4 E421	0.0001	mg/L	0.25 mg/L	94.0	80.0	120	
opper, dissolved	7440-50-8 E421	0.0002	mg/L	0.25 mg/L	96.2	80.0	120	
ppei, uissoiveu	7770-00-0 1721	0.0002	1119/1	0.25 mg/L	90.2	00.0	120	

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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: 603752) - continued								
lead, dissolved 7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.5	80.0	120	
lithium, dissolved 7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.3	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	96.0	80.0	120	
molybdenum, dissolved 7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	
nickel, dissolved 7440-02-0	E421	0.0005	mg/L	0.5 mg/L	94.4	80.0	120	
phosphorus, dissolved 7723-14-0	E421	0.05	mg/L	10 mg/L	101	80.0	120	
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	92.0	80.0	120	
silicon, dissolved 7440-21-3	E421	0.05	mg/L	10 mg/L	94.2	80.0	120	
silver, dissolved 7440-22-4	E421	0.00001	mg/L	0.1 mg/L	92.7	80.0	120	
sodium, dissolved 7440-23-5	E421	0.05	mg/L	50 mg/L	95.0	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	94.8	80.0	120	
thallium, dissolved 7440-28-0	E421	0.00001	mg/L	1 mg/L	94.0	80.0	120	
tin, dissolved 7440-31-5	E421	0.0001	mg/L	0.5 mg/L	93.3	80.0	120	
titanium, dissolved 7440-32-6	E421	0.0003	mg/L	0.25 mg/L	93.3	80.0	120	
uranium, dissolved 7440-61-1	E421	0.00001	mg/L	0.005 mg/L	94.9	80.0	120	
vanadium, dissolved 7440-62-2	E421	0.0005	mg/L	0.5 mg/L	96.0	80.0	120	
zinc, dissolved 7440-66-6	E421	0.001	mg/L	0.5 mg/L	94.1	80.0	120	
zirconium, dissolved 7440-67-7	E421	0.0002	mg/L	0.1 mg/L	98.0	80.0	120	
Dissolved Metals (QCLot: 603753)								
aluminum, dissolved 7429-90-5	E421	0.001	mg/L	2 mg/L	94.9	80.0	120	
antimony, dissolved 7440-36-0	E421	0.0001	mg/L	1 mg/L	96.4	80.0	120	
arsenic, dissolved 7440-38-2	E421	0.0001	mg/L	1 mg/L	93.6	80.0	120	
barium, dissolved 7440-39-3	E421	0.0001	mg/L	0.25 mg/L	93.3	80.0	120	
beryllium, dissolved 7440-41-7	E421	0.00002	mg/L	0.1 mg/L	92.4	80.0	120	
bismuth, dissolved 7440-69-9	E421	0.00005	mg/L	1 mg/L	97.8	80.0	120	
boron, dissolved 7440-42-8	E421	0.01	mg/L	1 mg/L	90.4	80.0	120	
cadmium, dissolved 7440-43-9	E421	0.000005	mg/L	0.1 mg/L	97.6	80.0	120	
calcium, dissolved 7440-70-2	E421	0.05	mg/L	50 mg/L	94.4	80.0	120	
chromium, dissolved 7440-47-3	E421	0.0005	mg/L	0.25 mg/L	92.4	80.0	120	
cobalt, dissolved 7440-48-4	E421	0.0001	mg/L	0.25 mg/L	93.6	80.0	120	
copper, dissolved 7440-50-8	E421	0.0002	mg/L	0.25 mg/L	94.1	80.0	120	
iron, dissolved 7439-89-6	E421	0.01	mg/L	1 mg/L	106	80.0	120	
lead, dissolved 7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.7	80.0	120	
lithium, dissolved 7439-93-2	E421	0.001	mg/L	0.25 mg/L	91.9	80.0	120	

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Sub-Matrix: Water	ub-Matrix: Water					Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	/ Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 603753) - cor	ntinued								
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	95.8	80.0	120	
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.3	80.0	120	
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	94.2	80.0	120	
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.4	80.0	120	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	95.0	80.0	120	
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	94.9	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	96.4	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	87.9	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	94.7	80.0	120	
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	96.2	80.0	120	
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	84.2	80.0	120	
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	93.5	80.0	120	
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	91.4	80.0	120	
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	91.0	80.0	120	
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	100	80.0	120	
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	95.1	80.0	120	
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.2	80.0	120	
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	92.2	80.0	120	
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	103	80.0	120	
Speciated Metals (QCLot: 604157)									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	99.3	90.0	110	
Speciated Metals (QCLot: 605956)									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	99.8	90.0	110	

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 : WR2200850-AA

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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						
					Spi	ke	Recovery (%)	Recovery	Limits (%)		
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie	
	ents (QCLot: 603740)										
WR2200853-002	Anonymous	bromide	24959-67-9	E235.Br-L	0.482 mg/L	0.5 mg/L	96.3	75.0	125		
nions and Nutri	ents (QCLot: 603741)									1	
WR2200853-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.34 mg/L	2.5 mg/L	93.6	75.0	125		
nions and Nutri	ents (QCLot: 603742)										
WR2200853-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.472 mg/L	0.5 mg/L	94.3	75.0	125		
nions and Nutri	ents (QCLot: 603743)										
WR2200853-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	94.8 mg/L	100 mg/L	94.8	75.0	125		
nions and Nutri	ents (QCLot: 603782)					-					
WR2200850-002	SD_MH-04_2022-08-08	ammonia, total (as N)	7664-41-7	E298	0.103 mg/L	0.1 mg/L	103	75.0	125		
otal Metals (QC	Lot: 603794)				31100 1119/2	g					
VR2200850-008	SD MH-29 2022-08-08	aluminum, total	7429-90-5	E420	0.190 mg/L	0.2 mg/L	94.9	70.0	130		
		antimony, total	7429-90-3	E420	0.0194 mg/L	0.2 mg/L	97.2	70.0	130		
		arsenic, total	7440-38-2	E420	0.0202 mg/L	0.02 mg/L	101	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	0.0387 mg/L	0.02 mg/L 0.04 mg/L	96.8	70.0	130		
		bismuth, total	7440-69-9	E420	0.00936 mg/L	0.04 mg/L 0.01 mg/L	93.6	70.0	130		
		boron, total	7440-42-8		_	_		70.0	130		
		cadmium, total	7440-42-8	E420	0.100 mg/L	0.1 mg/L	99.6				
		calcium, total		E420	0.00388 mg/L	0.004 mg/L	96.9	70.0	130		
		chromium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130		
		conomium, total	7440-47-3	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130		
		,	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130		
		copper, total	7440-50-8	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130		
		lead, total	7439-89-6	E420	1.91 mg/L	2 mg/L	95.7	70.0	130		
			7439-92-1	E420	0.0187 mg/L	0.02 mg/L	93.5	70.0	130		
		lithium, total	7439-93-2	E420	0.0978 mg/L	0.1 mg/L	97.8	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	0.0195 mg/L	0.02 mg/L	97.4	70.0	130		
		molybdenum, total	7439-98-7	E420	0.0199 mg/L	0.02 mg/L	99.5	70.0	130		
		nickel, total	7440-02-0	E420	0.0378 mg/L	0.04 mg/L	94.6	70.0	130		
		phosphorus, total	7723-14-0	E420	9.41 mg/L	10 mg/L	94.1	70.0	130		
		potassium, total	7440-09-7	E420	4.07 mg/L	4 mg/L	102	70.0	130		

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b-Matrix: Water						Matrix Spike (MS) Report					
					Spi	ke	Recovery (%)	Recover	y Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
	Lot: 603794) - continu	ed									
WR2200850-008	SD_MH-29_2022-08-08	selenium, total	7782-49-2	E420	0.0432 mg/L	0.04 mg/L	108	70.0	130		
		silicon, total	7440-21-3	E420	9.54 mg/L	10 mg/L	95.4	70.0	130		
		silver, total	7440-22-4	E420	0.00372 mg/L	0.004 mg/L	93.1	70.0	130		
		sodium, total	7440-23-5	E420	1.98 mg/L	2 mg/L	98.8	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	21.2 mg/L	20 mg/L	106	70.0	130		
		thallium, total	7440-28-0	E420	0.00364 mg/L	0.004 mg/L	91.0	70.0	130		
		tin, total	7440-31-5	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130		
		titanium, total	7440-32-6	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130		
		uranium, total	7440-61-1	E420	0.00369 mg/L	0.004 mg/L	92.3	70.0	130		
		vanadium, total	7440-62-2	E420	0.0983 mg/L	0.1 mg/L	98.3	70.0	130		
		zinc, total	7440-66-6	E420	0.375 mg/L	0.4 mg/L	93.7	70.0	130		
		zirconium, total	7440-67-7	E420	0.0385 mg/L	0.04 mg/L	96.4	70.0	130		
otal Metals (QC	Lot: 603802)										
/A22B8907-022	Anonymous	aluminum, total	7429-90-5	E420	ND mg/L	0.4 mg/L	ND	70.0	130		
		antimony, total	7440-36-0	E420	0.0404 mg/L	0.04 mg/L	101	70.0	130		
		arsenic, total	7440-38-2	E420	0.0406 mg/L	0.04 mg/L	102	70.0	130		
		barium, total	7440-39-3	E420	ND mg/L	0.04 mg/L	ND	70.0	130		
		beryllium, total	7440-41-7	E420	0.0780 mg/L	0.08 mg/L	97.5	70.0	130		
		bismuth, total	7440-69-9	E420	0.0184 mg/L	0.02 mg/L	92.3	70.0	130		
		boron, total	7440-42-8	E420	ND mg/L	0.2 mg/L	ND	70.0	130		
		cadmium, total	7440-43-9	E420	0.00778 mg/L	0.008 mg/L	97.3	70.0	130		
		calcium, total	7440-70-2	E420	ND mg/L	8 mg/L	ND	70.0	130		
		chromium, total	7440-47-3	E420	0.0762 mg/L	0.08 mg/L	95.3	70.0	130		
		cobalt, total	7440-48-4	E420	0.0386 mg/L	0.04 mg/L	96.5	70.0	130		
		copper, total	7440-50-8	E420	0.0366 mg/L	0.04 mg/L	91.5	70.0	130		
		iron, total	7439-89-6	E420	3.80 mg/L	4 mg/L	95.0	70.0	130		
		lead, total	7439-92-1	E420	0.0359 mg/L	0.04 mg/L	89.6	70.0	130		
		lithium, total	7439-93-2	E420	0.191 mg/L	0.2 mg/L	95.5	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	0.0387 mg/L	0.04 mg/L	96.7	70.0	130		
		molybdenum, total	7439-98-7	E420	0.0418 mg/L	0.04 mg/L	105	70.0	130		
		nickel, total	7440-02-0	E420	0.0752 mg/L	0.08 mg/L	94.0	70.0	130		
		phosphorus, total	7723-14-0	E420	20.6 mg/L	20 mg/L	103	70.0	130		
		potassium, total	7440-09-7	E420	7.75 mg/L	8 mg/L	96.9	70.0	130		
	T	selenium, total	7782-49-2	E420	0.0854 mg/L	0.08 mg/L	107	70.0	130		

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ub-Matrix: Water					Matrix Spike (MS) Report						
					Spi	ke	Recovery (%)	Recovery	/ Limits (%)		
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
	CLot: 603802) - conti	inued									
VA22B8907-022	Anonymous	silicon, total	7440-21-3	E420	19.2 mg/L	20 mg/L	95.9	70.0	130		
		silver, total	7440-22-4	E420	0.00754 mg/L	0.008 mg/L	94.3	70.0	130		
		sodium, total	7440-23-5	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	0.00714 mg/L	0.008 mg/L	89.2	70.0	130		
		tin, total	7440-31-5	E420	0.0405 mg/L	0.04 mg/L	101	70.0	130		
		titanium, total	7440-32-6	E420	0.0816 mg/L	0.08 mg/L	102	70.0	130		
		uranium, total	7440-61-1	E420	0.00876 mg/L	0.008 mg/L	109	70.0	130		
		vanadium, total	7440-62-2	E420	0.204 mg/L	0.2 mg/L	102	70.0	130		
		zinc, total	7440-66-6	E420	0.736 mg/L	0.8 mg/L	92.1	70.0	130		
		zirconium, total	7440-67-7	E420	0.0799 mg/L	0.08 mg/L	99.8	70.0	130		
Total Metals (QC	Lot: 610976)										
WR2200850-001	SD_MH-02_2022-08-08	mercury, total	7439-97-6	E508	0.000103 mg/L	0.0001 mg/L	103	70.0	130		
issolved Metals	(QCLot: 603752)										
VA22B8907-015	Anonymous	aluminum, dissolved	7429-90-5	E421	ND mg/L	0.2 mg/L	ND	70.0	130		
		antimony, dissolved	7440-36-0	E421	ND mg/L	0.02 mg/L	ND	70.0	130		
		arsenic, dissolved	7440-38-2	E421	0.0198 mg/L	0.02 mg/L	99.2	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	0.0423 mg/L	0.04 mg/L	106	70.0	130		
		bismuth, dissolved	7440-69-9	E421	0.00843 mg/L	0.01 mg/L	84.3	70.0	130		
		boron, dissolved	7440-42-8	E421	ND mg/L	0.1 mg/L	ND	70.0	130		
		cadmium, dissolved	7440-43-9	E421	0.00385 mg/L	0.004 mg/L	96.3	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	0.0361 mg/L	0.04 mg/L	90.4	70.0	130		
		cobalt, dissolved	7440-48-4	E421	0.0193 mg/L	0.02 mg/L	96.6	70.0	130		
		copper, dissolved	7440-50-8	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130		
		iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	95.2	70.0	130		
		lead, dissolved	7439-92-1	E421	0.0188 mg/L	0.02 mg/L	93.9	70.0	130		
		lithium, dissolved	7439-93-2	E421	0.104 mg/L	0.1 mg/L	104	70.0	130		
		magnesium, dissolved	7439-95-4	E421	1.03 mg/L	1 mg/L	103	70.0	130		
		manganese, dissolved	7439-96-5	E421	0.0196 mg/L	0.02 mg/L	98.1	70.0	130		
		molybdenum, dissolved	7439-98-7	E421	ND mg/L	0.02 mg/L	ND	70.0	130		
		nickel, dissolved	7440-02-0	E421	0.0378 mg/L	0.04 mg/L	94.6	70.0	130		
		phosphorus, dissolved	7723-14-0	E421	11.2 mg/L	10 mg/L	112	70.0	130		
	I	potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130		

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ıb-Matrix: Water					Matrix Spike (MS) Report					
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	(QCLot: 603752) - co	ntinued								
VA22B8907-015	Anonymous	selenium, dissolved	7782-49-2	E421	0.0408 mg/L	0.04 mg/L	102	70.0	130	
		silicon, dissolved	7440-21-3	E421	9.88 mg/L	10 mg/L	98.8	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00403 mg/L	0.004 mg/L	101	70.0	130	
		sodium, dissolved	7440-23-5	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	0.00378 mg/L	0.004 mg/L	94.5	70.0	130	
		tin, dissolved	7440-31-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0419 mg/L	0.04 mg/L	105	70.0	130	
		uranium, dissolved	7440-61-1	E421	0.00391 mg/L	0.004 mg/L	97.7	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.100 mg/L	0.1 mg/L	100	70.0	130	
		zinc, dissolved	7440-66-6	E421	0.392 mg/L	0.4 mg/L	98.0	70.0	130	
		zirconium, dissolved	7440-67-7	E421	0.0440 mg/L	0.04 mg/L	110	70.0	130	
Dissolved Metals	(QCLot: 603753)									
WR2200850-005	SD_MH-13_2022-08-08	aluminum, dissolved	7429-90-5	E421	0.202 mg/L	0.2 mg/L	101	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0194 mg/L	0.02 mg/L	97.2	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	103	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	0.0404 mg/L	0.04 mg/L	101	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00889 mg/L	0.01 mg/L	88.9	70.0	130	
		boron, dissolved	7440-42-8	E421	0.097 mg/L	0.1 mg/L	96.9	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00412 mg/L	0.004 mg/L	103	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	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130	
		iron, dissolved	7439-89-6	E421	1.96 mg/L	2 mg/L	97.9	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.0998 mg/L	0.1 mg/L	99.8	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	0.0198 mg/L	0.02 mg/L	98.9	70.0	130	
		molybdenum, dissolved	7439-98-7	E421	0.0196 mg/L	0.02 mg/L	98.1	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0384 mg/L	0.04 mg/L	96.0	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	10.0 mg/L	10 mg/L	100	70.0	130	
		potassium, dissolved	7440-09-7	E421	3.93 mg/L	4 mg/L	98.3	70.0	130	
	I	selenium, dissolved	7782-49-2	E421	0.0437 mg/L	0.04 mg/L	109	70.0	130	

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Sub-Matrix: Water	ub-Matrix: Water						Matrix Spike (MS) Report						
					Spi	ke	Recovery (%)	Recovery Limits (%)					
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier			
Dissolved Metals	(QCLot: 603753) - cont	tinued											
WR2200850-005	SD_MH-13_2022-08-08	silicon, dissolved	7440-21-3	E421	9.78 mg/L	10 mg/L	97.8	70.0	130				
		silver, dissolved	7440-22-4	E421	0.00381 mg/L	0.004 mg/L	95.2	70.0	130				
		sodium, dissolved	7440-23-5	E421	1.91 mg/L	2 mg/L	95.5	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	22.0 mg/L	20 mg/L	110	70.0	130				
		thallium, dissolved	7440-28-0	E421	0.00370 mg/L	0.004 mg/L	92.5	70.0	130				
		tin, dissolved	7440-31-5	E421	0.0189 mg/L	0.02 mg/L	94.5	70.0	130				
		titanium, dissolved	7440-32-6	E421	0.0415 mg/L	0.04 mg/L	104	70.0	130				
		uranium, dissolved	7440-61-1	E421	0.00402 mg/L	0.004 mg/L	100	70.0	130				
		vanadium, dissolved	7440-62-2	E421	0.100 mg/L	0.1 mg/L	100	70.0	130				
		zinc, dissolved	7440-66-6	E421	0.392 mg/L	0.4 mg/L	98.1	70.0	130				
		zirconium, dissolved	7440-67-7	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130				
Dissolved Metals	(QCLot: 610979)												
WR2200829-003	Anonymous	mercury, dissolved	7439-97-6	E509	0.000103 mg/L	0.0001 mg/L	103	70.0	130				
Speciated Metals	(QCLot: 604157)												
VA22B8762-001	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.256 mg/L	0.25 mg/L	102	85.0	115				
Speciated Metals	(QCLot: 605956)												
VA22B8954-022	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.256 mg/L	0.25 mg/L	102	85.0	115				



CERTIFICATE OF ANALYSIS

Work Order : WR2200850-AB

Client : Teck Metals Ltd
Contact : Michelle Unger

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : 250 427 8404
Project : Sa Dena Hes

PO : 10289 C-O-C number · ----

Sampler : ---

Site : ECA22YT00199

Quote number : VA22-TECK150-001

No. of samples received : 5
No. of samples analysed : 5

Page : 1 of 4

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 11-Aug-2022 16:45

Date Analysis Commenced : 19-Aug-2022

Issue Date : 23-Aug-2022 14:11

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

Janice Leung

Kim Jensen

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

SignatoriesPositionLaboratory DepartmentHamideh MoradiAnalystMetals, Burnaby, British ColumbiaHedy LaiTeam Leader - InorganicsInorganics, Saskatoon, Saskatchewan

Supervisor - Organics Instrumentation Organics, Burnaby, British Columbia

Department Manager - Metals Metals, Burnaby, British Columbia

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Work Order : WR2200850-AB
Client : Teck Metals Ltd
Project : Sa Dena Hes



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
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
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference,
	colour, turbidity).

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Analytical Results

Sub-Matrix: Sediment		CI	ient sample ID	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202	SD_MH-29_202
(Matrix: Soil/Solid)				2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
		Client samp	ling date / time	08-Aug-2022	10-Aug-2022	09-Aug-2022	10-Aug-2022	10-Aug-2022
Analyte CAS Number	Method	LOR	Unit	WR2200850-012	WR2200850-013	WR2200850-014	WR2200850-015	WR2200850-016
				Result	Result	Result	Result	Result
Physical Tests								
pH (1:2 soil:water)	E108	0.10	pH units	8.25	8.55	8.83	8.30	8.50
Particle Size								
clay (<0.004mm)	EC184E	1.0	%	1.6	<1.0	<1.0	3.0	1.0
silt (0.063mm - 0.004mm)	EC184E	1.0	%	10.3	5.2	8.9	16.4	4.8
sand (2.0mm - 0.063mm)	EC184E	1.0	%	72.4	76.0	74.1	67.0	81.0
gravel (>2mm)	EC184E	1.0	%	15.7	18.8	17.0	13.6	13.2
Organic / Inorganic Carbon								
carbon, total organic [TOC]	EC356	0.050	%	1.12	0.422	0.400	1.67	0.563
Metals								
aluminum 7429-90-5	E440	50	mg/kg	15200	11700	9950	7540	11400
antimony 7440-36-0	E440	0.10	mg/kg	1.60	1.13	1.76	1.25	0.79
arsenic 7440-38-2	E440	0.10	mg/kg	18.7	14.8	14.1	17.1	18.0
barium 7440-39-3	E440	0.50	mg/kg	66.8	118	108	350	125
beryllium 7440-41-7	E440	0.10	mg/kg	0.56	0.32	0.39	0.38	0.30
bismuth 7440-69-9	E440	0.20	mg/kg	0.21	<0.20	<0.20	<0.20	<0.20
boron 7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
cadmium 7440-43-9	E440	0.020	mg/kg	4.51	1.82	1.09	1.68	2.66
calcium 7440-70-2	E440	50	mg/kg	6100	12900	8130	8550	8230
chromium 7440-47-3	E440	0.50	mg/kg	28.4	18.2	21.1	19.1	17.4
cobalt 7440-48-4	E440	0.10	mg/kg	11.5	8.04	7.03	8.84	9.06
copper 7440-50-8	E440	0.50	mg/kg	18.8	13.4	15.8	18.4	9.39
iron 7439-89-6	E440	50	mg/kg	28000	22100	19500	25200	24100
lead 7439-92-1	E440	0.50	mg/kg	158	233	77.8	37.5	31.5
lithium 7439-93-2	E440	2.0	mg/kg	34.6	23.8	20.7	12.1	24.1
magnesium 7439-95-4	E440	20	mg/kg	9910	7740	6620	4520	8210
manganese 7439-96-5	E440	1.0	mg/kg	550	862	296	1170	1180
mercury 7439-97-6	E510	0.0050	mg/kg	0.0143	0.0140	0.0101	0.0549	0.0162
molybdenum 7439-98-7	E440	0.10	mg/kg	1.09	1.11	2.16	1.80	1.04
nickel 7440-02-0	E440	0.50	mg/kg	27.6	21.5	24.1	28.9	21.3
phosphorus 7723-14-0	E440	50	mg/kg	594	796	1050	1440	733
potassium 7440-09-7	E440	100	mg/kg	580	450	540	700	330

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Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Sediment			C	lient sample ID	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202	SD_MH-29_202
(Matrix: Soil/Solid)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client samp	oling date / time	08-Aug-2022	10-Aug-2022	09-Aug-2022	10-Aug-2022	10-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-012	WR2200850-013	WR2200850-014	WR2200850-015	WR2200850-016
					Result	Result	Result	Result	Result
Metals									
selenium	7782-49-2	E440	0.20	mg/kg	0.37	0.30	0.39	1.59	0.32
silver	7440-22-4	E440	0.10	mg/kg	0.15	0.11	0.33	0.28	0.17
sodium	7440-23-5	E440	50	mg/kg	68	<50	58	52	<50
strontium	7440-24-6	E440	0.50	mg/kg	29.3	59.3	38.1	47.4	33.0
sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	<1000	<1000	<1000
thallium	7440-28-0	E440	0.050	mg/kg	0.105	0.063	0.092	0.105	<0.050
tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
titanium	7440-32-6	E440	1.0	mg/kg	469	352	409	81.1	182
tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
uranium	7440-61-1	E440	0.050	mg/kg	0.562	0.584	0.898	1.26	0.459
vanadium	7440-62-2	E440	0.20	mg/kg	30.2	25.6	36.3	29.1	20.0
zinc	7440-66-6	E440	2.0	mg/kg	358	311	187	188	145
zirconium	7440-67-7	E440	1.0	mg/kg	<2.0 DLM	2.0	2.0	1.3	1.7

Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL REPORT

Work Order :WR2200850-AB

Client : Teck Metals Ltd Contact : Michelle Unger

601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone 250 427 8404 Project : Sa Dena Hes

: 10289 C-O-C number Sampler

Site : ECA22YT00199 Quote number : VA22-TECK150-001

No. of samples received : 5 No. of samples analysed : 5 Page : 1 of 10

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone :+1 867 668 6689 Date Samples Received :11-Aug-2022 16:45

Date Analysis Commenced : 19-Aug-2022

: 23-Aug-2022 14:11 Issue Date

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 Percent Difference (RPD) and Data Quality Objectives

- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

Kim Jensen

Address

PO

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

Department Manager - Metals

Hamideh Moradi Analyst Hedy Lai Team Leader - Inorganics Janice Leung Supervisor - Organics Instrumentation Vancouver Metals, Burnaby, British Columbia Saskatoon Inorganics, Saskatoon, Saskatchewan Vancouver Organics, Burnaby, British Columbia Vancouver Metals, Burnaby, British Columbia

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Client : Teck Metals Ltd
Project : Sa Dena Hes



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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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	p-Matrix: Soil/Solid						Laboratory Duplicate (DUP) Report						
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie		
Physical Tests (QC	C Lot: 608356)												
VR2200850-012	SD_MH-04_2022-08-08	pH (1:2 soil:water)		E108	0.10	pH units	8.25	8.25	0.0%	5%			
letals (QC Lot: 60	8354)												
WR2200850-012	SD_MH-04_2022-08-08	mercury	7439-97-6	E510	0.0050	mg/kg	0.0143	0.0146	0.0002	Diff <2x LOR			
Metals (QC Lot: 60	8355)												
VR2200850-012	SD_MH-04_2022-08-08	aluminum	7429-90-5	E440	50	mg/kg	15200	15100	0.532%	40%			
		antimony	7440-36-0	E440	0.10	mg/kg	1.60	1.51	6.07%	30%			
		arsenic	7440-38-2	E440	0.10	mg/kg	18.7	14.7	23.7%	30%			
		barium	7440-39-3	E440	0.50	mg/kg	66.8	70.3	5.15%	40%			
		beryllium	7440-41-7	E440	0.10	mg/kg	0.56	0.56	0.006	Diff <2x LOR			
		bismuth	7440-69-9	E440	0.20	mg/kg	0.21	<0.20	0.009	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	4.51	4.41	2.16%	30%			
		calcium	7440-70-2	E440	50	mg/kg	6100	6080	0.316%	30%			
		chromium	7440-47-3	E440	0.50	mg/kg	28.4	30.0	5.45%	30%			
		cobalt	7440-48-4	E440	0.10	mg/kg	11.5	10.2	12.4%	30%			
		copper	7440-50-8	E440	0.50	mg/kg	18.8	15.5	19.3%	30%			
		iron	7439-89-6	E440	50	mg/kg	28000	25900	7.94%	30%			
		lead	7439-92-1	E440	0.50	mg/kg	158	169	6.42%	40%			
		lithium	7439-93-2	E440	2.0	mg/kg	34.6	35.5	2.58%	30%			
		magnesium	7439-95-4	E440	20	mg/kg	9910	9390	5.40%	30%			
		manganese	7439-96-5	E440	1.0	mg/kg	550	470	15.5%	30%			
		molybdenum	7439-98-7	E440	0.10	mg/kg	1.09	1.02	6.89%	40%			
		nickel	7440-02-0	E440	0.50	mg/kg	27.6	27.5	0.0479%	30%			
		phosphorus	7723-14-0	E440	50	mg/kg	594	706	17.3%	30%			
		potassium	7440-09-7	E440	100	mg/kg	580	540	6.87%	40%			
		selenium	7782-49-2	E440	0.20	mg/kg	0.37	0.37	0.001	Diff <2x LOR			
		silver	7440-22-4	E440	0.10	mg/kg	0.15	0.16	0.007	Diff <2x LOR			
		sodium	7440-23-5	E440	50	mg/kg	68	56	12	Diff <2x LOR			
		strontium	7440-24-6	E440	0.50	mg/kg	29.3	29.6	0.733%	40%			
		sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR			
		thallium	7440-28-0	E440	0.050	mg/kg	0.105	0.104	0.002	Diff <2x LOR			
					1	3.3							

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Sub-Matrix: Soil/Solid	// Aatrix: Soil/Solid						Labora	tory Duplicate (D	UP) 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: 60	8355) - continued										
WR2200850-012	SD_MH-04_2022-08-08	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	469	496	5.61%	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	0.562	0.615	9.10%	30%	
		vanadium	7440-62-2	E440	0.20	mg/kg	30.2	30.0	0.920%	30%	
		zinc	7440-66-6	E440	2.0	mg/kg	358	358	0.226%	30%	
		zirconium	7440-67-7	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	

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Project : Sa Dena Hes



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
Metals (QCLot: 608354)						
nercury	7439-97-6	E510	0.005	mg/kg	<0.0050	
Metals (QCLot: 608355)						
lluminum	7429-90-5		50	mg/kg	<50	
ntimony	7440-36-0		0.1	mg/kg	<0.10	
rsenic	7440-38-2		0.1	mg/kg	<0.10	
arium	7440-39-3	E440	0.5	mg/kg	<0.50	
eryllium	7440-41-7	E440	0.1	mg/kg	<0.10	
ismuth	7440-69-9	E440	0.2	mg/kg	<0.20	
oron	7440-42-8	E440	5	mg/kg	<5.0	
admium	7440-43-9	E440	0.02	mg/kg	<0.020	
alcium	7440-70-2	E440	50	mg/kg	<50	
hromium	7440-47-3	E440	0.5	mg/kg	<0.50	
obalt	7440-48-4	E440	0.1	mg/kg	<0.10	
opper	7440-50-8	E440	0.5	mg/kg	<0.50	
on	7439-89-6	E440	50	mg/kg	<50	
ead	7439-92-1	E440	0.5	mg/kg	<0.50	
thium	7439-93-2	E440	2	mg/kg	<2.0	
nagnesium	7439-95-4	E440	20	mg/kg	<20	
nanganese	7439-96-5	E440	1	mg/kg	<1.0	
nolybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	
ickel	7440-02-0	E440	0.5	mg/kg	<0.50	
hosphorus	7723-14-0	E440	50	mg/kg	<50	
otassium	7440-09-7	E440	100	mg/kg	<100	
elenium	7782-49-2	E440	0.2	mg/kg	<0.20	
ilver	7440-22-4	E440	0.1	mg/kg	<0.10	
odium	7440-23-5	E440	50	mg/kg	<50	
trontium	7440-24-6	E440	0.5	mg/kg	<0.50	
ılfur	7704-34-9	E440	1000	mg/kg	<1000	
allium	7440-28-0	E440	0.05	mg/kg	<0.050	
1	7440-31-5	E440	2	mg/kg	<2.0	
tanium	7440-32-6	E440	1	mg/kg	<1.0	
ungsten	7440-33-7	E440	0.5	mg/kg	<0.50	
ranium	7440-61-1	E440	0.05	mg/kg	<0.050	

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Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 608355) - contin	ued					
vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	
zinc	7440-66-6	E440	2	mg/kg	<2.0	
zirconium	7440-67-7	E440	1	mg/kg	<1.0	

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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 N	lethod	LOR	Unit	Concentration	LCS	Low	High	Qualifier	
Physical Tests (QCLot: 608356)										
pH (1:2 soil:water)	E	108		pH units	6 pH units	100	95.0	105		
Metals (QCLot: 608354)										
mercury	7439-97-6 E	510	0.005	mg/kg	0.1 mg/kg	105	80.0	120		
Metals (QCLot: 608355)										
aluminum	7429-90-5 E	440	50	mg/kg	200 mg/kg	101	80.0	120		
antimony	7440-36-0 E	440	0.1	mg/kg	100 mg/kg	111	80.0	120		
arsenic	7440-38-2 E	440	0.1	mg/kg	100 mg/kg	103	80.0	120		
parium	7440-39-3 E	440	0.5	mg/kg	25 mg/kg	107	80.0	120		
peryllium	7440-41-7 E	440	0.1	mg/kg	10 mg/kg	102	80.0	120		
pismuth	7440-69-9 E	440	0.2	mg/kg	100 mg/kg	104	80.0	120		
poron	7440-42-8 E	440	5	mg/kg	100 mg/kg	101	80.0	120		
cadmium	7440-43-9 E	440	0.02	mg/kg	10 mg/kg	101	80.0	120		
calcium	7440-70-2 E	440	50	mg/kg	5000 mg/kg	106	80.0	120		
chromium	7440-47-3 E	440	0.5	mg/kg	25 mg/kg	103	80.0	120		
cobalt	7440-48-4 E	440	0.1	mg/kg	25 mg/kg	99.5	80.0	120		
copper	7440-50-8 E	440	0.5	mg/kg	25 mg/kg	98.0	80.0	120		
ron	7439-89-6 E	440	50	mg/kg	100 mg/kg	102	80.0	120		
ead	7439-92-1 E	440	0.5	mg/kg	50 mg/kg	113	80.0	120		
ithium	7439-93-2 E	440	2	mg/kg	25 mg/kg	96.3	80.0	120		
magnesium	7439-95-4 E	440	20	mg/kg	5000 mg/kg	106	80.0	120		
manganese	7439-96-5 E	440	1	mg/kg	25 mg/kg	95.8	80.0	120		
nolybdenum	7439-98-7 E	440	0.1	mg/kg	25 mg/kg	104	80.0	120		
nickel	7440-02-0 E	440	0.5	mg/kg	50 mg/kg	99.9	80.0	120		
phosphorus	7723-14-0 E	440	50	mg/kg	1000 mg/kg	104	80.0	120		
ootassium	7440-09-7 E	440	100	mg/kg	5000 mg/kg	98.4	80.0	120		
selenium	7782-49-2 E	440	0.2	mg/kg	100 mg/kg	104	80.0	120		
silver	7440-22-4 E	440	0.1	mg/kg	10 mg/kg	86.8	80.0	120		
sodium	7440-23-5 E	440	50	mg/kg	5000 mg/kg	103	80.0	120		
strontium	7440-24-6 E	440	0.5	mg/kg	25 mg/kg	96.2	80.0	120		
sulfur	7704-34-9 E	440	1000	mg/kg	5000 mg/kg	98.5	80.0	120		
hallium	7440-28-0 E	440	0.05	mg/kg	100 mg/kg	110	80.0	120		
tin	7440-31-5 E	E440	2	mg/kg	50 mg/kg	99.4	80.0	120		
itanium	7440-32-6 E	440	1	mg/kg	25 mg/kg	95.8	80.0	120		

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Sub-Matrix: Soil/Solid	Matrix: Soil/Solid					Laboratory Control Sample (LCS) Report					
							Recovery	Limits (%)			
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier		
Metals (QCLot: 608355) - continued											
tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	101	80.0	120			
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	105	80.0	120			
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	103	80.0	120			
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	103	80.0	120			
zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	96.5	80.0	120			

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Project : Sa Dena Hes



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:						Refere	nce Material (RM) Re	port	
Laboratory Reference Material ID					RM Target	Recovery (%)	Recovery I	imits (%)	
aboratory ample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
letals (QCLo	t: 608354)								
•	SCP SS-2	mercury	7439-97-6	E510	0.059 mg/kg	102	70.0	130	
letals (QCLo	t: 608355)								
	SCP SS-2	aluminum	7429-90-5	E440	9817 mg/kg	106	70.0	130	
	SCP SS-2	antimony	7440-36-0	E440	3.99 mg/kg	99.4	70.0	130	
	SCP SS-2	arsenic	7440-38-2	E440	3.73 mg/kg	104	70.0	130	
	SCP SS-2	barium	7440-39-3	E440	105 mg/kg	104	70.0	130	
	SCP SS-2	beryllium	7440-41-7	E440	0.349 mg/kg	109	70.0	130	
	SCP SS-2	boron	7440-42-8	E440	8.5 mg/kg	115	40.0	160	
	SCP SS-2	cadmium	7440-43-9	E440	0.91 mg/kg	103	70.0	130	
	SCP SS-2	calcium	7440-70-2	E440	31082 mg/kg	111	70.0	130	
	SCP SS-2	chromium	7440-47-3	E440	101 mg/kg	108	70.0	130	
	SCP SS-2	cobalt	7440-48-4	E440	6.9 mg/kg	102	70.0	130	
	SCP SS-2	copper	7440-50-8	E440	123 mg/kg	101	70.0	130	
	SCP SS-2	iron	7439-89-6	E440	23558 mg/kg	101	70.0	130	
	SCP SS-2	lead	7439-92-1	E440	267 mg/kg	111	70.0	130	
	SCP SS-2	lithium	7439-93-2	E440	9.5 mg/kg	99.7	70.0	130	
	SCP SS-2	magnesium	7439-95-4	E440	5509 mg/kg	101	70.0	130	
	SCP SS-2	manganese	7439-96-5	E440	269 mg/kg	99.7	70.0	130	
	SCP SS-2	molybdenum	7439-98-7	E440	1.03 mg/kg	103	70.0	130	
	SCP SS-2	nickel	7440-02-0	E440	26.7 mg/kg	102	70.0	130	
	SCP SS-2	phosphorus	7723-14-0	E440	752 mg/kg	97.4	70.0	130	
	SCP SS-2	potassium	7440-09-7	E440	1587 mg/kg	104	70.0	130	
	SCP SS-2	sodium	7440-23-5	E440	797 mg/kg	104	70.0	130	
	SCP SS-2	strontium	7440-24-6	E440	86.1 mg/kg	103	70.0	130	
	SCP SS-2	thallium	7440-28-0	E440	0.0786 mg/kg	106	40.0	160	
	SCP SS-2	tin	7440-31-5	E440	10.6 mg/kg	98.6	70.0	130	
	SCP SS-2	titanium	7440-32-6	E440	839 mg/kg	104	70.0	130	
	SCP SS-2	uranium	7440-61-1	E440	0.52 mg/kg	105	70.0	130	
	SCP SS-2	vanadium	7440-62-2	E440	32.7 mg/kg	104	70.0	130	

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Sub-Matrix:			Reference Material (RM) Report						
		RM Target	Recovery (%)	Recovery L					
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 60	08355) - continued								
	SCP SS-2	zinc	7440-66-6	E440	297 mg/kg	104	70.0	130	
	SCP SS-2	zirconium	7440-67-7	E440	5.73 mg/kg	84.5	70.0	130	

ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

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Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Account Manager Contact : Michelle Unger : Can Dang Address

Address : 601 Knighton Road : #12 151 Industrial Road

Kimberley BC Canada V1A 3E1 Whitehorse YT Canada Y1A 2V3

Telephone : 250 427 8404 Telephone : +1 867 668 6689 **Project** : Sa Dena Hes Date Samples Received : 31-Oct-2022 12:30 PO : PO# 10289

Date Analysis Commenced : 02-Nov-2022 C-O-C number Issue Date

: 09-Nov-2022 14:41 Sampler : Finley Sparling

Site : Sa Dena Hes

No. of samples received : 15 No. of samples analysed : 14

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:

: VA22-TECK150-001

- General Comments
- Analytical Results
- Surrogate Control Limits

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

Quote number

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
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Qammar Almas	Lab Assistant	Metals, Burnaby, British Columbia

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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
μg/L	micrograms per litre
μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
pH units	pH units

<: less 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
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.

>: greater than.

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Sub-Matrix: Groundwater			Cli	ient sample ID	SD_MW13-01_	SD_MW13-06_	SD_MW13-07_	SD_MW13-08_	SD_MW13-10_
(Matrix: Water)					2022-10-24	2022-10-24	2022-10-24	2022-10-24	2022-10-24
			Client samp	ling date / time	28-Oct-2022 15:40	25-Oct-2022 14:00	26-Oct-2022 14:45	28-Oct-2022 13:50	28-Oct-2022 11:45
Analyte	CAS Number	Method	LOR	Unit	WR2201401-001	WR2201401-002	WR2201401-003	WR2201401-004	WR2201401-005
					Result	Result	Result	Result	Result
Physical Tests alkalinity, total (as CaCO3)		E290	1.0	mg/L	139	164	206	281	205
conductivity		E100	2.0	μS/cm	288	805	443	552	440
hardness (as CaCO3), dissolved		EC100	0.60	μο/cm mg/L	154	453	244	318	239
pH		E108	0.10	pH units	7.93	7.72	8.07	7.74	8.17
•		2.00	5.10	prianto	7.00	7.12	0.07	7	0.17
Anions and Nutrients ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0064	0.0174	0.151	0.0084	0.0097
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.250 DLDS	<0.050	<0.050	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.245	<0.0250 DLDS	<0.0050	0.0753	0.506
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0050 DLDS	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	10.8	299	31.0	16.9	36.6
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0016	0.0020	0.0071	0.0018	0.0051
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00011	0.00015	<0.00010	0.00015	0.00011
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00032	0.0456	0.00155	0.00027	0.00116
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0190	0.0250	0.0412	0.242	0.00802
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	0.012	0.021	<0.010	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000570	0.0000671	<0.0000050	0.0000562	0.0000186
calcium, dissolved	7440-70-2	E421	0.050	mg/L	56.2	161	70.0	109	81.9
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00051
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	0.00256	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	<0.00020	0.00021	0.00056
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010	0.500	0.561	<0.010	0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.00100	0.000086	<0.000050	<0.000050	0.000120
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0013	0.0076	0.0090	0.0019	0.0016
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	3.42	12.3	16.7	11.2	8.32
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00018	0.315	0.0664	0.00016	0.00037
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050

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Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW13-01_	SD_MW13-06_	SD_MW13-07_	SD_MW13-08_	SD_MW13-10_
(Matrix: Water)					2022-10-24	2022-10-24	2022-10-24	2022-10-24	2022-10-24
Analyte	CAS Number	Method	Client samp	ling date / time Unit	28-Oct-2022 15:40 WR2201401-001	25-Oct-2022 14:00 WR2201401-002	26-Oct-2022 14:45 WR2201401-003	28-Oct-2022 13:50 WR2201401-004	28-Oct-2022 11:45 WR2201401-005
Analyte	CAS Number	Welliod	LON	Onn	Result	Result	Result	Result	Result
Dissolved Metals					rtoduit	result	recount	rtodati	rtoduit
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000699	0.0333	0.00288	0.00111	0.00183
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	0.0294	<0.00050	<0.00050	<0.00050
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	0.159	<0.050	<0.050	<0.050
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.585	2.05	2.81	0.704	1.06
selenium, dissolved	7782-49-2	E421	0.050	μg/L	1.17	<0.050	<0.050	1.37	1.78
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.15	14.0	7.28	4.19	3.93
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.693	5.15	4.39	1.24	1.89
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.151	0.545	0.515	0.354	0.356
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	3.36	95.6	9.85	5.91	12.3
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	0.000014	<0.000010	<0.000010	<0.000010
tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00035
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	0.000941	0.0122	0.00697	0.00182	0.00298
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	0.0209	0.116	<0.0010	<0.0010	0.0026
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
Volatile Organic Compounds [Fuels]									
benzene	71-43-2	E611A	0.50	μg/L			<0.50		<0.50
ethylbenzene	100-41-4	E611A	0.50	μg/L			<0.50		<0.50
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L			<0.50		<0.50
styrene	100-42-5	E611A	0.50	μg/L			<0.50		<0.50
toluene	108-88-3	E611A	0.50	μg/L			<0.50		<0.50
xylene, m+p-	179601-23-1	E611A	0.40	μg/L			<0.40		<0.40
xylene, o-	95-47-6	E611A	0.30	μg/L			<0.30		<0.30
xylenes, total	1330-20-7	E611A	0.50	μg/L			<0.50		<0.50
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L			<250		<250
	•		•	'		•	•	•	

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Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW13-01_	SD_MW13-06_	SD_MW13-07_	SD_MW13-08_	SD_MW13-10_
(Matrix: Water)					2022-10-24	2022-10-24	2022-10-24	2022-10-24	2022-10-24
			Client samp	ling date / time	28-Oct-2022 15:40	25-Oct-2022 14:00	26-Oct-2022 14:45	28-Oct-2022 13:50	28-Oct-2022 11:45
Analyte	CAS Number	Method	LOR	Unit	WR2201401-001	WR2201401-002	WR2201401-003	WR2201401-004	WR2201401-005
					Result	Result	Result	Result	Result
Hydrocarbons									
EPH (C19-C32)		E601A	250	μg/L			<250		<250
VHw (C6-C10)		E581.VH+F1	100	μg/L			<100		<100
HEPHw		EC600A	250	μg/L			<250		<250
LEPHw		EC600A	250	μg/L			<250		<250
VPHw		EC580A	100	μg/L			<100		<100
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%			77.7		83.8
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%			97.3		104
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%			72.3		74.4
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%			97.4		97.8
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L			<0.010		<0.010
acenaphthylene	208-96-8	E641A	0.010	μg/L			<0.010		<0.010
acridine	260-94-6	E641A	0.010	μg/L			<0.010		<0.010
anthracene	120-12-7	E641A	0.010	μg/L			<0.010		<0.010
benz(a)anthracene	56-55-3	E641A	0.010	μg/L			<0.010		<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L			<0.0050		<0.0050
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L			<0.010		<0.010
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L			<0.015		<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L			<0.010		<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L			<0.010		<0.010
chrysene	218-01-9	E641A	0.010	μg/L			<0.010		<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L			<0.0050		<0.0050
fluoranthene	206-44-0	E641A	0.010	μg/L			<0.010		<0.010
fluorene	86-73-7	E641A	0.010	μg/L			<0.010		<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L			<0.010		<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L			<0.010		<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L			<0.010		<0.010
naphthalene	91-20-3	E641A	0.050	μg/L			<0.050		<0.050

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Analytical Results

Sub-Matrix: Groundwater			Cli	ient sample ID	SD_MW13-01_	SD_MW13-06_	SD_MW13-07_	SD_MW13-08_	SD_MW13-10_
(Matrix: Water)			2022-10-24	2022-10-24	2022-10-24	2022-10-24	2022-10-24		
						05.0-4.0000	20.0-4.2022	20 0-4 2022	20.0-4.2022
	Client sampling date / time				28-Oct-2022 15:40	25-Oct-2022 14:00	26-Oct-2022 14:45	28-Oct-2022 13:50	28-Oct-2022 11:45
Analyte	CAS Number	Method	LOR	Unit	WR2201401-001	WR2201401-002	WR2201401-003	WR2201401-004	WR2201401-005
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons									
phenanthrene	85-01-8	E641A	0.020	μg/L			<0.020		<0.020
pyrene	129-00-0	E641A	0.010	μg/L			<0.010		<0.010
quinoline	91-22-5	E641A	0.050	μg/L			<0.050		<0.050
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%			108		110
naphthalene-d8	1146-65-2	E641A	0.1	%			85.7		89.2
phenanthrene-d10	1517-22-2	E641A	0.1	%			104		108

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Sub-Matrix: Groundwater			Cl	ient sample ID	SD-MW13-13_2	SD_MW14-01_	SD_MW14-02_	SD_MW14-03_	SD_MW14-04_
(Matrix: Water)					022-10-24	2022-10-24	2022-10-24	2022-10-24	2022-10-24
			Client samp	ling date / time	25-Oct-2022 11:50	26-Oct-2022 13:10	25-Oct-2022 18:25	24-Oct-2022 12:15	25-Oct-2022 17:30
Analyte	CAS Number	Method	LOR	Unit	WR2201401-006	WR2201401-007	WR2201401-008	WR2201401-009	WR2201401-010
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	105	212	245	270	167
conductivity		E100	2.0	μS/cm	248	389	351	564	307
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	128	217	208	319	171
pH		E108	0.10	pH units	7.84	7.99	8.11	7.74	8.25
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.221	0.0165	0.0350	0.0149	0.0170
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.552	0.175	0.124	0.154	0.219
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	0.0123	<0.0010	0.0012	0.0034	0.0051
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	24.6	3.28	4.84	19.8	7.29
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0240	0.0053	0.0062	0.0076	0.0046
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00014	0.00014	0.00020	0.00028	0.00016
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00055	0.00025	0.00060	0.00014	0.00038
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0148	0.161	0.313	0.114	0.102
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	0.173	<0.010
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.000955	0.0000320	0.0000279	0.000256	0.0000376
calcium, dissolved	7440-70-2	E421	0.050	mg/L	48.0	70.7	67.7	111	58.5
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	0.00066	0.00134	0.00054	0.00145
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00235	0.00044	0.00046	0.00082	0.00109
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.033	<0.010	0.011	<0.010	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000737	0.000086	0.000090	0.000100	0.000068
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	0.0011	0.0014	0.0012	0.0012
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	1.92	9.79	9.49	10.1	6.10
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00133	0.00044	0.00051	0.00087	0.00056
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000346	0.00191	0.000751	0.000669	0.000714
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Sub-Matrix: Groundwater			Cli	ent sample ID	SD-MW13-13_2	SD_MW14-01_	SD_MW14-02_	SD_MW14-03_	SD_MW14-04_
(Matrix: Water)					022-10-24	2022-10-24	2022-10-24	2022-10-24	2022-10-24
			Client samp	ling date / time	25-Oct-2022 11:50	26-Oct-2022 13:10	25-Oct-2022 18:25	24-Oct-2022 12:15	25-Oct-2022 17:30
Analyte CAS Nu	mber	Method	LOR	Unit	WR2201401-006	WR2201401-007	WR2201401-008	WR2201401-009	WR2201401-010
					Result	Result	Result	Result	Result
Dissolved Metals									
nickel, dissolved 7440	-02-0	E421	0.00050	mg/L	0.00054	<0.00050	<0.00050	<0.00050	<0.00050
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	0.772	0.558	0.573	0.824	0.633
selenium, dissolved 7782	-49-2	E421	0.050	μg/L	0.644	1.21	0.215	3.28	1.16
silicon, dissolved 7440	-21-3	E421	0.050	mg/L	2.35	4.74	4.28	4.20	3.52
silver, dissolved 7440	-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved 7440	-23-5	E421	0.050	mg/L	0.713	1.12	0.948	3.77	2.17
strontium, dissolved 7440	-24-6	E421	0.00020	mg/L	0.0795	0.235	0.205	0.341	0.202
sulfur, dissolved 7704	-34-9	E421	0.50	mg/L	7.64	1.11	1.59	11.2	2.89
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	0.00022	<0.00010
titanium, dissolved 7440	-32-6	E421	0.00030	mg/L	0.00079	<0.00030	<0.00030	0.00052	<0.00030
uranium, dissolved 7440	-61-1	E421	0.000010	mg/L	0.000453	0.000990	0.000848	0.00109	0.000481
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	0.0218	<0.0010	0.0028	0.0046	0.0025
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
Volatile Organic Compounds [Fuels]									
benzene 71	-43-2	E611A	0.50	μg/L		<0.50	<0.50	<0.50	<0.50
ethylbenzene 100	-41-4	E611A	0.50	μg/L		<0.50	<0.50	<0.50	<0.50
methyl-tert-butyl ether [MTBE] 1634	-04-4	E611A	0.50	μg/L		<0.50	<0.50	<0.50	<0.50
styrene 100	-42-5	E611A	0.50	μg/L		<0.50	<0.50	<0.50	<0.50
toluene 108	-88-3	E611A	0.50	μg/L		<0.50	<0.50	<0.50	<0.50
xylene, m+p- 179601	-23-1	E611A	0.40	μg/L		<0.40	<0.40	<0.40	<0.40
xylene, o-	-47-6	E611A	0.30	μg/L		<0.30	<0.30	<0.30	<0.30
xylenes, total 1330	-20-7	E611A	0.50	μg/L		<0.50	<0.50	<0.50	<0.50
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L		<250	<250	<250	<250
EPH (C19-C32)		E601A	250	μg/L		<250	<250	<250	<250

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Sub-Matrix: Groundwater			CI	ient sample ID	SD-MW13-13_2	SD_MW14-01_	SD_MW14-02_	SD_MW14-03_	SD_MW14-04_
(Matrix: Water)					022-10-24	2022-10-24	2022-10-24	2022-10-24	2022-10-24
			Client samp	ling date / time	25-Oct-2022 11:50	26-Oct-2022 13:10	25-Oct-2022 18:25	24-Oct-2022 12:15	25-Oct-2022 17:30
Analyte	CAS Number	Method	LOR	Unit	WR2201401-006	WR2201401-007	WR2201401-008	WR2201401-009	WR2201401-010
					Result	Result	Result	Result	Result
Hydrocarbons									
VHw (C6-C10)		E581.VH+F1	100	μg/L		<100	<100	<100	<100
HEPHw		EC600A	250	μg/L		<250	<250	<250	<250
LEPHw		EC600A	250	μg/L		<250	<250	<250	<250
VPHw		EC580A	100	μg/L		<100	<100	<100	<100
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%		80.7	84.1	80.7	83.3
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%		115	105	109	92.2
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%		73.3	70.6	74.7	73.2
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%		96.7	97.2	95.8	96.2
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
acenaphthylene	208-96-8	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
acridine	260-94-6	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
anthracene	120-12-7	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
benz(a)anthracene	56-55-3	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L		<0.0050	<0.0050	<0.0050	<0.0050
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L		<0.015	<0.015	<0.015	<0.015
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
chrysene	218-01-9	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L		<0.0050	<0.0050	<0.0050	<0.0050
fluoranthene	206-44-0	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
fluorene	86-73-7	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
naphthalene	91-20-3	E641A	0.050	μg/L		<0.050	<0.050	<0.050	<0.050
phenanthrene	85-01-8	E641A	0.020	μg/L		<0.020	<0.020	<0.020	<0.020
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Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	SD-MW13-13_2	SD_MW14-01_	SD_MW14-02_	SD_MW14-03_	SD_MW14-04_
(Matrix: Water)					022-10-24	2022-10-24	2022-10-24	2022-10-24	2022-10-24
			Client samp	ling date / time	25-Oct-2022 11:50	26-Oct-2022 13:10	25-Oct-2022 18:25	24-Oct-2022 12:15	25-Oct-2022 17:30
Analyte	CAS Number	Method	LOR	Unit	WR2201401-006	WR2201401-007	WR2201401-008	WR2201401-009	WR2201401-010
					Result	Result	Result	Result	Result
Polycyclic Aromatic Hydrocarbons									
pyrene	129-00-0	E641A	0.010	μg/L		<0.010	<0.010	<0.010	<0.010
quinoline	91-22-5	E641A	0.050	μg/L		<0.050	<0.050	<0.050	<0.050
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%		105	112	104	105
naphthalene-d8	1146-65-2	E641A	0.1	%		89.0	90.4	86.4	87.1
phenanthrene-d10	1517-22-2	E641A	0.1	%		106	108	103	103

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Sub-Matrix: Groundwater			Cl	ient sample ID	SD_MW-FB_20	SD_MW-TB_20	SD_MW-FD2_2	SD_MW-FD-202	
(Matrix: Water)					22-10-24	22-10-24	022-10-24	2-10-24	
			Client samp	ling date / time	28-Oct-2022 15:10	17-Oct-2022	28-Oct-2022	28-Oct-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2201401-011	WR2201401-013	WR2201401-014	WR2201401-015	
					Result	Result	Result	Result	
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	207	280	
conductivity		E100	2.0	μS/cm	<2.0	<2.0	445	560	
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	<0.60		245	327	
pH		E108	0.10	pH units	5.47	5.43	8.06	7.67	
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050		0.0154	0.0168	
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	<0.0050	0.503	0.223	
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	<0.30	<0.30	36.6	35.3	
Dissolved Metals									
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	<0.0010		0.0045	0.0032	
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010		0.00011	0.00028	
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	<0.00010		0.00116	0.00017	
barium, dissolved	7440-39-3	E421	0.00010	mg/L	<0.00010		0.00773	0.121	
beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020		<0.000020	<0.000020	
bismuth, dissolved	7440-69-9	E421	0.000050	mg/L	<0.000050		<0.000050	<0.000050	
boron, dissolved	7440-42-8	E421	0.010	mg/L	<0.010		<0.010	0.174	
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050		0.0000186	0.000244	
calcium, dissolved	7440-70-2	E421	0.050	mg/L	<0.050		84.7	113	
chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050		<0.00050	0.00060	
cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010		<0.00010	<0.00010	
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020		0.00065	0.00096	
iron, dissolved	7439-89-6	E421	0.010	mg/L	<0.010		<0.010	<0.010	
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050		0.000150	0.000124	
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010		0.0016	0.0012	
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	<0.100		8.16	10.8	
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	<0.00010		0.00030	0.00083	
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050		<0.0000050	<0.0000050	
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	<0.000050		0.00184	0.000658	

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Sub-Matrix: Groundwater			Cli	ent sample ID	SD_MW-FB_20	SD_MW-TB_20	SD_MW-FD2_2	SD_MW-FD-202	
(Matrix: Water)					22-10-24	22-10-24	022-10-24	2-10-24	
			Client samp	ling date / time	28-Oct-2022 15:10	17-Oct-2022	28-Oct-2022	28-Oct-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2201401-011	WR2201401-013	WR2201401-014	WR2201401-015	
					Result	Result	Result	Result	
Dissolved Metals									
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050		<0.00050	<0.00050	
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050		<0.050	<0.050	
potassium, dissolved	7440-09-7	E421	0.100	mg/L	<0.100		1.06	0.838	
selenium, dissolved	7782-49-2	E421	0.050	μg/L	<0.050		1.77	3.62	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	<0.050		3.84	4.14	
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010		<0.000010	<0.000010	
sodium, dissolved	7440-23-5	E421	0.050	mg/L	<0.050		1.86	3.76	
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	<0.00020		0.352	0.350	
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50		12.1	11.8	
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010		<0.000010	<0.000010	
tin, dissolved	7440-31-5	E421	0.00010	mg/L	<0.00010		0.00027	0.00023	
titanium, dissolved	7440-32-6	E421	0.00030	mg/L	<0.00030		<0.00030	<0.00030	
uranium, dissolved	7440-61-1	E421	0.000010	mg/L	<0.000010		0.00292	0.00114	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050		<0.00050	<0.00050	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010		0.0014	0.0048	
zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020		<0.00020	<0.00020	
dissolved mercury filtration location		EP509	-	-	Field		Field	Field	
dissolved metals filtration location		EP421	-	-	Field		Field	Field	
Volatile Organic Compounds [Fuels]									
benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	
ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	
methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	
styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	
toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	
xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	<0.40	<0.40	
xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	<0.30	<0.30	
xylenes, total	1330-20-7	E611A	0.50	μg/L	<0.50	<0.50	<0.50	<0.50	
Hydrocarbons									
EPH (C10-C19)		E601A	250	μg/L	<250	<250	<250	<250	
EPH (C19-C32)		E601A	250	μg/L	<250	<250	<250	<250	
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Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW-FB_20	SD_MW-TB_20	SD_MW-FD2_2	SD_MW-FD-202	
(Matrix: Water)					22-10-24	22-10-24	022-10-24	2-10-24	
			Client samp	ling date / time	28-Oct-2022 15:10	17-Oct-2022	28-Oct-2022	28-Oct-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2201401-011	WR2201401-013	WR2201401-014	WR2201401-015	
					Result	Result	Result	Result	
Hydrocarbons									
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	<100	<100	
HEPHw		EC600A	250	μg/L	<250	<250	<250	<250	
LEPHw		EC600A	250	μg/L	<250	<250	<250	<250	
VPHw		EC580A	100	μg/L	<100	<100	<100	<100	
Hydrocarbons Surrogates									
bromobenzotrifluoride, 2- (EPH surr)	392-83-6	E601A	1.0	%	79.8	76.6	83.8	85.7	
dichlorotoluene, 3,4-	97-75-0	E581.VH+F1	1.0	%	117	90.1	101	110	
Volatile Organic Compounds Surrogates									
bromofluorobenzene, 4-	460-00-4	E611A	1.0	%	70.8	81.7	72.8	71.8	
difluorobenzene, 1,4-	540-36-3	E611A	1.0	%	96.2	99.9	96.3	94.8	
Polycyclic Aromatic Hydrocarbons									
acenaphthene	83-32-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
acenaphthylene	208-96-8	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
acridine	260-94-6	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
anthracene	120-12-7	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
benz(a)anthracene	56-55-3	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
benzo(a)pyrene	50-32-8	E641A	0.0050	μg/L	<0.0050	<0.0050	<0.0050	<0.0050	
benzo(b+j)fluoranthene	n/a	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
benzo(b+j+k)fluoranthene	n/a	E641A	0.015	μg/L	<0.015	<0.015	<0.015	<0.015	
benzo(g,h,i)perylene	191-24-2	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
benzo(k)fluoranthene	207-08-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
chrysene	218-01-9	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
dibenz(a,h)anthracene	53-70-3	E641A	0.0050	μg/L	<0.0050	<0.0050	<0.0050	<0.0050	
fluoranthene	206-44-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
fluorene	86-73-7	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
methylnaphthalene, 1-	90-12-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
methylnaphthalene, 2-	91-57-6	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
naphthalene	91-20-3	E641A	0.050	μg/L	<0.050	<0.050	<0.050	<0.050	
phenanthrene	85-01-8	E641A	0.020	μg/L	<0.020	<0.020	<0.020	<0.020	

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Analytical Results

Sub-Matrix: Groundwater			CI	ient sample ID	SD_MW-FB_20	SD_MW-TB_20	SD_MW-FD2_2	SD_MW-FD-202	
(Matrix: Water)					22-10-24	22-10-24	022-10-24	2-10-24	
			Client samp	ling date / time	28-Oct-2022 15:10	17-Oct-2022	28-Oct-2022	28-Oct-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2201401-011	WR2201401-013	WR2201401-014	WR2201401-015	
					Result	Result	Result	Result	
Polycyclic Aromatic Hydrocarbons									
pyrene	129-00-0	E641A	0.010	μg/L	<0.010	<0.010	<0.010	<0.010	
quinoline	91-22-5	E641A	0.050	μg/L	<0.050	<0.050	<0.050	<0.050	
Polycyclic Aromatic Hydrocarbons Surrogates									
chrysene-d12	1719-03-5	E641A	0.1	%	107	101	99.4	102	
naphthalene-d8	1146-65-2	E641A	0.1	%	89.8	83.7	81.8	86.6	
phenanthrene-d10	1517-22-2	E641A	0.1	%	107	102	98.0	105	

Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **WR2201401** Page : 1 of 27

Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Michelle Unger : Can Dang

Address : #12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

 Telephone
 : 250 427 8404
 Telephone
 : +1 867 668 6689

 Project
 : Sa Dena Hes
 Date Samples Received
 : 31-Oct-2022 12:30

 PO
 : PO# 10289
 Issue Date
 : 09-Nov-2022 14:42

C-O-C number : ----

Sampler : Finley Sparling
Site : Sa Dena Hes

Outto number : NA23 TECK150 0

Quote number : VA22-TECK150-001

No. of samples received :15
No. of samples analysed :14

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 Service number is a unique identifier assigned to discrete substances.

Kimberley BC Canada V1A 3E1

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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.

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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

Matrix: water						raidation. • -	Holding time exce	cuarice,	_ vvitiiiii	Holding Till
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW14-04_2022-10-24	E298	25-Oct-2022	03-Nov-2022				04-Nov-2022	28 days	10 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)	E298	28-Oct-2022	08-Nov-2022				08-Nov-2022	20 days	11 days	√
SD_MW13-01_2022-10-24	E290	26-UCI-2022	UO-INUV-2U22				00-N0V-2022	20 days	TTuays	•
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD MW13-08 2022-10-24	E298	28-Oct-2022	08-Nov-2022				08-Nov-2022	28 days	11 days	✓
									,	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-10_2022-10-24	E298	28-Oct-2022	08-Nov-2022				08-Nov-2022	28 days	11 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)	E298	24-Oct-2022	03-Nov-2022				04-Nov-2022	28 days	11 dovo	√
SD_MW14-03_2022-10-24	L290	24-061-2022	03-1100-2022				04-1100-2022	20 uays	11 uays	•
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW13-07_2022-10-24	E298	26-Oct-2022	08-Nov-2022				08-Nov-2022	28 days	13 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MW14-01_2022-10-24	E298	26-Oct-2022	08-Nov-2022				08-Nov-2022	28 days	13 days	✓

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Matrix: Water Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Matrix: Water							ion: × = Holding time exceedance ; ✓ = Within Holding				
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation		Analysis				
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
SD_MW13-06_2022-10-24	E298	25-Oct-2022	08-Nov-2022				08-Nov-2022	28 days	14 days	✓	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
SD_MW14-02_2022-10-24	E298	25-Oct-2022	08-Nov-2022				08-Nov-2022	28 days	14 days	✓	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
SD-MW13-13_2022-10-24	E298	25-Oct-2022	08-Nov-2022				08-Nov-2022	28 days	14 days	✓	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
SD_MW-FB_2022-10-24	E298	28-Oct-2022	03-Nov-2022				04-Nov-2022	28 days	7 days	✓	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
SD_MW-FD2_2022-10-24	E298	28-Oct-2022	03-Nov-2022				04-Nov-2022	28 days	7 days	✓	
Anions and Nutrients : Ammonia by Fluorescence											
Amber glass total (sulfuric acid)											
SD_MW-FD-2022-10-24	E298	28-Oct-2022	03-Nov-2022				04-Nov-2022	28 days	7 days	✓	
Anions and Nutrients : Bromide in Water by IC (Low Level)											
HDPE											
SD_MW-TB_2022-10-24	E235.Br-L	17-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	17 days	✓	
Anions and Nutrients : Bromide in Water by IC (Low Level)											
HDPE											
SD_MW13-01_2022-10-24	E235.Br-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓	
Anions and Nutrients : Bromide in Water by IC (Low Level)											
HDPE											
SD_MW13-08_2022-10-24	E235.Br-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓	
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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						raiuation. * -	Holding time exce	euance , v	_ vviuiiii	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-10_2022-10-24	E235.Br-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW-FB_2022-10-24	E235.Br-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW-FD2_2022-10-24	E235.Br-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW-FD-2022-10-24	E235.Br-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	6 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-07_2022-10-24	E235.Br-L	26-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW14-01_2022-10-24	E235.Br-L	26-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW13-06_2022-10-24	E235.Br-L	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW14-02_2022-10-24	E235.Br-L	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW14-04_2022-10-24	E235.Br-L	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
		•				1				

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Matrix: Water Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						aluation. • -	Holding time excee	cuarice,	- vvitiiiii	riolaling rillic
Analyte Group	Method	Sampling Date	Ex	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD-MW13-13_2022-10-24	E235.Br-L	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MW14-03_2022-10-24	E235.Br-L	24-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	9 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW-TB_2022-10-24	E235.NO3-L	17-Oct-2022	02-Nov-2022	3 days	17	x	02-Nov-2022	3 days	0 days	✓
					days	EHTR				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-01_2022-10-24	E235.NO3-L	28-Oct-2022	02-Nov-2022	3 days	5 days	3C	02-Nov-2022	3 days	0 days	✓
						EHTL				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-08_2022-10-24	E235.NO3-L	28-Oct-2022	02-Nov-2022	3 days	5 days	JC .	02-Nov-2022	3 days	0 days	✓
						EHTL				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW13-10_2022-10-24	E235.NO3-L	28-Oct-2022	02-Nov-2022	3 days	5 days	sc	02-Nov-2022	3 days	0 days	✓
						EHTL				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW-FB_2022-10-24	E235.NO3-L	28-Oct-2022	02-Nov-2022	3 days	5 days	JE .	02-Nov-2022	3 days	0 days	✓
						EHTL				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MW-FD2_2022-10-24	E235.NO3-L	28-Oct-2022	02-Nov-2022	3 days	6 days	x	02-Nov-2022	3 days	0 days	✓
						EHTL				
Anions and Nutrients : Nitrate in Water by IC (Low Level)									· ·	
HDPE										
OD MW ED 0000 40 04	E235.NO3-L	28-Oct-2022	02-Nov-2022	3 days	6 days	*	02-Nov-2022	3 days	0 days	✓
SD_MW-FD-2022-10-24	L200.1100-L	20 001 2022	02 1101 2022	o dayo	o dayo				, -	

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Matrix: Water Evaluation: ★ = Holding time exceedance; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	Times	Eval	Analysis Date		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW13-07_2022-10-24	E235.NO3-L	26-Oct-2022	02-Nov-2022	3 days	7 days	# EHTR	02-Nov-2022	3 days	0 days	1
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW14-01_2022-10-24	E235.NO3-L	26-Oct-2022	02-Nov-2022	3 days	7 days	# EHTR	02-Nov-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW13-06_2022-10-24	E235.NO3-L	25-Oct-2022	02-Nov-2022	3 days	8 days	x EHTR	02-Nov-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW14-02_2022-10-24	E235.NO3-L	25-Oct-2022	02-Nov-2022	3 days	8 days	* EHTR	02-Nov-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW14-04_2022-10-24	E235.NO3-L	25-Oct-2022	02-Nov-2022	3 days	8 days	# EHTR	02-Nov-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD-MW13-13_2022-10-24	E235.NO3-L	25-Oct-2022	02-Nov-2022	3 days	8 days	x EHTR	02-Nov-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MW14-03_2022-10-24	E235.NO3-L	24-Oct-2022	02-Nov-2022	3 days	9 days	# EHTR	02-Nov-2022	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MW-TB_2022-10-24	E235.NO2-L	17-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	17 days	* EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MW13-01_2022-10-24	E235.NO2-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	5 days	* EHTL

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						diddion.	Holding time exce	, ,	***************************************	r rorumig rinn
Analyte Group	Method	Sampling Date	Ext	traction / Pi	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-08_2022-10-24	E235.NO2-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	5 days	.x
										EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-10_2022-10-24	E235.NO2-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	5 days	3 0
										EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW-FB_2022-10-24	E235.NO2-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	5 days	3¢
										EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW-FD2_2022-10-24	E235.NO2-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	6 days	.
										EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW-FD-2022-10-24	E235.NO2-L	28-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	6 days	3¢
										EHTL
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-07_2022-10-24	E235.NO2-L	26-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	7 days	æ
										EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW14-01_2022-10-24	E235.NO2-L	26-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	7 days	3 0
										EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW13-06_2022-10-24	E235.NO2-L	25-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	8 days	æ
										EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW14-02_2022-10-24	E235.NO2-L	25-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	8 days	3 0
										EHTR-FM

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						aluation. ^ -	Holding time exce	euance, v	- vviti i i i	Holding Time
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MW14-04_2022-10-24	E235.NO2-L	25-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	8 days	*
										EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD-MW13-13_2022-10-24	E235.NO2-L	25-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	8 days	×
										EHTR-FM
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE		1								
SD_MW14-03_2022-10-24	E235.NO2-L	24-Oct-2022	02-Nov-2022				02-Nov-2022	3 days	9 days	*
										EHTR-FM
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW-TB_2022-10-24	E235.SO4	17-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	17 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE		1								
SD_MW13-01_2022-10-24	E235.SO4	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-08_2022-10-24	E235.SO4	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW13-10_2022-10-24	E235.SO4	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE				<u> </u>						
SD_MW-FB_2022-10-24	E235.SO4	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MW-FD2_2022-10-24	E235.SO4	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	6 days	✓
				1						

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Matrix: Water Evaluation: × = Holding time exceedance : ✓ = Within Holding Time

Analysis Group Container Client Sample Dis	c: Water					E۱	⁄aluation: ≭ =	Holding time excee	edance ; 🕦	/ = Within	Holding Time
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW-FD-2022-10-24 E235 SO4 28-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 6 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-07_2022-10-24 E235 SO4 26-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 7 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-01_2022-10-24 E235 SO4 26-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 7 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-06_2022-10-24 E235 SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-02_2022-10-24 E235 SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-02_2022-10-24 E235 SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-02_2022-10-24 E235 SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-04_2022-10-24 E235 SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-04_2022-10-24 E235 SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-04_2022-10-24 E235 SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-04_2022-10-24 E235 SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days	yte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis	
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-07_2022-10-24 Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-01_2022-10-24 E235.SO4 E235	ntainer / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
HOPE SD_MW-FD-2022-10-24 E235.SO4 28-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 6 days				Date	Rec	Actual			Rec	Actual	
SD_MW-FD-2022-10-24	ns and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-07_2022-10-24 E235.SO4 E	'E										
HDPE SD_MW13-07_2022-10-24	D_MW-FD-2022-10-24	E235.SO4	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	6 days	\checkmark
HDPE SD_MW13-07_2022-10-24 E235.SO4 26-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 7 days											
HDPE SD_MW13-07_2022-10-24 E235.SO4 26-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 7 days	ns and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-01_2022-10-24 E235.SO4 26-Oct-2022 02-Nov-2022											
## PIPE SD_MW14-01_2022-10-24 E235.SO4 26-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 7 days ## Anions and Nutrients : Sulfate in Water by IC	D_MW13-07_2022-10-24	E235.SO4	26-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	7 days	✓
## Page											
## PIPE SD_MW14-01_2022-10-24 E235.SO4 26-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 7 days ## Anions and Nutrients : Sulfate in Water by IC	ns and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW13-06_2022-10-24 E235.SO4 E	·										
## DPE SD_MW13-06_2022-10-24	D_MW14-01_2022-10-24	E235.SO4	26-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	7 days	✓
## DPE SD_MW13-06_2022-10-24											
## DPE SD_MW13-06_2022-10-24	ns and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-02_2022-10-24 E235.SO4 E											
## DPE SD_MW14-02_2022-10-24	D_MW13-06_2022-10-24	E235.SO4	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
## DPE SD_MW14-02_2022-10-24											
## Pipe	ns and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD_MW14-04_2022-10-24 E235.SO4 E	PE										
HDPE SD_MW14-04_2022-10-24 E235.SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days SD_MW14-04_2022-10-24 E235.SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days SD_MW13-13_2022-10-24 SD_MW13-13_2022-10-24 E235.SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days SD_MW13-13_2022-10-24 SD_	D_MW14-02_2022-10-24	E235.SO4	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
HDPE SD_MW14-04_2022-10-24 E235.SO4 25-Oct-2022 02-Nov-2022 D2-Nov-2022 28 days 8 days Anions and Nutrients: Sulfate in Water by IC E235.SO4 E											
HDPE SD_MW14-04_2022-10-24	ns and Nutrients : Sulfate in Water by IC										
Anions and Nutrients : Sulfate in Water by IC HDPE SD-MW13-13_2022-10-24 E235.SO4 E											
HDPE SD-MW13-13_2022-10-24 E235.SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC	D_MW14-04_2022-10-24	E235.SO4	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
HDPE SD-MW13-13_2022-10-24 E235.SO4 25-Oct-2022 02-Nov-2022 02-Nov-2022 28 days 8 days Anions and Nutrients : Sulfate in Water by IC											
HDPE SD-MW13-13_2022-10-24 E235.SO4 ns and Nutrients : Sulfate in Water by IC											
Anions and Nutrients : Sulfate in Water by IC	·										
	.D-MW13-13_2022-10-24	E235.SO4	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
	ns and Nutrients : Sulfate in Water by IC										
HDPE											
SD_MW14-03_2022-10-24		E235.SO4	24-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	9 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS	olved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)											
SD_MW14-03_2022-10-24		E509	24-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	10 days	✓

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Matrix: Water Evaluation: × = Holding time exceedance : ✓ = Within Holding Time

Matrix: Water								x = Holding time exceedance; √ = Within Hold				
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW13-01_2022-10-24	E509	28-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	6 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW13-08_2022-10-24	E509	28-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	6 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW13-10_2022-10-24	E509	28-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	6 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW-FB_2022-10-24	E509	28-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	6 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW-FD2_2022-10-24	E509	28-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	7 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW-FD-2022-10-24	E509	28-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	7 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW13-07_2022-10-24	E509	26-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	8 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW14-01_2022-10-24	E509	26-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	8 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW13-06_2022-10-24	E509	25-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	9 days	✓		

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

							= Holding time exceedance ; ✓ = Within Holdii					
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW14-02_2022-10-24	E509	25-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	9 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD_MW14-04_2022-10-24	E509	25-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	9 days	✓		
Dissolved Metals : Dissolved Mercury in Water by CVAAS												
Glass vial dissolved (hydrochloric acid)												
SD-MW13-13_2022-10-24	E509	25-Oct-2022	03-Nov-2022				03-Nov-2022	28 days	9 days	✓		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid)												
SD_MW13-06_2022-10-24	E421	25-Oct-2022	03-Nov-2022				04-Nov-2022	180	10 days	✓		
								days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid)												
SD_MW14-02_2022-10-24	E421	25-Oct-2022	03-Nov-2022				04-Nov-2022	180	10 days	✓		
								days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid)												
SD_MW14-04_2022-10-24	E421	25-Oct-2022	03-Nov-2022				04-Nov-2022	180	10 days	✓		
								days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid)												
SD-MW13-13_2022-10-24	E421	25-Oct-2022	03-Nov-2022				04-Nov-2022	180	10 days	✓		
								days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid)												
SD_MW14-03_2022-10-24	E421	24-Oct-2022	03-Nov-2022				04-Nov-2022	180	11 days	✓		
								days				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS												
HDPE dissolved (nitric acid)												
SD_MW13-01_2022-10-24	E421	28-Oct-2022	03-Nov-2022				04-Nov-2022	180	7 days	✓		
								days				

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

						Evaluation: × = Holding time exceedance ; √ = Within Holding Time							
Analyte Group	Method	Sampling Date	Ex	traction / Pi	reparation			Analys	sis				
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval			
			Date	Rec	Actual			Rec	Actual				
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS													
HDPE dissolved (nitric acid)													
SD_MW13-08_2022-10-24	E421	28-Oct-2022	03-Nov-2022				04-Nov-2022	180	7 days	✓			
								days					
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS													
HDPE dissolved (nitric acid)													
SD_MW13-10_2022-10-24	E421	28-Oct-2022	03-Nov-2022				04-Nov-2022	180	7 days	✓			
								days					
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS													
HDPE dissolved (nitric acid)													
SD_MW-FB_2022-10-24	E421	28-Oct-2022	03-Nov-2022				04-Nov-2022	180	7 days	✓			
								days					
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS													
HDPE dissolved (nitric acid)													
SD_MW-FD2_2022-10-24	E421	28-Oct-2022	03-Nov-2022				04-Nov-2022	180	7 days	✓			
								days					
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS													
HDPE dissolved (nitric acid)													
SD_MW-FD-2022-10-24	E421	28-Oct-2022	03-Nov-2022				04-Nov-2022	180	7 days	✓			
								days					
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS													
HDPE dissolved (nitric acid)													
SD_MW13-07_2022-10-24	E421	26-Oct-2022	03-Nov-2022				04-Nov-2022	180	9 days	✓			
								days					
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS													
HDPE dissolved (nitric acid)													
SD_MW14-01_2022-10-24	E421	26-Oct-2022	03-Nov-2022				04-Nov-2022	180	9 days	✓			
								days					
Hydrocarbons : BC PHCs - EPH by GC-FID													
Amber glass/Teflon lined cap (sodium bisulfate)													
SD_MW14-03_2022-10-24	E601A	24-Oct-2022	03-Nov-2022	14	10	✓	03-Nov-2022	40 days	0 days	✓			
				days	days								
Hydrocarbons : BC PHCs - EPH by GC-FID													
Amber glass/Teflon lined cap (sodium bisulfate)													
SD_MW-TB_2022-10-24	E601A	17-Oct-2022	03-Nov-2022	14	17	3C	03-Nov-2022	40 days	0 days	✓			
				days	days	EHTL							

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Matrix: Water Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Matrix: Water												
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	is			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Hydrocarbons : BC PHCs - EPH by GC-FID												
Amber glass/Teflon lined cap (sodium bisulfate)												
SD_MW-FB_2022-10-24	E601A	28-Oct-2022	03-Nov-2022	14	5 days	✓	03-Nov-2022	40 days	0 days	✓		
				days								
Hydrocarbons : BC PHCs - EPH by GC-FID												
Amber glass/Teflon lined cap (sodium bisulfate)												
SD_MW13-10_2022-10-24	E601A	28-Oct-2022	03-Nov-2022	14	6 days	✓	03-Nov-2022	40 days	0 days	✓		
				days								
Hydrocarbons : BC PHCs - EPH by GC-FID												
Amber glass/Teflon lined cap (sodium bisulfate)												
SD_MW-FD2_2022-10-24	E601A	28-Oct-2022	02-Nov-2022	14	6 days	✓	03-Nov-2022	40 days	1 days	✓		
				days								
Hydrocarbons : BC PHCs - EPH by GC-FID												
Amber glass/Teflon lined cap (sodium bisulfate)												
SD MW-FD-2022-10-24	E601A	28-Oct-2022	02-Nov-2022	14	6 days	1	03-Nov-2022	40 days	1 days	✓		
05_11111 15 2022 10 21			02 1101 2022	days	o aayo		00 1101 2022	.o dayo	,			
Hudrooch and DO BUG. EBU by CO FID				days								
Hydrocarbons: BC PHCs - EPH by GC-FID							1	I				
Amber glass/Teflon lined cap (sodium bisulfate) SD MW13-07 2022-10-24	E601A	26-Oct-2022	03-Nov-2022	14	8 days	✓	03-Nov-2022	40 days	0 days	✓		
3D_WW 13-07_2022-10-24	LOUIA	20-001-2022	00-1107-2022	days	0 days	*	03-1404-2022	40 days	0 days	•		
				uays								
Hydrocarbons : BC PHCs - EPH by GC-FID												
Amber glass/Teflon lined cap (sodium bisulfate)	E601A	26-Oct-2022	00 N 0000		0.1	✓	00 No 0000	40 1	0.1	✓		
SD_MW14-01_2022-10-24	EOUTA	20-001-2022	03-Nov-2022	14	8 days	•	03-Nov-2022	40 days	0 days	•		
				days								
Hydrocarbons : BC PHCs - EPH by GC-FID												
Amber glass/Teflon lined cap (sodium bisulfate)										,		
SD_MW14-02_2022-10-24	E601A	25-Oct-2022	03-Nov-2022	14	8 days	✓	03-Nov-2022	40 days	0 days	✓		
				days								
Hydrocarbons : BC PHCs - EPH by GC-FID												
Amber glass/Teflon lined cap (sodium bisulfate)												
SD_MW14-04_2022-10-24	E601A	25-Oct-2022	03-Nov-2022	14	8 days	✓	03-Nov-2022	40 days	0 days	✓		
				days								
Hydrocarbons : VH and F1 by Headspace GC-FID												
Glass vial (sodium bisulfate)												
SD_MW14-02_2022-10-24	E581.VH+F1	25-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	10 days	✓		

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Matrix: Water Evaluation: × = Holding time exceedance : ✓ = Within Holding Time

Matrix: Water		_			ΕV	/aluation: × =	Holding time excee	edance ; 🔻	= Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-04_2022-10-24	E581.VH+F1	25-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	10 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-03_2022-10-24	E581.VH+F1	24-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	11 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW-TB_2022-10-24	E581.VH+F1	17-Oct-2022	03-Nov-2022				04-Nov-2022	14 days	19 days	×
										EHTL
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW13-10_2022-10-24	E581.VH+F1	28-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW-FB_2022-10-24	E581.VH+F1	28-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	7 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW-FD2_2022-10-24	E581.VH+F1	28-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW-FD-2022-10-24	E581.VH+F1	28-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	8 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW13-07_2022-10-24	E581.VH+F1	26-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	9 days	✓
Hydrocarbons : VH and F1 by Headspace GC-FID										
Glass vial (sodium bisulfate)										
SD_MW14-01_2022-10-24	E581.VH+F1	26-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	9 days	✓

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Matrix: Water Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Ext	traction / Pr			Holding time excee	Analys		
Container / Client Sample ID(s)	Wietried	Camping Bate	Preparation		g Times	Eval	Analysis Date		g Times	Eval
. ,,			Date	Rec	Actual		7	Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW-TB_2022-10-24	E290	17-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	17 days	* EHTL
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW13-01_2022-10-24	E290	28-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW13-08_2022-10-24	E290	28-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	5 days	*
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW13-10_2022-10-24	E290	28-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW-FB_2022-10-24	E290	28-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW-FD2_2022-10-24	E290	28-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	6 days	1
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW-FD-2022-10-24	E290	28-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	6 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW13-07_2022-10-24	E290	26-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	7 days	4
Physical Tests : Alkalinity Species by Titration										
HDPE SD_MW14-01_2022-10-24	E290	26-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	7 days	4

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Matrix: Water Evaluation: × = Holding time exceedance: ✓ = Within Holding Time

Matrix: Water					E۱	/aluation: 🗴 =	Holding time excee	edance ; 🕦	= Within	Holding Tir
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MW13-06_2022-10-24	E290	25-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MW14-02_2022-10-24	E290	25-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MW14-04_2022-10-24	E290	25-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD-MW13-13_2022-10-24	E290	25-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	8 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MW14-03_2022-10-24	E290	24-Oct-2022	02-Nov-2022				02-Nov-2022	14 days	9 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-TB_2022-10-24	E100	17-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	17 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-01_2022-10-24	E100	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE		1								
SD_MW13-08_2022-10-24	E100	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-10_2022-10-24	E100	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓

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Matrix: Water Evaluation: ★ = Holding time exceedance ; ✓ = Within Holding Time

Matrix: Water					E۱	∕aluation: × =	Holding time excee	edance ; 🔻	= Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual		-	Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-FB_2022-10-24	E100	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW-FD2_2022-10-24	E100	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	6 days	✓
Physical Tests : Conductivity in Water				•						
HDPE										
SD_MW-FD-2022-10-24	E100	28-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-07_2022-10-24	E100	26-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	7 days	✓
Physical Tests : Conductivity in Water				•						
HDPE										
SD_MW14-01_2022-10-24	E100	26-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	7 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW13-06_2022-10-24	E100	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MW14-02_2022-10-24	E100	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
Physical Tests : Conductivity in Water				•						
HDPE										
SD_MW14-04_2022-10-24	E100	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD-MW13-13_2022-10-24	E100	25-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	8 days	✓

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Matrix: Water Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Matrix: Water					E۱	aluation. * -	Holding time exceedance ; ✓ = Within Holdin					
Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis			
Container / Client Sample ID(s)			Preparation	Holding	Times	Eval	Analysis Date	Holding	Times	Eval		
			Date	Rec	Actual			Rec	Actual			
Physical Tests : Conductivity in Water												
HDPE												
SD_MW14-03_2022-10-24	E100	24-Oct-2022	02-Nov-2022				02-Nov-2022	28 days	9 days	✓		
									_			
Physical Tests : pH by Meter												
HDPE				<u> </u>				<u> </u>				
SD_MW13-01_2022-10-24	E108	28-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	x		
05001_0521								hrs	hrs	EHTR-FM		
District the state of the state								1110	1110			
Physical Tests : pH by Meter HDPE				1			<u> </u>	1	<u> </u>			
SD MW13-06 2022-10-24	E108	25-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	*		
3D_WW 13-00_2022-10-24	L100	20-001-2022	02-1107-2022				02-1404-2022	0.25 hrs	o.25 hrs	EHTR-FM		
								1115	1115	LIIIIX-I IVI		
Physical Tests : pH by Meter				1								
HDPE	E400	00.0.4.0000	00.11 0000				00.11 0000					
SD_MW13-07_2022-10-24	E108	26-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	*		
								hrs	hrs	EHTR-FM		
Physical Tests : pH by Meter												
HDPE												
SD_MW13-08_2022-10-24	E108	28-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	*		
								hrs	hrs	EHTR-FM		
Physical Tests : pH by Meter												
HDPE												
SD_MW13-10_2022-10-24	E108	28-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	sc sc		
								hrs	hrs	EHTR-FM		
Physical Tests : pH by Meter												
HDPE												
SD MW14-01 2022-10-24	E108	26-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	32		
								hrs	hrs	EHTR-FM		
Physical Tests : pH by Meter												
HDPE												
SD MW14-02 2022-10-24	E108	25-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	*		
OB_WW 14 02_2022-10 24	2.00	20 000 2022	02 1101 2022				02 1107 2022	hrs	hrs	EHTR-FM		
								1113	1113			
Physical Tests : pH by Meter												
HDPE	E108	24-Oct-2022	00 Nov 0000				00 Nov. 0000		0.0-			
SD_MW14-03_2022-10-24	E100	24-UGI-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	#		
								hrs	hrs	EHTR-FM		

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Matrix: Water Evaluation: **x** = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water						raidation. • =	ceedance ; ✓ = Within Holding				
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis		
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval	
			Date	Rec	Actual			Rec	Actual		
Physical Tests : pH by Meter											
HDPE											
SD_MW14-04_2022-10-24	E108	25-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	x	
								hrs	hrs	EHTR-FM	
Physical Tests : pH by Meter											
HDPE											
SD_MW-FB_2022-10-24	E108	28-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	3 5	
								hrs	hrs	EHTR-FM	
Physical Tests : pH by Meter											
HDPE											
SD_MW-FD2_2022-10-24	E108	28-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	st.	
								hrs	hrs	EHTR-FM	
Physical Tests : pH by Meter											
HDPE											
SD_MW-FD-2022-10-24	E108	28-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	sc sc	
								hrs	hrs	EHTR-FM	
Physical Tests : pH by Meter											
HDPE											
SD_MW-TB_2022-10-24	E108	17-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	*	
								hrs	hrs	EHTR-FM	
Physical Tests : pH by Meter											
HDPE											
SD-MW13-13_2022-10-24	E108	25-Oct-2022	02-Nov-2022				02-Nov-2022	0.25	8.25	x	
								hrs	hrs	EHTR-FM	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS											
Amber glass/Teflon lined cap (sodium bisulfate)											
SD_MW14-03_2022-10-24	E641A	24-Oct-2022	03-Nov-2022	14	10	✓	03-Nov-2022	40 days	0 days	✓	
				days	days						
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS											
Amber glass/Teflon lined cap (sodium bisulfate)											
SD_MW-TB_2022-10-24	E641A	17-Oct-2022	03-Nov-2022	14	17	*	03-Nov-2022	40 days	0 days	✓	
				days	days	EHTL					
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS											
Amber glass/Teflon lined cap (sodium bisulfate)											
SD_MW-FB_2022-10-24	E641A	28-Oct-2022	03-Nov-2022	14	5 days	✓	03-Nov-2022	40 days	0 days	✓	
				days							

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Matrix: Water Evaluation: ▼ = Holding time exceedance; ✓ = Within Holding Time

Matrix: Water		E۱	/aluation: 🗴 =	Holding time exce	edance ; 🕦	= Within	Holding Ti			
Analyte Group	Method	Sampling Date	Ex	traction / Pi	reparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW13-10_2022-10-24	E641A	28-Oct-2022	03-Nov-2022	14 days	6 days	1	03-Nov-2022	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS				auyo						
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW-FD2_2022-10-24	E641A	28-Oct-2022	02-Nov-2022	14 days	6 days	✓	03-Nov-2022	40 days	1 days	1
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW-FD-2022-10-24	E641A	28-Oct-2022	02-Nov-2022	14 days	6 days	✓	03-Nov-2022	40 days	1 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW13-07_2022-10-24	E641A	26-Oct-2022	03-Nov-2022	14 days	8 days	✓	03-Nov-2022	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW14-01_2022-10-24	E641A	26-Oct-2022	03-Nov-2022	14 days	8 days	✓	03-Nov-2022	40 days	0 days	✓
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW14-02_2022-10-24	E641A	25-Oct-2022	03-Nov-2022	14 days	8 days	✓	03-Nov-2022	40 days	0 days	4
Polycyclic Aromatic Hydrocarbons : PAHs by Hexane LVI GC-MS										
Amber glass/Teflon lined cap (sodium bisulfate) SD_MW14-04_2022-10-24	E641A	25-Oct-2022	03-Nov-2022	14 days	8 days	✓	03-Nov-2022	40 days	0 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS				1						
Glass vial (sodium bisulfate) SD_MW14-02_2022-10-24	E611A	25-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	10 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW14-04_2022-10-24	E611A	25-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	10 days	✓
								1		

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Matrix: Water Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual		-	Rec	Actual	
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW14-03_2022-10-24	E611A	24-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	11 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW-TB_2022-10-24	E611A	17-Oct-2022	03-Nov-2022				04-Nov-2022	14 days	19 days	* EHTL
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW13-10_2022-10-24	E611A	28-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW-FB_2022-10-24	E611A	28-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	7 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW-FD2_2022-10-24	E611A	28-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	8 days	✓
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW-FD-2022-10-24	E611A	28-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	8 days	1
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW13-07_2022-10-24	E611A	26-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	9 days	√
Volatile Organic Compounds [Fuels] : BTEX by Headspace GC-MS										
Glass vial (sodium bisulfate) SD_MW14-01_2022-10-24	E611A	26-Oct-2022	04-Nov-2022				05-Nov-2022	14 days	9 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

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).

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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.

Quality Control Sample Type			С	ount)	
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	726622	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	727978	2	40	5.0	5.0	1
Bromide in Water by IC (Low Level)	E235.Br-L	726618	1	17	5.8	5.0	1
BTEX by Headspace GC-MS	E611A	728982	2	37	5.4	5.0	1
Conductivity in Water	E100	726620	1	20	5.0	5.0	1
Dissolved Mercury in Water by CVAAS	E509	729276	2	40	5.0	5.0	1
Dissolved Metals in Water by CRC ICPMS	E421	727171	1	20	5.0	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	726614	1	18	5.5	5.0	1
Nitrite in Water by IC (Low Level)	E235.NO2-L	726615	1	20	5.0	5.0	1
pH by Meter	E108	726621	1	20	5.0	5.0	1
Sulfate in Water by IC	E235.SO4	726613	1	20	5.0	5.0	1
VH and F1 by Headspace GC-FID	E581.VH+F1	728983	2	35	5.7	5.0	✓
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	726622	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	727978	2	40	5.0	5.0	1
BC PHCs - EPH by GC-FID	E601A	727361	2	23	8.7	5.0	1
Bromide in Water by IC (Low Level)	E235.Br-L	726618	1	17	5.8	5.0	✓
BTEX by Headspace GC-MS	E611A	728982	2	37	5.4	5.0	✓
Conductivity in Water	E100	726620	1	20	5.0	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	729276	2	40	5.0	5.0	✓
Dissolved Metals in Water by CRC ICPMS	E421	727171	1	20	5.0	5.0	1
Nitrate in Water by IC (Low Level)	E235.NO3-L	726614	1	18	5.5	5.0	✓
Nitrite in Water by IC (Low Level)	E235.NO2-L	726615	1	20	5.0	5.0	✓
PAHs by Hexane LVI GC-MS	E641A	727360	2	24	8.3	5.0	✓
pH by Meter	E108	726621	1	20	5.0	5.0	✓
Sulfate in Water by IC	E235.SO4	726613	1	20	5.0	5.0	✓
VH and F1 by Headspace GC-FID	E581.VH+F1	728983	2	35	5.7	5.0	✓
Method Blanks (MB)							
Alkalinity Species by Titration	E290	726622	1	20	5.0	5.0	1
Ammonia by Fluorescence	E298	727978	2	40	5.0	5.0	1
BC PHCs - EPH by GC-FID	E601A	727361	2	23	8.7	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	726618	1	17	5.8	5.0	✓
BTEX by Headspace GC-MS	E611A	728982	2	37	5.4	5.0	√
Conductivity in Water	E100	726620	1	20	5.0	5.0	√
Dissolved Mercury in Water by CVAAS	E509	729276	2	40	5.0	5.0	1

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Matrix: Water Evaluation: × = QC frequency outside specification: ✓ = QC frequency within specification.

atrix: water Evaluation: ★ = QC frequency outside specification; ★ = QC frequency within specification.											
Quality Control Sample Type			Co	ount		Frequency (%))				
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation				
Method Blanks (MB) - Continued											
Dissolved Metals in Water by CRC ICPMS	E421	727171	1	20	5.0	5.0	✓				
Nitrate in Water by IC (Low Level)	E235.NO3-L	726614	1	18	5.5	5.0	✓				
Nitrite in Water by IC (Low Level)	E235.NO2-L	726615	1	20	5.0	5.0	✓				
PAHs by Hexane LVI GC-MS	E641A	727360	2	24	8.3	5.0	✓				
Sulfate in Water by IC	E235.SO4	726613	1	20	5.0	5.0	✓				
VH and F1 by Headspace GC-FID	E581.VH+F1	728983	2	35	5.7	5.0	✓				
Matrix Spikes (MS)											
Ammonia by Fluorescence	E298	727978	2	40	5.0	5.0	✓				
Bromide in Water by IC (Low Level)	E235.Br-L	726618	1	17	5.8	5.0	✓				
BTEX by Headspace GC-MS	E611A	728982	2	37	5.4	5.0	✓				
Dissolved Mercury in Water by CVAAS	E509	729276	2	40	5.0	5.0	✓				
Dissolved Metals in Water by CRC ICPMS	E421	727171	1	20	5.0	5.0	✓				
Nitrate in Water by IC (Low Level)	E235.NO3-L	726614	1	18	5.5	5.0	✓				
Nitrite in Water by IC (Low Level)	E235.NO2-L	726615	1	20	5.0	5.0	✓				
Sulfate in Water by IC	E235.SO4	726613	1	20	5.0	5.0	✓				
VH and F1 by Headspace GC-FID	E581.VH+F1	728983	2	35	5.7	5.0	✓				

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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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental		15111 1555 11 (1)	
pH by Meter	E108	Water	APHA 4500-H (mod)	pH is determined by potentiometric measurement with a pH electrode, and is conducted
	Vancouver -			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.
	Environmental			ph should be measured in the field within the recommended 15 milliate hold time.
Bromide in Water by IC (Low Level)		Water	EPA 300.1 (mod)	Increasing anions are applying by Jan Chromotography with conductivity and/or LIV
Biofilide III Water by IC (Low Level)	E235.Br-L	vvalei	LFA 300.1 (IIIou)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			446416111
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV
				detection.
	Vancouver -			
	Environmental			
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			,
Ammonia by Fluorescence	E298	Water	Method Fialab 100, 2018	Ammonia in water is determined by automated continuous flow analysis with membrane diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde).
	Vancouver -		20.0	This method is approved under US EPA 40 CFR Part 136 (May 2021)
	Environmental			This motified is approved under 65 Er // 15 61 f/1 are 155 (may 2521)
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver -		3020D (1110d)	Completificacion Con for Mo.
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered
				by this method.
				by the method.

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Vancouver - Environmental VH and F1 by Headspace GC-FID E581.VH+F1 Vancouver - Environmental Water BC MOE Lab Manual / CCME PHC in Soil - Tier are prepared in Vancouver - Environmental Vancouver - Environmental	re filtered (0.45 um), preserved with HCI, then undergo a cold-oxidation prochloride prior to reduction with stannous chloride, and analyzed by sons (VH and F1) is analyzed by static headspace GC-FID. Samples headspace vials and are heated and agitated on the headspace using VOCs to partition between the aqueous phase and the dance with Henry's law.
Vancouver - Environmental VH and F1 by Headspace GC-FID E581.VH+F1 Vancouver - Universe - Univer	nons (VH and F1) is analyzed by static headspace GC-FID. Samples headspace vials and are heated and agitated on the headspace sing VOCs to partition between the aqueous phase and the dance with Henry's law.
Environmental VH and F1 by Headspace GC-FID E581.VH+F1 Water BC MOE Lab Manual / CCME PHC in Soil - Tier are prepared in Vancouver - 1 (mod) Environmental Environmental	headspace vials and are heated and agitated on the headspace using VOCs to partition between the aqueous phase and the dance with Henry's law.
VH and F1 by Headspace GC-FID E581.VH+F1 Water BC MOE Lab Manual / CCME PHC in Soil - Tier are prepared in Vancouver - Environmental Environmental Water BC MOE Lab Manual / CME PHC in Soil - Tier are prepared in autosampler, cause headspace in accord	headspace vials and are heated and agitated on the headspace using VOCs to partition between the aqueous phase and the dance with Henry's law.
CCME PHC in Soil - Tier are prepared in Vancouver - 1 (mod) autosampler, cause headspace in accordance in accordan	headspace vials and are heated and agitated on the headspace sing VOCs to partition between the aqueous phase and the dance with Henry's law.
Vancouver - 1 (mod) autosampler, cause tensions to the substantial headspace in accordance to the substantial tensions to the substantial tens	sing VOCs to partition between the aqueous phase and the dance with Henry's law.
Environmental headspace in accord	dance with Henry's law.
i i i i i i i i i i i i i i i i i i i	
BOTHOS - ETTTBY GO-TID E00TA Water Bo Wol Lab Walland	s analyzed by GG-1 ID for BG flydrocarbon fractions.
Vancouver -	
Environmental	
BTEX by Headspace GC-MS E611A Water EPA 8260D (mod) Volatile Organic	Compounds (VOCs) are analyzed by static headspace GC-MS.
	epared in headspace vials and are heated and agitated on the
Vancouver - headspace autosa	ampler, causing VOCs to partition between the aqueous phase and
Environmental the headspace in ac	ccordance with Henry's law.
PAHs by Hexane LVI GC-MS E641A Water EPA 8270E (mod) Polycyclic Aromatic GC-MS.	ic Hydrocarbons (PAHs) are analyzed by large volume injection (LVI)
Vancouver -	
Environmental	
Dissolved Hardness (Calculated) EC100 Water APHA 2340B "Hardness (as Ca	aCO3), dissolved" is calculated from the sum of dissolved Calcium and
Magnesium conce	entrations, expressed in CaCO3 equivalents. "Total Hardness" refers
Vancouver - to the sum of Ca	alcium and Magnesium Hardness. Hardness is normally or preferentially
Environmental calculated from c	dissolved Calcium and Magnesium concentrations, because it is a
1 1 7	ue to dissolved divalent cations.
	n Hydrocarbons (VPH) is calculated as follows: VPHw = Volatile
	H6-10) minus benzene, toluene, ethylbenzene, xylenes (BTEX) and
Vancouver - Solids) (mod) styrene.	
Environmental LEPH and HEPH: EPH-PAH FC600A Water BC MOF Lab Manual Light Extractable	Ditalogo Halandara (LEDII) and Harry Estatelly Detalogo
2000/1 Do Moz Edb Mariadi Elgit Extraolable	Petroleum Hydrocarbons (LEPH) and Heavy Extractable Petroleum EPH) are calculated as follows: LEPH = Extractable Petroleum
	EPH10-19) minus Acenaphthene, Acridine, Anthracene, Fluorene,
(d Phenanthrene; HEPH = Extractable Petroleum Hydrocarbons
	Benz(a)anthracene, Benzo(a)pyrene, Fluoranthene, and Pyrene.
Preparation Methods Method / Lab Matrix Method Reference Method Descriptions	
Preparation for Ammonia EP298 Water Sample preparation	for Preserved Nutrients Water Quality Analysis.
Vancouver -	
Environmental	
Dissolved Metals Water Filtration EP421 Water APHA 3030B Water samples are f	filtered (0.45 um), and preserved with HNO3.
Vancouver -	
Environmental	

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Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			
VOCs Preparation for Headspace Analysis	EP581	Water	EPA 5021A (mod)	Samples are prepared in headspace vials and are heated and agitated on the
				headspace autosampler. An aliquot of the headspace is then injected into the
	Vancouver -			GC/MS-FID system.
	Environmental			
PHCs and PAHs Hexane Extraction	EP601	Water	EPA 3511 (mod)	Petroleum Hydrocarbons (PHCs) and Polycyclic Aromatic Hydrocarbons (PAHs) are
				extracted using a hexane liquid-liquid extraction.
	Vancouver -			
	Environmental			

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QUALITY CONTROL REPORT

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Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

: Michelle Unger **Account Manager** Contact : Can Dang Address

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone Telephone :+1 867 668 6689 **Project** : Sa Dena Hes Date Samples Received :31-Oct-2022 12:30

PO :PO# 10289 **Date Analysis Commenced** : 02-Nov-2022 C-O-C number Issue Date :09-Nov-2022 14:42

: Finley Sparling 50 427 8404 Sampler

Site : Sa Dena Hes Quote number : VA22-TECK150-001

No. of samples received : 15

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 Percent Difference (RPD) and Data Quality Objectives

Matrix Spike (MS) Report; Recovery and Data Quality Objectives

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- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

:601 Knighton Road

Kimberley BC Canada V1A 3E1

Signatories

No. of samples analysed

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	Vancouver Inorganics, Burnaby, British Columbia
Delson Resende	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Janice Leung	Supervisor - Organics Instrumentation	Vancouver Organics, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
Qammar Almas	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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	-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: 726620)													
VA22C6475-003	Anonymous	conductivity		E100	2.0	μS/cm	365	367	0.546%	10%				
Physical Tests (QC	Lot: 726621)													
VA22C6475-003	Anonymous	рН		E108	0.10	pH units	7.56	7.57	0.132%	4%				
Physical Tests (QC	Lot: 726622)													
VA22C6475-003	Anonymous	alkalinity, total (as CaCO3)		E290	1.0	mg/L	56.3	57.6	2.28%	20%				
Anions and Nutrien	ts (QC Lot: 726613)													
VA22C6475-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	80.5	80.3	0.280%	20%				
Anions and Nutrien	ts (QC Lot: 726614)													
VA22C6475-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.512	0.513	0.0386%	20%				
Anions and Nutrien	ts (QC Lot: 726615)													
VA22C6475-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 726618)													
VA22C6475-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 727978)													
WR2201400-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0189	0.0192	0.0003	Diff <2x LOR				
Anions and Nutrien	ts (QC Lot: 728112)													
KS2204100-021	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR				
Dissolved Metals (QC Lot: 727171)													
VA22C6002-001	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0261	0.0246	5.77%	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	0.00040	0.00036	0.00004	Diff <2x LOR				
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.00276	0.00266	3.68%	20%				
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	<0.010	<0.010	0	Diff <2x LOR				
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR				
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	4.70	4.86	3.35%	20%				
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR				
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR				
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR				

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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 (C	QC Lot: 727171) - contir	nued										
VA22C6002-001	Anonymous	iron, dissolved	7439-89-6	E421	0.010	mg/L	0.062	0.060	0.002	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	<0.0010	<0.0010	0	Diff <2x LOR		
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	1.24	1.22	1.36%	20%		
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.0264	0.0260	1.48%	20%		
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000266	0.000265	0.000001	Diff <2x LOR		
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	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	0.100	mg/L	0.330	0.324	0.006	Diff <2x LOR		
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	<0.000050	<0.000050	0	Diff <2x LOR		
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.38	5.21	3.21%	20%		
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR		
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.12	2.13	0.490%	20%		
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.0358	0.0332	7.71%	20%		
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR		
		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	0.000024	0.000026	0.000002	Diff <2x LOR		
		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	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR		
Dissolved Metals (C	QC Lot: 729276)											
WR2201395-005	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR		
Dissolved Metals (C	QC Lot: 729277)											
WR2201401-006	SD-MW13-13_2022-10-24	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.0000050	0	Diff <2x LOR		
Volatile Organic Co	mpounds (QC Lot: 7289	982)										
VA22C6227-001	Anonymous	benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR		
		xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	< 0.30	0	Diff <2x LOR		

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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	
Volatile Organic Co	mpounds (QC Lot: 7314	19)										
WR2201401-003	SD_MW13-07_2022-10-24	benzene	71-43-2	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		ethylbenzene	100-41-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		styrene	100-42-5	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		toluene	108-88-3	E611A	0.50	μg/L	<0.50	<0.50	0	Diff <2x LOR		
		xylene, m+p-	179601-23-1	E611A	0.40	μg/L	<0.40	<0.40	0	Diff <2x LOR		
		xylene, o-	95-47-6	E611A	0.30	μg/L	<0.30	<0.30	0	Diff <2x LOR		
Hydrocarbons (QC	Lot: 728983)											
VA22C6240-001	Anonymous	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%		
Hydrocarbons (QC	Lot: 731418)											
WR2201401-003	SD_MW13-07_2022-10-24	VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	<100	0.0%	30%		

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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.

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 726620)					
conductivity	E100	1	μS/cm	1.5	
Physical Tests (QCLot: 726622)					
alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Anions and Nutrients (QCLot: 72661					
sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 72661					
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 72661	,				
nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 72661					
bromide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 72797					
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 72811					
ammonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Dissolved Metals (QCLot: 727171)					
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	<0.000050	
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	

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nalyte	CAS Number Method	LOR	Unit	Result	Qualifier
issolved Metals (QCLot: 727171) - c	ontinued				
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	7440-23-5 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	
ssolved Metals (QCLot: 729276)					
mercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.000050	
ssolved Metals (QCLot: 729277)					
mercury, dissolved	7439-97-6 E509	0.000005	mg/L	<0.000050	
platile Organic Compounds (QCLot:	728982)				
benzene	71-43-2 E611A	0.5	μg/L	<0.50	
ethylbenzene	100-41-4 E611A	0.5	μg/L	<0.50	
methyl-tert-butyl ether [MTBE]	1634-04-4 E611A	0.5	μg/L	<0.50	
styrene	100-42-5 E611A	0.5	μg/L	<0.50	
toluene	108-88-3 E611A	0.5	μg/L	<0.50	
xylene, m+p-	179601-23-1 E611A	0.4	μg/L	<0.40	
xylene, o-	95-47-6 E611A	0.3	μg/L	<0.30	
platile Organic Compounds (QCLot:	731419)				
benzene	71-43-2 E611A	0.5	μg/L	<0.50	
ethylbenzene	100-41-4 E611A	0.5	μg/L	<0.50	
methyl-tert-butyl ether [MTBE]	1634-04-4 E611A	0.5	μg/L	<0.50	
styrene	100-42-5 E611A	0.5	μg/L	<0.50	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
olatile Organic Compounds (Q	CLot: 731419) - continued					
toluene	108-88-3	E611A	0.5	μg/L	<0.50	
xylene, m+p-	179601-23-1	E611A	0.4	μg/L	<0.40	
xylene, o-	95-47-6	E611A	0.3	μg/L	<0.30	
lydrocarbons (QCLot: 727361)						
EPH (C10-C19)		E601A	250	μg/L	<250	
EPH (C19-C32)		E601A	250	μg/L	<250	
ydrocarbons (QCLot: 727464)						
EPH (C10-C19)		E601A	250	μg/L	<250	
EPH (C19-C32)		E601A	250	μg/L	<250	
ydrocarbons (QCLot: 728983)						
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	
ydrocarbons (QCLot: 731418)						1
VHw (C6-C10)		E581.VH+F1	100	μg/L	<100	
olycyclic Aromatic Hydrocarbo	ns (QCLot: 727360)					
acenaphthene	83-32-9	E641A	0.01	μg/L	<0.010	
acenaphthylene	208-96-8	E641A	0.01	μg/L	<0.010	
acridine	260-94-6	E641A	0.01	μg/L	<0.010	
anthracene	120-12-7	E641A	0.01	μg/L	<0.010	
benz(a)anthracene	56-55-3	E641A	0.01	μg/L	<0.010	
benzo(a)pyrene	50-32-8	E641A	0.005	μg/L	<0.0050	
benzo(b+j)fluoranthene	n/a	E641A	0.01	μg/L	<0.010	
benzo(g,h,i)perylene	191-24-2	E641A	0.01	μg/L	<0.010	
benzo(k)fluoranthene	207-08-9	E641A	0.01	μg/L	<0.010	
chrysene	218-01-9	E641A	0.01	μg/L	<0.010	
dibenz(a,h)anthracene	53-70-3	E641A	0.005	μg/L	<0.0050	
fluoranthene	206-44-0	E641A	0.01	μg/L	<0.010	
fluorene	86-73-7	E641A	0.01	μg/L	<0.010	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	μg/L	<0.010	
methylnaphthalene, 1-	90-12-0	E641A	0.01	μg/L	<0.010	
methylnaphthalene, 2-	91-57-6	E641A	0.01	μg/L	<0.010	
naphthalene	91-20-3	E641A	0.05	μg/L	<0.050	
phenanthrene	85-01-8	E641A	0.02	μg/L	<0.020	
pyrene	129-00-0	E641A	0.01	μg/L	<0.010	
quinoline	91-22-5	E641A	0.05	μg/L	<0.050	

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Analyte	CAS Number	Method		LOR	Unit	Result	Qualifier
Polycyclic Aromatic Hydrocarbo	ns (QCLot: 727465) - contin	ued					
acenaphthene	83-32-9	E641A		0.01	μg/L	<0.010	
acenaphthylene	208-96-8	E641A		0.01	μg/L	<0.010	
acridine	260-94-6	E641A		0.01	μg/L	<0.010	
anthracene	120-12-7	E641A		0.01	μg/L	<0.010	
benz(a)anthracene	56-55-3	E641A		0.01	μg/L	<0.010	
benzo(a)pyrene	50-32-8	E641A		0.005	μg/L	<0.0050	
benzo(b+j)fluoranthene	n/a	E641A		0.01	μg/L	<0.010	
benzo(g,h,i)perylene	191-24-2	E641A		0.01	μg/L	<0.010	
benzo(k)fluoranthene	207-08-9	E641A		0.01	μg/L	<0.010	
chrysene	218-01-9	E641A		0.01	μg/L	<0.010	
dibenz(a,h)anthracene	53-70-3	E641A		0.005	μg/L	<0.0050	
fluoranthene	206-44-0	E641A		0.01	μg/L	<0.010	
fluorene	86-73-7	E641A		0.01	μg/L	<0.010	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A		0.01	μg/L	<0.010	
methylnaphthalene, 1-	90-12-0	E641A		0.01	μg/L	<0.010	
methylnaphthalene, 2-	91-57-6	E641A		0.01	μg/L	<0.010	
naphthalene	91-20-3	E641A		0.05	μg/L	<0.050	
phenanthrene	85-01-8	E641A		0.02	μg/L	<0.020	
pyrene	129-00-0	29-00-0 E641A			μg/L	<0.010	
quinoline	91-22-5	E641A		0.05	μg/L	<0.050	

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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 CA	AS Number I	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier	
Physical Tests (QCLot: 726620)										
conductivity	E	E100	1	μS/cm	146.9 μS/cm	96.2	90.0	110		
Physical Tests (QCLot: 726621)										
рН	E	E108		pH units	7 pH units	99.8	98.0	102		
Physical Tests (QCLot: 726622)										
alkalinity, total (as CaCO3)	E	E290	1	mg/L	500 mg/L	101	85.0	115		
Anions and Nutrients (QCLot: 726613)										
sulfate (as SO4)	14808-79-8 E	E235.SO4	0.3	mg/L	100 mg/L	104	90.0	110		
Anions and Nutrients (QCLot: 726614)										
nitrate (as N)	14797-55-8 E	E235.NO3-L	0.005	mg/L	2.5 mg/L	103	90.0	110		
Anions and Nutrients (QCLot: 726615)										
nitrite (as N)	14797-65-0 E	E235.NO2-L	0.001	mg/L	0.5 mg/L	98.5	90.0	110		
Anions and Nutrients (QCLot: 726618)										
bromide	24959-67-9 E	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115		
Anions and Nutrients (QCLot: 727978)										
ammonia, total (as N)	7664-41-7 E	E298	0.005	mg/L	0.2 mg/L	93.1	85.0	115		
Anions and Nutrients (QCLot: 728112)										
ammonia, total (as N)	7664-41-7 E	E298	0.005	mg/L	0.2 mg/L	89.5	85.0	115		
Dissolved Metals (QCLot: 727171)										
aluminum, dissolved	7429-90-5 E		0.001	mg/L	2 mg/L	98.8	80.0	120		
antimony, dissolved	7440-36-0 E		0.0001	mg/L	1 mg/L	98.0	80.0	120		
arsenic, dissolved	7440-38-2 E		0.0001	mg/L	1 mg/L	101	80.0	120		
barium, dissolved	7440-39-3 E		0.0001	mg/L	0.25 mg/L	101	80.0	120		
beryllium, dissolved	7440-41-7 E		0.00002	mg/L	0.1 mg/L	98.9	80.0	120		
bismuth, dissolved	7440-69-9 E		0.00005	mg/L	1 mg/L	96.4	80.0	120		
boron, dissolved	7440-42-8 E		0.01	mg/L	1 mg/L	97.0	80.0	120		
cadmium, dissolved	7440-43-9 E		0.000005	mg/L	0.1 mg/L	99.8	80.0	120		
calcium, dissolved	7440-70-2 E		0.05	mg/L	50 mg/L	102	80.0	120		
chromium, dissolved	7440-47-3 E		0.0005	mg/L	0.25 mg/L	96.5	80.0	120		
cobalt, dissolved	7440-48-4 E		0.0001	mg/L	0.25 mg/L	97.6	80.0	120		
copper, dissolved	7440-50-8 E	E421	0.0002	mg/L	0.25 mg/L	96.9	80.0	120		

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Spike Recovery (%) Recovery Limits (%)
Dissolved Metals (QCLot: 727171) - continued iron, dissolved 7439-89-6 E421 0.01 mg/L 1 mg/L 108 80.0 120 lead, dissolved 7439-92-1 E421 0.00005 mg/L 0.5 mg/L 101 80.0 120 lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 mg/L 95.4 80.0 120 magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 mg/L 99.6 80.0 120 molybdenum, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 mg/L 98.4 80.0 120 molybdenum, dissolved 7439-98-7 E421 0.0001 mg/L 0.25 mg/L 98.4 80.0 120 mickel, dissolved 7439-98-7 E421 0.00005 mg/L 0.25 mg/L 100 80.0 120 mickel, dissolved 7440-02-0 E421 0.0005 </th
iron, dissolved 7439-89-6 E421 0.01 mg/L 1 mg/L 108 80.0 120 lead, dissolved 7439-92-1 E421 0.00005 mg/L 0.5 mg/L 101 80.0 120 lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 mg/L 95.4 80.0 120 magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 mg/L 99.6 80.0 120 manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 mg/L 98.4 80.0 120 molybdenum, dissolved 7439-98-7 E421 0.0005 mg/L 0.25 mg/L 98.4 80.0 120 molybdenum, dissolved 7439-98-7 E421 0.0005 mg/L 0.25 mg/L 100 80.0 120 mickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 mg/L 97.7 80.0 120 phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L 10 mg/L 11 80.0 120
lead, dissolved 7439-92-1 E421 0.00005 mg/L 0.5 mg/L 101 80.0 120 lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 mg/L 95.4 80.0 120 magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 mg/L 99.6 80.0 120 molybdenum, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 mg/L 98.4 80.0 120 molybdenum, dissolved 7439-98-7 E421 0.0005 mg/L 0.25 mg/L 100 80.0 120 nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 mg/L 97.7 80.0 120 phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L 111 80.0 120
lithium, dissolved 7439-93-2 E421 0.001 mg/L 0.25 mg/L 95.4 80.0 120 magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 mg/L 99.6 80.0 120 manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 mg/L 98.4 80.0 120 molybdenum, dissolved 7439-98-7 E421 0.0005 mg/L 0.25 mg/L 100 80.0 120 mickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 mg/L 97.7 80.0 120 phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L 11 80.0 120
magnesium, dissolved 7439-95-4 E421 0.005 mg/L 50 mg/L 99.6 80.0 120 manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 mg/L 98.4 80.0 120 molybdenum, dissolved 7439-98-7 E421 0.00005 mg/L 0.25 mg/L 100 80.0 120 nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 mg/L 97.7 80.0 120 phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L 111 80.0 120
manganese, dissolved 7439-96-5 E421 0.0001 mg/L 0.25 mg/L 98.4 80.0 120 molybdenum, dissolved 7439-98-7 E421 0.00005 mg/L 0.25 mg/L 100 80.0 120 nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 mg/L 97.7 80.0 120 phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L 111 80.0 120
molybdenum, dissolved 7439-98-7 E421 0.00005 mg/L 0.25 mg/L 100 80.0 120 nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 mg/L 97.7 80.0 120 phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L 111 80.0 120
nickel, dissolved 7440-02-0 E421 0.0005 mg/L 0.5 mg/L 97.7 80.0 120 phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L 111 80.0 120
phosphorus, dissolved 7723-14-0 E421 0.05 mg/L 10 mg/L 111 80.0 120
potassium, dissolved 7440-09-7 E421 0.05 mg/L 50 mg/L 98.0 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 94.5 80.0 120
silver, dissolved 7440-22-4 E421 0.00001 mg/L 0.1 mg/L 95.4 80.0 120
sodium, dissolved 7440-23-5 E421 0.05 mg/L 50 mg/L 96.9 80.0 120
strontium, dissolved 7440-24-6 E421 0.0002 mg/L 0.25 mg/L 103 80.0 120
sulfur, dissolved 7704-34-9 E421 0.5 mg/L 50 mg/L 93.1 80.0 120
thallium, dissolved 7440-28-0 E421 0.00001 mg/L 1 mg/L 98.7 80.0 120
tin, dissolved 7440-31-5 E421 0.0001 mg/L 0.5 mg/L 96.8 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 102 80.0 120
vanadium, dissolved 7440-62-2 E421 0.0005 mg/L 0.5 mg/L 98.8 80.0 120
zinc, dissolved 7440-66-6 E421 0.001 mg/L 0.5 mg/L 98.1 80.0 120
zirconium, dissolved 7440-67-7 E421 0.0002 mg/L 0.1 mg/L 96.7 80.0 120
mercury, dissolved 7439-97-6 E509 0.000005 mg/L 0.0001 mg/L 96.3 80.0 120
mercury, dissolved 7439-97-6 E509 0.000005 mg/L 0.0001 mg/L 94.5 80.0 120
Volatile Organic Compounds (QCLot: 728982)
benzene 71-43-2 E611A 0.5 μg/L 100 μg/L 110 70.0 130
ethylbenzene 100-41-4 E611A 0.5 µg/L 100 µg/L 109 70.0 130
methyl-tert-butyl ether [MTBE] 1634-04-4 E611A 0.5 µg/L 100 µg/L 101 70.0 130
styrene 100-42-5 E611A 0.5 µg/L 100 µg/L 102 70.0 130
toluene 108-88-3 E611A 0.5 µg/L 100 µg/L 110 70.0 130
xylene, m+p- 179601-23-1 E611A 0.4 µg/L 200 µg/L 122 70.0 130
xylene, o- 95-47-6 E611A 0.3 µg/L 100 µg/L 113 70.0 130
Volatile Organic Compounds (QCLot: 731419)
benzene 71-43-2 E611A 0.5 μg/L 100 μg/L 97.2 70.0 130
ethylbenzene 100-41-4 E611A 0.5 µg/L 100 µg/L 84.0 70.0 130

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Sub-Matrix: Water			Laboratory Control Sample (LCS) Report										
					Spike	Recovery (%)	Recovery	Limits (%)					
Analyte	CAS Number Mo	ethod	LOR	Unit	Concentration	LCS	Low	High	Qualifie				
Volatile Organic Compounds (QCLot:	: 731419) - continued												
methyl-tert-butyl ether [MTBE]	1634-04-4 E6	611A	0.5	μg/L	100 μg/L	100	70.0	130					
styrene	100-42-5 E6	311A	0.5	μg/L	100 μg/L	87.0	70.0	130					
toluene	108-88-3 E6	611A	0.5	μg/L	100 μg/L	87.1	70.0	130					
xylene, m+p-	179601-23-1 E6	611A	0.4	μg/L	200 μg/L	98.8	70.0	130					
xylene, o-	95-47-6 E6	311A	0.3	μg/L	100 μg/L	86.7	70.0	130					
Hydrocarbons (QCLot: 727361)													
EPH (C10-C19)	E6	601A	250	μg/L	6491 μg/L	92.5	70.0	130					
EPH (C19-C32)	E6	601A	250	μg/L	3363 μg/L	110	70.0	130					
Hydrocarbons (QCLot: 727464)													
EPH (C10-C19)	E6	601A	250	μg/L	6491 μg/L	93.2	70.0	130					
EPH (C19-C32)	E6	601A	250	μg/L	3363 µg/L	112	70.0	130					
Hydrocarbons (QCLot: 728983)													
VHw (C6-C10)	E5	581.VH+F1	100	μg/L	6310 μg/L	86.8	70.0	130					
Hydrocarbons (QCLot: 731418)													
VHw (C6-C10)	E5	581.VH+F1	100	μg/L	6310 μg/L	81.9	70.0	130					
,					, ,								
Polycyclic Aromatic Hydrocarbons (C	OCL of: 727360)												
acenaphthene	83-32-9 E6	641A	0.01	μg/L	0.5 μg/L	95.0	60.0	130					
acenaphthylene	208-96-8 E6	641A	0.01	μg/L	0.5 μg/L	104	60.0	130					
acridine	260-94-6 E6	641A	0.01	μg/L	0.5 μg/L	102	60.0	130					
anthracene	120-12-7 E6	641A	0.01	μg/L	0.5 μg/L	112	60.0	130					
benz(a)anthracene	56-55-3 E6		0.01	μg/L	0.5 μg/L	116	60.0	130					
benzo(a)pyrene	50-32-8 E6		0.005	μg/L	0.5 μg/L	95.2	60.0	130					
benzo(b+j)fluoranthene	n/a E6		0.01	μg/L	0.5 μg/L	81.3	60.0	130					
benzo(g,h,i)perylene	191-24-2 E6		0.01	μg/L	0.5 μg/L	97.7	60.0	130					
benzo(k)fluoranthene	207-08-9 E6		0.01	μg/L	0.5 μg/L	81.9	60.0	130					
chrysene	218-01-9 E6		0.01	μg/L	0.5 μg/L	103	60.0	130					
dibenz(a,h)anthracene	53-70-3		0.005	μg/L	0.5 μg/L 0.5 μg/L	103	60.0	130					
fluoranthene	206-44-0		0.003	μg/L		104	60.0	130					
	86-73-7 E6		0.01		0.5 μg/L		60.0	130					
fluorene				μg/L	0.5 μg/L	106							
indeno(1,2,3-c,d)pyrene	193-39-5 E6		0.01	μg/L	0.5 μg/L	129	60.0	130					
methylnaphthalene, 1-	90-12-0 E6		0.01 0.01	μg/L	0.5 μg/L	92.8	60.0	130					
methylnaphthalene, 2-				μg/L	0.5 μg/L	96.8	60.0	130					
naphthalene	91-20-3 E6		0.05	μg/L	0.5 μg/L	93.3	50.0	130					
phenanthrene	85-01-8 E6	641A	0.02	μg/L	0.5 μg/L	108	60.0	130					

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Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Polycyclic Aromatic Hydrocarbons	(QCLot: 727360) - continue	ed							
pyrene	129-00-0	E641A	0.01	μg/L	0.5 μg/L	106	60.0	130	
quinoline	91-22-5	E641A	0.05	μg/L	0.5 μg/L	104	60.0	130	
Polycyclic Aromatic Hydrocarbons	(QCLot: 727465)								
acenaphthene	83-32-9	E641A	0.01	μg/L	0.5 μg/L	83.0	60.0	130	
acenaphthylene	208-96-8	E641A	0.01	μg/L	0.5 μg/L	90.8	60.0	130	
acridine	260-94-6	E641A	0.01	μg/L	0.5 μg/L	105	60.0	130	
anthracene	120-12-7	E641A	0.01	μg/L	0.5 μg/L	99.4	60.0	130	
benz(a)anthracene	56-55-3	E641A	0.01	μg/L	0.5 μg/L	97.5	60.0	130	
benzo(a)pyrene	50-32-8	E641A	0.005	μg/L	0.5 μg/L	83.8	60.0	130	
benzo(b+j)fluoranthene	n/a	E641A	0.01	μg/L	0.5 μg/L	72.6	60.0	130	
benzo(g,h,i)perylene	191-24-2	E641A	0.01	μg/L	0.5 μg/L	84.8	60.0	130	
benzo(k)fluoranthene	207-08-9	E641A	0.01	μg/L	0.5 μg/L	72.1	60.0	130	
chrysene	218-01-9	E641A	0.01	μg/L	0.5 μg/L	88.6	60.0	130	
dibenz(a,h)anthracene	53-70-3	E641A	0.005	μg/L	0.5 μg/L	89.9	60.0	130	
fluoranthene	206-44-0	E641A	0.01	μg/L	0.5 μg/L	91.6	60.0	130	
fluorene	86-73-7	E641A	0.01	μg/L	0.5 μg/L	93.3	60.0	130	
indeno(1,2,3-c,d)pyrene	193-39-5	E641A	0.01	μg/L	0.5 μg/L	110	60.0	130	
methylnaphthalene, 1-	90-12-0	E641A	0.01	μg/L	0.5 μg/L	80.8	60.0	130	
methylnaphthalene, 2-	91-57-6	E641A	0.01	μg/L	0.5 μg/L	83.9	60.0	130	
naphthalene	91-20-3	E641A	0.05	μg/L	0.5 μg/L	81.6	50.0	130	
phenanthrene	85-01-8	E641A	0.02	μg/L	0.5 μg/L	95.5	60.0	130	
pyrene	129-00-0	E641A	0.01	μg/L	0.5 μg/L	91.4	60.0	130	
quinoline	91-22-5	E641A	0.05	μg/L	0.5 μg/L	106	60.0	130	

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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 Spik	e (MS) Report		
					Sp	ike	Recovery (%)	Recovery	Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
nions and Nutri	ents (QCLot: 726613)									
VA22C6475-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	106 mg/L	100 mg/L	106	75.0	125	
Anions and Nutri	ents (QCLot: 726614)									
VA22C6475-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.65 mg/L	2.5 mg/L	106	75.0	125	
Anions and Nutri	ents (QCLot: 726615)									
VA22C6475-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.510 mg/L	0.5 mg/L	102	75.0	125	
nions and Nutri	ents (QCLot: 726618)									
VA22C6475-002	Anonymous	bromide	24959-67-9	E235.Br-L	0.531 mg/L	0.5 mg/L	106	75.0	125	
Anions and Nutri	ents (QCLot: 727978)									
WR2201400-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.102 mg/L	0.1 mg/L	102	75.0	125	
Anions and Nutri	ents (QCLot: 728112)									
KS2204100-022	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0938 mg/L	0.1 mg/L	93.8	75.0	125	
	(QCLot: 727171)		1001111	2200	0.0000 mg/2	0.1.119/2	35.5	7 0.0	120	
VA22C6002-002	Anonymous	aluminum, dissolved	7429-90-5	E421	0.194 mg/L	0.2 mg/L	96.9	70.0	130	
.,		antimony, dissolved	7429-90-9	E421	0.194 mg/L 0.0196 mg/L	0.02 mg/L	97.8	70.0	130	
		arsenic, dissolved	7440-38-2	E421	0.0195 mg/L	0.02 mg/L	97.4	70.0	130	
		barium, dissolved	7440-39-3	E421	0.0196 mg/L	0.02 mg/L	98.2	70.0	130	
		beryllium, dissolved	7440-41-7	E421	0.0410 mg/L	0.04 mg/L	102	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00991 mg/L	0.01 mg/L	99.1	70.0	130	
		boron, dissolved	7440-42-8	E421	0.096 mg/L	0.1 mg/L	96.3	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00398 mg/L	0.004 mg/L	99.4	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	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0199 mg/L	0.02 mg/L	99.6	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0198 mg/L	0.02 mg/L	98.8	70.0	130	
		iron, dissolved	7439-89-6	E421	1.99 mg/L	2 mg/L	99.4	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0205 mg/L	0.02 mg/L	102	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.100 mg/L	0.02 mg/L 0.1 mg/L	100	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	0.0203 mg/L	0.02 mg/L	102	70.0	130	_
		molybdenum, dissolved	7439-98-7	E421	0.0203 mg/L 0.0202 mg/L	0.02 mg/L 0.02 mg/L	102	70.0	130	

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Sub-Matrix: Water				Matrix Spike (MS) Report								
					Spi	ke	Recovery (%)	Recovery				
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier		
	s (QCLot: 727171) - co	ntinued										
VA22C6002-002	Anonymous	nickel, dissolved	7440-02-0	E421	0.0400 mg/L	0.04 mg/L	100.0	70.0	130			
		phosphorus, dissolved	7723-14-0	E421	10.4 mg/L	10 mg/L	104	70.0	130			
		potassium, dissolved	7440-09-7	E421	3.83 mg/L	4 mg/L	95.8	70.0	130			
		selenium, dissolved	7782-49-2	E421	0.0407 mg/L	0.04 mg/L	102	70.0	130			
		silicon, dissolved	7440-21-3	E421	8.79 mg/L	10 mg/L	87.9	70.0	130			
		silver, dissolved	7440-22-4	E421	0.00413 mg/L	0.004 mg/L	103	70.0	130			
		sodium, dissolved	7440-23-5	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	20.0 mg/L	20 mg/L	100	70.0	130			
		thallium, dissolved	7440-28-0	E421	0.00392 mg/L	0.004 mg/L	98.0	70.0	130			
		tin, dissolved	7440-31-5	E421	0.0195 mg/L	0.02 mg/L	97.5	70.0	130			
		titanium, dissolved	7440-32-6	E421	0.0398 mg/L	0.04 mg/L	99.5	70.0	130			
		uranium, dissolved	7440-61-1	E421	0.00398 mg/L	0.004 mg/L	99.5	70.0	130			
		vanadium, dissolved	7440-62-2	E421	0.0994 mg/L	0.1 mg/L	99.4	70.0	130			
		zinc, dissolved	7440-66-6	E421	0.396 mg/L	0.4 mg/L	99.0	70.0	130			
		zirconium, dissolved	7440-67-7	E421	0.0410 mg/L	0.04 mg/L	102	70.0	130			
Dissolved Metals	(QCLot: 729276)											
WR2201395-006	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000897 mg/L	0.0001 mg/L	89.7	70.0	130			
Dissolved Metals	s (QCLot: 729277)											
WR2201401-007	SD_MW14-01_2022-10-24	mercury, dissolved	7439-97-6	E509	0.0000914 mg/L	0.0001 mg/L	91.4	70.0	130			
Volatile Organic	Compounds (QCLot: 7	28982)										
VA22C6227-002	Anonymous	benzene	71-43-2	E611A	111 μg/L	100 μg/L	111	60.0	140			
		ethylbenzene	100-41-4	E611A	114 μg/L	100 μg/L	114	60.0	140			
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	105 μg/L	100 μg/L	105	60.0	140			
		styrene	100-42-5	E611A	105 μg/L	100 μg/L	105	60.0	140			
		toluene	108-88-3	E611A	114 μg/L	100 μg/L	114	60.0	140			
		xylene, m+p-	179601-23-1	E611A	242 µg/L	200 μg/L	121	60.0	140			
		xylene, o-	95-47-6	E611A	117 μg/L	100 μg/L	117	60.0	140			
Volatile Organic	Compounds (QCLot: 7	31419)										
WR2201401-003	SD_MW13-07_2022-10-24	benzene	71-43-2	E611A	90.4 μg/L	100 μg/L	90.4	60.0	140			
		ethylbenzene	100-41-4	E611A	90.8 µg/L	100 μg/L	90.8	60.0	140			
		methyl-tert-butyl ether [MTBE]	1634-04-4	E611A	96.6 µg/L	100 μg/L	96.6	60.0	140			
		styrene	100-42-5	E611A	82.4 µg/L	100 μg/L	82.4	60.0	140			
	1	toluene	108-88-3	E611A	93.8 µg/L	100 μg/L	93.8	60.0	140			

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Sub-Matrix: Water				Matrix Spike (MS) Report									
					Spi	ke	Recovery (%)	Recovery	Limits (%)				
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier			
Volatile Organic	Compounds (QCLot: 73	1419) - continued											
WR2201401-003	SD_MW13-07_2022-10-24	xylene, m+p-	179601-23-1	E611A	208 μg/L	200 μg/L	104	60.0	140				
		xylene, o-	95-47-6	E611A	91.5 μg/L	100 μg/L	91.5	60.0	140				
Hydrocarbons (C	(CLot: 728983)												
VA22C6240-002	Anonymous	VHw (C6-C10)		E581.VH+F1	4310 μg/L	6310 μg/L	68.4	60.0	140				
Hydrocarbons (C	CLot: 731418)												
WR2201401-005	SD_MW13-10_2022-10-24	VHw (C6-C10)		E581.VH+F1	5030 μg/L	6310 μg/L	79.6	60.0	140				

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COC #

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ddress: Contact Company: O/AFE: oject# voice To eport To ardcopy of Invoice with Report? Sample ent / Project Information Lab Work Order # (lab use only) Same as Report? 801 Knightton Road Michelle Unger ECA22YT00199 TECK PO10289 Kimberly, BC TECK Metals Ltd 250-427-8422 SD_MW13-01_2022-10-24 Sample Identification Ę Š -Kes Fax [|} |} This description will appear on the bottle Sample Location SD_MW13-01 Email 3: Email 2: Email 1: Report Format / Distribution ALS Contact: Email 2: legacy.ap@teck.com Select Email Distribution: PDF Ernail 1 or Fax: michelle.unger@teck.com ⊒uote #: / Standard Q62635 Can Dang wendy.mcbain@teck.com, colin.lynch@teck.com chanson@ensero.com, teckkimb@equisonline.com ezheng@ensero.com, slyons@ensero.com Date (dd-mmm-yy) 28-Oct-22 / Excel Other Invoice Distribution Sampler: Time (hh:mm) ✓ Digital 15:40 Finley Sparling Sample Type Groundwater Fax Same Day or Weekend Emergency - Contact ALS to Cor () Emergency (1-2 Bus. Days) - 100% Surcharge - Contac Service Requested (Rush for routine analysis sub O Priority (24 Business Days) - 50% Surcharge - Contact Regular (Standard Turnaround Times - Business Days) pH, SPC, alkalinity, hardness Analysis Requ Please indicate below Filtered, Preserv Anions (nitrate, nitrite, sulphate, CI_, F_, Br) Ammonia BTEX, LEPH, HEPH VPH, PAH Page Environmental Division Whitehorse

Telephone: +1 867 668 6689

Numbe



Work Order Reference
WR2201401

17%)

Temperature:

Verified by

SHIPMENT VERIFICATION (lab use only)

Yukon EQWin and ACC200 digital formats. General A: pH, EC, TSS (low) General B: pH, EC, TSS (low), anions-all General C: pH, EC, TSS (low), anions-all E, pH, EC, TSS (low), anions-all E, pH, EC, TSS (low), sold, ion balance, alkalinity General E, pH, EC, TSS (low), SO4, ion balance, alkalinity General E, pH, EC, TSS (low), sold, ion balance, alkalinity General E,

Special Instructions / Regulations with water or land use (OCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

26-Oct-22

No Time

Groundwater

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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 RECEPTION (lab use only)

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

SD_MW13-08_2022-10-24

SD_MW13-13

SD_MW13-10

11:45 13:50 14:45

Groundwater Groundwater Groundwater

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Groundwater

SD_MW13-08

SD_MW13-07

SD_MW13-06

25-Oct-22

14:00

Groundwater

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SD_MW13-07_2022-10-24 SD_MW13-96_2022-10-24

SD_MW14-03_2022-10-24 SD_MW14-02_2022-10-24 SD_MW14-01_2022-10-24 SD_MW13-13_2022-10-24 SD_MW13-10_2022-10-24

SD_MW14-04_2022-10-24 SD_MW-FB_2022-10-24 SD_MW-FD_2022-10-24

SD_WW14-04

25-Oct-22 26-Oct-22

28-Oct-22

15:10 17:30

Groundwater

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SD_MW-FB

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SD_MW14-02 SD_MW14-01

25-Oct-22 26-Oct-22 25-Oct-22 28-Oct-22 28-Oct-22 26-Oct-22

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SD_MW14-03

Released by:

SHIPMENT RELEASE (client use)

Date (dd-mmm-yy)

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Received by:

GENF 20,00 Front

If Ye If Yes add SIF Obse Observations: Yes / Yes / No?



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COC # Page

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	Finley Sparling	Released by:					Yukon EQWin and ACC200 digital formats. General A: pH, EC, TSS (low) General B: pH, EC, TSS (low), anions-all, ion balance, alkalinity General B: pH, EC, TSS (low), anions-all, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), SO4, ion balance, alkalinity General E: pH, EC, TSS (low), so long table so																Sample #	_ a	LSD:	PO / AFE:	Project #	Client I Project Information	Hardcopy of Invoice with Report?	Invoice To	Phone:		Address:	Contact	Company:	
	ring	by:					Win and /			2000						/4.81 1944								Lab Work Order# (lab use only)		TECK	ECA2	oject Info	of Invoice		250-4	Kimbe	601 K	Miche	TECK	
			SHIPM				ACC200 d TSS (low),														SD_	SD	ý	der# ily)		TECK PO10289	ECA22YT00199	rm ation	with Repo	Same as Report?	250-427-8422	Kimberly, BC	601 Knightton Road	Michelle Unger	TECK Metals Ltd	
	<u> </u>	Date (d	SHIPMENT RELEASE (client use)	Also	A ico		igital form , anions-all	s													SD_MW-FD2_2022-10-24	SD_MW-TB_2022-10-24	Sample Identification							[? 기 Yes			oad		0.	
	31-Oct-22	Date (dd-mmm-yy)	ASE (clie	a dylucu	ravided.		ats. Gen , ion balar	pecial Ins													2022-10-2	2022-10-2	ıtification						Yes	'es	Fax					
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		Date:	SHIPMENT RECEPTION (lab use only)	din all	prees with	form may	v), anions- ce, alkalin	shwater .													28-Oct-22	17-Oct-22	Date (dd-mmm-yy)	Can Dang	Q62635		Email 2: legacy.ap@teck.com	Email 1 or Fax: michelle.unger@teck.com	ibution:	invo	chanson@	wendy.mc	azhenci@e	_/ Excel	Other	
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		Time:	use only)	Also providen on another Excel da are the ALS location and esses, phothe intilizers and safifpie container it preservation	By the use of this form the user acknowledges and agrees with the Tenst and Conditions as provided control to the user acknowledges and agrees with the Tenst and Conditions as provided control to the total to the Alexander Conditions as provided control to the Alexander Conditions are the Alexander Conditions as provided control to the Condition and Conditions are the Alexander Conditions and Conditions are the Alexander Conditions and Conditions are the Conditions as provided the Conditions are the Conditions and Conditions are the Condit	alveie Ple	ale pere	Special instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB T													No Time	No ⊺ime	Time (hh:mm)	Sampler:				com		bution	chanson@ensero.com, teckkimb@equisonline.com	wendy.mcbain@teck.com, colin.lynch@teck.com	azhenc@ensero.com, slvons@ensero.com			
İ		Temperature:		rattlet 1 bi	ditions at	ace fill in	C, TSS (lo	₹ - Comm															Sampl	Finley Sparling							b@equisc	.lvnch@te	ensero.co	∐Fax		
L	റ്	ature:		eser vario	s provide	this form	w). SO4.	ercial/AB													Groundwater	Groundwater	Sample Type	parling							nline.con	ck.com	m	×		
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l			S	I fiolding time table for common analyses.	on a separate Excel tab			ier 1 - Natural, etc) / Hazardous				<u> </u>		<u> </u>				<u> </u>	<u> </u>		X	×	CI, F, E	Br)		-,			Р	Please indicate below Filtered, Preserved or both (F, P,		Same Day or Weekend Emergency - Contact ALS to Confirm TAT	Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	Priority (24 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	(Regular (Standard Turnaround Times - Business Days)	
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ALS Canada Ltd.



CERTIFICATE OF ANALYSIS

Work Order : **WR2201530** Page : 1 of 14

Client : Teck Metals Ltd : Laboratory : Whitehorse - Environmental

Contact : Michelle Unger : Can Dang
Address : 601 Knighton Road : #12 151 Indi

: 601 Knighton Road Address : #12 151 Industrial Road

Kimberley BC Canada V1A 3E1 Whitehorse YT Canada Y1A 2V3

 Telephone
 : 250 427 8404
 Telephone
 : +1 867 668 6689

 Project
 : Sa Dena Hes
 Date Samples Received
 : 05-Dec-2022 15:00

 PO
 : PO# 10289
 Date Analysis Commenced
 : 07-Dec-2022

Sampler : Wes Moir

Site : ECA22YT00199

No. of samples received : 13

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:

: VA22-TECK150-001

- 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

Quote number

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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Qammar Almas	Lab Assistant	Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Metals, Burnaby, British Columbia

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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 units
μg/L	micrograms per litre
μS/cm	microsiemens per centimetre
mg/L	milligrams per litre
pH units	pH units

<: less 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
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference,
	colour, turbidity).

>: greater than.

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Sub-Matrix: Water			CI	ient sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-12-05	2-12-05	2-12-05	2-12-05	2-12-05
			Client samp	ling date / time	01-Dec-2022 17:20	04-Dec-2022 11:10	04-Dec-2022 13:20	01-Dec-2022 16:30	03-Dec-2022 13:20
Analyte	CAS Number	Method	LOR	Unit	WR2201530-001	WR2201530-002	WR2201530-003	WR2201530-004	WR2201530-005
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	308	145	197	164	204
conductivity		E100	2.0	μS/cm	1080	315	393	329	394
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	572	154	201	168	207
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	593	150	201	167	210
pH		E108	0.10	pH units	8.04	8.26	8.25	8.22	8.22
solids, total dissolved [TDS]		E162	10	mg/L	786	165	217	193	231
solids, total suspended [TSS]		E160-L	1.0	mg/L	1.5	<1.0	<1.0	5.1	<1.0
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0118	<0.0050	0.0064	0.0120	<0.0050
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.250 DLDS	<0.050	<0.050	<0.050	<0.050
chloride	16887-00-6	E235.CI	0.50	mg/L	<2.50 DLDS	<0.50	<0.50	0.74	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	<0.100 DLDS	0.158	0.091	0.090	0.059
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0294	0.238	0.135	0.0944	0.0687
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0050 DLDS	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	344	19.2	15.6	9.52	8.84
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0439	0.0041	0.0065	0.0251	0.0035
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	0.00012	0.00012	0.00023	<0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00041	0.00039	0.00044	0.00067	0.00027
barium, total	7440-39-3	E420	0.00010	mg/L	0.151	0.0216	0.0633	0.0710	0.145
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	0.000149	0.000240	0.0000413	0.0000490	0.0000158
calcium, total	7440-70-2	E420	0.050	mg/L	207	54.3	67.5	56.6	59.1
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	0.00068	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L	0.00119	<0.00050	0.00054	0.0176	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L	0.196	<0.010	0.048	0.044	0.093
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 Teck Metals Ltd

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Sub-Matrix: Water			Cli	ient sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-12-05	2-12-05	2-12-05	2-12-05	2-12-05
			Client samp	ling date / time	01-Dec-2022 17:20	04-Dec-2022 11:10	04-Dec-2022 13:20	01-Dec-2022 16:30	03-Dec-2022 13:20
Analyte	CAS Number	Method	LOR	Unit	WR2201530-001	WR2201530-002	WR2201530-003	WR2201530-004	WR2201530-005
					Result	Result	Result	Result	Result
Total Metals									
lead, total	7439-92-1	E420	0.000050	mg/L	0.000834	0.000149	0.000144	0.00149	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	0.0015	0.0017	0.0014	0.0012
magnesium, total	7439-95-4	E420	0.100	mg/L	18.4	3.46	8.00	6.31	15.2
manganese, total	7439-96-5	E420	0.00010	mg/L	1.30	0.00095	0.0107	0.00222	0.00636
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	0.000440	0.000685	0.000816	0.00130	0.00101
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00087	<0.00050	<0.00050	<0.00050	<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	1.97	0.433	0.413	0.646	0.395
selenium, total	7782-49-2	E420	0.050	μg/L	<0.050	1.13	0.694	0.719	0.618
silicon, total	7440-21-3	E420	0.10	mg/L	5.00	3.24	3.70	3.97	3.43
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	9.36	0.899	1.18	1.27	1.02
strontium, total	7440-24-6	E420	0.00020	mg/L	0.671	0.194	0.267	0.215	0.204
sulfur, total	7704-34-9	E420	0.50	mg/L	117	6.79	5.37	3.49	3.07
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	0.00045	<0.00010
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00150 DLM	<0.00030	<0.00030	0.00085	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.00121	0.000893	0.00117	0.000966	0.00143
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	0.0195	0.0046	0.0050	0.0071	<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	0.0014	0.0015	0.0022	0.0023	0.0019
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	<0.00010	0.00012	0.00012	0.00021	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00025	0.00040	0.00043	0.00063	0.00021
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.143	0.0217	0.0640	0.0710	0.145
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
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 Client
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 Teck Metals Ltd

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Sub-Matrix: Water			Cl	ient sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-12-05	2-12-05	2-12-05	2-12-05	2-12-05
				ling date / time	01-Dec-2022 17:20	04-Dec-2022 11:10	04-Dec-2022 13:20	01-Dec-2022 16:30	03-Dec-2022 13:20
Analyte	CAS Number	Method	LOR	Unit	WR2201530-001	WR2201530-002	WR2201530-003	WR2201530-004	WR2201530-005
					Result	Result	Result	Result	Result
Dissolved Metals	7440.40.0	E404	0.0000050	/I	0.0000672	0.000335	0.0000202	0.0000422	0.0000118
cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000672	0.000235	0.0000392	0.0000422	0.0000118
calcium, dissolved	7440-70-2	E421	0.050	mg/L	200	56.4	67.8	57.5	58.5
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	0.00059	<0.00010	<0.00010	<0.00010	<0.00010
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00098	<0.00020	0.00029	0.00118	0.00023
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.020	<0.010	0.026	<0.010	0.015
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000055	0.000062	<0.000050	0.000072	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	0.0014	0.0015	0.0012	0.0011
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	17.6	3.17	7.72	5.96	14.7
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	1.23	0.00032	0.00923	0.00047	0.00546
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.000429	0.000733	0.000831	0.00136	0.00102
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00072	<0.00050	<0.00050	<0.00050	<0.00050
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	1.96	0.399	0.427	0.633	0.369
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.055	1.08	0.705	0.711	0.590
silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.08	3.37	3.90	4.10	3.59
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	8.74	0.776	1.12	1.21	0.938
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.671	0.203	0.268	0.219	0.214
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	115	6.49	5.48	3.25	2.98
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	0.00115	0.000872	0.00109	0.000933	0.00136
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	0.0164	0.0041	0.0044	0.0054	<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
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 Work Order
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 WR2201530

 Client
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 Teck Metals Ltd

 Project
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Analytical Results

Sub-Matrix: Water			Cl	ient sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-12-05	2-12-05	2-12-05	2-12-05	2-12-05
Analysis	CAS Number	Method	Client samp	ling date / time Unit	01-Dec-2022 17:20 WR2201530-001	04-Dec-2022 11:10 WR2201530-002	04-Dec-2022 13:20 WR2201530-003	01-Dec-2022 16:30 WR2201530-004	03-Dec-2022 13:20 WR2201530-005
Analyte	CAS Number	Metriod	LON	Onit	Result	Result	Result	Result	Result
Speciated Metals					rosuit	rosuit	result	result	result
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Sub-Matrix: Water			CI	ient sample ID	SD_MH-15_202	SD_MH-22_202	SD_MH-29_202	SD_MH-30_202	SD_MH-FB_202
(Matrix: Water)					2-12-05	2-12-05	2-12-05	2-12-05	2-12-05
			Client samp	ling date / time	03-Dec-2022 11:50	04-Dec-2022 09:50	04-Dec-2022 14:00	04-Dec-2022 14:10	03-Dec-2022
Analyte	CAS Number	Method	LOR	Unit	WR2201530-006	WR2201530-007	WR2201530-008	WR2201530-009	WR2201530-010
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	189	110	179	183	<1.0
conductivity		E100	2.0	μS/cm	372	303	347	356	<2.0
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	192	140	174	179	<0.60
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	190	149	185	186	<0.60
pH		E108	0.10	pH units	8.20	8.05	8.24	8.03	5.42
solids, total dissolved [TDS]		E162	10	mg/L	210	180	200	196	<10
solids, total suspended [TSS]		E160-L	1.0	mg/L	<1.0	<1.0	2.0	2.6	<1.0
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0070	<0.0050	0.0050	0.0168	<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.CI	0.50	mg/L	<0.50	<0.50	<0.50	<0.50	<0.50
fluoride	16984-48-8	E235.F	0.020	mg/L	0.087	1.32	0.054	0.051	<0.020
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0353	0.110	0.117	0.0406	<0.0050
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	4.59	43.7	4.45	4.88	<0.30
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0034	<0.0030	0.0416	0.0056	<0.0030
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00012	0.00256	0.00020	0.00018	<0.00010
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00028	0.00328	0.00071	0.00035	<0.00010
barium, total	7440-39-3	E420	0.00010	mg/L	0.170	0.0163	0.0469	0.231	<0.00010
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	0.0000093	0.00449	0.0000832	0.0000261	<0.0000050
calcium, total	7440-70-2	E420	0.050	mg/L	55.0	48.3	64.2	46.6	<0.050
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	<0.00010	<0.00010	0.00013	<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	0.101	<0.010	0.124	0.727	<0.010
lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	0.000312	0.000390	<0.000050	<0.000050
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Sub-Matrix: Water			Cli	ent sample ID	SD_MH-15_202	SD_MH-22_202	SD_MH-29_202	SD_MH-30_202	SD_MH-FB_202
(Matrix: Water)					2-12-05	2-12-05	2-12-05	2-12-05	2-12-05
			Client samp	ling date / time	03-Dec-2022 11:50	04-Dec-2022 09:50	04-Dec-2022 14:00	04-Dec-2022 14:10	03-Dec-2022
Analyte	CAS Number	Method	LOR	Unit	WR2201530-006	WR2201530-007	WR2201530-008	WR2201530-009	WR2201530-010
					Result	Result	Result	Result	Result
Total Metals									
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0012	0.0060	0.0015	<0.0010	<0.0010
magnesium, total	7439-95-4	E420	0.100	mg/L	12.7	6.94	6.01	17.0	<0.100
manganese, total	7439-96-5	E420	0.00010	mg/L	0.00820	0.00020	0.0201	0.0350	<0.00010
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	0.00177	0.00835	0.000744	0.00142	<0.000050
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	0.00373	<0.00050	0.00056	<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	0.415	0.611	0.268	0.401	<0.100
selenium, total	7782-49-2	E420	0.050	μg/L	0.521	14.6	0.536	0.491	<0.050
silicon, total	7440-21-3	E420	0.10	mg/L	4.03	4.37	3.86	3.41	<0.10
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	1.05	0.888	0.947	0.866	<0.050
strontium, total	7440-24-6	E420	0.00020	mg/L	0.179	0.238	0.220	0.126	<0.00020
sulfur, total	7704-34-9	E420	0.50	mg/L	1.79	14.7	1.60	1.85	<0.50
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	0.000016	<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	<0.00030	0.00093	<0.00030	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000817	0.00396	0.000704	0.00161	<0.000010
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	0.768	<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	0.0014	0.0011	0.0019	0.0025	<0.0010
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00012	0.00248	0.00013	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00024	0.00320	0.00051	0.00022	<0.00010
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.172	0.0164	0.0454	0.226	<0.00010
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	0.0000053	0.00423	0.0000399	0.0000157	<0.0000050
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Sub-Matrix: Water			CI	ient sample ID	SD_MH-15_202	SD_MH-22_202	SD_MH-29_202	SD_MH-30_202	SD_MH-FB_202
(Matrix: Water)					2-12-05	2-12-05	2-12-05	2-12-05	2-12-05
			Client sampling date / time		03-Dec-2022 11:50	04-Dec-2022 09:50	04-Dec-2022 14:00	04-Dec-2022 14:10	03-Dec-2022
Analyte	CAS Number	Method	LOR	Unit	WR2201530-006	WR2201530-007	WR2201530-008	WR2201530-009	WR2201530-010
					Result	Result	Result	Result	Result
Dissolved Metals									
calcium, dissolved	7440-70-2	E421	0.050	mg/L	57.5	45.6	60.9	44.4	<0.050
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	<0.00020	<0.00020	0.00025	0.00035	<0.00020
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.061	<0.010	0.018	0.106	<0.010
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	0.000247	<0.000050	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0011	0.0056	0.0012	<0.0010	<0.0010
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	11.9	6.46	5.28	16.5	<0.100
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00685	0.00011	0.00765	0.0342	<0.00010
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.000050	<0.0000050	<0.0000050	<0.000050	<0.0000050
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00184	0.00823	0.000702	0.00142	<0.000050
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	0.00344	<0.00050	0.00075	<0.00050
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	0.357	0.574	0.233	0.341	<0.100
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.574	13.7	0.450	0.450	<0.050
silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.18	4.43	3.88	3.48	<0.050
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.930	0.786	0.825	0.738	<0.050
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.184	0.234	0.220	0.126	<0.00020
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.47	14.1	1.47	1.51	<0.50
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	0.000015	<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	0.000773	0.00354	0.000612	0.00152	<0.000010
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	0.734	<0.0010	0.0011	<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
Speciated Metals									

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Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	SD_MH-15_202	SD_MH-22_202	SD_MH-29_202	SD_MH-30_202	SD_MH-FB_202
(Matrix: Water)					2-12-05	2-12-05	2-12-05	2-12-05	2-12-05
				ling date / time	03-Dec-2022 11:50	04-Dec-2022 09:50	04-Dec-2022 14:00	04-Dec-2022 14:10	03-Dec-2022
Analyte	CAS Number	Method	LOR	Unit	WR2201530-006	WR2201530-007	WR2201530-008	WR2201530-009	WR2201530-010
					Result	Result	Result	Result	Result
Speciated Metals									
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Please refer to the General Comments section for an explanation of any qualifiers detected.

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Sub-Matrix: Water			CI	ient sample ID	SD_MH-FD_202	SD_MH-TB_202	SD_MH-FD1_20	
(Matrix: Water)					2-12-05	2-12-05	22-12-05	
			Client samp	ling date / time	03-Dec-2022	[01-Dec-2022]	04-Dec-2022	
Analyte CAS N	mber	Method	LOR	Unit	WR2201530-011	WR2201530-012	WR2201530-013	
					Result	Result	Result	
Physical Tests	,							
alkalinity, total (as CaCO3)		E290	1.0	mg/L	190	<1.0	143	
conductivity		E100	2.0	μS/cm	369	<2.0	314	
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	193		155	
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	197	<0.60	158	
pH		E108	0.10	pH units	8.23	5.38	8.27	
solids, total dissolved [TDS]		E162	10	mg/L	198	<10	188	
solids, total suspended [TSS]		E160-L	1.0	mg/L	1.1	<1.0	<1.0	
Anions and Nutrients	,							
ammonia, total (as N) 766	-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	
bromide 2495	-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	
chloride 1688	-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	<0.50	
fluoride 1698	-48-8	E235.F	0.020	mg/L	0.093	<0.020	0.163	
nitrate (as N) 1479	-55-8	E235.NO3-L	0.0050	mg/L	0.0350	<0.0050	0.236	
nitrite (as N) 1479	-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	
sulfate (as SO4) 1480	-79-8	E235.SO4	0.30	mg/L	4.38	<0.30	18.6	
Total Metals								
aluminum, total 742	-90-5	E420	0.0030	mg/L	0.0034	<0.0030	0.0036	
antimony, total 744	-36-0	E420	0.00010	mg/L	0.00012	<0.00010	0.00013	
arsenic, total 744	-38-2	E420	0.00010	mg/L	0.00029	<0.00010	0.00038	
barium, total 744	-39-3	E420	0.00010	mg/L	0.168	<0.00010	0.0220	
beryllium, total 744	-41-7	E420	0.000020	mg/L	<0.000020	<0.000020	<0.000020	
bismuth, total 744	-69-9	E420	0.000050	mg/L	<0.000050	<0.000050	<0.000050	
boron, total 744	-42-8	E420	0.010	mg/L	<0.010	<0.010	<0.010	
cadmium, total 744	-43-9	E420	0.0000050	mg/L	0.0000090	<0.0000050	0.000240	
calcium, total 744	-70-2	E420	0.050	mg/L	57.5	<0.050	57.7	
chromium, total 744	-47-3	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
cobalt, total 744	-48-4	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
copper, total 744	-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
iron, total 743	-89-6	E420	0.010	mg/L	0.098	<0.010	<0.010	
lead, total 743	-92-1	E420	0.000050	mg/L	<0.000050	<0.000050	0.000140	

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Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	SD_MH-FD_202	SD_MH-TB_202	SD_MH-FD1_20	
(Matrix: Water)					2-12-05	2-12-05	22-12-05	
			Client sampl	ling date / time	03-Dec-2022	[01-Dec-2022]	04-Dec-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2201530-011	WR2201530-012	WR2201530-013	
					Result	Result	Result	
Total Metals								
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0012	<0.0010	0.0016	
magnesium, total	7439-95-4	E420	0.100	mg/L	12.9	<0.100	3.44	
manganese, total	7439-96-5	E420	0.00010	mg/L	0.00816	<0.00010	0.00053	
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	<0.0000050	
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00172	<0.000050	0.000741	
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	<0.050	
potassium, total	7440-09-7	E420	0.100	mg/L	0.405	<0.100	0.441	
selenium, total	7782-49-2	E420	0.050	μg/L	0.534	<0.050	1.12	
silicon, total	7440-21-3	E420	0.10	mg/L	4.02	<0.10	3.29	
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
sodium, total	7440-23-5	E420	0.050	mg/L	1.04	<0.050	0.893	
strontium, total	7440-24-6	E420	0.00020	mg/L	0.171	<0.00020	0.198	
sulfur, total	7704-34-9	E420	0.50	mg/L	1.66	<0.50	6.50	
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	<0.00010	<0.00010	
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	<0.00030	<0.00030	
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000826	<0.000010	0.000931	
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	
zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	<0.0030	0.0047	
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	<0.00020	
Dissolved Metals								
aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0015		0.0015	
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00011		0.00012	
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00024		0.00039	
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.173		0.0219	
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	0.0000068		0.000235	

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Analytical Results

Sub-Matrix: Water			Cli	ent sample ID	SD_MH-FD_202	SD_MH-TB_202	SD_MH-FD1_20	
(Matrix: Water)					2-12-05	2-12-05	22-12-05	
			Client samp	ling date / time	03-Dec-2022	[01-Dec-2022]	04-Dec-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2201530-011	WR2201530-012	WR2201530-013	
					Result	Result	Result	
Dissolved Metals								
calcium, dissolved	7440-70-2	E421	0.050	mg/L	57.4		57.0	
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		<0.00010	
copper, dissolved	7440-50-8	E421	0.00020	mg/L	<0.00020		<0.00020	
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.044		<0.010	
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050		0.000057	
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0011		0.0014	
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	12.1		3.12	
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00663		0.00037	
mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050		<0.0000050	
molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00181		0.000771	
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050		<0.00050	
phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050		<0.050	
potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.367		0.404	
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.508		0.961	
silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.31		3.40	
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010		<0.000010	
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.944		0.789	
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.182		0.209	
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	1.49		6.38	
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	0.000770		0.000880	
vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	<0.00050		<0.00050	
zinc, dissolved	7440-66-6	E421	0.0010	mg/L	<0.0010		0.0044	
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	
Speciated Metals								

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Analytical Results

Sub-Matrix: Water			Cli	ient sample ID	SD_MH-FD_202	SD_MH-TB_202	SD_MH-FD1_20	
(Matrix: Water)					2-12-05	2-12-05	22-12-05	
			Client samp	ling date / time	03-Dec-2022	[01-Dec-2022]	04-Dec-2022	
Analyte	CAS Number	Method	LOR	Unit	WR2201530-011	WR2201530-012	WR2201530-013	
					Result	Result	Result	
Speciated Metals								
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	

Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL INTERPRETIVE REPORT

Work Order : **WR2201530** Page : 1 of 31

Client : Teck Metals Ltd Laboratory : Whitehorse - Environmental

Contact : Michelle Unger : Can Dang

Address :601 Knighton Road Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

 Telephone
 : 250 427 8404
 Telephone
 : +1 867 668 6689

 Project
 : Sa Dena Hes
 Date Samples Received
 : 05-Dec-2022 15:00

PO : PO# 10289 Issue Date : 13-Dec-2022 13:00

Sampler : Wes Moir
Site : ECA22YT00199

Kimberley BC Canada V1A 3E1

Quote number : VA22-TECK150-001

No. of samples received :13

No. of samples analysed :13

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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

C-O-C number

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 Service number is a unique identifier assigned to discrete substances.

DQO: Data Quality Objective.

LOR: Limit of Reporting (detection limit).

RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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.

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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.

Watrix: water						valuation. • -	Holding time exce	euance, •	- *************************************	Holding H
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation Date	Holding Rec	g Times Actual	Eval	Analysis Date	Holding Rec	Times Actual	Eval
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SD_MH-04_2022-12-05	E298	04-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SD_MH-11_2022-12-05	E298	04-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SD_MH-22_2022-12-05	E298	04-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SD_MH-29_2022-12-05	E298	04-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SD_MH-30_2022-12-05	E298	04-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SD_MH-FD1_2022-12-05	E298	04-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid) SD_MH-13_2022-12-05	E298	03-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	5 days	✓

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Matrix: Water					EV	/aluation. 🔻 –	Holding time exce	euance , v	_ vviuiiii	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MH-15_2022-12-05	E298	03-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MH-FB_2022-12-05	E298	03-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MH-FD_2022-12-05	E298	03-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	5 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MH-02_2022-12-05	E298	01-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MH-12_2022-12-05	E298	01-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	7 days	✓
Anions and Nutrients : Ammonia by Fluorescence										
Amber glass total (sulfuric acid)										
SD_MH-TB_2022-12-05	E298	01-Dec-2022	08-Dec-2022				08-Dec-2022	28 days	7 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-11_2022-12-05	E235.Br-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-29_2022-12-05	E235.Br-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-30_2022-12-05	E235.Br-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
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Matrix: Water					E۱	/aluation: × =	Holding time exce	edance ; 🕦	= Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-04_2022-12-05	E235.Br-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-13_2022-12-05	E235.Br-L	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-22_2022-12-05	E235.Br-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-FD1_2022-12-05	E235.Br-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-15_2022-12-05	E235.Br-L	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-FB_2022-12-05	E235.Br-L	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-FD_2022-12-05	E235.Br-L	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-02_2022-12-05	E235.Br-L	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-12_2022-12-05	E235.Br-L	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
							<u> </u>	1		

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Matrix: Water					E۱	/aluation: 🗴 =	Holding time exce	edance ; 🕦	= Within	Holding Ti
Analyte Group	Method	Sampling Date	Ex	traction / P	reparation			Analys	is	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Bromide in Water by IC (Low Level)										
HDPE										
SD_MH-TB_2022-12-05	E235.Br-L	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-11_2022-12-05	E235.Cl	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE	5005.01	0.4.5	.7.5				07.5	00.1	0.1	,
SD_MH-29_2022-12-05	E235.CI	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE	E235.CI	04 D 0000	07.0				07.00000	00 1	0.1	✓
SD_MH-30_2022-12-05	E235.CI	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	•
Anions and Nutrients : Chloride in Water by IC				1	T T					
HDPE SD MH-04 2022-12-05	E235.CI	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	1
SD_IVIT-04_2022-12-03	L233.01	04-Dec-2022	07-Dec-2022				07-Dec-2022	20 days	3 days	•
A CONTRACTOR OF THE CONTRACTOR										
Anions and Nutrients : Chloride in Water by IC HDPE										
SD_MH-13_2022-12-05	E235.CI	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 davs	1
55 10_2522 12 66									- III,	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-22_2022-12-05	E235.Cl	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-FD1_2022-12-05	E235.CI	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Chloride in Water by IC					-					
HDPE										
SD_MH-15_2022-12-05	E235.Cl	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓

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Matrix: water						raidation. • =	nolding time excel	cuarice,	- vvitiiiii	Holding Fille
Analyte Group	Method	Sampling Date						Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD_MH-FB_2022-12-05	E235.CI	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE										
SD MH-FD 2022-12-05	E235.CI	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
									,	
Anions and Nutrients : Chloride in Water by IC										
HDPE			 	<u> </u>			<u> </u>	1		
SD MH-02 2022-12-05	E235.CI	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 davs	✓
Anions and Nutrients : Chloride in Water by IC										
HDPE				<u> </u>				T		
SD MH-12 2022-12-05	E235.CI	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
3D_MH-12_2022-12-03	L200.01	01-Dec-2022	07-Dec-2022				07-Dec-2022	20 days	3 days	•
Anions and Nutrients : Chloride in Water by IC				T T				1		
HDPE	E235.CI	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 days	√
SD_MH-TB_2022-12-05	E233.GI	01-Dec-2022	07-Dec-2022				07-Dec-2022	20 uays	0 uays	•
Anions and Nutrients : Fluoride in Water by IC										
HDPE	F005 F	04.50000	.7.5				07.5	00.1		,
SD_MH-11_2022-12-05	E235.F	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-29_2022-12-05	E235.F	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-30_2022-12-05	E235.F	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-04_2022-12-05	E235.F	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
		1	I	1				1		

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 :
 Teck Metals Ltd

 Project
 :
 Sa Dena Hes



Matrix: Water							ation: x = Holding time exceedance ; √ = Within Hold			
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-13_2022-12-05	E235.F	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-22_2022-12-05	E235.F	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE	5005 F	0.4 5 0000	07.5				07.5	00.1		,
SD_MH-FD1_2022-12-05	E235.F	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE	E235.F	03-Dec-2022	07-Dec-2022				07-Dec-2022	00 4	4 -1	✓
SD_MH-15_2022-12-05	E235.F	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	•
Anions and Nutrients : Fluoride in Water by IC HDPE					<u> </u>					
SD_MH-FB_2022-12-05	E235.F	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
0D_WITH B_2022-12-03	L200.1	00-2022	01-000-2022				07-2022	20 days	+ days	·
Aniona and Nutrianta - Eluarida in Water by IC										
Anions and Nutrients : Fluoride in Water by IC HDPE										
SD MH-FD 2022-12-05	E235.F	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 davs	✓
								,		
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-02_2022-12-05	E235.F	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
SD_MH-12_2022-12-05	E235.F	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Anions and Nutrients : Fluoride in Water by IC										
HDPE										
OD AND TO 0000 40 05	E235.F	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 davs	✓
SD_MH-TB_2022-12-05	L200.1	0.2002022	0. 200 2022				*		. ,	

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Matrix: Water							Holding time excee			
Analyte Group	Method	Sampling Date	Ext	traction / Pr	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-11_2022-12-05	E235.NO3-L	04-Dec-2022	07-Dec-2022	3 days	2 days	✓	07-Dec-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD MH-29 2022-12-05	E235.NO3-L	04-Dec-2022	07-Dec-2022	3 days	2 days	✓	07-Dec-2022	3 days	0 days	✓
				,				1	,	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE	1									
SD MH-30 2022-12-05	E235.NO3-L	04-Dec-2022	07-Dec-2022	3 days	2 days	✓	07-Dec-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-04_2022-12-05	E235.NO3-L	04-Dec-2022	07-Dec-2022	3 days	3 days	✓	07-Dec-2022	3 days	0 days	✓
OD_IVIT-04_2022-12-00	2200.1100 2	0 1 200 2022	01-000-2022	o days	o days	Ť	07-000-2022	o days	0 days	·
Anions and Nutrients : Nitrate in Water by IC (Low Level) HDPE										
SD_MH-13_2022-12-05	E235.NO3-L	03-Dec-2022	07-Dec-2022	3 days	3 days	×	07-Dec-2022	3 days	0 days	✓
3D_MH-13_2022-12-03	L233.NO3-L	03-Dec-2022	07-Dec-2022	3 days	3 days	•	07-Dec-2022	Juays	0 days	•
Anions and Nutrients : Nitrate in Water by IC (Low Level)				T T						
HDPE	E235.NO3-L	04-Dec-2022	07-Dec-2022	2 days	3 davs	✓	07-Dec-2022	2 days	O daya	✓
SD_MH-22_2022-12-05	E235.NO3-L	04-Dec-2022	07-Dec-2022	3 days	3 days	•	07-Dec-2022	3 days	0 days	•
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE	E005 NO0 I	0.4 D 0000	07 D 0000	0.1	0.1	√	07 D 0000	0.1	0.1	,
SD_MH-FD1_2022-12-05	E235.NO3-L	04-Dec-2022	07-Dec-2022	3 days	3 days	✓	07-Dec-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-15_2022-12-05	E235.NO3-L	03-Dec-2022	07-Dec-2022	3 days	4 days	3 0	07-Dec-2022	3 days	0 days	✓
						EHT				
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE										
SD_MH-FB_2022-12-05	E235.NO3-L	03-Dec-2022	07-Dec-2022	3 days	4 days	*	07-Dec-2022	3 days	0 days	✓
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Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation		J	Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	Times	Eval	Analysis Date		Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MH-FD_2022-12-05	E235.NO3-L	03-Dec-2022	07-Dec-2022	3 days	4 days	* EHT	07-Dec-2022	3 days	0 days	√
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MH-02_2022-12-05	E235.NO3-L	01-Dec-2022	07-Dec-2022	3 days	5 days	* EHTL	07-Dec-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MH-12_2022-12-05	E235.NO3-L	01-Dec-2022	07-Dec-2022	3 days	5 days	* EHTR	07-Dec-2022	3 days	0 days	✓
Anions and Nutrients : Nitrate in Water by IC (Low Level)										
HDPE SD_MH-TB_2022-12-05	E235.NO3-L	01-Dec-2022	07-Dec-2022	3 days	6 days	# EHTR	07-Dec-2022	3 days	0 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MH-11_2022-12-05	E235.NO2-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MH-29_2022-12-05	E235.NO2-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	2 days	4
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MH-30_2022-12-05	E235.NO2-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	2 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MH-13_2022-12-05	E235.NO2-L	03-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	3 days	* EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE SD_MH-04_2022-12-05	E235.NO2-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	3 days	√

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	1						Holding time exce			
Analyte Group	Method	Sampling Date	Ext	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	<u> </u>	Times	Eval	Analysis Date		g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-22_2022-12-05	E235.NO2-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-FD1_2022-12-05	E235.NO2-L	04-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	3 days	✓
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-15_2022-12-05	E235.NO2-L	03-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	4 days	3¢
										EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD MH-FB 2022-12-05	E235.NO2-L	03-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	4 days	3 2
05 5_2022 12 00								,-	, -	EHT
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE										
SD_MH-FD_2022-12-05	E235.NO2-L	03-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	4 days	*
05_NIT		00 200 2022	0. 200 2022				0. 200 2022	o aayo	,	EHT
Asiana and National at Nitrite in Water by 10 (1 and 1 and 1)										
Anions and Nutrients : Nitrite in Water by IC (Low Level) HDPE					I					
SD_MH-02_2022-12-05	E235.NO2-L	01-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	5 days	*
OD_WIT-02_2022-12-00	2200.1102 2	01 500 2022	01-000-2022				07-000-2022	o days	o days	EHTL
										LIIIL
Anions and Nutrients : Nitrite in Water by IC (Low Level)							I I		I	
HDPE SD MH-12 2022-12-05	E235.NO2-L	01-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	5 days	*
SD_IVIN-12_2022-12-05	E235.NO2-L	01-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	Suays	EHTR-FM
										□1111X-1-1VI
Anions and Nutrients : Nitrite in Water by IC (Low Level)										
HDPE	E005 NO0 !	04 D 0000	07 D 0000				07 D 0000	2 4-11	0 4-11	
SD_MH-TB_2022-12-05	E235.NO2-L	01-Dec-2022	07-Dec-2022				07-Dec-2022	3 days	6 days	*
										EHTR-FM
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-11_2022-12-05	E235.SO4	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓

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Matrix: Water					E۱	∕aluation: × =	Holding time excee	edance ; 🔻	/ = Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-29_2022-12-05	E235.SO4	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-30_2022-12-05	E235.SO4	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-04_2022-12-05	E235.SO4	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD MH-13 2022-12-05	E235.SO4	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-22_2022-12-05	E235.SO4	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-FD1_2022-12-05	E235.SO4	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-15_2022-12-05	E235.SO4	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-FB_2022-12-05	E235.SO4	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-FD_2022-12-05	E235.SO4	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
<u> </u>	L			1				1		

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Analyte Group	Method	Sampling Date	Ex	traction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD_MH-02_2022-12-05	E235.SO4	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD MH-12 2022-12-05	E235.SO4	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Anions and Nutrients : Sulfate in Water by IC										
HDPE										
SD MH-TB 2022-12-05	E235.SO4	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 days	✓
									,	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-04_2022-12-05	E509	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
									,-	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-11_2022-12-05	E509	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	√
OB_WITHT1_2022-12-00	2000	01 200 2022	07 200 2022				07 200 2022	20 dayo	o dayo	
Disabled Metals a Disabled Manager in Weter by OVAAO										
Dissolved Metals : Dissolved Mercury in Water by CVAAS Glass vial dissolved (hydrochloric acid)					I					
SD_MH-22_2022-12-05	E509	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	√
OD_WII 1-22_2022-12-00	2000	01 200 2022	07-00-2022				07-000-2022	20 days	o days	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid) SD MH-29 2022-12-05	E509	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	√
OD_INIT-29_2022-12-00	L309	04-060-2022	07-Dec-2022				07-Dec-2022	20 days	Juays	· •
Dissolved Metals : Dissolved Mercury in Water by CVAAS					I			1	I	
Glass vial dissolved (hydrochloric acid)	E509	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	√
SD_MH-30_2022-12-05	ESUS	04-Dec-2022	07-Dec-2022				07-Dec-2022	∠o uays	3 days	,
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	F500	04 D 0000	07.0				07.0	00.1	0.1	
SD_MH-FD1_2022-12-05	E509	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓

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Matrix: Water					EV	aluation: 🔻 =	Holding time excee	edance ; 🔻	= vvitnin	Holding Tim
Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-13_2022-12-05	E509	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-15_2022-12-05	E509	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)										
SD_MH-FB_2022-12-05	E509	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS										
Glass vial dissolved (hydrochloric acid)	F500	00 D 0000	07.5				07.5	00.1		,
SD_MH-FD_2022-12-05	E509	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Dissolved Metals : Dissolved Mercury in Water by CVAAS				<u> </u>						
Glass vial dissolved (hydrochloric acid)	E509	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 days	✓
SD_MH-02_2022-12-05	E509	01-Dec-2022	07-Dec-2022				07-Dec-2022	20 days	o days	•
Dissolved Metals: Dissolved Mercury in Water by CVAAS								I		
Glass vial dissolved (hydrochloric acid) SD MH-12 2022-12-05	E509	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 days	✓
OD_INIT-12_2022-12-00	2000	01 200 2022	07-200-2022				07-2022	20 days	0 days	•
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD MH-04 2022-12-05	E421	04-Dec-2022	08-Dec-2022				08-Dec-2022	180	5 days	✓
								days	,	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-11_2022-12-05	E421	04-Dec-2022	08-Dec-2022				08-Dec-2022	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)	I									
SD_MH-22_2022-12-05	E421	04-Dec-2022	08-Dec-2022				08-Dec-2022	180	5 days	✓
	1	1			1			days	1	

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Matrix: Water					E۱	/aluation: ≭ =	Holding time excee	edance ; •	= Within	Holding Time
Analyte Group	Method	Sampling Date	Ext	traction / Pi	eparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-29_2022-12-05	E421	04-Dec-2022	08-Dec-2022				08-Dec-2022	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-30_2022-12-05	E421	04-Dec-2022	08-Dec-2022				08-Dec-2022	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-FD1_2022-12-05	E421	04-Dec-2022	08-Dec-2022				08-Dec-2022	180	5 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-13_2022-12-05	E421	03-Dec-2022	08-Dec-2022				08-Dec-2022	180	6 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)										
SD_MH-15_2022-12-05	E421	03-Dec-2022	08-Dec-2022				08-Dec-2022	180	6 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)	5 404	00 5 0000								,
SD_MH-FB_2022-12-05	E421	03-Dec-2022	08-Dec-2022				08-Dec-2022	180	6 days	✓
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)	E404	02 De - 0000	00 Dec 2000				08-Dec-2022	465	C de:	1
SD_MH-FD_2022-12-05	E421	03-Dec-2022	08-Dec-2022				08-Dec-2022	180	6 days	•
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)	E421	01-Dec-2022	08-Dec-2022				08-Dec-2022	400	7 days	✓
SD_MH-02_2022-12-05	E421	01-Dec-2022	06-Dec-2022				06-Dec-2022	180	7 days	•
								days		
Dissolved Metals : Dissolved Metals in Water by CRC ICPMS										
HDPE dissolved (nitric acid)	E421	01-Dec-2022	00 Doc 2022				00 Doc 2022	400	7 deve	1
SD_MH-12_2022-12-05	E421	01-Dec-2022	08-Dec-2022				08-Dec-2022	180	7 days	٧
								days		

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Matrix: Water					Εν	/aluation: 🗴 =	Holding time exceed	edance ; 🕦	= Within	Holding Tin
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-11_2022-12-05	E290	04-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-29_2022-12-05	E290	04-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-30_2022-12-05	E290	04-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	2 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-04_2022-12-05	E290	04-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-13_2022-12-05	E290	03-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-22_2022-12-05	E290	04-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-FD1_2022-12-05	E290	04-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	3 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE		1								
SD_MH-15_2022-12-05	E290	03-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-FB_2022-12-05	E290	03-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	4 days	✓

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Matrix: Water						araaro	Holding time exce	, ,	***********	riolanig riii
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-FD_2022-12-05	E290	03-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	4 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-02_2022-12-05	E290	01-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-12_2022-12-05	E290	01-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	5 days	✓
Physical Tests : Alkalinity Species by Titration										
HDPE										
SD_MH-TB_2022-12-05	E290	01-Dec-2022	07-Dec-2022				07-Dec-2022	14 days	6 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-11_2022-12-05	E100	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-29_2022-12-05	E100	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-30_2022-12-05	E100	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	2 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-04_2022-12-05	E100	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-13_2022-12-05	E100	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓

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Matrix: Water						diddion.	Holding time exce	suarioc , .	- vvicini	rriolaling rillin
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-22_2022-12-05	E100	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-FD1_2022-12-05	E100	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-15_2022-12-05	E100	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-FB_2022-12-05	E100	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-FD_2022-12-05	E100	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-02_2022-12-05	E100	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Physical Tests : Conductivity in Water										
HDPE										
SD_MH-12_2022-12-05	E100	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Physical Tests : Conductivity in Water				•						
HDPE										
SD_MH-TB_2022-12-05	E100	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 days	✓
Physical Tests : pH by Meter										
HDPE										
SD_MH-02_2022-12-05	E108	01-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM

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							Holding time excee			
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_MH-04_2022-12-05	E108	04-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD MH-11 2022-12-05	E108	04-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	32
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE				<u> </u>			<u> </u>		<u> </u>	
SD MH-12 2022-12-05	E108	01-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	se .
								hrs	hrs	EHTR-FM
Discript Tests will be Mater								10		
Physical Tests : pH by Meter HDPE								I		
SD MH-13 2022-12-05	E108	03-Dec-2022	07-Dec-2022				07-Dec-2022	0.05	F 0F	×
SD_IVIN-13_2022-12-05	L100	03-Dec-2022	07-Dec-2022				07-Dec-2022	0.25 hrs	5.25	EHTR-FM
								nrs	hrs	EHIK-FIVI
Physical Tests : pH by Meter										
HDPE	F400	00 D 0000	07 D 0000				07.0			
SD_MH-15_2022-12-05	E108	03-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MH-22_2022-12-05	E108	04-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MH-29_2022-12-05	E108	04-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	*
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MH-30_2022-12-05	E108	04-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	×
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD MH-FB 2022-12-05	E108	03-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	×
		1		1				0.20	0.20	EHTR-FM

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Matrix: Water						aluation. • –	Holding time excee	Judinoo ,	- VVICIIII	r rolaling rilli
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : pH by Meter										
HDPE										
SD_MH-FD_2022-12-05	E108	03-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	s:
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MH-FD1_2022-12-05	E108	04-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	35
								hrs	hrs	EHTR-FM
Physical Tests : pH by Meter										
HDPE										
SD_MH-TB_2022-12-05	E108	01-Dec-2022	07-Dec-2022				07-Dec-2022	0.25	5.25	×
								hrs	hrs	EHTR-FM
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-04_2022-12-05	E162	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-11_2022-12-05	E162	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-22_2022-12-05	E162	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-29_2022-12-05	E162	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-30_2022-12-05	E162	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-13_2022-12-05	E162	03-Dec-2022					08-Dec-2022	7 days	5 days	✓

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Matrix: Water						aluation. * =	Holding time excee	suarice , ,	- vvitiiiii	Holding Hille
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-15_2022-12-05	E162	03-Dec-2022					08-Dec-2022	7 days	5 days	✓
Physical Tests : TDS by Gravimetry									1	
HDPE										
SD_MH-FD1_2022-12-05	E162	04-Dec-2022					08-Dec-2022	7 days	5 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD MH-FB 2022-12-05	E162	03-Dec-2022					08-Dec-2022	7 days	6 days	✓
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-FD_2022-12-05	E162	03-Dec-2022					08-Dec-2022	7 days	6 days	✓
								,		
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-02_2022-12-05	E162	01-Dec-2022					08-Dec-2022	7 days	7 days	✓
05 02_2022 12 00								,-	, -	
Physical Tests : TDS by Gravimetry										
HDPE										
SD_MH-12_2022-12-05	E162	01-Dec-2022					08-Dec-2022	7 days	7 days	✓
35_M1 12_2022 12 00							00 200 2022	,	. aayo	
Dhysical Tests - TDS by Cassimostus										
Physical Tests : TDS by Gravimetry HDPE										
SD MH-TB 2022-12-05	E162	01-Dec-2022					08-Dec-2022	7 days	8 days	✓
OD_WITF1B_2022-12-03	2102	01-000-2022					00-00-2022	7 days	o days	•
Physical Tests : TSS by Gravimetry (Low Level)								I		
HDPE SD MH-04 2022-12-05	E160-L	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
3D_WII 1-04_2022-12-03	L 100-L	04-060-2022					00-060-2022	ruays	+ uays	•
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE	E160-L	04-Dec-2022					09 Dec 2022	7 days	1 days	✓
SD_MH-11_2022-12-05	E IOU-L	04-Dec-2022					08-Dec-2022	7 days	4 days	•

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Matrix: Water						aluation. • -	Holding time excee	suarice , .	- vvitiiiii	Holding Hille
Analyte Group	Method	Sampling Date	Ext	raction / Pi	reparation			Analys	sis	
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-22_2022-12-05	E160-L	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
Physical Tests : TSS by Gravimetry (Low Level)									1	
HDPE										
SD MH-29 2022-12-05	E160-L	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MH-30 2022-12-05	E160-L	04-Dec-2022					08-Dec-2022	7 days	4 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MH-13 2022-12-05	E160-L	03-Dec-2022					08-Dec-2022	7 days	5 days	✓
05_IIII 10_2022 12 00							00 200 2022	,	o dayo	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-15_2022-12-05	E160-L	03-Dec-2022					08-Dec-2022	7 days	5 days	✓
05_M1 10_2022 12 00	2.002	00 200 2022					00 200 2022	,	o dayo	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-FD1_2022-12-05	E160-L	04-Dec-2022					08-Dec-2022	7 days	5 days	✓
<u> </u>							00 200 2022	,	o dayo	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MH-FB 2022-12-05	E160-L	03-Dec-2022					08-Dec-2022	7 days	6 days	✓
OB_WITT B_2022-12 00	2100 2	00 200 2022					00 200 2022	, dayo	o dayo	
Physical Tarks, T00 by Considerates (Laurelland)										
Physical Tests : TSS by Gravimetry (Low Level) HDPE										
SD MH-FD 2022-12-05	E160-L	03-Dec-2022					08-Dec-2022	7 days	6 days	✓
OD_IVII 171 D_2022-12-00	L 100-L	00-060-2022					00-060-2022	, days	Juays	•
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE	E160-L	01-Dec-2022					08-Dec-2022	7 days	7 days	✓
SD_MH-02_2022-12-05	E IOU-L	01-060-2022					00-Dec-2022	/ uays	ruays	•

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Analyte Group	Method	Sampling Date	Ext	raction / Pr	eparation			Analys	ic	
`		7 J J						71110190	13	
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	Times	Eval
			Date	Rec	Actual			Rec	Actual	
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD_MH-12_2022-12-05	E160-L	01-Dec-2022					08-Dec-2022	7 days	7 days	✓
Physical Tests : TSS by Gravimetry (Low Level)										
HDPE										
SD MH-TB 2022-12-05	E160-L	01-Dec-2022					08-Dec-2022	7 days	7 days	✓
								1	,	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)							<u> </u>			
SD MH-04 2022-12-05	E508	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 davs	✓
									,	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)				<u> </u>						
SD MH-11 2022-12-05	E508	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	√
OD_WITHTI_2022-12-00	2000	0 1 500 2022	07-000-2022				07-000-2022	20 days	o days	•
T - 1 M - 1 M - 1 M - 1										
Total Metals : Total Mercury in Water by CVAAS				I				I		
Glass vial total (hydrochloric acid)	E508	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
SD_MH-22_2022-12-05	E306	04-Dec-2022	07-Dec-2022				07-Dec-2022	20 uays	3 uays	•
Total Metals : Total Mercury in Water by CVAAS				<u> </u>						
Glass vial total (hydrochloric acid)	E508	04-Dec-2022	07 D 0000				07 D 0000	00 4	0 4	✓
SD_MH-29_2022-12-05	E506	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	•
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)		04.5	07.5				07.0			
SD_MH-30_2022-12-05	E508	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	3 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-13_2022-12-05	E508	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD MH-15 2022-12-05	E508	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
555_2522 12 00										

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Matrix: Water						raidation. • =	Holding time exce	cuarioc , ·	- vvicinii	riolaling riili
Analyte Group	Method	Sampling Date	Extraction / Preparation			Analysis				
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-FD1_2022-12-05	E508	04-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	4 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-FB_2022-12-05	E508	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-FD_2022-12-05	E508	03-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	5 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-02_2022-12-05	E508	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-12_2022-12-05	E508	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	6 days	✓
Total Metals : Total Mercury in Water by CVAAS										
Glass vial total (hydrochloric acid)										
SD_MH-TB_2022-12-05	E508	01-Dec-2022	07-Dec-2022				07-Dec-2022	28 days	7 days	✓
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-04_2022-12-05	E420	04-Dec-2022	07-Dec-2022				08-Dec-2022	180	4 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-11_2022-12-05	E420	04-Dec-2022	07-Dec-2022				08-Dec-2022	180	4 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-22_2022-12-05	E420	04-Dec-2022	07-Dec-2022				08-Dec-2022	180	4 days	✓
								days		

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Matrix: Water					L\	aluation. • -	Holding time excee	cuarice ,	· - vvitiiiii	Holding Hill
Analyte Group	Method	Sampling Date	Ext	traction / Pi	reparation		Analysis			
Container / Client Sample ID(s)			Preparation	Holdin	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-29_2022-12-05	E420	04-Dec-2022	07-Dec-2022				08-Dec-2022	180	4 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-30_2022-12-05	E420	04-Dec-2022	07-Dec-2022				08-Dec-2022	180	4 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-13_2022-12-05	E420	03-Dec-2022	07-Dec-2022				08-Dec-2022	180	5 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-15_2022-12-05	E420	03-Dec-2022	07-Dec-2022				08-Dec-2022	180	5 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-FD1_2022-12-05	E420	04-Dec-2022	07-Dec-2022				08-Dec-2022	180	5 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-FB_2022-12-05	E420	03-Dec-2022	07-Dec-2022				08-Dec-2022	180	6 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-FD_2022-12-05	E420	03-Dec-2022	07-Dec-2022				08-Dec-2022	180	6 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-02_2022-12-05	E420	01-Dec-2022	07-Dec-2022				08-Dec-2022	180	7 days	✓
								days		
Total Metals : Total metals in Water by CRC ICPMS										
HDPE total (nitric acid)										
SD_MH-12_2022-12-05	E420	01-Dec-2022	07-Dec-2022				08-Dec-2022	180	7 days	✓
								days		

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Matrix: Water Evaluation: × = Holding time exceedance; ✓ = Within Holding Time

Madrix Vacor					_	diddion.	i lolaling tilllo oxoot	, ,	***************************************	Triolaning Tillin
Analyte Group	Method	Sampling Date	Ext	Extraction / Preparation			Analysis			
Container / Client Sample ID(s)			Preparation	Holding	g Times	Eval	Analysis Date	Holding	g Times	Eval
			Date	Rec	Actual			Rec	Actual	
Total Metals : Total metals in Water by CRC ICPMS										
HDPE - total (lab preserved) SD_MH-TB_2022-12-05	E420	01-Dec-2022	07-Dec-2022				08-Dec-2022	180 days	8 days	✓

Legend & Qualifier Definitions

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended

EHTR: Exceeded ALS recommended hold time prior to sample receipt.

EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.

EHT: Exceeded ALS recommended hold time prior to analysis.

Rec. HT: ALS recommended hold time (see units).

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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							
Quality Control Sample Type		Co	ount		Frequency (%)		
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation
Laboratory Duplicates (DUP)							
Alkalinity Species by Titration	E290	769686	2	31	6.4	5.0	✓
Ammonia by Fluorescence	E298	771617	1	20	5.0	5.0	✓
Bromide in Water by IC (Low Level)	E235.Br-L	769691	2	29	6.9	5.0	✓
Chloride in Water by IC	E235.CI	769690	2	31	6.4	5.0	✓
Conductivity in Water	E100	769687	2	31	6.4	5.0	✓
Dissolved Mercury in Water by CVAAS	E509	770338	2	28	7.1	5.0	√
Dissolved Metals in Water by CRC ICPMS	E421	769741	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	769689	2	31	6.4	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	769692	2	31	6.4	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	769688	2	39	5.1	5.0	√
pH by Meter	E108	769685	2	39	5.1	5.0	√
Sulfate in Water by IC	E235.SO4	769693	2	31	6.4	5.0	√
TDS by Gravimetry	E162	770240	2	28	7.1	5.0	√
Total Mercury in Water by CVAAS	E508	770837	2	26	7.6	5.0	√
Total metals in Water by CRC ICPMS	E420	769718	2	34	5.8	5.0	√
Laboratory Control Samples (LCS)							
Alkalinity Species by Titration	E290	769686	2	31	6.4	5.0	1
Ammonia by Fluorescence	E298	771617	1	20	5.0	5.0	<u>-</u> ✓
Bromide in Water by IC (Low Level)	E235.Br-L	769691	2	29	6.9	5.0	<u>√</u>
Chloride in Water by IC	E235.Cl	769690	2	31	6.4	5.0	<u>√</u>
Conductivity in Water	E100	769687	2	31	6.4	5.0	<u> </u>
Dissolved Mercury in Water by CVAAS	E509	770338	2	28	7.1	5.0	<u> </u>
Dissolved Metals in Water by CRC ICPMS	E421	769741	1	20	5.0	5.0	√
Fluoride in Water by IC	E235.F	769689	2	31	6.4	5.0	√
Nitrate in Water by IC (Low Level)	E235.NO3-L	769692	2	31	6.4	5.0	√
Nitrite in Water by IC (Low Level)	E235.NO2-L	769688	2	39	5.1	5.0	√
pH by Meter	E108	769685	2	39	5.1	5.0	√
Sulfate in Water by IC	E235.SO4	769693	2	31	6.4	5.0	√
TDS by Gravimetry	E162	770240	2	28	7.1	5.0	√
Total Mercury in Water by CVAAS	E508	770837	2	26	7.6	5.0	√
Total metals in Water by CRC ICPMS	E420	769718	2	34	5.8	5.0	<u>√</u>
TSS by Gravimetry (Low Level)	E160-L	769737	3	30	10.0	5.0	√
Method Blanks (MB)							
Alkalinity Species by Titration	E290	769686	2	31	6.4	5.0	1
Ammonia by Fluorescence	E298	771617	1	20	5.0	5.0	
,			1 '				

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Matrix: Water Evaluation: × = QC frequency outside specification; ✓ = QC frequency within specification.

Matrix: Water	Evaluation: × = QC frequency outside specification, ✓ = QC frequency within spec							
Quality Control Sample Type								
Analytical Methods	Method	QC Lot #	QC	Regular	Actual	Expected	Evaluation	
Method Blanks (MB) - Continued								
Bromide in Water by IC (Low Level)	E235.Br-L	769691	2	29	6.9	5.0	✓	
Chloride in Water by IC	E235.Cl	769690	2	31	6.4	5.0	✓	
Conductivity in Water	E100	769687	2	31	6.4	5.0	✓	
Dissolved Mercury in Water by CVAAS	E509	770338	2	28	7.1	5.0	✓	
Dissolved Metals in Water by CRC ICPMS	E421	769741	1	20	5.0	5.0	✓	
Fluoride in Water by IC	E235.F	769689	2	31	6.4	5.0	✓	
Nitrate in Water by IC (Low Level)	E235.NO3-L	769692	2	31	6.4	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	769688	2	39	5.1	5.0	✓	
Sulfate in Water by IC	E235.SO4	769693	2	31	6.4	5.0	✓	
TDS by Gravimetry	E162	770240	2	28	7.1	5.0	✓	
Total Mercury in Water by CVAAS	E508	770837	2	26	7.6	5.0	✓	
Total metals in Water by CRC ICPMS	E420	769718	2	34	5.8	5.0	✓	
TSS by Gravimetry (Low Level)	E160-L	769737	3	30	10.0	5.0	✓	
Matrix Spikes (MS)								
Ammonia by Fluorescence	E298	771617	1	20	5.0	5.0	✓	
Bromide in Water by IC (Low Level)	E235.Br-L	769691	2	29	6.9	5.0	✓	
Chloride in Water by IC	E235.CI	769690	2	31	6.4	5.0	✓	
Dissolved Mercury in Water by CVAAS	E509	770338	2	28	7.1	5.0	✓	
Dissolved Metals in Water by CRC ICPMS	E421	769741	1	20	5.0	5.0	✓	
Fluoride in Water by IC	E235.F	769689	2	31	6.4	5.0	✓	
Nitrate in Water by IC (Low Level)	E235.NO3-L	769692	2	31	6.4	5.0	✓	
Nitrite in Water by IC (Low Level)	E235.NO2-L	769688	2	39	5.1	5.0	✓	
Sulfate in Water by IC	E235.SO4	769693	2	31	6.4	5.0	✓	
Total Mercury in Water by CVAAS	E508	770837	2	26	7.6	5.0	✓	
Total metals in Water by CRC ICPMS	E420	769718	2	34	5.8	5.0	✓	

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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	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
	Vancouver -			sample. Conductivity measurements are temperature-compensated to 25°C.
	Environmental			
pH by Meter	E108	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,
	Vancouver -			pH should be measured in the field within the recommended 15 minute hold time.
	Environmental			
TSS by Gravimetry (Low Level)	E160-L	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 $104 \pm 1^{\circ}$ C, with gravimetric measurement of the
	Vancouver -			filtered solids. Samples containing very high dissolved solid content (i.e. seawaters,
	Environmental			brackish waters) may produce a positive bias by this method. Alternate analysis
				methods are available for these types of samples.
TDS by Gravimetry	E162	Water	APHA 2540 C (mod)	Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, with evaporation of the filtrate at 180 ± 2°C for 16 hours or to constant weight,
	Vancouver -			with gravimetric measurement of the residue.
	Environmental			
Bromide in Water by IC (Low Level)	E235.Br-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			
	Environmental			
Chloride in Water by IC	E235.CI	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Fluoride in Water by IC	E235.F	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Nitrite in Water by IC (Low Level)	E235.NO2-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			
Nitrate in Water by IC (Low Level)	E235.NO3-L	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.
	Vancouver -			
	Environmental			

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Sulfate in Water by IC	E235.SO4	Water	EPA 300.1 (mod)	Inorganic anions are analyzed by Ion Chromatography with conductivity and /or UV detection.
	Vancouver -			detection.
	Environmental			
Alkalinity Species by Titration	E290	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
	Vancouver -			alkalinity values.
	Environmental			
Ammonia by Fluorescence	E298	Water	Method Fialab 100,	Ammonia in water is determined by automated continuous flow analysis with membrane
			2018	diffusion and fluorescence detection, after reaction with OPA (ortho-phthalaldehyde).
	Vancouver -			This method is approved under US EPA 40 CFR Part 136 (May 2021)
Total contain in Water by CDC ICDMC	Environmental	\\/-+		
Total metals in Water by CRC ICPMS	E420	Water	EPA 200.2/6020B (mod)	Water samples are digested with nitric and hydrochloric acids, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver -		, ,	
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered
				by this method.
Dissolved Metals in Water by CRC ICPMS	E421	Water	APHA 3030B/EPA 6020B (mod)	Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by Collision/Reaction Cell ICPMS.
	Vancouver -		OOZOD (Mod)	Collision//reaction Cell for Wio.
	Environmental			Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered
				by this method.
Total Mercury in Water by CVAAS	E508	Water	EPA 1631E (mod)	Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS
	Vancouver -			
	Environmental			
Dissolved Mercury in Water by CVAAS	E509	Water	APHA 3030B/EPA	Water samples are filtered (0.45 um), preserved with HCl, then undergo a cold-oxidation
			1631E (mod)	using bromine monochloride prior to reduction with stannous chloride, and analyzed by
	Vancouver -			CVAAS.
Disashard Handrass (Calculated)	Environmental	\\/	ADUA 0240D	
Dissolved Hardness (Calculated)	EC100	Water	APHA 2340B	"Hardness (as CaCO3), dissolved" is calculated from the sum of dissolved Calcium and
	Vancouver -			Magnesium concentrations, expressed in CaCO3 equivalents. "Total Hardness" refers
	Environmental			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially calculated from dissolved Calcium and Magnesium concentrations, because it is a
	Liviloiinentai			property of water due to dissolved divalent cations.
Hardness (Calculated) from Total Ca/Mg	EC100A	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
	Vancouver -			to the sum of Calcium and Magnesium Hardness. Hardness is normally or preferentially
	Environmental			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.

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Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Total Trivalent Chromium (Cr III) by Calculation	EC535	Water	APHA 3030B/6020A/EPA	Chromium (III)-Total is calculated as the difference between the total chromium and the total hexavalent chromium (Cr(VI)) results. The Limit of Reporting for Chromium (III) varies
	Vancouver -		7196A (mod)	as a function of the test results.
	Environmental			
Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Preparation for Ammonia	EP298	Water		Sample preparation for Preserved Nutrients Water Quality Analysis.
	Vancouver -			
	Environmental			
Dissolved Metals Water Filtration	EP421	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HNO3.
	Vancouver -			
	Environmental			
Dissolved Mercury Water Filtration	EP509	Water	APHA 3030B	Water samples are filtered (0.45 um), and preserved with HCl.
	Vancouver -			
	Environmental			

ALS Canada Ltd.



QUALITY CONTROL REPORT

Work Order :WR2201530

Client : Teck Metals Ltd
Contact : Michelle Unger
Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone

Project : Sa Dena Hes
PO : PO# 10289

C-O-C number : ----

Sampler : Wes Moir 250 427 8404

Site : ECA22YT00199
Quote number : VA22-TECK150-001

No. of samples received : 13

No. of samples analysed : 13

Page : 1 of 22

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone :+1 867 668 6689

Date Samples Received :05-Dec-2022 15:00

Date Analysis Commenced : 07-Dec-2022

Issue Date : 13-Dec-2022 13:00

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 Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

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
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Vancouver Inorganics, Burnaby, British Columbia
Qammar Almas	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Sukhman Khosa	Lab Assistant	Vancouver Metals, Burnaby, British Columbia

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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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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	p-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: 769685)											
WR2201529-003	Anonymous	pH		E108	0.10	pH units	8.07	8.07	0.00%	4%		
Physical Tests (QC	Lot: 769686)											
WR2201529-003	Anonymous	alkalinity, total (as CaCO3)		E290	1.0	mg/L	262	259	1.36%	20%		
Physical Tests (QC	Lot: 769687)											
WR2201529-003	Anonymous	conductivity		E100	2.0	μS/cm	519	525	1.15%	10%		
Physical Tests (QC	Lot: 769694)											
VA22C9587-001	Anonymous	рН		E108	0.10	pH units	5.42	5.37	0.927%	4%		
Physical Tests (QC	Lot: 769695)											
VA22C9587-001	Anonymous	alkalinity, total (as CaCO3)		E290	1.0	mg/L	<1.0	<1.0	0	Diff <2x LOR		
Physical Tests (QC	Lot: 769696)											
VA22C9587-001	Anonymous	conductivity		E100	2.0	μS/cm	<2.0	<2.0	0	Diff <2x LOR		
Physical Tests (QC	Lot: 770240)											
VA22C9507-001	Anonymous	solids, total dissolved [TDS]		E162	20	mg/L	1100	1120	1.40%	20%		
Physical Tests (QC	Lot: 770241)											
WR2201530-005	SD_MH-13_2022-12-05	solids, total dissolved [TDS]		E162	20	mg/L	231	228	1.53%	20%		
Anions and Nutrient	ts (QC Lot: 769688)											
WR2201529-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	0	Diff <2x LOR		
Anions and Nutrient	ts (QC Lot: 769689)											
WR2201529-001	Anonymous	fluoride	16984-48-8	E235.F	0.020	mg/L	0.076	0.075	0.0004	Diff <2x LOR		
Anions and Nutrient	ts (QC Lot: 769690)											
WR2201529-001	Anonymous	chloride	16887-00-6	E235.CI	0.50	mg/L	<0.50	<0.50	0	Diff <2x LOR		
Anions and Nutrient	ts (QC Lot: 769691)											
WR2201529-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR		
Anions and Nu <u>trient</u>	ts (QC Lot: 769692)											
WR2201529-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0134	0.0132	0.0002	Diff <2x LOR		
Anions and Nutrient	ts (QC Lot: 769693)											
WR2201529-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	23.0	23.2	0.734%	20%		
Anions and Nutrient	ts (QC Lot: 769698)											
VA22C9565-001	Anonymous	fluoride	16984-48-8	E235.F	0.100	mg/L	<0.100	<0.100	0	Diff <2x LOR		
Anions and Nutrient	ts (QC Lot: 769699)											

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b-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 Nutrien	ts (QC Lot: 769699) - c	ontinued										
VA22C9565-001	Anonymous	chloride	16887-00-6	E235.CI	2.50	mg/L	<2.50	<2.50	0	Diff <2x LOR		
Anions and Nutrien	ts (QC Lot: 769700)											
VA22C9565-001	Anonymous	bromide	24959-67-9	E235.Br-L	0.250	mg/L	<0.250	<0.250	0	Diff <2x LOR		
Anions and Nutrien	ts (QC Lot: 769701)											
VA22C9565-001	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	0.0250	mg/L	0.0586	0.0584	0.0003	Diff <2x LOR		
Anions and Nutrien	ts (QC Lot: 769702)											
VA22C9565-001	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR		
Anions and Nutrien	ts (QC Lot: 769703)											
VA22C9565-001	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	1.50	mg/L	454	454	0.174%	20%		
Anions and Nutrien	ts (QC Lot: 771617)											
VA22C9485-001	Anonymous	ammonia, total (as N)	7664-41-7	E298	0.0250	mg/L	3.26	3.09	5.51%	20%		
Total Metals (QC Lo	ot: 769718)											
WR2201527-001	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0160	0.0170	0.0010	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	0.00046	0.00045	0.00001	Diff <2x LOR		
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0587	0.0583	0.772%	20%		
		beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<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	0.0000050	mg/L	0.0000214	0.0000217	0.0000003	Diff <2x LOR		
		calcium, total	7440-70-2	E420	0.050	mg/L	34.3	34.7	1.35%	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	0.00042	0.00043	0.00002	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	6.98	7.30	4.49%	20%		
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000095	0.000096	0.000001	Diff <2x LOR		
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0042	0.0042	0.0000006	Diff <2x LOR		
		magnesium, total	7439-95-4	E420	0.0050	mg/L	8.19	8.51	3.80%	20%		
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.142	0.147	2.91%	20%		
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.000499	0.000532	6.30%	20%		
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00077	0.00076	0.00001	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	0.961	1.00	4.32%	20%		
		selenium, total	7782-49-2	E420	0.000050	mg/L	0.000334	0.000338	0.000004	Diff <2x LOR		

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ub-Matrix: Water						Laboratory Duplicate (DUP) Report						
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie	
Total Metals (QC Lo	ot: 769718) - continue	ed										
WR2201527-001	Anonymous	silicon, total	7440-21-3	E420	0.10	mg/L	5.37	5.40	0.677%	20%		
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR		
		sodium, total	7440-23-5	E420	0.050	mg/L	2.50	2.63	5.23%	20%		
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.163	0.171	4.99%	20%		
		sulfur, total	7704-34-9	E420	0.50	mg/L	13.0	13.8	5.70%	20%		
		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	0.00040	0.00043	0.00003	Diff <2x LOR		
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.00188	0.00191	1.56%	20%		
		vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR		
		zinc, total	7440-66-6	E420	0.0030	mg/L	0.540	0.549	1.57%	20%		
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR		
otal Metals (QC Lo	ot: 770291)											
'A22C9490-021	Anonymous	aluminum, total	7429-90-5	E420	0.0030	mg/L	0.224	0.232	3.20%	20%		
		antimony, total	7440-36-0	E420	0.00010	mg/L	0.00111	0.00110	0.572%	20%		
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00074	0.00084	0.00010	Diff <2x LOR		
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0431	0.0442	2.41%	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	<0.010	<0.010	0	Diff <2x LOR		
		cadmium, total	7440-43-9	E420	0.0000050	mg/L	0.0000391	0.0000409	0.0000017	Diff <2x LOR		
		calcium, total	7440-70-2	E420	0.050	mg/L	34.8	34.2	1.75%	20%		
		chromium, total	7440-47-3	E420	0.00050	mg/L	0.00079	0.00084	0.00005	Diff <2x LOR		
		cobalt, total	7440-48-4	E420	0.00010	mg/L	0.00024	0.00024	0.000005	Diff <2x LOR		
		copper, total	7440-50-8	E420	0.00050	mg/L	0.00132	0.00134	0.00002	Diff <2x LOR		
		iron, total	7439-89-6	E420	0.010	mg/L	0.445	0.450	1.13%	20%		
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000317	0.000322	0.000005	Diff <2x LOR		
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0017	0.0017	0.00001	Diff <2x LOR		
		magnesium, total	7439-95-4	E420	0.0050	mg/L	5.96	6.16	3.34%	20%		
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.0156	0.0157	0.881%	20%		
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00138	0.00136	1.07%	20%		
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00107	0.00099	0.00008	Diff <2x LOR		
		phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR		
		priospriorus, total	7720 14-0	0	0.000	9, _	-0.000	-0.000		2.11 -Z.X E.O.I.V		

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b-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 Lo	ot: 770291) - continued											
VA22C9490-021	Anonymous	selenium, total	7782-49-2	E420	0.000050	mg/L	0.000850	0.000805	5.43%	20%		
		silicon, total	7440-21-3	E420	0.10	mg/L	2.61	2.64	1.05%	20%		
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR		
		sodium, total	7440-23-5	E420	0.050	mg/L	2.38	2.36	0.778%	20%		
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.303	0.306	1.21%	20%		
		sulfur, total	7704-34-9	E420	0.50	mg/L	14.0	14.2	2.10%	20%		
		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	0.0114	0.0120	5.32%	20%		
		uranium, total	7440-61-1	E420	0.000010	mg/L	0.000049	0.000049	0.0000001	Diff <2x LOR		
		vanadium, total	7440-62-2	E420	0.00050	mg/L	0.00122	0.00122	0.0000004	Diff <2x LOR		
		zinc, total	7440-66-6	E420	0.0030	mg/L	0.0056	0.0054	0.0002	Diff <2x LOR		
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR		
otal Metals (QC Lo	ot: 770837)											
WR2201527-001	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.000050	0	Diff <2x LOR		
otal Metals (QC Lo	ot: 770838)											
WR2201530-012	SD_MH-TB_2022-12-05	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR		
Dissolved Metals (C	QC Lot: 769741)											
VA22C9490-021	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0084	0.0080	0.0004	Diff <2x LOR		
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00093	0.00093	0.0000005	Diff <2x LOR		
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00035	0.00031	0.00004	Diff <2x LOR		
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0343	0.0347	1.19%	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		
		boron, dissolved cadmium, dissolved	7440-42-8 7440-43-9	E421 E421	0.010 0.0000050	mg/L mg/L	<0.010 0.0000241	<0.010 0.0000272	0 0.0000031	Diff <2x LOR Diff <2x LOR		
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000241	0.0000272	0.0000031	Diff <2x LOR		
		cadmium, dissolved	7440-43-9 7440-70-2	E421 E421	0.0000050 0.050	mg/L	0.0000241 30.9	0.0000272 30.9	0.0000031 0.0603%	Diff <2x LOR		
		cadmium, dissolved calcium, dissolved chromium, dissolved	7440-43-9 7440-70-2 7440-47-3	E421 E421 E421	0.0000050 0.050 0.00050	mg/L mg/L mg/L	0.0000241 30.9 <0.00050	0.0000272 30.9 <0.00050	0.0000031 0.0603% 0	Diff <2x LOR 20% Diff <2x LOR		
		cadmium, dissolved calcium, dissolved chromium, dissolved cobalt, dissolved	7440-43-9 7440-70-2 7440-47-3 7440-48-4	E421 E421 E421 E421	0.0000050 0.050 0.00050 0.00010	mg/L mg/L mg/L mg/L	0.0000241 30.9 <0.00050 <0.00010	0.0000272 30.9 <0.00050 <0.00010	0.0000031 0.0603% 0	Diff <2x LOR 20% Diff <2x LOR Diff <2x LOR		
		cadmium, dissolved calcium, dissolved chromium, dissolved cobalt, dissolved copper, dissolved	7440-43-9 7440-70-2 7440-47-3 7440-48-4 7440-50-8	E421 E421 E421 E421 E421	0.0000050 0.050 0.00050 0.00010 0.00020	mg/L mg/L mg/L mg/L mg/L	0.0000241 30.9 <0.00050 <0.00010 0.00041	0.0000272 30.9 <0.00050 <0.00010 0.00039	0.0000031 0.0603% 0 0 0.00002	Diff <2x LOR 20% Diff <2x LOR Diff <2x LOR Diff <2x LOR		
		cadmium, dissolved calcium, dissolved chromium, dissolved cobalt, dissolved copper, dissolved iron, dissolved	7440-43-9 7440-70-2 7440-47-3 7440-48-4 7440-50-8 7439-89-6	E421 E421 E421 E421 E421 E421	0.0000050 0.050 0.00050 0.00010 0.00020 0.010	mg/L mg/L mg/L mg/L mg/L mg/L	0.0000241 30.9 <0.00050 <0.00010 0.00041 <0.010	0.0000272 30.9 <0.00050 <0.00010 0.00039 <0.010	0.0000031 0.0603% 0 0 0.00002	Diff <2x LOR 20% Diff <2x LOR Diff <2x LOR Diff <2x LOR		

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sub-Matrix: Water							Labora	tory Duplicate (D	JP) Report		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Dissolved Metals (QC Lot: 769741) - conti	nued									
VA22C9490-021	Anonymous	manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00326	0.00318	2.78%	20%	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00123	0.00122	0.532%	20%	
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00053	0.00052	0.00001	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	0.814	0.798	1.95%	20%	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.000733	0.000698	4.88%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	2.09	2.05	1.94%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	2.09	1.96	6.56%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.266	0.268	0.641%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	13.3	12.7	4.63%	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	0.000039	0.000042	0.000003	Diff <2x LOR	
		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	0.0027	0.0028	0.00002	Diff <2x LOR	
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
Dissolved Metals (QC Lot: 770338)										
WR2201528-022	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (
WR2201530-009	SD_MH-30_2022-12-05	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	

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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.

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 769686)					
alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 769687)					
conductivity	E100	1	μS/cm	1.0	
Physical Tests (QCLot: 769695)					
alkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 769696)					
conductivity	E100	1	μS/cm	1.1	
Physical Tests (QCLot: 769737)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 770236)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 770237)					
solids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 770240)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Physical Tests (QCLot: 770241)					
solids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 769688)					
nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 769689)					
fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 769690)					
chloride	16887-00-6 E235.CI	0.5	mg/L	<0.50	
Anions and Nutrients (QCLot: 769691)					
bromide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 769692)					
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 769693)					
sulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 769698)					
fluoride	16984-48-8 E235.F	0.02	mg/L	<0.020	
Anions and Nutrients (QCLot: 769699)					

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Analyte	CAS Number	Method	L	OR U	nit Result	Qualifier
Anions and Nutrients (QCLot: 7						
chloride	16887-00-6	E235.CI	().5 mg	/L <0.50	
Anions and Nutrients (QCLot: 7						
bromide	24959-67-9	E235.Br-L	0	.05 mg	/L <0.050	
Anions and Nutrients (QCLot: 7						
nitrate (as N)	14797-55-8	E235.NO3-L	0.	005 mg	/L <0.0050	
Anions and Nutrients (QCLot: 7						
nitrite (as N)	14797-65-0	E235.NO2-L	0.	001 mg	/L <0.0010	
Anions and Nutrients (QCLot: 7	•					
sulfate (as SO4)	14808-79-8	E235.SO4	C).3 mg	/L <0.30	
Anions and Nutrients (QCLot: 7						
ammonia, total (as N)	7664-41-7	E298	0.	005 mg	/L <0.0050	
otal Metals (QCLot: 769718)						
aluminum, total	7429-90-5			003 mg		
antimony, total	7440-36-0	E420	0.0	0001 mg	/L <0.00010	
arsenic, total	7440-38-2	E420	0.0	0001 mg	/L <0.00010	
barium, total	7440-39-3	E420	0.0	0001 mg	/L <0.00010	
beryllium, total	7440-41-7	E420	0.0	0002 mg	/L <0.000020	
bismuth, total	7440-69-9	E420	0.0	0005 mg	/L <0.000050	
boron, total	7440-42-8	E420	0	.01 mg	/L <0.010	
cadmium, total	7440-43-9	E420	0.00	00005 mg	/L <0.0000050	
calcium, total	7440-70-2	E420	0	.05 mg	/L <0.050	
chromium, total	7440-47-3	E420	0.0	0005 mg	/L <0.00050	
cobalt, total	7440-48-4	E420	0.0	0001 mg	/L <0.00010	
copper, total	7440-50-8	E420	0.0	0005 mg	/L <0.00050	
iron, total	7439-89-6	E420	0	.01 mg	/L <0.010	
lead, total	7439-92-1	E420	0.0	0005 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	0.0	0001 mg	/L <0.00010	
molybdenum, total	7439-98-7	E420	0.0	0005 mg	/L <0.000050	
nickel, total	7440-02-0	E420	0.0	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	0.0	0005 mg	/L <0.000050	
silicon, total	7440-21-3	E420	().1 mg	/L <0.10	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Total Metals (QCLot: 769718) -	- continued					
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	
sodium, total	7440-23-5	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	
otal Metals (QCLot: 770291)						I
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	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Fotal Metals (QCLot: 770291) - co	ontinued					
silver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	
sodium, total	7440-23-5	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	
otal Metals (QCLot: 770837)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	
otal Metals (QCLot: 770838)						
mercury, total	7439-97-6	E508	0.000005	mg/L	<0.0000050	
Dissolved Metals (QCLot: 769741)						
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	F421	0.0005	mg/L	<0.00050	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 769741)	- continued					
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	7440-23-5	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: 770338)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	
Dissolved Metals (QCLot: 770339)						
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.0000050	

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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						
	<u>_</u>			Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 769685)								
рН	E108		pH units	7 pH units	100	98.0	102	
Physical Tests (QCLot: 769686)								
alkalinity, total (as CaCO3)	E290	1	mg/L	500 mg/L	102	85.0	115	
Physical Tests (QCLot: 769687)								
conductivity	E100	1	μS/cm	146.9 μS/cm	97.1	90.0	110	
Physical Tests (QCLot: 769694)								
рН	E108		pH units	7 pH units	100	98.0	102	
Physical Tests (QCLot: 769695)								
alkalinity, total (as CaCO3)	E290	1	mg/L	500 mg/L	104	85.0	115	
Physical Tests (QCLot: 769696)	5400		24			00.0	440	
conductivity	E100	1	μS/cm	146.9 μS/cm	98.4	90.0	110	
Physical Tests (QCLot: 769737)	F100 I	1	70 g /l	450 #	04.7	95.0	115	
solids, total suspended [TSS]	E160-L	1	mg/L	150 mg/L	91.7	85.0	115	
Physical Tests (QCLot: 770236) solids, total suspended [TSS]	E160-L	1	mg/L	450 mm/l	101	85.0	115	
	[100-['	IIIg/L	150 mg/L	101	65.0	113	
Physical Tests (QCLot: 770237) solids, total suspended [TSS]	E160-L	1	mg/L	150 mg/L	97.3	85.0	115	
	2.00 2		9/2	130 Hig/L	91.5	00.0	1.0	
Physical Tests (QCLot: 770240) solids, total dissolved [TDS]	E162	10	mg/L	1000 mg/L	98.2	85.0	115	
			g/ _	1000 Hig/E	30.2	00.0		
Physical Tests (QCLot: 770241) solids, total dissolved [TDS]	E162	10	mg/L	1000 mg/L	97.6	85.0	115	
,			J.		01.0		-	
Anions and Nutrients (QCLot: 769688)								
nitrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	0.5 mg/L	99.0	90.0	110	
Anions and Nutrients (QCLot: 769689)								
fluoride	16984-48-8 E235.F	0.02	mg/L	1 mg/L	97.2	90.0	110	
Anions and Nutrients (QCLot: 769690)								1
chloride	16887-00-6 E235.CI	0.5	mg/L	100 mg/L	101	90.0	110	
Anions and Nutrients (QCLot: 769691)								
bromide	24959-67-9 E235.Br-L	0.05	mg/L	0.5 mg/L	102	85.0	115	
Anions and Nutrients (QCLot: 769692)								
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	2.5 mg/L	102	90.0	110	

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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: 769693)										
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	105	90.0	110		
Anions and Nutrients (QCLot: 769698)										
fluoride	16984-48-8	E235.F	0.02	mg/L	1 mg/L	101	90.0	110		
Anions and Nutrients (QCLot: 769699)										
chloride	16887-00-6	E235.CI	0.5	mg/L	100 mg/L	101	90.0	110		
Anions and Nutrients (QCLot: 769700)										
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115		
Anions and Nutrients (QCLot: 769701)										
nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	101	90.0	110		
Anions and Nutrients (QCLot: 769702)										
nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	102	90.0	110		
Anions and Nutrients (QCLot: 769703)										
sulfate (as SO4)	14808-79-8	E235.SO4	0.3	mg/L	100 mg/L	103	90.0	110		
Anions and Nutrients (QCLot: 771617)										
ammonia, total (as N)	7664-41-7	E298	0.005	mg/L	0.2 mg/L	97.0	85.0	115		
Total Metals (QCLot: 769718)										
aluminum, total	7429-90-5		0.003	mg/L	2 mg/L	93.8	80.0	120		
antimony, total	7440-36-0		0.0001	mg/L	1 mg/L	98.1	80.0	120		
arsenic, total	7440-38-2		0.0001	mg/L	1 mg/L	99.4	80.0	120		
barium, total	7440-39-3		0.0001	mg/L	0.25 mg/L	97.4	80.0	120		
beryllium, total	7440-41-7		0.00002	mg/L	0.1 mg/L	101	80.0	120		
bismuth, total	7440-69-9		0.00005	mg/L	1 mg/L	96.3	80.0	120		
boron, total	7440-42-8		0.01	mg/L	1 mg/L	98.3	80.0	120		
cadmium, total	7440-43-9		0.000005	mg/L	0.1 mg/L	95.7	80.0	120		
calcium, total	7440-70-2		0.05	mg/L	50 mg/L	99.8	80.0	120		
chromium, total	7440-47-3		0.0005	mg/L	0.25 mg/L	93.5	80.0	120		
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	93.7	80.0	120		
copper, total	7440-50-8		0.0005	mg/L	0.25 mg/L	94.4	80.0	120		
iron, total	7439-89-6		0.01	mg/L	1 mg/L	99.0	80.0	120		
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	95.0	80.0	120		
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	102	80.0	120		
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	98.0	80.0	120		
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	95.7	80.0	120		
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	95.3	80.0	120		
nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	97.3	80.0	120		

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Sub-Matrix: Water						Laboratory Co.	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 769718) - continued									
phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	90.2	80.0	120	
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	100	80.0	120	
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	98.7	80.0	120	
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	96.7	80.0	120	
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	94.4	80.0	120	
sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	99.6	80.0	120	
strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	99.8	80.0	120	
sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	83.6	80.0	120	
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	96.8	80.0	120	
tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	96.3	80.0	120	
titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	95.3	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	96.3	80.0	120	
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	97.5	80.0	120	
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	96.2	80.0	120	
Total Metals (QCLot: 770291)									
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	106	80.0	120	
arsenic, total	7440-38-2	E420	0.0001	mg/L	1 mg/L	108	80.0	120	
barium, total	7440-39-3	E420	0.0001	mg/L	0.25 mg/L	111	80.0	120	
beryllium, total	7440-41-7	E420	0.00002	mg/L	0.1 mg/L	103	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	102	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	105	80.0	120	
chromium, total	7440-47-3	E420	0.0005	mg/L	0.25 mg/L	103	80.0	120	
cobalt, total	7440-48-4	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	101	80.0	120	
iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	114	80.0	120	
lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120	
lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	103	80.0	120	
magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	102	80.0	120	
manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120	
molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	105	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	103	80.0	120	

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Sub-Matrix: Water						Laboratory Co	ontrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Total Metals (QCLot: 770291) - continued									
potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	102	80.0	120	
selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	99.3	80.0	120	
silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	106	80.0	120	
silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	97.3	80.0	120	
sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	105	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	99.0	80.0	120	
thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	102	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	99.2	80.0	120	
uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	98.1	80.0	120	
vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	102	80.0	120	
zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	104	80.0	120	
zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	104	80.0	120	
Total Metals (QCLot: 770837)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	93.1	80.0	120	
Total Metals (QCLot: 770838)									
mercury, total	7439-97-6	E508	0.000005	mg/L	0.0001 mg/L	91.8	80.0	120	
Dissolved Metals (QCLot: 769741)									
aluminum, dissolved	7429-90-5	E421	0.001	mg/L	2 mg/L	94.4	80.0	120	
antimony, dissolved	7440-36-0	E421	0.0001	mg/L	1 mg/L	103	80.0	120	
arsenic, dissolved	7440-38-2	E421	0.0001	mg/L	1 mg/L	97.4	80.0	120	
barium, dissolved	7440-39-3	E421	0.0001	mg/L	0.25 mg/L	95.2	80.0	120	
beryllium, dissolved	7440-41-7	E421	0.00002	mg/L	0.1 mg/L	97.2	80.0	120	
bismuth, dissolved	7440-69-9	E421	0.00005	mg/L	1 mg/L	95.5	80.0	120	
boron, dissolved	7440-42-8	E421	0.01	mg/L	1 mg/L	94.6	80.0	120	
cadmium, dissolved	7440-43-9	E421	0.000005	mg/L	0.1 mg/L	94.9	80.0	120	
calcium, dissolved	7440-70-2	E421	0.05	mg/L	50 mg/L	97.8	80.0	120	
chromium, dissolved	7440-47-3	E421	0.0005	mg/L	0.25 mg/L	92.8	80.0	120	
cobalt, dissolved	7440-48-4	E421	0.0001	mg/L	0.25 mg/L	92.1	80.0	120	
copper, dissolved	7440-50-8	E421	0.0002	mg/L	0.25 mg/L	90.5	80.0	120	
iron, dissolved	7439-89-6	E421	0.01	mg/L	1 mg/L	98.8	80.0	120	
lead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	98.0	80.0	120	
lithium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	96.4	80.0	120	
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	93.9	80.0	120	
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Sub-Matrix: Water						Laboratory Co	ntrol Sample (LCS)	Report	
					Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Dissolved Metals (QCLot: 769741) -	continued								
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	92.1	80.0	120	
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120	
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	92.8	80.0	120	
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	104	80.0	120	
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	97.8	80.0	120	
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	94.6	80.0	120	
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	80.0	120	
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	92.5	80.0	120	
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	93.9	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	88.1	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	95.5	80.0	120	
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	88.4	80.0	120	
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	98.0	80.0	120	
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	94.1	80.0	120	
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	93.1	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	97.2	80.0	120	
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	97.1	80.0	120	

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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								e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Anions and Nutri	ients (QCLot: 769688)									
WR2201529-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.488 mg/L	0.5 mg/L	97.5	75.0	125	
nions and Nutri	ients (QCLot: 769689)									·
WR2201529-002	Anonymous	fluoride	16984-48-8	E235.F	0.977 mg/L	1 mg/L	97.7	75.0	125	
Anions and Nutri	ients (QCLot: 769690)									
WR2201529-002	Anonymous	chloride	16887-00-6	E235.CI	101 mg/L	100 mg/L	101	75.0	125	
Anions and Nutri	ients (QCLot: 769691)									
WR2201529-002	Anonymous	bromide	24959-67-9	E235.Br-L	0.512 mg/L	0.5 mg/L	102	75.0	125	
nions and Nutri	ients (QCLot: 769692)									
WR2201529-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.57 mg/L	2.5 mg/L	103	75.0	125	
Anions and Nutri	ients (QCLot: 769693)									
WR2201529-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	103 mg/L	100 mg/L	103	75.0	125	
Anions and Nutri	ients (QCLot: 769698)									
VA22C9565-002	Anonymous	fluoride	16984-48-8	E235.F	10.6 mg/L	10 mg/L	106	75.0	125	
Anions and Nutri	ients (QCLot: 769699)									
VA22C9565-002	Anonymous	chloride	16887-00-6	E235.CI	1050 mg/L	1000 mg/L	105	75.0	125	
Anions and Nutri	ients (QCLot: 769700)									
VA22C9565-002	Anonymous	bromide	24959-67-9	E235.Br-L	5.24 mg/L	5 mg/L	105	75.0	125	
Anions and Nutri	ients (QCLot: 769701)									
VA22C9565-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	26.6 mg/L	25 mg/L	106	75.0	125	
Anions and Nutri	ients (QCLot: 769702)									
VA22C9565-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	5.31 mg/L	5 mg/L	106	75.0	125	
Anions and Nutri	ients (QCLot: 769703)									
VA22C9565-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	1070 mg/L	1000 mg/L	107	75.0	125	
Anions and Nutri	ents (QCLot: 771617)									
VA22C9485-002	Anonymous	ammonia, total (as N)	7664-41-7	E298	ND mg/L	0.1 mg/L	ND	75.0	125	MS-B
otal Metals (QC	Lot: 769718)									
WR2201527-002	Anonymous	aluminum, total	7429-90-5	E420	0.182 mg/L	0.2 mg/L	91.1	70.0	130	

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 Work Order
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 WR2201530

 Client
 :
 Teck Metals Ltd

 Project
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Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Total Metals (QC	Lot: 769718) - cont	inued								
WR2201527-002	Anonymous	antimony, total	7440-36-0	E420	0.0184 mg/L	0.02 mg/L	91.9	70.0	130	
		arsenic, total	7440-38-2	E420	0.0189 mg/L	0.02 mg/L	94.6	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	0.0374 mg/L	0.04 mg/L	93.6	70.0	130	
		bismuth, total	7440-69-9	E420	0.00910 mg/L	0.01 mg/L	91.0	70.0	130	
		boron, total	7440-42-8	E420	0.092 mg/L	0.1 mg/L	92.4	70.0	130	
		cadmium, total	7440-43-9	E420	0.00373 mg/L	0.004 mg/L	93.3	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	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	
		cobalt, total	7440-48-4	E420	0.0183 mg/L	0.02 mg/L	91.6	70.0	130	
		copper, total	7440-50-8	E420	0.0183 mg/L	0.02 mg/L	91.7	70.0	130	
		iron, total	7439-89-6	E420	1.82 mg/L	2 mg/L	90.8	70.0	130	
		lead, total	7439-92-1	E420	0.0178 mg/L	0.02 mg/L	89.0	70.0	130	
		lithium, total	7439-93-2	E420	0.0932 mg/L	0.1 mg/L	93.2	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	ND mg/L	0.02 mg/L	ND	70.0	130	
		molybdenum, total	7439-98-7	E420	0.0184 mg/L	0.02 mg/L	92.2	70.0	130	
		nickel, total	7440-02-0	E420	0.0374 mg/L	0.04 mg/L	93.6	70.0	130	
		phosphorus, total	7723-14-0	E420	9.38 mg/L	10 mg/L	93.8	70.0	130	
		potassium, total	7440-09-7	E420	3.95 mg/L	4 mg/L	98.8	70.0	130	
		selenium, total	7782-49-2	E420	0.0391 mg/L	0.04 mg/L	97.8	70.0	130	
		silicon, total	7440-21-3	E420	9.14 mg/L	10 mg/L	91.4	70.0	130	
		silver, total	7440-22-4	E420	0.00378 mg/L	0.004 mg/L	94.6	70.0	130	
		sodium, total	7440-23-5	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	19.9 mg/L	20 mg/L	99.4	70.0	130	
		thallium, total	7440-28-0	E420	0.00357 mg/L	0.004 mg/L	89.4	70.0	130	
		tin, total	7440-31-5	E420	0.0188 mg/L	0.02 mg/L	94.0	70.0	130	
		titanium, total	7440-32-6	E420	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	
		uranium, total	7440-61-1	E420	0.00385 mg/L	0.004 mg/L	96.2	70.0	130	
		vanadium, total	7440-62-2	E420	0.0952 mg/L	0.1 mg/L	95.2	70.0	130	
		zinc, total	7440-66-6	E420	0.388 mg/L	0.4 mg/L	97.1	70.0	130	
		zirconium, total	7440-67-7	E420	0.0395 mg/L	0.04 mg/L	98.8	70.0	130	
otal Metals (QC	Lot: 770291)									
VA22C9490-022	Anonymous	aluminum, total	7429-90-5	E420	0.191 mg/L	0.2 mg/L	95.4	70.0	130	

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Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
	Lot: 770291) - conti	nued								
VA22C9490-022	Anonymous	antimony, total	7440-36-0	E420	0.0184 mg/L	0.02 mg/L	92.2	70.0	130	
		arsenic, total	7440-38-2	E420	0.0189 mg/L	0.02 mg/L	94.6	70.0	130	
		barium, total	7440-39-3	E420	0.0202 mg/L	0.02 mg/L	101	70.0	130	
		beryllium, total	7440-41-7	E420	0.0386 mg/L	0.04 mg/L	96.4	70.0	130	
		bismuth, total	7440-69-9	E420	0.00906 mg/L	0.01 mg/L	90.6	70.0	130	
		boron, total	7440-42-8	E420	0.100 mg/L	0.1 mg/L	99.8	70.0	130	
		cadmium, total	7440-43-9	E420	0.00393 mg/L	0.004 mg/L	98.3	70.0	130	
		calcium, total	7440-70-2	E420	3.78 mg/L	4 mg/L	94.6	70.0	130	
		chromium, total	7440-47-3	E420	0.0390 mg/L	0.04 mg/L	97.6	70.0	130	
		cobalt, total	7440-48-4	E420	0.0195 mg/L	0.02 mg/L	97.3	70.0	130	
		copper, total	7440-50-8	E420	0.0192 mg/L	0.02 mg/L	96.2	70.0	130	
		iron, total	7439-89-6	E420	1.94 mg/L	2 mg/L	96.8	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	0.0958 mg/L	0.1 mg/L	95.8	70.0	130	
		magnesium, total	7439-95-4	E420	0.961 mg/L	1 mg/L	96.1	70.0	130	
		manganese, total	7439-96-5	E420	0.0191 mg/L	0.02 mg/L	95.5	70.0	130	
		molybdenum, total	7439-98-7	E420	0.0187 mg/L	0.02 mg/L	93.7	70.0	130	
		nickel, total	7440-02-0	E420	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	
		phosphorus, total	7723-14-0	E420	9.87 mg/L	10 mg/L	98.7	70.0	130	
		potassium, total	7440-09-7	E420	3.75 mg/L	4 mg/L	93.8	70.0	130	
		selenium, total	7782-49-2	E420	0.0371 mg/L	0.04 mg/L	92.8	70.0	130	
		silicon, total	7440-21-3	E420	9.14 mg/L	10 mg/L	91.4	70.0	130	
		silver, total	7440-22-4	E420	0.00378 mg/L	0.004 mg/L	94.4	70.0	130	
		sodium, total	7440-23-5	E420	1.94 mg/L	2 mg/L	97.0	70.0	130	
		strontium, total	7440-24-6	E420	0.0192 mg/L	0.02 mg/L	96.1	70.0	130	
		sulfur, total	7704-34-9	E420	18.8 mg/L	20 mg/L	93.9	70.0	130	
		thallium, total	7440-28-0	E420	0.00363 mg/L	0.004 mg/L	90.9	70.0	130	
		tin, total	7440-31-5	E420	0.0181 mg/L	0.02 mg/L	90.6	70.0	130	
		titanium, total	7440-32-6	E420	0.0378 mg/L	0.04 mg/L	94.4	70.0	130	
		uranium, total	7440-61-1	E420	0.00355 mg/L	0.004 mg/L	88.7	70.0	130	
		vanadium, total	7440-62-2	E420	0.0958 mg/L	0.1 mg/L	95.8	70.0	130	
		zinc, total	7440-66-6	E420	0.393 mg/L	0.4 mg/L	98.3	70.0	130	
		zirconium, total	7440-67-7	E420	0.0385 mg/L	0.04 mg/L	96.3	70.0	130	
otal Metals (QC	Lot: 770837)									
WR2201527-002	Anonymous	mercury, total	7439-97-6	E508	0.0000995 mg/L	0.0001 mg/L	99.5	70.0	130	

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Sub-Matrix: Water							Matrix Spik	e (MS) Report		
					Spi	ike	Recovery (%)	Recovery	y Limits (%)	
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie
otal Metals (QC	Lot: 770838)									
WR2201530-013	SD_MH-FD1_2022-12-05	mercury, total	7439-97-6	E508	0.000102 mg/L	0.0001 mg/L	102	70.0	130	
issolved Metals	(QCLot: 769741)									
/A22C9490-023	Anonymous	aluminum, dissolved	7429-90-5	E421	0.187 mg/L	0.2 mg/L	93.3	70.0	130	
		antimony, dissolved	7440-36-0	E421	0.0199 mg/L	0.02 mg/L	99.4	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	0.0187 mg/L	0.02 mg/L	93.4	70.0	130	
		beryllium, dissolved	7440-41-7	E421	0.0393 mg/L	0.04 mg/L	98.2	70.0	130	
		bismuth, dissolved	7440-69-9	E421	0.00933 mg/L	0.01 mg/L	93.3	70.0	130	
		boron, dissolved	7440-42-8	E421	0.097 mg/L	0.1 mg/L	97.2	70.0	130	
		cadmium, dissolved	7440-43-9	E421	0.00376 mg/L	0.004 mg/L	94.0	70.0	130	
		calcium, dissolved	7440-70-2	E421	4.02 mg/L	4 mg/L	101	70.0	130	
		chromium, dissolved	7440-47-3	E421	0.0376 mg/L	0.04 mg/L	93.9	70.0	130	
		cobalt, dissolved	7440-48-4	E421	0.0185 mg/L	0.02 mg/L	92.4	70.0	130	
		copper, dissolved	7440-50-8	E421	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	
		iron, dissolved	7439-89-6	E421	1.88 mg/L	2 mg/L	94.0	70.0	130	
		lead, dissolved	7439-92-1	E421	0.0202 mg/L	0.02 mg/L	101	70.0	130	
		lithium, dissolved	7439-93-2	E421	0.0983 mg/L	0.1 mg/L	98.3	70.0	130	
		magnesium, dissolved	7439-95-4	E421	0.927 mg/L	1 mg/L	92.7	70.0	130	
		manganese, dissolved	7439-96-5	E421	0.0186 mg/L	0.02 mg/L	93.1	70.0	130	
		molybdenum, dissolved	7439-98-7	E421	0.0204 mg/L	0.02 mg/L	102	70.0	130	
		nickel, dissolved	7440-02-0	E421	0.0377 mg/L	0.04 mg/L	94.3	70.0	130	
		phosphorus, dissolved	7723-14-0	E421	9.57 mg/L	10 mg/L	95.7	70.0	130	
		potassium, dissolved	7440-09-7	E421	3.83 mg/L	4 mg/L	95.8	70.0	130	
		selenium, dissolved	7782-49-2	E421	0.0368 mg/L	0.04 mg/L	91.9	70.0	130	
		silicon, dissolved	7440-21-3	E421	9.41 mg/L	10 mg/L	94.1	70.0	130	
		silver, dissolved	7440-22-4	E421	0.00394 mg/L	0.004 mg/L	98.5	70.0	130	
		sodium, dissolved	7440-23-5	E421	1.87 mg/L	2 mg/L	93.5	70.0	130	
		strontium, dissolved	7440-24-6	E421	0.0213 mg/L	0.02 mg/L	107	70.0	130	
		sulfur, dissolved	7704-34-9	E421	19.0 mg/L	20 mg/L	94.9	70.0	130	
		thallium, dissolved	7440-28-0	E421	0.00378 mg/L	0.004 mg/L	94.4	70.0	130	
		tin, dissolved	7440-31-5	E421	0.0186 mg/L	0.02 mg/L	93.3	70.0	130	
		titanium, dissolved	7440-32-6	E421	0.0354 mg/L	0.04 mg/L	88.4	70.0	130	
		uranium, dissolved	7440-61-1	E421	0.00383 mg/L	0.004 mg/L	95.7	70.0	130	
		vanadium, dissolved	7440-62-2	E421	0.0936 mg/L	0.1 mg/L	93.6	70.0	130	
	1	zinc, dissolved	7440-66-6	E421	0.382 mg/L	0.4 mg/L	95.4	70.0	130	I

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Sub-Matrix: Water							Matrix Spil	re (MS) Report		
					Spi	ke	Recovery (%)	Recovery	Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Dissolved Metals	(QCLot: 769741) - cont	tinued								
VA22C9490-023	Anonymous	zirconium, dissolved	7440-67-7	E421	0.0418 mg/L	0.04 mg/L	104	70.0	130	
Dissolved Metals	(QCLot: 770338)									
WR2201528-023	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000946 mg/L	0.0001 mg/L	94.6	70.0	130	
Dissolved Metals	(QCLot: 770339)									
WR2201530-010	SD_MH-FB_2022-12-05	mercury, dissolved	7439-97-6	E509	0.000101 mg/L	0.0001 mg/L	101	70.0	130	

Qualifiers

Qualifier Description

MS-B Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Chain of Custody (COC) / Analytical Request Form

Affix ALS barcode label here (lab use only)

Environmental Contact and company name below will appear on the final report Canada Toll Free: 1 800 668 9878 Report Format / Distribution Select Service Level Below - Please confirm all E&P TAT

Select Report Format:

Regular [R]

Whitehorse

Environmental Division

3

) T

Company: Report To

TECK Metals Ltd

Street: Job #: Phone: Are samples for human drinking water use? PO / AFE: ALS Account # / Quote #: City/Province: Are samples taken from a Regulated DW System? ALS Sample # (lab use only) nvoice To ostal Code: Contact: Released by: Wes Moir Contact: ompany: ALS Lab Work Order # (lab use only) Drinking Water (DW) Samples¹ (client use) ECA22YT00199 Same as Report To V1A 3E1 Kimberly, BC Teck PO-10289 Copy of Invoice with Report 601 Knightton Road 250-4278422 Michelle Unger Company address below will appear on the final report Sample Identification and/or Coordinates (This description will appear on the report) SHIPMENT RELEASE (client use) Project Information SD_MH-FD1_2022-12-05 Date: 5-Dec-22 Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only) Time: 3:15 (SYS_LOC_CODE) Sample Location SD_MH-FD1 Quality Control (QC) Report with Report Email 2 Email 3 Email 2 Select Distribution: ALS Contact: Email 1 or Fax Michelle.unger@teck.com Select Invoice Distribution: Email 1 or Fax Received by: ₹equisitioner: Major/Minor Code: \FE/Cost Center: ocation: Oil and Gas Required Fields (client use) azheng@ensero.com, kgardner@ensero.com legacy.ap@teck.com wendy.mcbain@teck.com, colin.lynch@teck.com NITIAL SHIPMENT RECEPTION (lab use only (dd-mmm-yy) Can Dang 4-Dec-22 Date Invoice Distribution isero.com.teckkimb@equisonline.com Sampler: Routing Code: (hh:mm) Time Wes Moir Field Matrix ΝS For tests that can not be performed according to the ser Cooling Initiated Ice Packs Frozen Time: Total Metals (low level) + Hg Ŧ Date and Time Required for all E&P TATs: Dissolved Metals (low level) +Hg INITIAL COOLER Indicate Filtered (F), Preserved (P) or Filt 3 day [P3] 2 day [P2] 4 day [P4] Received by pH, SPC, alkalinity, hardness ס Anions(Nitrate, Nitrite, Sulphate, Cl, F, Br) Ice Cubes ס Z Ammonia CONDITION AS RECEIVED TDS, TSS(low) SHIPMENT Analy ס Custody seal intact SIF Observations Chromium Speciation RECEPTION Telephone: +1 867 668 6689 Work Order Reference WR2201530 FINAL COOLER TEMPERATURES °C lab use only Yes Yes (lab use only ö 8 Ime: Number of Containers

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

Faiture 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

WHITE - LABORATORY COPY

COC Number:

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AS) Engionmental Canada Toll Free: 1 800 668 9878 Affix ALS barcode label here

www.alsglobal.com

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Company:	TECK Metals Ltd		Report Form	Report Format / Distribution		Selec	Service	Level Bo	ow - Die	rea confi		TAT					
Contact	Michelle Unger	Select Report Format:	ort Format:				핑	Regular [R]	2						Regular (R)	Vi apply	
Phone:	250-4278422	Quality Con	Quality Control (QC) Report with Report	Report		Y Ays)	4	4 day [P4]	<u>.</u>			Υ	<u>_</u>	sines	1 Business day (F1)	≛ 	
	Company address below will appear on the final report	Selant Dietri	ř.			RIORIT	ω	day [P3]	<u>ය</u> ,			RGENC	တ္ဆ	ne Day	· Waak		
Street	601 Knightton Road	October Distribution	15			Pf (Busi	N	2 day [P2]	2			EME	St	atutory	Statutory holiday [E0]	\ [E0]	
City/Province:	Kimberly, BC	Email 1 or Fax	- 1	azheng@ensero.com, kgardner@ensero.com	ensero.com		Date a	nd Time	Requir	Date and Time Required for all E&P TATs:	#E&P	ATs:	#4 65.0				4
Postal Code:	V1A 3E1	0 1000	wenty incoming	welldy.incbain@teck.com, colin.lynch@teck.com	nch@teck.com	For tes	ts that c	an not be	ребога	ed accore	ding to t	ne servic	e level se	sected, y	For tests that can not be performed according to the service level selected, you will be contacted.	ontacted.	
Invoice To	Same as Report To	Email 3	chanson@enser	chanson@ensero.com.teckkimb@equisonlin)equisonline.com	_						nalys	Analysis Request	lest) in the second	
	Copy of Invoice with Report		Invoice I	Invoice Distribution			lnd	icate Fil	ered (F)	Presen	ved (P)	or Filtere	d and P	eserved	Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	¥	$\frac{1}{2}$
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	Project Information	CINAIL	legacy.ap@teck.com	com		L4			, Br)				-				
ALS Account # / Quote #			Oli and Gas Required Fields (client use)	ed Fields (client	use)				I, F								
Job#:	ECA22YT00199	AFE/Cost Center:	1	PO#			Чg		te, C								
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ALS Lab Wor	ALS Lab Work Order# (lab use only)	ALS Contact:	Can Dano	Sampler:	Victor Ani-	(low lev	etals (lo	alinity, i	ta, Nitri	*	W)	eciatio		•			
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)		Date	Time		Metal	olved N	SPC, a	ns(Nitr	onia	TSS(k	mium 8					
	SD_MH-02 2022-12-05	(0)	(dd-mmm-yy)	(hh:mm)	rieju Watrix	Tota	Diss	рΗ, 8	Anio	Amm	rds,	Chro					
	SD_MH-Q4_2022-12-05	3D_MH-02	1-Dec-22	17:20	SW	ZD	Ŋ	ZJ	70	70	ת	Z)	+	1	1	-	+
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	SD MH AS BOSS AS ST	SU_MH-11	4-Dec-22	13:20	WS	20	70	70	77	20	70	Ū	+	†	1	+	\dagger
	SD MH.12 2022-12-05	SD_MH-12	1-Dec-22	16:30	WS	20 :	20 ;	₽ :	77 ;	₽ ;	υ ;	7	+	\dagger	-	+	\dagger
	SD MU 45 5500 500	SD_MH-13	3-Dec-22	13:20	SW	20 :	20 ;	Σ ;	ν ;	0 7	0 ;	J /	+	†	_	+	+
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	SD MM 30 0000 10 0	SD_MH-29	4-Dec-22	14:00	WS	20 :	70 ;	20 ;	70 7	כ ס	0 7	7	+		_		
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	SD WH to 5555 15-0	SD_MH-FB	3-Dec-22		WS.	70	Σ	ν :	+	+	-	0 ;	_			-	\dagger
	0	SD_MH-FD	3-Dec-22		SW	U	0	+	+	+	+	+	\dagger		-	+	\mid
?	2-05	SD_MH-TB			WS V	7 7	2 2	υ <u>χ</u>	0 z	ס ס	0 Z	0 20			-	-	7
samples taken f	Jse)	Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)	add on report by click tronic COC only)	ing on the drop-do			 -	Ιŀ	AMPL	E CON	DITIO.	N AS	RECE		SAMPLE CONDITION AS RECEIVED (lab use only)	only)	
-	System?				ட	Frozen			L		S	F Obs	SIF Observations	ns	Yes	ᇹ	
samples for hun	Arc samples for human drinking water use?				0.5	Ice Packs Cooling In	lce Packs Cooling Initiated		ce Cubes	es		ustody	Custody seal intact			□[
					Т		MITIAL	COOL	RIEM	INITIAL COOLER TEMPERATURES C	JRES %	3.7	П	FINAL	COOLER	TEMPER	FINAL COOLER TEMPERATURES °C
Released by: Wes Main	SHIPMENT REI		NITIAI SHIDMENT				0		(a		X		()				
J. 4400	Date: 5-Dec-22	=	Date: / (lab use only)	Date: / /		2]			FINA	IHS 1	MEN	- REC	PTIO	FINAL SHIPMENT RECEPTION (lab use only)	ë only)	
ER TO BACK PA	REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION 3:15			70				Kecelyed by:	ä by:				Date:	,,,			Time:

WITH E - EXBORATORY COPY YELLOW - CLIENT COPY

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



APPENDIX D: 2022 WATER QUALITY RESULTS

				13-06				/13-13				13-01	
				200 Portal				t of 1380 Portal				iully, downgradient of 1	
Constant Water Florestics		08/Feb/22	29/Jun/22	10/Aug/22	25/Oct/22	08/Feb/22	29/Jun/22	10/Aug/22	25/Oct/22 1246.04	10/Feb/22	29/Jun/22	10/Aug/22	28/Oct/22
Ground Water Elevation	masl		1185.46 5.7	1182.18 4.2	1179.88 2.4		1252.32 2.1	1245.89 2.6	1246.04	1180.45 2.3	1182.72 4.1	1180.88 4.7	1180.7 3.4
Temperature - Field	Ü												
pH - Field	pH		7.03	6.75	8.53		7.99	8.02	7.87	7.4	7.84	7.16	0.53
pH - Lab	рН		8.2	7.27	7.72		8.09	7.75	7.84	7.8	8.33	7.64	7.93
Hardness (Dissolved, CaCO3)	mg/L		406	411	453		94.2	124	128	169	158	155	154
Conductivity - Field	μS/cm		788.4	814.9	680		196.8	266.6	258.9	287.9	304.9	294.7	320.3
Conductivity - Lab	μS/cm		794	825	805		199	271	248	307	312	307	288
Ammonia Nitrogen	mg/L		0.0172	0.0164	0.0174		0.0058	0.0233	0.221	<0.0050	<0.0050	<0.0050	0.0064
Nitrite	mg/L		<0.0050	<0.0050	<0.0050		<0.0010	0.0031	0.0123	<0.0010	<0.0010	<0.0010	<0.0010
Nitrate	mg/L		<0.0250	<0.0250	<0.0250		0.137	0.313	0.552	0.289	0.29	0.223	0.245
Sulphate	mg/L		253	258	299		20.1	43.4	24.6	11.1	13.1	9.36	10.8
Fluoride	mg/L		0.486				0.105			0.346	0.44		
Chloride	mg/L		<2.50				<0.50			<0.50	<0.50		
Bromide	mg/L		<0.250	<0.250	<0.250	1	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Oxygen	%		34	30	28.2	1	89.7	82.1	107.7	63.3	63.8	64.1	74.8
Dissolved Oxygen	mg/L		3.95	3.12	3.88		13.61	10.96	12.87	8.47	8.27	8.21	9.81
ORP	mV		113.6	60.6	-121.8		1132.3	239.9	17.1	108.3	131.4	187.2	80.3
Alkalinity (CaCO3)	mg/L		187	176	164		80.1	85.5	105	151	154	144	139
Dissolved Arsenic	mg/L		0.0447	0.0488	0.0456		0.00071	0.00053	0.00055	0.00038	0.00071	0.00048	0.00032
Dissolved Silver	mg/L		<0.00010	<0.00010	<0.000010		<0.000010	<0.000010	<0.000010	<0.00010	<0.00010	<0.00010	<0.000010
Dissolved Aluminum	mg/L		0.0022	0.0013	0.002		0.011	0.0151	0.024	0.0041	0.0036	0.0013	0.0016
Dissolved Barium	mg/L		0.0224	0.0237	0.025		0.011	0.0274	0.0148	0.022	0.018	0.0191	0.019
Dissolved Barryllium		Site Inaccessible	<0.00020	<0.00020	<0.000020	Site Inaccessible	<0.00020	<0.000020	<0.00020	<0.000020	<0.000020	<0.00020	<0.00020
Dissolved Boron	mg/L		<0.000020	<0.000020	<0.000020		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	mg/L		.0.00050	.0.00050	.0.000050		-0.00050	.0.00050	.0.00050	.0.00050	.0.00050	.0.00050	.0.00050
Dissolved Bismuth	mg/L		<0.000050	<0.000050	<0.000050		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Calcium	mg/L		144	146	161		35.4	46.6	48	61.2	55.8	55.8	56.2
Dissolved Cadmium	mg/L		0.000059	0.0000962	0.0000671		0.00207	0.000938	0.000955	0.00074	0.000273	0.00059	0.00057
Dissolved Cobalt	mg/L		0.00238	0.00264	0.00256		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Chromium	mg/L		<0.00050	<0.00050	<0.00050		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Copper	mg/L		<0.00020	0.00108	<0.00020		0.00157	0.00323	0.00235	<0.00020	0.00025	<0.00020	<0.00020
Dissolved Iron	mg/L		0.507	0.518	0.5		0.023	0.018	0.033	<0.010	<0.010	<0.010	<0.010
Dissolved Mercury	mg/L		<0.0000050	<0.000050	<0.0000050		<0.000050	<0.000050	<0.0000050	<0.0000050	<0.000050	<0.000050	<0.000050
Dissolved Potassium	mg/L		2.18	2	2.05		0.58	0.869	0.772	0.637	0.627	0.663	0.585
Dissolved Lithium	mg/L		0.0084	0.0077	0.0076		<0.0010	<0.0010	<0.0010	0.0014	0.0027	0.0014	0.0013
Dissolved Magnesium	mg/L		11.3	11.2	12.3		1.41	1.87	1.92	3.93	4.5	3.86	3.42
Dissolved Manganese	mg/L		0.311	0.306	0.315		0.00231	0.00124	0.00133	0.00148	0.00034	0.0003	0.00018
Dissolved Molybdenum	mg/L		0.034	0.0342	0.0333		0.00021	0.000394	0.000346	0.000659	0.00157	0.000778	0.000699
Dissolved Sodium	mg/L		5.24	4.81	5.15	1	0.521	0.898	0.713	0.764	0.962	0.741	0.693
Dissolved Nickel	mg/L		0.029	0.0286	0.0294	1	<0.00050	0.00082	0.00054	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Lead	mg/L		0.000399	0.000053	0.000086	1	0.00278	0.000752	0.000737	0.00154	0.000928	0.000868	0.001
Dissolved Phosphorus	mg/L		0.146	0.167	0.159		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Antimony	mg/L		0.00015	0.00021	0.00015		0.00012	0.00017	0.00014	0.00012	0.00021	0.00014	0.00011
Dissolved Sulphur	mg/L		93.5	96.6	95.6		7.98	15.9	7.64	3.85	5.01	3.87	3.36
Dissolved Selenium	mg/L		0.000066	<0.000050	<0.000050		0.000626	0.00135	0.000644	0.00157	0.00121	0.00122	0.00117
Dissolved Seletiluifi	ITIB/L		0.00000	<0.000050	<0.000050		0.000626	0.00135	0.000644	0.00157	0.00121	0.00122	0.00117

Burwick 1200 Portal Downgradient of 1380 Portal 08/Feb/22 29/Jun/22 10/Aug/22 25/Oct/22 Downgradient of 1380 Portal Dissolved Silicon mg/L mg/L 16.4 15.4 14 2.02 2.39 2.35 Dissolved Tin mg/L 0.518 0.517 0.545 0.0659 0.0848 0.0795 Dissolved Titanium mg/L Site Inaccessible 0.00030 <0.00030	Jewelb 10/Feb/22 3.32 <0.00010 0.177 <0.00030 <0.000010 0.000867 <0.00050 0.031 <0.00020	29/Jun/22 4.31 <0.00010 0.23 <0.00030 <0.000010 0.00186 <0.00050 0.0094 <0.00020	10/Aug/22 3.5 <0.00010 0.178 <0.00030 <0.000010 0.000986 <0.00050 0.0197	28/Oct/22 3.15 <0.00010 0.151 <0.00030 <0.000010 0.000941 <0.00050
Dissolved Silicon mg/L 16.4 15.4 14 2.02 2.39 2.35 Dissolved Tin mg/L 0.00010 <0.00010	3.32 <0.00010 0.177 <0.00030 <0.000010 0.000867 <0.00050 0.031	4.31 <0.00010 0.23 <0.00030 <0.000010 0.00186 <0.00050 0.0094	3.5 <0.00010 0.178 <0.00030 <0.000010 0.000986 <0.00050 0.0197	3.15 <0.00010 0.151 <0.00030 <0.000010 0.000941 <0.00050
Company	<0.00010 0.177 <0.00030 <0.000010 0.000867 <0.00050 0.031	<0.00010 0.23 <0.00030 <0.000010 0.00186 <0.00050 0.0094	<0.00010 0.178 <0.00030 <0.000010 0.000986 <0.00050 0.0197	<0.00010 0.151 <0.00030 <0.000010 0.000941 <0.00050
Dissolved Strontium mg/L Dissolved Titanium mg/L Dissolved Titanium mg/L Dissolved Titanium mg/L Dissolved Thallium mg/L Dissolved Uranium mg/L Dissolved Uranium mg/L Dissolved Uranium mg/L Dissolved Vanadium mg/L Dissolved Zinc mg/L Dissolved Zinc mg/L Dissolved Zinc mg/L Dissolved Zinc mg/L Dissolved Uranium mg/L Dissolved Zinc Disso	0.177 <0.00030 <0.000010 0.000867 <0.00050 0.031	0.23 <0.00030 <0.000010 0.00186 <0.00050 0.0094	0.178 <0.00030 <0.000010 0.000986 <0.00050 0.0197	0.151 <0.00030 <0.000010 0.000941 <0.00050
Dissolved Titanium mg/L Site Inaccessible	<0.00030 <0.000010 0.000867 <0.00050 0.031	<0.00030 <0.000010 0.00186 <0.00050 0.0094	<0.00030 <0.000010 0.000986 <0.00050 0.0197	<0.00030 <0.000010 0.000941 <0.00050
Dissolved Thallium mg/L Site Inaccessible 0.000013 0.000017 0.000014 Site Inaccessible <0.000010 <0.000010 <0.000010 <0.000010	<0.000010 0.000867 <0.00050 0.031	<0.00010 0.00186 <0.00050 0.0094	<0.000010 0.000986 <0.00050 0.0197	<0.00010 0.000941 <0.00050
Dissolved Uranium mg/L 0.0123 0.0126 0.0122 0.000233 0.000521 0.000453 Dissolved Vanadium mg/L <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.0017 0.0218 Dissolved Zinc mg/L 0.017 0.127 0.116 0.0617 0.0226 0.0218	0.000867 <0.00050 0.031	0.00186 <0.00050 0.0094	0.000986 <0.00050 0.0197	0.000941 <0.00050
Dissolved Vanadium mg/L < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050 < 0.00050	<0.00050 0.031	<0.00050 0.0094	<0.00050 0.0197	<0.00050
Dissolved Zinc mg/L 0.107 0.127 0.116 0.0617 0.0226 0.0218	0.031	0.0094	0.0197	
Dissolved Zirconium mg/L <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0.00020 <0	<0.00020	<0.00020		0.0209
			<0.00020	<0.00020
Acenaphthene mg/L mg/L				
Acenaphthylene mg/L				
Acridine mg/L				
Anthracene mg/L				
Benz(a)anthracene mg/L				
Benzene mg/L				
Benzo(a)pyrene mg/L				
2-Methylnaphthalene mg/L				
Benzo(b,j)fluoranthene mg/L				
Benzo(g,h,i)perylene mg/L				
VPH (C6-C10) mg/L				
Benzo(k)fluoranthene mg/L				
Methyl t-butyl ether mg/L				
Xylenes, total mg/L				
1-Methylnaphthalene mg/L				
Dibenz(a,h)anthracene mg/L				
HEPH mg/L				
Not Applicable Not Ap	e Not Applicable	Not Applicable	Not Applicable	Not Applicable
Fluoranthene mg/L				
Ethylbenzene mg/L				
EPH19-32 mg/L				
Chrysene mg/L				
EPH10-19 mg/L				
Pyrene mg/L				
Volatile Hydroc (VH6-10) mg/L				
Toluene mg/L				
Quinoline mg/L				
LEPH mg/L				
Phenanthrene mg/L				
ortho-Xylene mg/L				
Naphthalene mg/L				
meta- & para-Xylene mg/L				
Styrene mg/L				
Indeno(1,2,3-c,d)pyrene mg/L				

				13-08				/14-01				14-02	
				t of 1380 Portal				of the landfill				of the landfill	
Ground Water Elevation	masl	07/Feb/22 1130.82	28/Jun/22 1134.55	08/Aug/22 1131.67	28/Oct/22 1130.23	09/Feb/22 1014.59	30/Jun/22 1018.14	09/Aug/22 1017.18	26/Oct/22 1015.31	09/Feb/22	30/Jun/22 1020.74	09/Aug/22 1020.56	25/Oct/22 1019.32
Temperature - Field	C	2.8	4.2	6.6	2	1014.59	4.8	5.1	3.9	-	5	6.7	3.4
<u> </u>	υН		7.55			-	7.5	7.41	7.55	-		7.64	
pH - Field	r r	7.36		7.04	-1.04	-				-	8.13		8.38
pH - Lab	pH	7.89	8.09	7.55	7.74		8.1	7.64	7.99		8.28	8.07	8.11
Hardness (Dissolved, CaCO3)	mg/L	351	206	244	318		264	250	217		165	187	208
Conductivity - Field	μS/cm	2873	411.6	478.6	572		471.4	494.3	344.4		386.1	381.6	304
Conductivity - Lab	μS/cm	579	393	485	552		447	465	389		375	385	351
Ammonia Nitrogen	mg/L	0.0056	0.0207	0.0192	0.0084		0.0138	0.0241	0.0165		0.0342	0.0255	0.035
Nitrite	mg/L	<0.0010	<0.0010	<0.0010	<0.0010		<0.0010	<0.0010	<0.0010		<0.0010	<0.0010	0.0012
Nitrate	mg/L	0.315	0.387	0.226	0.0753		0.3	0.313	0.175		0.173	0.167	0.124
Sulphate	mg/L	19.7	7.76	7.62	16.9		6.75	4.27	3.28	1 [5.62	5.33	4.84
Fluoride	mg/L	0.055	0.063				0.066			1	0.077		
Chloride	mg/L	0.58	<0.50				<0.50			1	<0.50		
Bromide	mg/L	<0.050	<0.050	<0.050	<0.050	1	<0.050	<0.050	<0.050	1 1	<0.050	<0.050	<0.050
Dissolved Oxygen	%	46.8	82.2	1520	35	†	77.2	74	107.2	1	78.8	81.3	96
Dissolved Oxygen	mg/L	5.68	99.5	183	4.57	†	9.77	9.31	14.06	1 1	10.12	10	12.75
ORP	mV	137.2	120.6	238.4	92.5		178.7	218.7	55.7		167.2	180.7	-14
Alkalinity (CaCO3)	mg/L	306	212	250	281	-	240	244	212	-	200	203	245
Dissolved Arsenic	mg/L	0.00028	0.00048	0.00025	0.00027	-	0.00062	0.00029	0.00025	-	0.00078	0.00072	0.0006
Dissolved Silver	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	-	<0.000010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.00010
Dissolved Aluminum	mg/L	0.0276	0.007	0.002	0.0018	-	0.15	0.0183	0.0053	-	0.0076	0.005	0.0062
	-					-	0.255			-	0.0076	0.005	
Dissolved Barium	mg/L	0.233	0.1	0.159	0.242			0.27	0.161	Dry at sample location.			0.313
Dissolved Beryllium	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	Dry at sample location.	<0.000020	<0.000020	<0.000020		<0.000020	<0.000020	<0.000020
Dissolved Boron	mg/L												
Dissolved Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050		<0.000050	<0.000050	<0.000050		<0.000050	<0.000050	<0.000050
Dissolved Calcium	mg/L	121	71.3	83.3	109		84.2	80.8	70.7		52.9	60.1	67.7
Dissolved Cadmium	mg/L	0.0000604	0.0000655	0.000056	0.0000562		0.0000709	0.0000371	0.000032		0.0000183	0.0000222	0.0000279
Dissolved Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010		0.00022	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010
Dissolved Chromium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050		0.00093	0.00066	0.00066		0.00107	0.00115	0.00134
Dissolved Copper	mg/L	0.00102	0.00083	0.00039	0.00021		0.00066	0.00112	0.00044		0.00626	0.00058	0.00046
Dissolved Iron	mg/L	0.055	0.013	<0.010	<0.010		0.238	0.037	<0.010		<0.010	<0.010	0.011
Dissolved Mercury	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.0000050		<0.0000050	<0.0000050	<0.0000050		<0.0000050	<0.0000050	<0.0000050
Dissolved Potassium	mg/L	0.761	0.71	0.609	0.704]	0.793	0.707	0.558] [1.01	0.698	0.573
Dissolved Lithium	mg/L	0.0022	0.0011	0.0016	0.0019]	0.0016	0.0015	0.0011]	0.0012	0.0013	0.0014
Dissolved Magnesium	mg/L	11.9	6.86	8.86	11.2	1	13	11.6	9.79	1	7.96	8.98	9.49
Dissolved Manganese	mg/L	0.00189	0.00264	0.00051	0.00016		0.0146	0.00131	0.00044	1	0.00053	0.00042	0.00051
Dissolved Molybdenum	mg/L	0.000755	0.00144	0.000675	0.00111	1	0.00166	0.00132	0.00191	1 1	0.00331	0.00149	0.000751
Dissolved Sodium	mg/L	1.3	1.9	0.941	1.24	†	2.36	2.27	1.12	1	19.8	6.84	0.948
Dissolved Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	1	<0.00050	<0.00050	<0.00050	1 1	0.00058	<0.00050	<0.00050
Dissolved Lead	mg/L	0.000141	0.000502	<0.00050	<0.00050	1	0.000846	0.00009	0.000086	 	0.000293	0.000127	0.00009
Dissolved Phosphorus	mg/L	<0.050	<0.050	<0.050	<0.050	1	<0.050	<0.050	<0.050	 	<0.050	<0.050	<0.050
· ·	mg/L				0.00015					 			0.0002
Dissolved Antimony Dissolved Sulphur	-	0.00018 7.6	0.00017 3.02	0.00015 3.4	5.91	-	0.00018 2.95	0.00017 2.71	0.00014	-	0.00032 2.54	0.00024 2.33	1.59
·	mg/L					-			1.11	-			
Dissolved Selenium	mg/L	0.00155	0.000573	0.00114	0.00137		0.000735	0.000837	0.00121		0.000293	0.000238	0.000215

			MW	13-08			MV	V14-01			MW	14-02	
			Downgradien	t of 1380 Portal			In proximity	of the landfill			In proximity	of the landfill	
		07/Feb/22	28/Jun/22	08/Aug/22	28/Oct/22	09/Feb/22	30/Jun/22	09/Aug/22	26/Oct/22	09/Feb/22	30/Jun/22	09/Aug/22	25/Oct/22
Dissolved Silicon	mg/L	4.23	3.87	4.06	4.19		5.95	5.58	4.74	_	4.81	4.78	4.28
Dissolved Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010
Dissolved Strontium	mg/L	0.39	0.235	0.283	0.354		0.287	0.278	0.235		0.168	0.188	0.205
Dissolved Titanium	mg/L	0.00111	<0.00030	<0.00030	<0.00030		0.00497	<0.00060	<0.00030		<0.00030	<0.00030	<0.00030
Dissolved Thallium	mg/L	<0.000010	<0.00010	<0.00010	<0.000010		<0.00010	<0.000010	<0.000010		<0.000010	<0.00010	<0.00010
Dissolved Uranium	mg/L	0.00187	0.00126	0.00126	0.00182		0.00138	0.00122	0.00099		0.00104	0.000836	0.000848
Dissolved Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050		0.00065	<0.00050	<0.00050		<0.00050	<0.00050	<0.00050
Dissolved Zinc	mg/L	0.0034	0.0068	<0.0010	<0.0010		0.0042	0.0016	<0.0010		0.002	<0.0010	0.0028
Dissolved Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020		<0.00020	<0.00020	<0.00020
Acenaphthene	mg/L						<0.000010	<0.000010	<0.000010		<0.000010	<0.000010	<0.000010
Acenaphthylene	mg/L						<0.000010	<0.000010	<0.000010	7 [<0.000010	<0.000010	<0.000010
Acridine	mg/L						<0.000010	<0.000010	<0.00010	7	<0.000010	<0.000010	<0.00010
Anthracene	mg/L						<0.000010	<0.000010	<0.000010	7	<0.00010	<0.00010	<0.00010
Benz(a)anthracene	mg/L						<0.000010	<0.000010	<0.000010	7	<0.000010	<0.00010	<0.00010
Benzene	mg/L						<0.00050	<0.00050	<0.00050		<0.00050	<0.00050	<0.00050
Benzo(a)pyrene	mg/L						<0.000050	<0.000050	<0.000050		<0.000050	<0.000050	<0.000050
2-Methylnaphthalene	mg/L						<0.00010	<0.000010	<0.000010		<0.000010	<0.00010	<0.00010
Benzo(b,j)fluoranthene	mg/L												
Benzo(g,h,i)perylene	mg/L						<0.000010	<0.00010	<0.000010	-	<0.00010	<0.00010	<0.00010
VPH (C6-C10)	mg/L						<0.1	<0.1	<0.1		<0.1	<0.1	<0.1
Benzo(k)fluoranthene	mg/L						<0.00010	<0.00010	<0.000010	+	<0.00010	<0.000010	<0.000010
Methyl t-butyl ether	mg/L					Dry at sample location.	<0.00050	<0.00050	<0.00050	Dry at sample location.	<0.00050	<0.00050	<0.00050
Xylenes, total	mg/L					Dry at sample location.	10.00050	10.00030	10.00030	Dry at sample location.	10.00030	40.00050	10.00050
1-Methylnaphthalene	mg/L						<0.000010	<0.000010	<0.00010	-	<0.000010	<0.000010	<0.000010
Dibenz(a,h)anthracene	mg/L						<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000010	<0.000010
НЕРН	mg/L						<0.0000030	<0.0000030	<0.0000030		<0.0000030	<0.0000030	<0.0000030
Fluorene		Not Applicable	Not Applicable	Not Applicable	Not Applicable		<0.00010	<0.000010	<0.00010	-	<0.000010	<0.000010	<0.000010
	mg/L									-			
Fluoranthene	mg/L						<0.000010	<0.00010	<0.00010	-	<0.00010	<0.00010	<0.000010
Ethylbenzene	mg/L						<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050
EPH19-32	mg/L						<0.25	0.29	<0.25	-	<0.25	<0.25	<0.25
Chrysene	mg/L						<0.00010	<0.000010	<0.000010	-	<0.000010	<0.00010	<0.000010
EPH10-19	mg/L						<0.25	<0.25	<0.25	4	<0.25	<0.25	<0.25
Pyrene	mg/L						<0.000010	<0.000010	<0.000010	_	<0.00010	<0.00010	<0.00010
Volatile Hydroc (VH6-10)	mg/L						<0.1	<0.1	<0.1	_	<0.1	<0.1	<0.1
Toluene	mg/L						<0.00050	<0.00050	<0.00050	_	<0.00050	<0.00050	<0.00050
Quinoline	mg/L						<0.000050	<0.000050	<0.000050	_	<0.000050	<0.000050	<0.000050
LEPH	mg/L						<0.25	<0.25	<0.25	_	<0.25	<0.25	<0.25
Phenanthrene	mg/L						<0.000020	<0.000020	<0.000020	_	<0.000020	<0.000020	<0.000020
ortho-Xylene	mg/L						<0.00030	<0.00030	<0.00030	_	<0.00030	<0.00030	<0.00030
Naphthalene	mg/L						<0.000050	<0.000050	<0.000050		<0.000050	<0.000050	<0.000050
meta- & para-Xylene	mg/L						<0.00040	<0.00040	<0.00040		<0.00040	<0.00040	<0.00040
Styrene	mg/L						<0.00050	<0.00050	<0.00050	_	<0.00050	<0.00050	<0.00050
Indeno(1,2,3-c,d)pyrene	mg/L						<0.000010	<0.000010	<0.000010		<0.000010	<0.000010	<0.000010

			MW1					14-04				13-04	
			In proximity of					of the landfill				cess Road	
		09/Feb/22	27/Jun/23	09/Aug/22	25/Oct/22	09/Feb/22	30/Jun/22	09/Aug/22	25/Oct/22	10/Feb/22	28/Jun/22	08/Aug/22	25/Oct/22
Ground Water Elevation	masl	-		1036.4 6.9	1035.12 8	1020.76	1022.4 5.1	1021.77 5.4	1021.53 4.2	-	1194.58 3.4	1182.3 5.2	-
Temperature - Field	pH	-		6.96		4.4				-			-
pH - Field	<u> </u>	-			7.08	7.98	8.21	7.93	7.79	-	7.95	7.5	_
pH - Lab	pH	-		7.44	7.74	8.21	8.33	7.92	8.25	-	8.27	7.89	_
Hardness (Dissolved, CaCO3)	mg/L	-		428	319	168	145	166	171	-	124	178	_
Conductivity - Field	μS/cm	-		848	494	272.7	281	333	260.4	-	228.7	301.9	_
Conductivity - Lab	μS/cm			846	564	294	312	317	307	-	235	306	
Ammonia Nitrogen	mg/L			0.0102	0.0149	0.0136	0.0162	0.0112	0.017		0.0112	0.0751	
Nitrite	mg/L			<0.0050	0.0034	<0.0010	<0.0010	<0.0010	0.0051		<0.0010	<0.0010	
Nitrate	mg/L			0.524	0.154	0.144	0.161	0.178	0.219		0.217	0.376	
Sulphate	mg/L			90.1	19.8	3.77	3.32	4.45	7.29		4	4.28	
Fluoride	mg/L					0.041	0.038				0.059		
Chloride	mg/L					<0.50	<0.50				<0.50		
Bromide	mg/L			<0.250	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050	
Dissolved Oxygen	%			35	57.9	57.9	728	91.4	85.8			123.3	
Dissolved Oxygen	mg/L			4.21	6.19	6.76	9.11	11.41	11.16			153.61	
ORP	mV			163.3	43	81.6	148.7	193.9	62.3		111.4	238.8	
Alkalinity (CaCO3)	mg/L			373	270	160	174	173	167		121	153	
Dissolved Arsenic	mg/L			0.00015	0.00014	0.00048	0.00045	0.00039	0.00038		0.00099	0.00242	
Dissolved Silver	mg/L			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		<0.000010	0.000102	
Dissolved Aluminum	mg/L			0.0018	0.0076	0.0087	0.0084	0.0041	0.0046		0.0046	1.15	
Dissolved Barium	mg/L		[0.175	0.114	0.0858	0.0827	0.105	0.102	[0.03	0.146	
Dissolved Beryllium	mg/L	Dry at sample location.	Dry at sample location.	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	Dry at sample location.	<0.000020	0.000203	Dry at sample location.
Dissolved Boron	mg/L]											
Dissolved Bismuth	mg/L	1		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050] [<0.000050	<0.000050	
Dissolved Calcium	mg/L]		147	111	57.6	49.1	56.7	58.5		45.4	62.6	
Dissolved Cadmium	mg/L	1		0.000453	0.000256	0.0000072	0.000032	0.0000201	0.0000376	1	0.000411	0.000621	
Dissolved Cobalt	mg/L	1		0.0001	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	1	<0.00010	0.00542	
Dissolved Chromium	mg/L	1		<0.00050	0.00054	0.00137	0.00147	0.00122	0.00145	1	<0.00050	0.00313	
Dissolved Copper	mg/L	1		0.00119	0.00082	0.00025	0.00131	0.00084	0.00109	1	0.00032	0.0116	
Dissolved Iron	mg/L	1		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	1	<0.010	3.57	
Dissolved Mercury	mg/L	1		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	1	<0.000050	0.0000461	
Dissolved Potassium	mg/L	1		1.2	0.824	0.596	0.895	0.685	0.633	1	0.408	0.693	
Dissolved Lithium	mg/L	1		0.0014	0.0012	0.0013	0.0013	0.0012	0.0012	1	0.0024	0.0026	
Dissolved Magnesium	mg/L	1		14.8	10.1	5.92	5.37	5.99	6.1	1 1	2.64	5.35	†
Dissolved Manganese	mg/L	1		0.0007	0.00087	0.00033	0.00076	0.00052	0.00056	1	0.00021	0.222	
Dissolved Molybdenum	mg/L	1		0.000574	0.000669	0.000801	0.00149	0.000858	0.000714	1 1	0.000649	0.000426	†
Dissolved Sodium	mg/L	1		14.4	3.77	2.42	3.93	2.48	2.17	1 1	0.573	1.04	†
Dissolved Nickel	mg/L	1		0.0007	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	1 1	<0.00050	0.00772	
Dissolved Lead	mg/L	†		0.000116	0.0001	<0.00050	0.00124	0.000052	0.000068	† †	0.00086	0.051	
Dissolved Phosphorus	mg/L	1		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	 	<0.050	0.231	
Dissolved Antimony	mg/L	†		0.00029	0.00028	0.00017	0.00021	0.00018	0.00016	 	0.00027	0.0004	
Dissolved Sulphur	mg/L	1		34.8	11.2	1.76	1.14	1.86	2.89	 	1.59	1.68	
· ·	-	1								-			-
Dissolved Selenium	mg/L			0.00103	0.00328	0.000506	0.000402	0.000586	0.00116		0.00128	0.00114	

			MW1	4-03			MW	14-04			MW	13-04	
			In proximity o	of the landfill			In proximity	of the landfill			Main Ac	cess Road	
		09/Feb/22	27/Jun/23	09/Aug/22	25/Oct/22	09/Feb/22	30/Jun/22	09/Aug/22	25/Oct/22	10/Feb/22	28/Jun/22	08/Aug/22	25/Oct/22
Dissolved Silicon	mg/L	-		5.12	4.2	3.99	4.18	3.89	3.52	_	3.95	5.13	_
Dissolved Tin	mg/L			<0.00010	0.00022	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	_
Dissolved Strontium	mg/L			0.482	0.341	0.193	0.203	0.214	0.202	_	0.109	0.173	_
Dissolved Titanium	mg/L			<0.00030	0.00052	<0.00030	<0.00030	<0.00030	<0.00030		<0.00030	0.0223	_
Dissolved Thallium	mg/L			<0.00010	<0.00010	<0.00010	<0.000010	<0.00010	<0.00010		<0.00010	0.000044	
Dissolved Uranium	mg/L			0.0019	0.00109	0.000433	0.000463	0.000451	0.000481		0.00057	0.000933	
Dissolved Vanadium	mg/L]		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		<0.00050	0.00483	
Dissolved Zinc	mg/L			0.0045	0.0046	<0.0010	0.0031	0.0031	0.0025		0.0068	0.138	
Dissolved Zirconium	mg/L			<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020		<0.00020	0.0004	
Acenaphthene	mg/L			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		<0.000010	<0.000010	
Acenaphthylene	mg/L]		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		<0.000010	<0.000010	
Acridine	mg/L	1		<0.00010	<0.00010	<0.00010	<0.000010	<0.000010	<0.000010		<0.000010	<0.000010	
Anthracene	mg/L]		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010] [<0.00010	<0.000010]
Benz(a)anthracene	mg/L	1		<0.00010	<0.00010	<0.00010	<0.000010	<0.000010	<0.00010	1	<0.000010	<0.000010	1
Benzene	mg/L	1		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		<0.00050	<0.00050	1
Benzo(a)pyrene	mg/L	1		<0.000050	<0.000050	<0.0000050	<0.0000050	<0.0000050	<0.000050		<0.000050	<0.0000050	
2-Methylnaphthalene	mg/L	1		<0.000010	<0.00010	<0.00010	<0.000010	<0.000010	<0.00010		<0.000010	<0.000010	
Benzo(b,j)fluoranthene	mg/L	1											1
Benzo(g,h,i)perylene	mg/L	1		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		<0.000010	<0.000010	
VPH (C6-C10)	mg/L	1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-	<0.1	<0.1	-
Benzo(k)fluoranthene	mg/L	1		<0.000010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000010	-	<0.00010	<0.000010	-
Methyl t-butyl ether	mg/L	Dry at sample location. Di	invat sample location	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	Dry at sample location.	<0.00050	<0.00050	Dry at sample location.
Xylenes, total	mg/L	Dry at sample location. Di	ry at sample location.	10.00050	10.00050	1010000	10.00030	10.00050	10.00050	bi y at sample location.	10.00030	10.00030	Dry at sample location.
1-Methylnaphthalene	mg/L	1	-	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000010	-	<0.000010	<0.000010	-
Dibenz(a,h)anthracene	mg/L	1	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.000050	-
HEPH	mg/L	1	-	10.0000030	<0.0000050	<0.0000050	<0.0000030	10.0000030	VO.0000030	-	10.0000030	<0.0000030	-
Fluorene	mg/L	1	-	<0.000010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000010	-	<0.000010	<0.000010	-
Fluoranthene	mg/L	-	-	<0.000010	<0.00010	<0.00010	<0.000010	<0.000010	<0.000010	-	<0.000010	<0.00010	-
	-	-	-	<0.00050	<0.00050	<0.00050	<0.00050		<0.00010	-	<0.00050	<0.00010	-
Ethylbenzene	mg/L	-	-					<0.00050		-			-
EPH19-32	mg/L	-	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	<0.25	<0.25	-
Chrysene	mg/L	-	-	<0.000010	<0.00010	<0.00010	<0.000010	<0.00010	<0.000010	-	<0.000010	<0.00010	-
EPH10-19	mg/L	-	-	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	<0.25	<0.25	-
Pyrene	mg/L	-	-	<0.00010	<0.00010	0.000012	<0.00010	<0.00010	<0.00010	-	<0.000010	<0.000010	_
Volatile Hydroc (VH6-10)	mg/L	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	_	<0.1	<0.1	_
Toluene	mg/L		-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		<0.00050	0.00062	
Quinoline	mg/L	1		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	4	<0.000050	<0.000050	_
LEPH	mg/L	1	<u> </u>	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	-	<0.25	<0.25	_
Phenanthrene	mg/L	1		<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	1	<0.000020	<0.000020	_
ortho-Xylene	mg/L]		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	_	<0.00030	<0.00030	_
Naphthalene	mg/L]		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	_	<0.000050	<0.000050	
meta- & para-Xylene	mg/L]		<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040		<0.00040	<0.00040	_
Styrene	mg/L]		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		<0.00050	<0.00050	_
Indeno(1,2,3-c,d)pyrene	mg/L			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010		<0.000010	<0.000010	

				/13-05				13-07				13-10	
				Mill Site on the Main Ac				th Dam and Tailings Pon				ast of the Mill Site	
Ground Water Elevation	masl	08/Feb/22	29/Jun/22 1193.83	08/Aug/22 1191.15	25/Oct/22	09/Feb/22 1093.46	28/Jun/22 1095.13	09/Aug/22 1094.13	26/Oct/22 1093.62	10/Feb/22	29/Jun/22 1118.71	10/Aug/22 1115.75	28/Oct/22 1115.51
Temperature - Field	C		3.1	1191.15	-	3.1	4.7	4.1	3.1	1115.3 2.1	3.9	4.2	5.9
pH - Field	рН		7.84	-		7.47	7.55		7.53		7.79	7.19	7.68
<u>-</u>				_				7.59		7.52			
pH - Lab	pH		8.25	_		8.1	8.3	7.83	8.07	8.1	8.1	7.81	8.17
Hardness (Dissolved, CaCO3)	mg/L		171			251	231	235	244	254	229	237	239
Conductivity - Field	μS/cm		347.9			435.6	459	464.4	391.8	430.3	452.5	462.2	490
Conductivity - Lab	μS/cm		358			457	451	480	443	450	429	474	440
Ammonia Nitrogen	mg/L		0.0106			0.144	0.152	0.153	0.151	0.008	0.0151	0.0097	0.0097
Nitrite	mg/L		<0.0010			0.0019	0.0015	0.0028	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nitrate	mg/L		1.63			0.0056	<0.0050	<0.0050	<0.0050	0.51	0.516	0.469	0.506
Sulphate	mg/L		55.4			29.4	30.9	30.4	31	35.6	28.6	35.3	36.6
Fluoride	mg/L		0.061			0.294	0.293			0.058	0.049		
Chloride	mg/L		<0.50	1		<0.50	<0.50			<0.50	<0.50		
Bromide	mg/L		<0.050			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Oxygen	%					15.4	80.7	35	7.8	61.7	79	65.2	75
Dissolved Oxygen	mg/L		12.72			2.03	13.9	4.55	0.97	8.48		8.51	9.34
ORP	mV		116.2			-22.8	-56.7	-8.5	-70.8	99.4		176.4	30.5
Alkalinity (CaCO3)	mg/L		125			224	226	232	206	211	206	211	205
Dissolved Arsenic	mg/L		0.00064			0.00157	0.00156	0.00167	0.00155	0.00786	0.00109	0.00115	0.00116
Dissolved Silver	mg/L		<0.00010			<0.00010	<0.00010	<0.00010	<0.00010	0.000054	<0.000010	<0.00010	<0.00010
Dissolved Aluminum	mg/L		0.0034	-		0.0012	0.004	0.01	0.0071	0.879	0.0029	0.0024	0.0051
Dissolved Barium	mg/L		0.0578	-		0.0403	0.0394	0.041	0.0412	0.0228	0.0118	0.00897	0.00802
Dissolved Beryllium	mg/L	Dry at sample location.	<0.000020	Not enough water to	Dry at sample location.	<0.000020	<0.00020	<0.00020	<0.00020	0.00005	<0.00020	<0.00037	<0.00002
Dissolved Boron	mg/L		<0.000020	sample.		<0.000020	<0.000020	<0.000020	<0.000020	0.00003	<0.000020	<0.000020	<0.000020
Dissolved Bismuth			<0.000050	-		<0.000050	<0.000050	40 0000E0	<0.000050	<0.000050	<0.000050	40.000050	<0.000050
Dissolved Calcium	mg/L			-				<0.000050	70			<0.000050	
	mg/L		62.4	_		72.5	66.2	67.2	-	87.4	77.8	81.4	81.9
Dissolved Cadmium	mg/L		0.0000596			<0.000050	<0.0000050	<0.0000050	<0.0000050	0.0000649	0.000022	0.0000179	0.0000186
Dissolved Cobalt	mg/L		<0.00010			<0.00010	0.0001	<0.00010	<0.00010	0.00069	<0.00010	<0.00010	<0.00010
Dissolved Chromium	mg/L		<0.00050			<0.00050	<0.00050	<0.00050	<0.00050	0.0021	<0.00050	<0.00050	0.00051
Dissolved Copper	mg/L		0.00067			<0.00020	0.00023	0.00022	<0.00020	0.00266	0.00035	0.00052	0.00056
Dissolved Iron	mg/L		<0.010			0.674	0.675	0.674	0.561	0.984	<0.010	<0.010	0.01
Dissolved Mercury	mg/L		<0.000050			<0.000050	<0.000050	<0.0000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Potassium	mg/L		0.626			2.82	3	2.87	2.81	1.33	1.07	1.15	1.06
Dissolved Lithium	mg/L		0.0017			0.0095	0.0097	0.009	0.009	0.0025	0.0015	0.0016	0.0016
Dissolved Magnesium	mg/L		3.73			17.1	16	16.4	16.7	8.75	8.44	8.27	8.32
Dissolved Manganese	mg/L	[0.00054			0.0922	0.174	0.114	0.0664	0.0168	0.00041	0.00041	0.00037
Dissolved Molybdenum	mg/L		0.000774			0.00303	0.00302	0.00291	0.00288	0.00142	0.00168	0.00186	0.00183
Dissolved Sodium	mg/L		0.888			4.61	4.72	5.2	4.39	1.89	1.96	1.89	1.89
Dissolved Nickel	mg/L		<0.00050			<0.00050	<0.00050	<0.00050	<0.00050	0.00165	<0.00050	<0.00050	<0.00050
Dissolved Lead	mg/L		0.000271			<0.000050	0.000096	<0.000050	<0.000050	0.00536	0.000266	0.00012	0.00012
Dissolved Phosphorus	mg/L		<0.050			<0.050	<0.050	<0.050	<0.050	0.096	<0.050	<0.050	<0.050
Dissolved Antimony	mg/L		0.00032	1		<0.00010	<0.00010	<0.00010	<0.00010	0.00024	0.00012	0.00012	0.00011
Dissolved Sulphur	mg/L		19.8	1		10.6	11.7	11.4	9.85	12.6	11.3	13.5	12.3
Dissolved Selenium	mg/L		0.00256	†		<0.00050	<0.00050	<0.000050	<0.000050	0.00177	0.0015	0.00195	0.00178
Dissolved Selemani	1116/ L		0.00230			VO.000030	\0.000030	VO.000030	VO.000030	0.00177	0.0013	0.00133	0.00176

			MW	/13-05			MW	/13-07			MW	MW13-10 Mill Site - northeast of the Mill Site 29/Jun/22 10/Aug/22 4.5 4.17 <0.00010 0.00021 0.356 0.375		
			ess Road - south of the	Mill Site on the Main Acce	ss Road		Dam - north of the No	rth Dam and Tailings Por						
		08/Feb/22	29/Jun/22	08/Aug/22	25/Oct/22	09/Feb/22	28/Jun/22	09/Aug/22	26/Oct/22	10/Feb/22			28/Oct/22	
Dissolved Silicon	mg/L	-	4.89	-	-	7.61	8.32	8.17	7.28	5.7			3.93	
Dissolved Tin	mg/L		<0.00010	_		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			0.00035	
Dissolved Strontium	mg/L	_	0.191	_		0.542	0.526	0.532	0.515	0.385	0.356	0.375	0.356	
Dissolved Titanium	mg/L		<0.00030			<0.00030	<0.00030	<0.00030	<0.00030	<0.0366	<0.00030	<0.00030	<0.00030	
Dissolved Thallium	mg/L		<0.000010			<0.000010	<0.000010	<0.000010	<0.000010	0.000014	<0.000010	<0.000010	<0.00010	
Dissolved Uranium	mg/L		0.000856			0.00637	0.00682	0.00673	0.00697	0.00295	0.00265	0.00291	0.00298	
Dissolved Vanadium	mg/L		<0.00050			<0.00050	<0.00050	<0.00050	<0.00050	0.00301	<0.00050	<0.00050	<0.00050	
Dissolved Zinc	mg/L		0.0023			0.0011	0.0015	0.0012	<0.0010	0.0191	0.0019	0.0019	0.0026	
Dissolved Zirconium	mg/L		<0.00020			<0.00020	<0.00020	<0.00020	<0.00020	<0.00080	<0.00020	<0.00020	<0.00020	
Acenaphthene	mg/L	1	<0.000010	1		<0.00010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010	
Acenaphthylene	mg/L	1	<0.00010		Ī	<0.00010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010	
Acridine	mg/L		<0.000010	1		<0.000010	<0.00010	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010	<0.000010	
Anthracene	mg/L		<0.00010			<0.00010	<0.00010	<0.00010	<0.000010	<0.000010	<0.00010	<0.00010	<0.000010	
Benz(a)anthracene	mg/L		<0.000010	1		<0.000010	<0.00010	<0.000010	<0.000010	<0.00010	<0.00010	<0.00010	<0.00010	
Benzene	mg/L		<0.00050			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Benzo(a)pyrene	mg/L		<0.000050	1		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
2-Methylnaphthalene	mg/L		<0.000010	1		0.000013	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Benzo(b,j)fluoranthene	mg/L			1	-									
Benzo(g,h,i)perylene	mg/L		<0.000010	1	-	<0.00010	<0.000010	<0.00010	<0.00010	<0.00010	<0.000010	<0.00010	<0.00010	
VPH (C6-C10)	mg/L	-	<0.1	-		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Benzo(k)fluoranthene	mg/L	-	<0.00010	-	-	<0.00010	<0.000010	<0.000010	<0.00010	<0.00010	<0.000010	<0.000010	<0.00010	
Methyl t-butyl ether	mg/L	Dry at sample location.	<0.00050	Not enough water to	ory at sample location.	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Xylenes, total	mg/L	Di y at sample location.	10.00030	sample.	ny at sample location.	10.00030	10.00050	10.00030	10.00030	40.00030	10.00050	10.00050	40.00050	
1-Methylnaphthalene	mg/L	-	<0.000010	-	-	<0.00010	<0.000010	<0.000010	<0.00010	<0.00010	<0.000010	<0.000010	<0.00010	
Dibenz(a,h)anthracene	mg/L	-	<0.000010	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	
HEPH	mg/L	-	V0.0000030	-	-	V0.0000030	V0.0000030	V0.0000030	<0.0000050	<0.0000050	<0.0000050	V0.0000030	<0.0000030	
Fluorene	mg/L	-	<0.000010	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010	<0.00010	
	-	-	<0.000010	-	-	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010	<0.000010	
Fluoranthene	mg/L	-		-	-									
Ethylbenzene	mg/L	-	<0.00050	-	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
EPH19-32	mg/L	-	<0.25	-	-	<0.25	1.18	2.62	<0.25	<0.25	<0.25	<0.25	<0.25	
Chrysene	mg/L	-	<0.000010	-	-	<0.000010	<0.00010	<0.000010	<0.000010	<0.000010	<0.00010	<0.00010	<0.00010	
EPH10-19	mg/L	4	<0.25	4		<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	0.44	<0.25	
Pyrene	mg/L	4	<0.000010	-		<0.00010	<0.000010	<0.000010	<0.00010	<0.00010	<0.000010	<0.00010	<0.00010	
Volatile Hydroc (VH6-10)	mg/L	4	<0.1	4		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	
Toluene	mg/L	4	<0.00050	-	_	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Quinoline	mg/L	4	<0.000050	_		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
LEPH	mg/L	4	<0.25	_	<u> </u>	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	0.44	<0.25	
Phenanthrene	mg/L]	<0.000020	_	_	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	
ortho-Xylene	mg/L	_	<0.00030	_		<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	
Naphthalene	mg/L] [<0.000050	_		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	
meta- & para-Xylene	mg/L] [<0.00040	_		<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	
Styrene	mg/L] [<0.00050]		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Indeno(1,2,3-c,d)pyrene	mg/L] [<0.000010]		<0.00010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010	

				MI	H-11					M	H-12		
					e Reclaim Pond (Uppe				st fork of Tributary E —				
T. (11)	4	09/Feb/22	06/Apr/22	30/Jun/22	10/Aug/22	26/Oct/22	04/Dec/22	05/Feb/22	05/Apr/22	27/Jun/22	09/Aug/22	25/Oct/22	01/Dec/22
Total Hardness	mg/L	242	246	167	187	210	201	190	192	138	160	181	167
Hardness (Dissolved, CaCO3)	mg/L	230	218	160	196	201	201	188	175	128	170	173	168
Temperature - Field	C	0.1	0.2	6.5	7.1	0.6	-0.2	0	0.3	4.4	5.6	1.8	-0.2
pH - Field	pH	7.95	7.9	8.32	8.2	9.28	8.17	8.11	8.07	8.38	8.3	8.28	8.22
pH - Lab	pH	8.32	8.36	8.36	8.23	8.39	8.25	8.29	8.42	8.28	8.3	8.4	8.22
Conductivity - Field	μS/cm	390.9	431	312	362.7	337.8	393.7	298.1	354.8	253	310.6	373.6	264.3
Conductivity - Lab	μS/cm	405	414	319	375	371	393	339	346	257	317	318	329
Total Dissolved Solids	mg/L	258	238	174	201	214	217	200	210	132	177	168	193
Total Suspended Solids	mg/L	<1.0	<1.0	2	<1.0	<1.0	<1.0	4	2.8	5.1	1	<1.0	5.1
Discharge	L/min	1330	990	18040	3680	1030	1220						
Ammonia Nitrogen	mg/L	<0.0050	0.0087	0.0124	<0.0050	0.013	0.0064	<0.0050	<0.0050	0.01	0.0089	0.0058	0.012
Nitrite	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nitrate	mg/L	0.123	0.158	0.138	0.0854	0.118	0.135	0.126	0.133	0.0936	0.0412	0.0579	0.0944
Sulphate	mg/L	14	14.3	12.4	12	14.4	15.6	10.6	11	5.72	7.93	8.84	9.52
Fluoride	mg/L	0.085	0.086	0.086		0.081	0.091	0.109	0.109	0.082		0.094	0.09
Chloride	mg/L	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50		<0.50	0.74
Bromide	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Oxygen	mg/L	83.9	93.6	81.5	82.9	107.4	86.6	82.4		96.9	73.1	77.4	80.4
Dissolved Oxygen	%	12.16	13.07	10.02	8.8	15.46	12.69	12.9		19.5	9.25	8.94	10.22
ORP	mV	106	197.2	164.9	185.1	9.9	170.1	111.9	209.5	121.4	206.5	51.3	315.3
Alkalinity (CaCO3)	mg/L	215	217	161	211	190	197	171	181	134	162	164	164
Total Silver	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000010	<0.00010	<0.00010	<0.000010	<0.00010	0.000017	<0.000010
Total Aluminum	mg/L	0.0056	0.0033	0.0291	0.0085	0.014	0.0065	0.0128	0.0085	0.102	0.0093	0.0074	0.0251
Total Arsenic	mg/L	0.00049	0.00046	0.00063	0.00062	0.00052	0.00044	0.00076	0.00066	0.00124	0.00087	0.00077	0.00067
Total Barium	mg/L	0.0754	0.072	0.0462	0.065	0.0608	0.0633	0.0785	0.0723	0.0505	0.0738	0.0737	0.071
Total Beryllium	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Total Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Total Boron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Total Calcium	mg/L	80.6	83	57.4	62.4	71.1	67.5	64.5	65.7	48	54.6	62.3	56.6
Total Cadmium	mg/L	0.0000525	0.000043	0.000107	0.0000691	0.0000535	0.0000413	0.0000522	0.0000392	0.0000799	0.000041	0.0000419	0.000049
Total Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	<0.00010
Total Chromium	mg/L	0.00245	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Copper	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00054	<0.00050	<0.00050	0.00199	<0.00050	<0.00050	0.0176
Total Iron	mg/L	0.088	0.023	0.071	0.054	0.062	0.048	0.02	0.014	0.155	0.012	<0.010	0.044
Total Mercury	mg/L	<0.0000050	<0.000050	<0.000050	<0.000050	<0.0000050	<0.0000050	<0.000050	<0.000050	<0.000050	<0.0000050	<0.000050	<0.0000050
Total Potassium	mg/L	0.468	0.446	0.391	0.355	0.451	0.413	0.47	0.428	0.764	0.422	0.469	0.646
Total Lithium	mg/L	0.0023	0.002	0.0015	0.0017	0.0016	0.0017	0.0021	0.0014	0.0013	0.0015	0.0014	0.0014
Total Magnesium	mg/L	9.9	9.32	5.69	7.58	8.01	8	7.15	6.89	4.47	5.66	6.15	6.31
Total Manganese	mg/L	0.0103	0.00797	0.0083	0.00869	0.0121	0.0107	0.00143	0.00108	0.00979	0.00163	0.0012	0.00222
Total Molybdenum	mg/L	0.000867	0.00197	0.000735	0.000851	0.000824	0.000816	0.00142	0.00622	0.00102	0.0012	0.0013	0.0013
Total Sodium	mg/L	1.38	1.28	0.797	1.04	1.16	1.18	1.19	1.05	0.983	0.95	1.05	1.27
Total Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00108	<0.00050	<0.00050	<0.00050
Total Lead	mg/L	0.000154	<0.000050	0.000908	0.000265	0.000234	0.000144	0.000313	0.000188	0.00194	0.000281	0.000084	0.00149
Total Phosphorus	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Antimony	mg/L	0.00014	0.00013	0.00023	0.00015	0.00012	0.00012	0.00021	0.00021	0.00032	0.00022	0.00022	0.00023
Total Selenium	mg/L	0.000733	0.000754	0.000672	0.000532	0.000636	0.000694	0.000862	0.000737	0.000658	0.000579	0.000641	0.000719
Total Silicon	mg/L	4.58	4.44	3.64	3.79	3.92	3.7	4.51	4.25	4.09	4.32	4.21	3.97

				М	IH-11					M	H-12		
					he Reclaim Pond (Uppe				st fork of Tributary E —		 		
		09/Feb/22	06/Apr/22	30/Jun/22	10/Aug/22	26/Oct/22	04/Dec/22	05/Feb/22	05/Apr/22	27/Jun/22	09/Aug/22	25/Oct/22	01/Dec/22
Total Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	0.00011	<0.00010	<0.00010	0.00045
Total Strontium	mg/L	0.34	0.35	0.206	0.248	0.274	0.267	0.257	0.261	0.166	0.205	0.231	0.215
Total Sulphur	mg/L	5.67	5.31	4.14	4.38	5.36	5.37	4.15	4.01	1.81	2.69	3.58	3.49
Total Titanium	mg/L	<0.00030	<0.00030	0.00068	<0.00030	<0.00060	<0.00030	<0.00060	<0.00030	0.00288	<0.00030	<0.00030	0.00085
Total Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.00010	<0.000010
Total Uranium	mg/L	0.00137	0.00142	0.000767	0.000952	0.00114	0.00117	0.00112	0.00116	0.000702	0.000854	0.00102	0.000966
Total Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00067	<0.00050	<0.00050	<0.00050
Total Zinc	mg/L	0.0061	0.0043	0.006	0.0058	0.0046	0.005	0.0031	0.013	0.0246	<0.0030	<0.0030	0.0071
Total Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Silver	mg/L	<0.00010	<0.00010	<0.00010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000010
Dissolved Arsenic	mg/L	0.0014	0.0032	0.0082	0.0069	0.0027	0.0022	0.0023	0.0021	0.0054	0.0025	0.0022	0.0023
Dissolved Aluminum	mg/L	0.00036	0.00045	0.00056	0.00062	0.00048	0.00043	0.00073	0.00068	0.001	0.00087	0.0007	0.00063
Dissolved Barium	mg/L	0.0683	0.0712	0.0456	0.0617	0.0637	0.064	0.0738	0.0782	0.0486	0.0792	0.0758	0.071
Dissolved Beryllium	mg/L	<0.000020	<0.000020	<0.000020	<0.00020	<0.00020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Dissolved Boron	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Bismuth	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dissolved Calcium	mg/L	77.5	73.7	55.4	65.4	66.8	67.8	64.3	59.6	44.7	58.2	58.7	57.5
Dissolved Cadmium	mg/L	0.0000468	0.0000404	0.0000824	0.0000576	0.0000455	0.0000392	0.0000393	0.0000346	0.0000427	0.0000416	0.0000419	0.0000422
Dissolved Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Chromium	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Copper	mg/L	<0.00030	0.00027	0.00038	0.00034	0.00025	0.00030	0.00045	<0.00030	0.00062	0.00033	0.00022	0.00118
Dissolved Iron	mg/L	0.021	0.036	0.0038	0.0034	0.032	0.0029	<0.010	<0.0020	<0.010	<0.010	<0.010	<0.0118
Dissolved Mercury	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.010	<0.000050	<0.010	<0.010	<0.010	<0.000050
•		0.413	0.427	0.416	0.366	0.512	0.427	0.536	0.433	0.509	0.446	0.522	0.633
Dissolved Potassium	mg/L	0.413	-	0.416	0.0018	0.512	0.427		0.433			0.522	
Dissolved Lithium	mg/L	8.77	0.0018	5.28	7.84		7.72	0.0013	6.37	0.0012 4.06	0.0015 6.01	6.34	0.0012 5.96
Dissolved Magnesium	mg/L	0.00824	8.36 0.00821	0.0035	0.00745	8.42 0.0109	0.00923	6.68	<0.00010		0.00078	0.0008	0.00047
Dissolved Manganese	mg/L		+		+			0.00045		0.00137			
Dissolved Molybdenum	mg/L	0.0008	0.00517	0.000734	0.00093	0.000866	0.000831	0.00138	0.00126	0.00102	0.00124	0.00131	0.00136
Dissolved Sodium	mg/L	1.17	1.25	0.856	1.05	1.19	1.12	1.14	1.09	0.843	1.01	1.04	1.21
Dissolved Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Lead	mg/L	<0.000050	0.000077	0.00043	0.000114	<0.000050	<0.000050	0.000064	<0.000050	0.00024	<0.000050	<0.000050	0.000072
Dissolved Phosphorus	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Antimony	mg/L	0.00012	0.00012	0.00018	0.00016	0.00012	0.00012	0.00021	0.00018	0.00021	0.00021	0.00019	0.00021
Dissolved Sulphur	mg/L	4.85	4.69	4.08	4.28	5.49	5.48	3.7	3.64	1.79	2.99	3.24	3.25
Dissolved Selenium	mg/L	0.000741	0.000721	0.000699	0.00068	0.000752	0.000705	0.000924	0.000807	0.000649	0.000668	0.000677	0.000711
Dissolved Silicon	mg/L	4.08	3.94	3.18	3.64	4.14	3.9	4.26	4.05	3.58	4.35	4.31	4.1
Dissolved Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Strontium	mg/L	0.298	0.285	0.205	0.276	0.267	0.268	0.237	0.229	0.167	0.227	0.223	0.219
Dissolved Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010
Dissolved Uranium	mg/L	0.00113	0.00131	0.000771	0.000935	0.00109	0.00109	0.000981	0.00114	0.000704	0.00091	0.000964	0.000933
Dissolved Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Zinc	mg/L	0.0061	0.0049	0.0052	0.0049	0.0044	0.0044	0.0036	0.002	0.0058	0.0015	0.0014	0.0054
Dissolved Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

				MI	H-15					MI	H-02		
				Trib E, West Fork, u	/s of Trib E East Fork					Tailings North	Dam Seepage		
		07/Feb/22	07/Apr/22	28/Jun/22	09/Aug/22	27/Oct/22	03/Dec/22	05/Feb/22	06/Apr/22	27/Jun/22	09/Aug/22	26/Oct/22	01/Dec/22
Total Hardness	mg/L	207	209	176	188	197	190		655	427	564	611	593
Hardness (Dissolved, CaCO3)	mg/L	216	193	171	199	188	192		598	413	584	584	572
Temperature - Field	С	0.1	0	10.6	9.2	0.6	-0.3		0.1	14	10.8	0.8	-0.1
pH - Field	pН	7.99	7.69	8.11	7.96	-0.043	8.11		7.41	8.03	7.35	8.33	7.4
pH - Lab	pН	8.28	8.45	8.4	8.23	8.39	8.2		8.1	8.16	7.98	8.28	8.04
Conductivity - Field	μS/cm	352.2	364.3	319.6	350.5	293.3	369		1172	794	1067	892	102.2
Conductivity - Lab	μS/cm	368	371	322	360	339	372		1100	730	1070	998	1080
Total Dissolved Solids	mg/L	208	200	238	196	179	210		825	534	781	682	786
Total Suspended Solids	mg/L	2	1.7	1.6	1.3	2.1	<1.0		2.9	1.5	5.5	1.2	1.5
Discharge	L/min	3910	3130	14980	7344	5370	3860			60	20	20	10
Ammonia Nitrogen	mg/L	0.0093	0.0098	0.0051	0.0056	<0.0050	0.007		<0.0050	<0.0050	<0.0050	0.0189	0.0118
Nitrite	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Nitrate	mg/L	0.072	0.0776	0.0073	0.0076	0.0201	0.0353		0.0262	<0.0250	<0.0250	<0.0250	0.0294
Sulphate	mg/L	4.18	3.85	3.13	2.64	3.34	4.59		376	196	267	288	344
Fluoride	mg/L	0.093	0.09	0.085		0.082	0.087		<0.100	<0.100		<0.100	<0.100
Chloride	mg/L	<0.50	<0.50	<0.50		<0.50	<0.50		18.5	<2.50		<2.50	<2.50
Bromide	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.250	<0.250	<0.250	<0.250	<0.250
Dissolved Oxygen	mg/L	87.5	84.5	86.9	79.6	115.5	88.5		94	97.8	56	78	87.6
Dissolved Oxygen	%	12.8	12.86	10.56	9.14	16.54	12.85		13.24	7.14	6.14	11.02	11.04
ORP	mV	132	125.1	115.6	167.5	54.4	163.6		225.7	194.7	144	-37.4	238.2
Alkalinity (CaCO3)	mg/L	203	206	179	196	183	189		290	249	360	316	308
Total Silver	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010		<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Total Aluminum	mg/L	0.0092	0.0073	0.0053	0.0101	0.0106	0.0034		0.0386	0.0088	0.0128	0.0071	0.0439
Total Arsenic	mg/L	0.0004	0.00036	0.00039	0.00048	0.00037	0.00028	Site inaccessible.	0.00266	0.00066	0.00074	0.00038	0.00041
Total Barium	mg/L	0.197	0.217	0.175	0.194	0.165	0.17	Site madecasible.	0.0611	0.157	0.193	0.159	0.151
Total Beryllium	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020		<0.00010	<0.000020	<0.000020	<0.00020	<0.000020
Total Bismuth	mg/L	<0.000050	<0.000050	<0.000020	<0.000020	<0.000050	<0.000050		<0.000050	<0.000020	<0.000050	<0.000050	<0.000050
Total Boron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010		<0.010	<0.010	<0.010	<0.010	<0.010
Total Calcium		60.4	63	51.2	54.6	58.3	55	-	231	154	198	215	207
Total Cadmium	mg/L	0.0000114	0.000011	0.0000079	0.0000155	0.0000084	0.0000093		0.0000594	0.000219	0.000104	0.000115	0.000149
	mg/L	<0.000114						-			0.00104		
Total Cobalt	mg/L		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		0.00076	0.00051		0.00074	0.00068
Total Chromium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Copper	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		0.0003	<0.00050	<0.00050	<0.00050	0.00119
Total Iron	mg/L	0.258	0.222	0.068	0.172	0.157	0.101		0.63	0.08	0.121	0.083	0.196
Total Mercury	mg/L	<0.0000050	<0.0000050	<0.0000050	<0.000050	<0.000050	<0.0000050		<0.0000050	<0.0000050	<0.0000050	<0.000050	<0.0000050
Total Potassium	mg/L	0.422	0.412	0.287	0.3	0.387	0.415		1.8	1.38	2.21	1.96	1.97
Total Lithium	mg/L	0.0014	0.0013	0.0011	0.0012	0.0012	0.0012		0.0011	<0.0010	<0.0010	<0.0010	<0.0010
Total Magnesium	mg/L	13.7	12.6	11.8	12.5	12.5	12.7		19	10.4	17	18	18.4
Total Manganese	mg/L	0.0171	0.014	0.0059	0.0128	0.0143	0.0082	-	0.422	0.452	2.37	1.78	1.3
Total Molybdenum	mg/L	0.00195	0.002	0.00195	0.00182	0.0017	0.00177		0.00024	0.000974	0.00141	0.000636	0.00044
Total Sodium	mg/L	1.07	1.01	0.792	0.975	0.985	1.05	-	10.2	7.71	11	10.3	9.36
Total Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050		<0.00050	0.00056	0.00107	0.00076	0.00087
Total Lead	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050		0.004	0.000391	0.000346	0.000153	0.000834
Total Phosphorus	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050		<0.050	<0.050	<0.050	<0.050	<0.050
Total Antimony	mg/L	0.00013	0.00012	0.00014	0.00011	0.00011	0.00012		<0.00010	0.00017	<0.00010	<0.00010	<0.00010
Total Selenium	mg/L	0.00074	0.000755	0.000363	0.000427	0.000471	0.000521		0.000078	0.000205	0.000088	0.000052	<0.000050
Total Silicon	mg/L	4.54	4.24	3.42	3.91	4.08	4.03		5.01	4.56	6.14	5.23	5

				М	H-15					MI	H-02		
					ı/s of Trib E East Fork						h Dam Seepage		
		07/Feb/22	07/Apr/22	28/Jun/22	09/Aug/22	27/Oct/22	03/Dec/22	05/Feb/22	06/Apr/22	27/Jun/22	09/Aug/22	26/Oct/22	01/Dec/22
Total Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Total Strontium	mg/L	0.204	0.211	0.16	0.176	0.182	0.179		0.673	0.513	0.69	0.699	0.671
Total Sulphur	mg/L	1.66	1.55	0.99	0.89	1.46	1.79]	130	66.1	100	102	117
Total Titanium	mg/L	<0.00030	<0.00030	<0.00030	0.00042	<0.00030	<0.00030	1	0.00069	<0.00030	<0.00030	<0.00030	<0.00150
Total Thallium	mg/L	<0.000010	<0.00010	<0.000010	<0.000010	<0.000010	<0.00010	1	<0.000010	<0.000010	<0.00010	<0.000010	<0.000010
Total Uranium	mg/L	0.000926	0.000997	0.000668	0.000688	0.000775	0.000817	1	0.0017	0.00143	0.0014	0.00134	0.00121
Total Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	1	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Zinc	mg/L	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	1	0.0305	0.0196	0.0145	0.0193	0.0195
Total Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	1	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Silver	mg/L	<0.00010	<0.00010	<0.00010	<0.000010	<0.000010	<0.00010	1	<0.00010	<0.00010	<0.00010	<0.000010	<0.00010
Dissolved Arsenic	mg/L	0.0014	0.0018	0.0022	0.0029	0.0023	0.0014	1	<0.0030	0.0049	0.0024	0.0068	0.0014
Dissolved Aluminum	mg/L	0.00028	0.00026	0.00036	0.00046	0.00027	0.00024	1	0.0005	0.00064	0.00071	0.00034	0.00025
Dissolved Barium	mg/L	0.202	0.198	0.168	0.195	0.167	0.172	1	0.0548	0.151	0.184	0.168	0.143
Dissolved Beryllium	mg/L	<0.000020	<0.00020	<0.00020	<0.00020	<0.00020	<0.000020	1	<0.000020	<0.000020	<0.00020	<0.00020	<0.000020
Dissolved Boron	mg/L	<0.000050	<0.00050	<0.00050	<0.000050	<0.000050	<0.00050	1	<0.000050	<0.000050	<0.00050	<0.000050	<0.00050
Dissolved Bismuth	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	1	<0.010	<0.010	<0.010	<0.010	<0.010
Dissolved Calcium	mg/L	64.6	57.8	49.9	57.7	54.6	57.5	1	210	150	205	204	200
Dissolved Cadmium	mg/L	0.0000108	<0.000050	0.000099	0.0000092	0.000007	0.000053	1	0.0000144	0.000168	0.0000692	0.000998	0.0000672
Dissolved Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	1	0.00058	0.00051	0.00099	0.00072	0.00059
Dissolved Chromium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	1	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Copper	mg/L	0.00047	<0.00020	<0.00020	0.00024	<0.00020	<0.00020	†	<0.00050	0.00038	0.00038	0.00029	0.00098
Dissolved Iron	mg/L	0.051	0.045	0.037	0.088	0.055	0.061	1	0.099	0.053	0.07	0.072	0.02
Dissolved Mercury	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	Site inaccessible.	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Potassium	mg/L	0.454	0.415	0.311	0.302	0.399	0.357	1	1.69	1.37	2.27	2.21	1.96
Dissolved Lithium	mg/L	0.0012	0.0012	0.0011	0.0012	0.0011	0.0011	1	0.001	<0.0010	<0.0010	<0.0010	<0.0010
Dissolved Magnesium	mg/L	13.4	11.8	11.3	13.3	12.5	11.9	1	17.8	9.4	17.6	18.2	17.6
Dissolved Manganese	mg/L	0.0098	0.00702	0.00328	0.00549	0.00597	0.00685	1	0.189	0.421	2.51	1.77	1.23
Dissolved Molybdenum	mg/L	0.00205	0.00194	0.00189	0.00184	0.00166	0.00184	1	0.000298	0.00104	0.00147	0.000663	0.000429
Dissolved Sodium	mg/L	1.06	1.06	0.879	0.979	0.963	0.93	1	9.55	7.9	11.1	10.1	8.74
Dissolved Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	1	<0.00050	0.00061	0.00108	0.00073	0.00072
Dissolved Lead	mg/L	<0.000050	<0.000050	<0.000050	<0.00050	0.000064	<0.000050	1	0.000099	0.000388	0.00008	0.000067	0.000055
Dissolved Phosphorus	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Antimony	mg/L	0.00012	0.00011	0.00012	0.0001	<0.00010	0.00012	1	<0.00010	0.00015	0.0001	<0.00010	<0.00010
Dissolved Sulphur	mg/L	1.52	1.24	1	0.92	1.27	1.47	1	140	64.3	92.7	102	115
Dissolved Selenium	mg/L	0.000775	0.000658	0.00047	0.000457	0.000452	0.000574	1	0.000129	0.00018	0.000118	0.000057	0.000055
Dissolved Silicon	mg/L	4.17	4.05	3.06	3.88	4.13	4.18	1	5.07	4.09	5.71	5.37	5.08
Dissolved Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	1	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Strontium	mg/L	0.198	0.182	0.167	0.189	0.171	0.184	1	0.749	0.509	0.729	0.694	0.671
Dissolved Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	1	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Thallium	mg/L	<0.00010	<0.000010	<0.000010	<0.00010	<0.000010	<0.000010	1	<0.000010	<0.00010	<0.000010	<0.00010	<0.00010
Dissolved Uranium	mg/L	0.00093	0.000944	0.00069	0.000695	0.000722	0.000773	1	0.00183	0.00143	0.00143	0.00126	0.00115
Dissolved Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	1	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Zinc	mg/L	0.0014	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	1	0.0218	0.0213	0.0134	0.0196	0.0164
Dissolved Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	1	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

				M	H-04				MH-13					
		Alternat	e site - Lower Camp Cr			y when no discharge fi	rom MH-3		F		km d/s of Reclaim Po	nd		
		07/Feb/22	06/Apr/22	28/Jun/22	08/Aug/22	28/Oct/22	04/Dec/22	06/Feb/22	07/Apr/22	28/Jun/22	09/Aug/22	27/Oct/22	03/Dec/22	
Total Hardness	mg/L	176	192	137	144	165	150	222	224	161	185	207	210	
Hardness (Dissolved, CaCO3)	mg/L	174	168	135	147	158	154	229	204	152	197	199	207	
Temperature - Field	С	0.7	0.9	3.1	4.2	2	0.6	0	0	6.3	9.7	0.8	-0.2	
pH - Field	pН	8.13	7.94	8.12	8.22	-0.12	8.19	7.93	7.78	8.25	8.26	0.43	8.05	
pH - Lab	pН	8.22	8.35	8.26	8.17	8.34	8.26	8.29	8.41	8.34	8.27	8.38	8.22	
Conductivity - Field	μS/cm	301.4	333.6	263.8	290.4	344.2	315.8	372.6	410.4	289.5	348.2	317.6	394	
Conductivity - Lab	μS/cm	321	323	265	297	303	315	390	392	293	358	360	394	
Total Dissolved Solids	mg/L	198	193	144	170	159	165	227	219	145	192	198	231	
Total Suspended Solids	mg/L	6.1	<1.0	<1.0	<1.0	<1.0	<1.0	4.1	2	3.4	1.7	<1.0	<1.0	
Discharge	L/min	470	350	7422	1180	590	410	7662	3370		13720	6918	5150	
Ammonia Nitrogen	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0254	0.0067	<0.0050	<0.0050	<0.0050	<0.0050	
Nitrite	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	
Nitrate	mg/L	0.953	0.245	0.12	0.134	0.224	0.238	0.111	0.126	0.0601	0.0127	0.0335	0.0687	
Sulphate	mg/L	15.9	17	13.1	14.7	18.9	19.2	8.73	8.98	6.75	6.23	7.38	8.84	
Fluoride	mg/L	0.147	0.152	0.128		0.148	0.158	0.056	0.058	0.056		0.054	0.059	
Chloride	mg/L	<0.50	<0.50	<0.50		<0.50	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50	
Bromide	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Dissolved Oxygen	mg/L	81.3	82.6	93.8	83.3	107.5	86.7	82.5	90.9	98.9	86.9	107.8	83.8	
Dissolved Oxygen	%	11.65	11.72	12.56	10.86	14.82	12.14	12	13.83	13.31	8.15	15.46	12.3	
ORP	mV	131.1	196	93.6	206.2	81.2	164.7	127	110.6	87.3	155.2	36.7	159.9	
Alkalinity (CaCO3)	mg/L	153	165	143	142	144	145	212	213	156	190	192	204	
Total Silver	mg/L	<0.00010	<0.00010	<0.000010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000010	
Total Aluminum	mg/L	0.0045	<0.0030	0.0039	0.0048	0.004	0.0041	0.0066	0.004	0.0356	0.0128	0.0096	0.0035	
Total Arsenic	mg/L	0.00039	0.0004	0.00033	0.00042	0.00043	0.00039	0.00039	0.00033	0.00051	0.00054	0.00038	0.00027	
Total Barium	mg/L	0.0249	0.0258	0.0175	0.021	0.0216	0.0216	0.173	0.164	0.117	0.155	0.138	0.145	
Total Beryllium	mg/L	<0.000020	<0.00020	<0.000020	<0.00020	<0.00020	<0.00020	<0.00020	<0.000020	<0.000020	<0.00020	<0.000020	<0.000020	
Total Bismuth	mg/L	<0.00050	<0.00050	<0.00050	<0.000050	<0.00050	<0.000050	<0.00050	<0.00050	<0.000050	<0.000050	<0.00050	<0.000050	
Total Boron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	
Total Calcium	mg/L	64.2	71.1	50.4	52.9	60.8	54.3	61.8	63.6	48.5	53.6	60.1	59.1	
Total Cadmium	mg/L	0.000278	0.000273	0.000244	0.000261	0.000264	0.00024	0.0000204	0.0000163	0.000033	0.000025	0.0000173	0.0000158	
Total Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	
Total Chromium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
Total Copper	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.0029	<0.00050	<0.00050	
Total Iron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.276	0.215	0.169	0.247	0.143	0.093	
Total Mercury	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.0000050	<0.000050	
Total Potassium	mg/L	0.436	0.438	0.373	0.379	0.409	0.433	0.415	0.383	0.32	0.293	0.367	0.395	
Total Lithium	mg/L	0.0021	0.0018	0.0012	0.0014	0.0016	0.0015	0.0016	0.0014	0.0011	0.0012	0.0012	0.0012	
Total Magnesium	mg/L	3.87	3.58	2.64	3	3.17	3.46	16.4	15.9	9.65	12.5	13.8	15.2	
Total Manganese	mg/L	0.00064	0.00049	0.00036	0.00075	0.00073	0.00095	0.0135	0.00873	0.013	0.0113	0.00798	0.00636	
Total Molybdenum	mg/L	0.00064	0.00049	0.00036	0.00075	0.00073	0.00095	0.0135	0.00873	0.00806	0.0113	0.00798	0.00636	
Total Sodium		0.000768	0.000784	0.685	0.785	0.000738	0.899	1.05	0.00124	0.696	0.00106	0.961	1.02	
Total Nickel	mg/L	<0.0050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	
	mg/L						0.00050							
Total Description	mg/L	0.000187	0.000125	0.000252	0.000239	0.000132		<0.000050	<0.00050	0.000201	0.000132	0.000052	<0.000050	
Total Phosphorus	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Total Antimony	mg/L	0.00014	0.00014	0.00015	0.00012	0.00013	0.00012	0.0001	0.0001	0.00016	0.00012	0.00011	<0.00010	
Total Selenium	mg/L	0.000987	0.00105 3.81	0.000604 3.1	0.000734 3.33	0.00096	0.00113 3.24	0.000713 3.9	0.000703 3.74	0.000636 3.15	0.000512 3.38	0.000502 3.38	0.000618 3.43	

				М	H-04					M	H-13		
		Alternat	e site - Lower Camp Cı	, immediately above	West Interceptor - onl	y when no discharge for	rom MH-3		F	alse Creek Canyon, 10	km d/s of Reclaim Po	ond	
		07/Feb/22	06/Apr/22	28/Jun/22	08/Aug/22	28/Oct/22	04/Dec/22	06/Feb/22	07/Apr/22	28/Jun/22	09/Aug/22	27/Oct/22	03/Dec/22
Total Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Total Strontium	mg/L	0.246	0.265	0.165	0.186	0.207	0.194	0.244	0.241	0.171	0.202	0.21	0.204
Total Sulphur	mg/L	6.54	6.35	4.38	5.12	6.51	6.79	3.66	3.3	2.14	2.32	2.77	3.07
Total Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	0.00071	<0.00030	<0.00030	<0.00030
Total Thallium	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Total Uranium	mg/L	0.000998	0.00107	0.000569	0.000745	0.000924	0.000893	0.0016	0.00178	0.000893	0.00116	0.00141	0.00143
Total Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Zinc	mg/L	0.0063	0.0062	0.0053	0.0043	0.0042	0.0046	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Total Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Silver	mg/L	<0.000010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.000010	<0.000010	<0.000010
Dissolved Arsenic	mg/L	0.0034	0.0035	0.0056	0.002	0.0018	0.0015	0.001	0.0011	0.0046	0.0029	0.0024	0.0019
Dissolved Aluminum	mg/L	0.00041	0.00036	0.00035	0.00042	0.00038	0.0004	0.00024	0.00024	0.00039	0.0005	0.00025	0.00021
Dissolved Barium	mg/L	0.0232	0.0237	0.0172	0.0204	0.0228	0.0217	0.164	0.162	0.105	0.153	0.143	0.145
Dissolved Beryllium	mg/L	<0.000020	<0.000020	<0.000020	<0.00020	<0.00020	<0.000020	<0.000020	<0.000020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Boron	mg/L	<0.000050	<0.00050	<0.000050	<0.000050	<0.00050	<0.00050	<0.00050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Bismuth	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dissolved Calcium	mg/L	64.1	61.6	49.9	53.7	57.6	56.4	65.6	58.1	46	56.7	55.9	58.5
Dissolved Cadmium	mg/L	0.00028	0.000224	0.000237	0.000261	0.000259	0.000235	0.0000131	0.0000138	0.0000221	0.0000149	0.0000147	0.0000118
Dissolved Cobalt	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Chromium	mg/L	0.00051	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Copper	mg/L	0.00085	0.00051	0.0002	0.00048	<0.00020	<0.00020	0.00024	0.00028	0.00041	0.00048	0.00025	0.00023
Dissolved Iron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.023	0.018	0.082	0.108	0.025	0.015
Dissolved Mercury	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.0000050	<0.0000050	<0.000050	<0.0000050
Dissolved Potassium	mg/L	0.461	0.445	0.386	0.399	0.46	0.399	0.414	0.386	0.345	0.325	0.413	0.369
Dissolved Lithium	mg/L	0.0015	0.0015	0.0013	0.0015	0.0015	0.0014	0.0012	0.0013	0.0011	0.0012	0.0011	0.0011
Dissolved Magnesium	mg/L	3.43	3.38	2.49	3.09	3.36	3.17	15.8	14.4	9.13	13.4	14.4	14.7
Dissolved Manganese	mg/L	0.00072	0.00075	0.0007	0.00046	0.00053	0.00032	0.00955	0.00465	0.00865	0.00727	0.00506	0.00546
Dissolved Molybdenum	mg/L	0.000743	0.000756	0.000526	0.000715	0.000769	0.000733	0.00115	0.0067	0.0008	0.00106	0.00104	0.00102
Dissolved Sodium	mg/L	0.957	0.988	0.714	0.814	0.86	0.776	1.04	1.03	0.749	0.934	0.985	0.938
Dissolved Nickel	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Lead	mg/L	0.000165	0.000161	0.000434	0.000134	0.000053	0.000062	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Phosphorus	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Antimony	mg/L	0.00015	0.00012	0.00012	0.00014	0.00012	0.00012	<0.00010	<0.00010	0.00014	0.00011	<0.00010	<0.00010
Dissolved Sulphur	mg/L	5.52	5.42	4.27	5.13	6.64	6.49	3.28	3.09	1.98	2.44	2.79	2.98
Dissolved Selenium	mg/L	0.000985	0.00095	0.000591	0.000874	0.00111	0.00108	0.000751	0.00066	0.000594	0.000606	0.000499	0.00059
Dissolved Silicon	mg/L	3.55	3.31	2.75	3.02	3.53	3.37	3.52	3.44	2.76	3.54	3.44	3.59
Dissolved Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Strontium	mg/L	0.228	0.215	0.169	0.207	0.204	0.203	0.226	0.208	0.169	0.211	0.208	0.214
Dissolved Strontium Dissolved Titanium	-	<0.00030	<0.00030	<0.00030	<0.00030	<0.0030	<0.0030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Thallium	mg/L mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Trailium Dissolved Uranium	mg/L	0.000868	0.000959	0.000598	0.000765	0.000874	0.000872	0.00155	0.00171	0.00010	0.00127	0.00134	0.00136
Dissolved Vanadium Dissolved Zinc	mg/L	<0.00050 0.0077	<0.00050	<0.00050 0.0048	<0.00050 0.0045	<0.00050 0.0044	<0.00050 0.0041	<0.00050 0.0013	<0.00050 <0.0010	<0.00050 0.0011	<0.00050 <0.0010	<0.00050 <0.0010	<0.00050 <0.0010
	mg/L												
Dissolved Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

				MI	H-22					MI	1-29		
				Burnick 1200 F	Portal discharge					Access Cr, u	/s of Camp Cr		
		08/Feb/22	06/Apr/22	29/Jun/22	10/Aug/22	25/Oct/22	04/Dec/22	09/Feb/22	06/Apr/22	30/Jun/22	10/Aug/22	26/Oct/22	04/Dec/22
Total Hardness	mg/L			107	135	153	149	215	222	153	180	188	185
Hardness (Dissolved, CaCO3)	mg/L			99.7	135	146	140	217	199	144	182	171	174
Temperature - Field	С			2.9	2.7	2.3	1.2	0	0	5.3	6.4	0.7	-0.2
pH - Field	рН			7.57	7.18	9.1	8.19	8.03	7.83	8.34	8.26	8.5	8.11
pH - Lab	рН			8.05	7.93	8.19	8.05	8.29	8.38	8.36	8.25	8.38	8.24
Conductivity - Field	μS/cm			218.5	274.2	248.3	309	355.8	400.5	279.5	333.9	299.8	339.6
Conductivity - Lab	μS/cm			215	273	289	303	372	385	285	337	330	347
Total Dissolved Solids	mg/L			122	158	170	180	232	210	159	193	174	200
Total Suspended Solids	mg/L			1.4	<1.0	<1.0	<1.0	18.9	<1.0	<1.0	<1.0	<1.0	2
Discharge	L/min			900	40	6.78		280		4810	690	310	230
Ammonia Nitrogen	mg/L			<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Nitrite	mg/L			<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Nitrate	mg/L			0.127	0.117	0.107	0.11	0.124	0.138	0.102	0.0398	0.085	0.117
Sulphate	mg/L			21.3	33.3	40	43.7	5.64	4.53	3.02	2.79	3.74	4.45
Fluoride	mg/L			0.801		1.18	1.32	0.049	0.046	0.048		0.044	0.054
Chloride	mg/L			<0.50		<0.50	<0.50	<0.50	<0.50	<0.50		<0.50	<0.50
Bromide	mg/L			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Oxygen	mg/L			98.3	80.5	101	85.3	81.8	85.2	91	80.2	105.2	77.6
Dissolved Oxygen	%			13.13	10.74	13.82	11.85	12.26	12.36	10.25	8.64	15.17	11.42
ORP	mV			95.1	73.9	-50	152.9	112.6	165	168.8	183.9	29.9	163.4
Alkalinity (CaCO3)	mg/L			86.8	106	109	110	204	214	155	182	178	179
Total Silver	mg/L			<0.000010	<0.000010	<0.00010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.00010
Total Aluminum	mg/L			0.0039	<0.0030	<0.0030	<0.0030	0.0063	0.0031	0.0127	0.0066	0.0072	0.0416
Total Arsenic	mg/L	Site Inaccessible	Snow too deep to	0.00394	0.00383	0.00365	0.00328	0.00059	0.00056	0.00075	0.00082	0.00064	0.00071
Total Barium	mg/L	Site madeessible	sample.	0.0134	0.0159	0.016	0.0163	0.0548	0.052	0.0363	0.0518	0.0456	0.0469
Total Beryllium	mg/L	-		<0.00020	<0.00020	<0.00020	<0.00020	<0.000020	<0.00020	<0.00020	<0.00020	<0.000020	<0.000020
Total Bismuth				<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Total Boron	mg/L mg/L	-		<0.010	<0.010	<0.000	<0.010	<0.010	<0.000	<0.010	<0.010	<0.010	<0.000
Total Calcium		-		35.8	44.1	50.5	48.3	74.5	77.6	54.4	63.2	66	64.2
	mg/L	-				0.00373	0.00449	0.0000563	0.0000485	0.0000848	0.0000609	0.0000441	0.0000832
Total Cadmium	mg/L	-		0.00203	0.00316								
Total Cobalt	mg/L			<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Total Chromium	mg/L	-		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Copper	mg/L	-		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00062	<0.00050	<0.00050
Total Iron	mg/L	-		<0.010	<0.010	<0.010	<0.010	0.017	0.016	0.023	0.014	0.022	0.124
Total Mercury	mg/L	-		<0.000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.000050
Total Potassium	mg/L	-		0.437	0.545	0.557	0.611	0.291	0.27	0.328	0.254	0.263	0.268
Total Lithium	mg/L	-		0.0041	0.0052	0.006	0.006	0.0018	0.0015	0.0013	0.0016	0.0013	0.0015
Total Magnesium	mg/L	-		4.28	5.97	6.56	6.94	7.12	6.79	4.12	5.42	5.62	6.01
Total Manganese	mg/L			0.00294	0.00038	0.00013	0.0002	0.00604	0.00721	0.00367	0.00395	0.00888	0.0201
Total Molybdenum	mg/L	-		0.0107	0.00876	0.00913	0.00835	0.000679	0.00064	0.000596	0.000655	0.000622	0.000744
Total Sodium	mg/L	-		0.708	0.834	0.852	0.888	1.01	0.956	0.646	0.893	0.916	0.947
Total Nickel	mg/L	4		0.00277	0.00333	0.00344	0.00373	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Lead	mg/L	4		0.00136	0.000223	0.000301	0.000312	<0.000050	<0.000050	0.000146	<0.000050	<0.000050	0.00039
Total Phosphorus	mg/L	-		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Total Antimony	mg/L	4		0.00205	0.00231	0.00275	0.00256	0.00016	0.00015	0.00022	0.00018	0.00014	0.0002
Total Selenium	mg/L	4		0.00778	0.0115	0.0135	0.0146	0.000614	0.000565	0.000596	0.000497	0.000337	0.000536
Total Silicon	mg/L			4.45	4.51	4.52	4.37	4.69	4.36	3.91	4.05	3.86	3.86

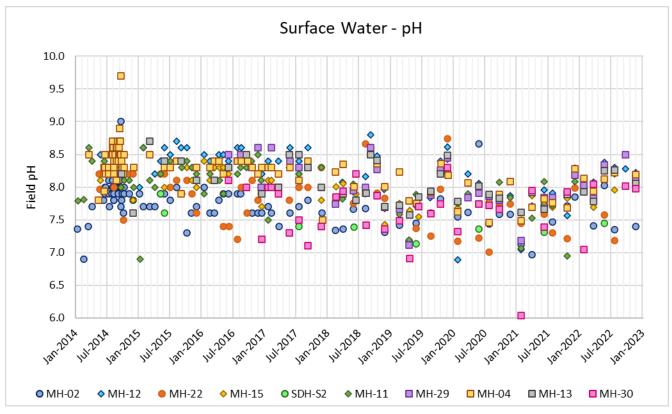
				М	H-22					MI	H- 2 9		
					Portal discharge						/s of Camp Cr		
		08/Feb/22	06/Apr/22	29/Jun/22	10/Aug/22	25/Oct/22	04/Dec/22	09/Feb/22	06/Apr/22	30/Jun/22	10/Aug/22	26/Oct/22	04/Dec/22
Total Tin	mg/L			0.00015	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Total Strontium	mg/L			0.164	0.201	0.24	0.238	0.292	0.285	0.172	0.22	0.226	0.22
Total Sulphur	mg/L			7.05	11.9	14.2	14.7	2.07	1.93	0.92	1.22	1.71	1.6
Total Titanium	mg/L			<0.00030	<0.00030	<0.00030	<0.00030	0.00041	<0.00030	0.00034	<0.00030	<0.00030	0.00093
Total Thallium	mg/L			0.000014	0.000016	0.000016	0.000016	<0.000010	<0.000010	<0.000010	<0.00010	<0.000010	<0.000010
Total Uranium	mg/L			0.00161	0.00286	0.00402	0.00396	0.000842	0.000877	0.000469	0.000557	0.000623	0.000704
Total Vanadium	mg/L			<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Total Zinc	mg/L			0.22	0.424	0.617	0.768	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030	<0.0030
Total Zirconium	mg/L			<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Dissolved Silver	mg/L			<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Dissolved Arsenic	mg/L			0.0046	<0.0010	0.0014	0.0011	0.0022	0.0071	0.0046	0.0022	0.0026	0.0019
Dissolved Aluminum	mg/L			0.00393	0.00378	0.00365	0.0032	0.00053	0.00056	0.00073	0.00081	0.00055	0.00051
Dissolved Barium	mg/L			0.0128	0.0161	0.0162	0.0164	0.0515	0.0503	0.0354	0.054	0.0454	0.0454
Dissolved Beryllium	mg/L			<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Dissolved Boron	mg/L	1		<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Bismuth	mg/L	1		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Dissolved Calcium	mg/L	1		33.3	44.2	47	45.6	76.2	69.5	51.5	63.9	59.4	60.9
Dissolved Cadmium	mg/L	1		0.00195	0.00329	0.00377	0.00423	0.0000419	0.0000486	0.000074	0.0000646	0.00004	0.0000399
Dissolved Cobalt	mg/L	1		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Chromium	mg/L	1		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Copper	mg/L	1		0.00024	0.00037	<0.00020	<0.00020	0.00021	0.00021	0.0004	0.00037	0.0003	0.00025
Dissolved Iron	mg/L	1	Snow too deep to	<0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	<0.010	0.015	0.018
Dissolved Mercury	mg/L	Site Inaccessible	sample.	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Dissolved Potassium	mg/L	1		0.437	0.557	0.61	0.574	0.271	0.272	0.343	0.27	0.292	0.233
Dissolved Lithium	mg/L	1		0.0038	0.0052	0.006	0.0056	0.0014	0.0014	0.0013	0.0015	0.0012	0.0012
Dissolved Magnesium	mg/L	1		4.02	6.08	6.9	6.46	6.57	6.2	3.76	5.52	5.56	5.28
Dissolved Manganese	mg/L	1		0.00326	0.00036	0.00014	0.00011	0.00483	0.00591	0.00092	0.0032	0.00773	0.00765
Dissolved Molybdenum	mg/L	1		0.00679	0.00886	0.00891	0.00823	0.000641	0.000582	0.000552	0.000633	0.00062	0.000702
Dissolved Sodium	mg/L	1		0.716	0.813	0.862	0.786	1.02	0.924	0.692	0.888	0.893	0.825
Dissolved Nickel	mg/L	1		0.0025	0.00326	0.00349	0.00344	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Lead	mg/L	1		0.000454	0.000189	0.000274	0.000247	<0.000050	<0.000050	0.000183	<0.000050	<0.000050	<0.000050
Dissolved Phosphorus	mg/L	†		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dissolved Antimony	mg/L	1		0.00164	0.00234	0.0027	0.00248	0.00016	0.00014	0.00019	0.00017	0.00012	0.00013
Dissolved Sulphur	mg/L	1		6.73	11.8	14.5	14.1	1.58	1.46	0.92	1.05	1.32	1.47
Dissolved Selenium	mg/L	1		0.00746	0.012	0.0139	0.0137	0.000529	0.000512	0.000668	0.000456	0.000453	0.00045
Dissolved Silicon	mg/L	1		3.88	4.63	4.7	4.43	3.99	4.02	3.36	4.16	3.96	3.88
Dissolved Silicon		1		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	mg/L	1		0.16	0.217	0.234	0.234	0.255	0.25	0.176	0.218	0.22	0.22
Dissolved Strontium	mg/L	1		<0.00030	<0.00030		<0.00030		<0.0030	<0.00030	<0.00030	<0.0030	<0.00030
Dissolved Titanium	mg/L	1				<0.00030		<0.00030					
Dissolved Thallium	mg/L	1		0.000012	0.000018	0.000015	0.000015	<0.00010	<0.000010	<0.00010	<0.00010	<0.00010	<0.00010
Dissolved Uranium	mg/L	1		0.00162	0.00294	0.00371	0.00354	0.000765	0.000845	0.000492	0.000589	0.000587	0.000612
Dissolved Vanadium	mg/L	-		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Dissolved Zinc	mg/L	-		0.216	0.454	0.632	0.734	0.002	0.0038	0.0014	<0.0010	<0.0010	<0.0010
Dissolved Zirconium	mg/L			<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020

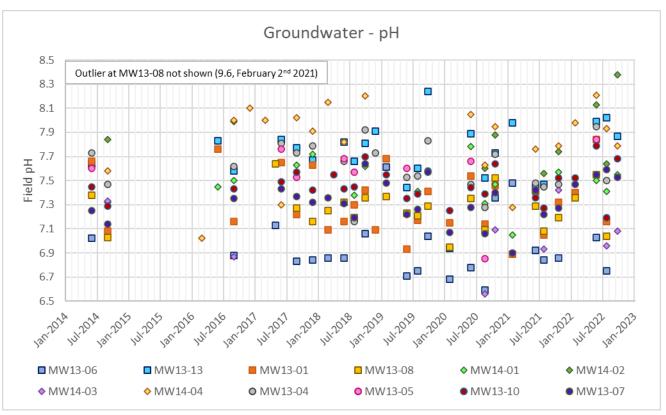
Part					MI	1-30					SDI	H-S2		
Page Page				Unnamed tribut			km d/s of MH-11							
Set content			06/Feb/22	07/Apr/22	28/Jun/22	09/Aug/22	27/Oct/22	03/Dec/22	06/Feb/22	06/Apr/22	15/Jun/21	10/Aug/22	25/Oct/22	04/Dec/22
Part	Total Hardness	mg/L	197	207			171	186			209			
He field	Hardness (Dissolved, CaCO3)	mg/L	196	185			166	179			191			
Part	Temperature - Field	С	0.1	0.1			2.3	-0.2			0			
2000-2004-1971 1986 1980	pH - Field	рН	7.05	8.04			8.02	7.98			7.45			
1	pH - Lab	рН	8.08	8.18			8.23	8.03			7.59			
Time Description Solution mg/L 312 313 314 326	Conductivity - Field	μS/cm	323.9	360.5			267.7	349.6			405.8			
Final Assumption Solution mg/L 3.1 3.4 1.4 1.5	Conductivity - Lab	μS/cm	320	361			302	356			428			
Discharge U-len	Total Dissolved Solids	mg/L	178	177			154	196			281			
Nemonia Methodo mg/L 0.0071 0.0072 0.0073 0.00605 0.00605 0.00605 0.00605 0.00605 0.00605 0.00605 0.0076 0.007	Total Suspended Solids	mg/L	3.1	2.4]		<1.0	2.6	1		19.2			
water mg/L 0.0041 0.00929	Discharge	L/min			1				1					
ways mg/L 0.0900 -0.0010 ways mg/L 0.0944 0.0524 0.0544 0.0524 0.0544 0.0524 0.0544 0.0524 0.054 0.052 1.85 0.0624 0.052 0.062 0.052 0.062 0.052	Ammonia Nitrogen	mg/L	0.071	0.0279	1		0.0185	0.0168	1		<0.0050			
Windows	Nitrite		<0.0010	<0.0010	1		<0.0010	<0.0010	1		<0.0010			
A	Nitrate			0.0929	1			0.0406	1		0.204	1		
File File	Sulphate				1				1			1		
Part Part	Fluoride				1				1			1		
Second Congress mg/L 40.050 40.050 40.050	Chloride				1				1		<0.50			
Procession Market Bromide				1				1						
180 180					1				1					
1986 183					1				1					
National System mg/L 0.000019 0.000010010 0.000010010 0.0000010 0.0000000 0.00000000	ORP	mV			1			159.2	1					
Part Part					1				1					
Total Aluminum mg/L 0.0103 0.0065 0.00034 0.00034 0.00034 0.00034 0.00034 0.00035 0.					1				1					
Total Arsenic mg/L 0.00034 0.0003 0.00035 0.					1				1					
10.00000000000000000000000000000000000					Site inaccessible.	Site inaccessible.			Site inaccessible.	Site inaccessible.				Site inaccessible.
Close Beryllium									1			location.	location.	
Cotal Bismuth					1				1					
Cotal Boron mg/L 49.3 52.6 43.4 46.6 79.3					1				1					
Total Calcium mg/L 49.3 52.6					1				1					
fotal Cadmium mg/L 0.0000436 0.0000599 fotal Cobalt mg/L 0.000012 <0.00010					1				1					
Color Col					1				1					
Color Colo					†			 	†					
Total Copper					1				1					
Total Mercury mg/L 0.717 0.555 0.438 0.727 0.0000050 0.000050 0.000050 0.00050 0					†				†					
Cotal Mercury mg/L <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.0000050 <0.000050 <0.000050 <0.000050 <0.000050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.00050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050 <0.0050	- ''				1				1					
Total Potassium mg/L 0.827 0.579 Total Lithium mg/L 0.0011 <0.0010					1				1					
Color Colo					1				1					
Total Magnesium mg/L 17.9 18.3 15.2 17 17.9 18.3 15.2 17 17.9 18.3 18.3					1				1					
Total Manganese mg/L 0.0317 0.0287 0.0287 0.00152 0.00658 0.00136 0.00142 0.00154 0.00405 0.00050 0.00050 0.00050 0.00050 0.00050 0.00050 0.00405 0.					1				1					
Total Molybdenum mg/L 0.00152 0.00658 0.00136 0.00142 0.00405					1				1					
Total Sodium mg/L 1.01 0.908 0.726 0.866 0.363 0.00250 0.00050 0.00056 0.00050 0.00056 0.00050 0.0					1				1					
Total Nickel mg/L 0.00079 <0.00050 <0.00050 0.00056 <0.00250	·				†				†			1		
Total Lead mg/L 0.000273 0.000165 0.000051 <0.000050 0.442 Total Phosphorus mg/L <0.050					1				1			•		
Total Phosphorus mg/L < 0.050 < 0.050 < 0.050 < 0.050 < 0.250 Total Antimony mg/L 0.00019 < 0.00010			 		1				1			-		
Fotal Antimony mg/L 0.00019 <0.00010 0.00018 <0.00050 Fotal Selenium mg/L 0.000634 0.000633 0.000365 0.000491 0.00312					1				1			1		
Total Selenium mg/L 0.000634 0.000633 0.000365 0.000491 0.00312	·				+				+			-		
	·				1				1			•		
	Total Selenium Total Silicon				-				1			-		

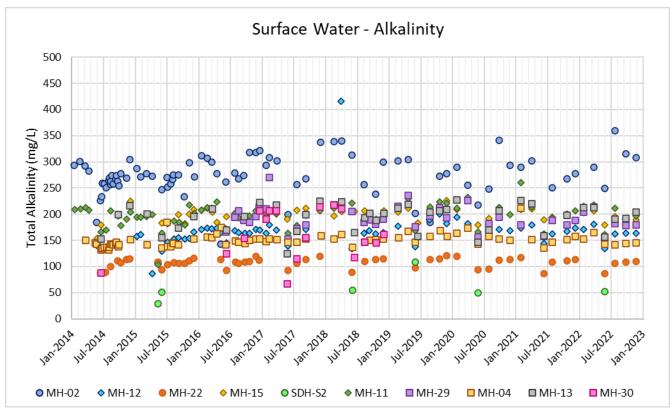
				M	1-30					SDI	H-S2		
			Unnamed tribu	tary to False Canyon C	reek, approximately 3	km d/s of MH-11				Waste rock be	low Main Zone		
		06/Feb/22	07/Apr/22	28/Jun/22	09/Aug/22	27/Oct/22	03/Dec/22	06/Feb/22	06/Apr/22	15/Jun/21	10/Aug/22	25/Oct/22	04/Dec/22
Total Tin	mg/L	<0.00010	<0.00010			<0.00010	<0.00010			<0.00050			
Total Strontium	mg/L	0.146	0.155			0.119	0.126			0.0882			
Total Sulphur	mg/L	2.09	2			1.78	1.85			53.4			
Total Titanium	mg/L	<0.00030	<0.00030	1		<0.00030	<0.00030	1		0.00341			
Total Thallium	mg/L	<0.000010	<0.000010	1		<0.000010	<0.000010	1		<0.000050			
Total Uranium	mg/L	0.00165	0.00189			0.00141	0.00161	1		0.000258			
Total Vanadium	mg/L	<0.00050	<0.00050			<0.00050	<0.00050	1		<0.00250			
Total Zinc	mg/L	0.0467	0.0197			<0.0030	<0.0030	1		12.5			
Total Zirconium	mg/L	<0.00020	<0.00020			<0.00020	<0.00020	1		<0.00100			
Dissolved Silver	mg/L	<0.000010	<0.000010			<0.000010	<0.000010	1		<0.000050			
Dissolved Arsenic	mg/L	0.0024	0.0069			0.0032	0.0025	1		<0.0050			
Dissolved Aluminum	mg/L	0.0002	0.0002			0.00023	0.00022	1		<0.00050			
Dissolved Barium	mg/L	0.243	0.246	1		0.198	0.226	1		0.0158	1		
Dissolved Beryllium	mg/L	<0.000020	<0.000020	1		<0.000020	<0.000020	1		<0.000100			
Dissolved Boron	mg/L	<0.000050	<0.000050			<0.000050	<0.000050	1		<0.000250			
Dissolved Bismuth	mg/L	<0.010	<0.010			<0.010	<0.010	†		<0.050	-		
Dissolved Calcium	mg/L	49.7	46.2			41.4	44.4	1		72.8	-		
Dissolved Cadmium	mg/L	0.0000275	0.000161	-		0.0000147	0.0000157	-		0.099			
Dissolved Cobalt	mg/L	<0.00010	<0.000101	-		<0.000147	0.000137	+		<0.00050	-		
Dissolved Chromium	mg/L	<0.00010	<0.00010	-		<0.00010	<0.00012	+		<0.00050			
Dissolved Copper		0.00036	0.00313	-		<0.00030	0.00035	+		<0.00100	-		
	mg/L			-				-			Dry at cample	Dry at sample	
Dissolved Iron Dissolved Mercury	mg/L	0.179 <0.0000050	0.095 <0.000050	Site inaccessible.	Site inaccessible.	0.234 <0.0000050	0.106 <0.0000050	Site inaccessible.	Site inaccessible.	<0.050 <0.000050	Dry at sample location.	location.	Site inaccessible.
•	mg/L			-				-					
Dissolved Potassium	mg/L	0.503	0.937	-		0.369	0.341	-		0.661	-		
Dissolved Lithium	mg/L	<0.0010	<0.0010	-		<0.0010	<0.0010	-		<0.0050			
Dissolved Magnesium	mg/L	17.4	17	_		15.1	16.5	-		2.32			
Dissolved Manganese	mg/L	0.0281	0.0216	-		0.0202	0.0342	-		0.00837			
Dissolved Molybdenum	mg/L	0.00147	0.00613	-		0.0014	0.00142	-		0.000449			
Dissolved Sodium	mg/L	0.857	1.18	-		0.728	0.738	-		0.393			
Dissolved Nickel	mg/L	0.00054	0.00241			<0.00050	0.00075			<0.00250			
Dissolved Lead	mg/L	0.000072	0.000584			<0.000050	<0.000050	-		0.0416	-		
Dissolved Phosphorus	mg/L	<0.050	<0.050			<0.050	<0.050	-		<0.250			
Dissolved Antimony	mg/L	<0.00010	0.00012			<0.00010	<0.00010	-		<0.00050			
Dissolved Sulphur	mg/L	1.89	1.86			1.35	1.51			56.2			
Dissolved Selenium	mg/L	0.000591	0.000623			0.000415	0.00045			0.00372			
Dissolved Silicon	mg/L	3.56	3.6			3.17	3.48			2.31			
Dissolved Tin	mg/L	<0.00010	<0.00010			<0.00010	<0.00010			<0.00050			
Dissolved Strontium	mg/L	0.129	0.127	4		0.117	0.126	1		0.0866	_		
Dissolved Titanium	mg/L	<0.00030	<0.00030	1		<0.00030	<0.00030			<0.00150			
Dissolved Thallium	mg/L	<0.000010	<0.000010	1		<0.000010	<0.000010	1		<0.000050			
Dissolved Uranium	mg/L	0.00157	0.00179			0.00136	0.00152			0.000201			
Dissolved Vanadium	mg/L	<0.00050	<0.00050	_		<0.00050	<0.00050]		<0.00250			
Dissolved Zinc	mg/L	0.0164	0.02	_		<0.0010	0.0011]		11.4			
Dissolved Zirconium	mg/L	<0.00020	<0.00020			<0.00020	<0.00020			<0.00100			

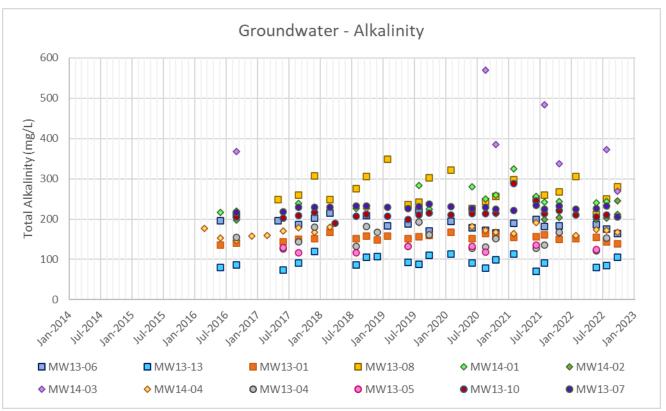


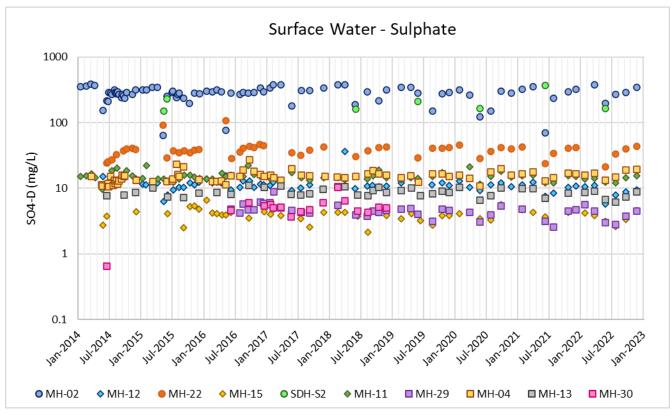
APPENDIX E: WATER QUALITY PLOTS

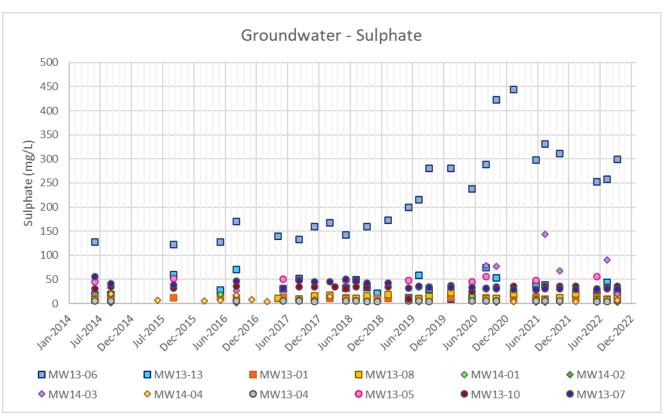


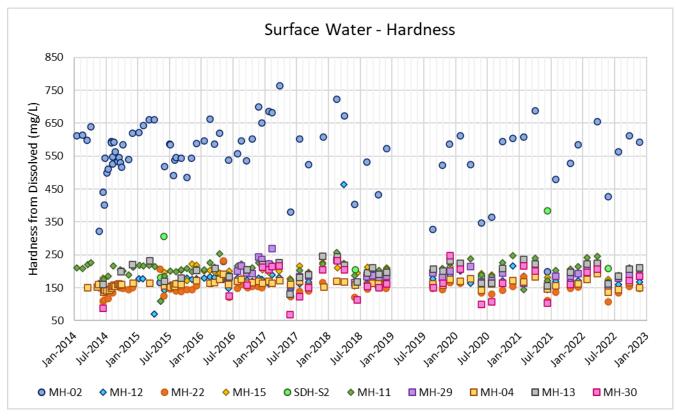


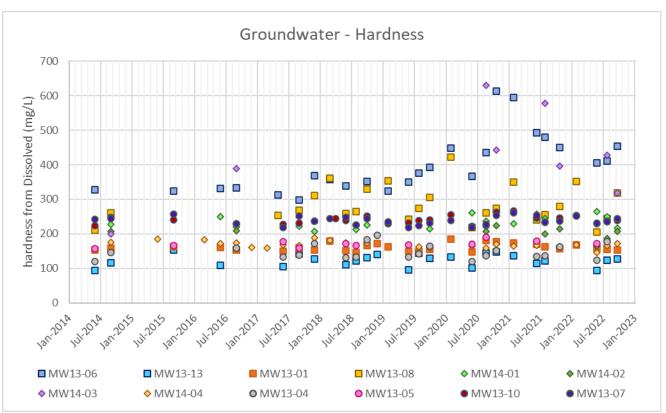


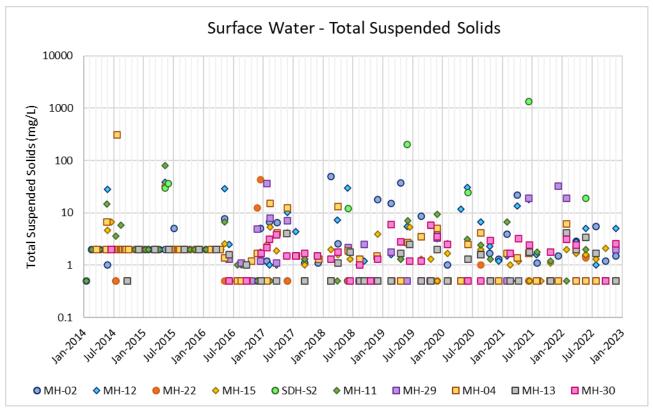


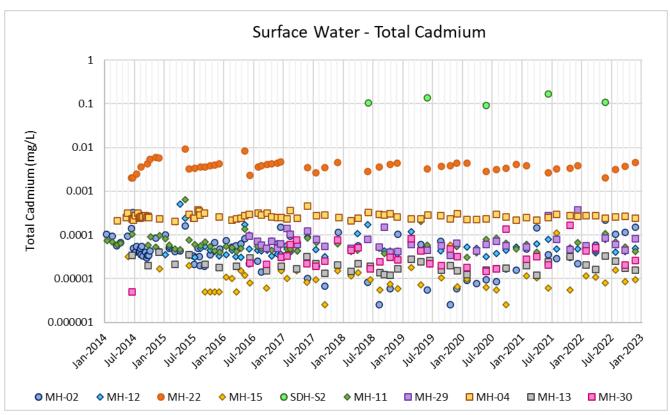


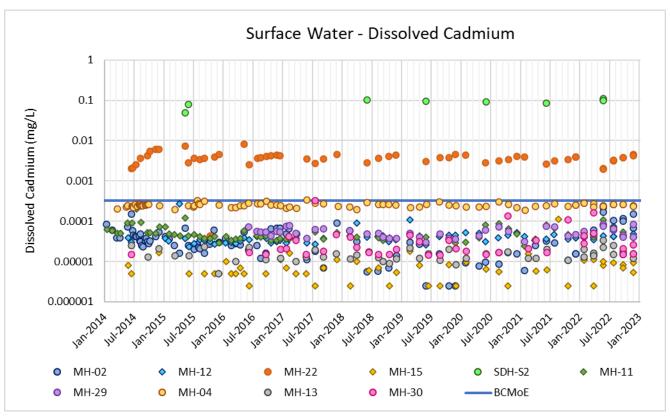


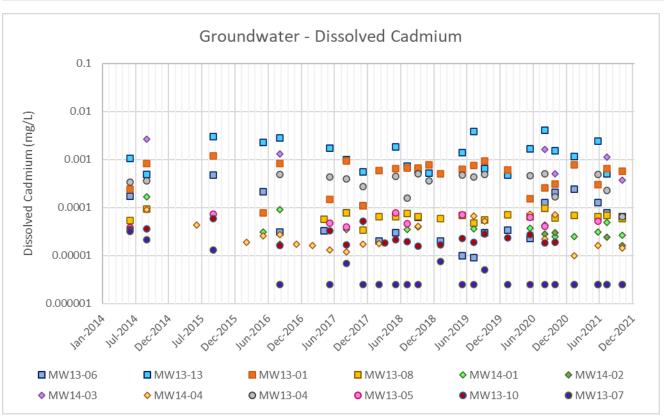


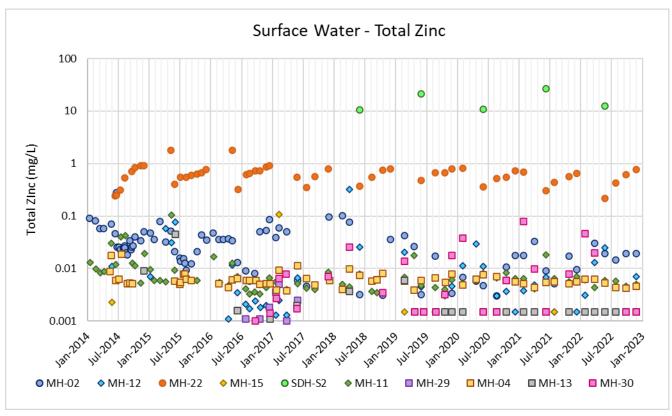


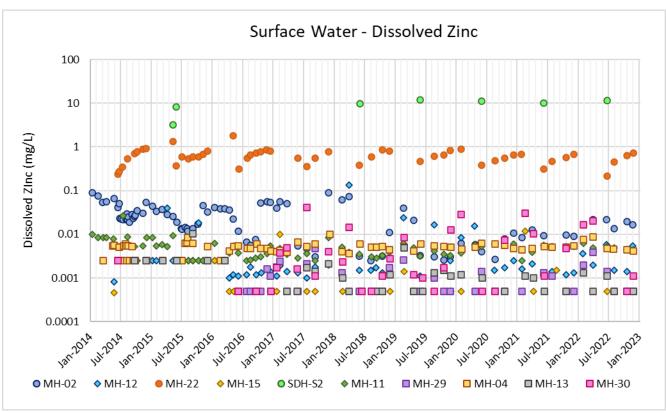


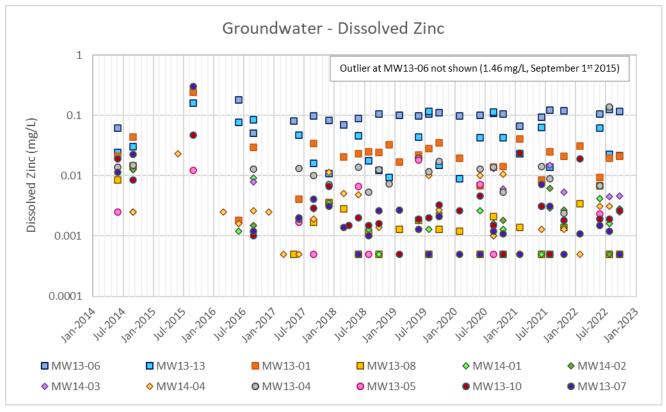


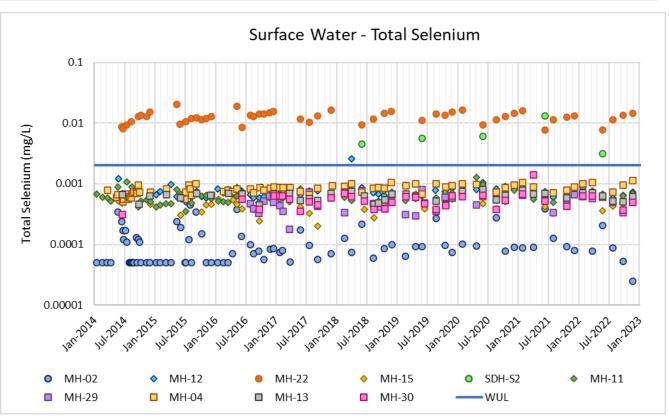


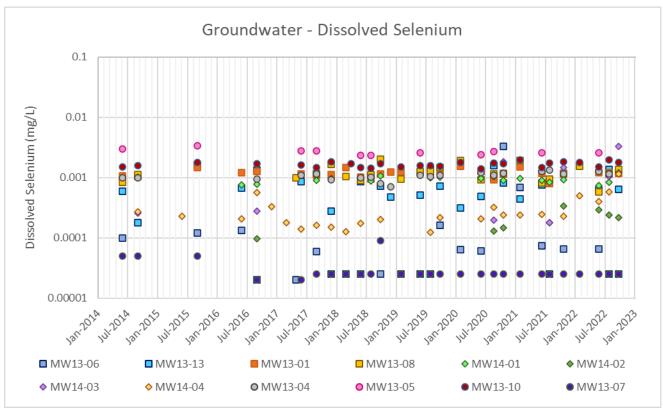


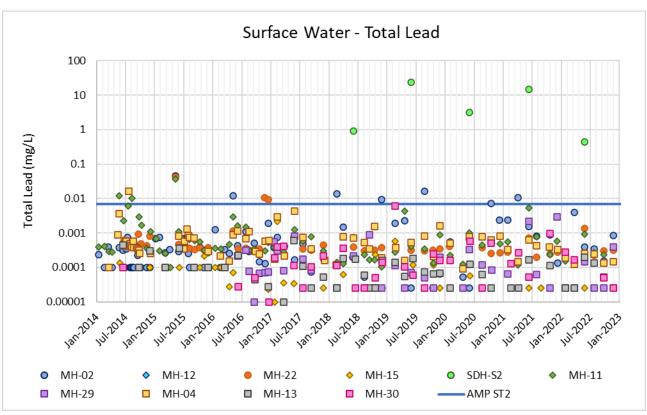


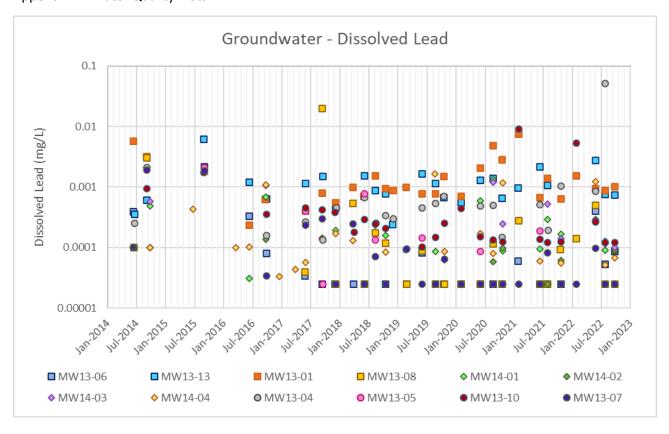














APPENDIX F: North Dam Repair Memo 2022



Memorandum

To: Yukon Water Board Date: August 8, 2022

From: Wendy McBain, Environmental Coordinator Cc: Michelle Unger, Manager

Environmental Performance, Teck

Legacy Properties

Subject: North Dam Erosion Event

During a routine inspection on June 17, 2022 an area of surface erosion was identified on the north embankment of the Tailings Storage Facility at Sa Dena Hes (aka North Dam) (Photo 1). Based on satellite images the event occurred between June 1 and 7th when a pool of water had developed near the dam crest during rapid snow melt period and resulted in overtopping and release of the ponded water. The exact cause is under review. It was determined that the impacted material was dam embankment material only and no release of tailings from the impoundment occurred.

In response, the Engineer of Record, Teck representative, and contractors were immediately mobilized to site to assess the situation and complete repairs. Silt fencing was installed at the toe of the embankment and upstream of the seepage monitoring location MH-02 (Photo 2). The Natural Resources Inspector was also notified of the event and proposed repair work.

During the initial mobilization and assessment, a killdeer nest was identified on the crest of the north dam near the erosion area. Environmental Dynamics, Inc. (EDI) was retained to commence a nest survey prior to any repair activities. A visual barrier was installed between the work area and the nest.

As part of the repair work, an environmental monitoring plan was prepared and implemented during construction:

- Sediment and erosion control measures included:
- Try to avoid working under wet/flowing conditions.
- Install sediment controls including silt fencing below the work area. The fencing must be secured so that water and sediment cannot bypass the area (flow under or around).
- Ongoing maintenance shall be conducted, if/when required, and removal of any accumulated sediments shall occur prior to removal of the dam(s); and
- Oil absorbent spill booms should also be available on site in case of releases to water.

Water quality monitoring locations are relevant to the erosional event included:

- MH-02 Source sampling location -— North Tailings Dam Seepage
- MH-12 -Compliance sampling location located at the East Fork of Tributary E of False Canyon Creek, approximately 2 km downstream of the north tailings dam

Prior to commencement of repair activities, baseline water quality sampling at MH-02 was conducted on June 17th-19th and at MH-12 on June 21st for the following parameters:



- Field parameters (Table 1); and
- Laboratory analysis of physical parameters (pH, specific conductance, total alkalinity, TSS, TDS, hardness) and analytical parameters (anions and nutrients, dissolved organic carbon, total and dissolved metals, and total hexavalent chromium).

The following observations were made:

- Mine source water quality parameters measured at station MH-02 were below the specific thresholds (ST), as defined by the adaptive management plan (AMP) (Table 2).
- All constituents were below the Receiving Water Quality Standards (QZ16-051 Clause 40) at receiving environment station MH-12 (Table 3).

Estimated flow volume and turbidity were measured at MH-02 and MH-12 at least 3 times per day. Photographs, weather conditions, and appearance were recorded (Table 1).

During the repair activities from June $25^{th} - 29^{th}$, water quality samples were collected from MH-02 and MH-12 and analyzed according to Schedule A of Water License QZ16-051. The following observations were made:

- Mine source water quality parameters measured at station MH-02 were below the specific thresholds (ST), as defined by the adaptive management plan (AMP) (Table 2).
- All constituents were below the Receiving Water Quality Standards (QZ16-051 Clause 40) at receiving environment station MH-12 (Table 3).

Memorandum

Table 1. North Dam Repairs Environmental Monitoring - Field Parameters

Date	Time	Sample Location	Estimated Flow volume	Turbidity NTU	Observations (clear, cloudy, turbid)	Photographs (Y/N)	Weather Conditions	Comments
06-17-2022	8:20pm	MH-02	40-50 L/min	clear	Clear	Y	+18, sun	
06-18-2022	1:40 pm	MH-02	40-50 L/min		Clear	N	+21, overcast	
06-19-2022	6:55 pm	MH-02	40-50 L/min		Clear	N	+18, sunny	
06-21-2022	7:00pm	MH-12	Overflowing all banks		Clear	Y	+16, overcast	Water very high flowing all directions
06-24-2022	9:30am					Y	+15, overcast	
06-24-2022	3:30pm	MH-02			Clear	Υ	+14, sunny	Temp=19.2
06-24-2022	4:15pm	MH-12		4.8	Clear	Y	+14, sunny	
06-25-2022	9:15am	MH-02	1.02 L/sec	7.92	Clear	Υ	+14, sunny	Temp=12.8
06-25-2022	10:05am	MH-12		6.47	Clear	Y	+14, sunny	Temp=3.6
06-25-2022	1:15pm	MH-12		5.29	Clear/cloudy	N	+14, cloudy	Temp=4.7
06-25-2022	3:00pm	MH-02	0.98 L/sec	4.20	clear	Υ	+19, sunny	Temp=19.8
06-25-2022	3:45pm	MH-12		1.25	clear	n	+18, overcast	Temp = 4.8, pH=8.87



Memorandum

Date	Time	Sample Location	Estimated Flow volume	Turbidity NTU	Observations (clear, cloudy, turbid)	Photographs (Y/N)	Weather Conditions	Comments
06-25-2022	5:30pm	MH-02	0.89 l/sec	1.79	Clear	N	Overcast	Temp = 18.9, pH=7.87
06-26-2022	9:20am	MH-12	-	0.99	Clear	N	+14, sunny	Temp=3.5, pH=8.53
06-26-2022	10:00am	MH-02	0.91 L/sec	0.15	Clear	N	+14, sunny	Temp=13.3, pH=8.04
06-26-2022	11:00am	MH-12	-	0.99	Clear	N	Overcast	Temp=4.6, pH=8.44
06-26-2022	1:45pm	MH-02	0.79 L/sec	0.42	Clear	N	Sunny	Temp=15.6, pH=8.04
06-26-2022	3:45pm	MH-12	-	0.98	Clear		Sunny	Temp=4.8, pH=8.43
06-26-2022	4:20pm	MH-02	0.86 L/sec	0.15	Clear		Sunny	Temp=19.1, pH=8.44
06-27-2022	9:10am	MH-12	-	Can't calibrate/error	Clear		+16, sunny	Temp=3.8, pH=8.45
06-27-2022	4:09pm	MH-12	-	No turbidity results	Clear	N	+18, overcast	Temp=4.4, pH=8.48
06-27-2022	5:09pm	MH-02	0.87 L/sec	No turbidity results	Clear	N	+18, rain little bit	Temp=14.8, pH= 8.20



Location	Date	T-Zn	T-Cd	T-Pb	SO4
	Unit	mg/L	mg/L	mg/L	mg/L
	ST1	0.4	0.014	0.006	600
	Before Repa	irs			
	17-Jun-22	0.0266	0.000215	0.000254	130
	18-Jun-22	0.02	0.000214	0.000239	129
	19-Jun-22	0.024	0.000206	0.000232	138
MH-02	During Repa	irs			
	25-Jun-22	0.0204	0.000254	0.00097	153
	26-Jun-22	0.0193	0.000214	0.000372	170
	27-Jun-22	0.0229	0.000256	0.00196	192
	29-Jun-22	0.0191	0.000222	0.000651	148



Memorandum

Table 3. Receiving Environment Station MH-12 Compared to Receiving Water Guidelines

Location	Date	Hardness	D-Al	T-Sb	T-As	T-Be	D	-Cd	T-Cr VI	T-Co	T-0	Cu	T-Fe		Г-РЬ	T-Mo	•	Γ-Ni	T-Se	T-Ag	SC	O 4	T-TI	T-	Zn
	Unit	mg/L	mg/L	μg/L	μg/L	μg/L	μ	ıg/L	μg/L	μg/L	μg	/L	mg/L		ug/L	mg/L	ļ	ıg/L	μg/L	μg/L	mg	g/L	μg/L	με	g/L
	Max Conc		0.05	9	5	0.13		calc	1	4		calc	1		calc	0.073		calc	2	0.25		calc	8.0		Calc
	Before Rep	pairs																							
	21-Jun-22	134	0.0058	0.29	1.52	0.022	0.0347	0.26232	<0.500	0.24	1.07	5.36	0.549	6.55	7.932566	0.000982	1.04	119.3856	0.762	0.015	6.17	309	<0.0100	18.3	40.5
	During Repa	airs																							
MH-12	25-Jun-22	136	0.0067	0.23	1.21	<0.020	0.034	0.265196	<0.500	<0.100	<0.500	5.44	0.098	0.799	8.020574	0.00096	<0.500	120.7374	0.615	<0.010	5.6	309	<0.0100	<3.00	42
	26-Jun-22	409	0.005	0.23	1.16	<0.020	0.0355	0.596363	<0.500	<0.100	<0.500	16.36	0.094	0.74	22.44386	0.000977	<0.500	150	0.626	<0.010	5.59	429	<0.0100	<3.00	246.75
	27-Jun-22	142	0.0054	0.23	1.14	<0.020	0.0324	0.273758	<0.500	<0.100	<0.500	5.68	0.056	0.537	8.286704	0.00106	<0.500	124.7646	0.674	<0.010	5.59	309	<0.0100	<3.00	46.5
	29-Jun-22	142	0.0051	0.24	1.21	<0.020	0.0379	0.273758	<0.500	<0.100	<0.500	5.68	0.094	0.798	8.286704	0.00105	<0.500	124.7646	0.761	<0.010	5.5	309	<0.0100	<3.00	46.5







Photo 2. Silt fence installed upstream of seepage monitoring pipe MH-02



Photo 3. North Dam after Repair





APPENDIX G: 2022 TECK MINE WASTE FACILITIES INSPECTION

Final

2022 Annual Facility Performance Review

Sä Dena Hes Mine, Yukon Territory Teck Resources Limited



SRK Consulting (Canada) Inc. - CAPR001928 - November 2022



Final

2022 Annual Facility Performance Review

Sä Dena Hes Mine, Yukon Territory

Prepared for:

Teck Resources Limited 601 Knighton Road Kimberley, BC, V1A 3E1 Canada

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Prepared by:

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Lead Author: Peter Mikes, P.Eng. **Initials:** PHM **Reviewer:** John Kurylo, P.Eng **Initials:** JBK

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SRK Consulting (Canada) Inc. - CAPR001928 - November 2022



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Appendices

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Useful Definitions

This list contains definitions of symbols, units, abbreviations, and terminology that may be unfamiliar to the reader.

AEP Annual Exceedance Probability

AFPR Annual Facility Performance Review
ALARP As Low As Reasonably Practical

AMECFW AMEC Foster Wheeler

CDA Canadian Dam Association

DDRP Detailed Decommissioning Reclamation Plan

DSR Dam Safety Review
EOR Engineer of Record
FOS Factor of Safety

GISTM Global Industry Standard on Tailings Management

HSRC Health, Safety and Reclamation Code

IDF Inflow Design Flood

MAP Mean Annual Precipitation

MERP Mine Emergency Response Plan

NBC SHC National Building Code Seismic Hazard Calculator

OMS Operation, Maintenance and Surveillance

PGA Peak Ground Acceleration
PMF Probable Maximum Flood

RTFE Responsible Tailings Facility Engineer

SRS Sediment Retaining Structure
TARP Trigger Action Response Plan
TMA Tailings Management Area

WRD Waste Rock Dumps
YG Yukon Government

Executive Summary

This report presents the results of the 2022 Annual Facility Performance Review (AFPR) of the Sä Dena Hes Tailings Management Area (TMA). The TMA forms part of the closed Sä Dena Hes mine located near Watson Lake, Yukon. The only remaining tailings retaining embankment at the closed site is the North Dam. A small dike, referred to as the Sediment Retaining Structure (SRS), was also retained after closure of the site to collect any sediment that would be generated from the till cap that was placed over the exposed tailings. Other facilities are included in the AFPR scope to fulfill annual inspection and reporting requirements of the site Water Licence QZ16-051 (issued April 2017) and the Quartz Mining License QML-0004 (issued December 2015). These other facilities consist of a series of riprapped lined diversion channels and the reclaimed waste rock dumps at the location of the closed portals adjacent to the Main, Jewelbox and Burnick ore zones

The inspection was completed by Mr. Peter Mikes, P.Eng. and Kisa Elmer, P.Eng., of SRK Consulting (Canada) Inc. on August 16 and 17, 2022 while accompanied by Jeff Basarich (Teck). Peter Mikes is Engineer of Record (EOR) for the TMA.

The work was completed in accordance with Teck's Tailings and Water Retaining Structures Guideline and Policy (2019) and in observation of the Global Industry Standard on Tailings Management (GISTM) (ICMM 2020), inclusive of its expectation to be a public domain document indicative of the EOR's summary commentary of the annual performance of the TMA.

Summary of Facility Description

The original TMA consisted of three earth structures, which were referred to as the North Dam, the South Dam, and the Reclaim Dam. The North and South Dams, which impounded the tailings, were constructed between July 1990 and October 1991. The dams for both structures were built to a height of about 13 meters. The reclaim dam was built to detain supernatant water decanted from the tailings pond. The mine operation involved recycling of the detained water to the mill, with a controlled discharge when required into the adjacent Camp Creek from April to October each year.

Operations at Sä Dena Hes Mine commenced in July 1991 and were suspended in December 1992. Decommissioning of the site began in 2014 and was completed in 2015 by the Sä Dena Hes Operating Corp.

Tailings and water retaining structures that currently remain on the site are the North Dam and the Sediment Retaining Structure (SRS). The SRS is a 7 m high dike which impounds a small pond.

Summary of Key Observations and Significant Changes

North Dam

The North Dam is currently stable. The dam does not retain water except during snow melt when the tailings cover drainage may be restricted due to ice or snow blockages in the drainage channels. During the June 2022 snow melt, the ponded water overtopped the dam sometime between June 1

and June 7 resulting in the development of an erosion gully in the North Dam that eroded approximately 415 m³ of dam fill with no tailings displaced. Once the pond drained, the erosion discontinued. Repairs to the North Dam were completed in June, with additional erosion protection measures implemented in October 2022. During the August site inspection, no signs of any instability on the crest or the downstream slope were observed.

The piezometers are in good condition and continue to function as designed. The seasonal fluctuations in the piezometers were consistent with those in previous years. Like the 2021 freshet, water levels in Piezometer 2A triggered an alert indicating an exceedance just above the 'minor risk alert level' trigger criteria during the 2021 freshet. Following a review of the data and the local precipitation records for the same period, it is SRK's opinion that these unexpected rises in the water levels in Piezometer 2A were attributed to an unseasonably high snowpack and rainfall. Subsequent readings are more consistent with trends seen in previous years. No further action is required outside of continued monitoring.

Sediment Retaining Structure

The SRS is in good physical condition and the spillway is functioning in accordance with design parameters. A transverse crack that was first observed in 2021 remains across the dam crest approximately 1 m east of the spillway that is believed to be caused by frost heave. No further action is required as the crack does not extend deep enough to act as a preferential seepage pathway through the structure, and the structure is considered to be temporary, with Teck planning to remove the structure in the future as part of an overall "safe closure" landscape.

North Creek

The North Creek crosses three access roads that were decommissioned in 2014 with the creek conveyed across the roads in riprap lined channels. Riprap movement and bank erosion or deformation has occurred at all three crossings. The North Creek will continue to erode these channel sections but will eventually sustain itself without maintenance. No remedial action is required.

Summary of Hazards and Potential Consequences

Aa required component of the AFPR is to review hazards and the consequences of different potential failure modes of the North Dam and the SRS. There are only three potential failure modes for tailings facilities – instability, internal erosion, and overtopping. Any number of failure mechanisms can be present to hypothetically create one of those modes for a given facility – when a hypothetical mechanism is shown to be credible then the facility has a credible failure mode.

The main hypothetical failure mechanisms of the SRS are:

- Overtopping from one of:
 - runoff from extreme precipitation events that exceeds the flow capacity of the SRS spillway
 - ice build up and debris in the SRS spillway
- Internal Erosion (Piping)

Slope instability

The main hypothetical failure mechanisms for the North Dam are:

- Overtopping due to a blockage of tailings cover drainage channels and subsequent build-up of a pond due to extreme precipitation and/or snowmelt
- Internal Erosion (Piping)
- Slope Stability

At the Sä Dena Hes TMA, there exists no credible catastrophic failure modes for the North Dam and SRS and, as a result, no life safety concerns from these facilities. This performance review concluded that the North Dam and the SRS are in adequate condition fall within acceptable guidelines for stability.

SRK understands that Teck's long-term goal for all tailings facilities is to reach a condition of "Safe Closure" which is taken to be landform status with all failure modes being reduced to non-credible. Erosion caused by snow melt water at North Dam in a similar manner that occurred in 2022 is a concern that will require to be addressed as noted in the AFPR recommendations. The likelihood of the other non-catastrophic mechanisms is judged to be extremely rare based on extreme consequence loading conditions and conservative assumptions. Whether those non-catastrophic failure modes are credible or non credible will be evaluated over 2022 and 2023 and that work will verify or refine the conservative assumptions.

Summary of OMS Manual and MERP

The Operation, Maintenance and Surveillance (OMS) Manual was last updated on December 21, 2021 and is reviewed annually. The next revision of the manual should be revised to incorporate the North Dam erosion gully repairs and additional monitoring and maintenance requirements to prevent a similar incident in the future.

Teck developed a Mine Emergency Response Plan (MERP) for the site that was finalized on July 27, 2021 and replaces the Emergency Preparedness and Response Plan. The MERP is also reviewed annually. SRK has reviewed the TMA applicable sections of the MERP and found the plan to be adequate for the site.

Recommendations

A list of deficiencies or non-conformances noted from the 2021 performance review are summarized in Tables E1 and E2. All recommendations from previous inspections have been implemented.

Table E1: Table of Recommendations

Structure	ID No.	Deficiency or Non-Conformance	Applicable Regulation or OMS Reference	Recommended Actions	Priority (Table 7.1)	Recommended Deadline / Status
			2021 Red	commendations		
TMA	2021-1	Since 2015, all revisions to the OMS Manual have remained in 'draft' status.	OMS Section 1.3	Finalize the next revision of the OMS Manual.	3	Complete OMS updated in December 2021
North Dam	2021-2	The soup can used as a cap on NDW-4A was displaced at time of the inspection.	OMS Section 5.2.1	Install a proper 2-inch PVC pipe plug and trim the PVC pipe such that it fits in steel protective casing. Water pooled within the casing should be removed (either siphoned or by drilling a small hole within the steel casing).	4	Complete
North Dam	2021-3	A long-term goal for the TMA is to reduce all potential failure modes to non-credible.	-	Undertake a credible failure modes assessment for the TMA.	4	In Progress Before end of 2022
North Dam	2021-4	Water levels in Piezometer 2A triggered alerts and event-driven inspections during the last two freshets that are attributable to higher snowpacks and rainfall. The event-driven	OMS Section 6.2.2	Undertake a review of the trigger action alert levels and consider additional levels for seasonal freshet conditions.	4	In Progress Before end of 2022.
		inspection resulted in no dam safety concerns.		Establish snowpack monitoring stations to investigate the impact between snowmelt and the North Dam foundation pressures.		
			2022 Red	commendations		
Tailings Cover	2022-2	An erosion gully is present in the reclamation cover north of the SRS pond that has eroded through the cover and has exposed geotextile.	OMS Section 5.2.1	Shape the erosion gully to form a channel with a nominal amount of fill overtop of the base of the gully. Armour the gully with a layer of geotextile and riprap.	4	New Before end of 2024.
North Dam	2022-3	Drainage channel blockages on the tailings cover during snowmelt results in the formation of a pond adjacent to the North Dam. In 2022, the pond overtopped the North Dam and formed an erosion gully that required repairs.	OMS Section 5.2.1	Modify the dam to eliminate the risk of future erosion events. Due to limitations in the tailings cover thickness, increasing the grade of the cover drainage channels is not possible without exposing tailings. As a result, raising the dam to increase the freeboard is recommended.	2	New Before end of 2024.

Structure ID No.	Deficiency or Non-Conformance	Applicable Regulation or OMS Reference	Recommended Actions	Priority (Table 7.1)	Recommended Deadline / Status
North Dam 2022-4 As and Tailings Cover	above	OMS Sections 5 and 6	Modify the TMA maintenance and surveillance programs in the OMS Manual to include monitoring for the development of a pond against the North Dam and maintenance to clear drainage pathways on the tailings cover during the snowmelt period. The modifications should include use of satellite monitoring to track pond development, an additional site inspection in early-May to establish site access and clear a drainage path to the south. As a contingency, a plan should be developed for the mobilization of a pump and associated equipment to pump the ponded water downstream of the North Dam. The OMS Manual should also be updated to include the as-built information from the North Dam erosion gully repairs as outlined in Section 6.4.	2	New Before end of Q1 2023.

Table E2: General Description of Priority Rankings

Priority	Description
1	A high probability or actual dam safety issue considered immediately dangerous to life, health or the environment, or a significant regulatory concern.
2	If not corrected, could likely result in dam safety issues leading to injury, environmental impact or significant regulatory action; or, a repetitive deficiency that demonstrates a systematic breakdown of procedures.
3	Single occurrences of deficiencies or non-conformances that alone would not be expected to result in dam safety issues.
4	Best Management Practice as a suggestion for continuous improvement towards industry best practices that could further reduce potential risks. This typically includes ongoing construction items within the appropriate construction cycle.

Notes: Based on the Health, Safety and Reclamation Code (HSRC) for Mines in British Columbia.

1. Introduction

1.1 Purpose, Scope of Work, and Methodology

SRK Consulting (Canada) Inc. was retained by Teck Resources Limited (Teck) on behalf of the Sä Dena Hes Operating Corp to complete the Annual Facility Performance Report (AFPR) of the closed Sä Dena Hes mine located near Watson Lake, Yukon.

The site inspection was completed was completed on August 16 and 17, 2022 by Peter Mikes, P.Eng., and Kisa Elmer, P.Eng., of SRK while accompanied by Jeff Basarich (Teck). Peter Mikes has filled the role of Engineer of Record (EOR) for the TMA since 2021. The Responsible Tailings Facility Engineer (RTFE) is Morgan Lykpa, P.Eng. (Teck) who has filled this roll since 2019. Ms. Lypka was unavailable for the site inspection in 2022 but was consulted in follow-up discussions from the visit.

This report presents the results of the 2022 AFPR for the period of September 2021 through August 2022 (reporting period) and includes the following structures and features:

- The Tailings Management Area (TMA) that includes:
 - The North Tailings Dam
 - Till Tailings Cover
 - North and South drainage channels
 - Sediment Retaining Structure (SRS)
- The North Creek Channel that was reclaimed following decommissioning of the North Creek Dike and Second Crossing of North Creek
- The relocated Camp Creek drainage channel
- The Burnick, Main Zone and Jewelbox Waste Rock Dump areas

The scope of the work consisted of:

- A visual inspection of the physical condition of the structures and features to identify any deficiencies and non-conformances:
- A review of the Operation, Maintenance and Surveillance Manual (OMS) and the Emergency Response Plan for the TMA as documented in Mine Emergency Response Plan (MERP)
- A review of the potential consequences of failure
- A review of the routine site inspection forms provided by Teck
- A review of the piezometer and settlement records of the North Dam provided by Teck

1.2 Regulatory Requirements and Guidelines

The site is regulated under Quartz Mining Licence QML-0004 and management of water is regulated by Water Use Licence QZ16-051. Both licenses approved the "Detailed Decommissioning and Reclamation Plan (DDRP) prepared by Teck (2015) that was implemented in 2014. While this report focuses on the TMA and associated water management infrastructure, the waste rock dump areas are also included in the inspection in accordance with Clause 45 of the water license.

This report reviews the performance of the facilities relative to the following:

- Guideline for Tailings and Water Retaining Structures (Teck 2019)
- Dam Safety Guidelines (CDA 2013)
- Technical Bulletin: Application of Dam Safety Guidelines to Mining Dams (CDA 2019)
- Developing an Operation, Maintenance, and Surveillance Manual for Tailings and Water Management Facilities (MAC 2021)

The site is also working towards a "landform" status and eventual "safe closure" per the GISTM with all failure modes being reduced to non-credible as per the Executive Summary.

2 Background

2.1 Facility Description

2.1.1 Overview

This section provides a description of the components remaining at the mine site after decommissioning in 2014 and 2015. A map showing the overall mine site is provided on Figure 1 with a general arrangement map of the TMA provided in Figure 2.

2.1.2 Tailings Management Area

The original TMA which extended from the North Dam to the South Dam covered an area of approximately 0.2 km². During the operating life of the mine, approximately 700,000 tonnes of tailings (400,000m³ based on tailings density of 1.8 tonnes/m³) were deposited into the impoundment, primarily at the northern end.

The tailings at the northern end of the TMA are retained by the North Dam. The North Dam is approximately 15 m high with a crest elevation of 1,100 m, a crest length of about 260 m, and a crest width of 10 m. A site plan and section through the dam are shown in Figures 3 and 4. The dam is an earthen, zoned embankment structure constructed between July 1990 and October 1991 in a single stage.

Most of the tailings are within the northern half of the TMA, north of the original cofferdam that was removed in 2014. The tailings behind the North Dam were capped with a till cover in 2014 to provide a means of controlling wind erosion of tailings to provide a growth medium of the tailings for revegetation. The cover thickness varies between approximately 0.4 m and 2.2 m and was constructed of excavated dam fill material. The cover was sloped away from the crest of the North Dam in a southerly direction towards the SRS. Water is no longer regularly impounded behind the dam. A shallow swale was constructed down the middle of the cover to direct surface runoff on the cover to the SRS.

The SRS was constructed in 2014 by leaving in place a low-profile dike composed of the former South Dam. The SRS is considered temporary and Teck plans to remove the structure in the future. The primary function of the SRS is to retain any sediment that may be transported from the till cover over time. The SRS is approximately 7 m high, with a crest length of about 80 m and crest width of 4 m. The depth of water behind the structure is a maximum of about 1.7 m. An emergency spillway was constructed through the SRS to convey flows from the upstream catchment to the South Drainage Channel. The as-built spillway and drainage channel geometries are presented in Figures 5 and 6.

2.1.3 Tailings

The mineralization at Sä Dena Hes is characterized by zinc and lead sulphides with low concentrations of iron sulphides in association with abundant carbonates. Therefore, acid generation will not occur.

Zinc, cadmium and lead leaching are controlled by the oxidation of sphalerite (Zn, Cd) and galena under pH-neutral atmospheric conditions. Breakdown of sphalerite is apparent throughout the site. Acceleration of sphalerite oxidation is not expected in the absence of a mechanism to lower pH. Zinc and cadmium leaching will continue but is not expected to accelerate. Most sources will continue to leach zinc and cadmium at the current rates (Teck 2015).

2.1.4 Water Management Infrastructure

Overview

Three drainage channels were built as part of the 2014 TMA decommissioning (Figure 9). The longest of the three was constructed through the former Reclaim Dam and the pond area to route Camp Creek flows along its historical alignment. The other two drainages (the North Channel and the South Channel) were constructed to direct runoff from the covered tailings areas to the new Camp Creek Drainage Channel. There is also a drainage channel located down the middle of the cover that directs runoff from the tailings cover at the northern end of the TMA.

South Drainage Channel

The South Drainage Channel was constructed from the SRS spillway through the former South Dam and connects with the Camp Creek Drainage Channel. The channel length is about 230 m and it was installed with riprap erosion protection placed on top of a non-woven geotextile (Figure 10). The channel is designed for the 1 in 1000-year, 24-hour Inflow Design Flood (IDF). Upstream and downstream side slopes are 2H:1V. Average grade of the channel is 4%.

Camp Creek Drainage Channel

The Camp Creek Drainage Channel was constructed through the former Reclaim Dam and pond area to route Camp Creek flows along its historical alignment (Figure 9). The channel length is about 940 m and it was installed with riprap erosion protection placed on top of a non-woven geotextile (see Figure 8). The channel is designed for the 1 in 1000-year, 24-hour IDF. Upstream and downstream side slopes are 2H:1V. Average grade of the channel is 5%.

North Diversion Channel

The North Diversion Channel was constructed along the east side of the former South Pond to divert as much runoff as possible away from the tailings and soil cover during the first few years after the cover placement. Conveyed water is detained in the SRS to allow for sediments to deposit before the water is discharged into Camp Creek (Figure 11). The channel length is about 300 m and it was installed with riprap erosion protection placed on top of a non-woven geotextile. The channel is designed for the 1 in 1000-year, 24-hour IDF. Upstream and downstream side slopes are 2H:1V. Average grade of the channel is 3%.

North Creek

During operation of the mine, a dike was built over the North Creek as a water storage facility for the mill. The dike (see Figure 1 for location) was decommissioned in 2015 and a riprapped channel was built through the old dike to convey the flow along North Creek to False Canyon Creek. A similar channel was also built downstream to convey the North Creek flow through a decommissioned access road.

2.1.5 Waste Rock Dumps

During operation of the mine, waste rock dumps were developed at each of the main portals, associated with the Main Zone, the Jewelbox Zone and the Burnick Zone ore bodies (Figure 1). At closure, the portals were closed off with waste rock, and the dumps were resloped to direct runoff away from the openings and to provide more stable conditions.

2.2 TMA Design Basis

Table 2.1 on the following page provides the relevant design criteria adopted for the TMA decommissioning in 2014 and 2015 (SRK 2013).

Teck has since advised that they are aligned with the most conservative interpretation of the Global Industrial Standard on Tailings Management (GISTM) (ICMM 2020), which in turn, is consistent with their safety culture. Commensurately, Teck has advised that consequence classification is not a part of their management governance going forward and has asked that it not be reported in this AFPR. Instead, they intend to adopt the extreme consequence case design loading for any facility with credible flow failure modes. For facilities without a credible failure mode in terms of a life safety issue, Teck indicates they will reduce credible risks to As Low As Reasonably Practical (ALARP). This consequence case applies for both earthquake and flood scenarios for all tailings facilities, consistent with the GISTM.

2.4 Summary of History

The Sä Dena Hes mine was constructed in 1991 and operated for a 16-month period between August 1991 and December 1992. The Sä Dena Hes Operating Corporation (SDHOC) purchased the property from Curragh Resources Inc. in March 1994. The Sä Dena Hes Mining Corporation (the Company) is a joint venture between Teck Resources Limited ("Teck" - 50% ownership) and Pan Pacific Metal Mining Corp (50% ownership, a wholly owned subsidiary of Korea Zinc.) Teck is the operator and manages the property under the joint venture agreement.

In 2014 and 2015 the mine site was closed and decommissioned in accordance with the DDRP (Teck 2015). The decommissioning and reclamation activities consisted of:

- Removal of the South and Reclaim dams
- Relocation of the existing Camp Creek Diversion to its original creek alignment

- Construction of the SRS at the toe of the removed South Dam
- Construction of ancillary riprap lined drainage channels
- Placement of the till cover over the tailings that would remain stored on site behind the North Dam
- Dismantling, decommissioning, and disposal of all site infrastructure including the mill
- Regrading and capping of the waste rock dump areas
- Landforming and capping of the mill area and other site disturbances
- Decommissioning of site access roads
- Revegetation (scarification, tree planting and seeding)

Table 2.1: TMA Design Criteria

Parameter	North Dam	SRS		
Inflow Design Flood (IDF				
Minimum AEP	1/3 between the 1,000-year event and the PMF	1 in 1,000-year event		
IDF Peak Flow (m ³ /s)	Not applicable (no spillway).	5.4		
Freeboard				
Minimum operating freeboard	Not applicable	1.0		
Freeboard during passage of IDF	(no water impounded)	0.5		
Seismic Event				
Minimum AEP	1 in 2,475-year event	1 in 1,000-year event		
PGA (g)	0.20 g	0.073 g		
Slope Stability Factors of Safety (FC	PS)			
Static	1.5			
Pseudo-static	1.0			
Post-earthquake	1.2			

Notes:

¹ AEP = Annual exceedance probability

² PMF = Probable maximum flood

³ PGA = peak ground acceleration

3 Surveillance and Maintenance during Reporting Period

The TMA is a closed facility. Teck conducts on-going maintenance and surveillance of the TMA and the water management infrastructure at the site including the access road from the Robert Campbell Highway as per the Sä Dena Hes OMS Manual (Teck 2021). Considering the erosion event at the North Dam in 2022 (Section 3.2), active management is needed during the snow melt period to manage melt water near the North Dam as described in Section 7 Recommendations.

3.1 Surveillance

Routine visual inspections are completed by the Site Caretaker in the spring and the fall, with an additional summer inspection (this report) completed by an engineer (EOR for the TMA). The fall 2021 inspection was completed concurrently with the 2021 EOR inspection on September 22, 2021 and the spring inspection was completed on June 29, 2022. The spring 2022 routine inspection form is provided in Appendix E. The 2022 fall inspection was completed on October 13, 2022 (after the reporting period of this report) with the results to be included in the 2023 AFPR.

Water quality sampling is completed bimonthly, which includes monitoring of seepage at the toe of the North Dam. During the site visits by the sampling team, inspections of the North Dam and the SRS spillway are made to check for any blockages or subsidence.

3.2 North Dam Erosion Maintenance Event

On June 17, 2022, during a site visit by the site caretaker, an erosion gully was observed on the North Dam that required repairs. The North Dam repairs occurred between June 23 and 28, 2022. The initial site visit was completed to assess site access prior to the June water quality sampling campaign. The observation of the gully prompted the initiation of the emergency response procedures as per the Mine Emergency Response Plan (MERP), that included the EOR's site presence and guidance throughout the repairs.

Based on SRK's current understanding of the dam construction, foundation, seepage, site topography and weather observations, the following describes the erosion mechanism that SRK judges to be most likely:

Surface water from melting snow was confined within the northern tailings management area due to ice/snow blockages in drainage channels to the south and a snow cornice that developed along the dam crest. As snow continued to melt, the pond reached a critical level with water migrating through the snow and ice to eventually erode a channel through the dam within a rapid timeframe (sometime between June 1 and June 7 based on satellite imagery). Once the pond had drained, the erosion discontinued.

The potential contributing factors to the erosion event and supporting evidence are provided in as follows:

- Extreme snowpack: At the start of May 2022, the average snow water equivalent (SWE) in the Liard River basin was the highest snowpack on record for this time of the year with records dating back to 1980 (YG 2022).
- Rapid Snowmelt: Snowmelt at site typically occurs in May and early June. May temperatures were slightly higher than normal, with significantly higher temperatures between May 31 and June 8. Watson Lake Airport daily maximum temperatures ranged between 19°C and 25°C during this period. Satellite imagery at this time shows extensive snow coverage in the TMA on May 22 and general snow-free conditions on June 7, 2022.
- Ponding water within the TMA adjacent to the North Dam: Satellite Imagery (Appendix B) shows a pond developing against the North Dam in late May. A review of historical satellite imagery shows a pond also developed in 2020 and 2021, indicating that the pond formation may be an annual occurrence during snowmelt.
- Drainage blockages to the south: A survey of the tailings cover on June 20, 2022 (Figure 4) shows drainage channels on the cover surface that are intended to direct snowmelt and precipitation to the south and away from the dam. Within 250 m of the dam, the channel has minimal positive drainage with ponded water present in the channel bottom throughout most of the year. Due to the shallow grade and slow flow velocity, the channels may be prone to blockages from ice and/or snow.
- **Limited Freeboard**: The tailings cover ties-into the downstream dam crest resulting in an approximate 0.3 m freeboard across the dam crest in the area of the gully.
- Snowdrift and development of a cornice at the North Dam: There is a prevalent northernly wind at the TMA that results in the drifting of snow to the north and the development of a cornice at the North Dam as evidenced by site observations and satellite imagery (Appendix B).

Extreme rainfall and internal erosion are not believed to be factors in the initiation of the erosion gully. The highest 24-hour rainfall measured at the Watson Lake Airport between June 1 and 9, was 9.3 mm on June 8 (after the overtopping event). The second highest event was 0.6 mm on June 6. Internal erosion is not believed to be a factor in the gully formation as the embankment pore pressures were typical and the gully did not appear to extend into the foundation during the embankment repairs.

The erosion gully was located approximately 155 m from the west abutment of the dam, or 30 m east of Settlement Gauge NDS-3. A plan showing the erosion gully location and cross section is provided in Figures 4 and 5. The gully was U-shaped with near vertical side-walls. The size of the gully was more pronounced within the "Sand and Gravel" embankment fill downstream of the dam crest, with the appearance of a plunge pool that suggests waterfall erosion and the release of pooled water from the TMA. The typical gully width within the "Sand and Gravel" fill ranged between 3 m and 7.5 m, with a depth of up to 4 m immediately below the downstream crest. The erosion was less through the till zones across the dam crest with a typical width of 3 m and depths ranging from 1 m at the upstream crest to 3 m at the downstream crest. A minor amount of cover material also eroded with no tailings were visible within the eroded area. The total volume of displaced material was approximately 415 m³.

The eroded material flowed to the valley bottom, with most of the displaced mass retained above the MH-02 seepage monitoring station (located approximately 35 m downstream of the dam toe), with minor amounts of sediment deposition visible at the outlet of the former eastern diversion channel.

Photos of the erosion gully and its repair are provided in Appendix C, with as-built repair drawings provided in Figure 6. Sand and Gravel material from the vertical gully side-slopes were excavated and placed at the base of the gully to create a drainage layer. The remainder of the gully was filled with a well graded sandy till sourced from a decommissioned access road located immediately to the west of the TMA. The layer of geotextile was installed as a separated layer between the two fill types. In addition, a 0.5 m thick and 2 m wide French Drain was installed at the base of the gully near the dam toe after a small seep was encountered during excavation of the erosion debris.

An as-built report of the gully repairs has been prepared (SRK 2022) that documents the site observations, contributing factors to the event, construction procedures, QA/QC activities, as well as short-term and long-term recommendations. Following the August 17, site inspection, a number of the short-term recommendations have been implemented, with the installation of jute netting, erosion control blankets, and seeding of the repair areas completed in early October 2022. The remaining short-term recommendations are included within Section 7.5 of this report.

4 Climate Data and Water Balance

4.1 Review and Summary of Climate Data

This section presents the current climate data for the site. As there is no weather station at the site, data from select local meteorological stations were used to determine temperatures, mean annual precipitation, and evaporation for the site. Regional and regression analyses were carried out by SRK to develop correlations from the available data to the site in absence of any site-specific data. Details of the correlation development are provided in SRK (2018).

Table 4.1 presents a comparison of the estimated climate conditions from September 2020 through August 2021 compared to average values. Mean site temperatures are estimated to be 3.5 °C cooler than temperatures at the Watson Lake Airport. The regression analysis predicted a Mean Annual Precipitation (MAP) for the site of 646 mm based on an elevation of 1080 m.

Table 4.1: Site Climate Data (September 2021 through August 2022) compared to Climate Averages

	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Annual
Normals													
Daily Max. Temp [°C]	8.4	-0.4	-13.1	-18.0	-20.2	-12.3	-5.3	1.3	8.1	14.2	17.1	14.5	-0.5
Daily Min. Temp [°C]	-2.3	-10.1	-24.4	-27.9	-31.3	-28.2	-22.6	-13.2	-3.2	1.7	5.3	3.7	-12.7
Daily Mean Temp [°C]	3.0	-5.3	-18.7	-22.9	-25.7	-20.3	-14.0	-6.0	2.5	7.9	11.2	9.1	-6.6
MAP (Site) [mm]	71.7	75.6	58.8	64.6	58.1	49.1	39.4	23.9	33.6	47.8	60.7	63.3	646
Lake Evap. (Site) [mm]	10.4	8.4	18.2	41.4	75.5	96.9	99.5	71.6	33.4	11.0	7.2	9.7	483.2
Reporting Period (September 2021 through August 2022)													
Mean Temp [°C]	3.8	-3.0	-16.6	-32.7	-24.1	-19.6	-12.9	-7.4	2.4	11.0	13.0	11.8	-6.2
Precipitation [mm]	34	14	147	94	160	110	74	10	28	90	42	37	830

Source: file: https://srk.sharepoint.com/sites/FS261/Internal/Monitoring%20Data/Climate/WatsonLake_Precip_rev01.xlsx?web=1

The Watson Lake A station was used as the reference station for 2021 and 2022 data as it is the most representative station close to the site that is currently active. Total precipitation recorded at Watson Lake Airport (Climate ID: 2101204) from September 2021 through August 2022 was reported as 517 mm. Using the undercatch correction factor of 1.13 (SRK 2018), total corrected annual precipitation at Watson Lake for the same period was 584 mm. A 1.42 ratio was applied to convert the corrected Watson Lake Airport precipitation to a representative site precipitation based on the regression analysis (SRK 2018) to result in a total precipitation of 830 mm for the site during the reporting period.

The climate data indicates that precipitation was higher than the average (28% higher) with over two times the normal precipitation during the winter (November 2021 through March 2022) when 585 mm of precipitation occurred compared to a normal precipitation of 270 mm. The high winter precipitation resulted in an extreme snowpack, which as noted in Section 3, at the start of the 2022 freshet (May

2022), the average SWE in the Liard River basin was the highest snowpack on record with records dating back to 1980 (YG 2022).

4.2 Review of Water Balance and Freeboard

SRS

The SRS Pond has a maximum surface area of about 1,600 m² during the freshet high flow period. The catchment area for the SRS spillway is 1.33 km² as shown on Figure 12.

A simplified mean annual average water balance calculation for the catchment above the SRS is summarized in Table 4.2 based on data compiled for the recent SRK hydrological study (SRK 2018), the estimate of the site MAP during the reporting period (September through August), and the following assumptions:

- Inflow from the surrounding hillside catchment (1.17 km²) based on a runoff coefficient of 0.60
- Inflow from the tailings till cover (0.16 km²) based on a runoff coefficient of 0.50
- Direct precipitation input to the SRS pond (0.0016 km²)

Outflow from the SRS pond is calculated as the difference between pond inputs and outputs based on the following assumptions:

- Historical mean annual pond evaporation of 483 mm
- Seepage losses estimated at 0.5 L/s

Table 4.2: TMA Water Balance

Item	Units	Mean Annual	2019-2020	2020-2021	2021-2022
Precipitation	mm	646	491	519	830
Mean annual lake evaporation	mm	483	483	483	483
Mean annual run-on from the hillside catchment above the SRS	m ³	453,492	344,687	364,057	582,660
Direct Precipitation on the SRS pond surface	${\sf m}^3$	1,034	786	830	1,328
Mean annual runoff from tailings cover material	m^3	50,388	38,299	40,451	64,740
Total Annual Inflow	${\sf m}^3$	504,914	383,772	405,338	64,740
Annual pond evaporation losses	m^3	773	773	773	773
Seepage losses	m^3	15,768	15,768	15,768	15,768
Net Annual Discharge Volume over spillway	m^3	488,373	367,231	388,797	632,187

Sources: https://srk.sharepoint.com/sites/FS261/Internal/Site%20Water%20balance/2019-2020%20Water%20Balance%20SDH.xlsx?web=1

Note: The time period for each column is September through August.

The SRS was designed to convey the 1 in 1,000-year flood event while maintaining 1 m of freeboard to the crest of the dike. The climate data review found no indication of an extreme precipitation event that would have compromised the design freeboard during the past year.

North Dam

The tailings behind the North Dam were capped with a till cover in 2014 with the cover tied into the upstream crest of the dam. The cover was sloped to drain water away from the crest and towards the SRS to the south. A shallow swale (Main Drainage Channel) was constructed down the middle of the cover to direct the surface runoff on the cover to the SRS. As shown in Appendix B, satellite imagery shows that a pond develops annually during the snowmelt period adjacent to the dam that is believed to be primarily caused by restricted drainage to the south, likely due to snow and/or ice blockages. As described in Section 3, an overtopping event occurred sometime between June 1 and June 7, 2022 that resulted in the formation of an erosion gully through the dam.

Prior to the erosion event, the as-built survey of the tailings cover showed that there was a 0.3 m freeboard across the North Dam crest in the gully area. During the gully repairs, the crest in the area was graded with the 3-5% grade to drain to the south away from the dam with the downstream crest raised by approximately 0.5 m (SRK 2022). The new low point in the downstream crest is located immediately east of the repair area and is 0.2 m higher than the low point in the downstream crest prior to the repair. While the dam freeboard has slightly increased, it remains vulnerable to a similar overtopping event in the future. Remedial actions to increase the North Dam freeboard have been recommended (refer to Section 7.5).

4.3 Water Discharge Quality

The surface water quality discharging from the TMA is currently monitored bi-monthly under the Yukon Water License QZ16-051. The groundwater quality is currently monitored under the same license. Water quality results are submitted to the Yukon Water Board as part of the Annual Water Licence Report in March the year following the operational period covered.

5 Site Observations

5.1 Visual Inspection

Weather during the August 16 and 17, 2022 site inspection was mostly sunny with temperatures ranging between approximately 8°C and 23°C. Minor precipitation occurred overnight between the 16th and 17th. The ground surface was free of snow and dry, with some damp areas on the tailings cover on the August 17.

Site observations are provided in the following subsections. Select photographs taken during the inspection are provided in Appendix A. The start of Appendix A also includes figures that provide the photograph locations and a tracklog of the inspection route.

5.1.1 TMA Drainage Channels

The three riprapped drainage channels (North Diversion Channel, South Drainage Channel, and the Camp Creek Channel) were constructed during the TMA decommissioning in 2014. Table 5.1 provides the inspection observations along with references to corresponding photographs and applicable recommendations. Figure 9 provides a plan view of the channels.

Table 5.1: TMA Drainage Channel Observations

Channel	Observation	Figure (App. A)	Photo	Associated Recommend -ation
North Diversion Channel	■ The condition of the channel is unchanged compared to the 2021 inspection. The channel is in good condition with no signs of major subsidence of movement of the riprap erosion protection.	A-8	DC-04	n/a
South Diversion Channel	■ The condition of the channel is unchanged compared to the 2021 inspection. The channel is in good condition with no signs of major subsidence or movement of the riprap erosion protection.	A-7, A-8	DC-01, DC-03	n/a
	■ As noted in the 2021, minor cracking is present parallel to the channel that was typically offset from the crest by 1 to 2 meters. The cracking is suspected to have resulted from frost heave and does not impact channel performance.			n/a
Camp Creek Channel	The Camp Creek Channel is in good condition with no signs of major subsidence or movement of the riprap erosion protection.	A-7,	DC-01, DC-02	n/a

5.1.2 North Creek

The 2015 site reclamation works included decommissioning of culvert crossings of North Creek at three locations: the access road to the Burnick Zone, the North Creek Dike, and the access road to the landfill area. Table 5.2 provides the inspection observations along with references to corresponding photographs and applicable recommendations.

Table 5.2: North Creek Observations

Observation	Figure (App. A)	Photo	Associated Recommend -ation
■ New channel erosion observed across the decommissioned access road to the Burnick Zone. In the 2021 inspection, subsidence of the south slope of the road crossing was observed with the erosion protection material in good condition (jute netting and riprap). In the 2022 inspection, the south slope was in similar condition, but new erosion observed on the north bank, along with some displacement of the erosion protection riprap and exposing of the underlying geotextile. Seepage was observed entering the channel on the north bank with rusty reddish coloured staining. The creek will continue to erode this section of the channel area but will eventually sustain itself with no intervening maintenance required.	A-9	NC-01, NC-02	n/a
A beaver dam is present at the upstream end of the decommissioned North Creek Dike structure. A beaver dam was previously removed in 2020, with no dam observed in 2021.	A-10	NC-03	2022-1
■ No change in condition was observed of the channel erosion at the downstream end of the decommissioned North Creek Dike Structure. The creek will continue to erode this section of the channel area but will eventually sustain itself with no intervening maintenance required.	A-10	NC-04	n/a
■ At the landfill area road crossing, erosion of the road fill on the north side of the channel is ongoing. Additional sloughing of the bank has occurred since the 2021 site inspection. Like the other North Creek crossing locations, the creek will continue to erode this section of the channel area but will eventually sustain itself without maintenance. No remedial action is required.	A-11	NC-05, NC-06	n/a

5.1.3 North Dam

A site plan and a section of the North Dam are presented on Figures 3 and 4. Table 5.3 provides the inspection observations along with references to corresponding photographs and applicable recommendations.

Table 5.3: North Dam Observations

Observation	Figure (App. A)	Photo	Associated Recommend -ation
The crest of the North Dam is in good condition and shows no signs of deformation or abnormal settling.	A-12, A-13	ND-01, ND-04	n/a
■ The downstream slope shows no signs of mass deformation nor is there any sign of bulging at the downstream toe. While there are a few shrubs and small trees on the slope, no excessive vegetation growth beyond the guidelines in OMS Manual was noted.	A-12, A-15	ND-01, ND-07	n/a
■ The downstream slope in the erosion gully repair area consisted of bare soil and was prone to erosion. Since the inspection, jute netting (like that at the SRS) was installed on the downstream dam slope with additional erosion control blankets along the dam crest in the affected area, with the entire area newly seeded. These additional remedial actions were completed in early October.	A-12, A-13	ND-01, ND-03	n/a
■ Historical areas of exposed wind-blown tailings are present in the downstream dam face where no vegetation is present. The tailings were present prior to remediation of the site in 2015 and with the human health and ecological risk assessment (part of the DDRP (Teck 2015)) determining that risk management of the area was considered acceptable as opposed to remediation.	A-13	ND-03	n/a
■ The piezometers and settlement gauges on the North Dam are in good condition and continue to function as designed. The PVC pipe at NDW-4A extends above the protective casing and is prone to damage and weathering. A remedial action is included in the Section 7 recommendations.	A-12, A-14	ND-01, ND-05	2021-2
■ Seepage downstream of the dam is collected at a monitoring station referred to as MH-02 and is a combination of groundwater discharge from the surrounding hillsides to the west and minimal seepage flow from the impoundment. The small pond upstream of the monitoring pipe has filled in with debris from the North Dam erosion event but remains functional. Seepage was clear at the time of the inspection. No change in the flow rate or consistency of the flow was noted during the site visit or during the routine site inspections and water quality sampling.	A-14	ND-06	n/a
Along the downstream toe of the North Dam there is an 80 m long seepage zone. The seepage pathway has established overtop of the erosion debris. Seepage at the toe of dam was observed to be clear.	A-15	ND-08	n/a
■ The till borrow area used for the erosion gully repairs is located approximately 80 m south of the west abutment of the dam on a decommissioned access road. At the time of the inspection, decommissioning of the borrow was partially completed with half of the slopes graded and landformed. Since the inspection, the remaining slopes have been regraded, and all disturbed areas have been seeded.	A-12	ND-02	n/a

5.1.4 Sediment Retaining Structure

Figures 5 and 6 provide a site plan and sections of the SRS. Table 5.4 provides the inspection observations along with references to corresponding photographs and applicable recommendations.

Table 5.4: SRS Observations

Observation	Figure (App. A)	Photo	Associated Recommend -ation
■ The condition of the SRS is unchanged compared to the 2021 inspection. A minor amount of seepage was observed at the SRS toe east of the spillway that is consistent with previous years observations.	A-18	SRS-05, SRS-06	n/a
The rock cofferdam and the sedimentation pond are functional. The sedimentation pond was clear at the time of our inspection with no evidence of any sediment buildup.	A-16	SRS-01, SRS-02	n/a
■ The SRS spillway is stable with no apparent riprap displacement.	A-17	SRS-03, SRS-10	n/a
■ A transverse crack is present across the dam crest approximately 1 m east of the spillway. The crack was first observed in 2021 and is believed to be caused by frost heave. The depth of the crack is unknown but is not likely to extend deep enough to act as a preferential seepage pathway through the structure.			n/a
■ The east crest of the spillway also appears to be lower in elevation compared to the west crest of the spillway; however, a comparison of previous inspection photos shows no visible change in ground conditions. No actions are recommended as the structure is considered temporary, with Teck planning to remove the structure in the future.	A-16	SRS-02	n/a

5.1.5 Tailings Cover

Table 5.5 provides the inspection observations related to the TMA cover along with references to corresponding photographs and applicable recommendations.

Table 5.5: Tailings Cover Observations

Observation	Figure (App. A)	Photo	Associated Recommend -ation
■ The till tailings cover has overall downward gradient away from the North Dam. Near the North Dam, three small puddles were observed due to recent precipitation. These puddles were created because of truck trafficking during the North Dam repairs in June 2022. No remedial action is required.	A-19	TC-01	n/a
■ The swale constructed within the cover to assist in directing runoff away from North Dam was clear of any debris or vegetation and functional. Small areas of ponding water were observed where there is no positive gradient along the channel.	A-20	TC-03	n/a
Vegetation is slowly developing over the entire area of the cover and is more developed along the east, west and south edges of the cover.	A-19, A- 20, A-21	TC-01 to TC-04	n/a
■ An erosion gulley is present in the reclamation cover immediately to the north of the SRS Pond that is approximately 20 m long, 0.5 m wide and up to 1 m deep. The gully was observed during the 2021 inspection but appears to have increased in size in the past year. Several areas of	A-21, A- 22	TC-06, TC-07, TP-08	2022-2

Observation	Figure (App. A)	Photo	Associated Recommend -ation
exposed geotextile were observed with no signs of tailings. This area of the cover was placed due to elevated metal concentrations within the pond, but based on historical aerial photographs, it is not located in an area where tailings deposition occurred. A remedial action is included in the Section 7.5 recommendations.			

5.1.6 Burnick, Jewelbox and Main Zone Waste Rock Dumps

The Burnick, Jewelbox and Main Zone Waste Rock Dump (WRD) areas were reclaimed in 2015 with the mine openings sealed and the dumps resloped and covered to provide more stable conditions. The conditions of the WRDs were mostly the same largely the same as those observed during the 2021 inspection. Table 5.6 provides the inspection observations along with references to corresponding photographs and applicable recommendations. Figures 13 and 14 provides a plan view of the Burnick Zone, and Main Zone/Jewelbox Zones, respectively.

Table 5.6: Waste Rock Dump Area Observations

Area	Observation	Figure (App. A)	Photo	Associated Recommend -ation
Burnick	■ The regraded fill over the 1200 Portal is in good conditions and the portal drainpipe is functional. Minor settlement of the fill that was placed over the 1200 portal has resulted in a settlement crack in the fill. This crack was noted in previous inspections. No action is required.	A-31	WR-17, WR-18	n/a
	■ The regraded waste rock in the 1300 Portal area is also in good condition with no signs of deformation. The 1300 Portal drainpipe is functional with no flow observed.	A-32	WR-19, WR-20	n/a
Jewelbox / Main	At the low point of the Jewelbox waste rock dump, the 2 to 3 m deep erosion gully that has been monitored over the last	A-24	WR-03, WR-04.	n/a
Zone	few years showed some additional deterioration since last year. The base of the gully is primarily situated in bedrock. The sidewalls of the gully are near vertical and prone to further erosion. There is no impact on the stability of the dump and no action is required.	A-25	WR-05	
	■ Water that flows down the gully mentioned above, crosses the decommissioned access road to the waste rock area at four locations. Erosion gullys were noted at the upper three crossings that are up to 0.3 m deep. These gullys appear to be self-armouring and no action is needed at this time.	A-23	WR-01, WR-02	n/a
	■ Surficial sloughing of the soil cover is located downslope of the 1408 Portal. The circular sloughs are typically 0.3 m deep and resulted in bulges at the slough toe. There is no impact on the overall dump stability and no action is required.	A-26	WR-08	n/a
	■ The 1408 Portal drainpipes and the vent pipe in the 1408 Portal area are in good condition.	A-27	WR-09, WR-10	n/a

Area	Observation	Figure (App. A)	Photo	Associated Recommend -ation
	Rill erosion in the soil cover is present at the south end of the 1408 Portal WRD where the slope is approximately 2H:1V. The condition of the rill erosion appears unchanged compared to the 2021 inspection and no action is required.	A-28	WR-12	n/a
	■ Two to three shallow openings were observed in the pit wall at the Main Zone area. These openings may have been caused by internal subsidence but currently do not pose a safety concern. No action is required.	A-29	WR-13, WR-14	n/a
	A new erosion gully was observed in the Main Zone Pit backfill above the 1380 Portal. The gully is situated in waste rock and appears to be self-armouring with no significant catchment that reports to the gully at the upstream end. No remedial action is required.	A-30	WR-15, WR-16	n/a

5.2 Instrumentation Review

There are seven standpipe piezometers and three settlement gauges at the North Dam. The instrumentation locations are shown in Figure 3. All elevations are based on a datum that was established during a LiDAR survey carried out in 2012. The original site datum used to design and build the structures in the early 1990's was about 2 m lower than the 2012 datum. All previous inspection reports, prior to 2014, used the 1990 datum.

The current instrumentation monitoring system is adequate for the facility. The need for any additional instrumentation will be reviewed following credible failure modes assessment and TARP review that are currently in progress.

5.2.1 Water Levels

The water levels in the North Dam standpipe piezometers are manually recorded bi-monthly and the results are reviewed by the EOR after each monitoring session. Figures B-1 to B-4 in Appendix D provides a plot of seasonal water levels since 2012.

The piezometers are in good condition and continue to function as designed. The seasonal fluctuations recorded during the reporting period are consistent with those in previous years.

Piezometers NDW-1A and NDW-2A exceeded the 'minor risk alert level criteria' in the Trigger and Action Response Plan (TARP) during readings collected on June 17, 2021 (during the identification of the North Dam erosion (Section 3.2)). The same exceedances occurred during the 2020 and 2021 freshets and the exceedances are attributed to a deeper snowpacks than usual based on a review of YG snow surveys from these years. Subsequent readings collected during the North Dam erosion repairs indicated the freshet groundwater level peaked and was receding.

The minor risk alert level criteria for the piezometers were established based on a stability analysis sensitivity study (SRK 2019) to correspond to a condition when the stability factor of safety is equal to

1.5. Given that this criterion has been triggered at NDW-2A the last three years with no issues related to instability, a review of the trigger levels is recommended in Section 7.5.

5.2.2 Deformation/Settlement

Settlement gauge readings for the North Dam were collected between 1993 and 2020. The annual readings were discontinued after the 2020 readings as no unexpected settlement of the embankment has been observed over the 27-year monitoring period. The gauges remain in operational condition and are to be read following any major seismic event as per the OMS Manual. Figure B-5 in Appendix D provides the settlement gauge readings between 2015 and 2020 that show no significant elevation changes.

5.2.3 Discharge Flows

There is no discharge from the tailings surface behind the North Dam. There is seepage from the hillside to the west of the North Dam and minor seepage from the TMA which reports to MH-02. Runoff from the tailings cover is directed away from the North Dam towards the sedimentation pond located behind the SRS.

Outflows from the SRS are not measured.

5.3 Site Inspection Forms

Routine inspections of the TMA are made by the Teck Site Caretaker twice a year in the spring and the fall. No safety concerns related to the North Dam and the SRS were identified during review of the routine inspection forms. The Spring 2022 routine inspection form is provided in Appendix E.

6 Facility Safety Assessment

6.1 Hazards and Failure Modes Review

As a permanently closed site, structures that have the potential to endanger human life or create environmental damage were either removed or upgraded to enhance long-term physical stability.

Hazards that could manifest themselves were identified for the North Dam and SRS include runoff from extreme precipitation events, seismic events, ice-buildup and debris in the SRS spillway and Tailings Cover Drainage Channels, potential for liquefaction of the tailings, and flow capacity of the SRS spillway. This section reviews the hazards that have been identified for the North Dam and the SRS and provides an assessment of the safety of these structures relative to the potential failure modes listed in the CDA (2014) Technical Bulletin.

SRK understands that Teck's long-term goal for this tailings facility is to a state of safe closure that includes reaching landform status with all potential failure modes being reduced to non-credible. The likelihood of the any credible failure mode at the site is extremely rare based on extreme consequence loading conditions and conservative assumptions. Further, there are no credible catastrophic failure modes present at the site. A catastrophic failure is a failure that results in a material disruption to social, environmental, and local economic systems (ICMM 2020). Whether the non-catastrophic failure modes are credible or non credible will be evaluated in 2022 and 2023 to verify or refine the conservative assumptions.

6.1.1 Dam Overtopping

North Dam

While the tailings cover is graded to allow water to drain to the south and away from the North Dam Crest, a review of publicly available satellite imagery between 2018 and 2022 indicates that water pools against the north dam during snow melt. The pooling is suspected to be caused by ineffective drainage to the south, likely due to the blockage of drainage channels due to snow and/or ice. Due to the limited freeboard, there is a risk that ponded water can overtop the dam in response to a rainfall event or snowmelt like that occurred in June 2022. Details of the erosion gully, including the initiation mechanism, potential contributing factors and subsequent repairs are provided in Section 3.

This overtopping mechanism was raised as a credible failure mechanism in the 2015 Dam Safety Review (DSR) (AMECFW 2016). In response to this concern, a hydrological study was completed (SRK 2018) to assess the likelihood of overtopping of the North Dam in the event of an extreme design flood event that conserved a blockage of the central main drainage channel. The results indicated that during the Probable Maximum Flood (PMF), the North Dam crest was not overtopped with ponded water reaching within a few centimetres of the dam crest and with water diverted around the blockage through a secondary drainage channel to the east. The study did not consider blockages within the secondary channel. Considering the 2022 overtopping event, the hydrological study is currently being revised to determine if additional freeboard is needed to prevent a similar future event.

As part of the dam repairs (Section 2), the dam crest within the vicinity of the repair area was raised by approximately 0.5 m and the minimum crest elevation is now approximately 20 cm higher than it was prior to the gully; however, the dam remains vulnerable to future erosion events during future snow melt periods. Remedial actions to mitigate this risk are recommended in Section 7.5.

SRS

The spillway in the SRS is a riprap lined channel designed to convey the 1 in 1,000-year IDF with 0.5 m of freeboard. The spillway shows no sign of movement of the riprap and is functioning in accordance with the design parameters. The spillway and freeboard are effective controls to manage overtopping risks.

6.1.2 Internal Erosion

North Dam

The North Dam was built as a tailings retaining structure designed to allow seepage through the dam. The dam has three zones: an upstream low permeability compacted zone of silty till, a semi pervious compacted central zone of sandy till and a compacted outer downstream shell of pervious sand and gravel. Underlying the dam is a native sandy, gravelly silt (till). There are no indicators of fines being washed through to dam, although there is some seepage evident at the downstream toe. This seepage is mixed in with historical spring activity that was noted during the construction of the dam and the annual dam inspections. The tailings placed up against the upstream face of the dam have significantly reduced the seepage loss since initial construction.

The hydraulic gradient across the North Dam is in the range of 0.1 to 0.2. The dam material consists of a mixture of silty till to sandy till which is estimated to have a critical hydraulic gradient ranging from 1 to 1.3. The likelihood of internal erosion as a failure mode is considered to be extremely rare based on extreme consequence loading conditions and conservative assumptions. Whether this non-catastrophic failure mode is credible or non-credible will be evaluated over 2022 and 2023 and that work will verify or refine the conservative assumptions.

SRS

The SRS is an earthfill dam constructed of silty till that is classified as SM and ML as per to the Unified Soil Classification System. This material type is considered to have a low resistance to piping (Rivard 1981). A coarse rock seepage control layer is present east of the spillway while no seepage control is present west of the spillway. While seepage through the dike is barely measurable, there is one small boil that has been noted at the downstream toe of the SRS dike, but no loss of fines detected. The pond behind the SRS has a maximum depth of about 1.5 m and the average hydraulic gradient through the structure is 0.15. Based on the hydraulic gradient, material type, and guidance provided by Rivard (1981), internal erosion is plausible and should be monitored.

6.1.3 Slope Stability

North Dam

The most recent stability analysis for the North Dam was completed in 2017 and 2018 (SRK 2017, 2018) with the results shown in Table 6.2. The pseudo-static stability analysis completed for this study was based on the 2015 National Building Code Seismic Hazard Calculator (NBC SHC) that lists the 1 in 2,475-year peak ground acceleration (PGA) as 0.14 g (Site Class C). The PGA in the most recent 2020 NBC Seismic Hazard Calculator lists the 1 in 2,475-year PGA to be 0.164 g (Site Class C). The stability analysis results show that the North Dam is stable under both static and seismic assessments with the structure exceeding minimum target FOS requirements. Whether this non-catastrophic failure mode is credible or non-credible will be evaluated over 2022 and 2023 and that work will verify or refine the conservative assumptions. A site-specific seismic hazard assessment is currently in development that will be used to assess the credibility.

Table 6.1: North Dam Stability Analysis Results

Loading Condition	Target FOS	Calculated FOS	Reference
Long Term Static	1.5	1.6	SRK (2017)
Pseudo-Static	1.0	1.2	SRK (2017)
Post-earthquake	1.2	1.6	SRK (2018)

SRS

The most recent stability analysis of the current configuration of the SRS (SRK 2015) indicates that the structure meets minimum target FOS requirements under both static and pseudo-static conditions. The stability analysis results are provided in Table 6.3. The seismic calculation was completed using the full PGA value of 0.15 g (2010 NBC SHC), which was based on the target level for earthquake hazards suggested by CDA (2019) guidelines for a low consequence class dam in the passive care phase. It is also noted that the PGA based on the 2020 NBC SHC is now 0.10 g.

Table 6.2: SRS Stability Analysis Results

Loading Condition	Target FOS	Calculated FOS
Long Term Static	1.5	1.7
Pseudo-Static	1.0	1.2
Post-earthquake	1.2	1.6

6.1.4 Surface Erosion

North Dam

The erosion gully observed in June 2022 was caused by a release of ponded water from the TMA and is considered an overtopping failure mode (Section 5.2.1) and not a surface erosion failure mode. No other signs of surface erosion were observed at the North Dam.

Teck personnel conduct routine and event-driven inspections of the TMA and monitor the downstream dam slope for surface erosion caused by snow melt and rainfall runoff. The inspection frequency is considered appropriate to effectively monitor, track, and repair any erosion prior to any failure.

SRK completed a study (SRK 2018) to assess the erosion potential of the material on the downstream face that could occur due to extreme precipitation. The study concluded that existing sand and gravel material exposed on the downstream face is adequate to withstand the runoff from the 200-year, 24-hour rainfall event without any significant erosion.

SRS

GeoJute fabric protection on the downstream face of the SRS is in good condition and provides adequate protection against surface erosion. No signs of surface erosion were observed at the SRS.

6.2 Review of Upstream and Downstream Conditions

The TMA is located on a catchment divide so all conditions are predominantly downstream. There are no identifiable hazards to the east and west sides of the valley adjacent to the TMA. There is no change in the downstream condition of the TMA to the north and to the south that affects the potential consequences of failure.

The North Dam erosion event eroded approximately 415 m³ of dam fill based on a survey of the gully completed by Underhill Geomatics on June 20, 2022. The majority of the eroded debris was deposed at the dam toe and valley bottom upstream of seepage monitoring station MH-02 as shown in Figure 4.

6.3 Consequence of Failure Review

North Dam

Downstream of the North Dam, the valley grade falls at approximately 7 to 9% towards False Canyon Creek, which conveys flows into the Frances River, a tributary of the Liard River. The area downstream is undeveloped with no identifiable population at risk, public roads, or any other infrastructure. The probability of a failure mode leading to large scale loss of tailings from the TMA is very low as there is no water impounded except for a limited volume during snow melt, no identifiable brittle failure mode as the dam is founded on dense till with a post-seismic FOS that indicates that the dam would still have a FOS above 1 in the event of an earthquake. As a result, no significant loss or deterioration of fish or wildlife habitat is expected with restoration highly possible.

SRS

Like the North Dam, the area downstream of the SRS is undeveloped with no identifiable population at risk, public roads, or any other infrastructure. In addition, the reservoir capacity is small (800 m³ of water) and as a result, no long-term environmental losses are expected.

6.4 OMS Manual Review

The latest revision of the OMS Manual was updated on December 21, 2021. The OMS Manual is reviewed annually and generally follows the Mining Association of Canada's guidelines for OMS Manuals (MAC 2021) and is considered adequate for the TMA. The next revision of the manual should include changes to incorporate the North Dam erosion gully repairs specifically:

- 1. Section 3.1.1 (Site History): Update section to mention the gully and reference the as-built documentation.
- 2. Section 3.3.2 (North Dam Description): Update section to describe the gully repair cross-section and reference the as-built drawings.
- Section 5.2 (Routine and Preventative Maintenance Schedule and Triggers): Update section to include a site visit during the snowmelt period and snow clearing TMA cover to minimize pond formation near the North Dam.
- 4. Section 6.1.1 (Monitoring Frequency, Schedule, and Procedures): Revise the monitoring frequency to include a site inspection of the North Dam during the snow melt period (typically early-May) and to include Satellite Monitoring for track the pond formation on the TMA cover.
- Section 6.1.2 (Identified Performance Objectives and Indicators for Potential Failure Modes):
 Update Table 19 to include the overtopping/erosion gully potential failure mode at the North Dam.
- 6. Figures: Update to include the North Dam repair as-built drawings.
- 7. Trigger Action Response Plan: Update the visual inspection section to include triggers/responses related to observations of a water pooling adjacent to the North Dam.

6.5 Mine Emergency Response Plan Review

Teck developed a Mine Emergency Response Plan (MERP) for Sä Dena Hes that was finalized on July 27, 2021, and replaces the sites' Emergency Preparedness and Response Plan. A tabletop test exercise of the MERP was completed during the 2020 annual inspection of the TMA, which involved a simulated tailings emergency scenario and included the EOR and Teck personnel, with the test findings incorporated into the MERP on December 14, 2021. SRK reviewed the TMA applicable sections of the MERP in 2022 and found the plan to be adequate for the site.

The adequacy of the MERP was demonstrated during the response to the discovery of the North Dam erosion gully on June 17, 2022, with risk mitigations and repairs implemented in a timely manner to minimize environmental impacts.

7 Summary and Recommendations

7.1 Summary of Construction and Operation Activities

The site is currently closed and there are no operation activities. Earthworks were completed in June 2022 to repair an erosion gully in the North Dam.

7.2 Summary of Performance

The North Dam is currently stable. The dam does not retain water except during snow melt when the tailings cover drainage may be restricted due to ice or snow blockages in the drainage channels. During the June 2022 snow melt, the ponded water overtopped the dam sometime between June 1 and 7 resulting in the development of an erosion gully in the North Dam that eroded approximately 415 m³ of dam fill with no tailings were displaced. Once the pond had drained, the erosion discontinued. Repairs to the North Dam were completed in June, with additional erosion protection measures implemented in October 2022. During the August site inspection, no signs of any instability on the crest or the downstream slope were observed.

The SRS is in good physical condition and the spillway is functioning in accordance with design parameters. A transverse crack that was first observed in 2021 remains across the dam crest approximately 1 m east of the spillway that is believed to be caused by frost heave. No further action is required as the crack does not extend deep enough to act as a preferential seepage pathway through the structure, and the structure is considered to be temporary, with Teck planning to remove the structure in the future as part of an overall "safe closure" landscape.

7.3 Summary of Climate and Water Balance

Based on observations at the Watson Lake Airport climate station, the climate during the reporting period of September 2021 through August 2022 was wetter than average with a total precipitation of 830 mm at the Site compared to the mean annual precipitation of 646 mm. Winter precipitation was particularly higher than normal that resulted in the highest recorded snowpack on record within the Liard River basin in May 2022 (YG 2022). The high snowpack and rapid snowmelt are believed to be the main contributing factors in the development of the erosion gully at the North Dam.

The TMA is designed to be a flow-through facility with no active water management required. The tailings cover is graded to drain to the south, away from the North Dam, and towards the SRS. The SRS spillway can pass the design flow associated with a 1 in 1,000-year precipitation event. During the 2022 snowmelt, a blockage of the drainage channels to the south due to snow and/or ice, resulted in the formation of a pond and the overtopping of the North Dam leading to an erosion gulley. Remedial actions to prevent future overtopping events are provided in the Section 7.5 recommendations.

7.4 Summary of Changes to Facility or Upstream or Downstream Conditions

There were no significant changes in upstream or downstream conditions of the TMA that would affect the potential consequences of failure.

7.5 Table of Deficiencies and Non-Conformances

SRK has completed the 2021 facility performance review of Sä Dena Hes Mine, TMA and water management infrastructure and concluded that the North Dam, the SRS, the diversion channels and the waste rock dumps are in good condition.

Table 7.1 and Table 7.2 provide a summary of deficiencies and non-conformances noted during the 2022 performance review and outstanding deficiencies or non-conformances from the 2021 performance review.

Table 7.1: General Description of Priority Rankings

Priority	Description
1	A high probability or actual dam safety issue considered immediately dangerous to life, health or the environment, or a significant regulatory concern.
2	If not corrected, could likely result in dam safety issues leading to injury, environmental impact or significant regulatory action; or, a repetitive deficiency that demonstrates a systematic breakdown of procedures.
3	Single occurrences of deficiencies or non-conformances that alone would not be expected to result in dam safety issues.
4	Best Management Practice as a suggestion for continuous improvement towards industry best practices that could further reduce potential risks. This typically includes ongoing construction items within the appropriate construction cycle.

Notes: Priority ratings developed by Teck (2019) and are consistent with the BC Health, Safety and Reclamation Code (HSRC) for Mines in British Columbia.

Table 7.2: Table of Recommendations from the 2022 Mine Waste Facilities Inspections

Structu re	ID No.	Deficiency or Non-Conformance	Applicable Regulation or OMS Reference	Recommended Actions	Priority (Table 7.1)	Recommended Deadline / Status
			202	1 Recommendations		
TMA	2021-1	Since 2015, all revisions to the OMS Manual have remained in 'draft' status.	OMS Section 1.3	Finalize the next revision of the OMS Manual.	3	Complete OMS updated in December 2021
North Dam	2021-2	The soup can used as a cap on NDW-4A was displaced at time of the inspection.	OMS Section 5.2.1	Install a proper 2-inch PVC pipe plug and trim the PVC pipe such that it fits in steel protective casing. Water pooled within the casing should be removed (either siphoned or by drilling a small hole within the steel casing).	4	Complete
North Dam	2021-3	A long-term goal for the TMA is to reduce all potential failure modes to non-credible.	-	Undertake a credible failure modes assessment for the TMA.	4	In Progress Before end of 2022
North Dam	2021-4	Water levels in Piezometer 2A triggered alerts and event-driven inspections during the last two freshets that are attributable to higher snowpacks and rainfall. The event-driven inspection resulted in no dam safety concerns.	OMS Section 6.2.2	Undertake a review of the trigger action alert levels and consider additional levels for seasonal freshet conditions. Establish snowpack monitoring stations to investigate the impact between snowmelt and the North Dam foundation pressures.	4	In Progress Before end of 2022.
			202	2 Recommendations		
Tailings Cover	2022-2	An erosion gully is present in the reclamation cover north of the SRS pond that has eroded through the cover and has exposed geotextile.	OMS Section 5.2.1	Shape the erosion gully to form a channel with a nominal amount of fill overtop of the base of the gully. Armour the gully with a layer of geotextile and riprap.	4	New Before end of 2024.
North Dam	2022-3	Drainage channel blockages on the tailings cover during snowmelt results in the formation of a pond adjacent to the North Dam. In 2022, the pond overtopped the North Dam and formed an erosion gully that required repairs.	OMS Section 5.2.1	Modify the dam to eliminate the risk of overtopping. Due to limitations in the tailings cover thickness, increasing the grade of the cover drainage channels is not possible without exposing tailings. As a result, raising the dam to increase the freeboard is recommended.	2	New Before end of 2024.

Structu re	ID No.	Deficiency or Non-Conformance	Applicable Regulation or OMS Reference	Recommended Actions	Priority (Table 7.1)	Recommended Deadline / Status
North Dam and Tailings Cover	2022-4	As above	OMS Sections 5 and 6	Modify the TMA maintenance and surveillance programs in the OMS Manual to include monitoring for the development of a pond against the North Dam and maintenance to clear drainage pathways on the tailings cover during the snowmelt period. The modifications should include use of satellite monitoring to track pond development, an additional site inspection in early-May to establish site access and clear a drainage path to the south. As a contingency, a plan should be developed for the mobilization of a pump and associated equipment to pump the ponded water downstream of the North Dam. The OMS Manual should also be updated to include the asbuilt information from the North Dam erosion gully repairs as outlined in Section 6.4.	2	New Before end of Q1 2023.

Closure

This report, 2022 Annual Facility Performance Report, was prepared by



and reviewed by

POFESSIONAL 2022/IIIIN YUKON J.B. KURYLO TERRITORNAL ENGINEER

John Kurylo, PEng Principal Consultant

PERMIT TO PRACTICE
Signature Mov 14, 2022

Date Nov 14, 2022

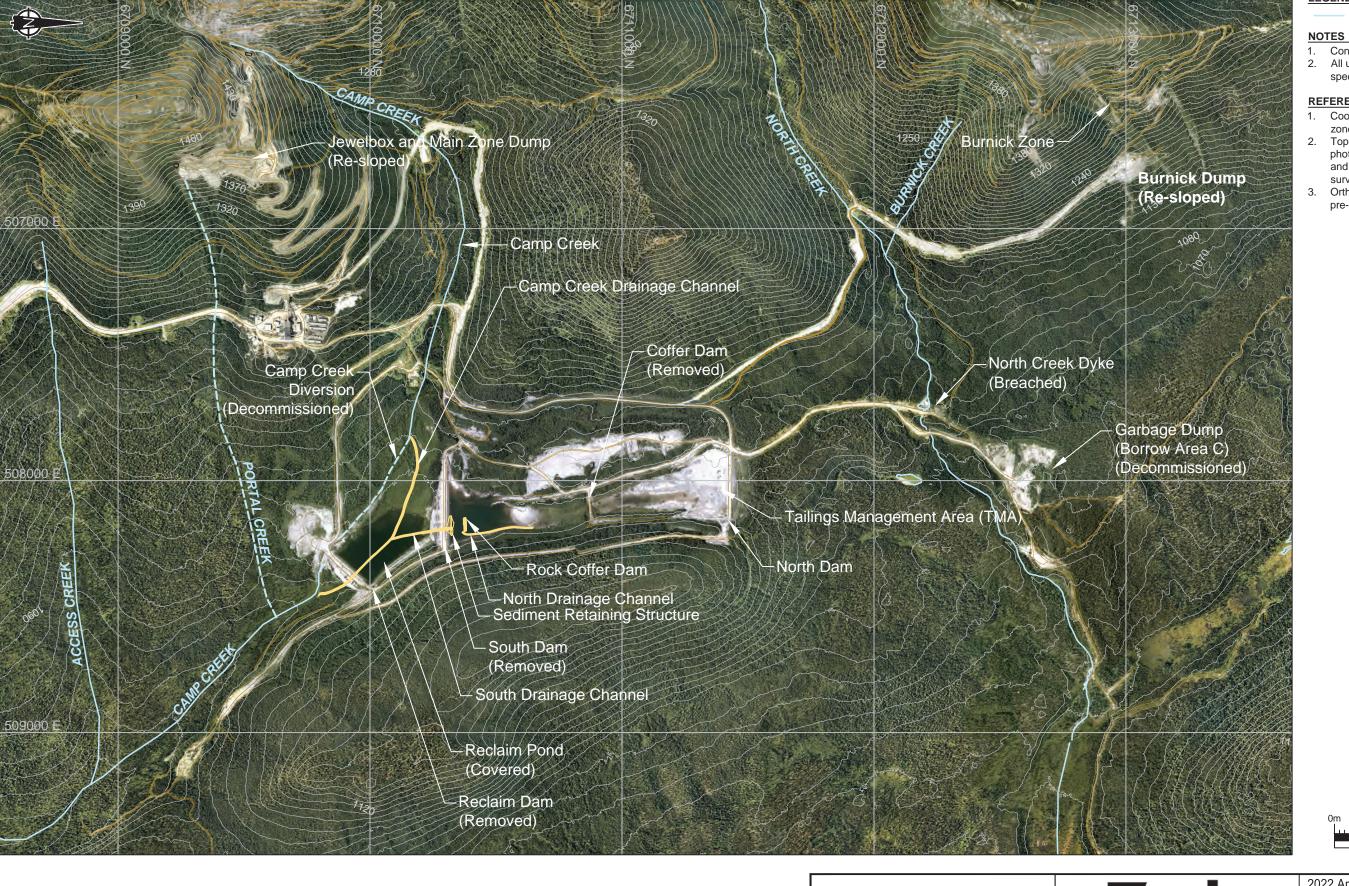
PERMIT NUMBER: PP019
Association of Professional Engineers of Yukon

All data used as source material plus the text, tables, figures, and attachments of this document have been reviewed and prepared in accordance with generally accepted professional engineering and environmental practices.

References

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- [MAC] Mining Association of Canada, 2021. Developing an Operation, Maintenance and Surveillance Manual for Tailings and Water Management Facilities.
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- Teck Resources Ltd., 2015. Detailed Decommissioning and Reclamation Plan, August 2015 Update. August 31.
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- Teck Resources Ltd, 2021. Sä Dena Hes, Tailings Management Area Operation, Maintenance, and Surveillance Manual.
- Yukon Government, 2022. Yukon Snow Survey Bulletin and Water Supply Forecast. Prepared and issued By Water Resources Branch, Department of Environment. May 1.





LEGEND

- 1. Contours are shown at 10.0m intervals.
- 2. All units are in meters unless otherwise

REFERENCES

- 1. Coordinate system is UTM NAD 83CSRS
- 2. Topographic contour data and aerial photos were obtained from McElhanney and are based on August 15, 2012 LiDAR
- 3. Orthographic photo depicts pre-decommissioned surface.





Sheet 1-12-13 and 14.dwg

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Sä Dena Hes

2022 Annual Facility Performance Review

Vicinity Map

PM October 2022

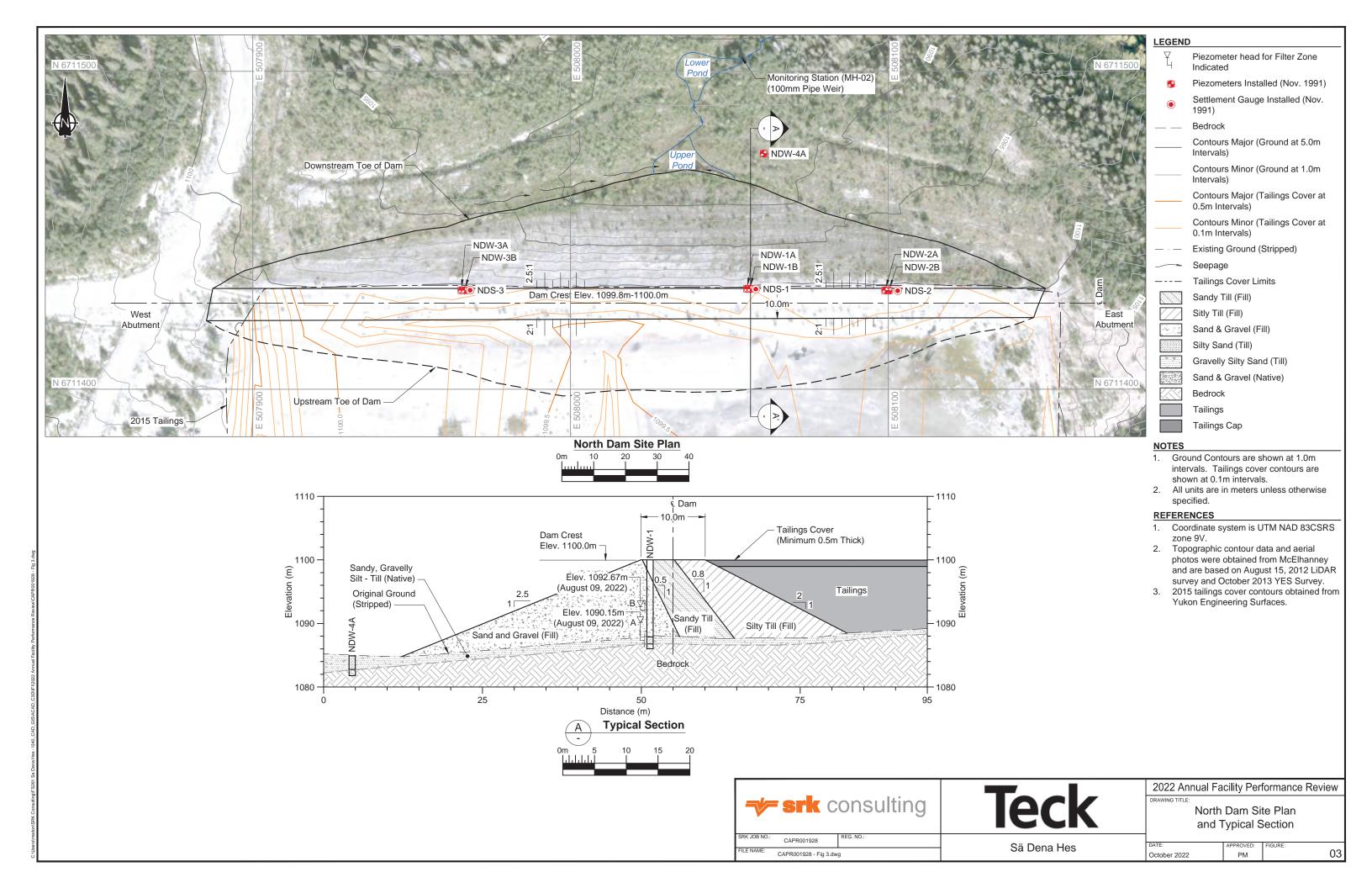
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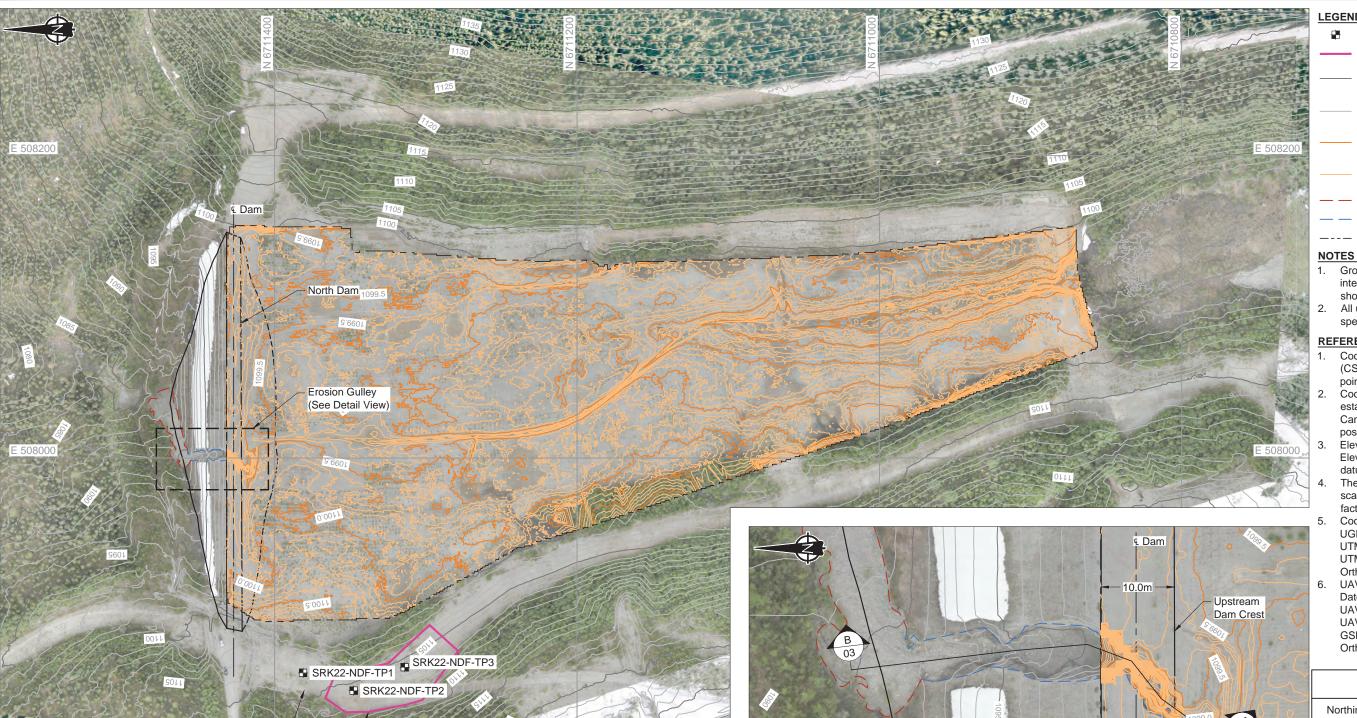


CAPR001928 REG. NO.:
Sheet 2.dwg

Signature Sheet Shee

PM FIGURE:





Test Pits

Borrow Area Extents

Contours Major (Ground at 5.0m Intervals)

Contours Minor (Ground at 1.0m Intervals)

Contours Major (Tailings Cover at 0.5m Intervals)

Contours Minor (Tailings Cover at 0.1m Intervals)

Erosion Debris Extent

— Erosion Gulley Extent

--- Tailings Cover Limits

- Ground contours are shown at 1.0m intervals. Tailings cover contours are shown at 0.1m intervals.
- 2. All units are in meters unless otherwise specified.

REFERENCES

- Coordinates are UTM Zone 9, NAD83 (CSRS) and are derived holding values of point UGL100 fixed in 3D.
- Cooridnates of point UGL100 were established using Natural Resources Canada CSRS-PPP Service (precise point
- Elevations are orthometric and in meters. Elevations reference to the CGVD28 datum using the HTv2.0 Geoid Model.
- The digital file of this plan is UTM Grid scale, not ground scale. Combined scale factor at point UGL100 is CSF 0.9941220

Coordinates of UGL100 are: UGL100

UTM N: 6709661.884m UTM E: 507376.593m

Ortho Elev: 1206.100m 6. UAV DEM and Imagery:

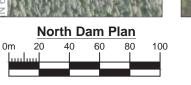
Date: 2022-06-20 UAV: M300 with P1 Camera

UAV capture Altitude: 120m AGL

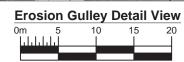
GSD: 1.4cm/pix

Orthophoto Resolution: 10cm/pix

Test Pit Points					
Northing	Easting	Description			
6711381.20	507857.93	SRK22-NDF-TP1			
6711347.74	507846.18	SRK22-NDF-TP2			
6711314.00	507861.62	SRK22-NDF-TP3			



Access Road



Downstream

Dam Crest -



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Sä Dena Hes

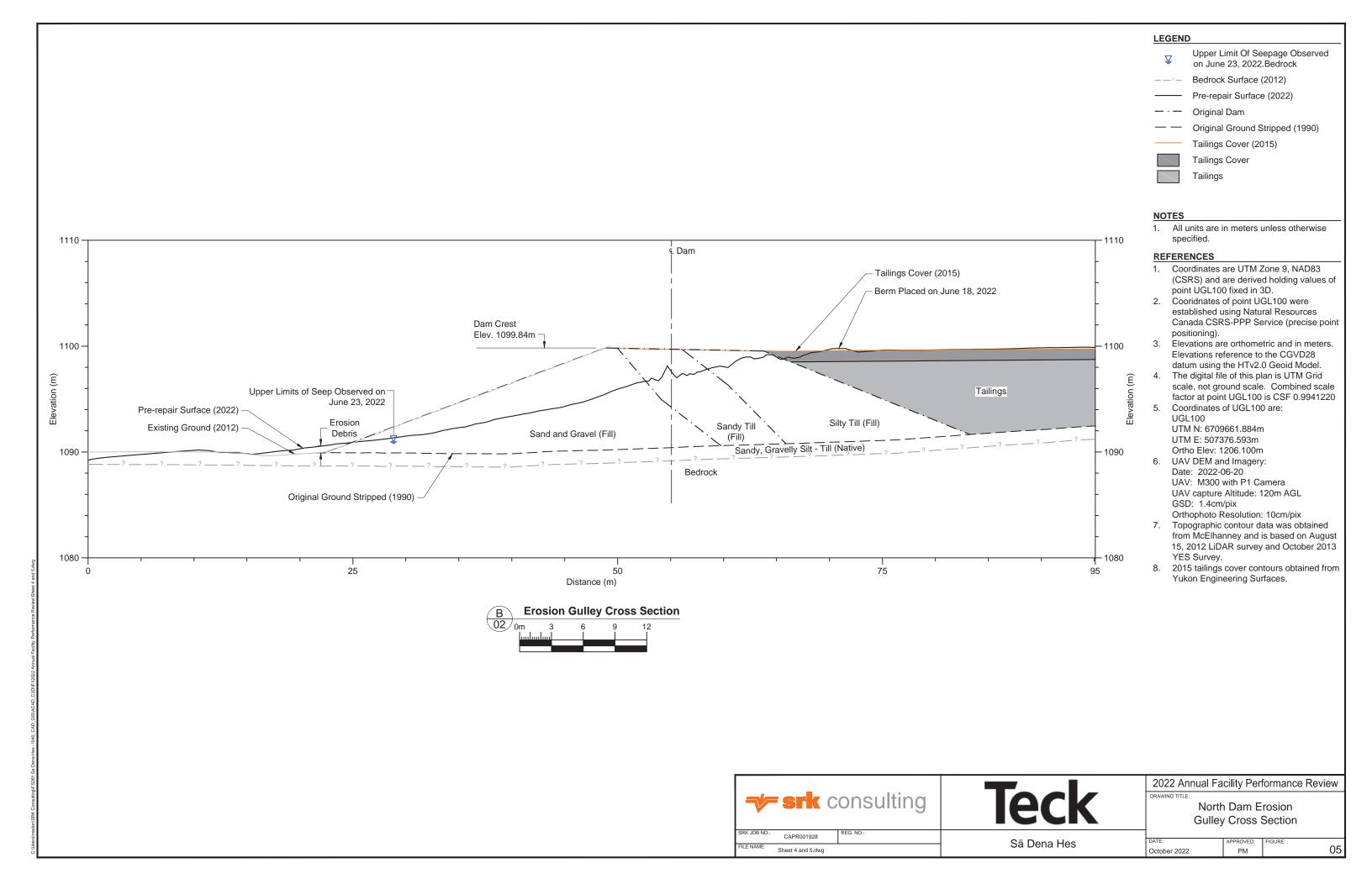
2022 Annual Facility Performance Review

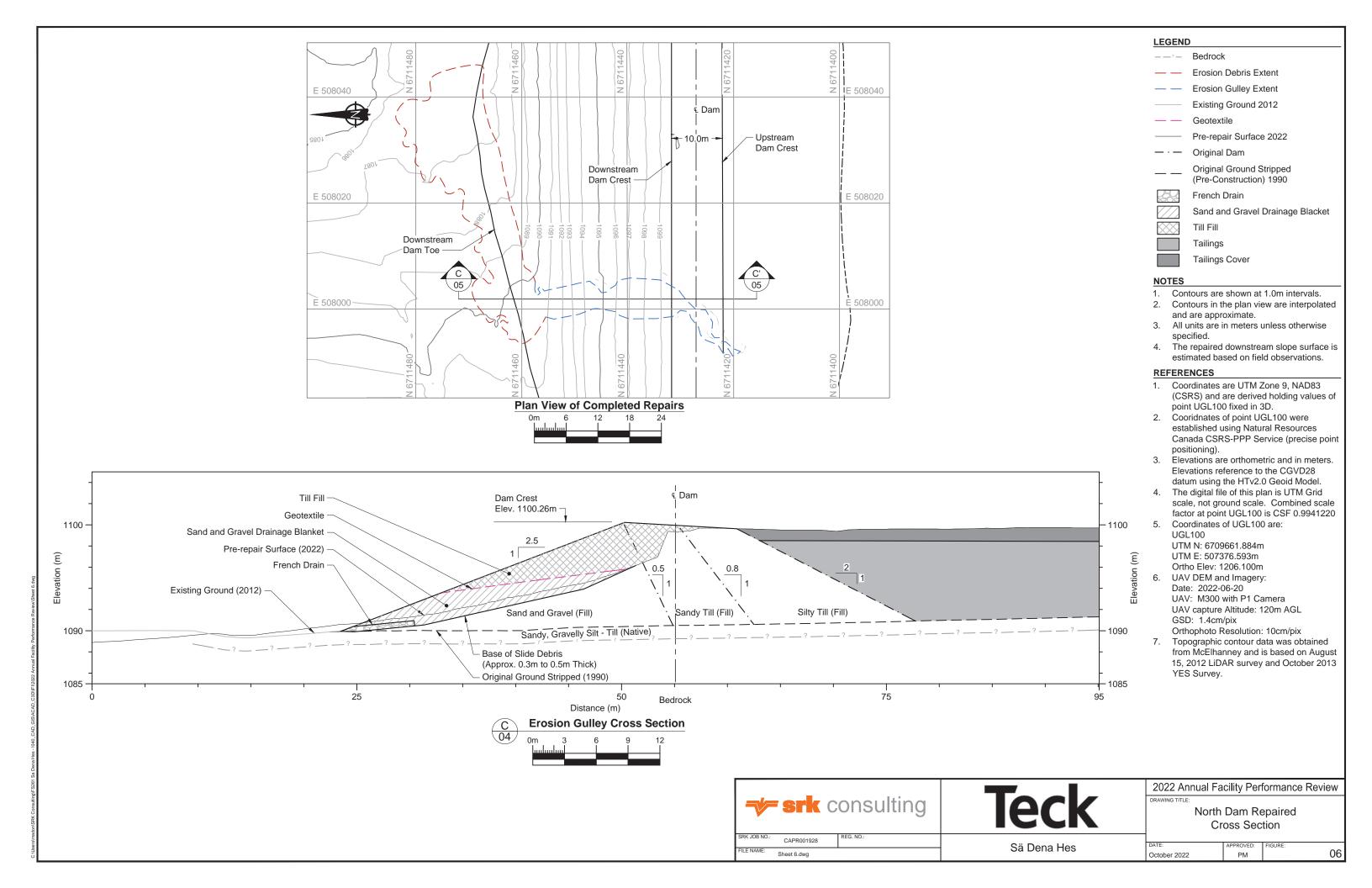
North Dam Erosion Gulley and Tailings Cover Site Plan - June 20, 2022

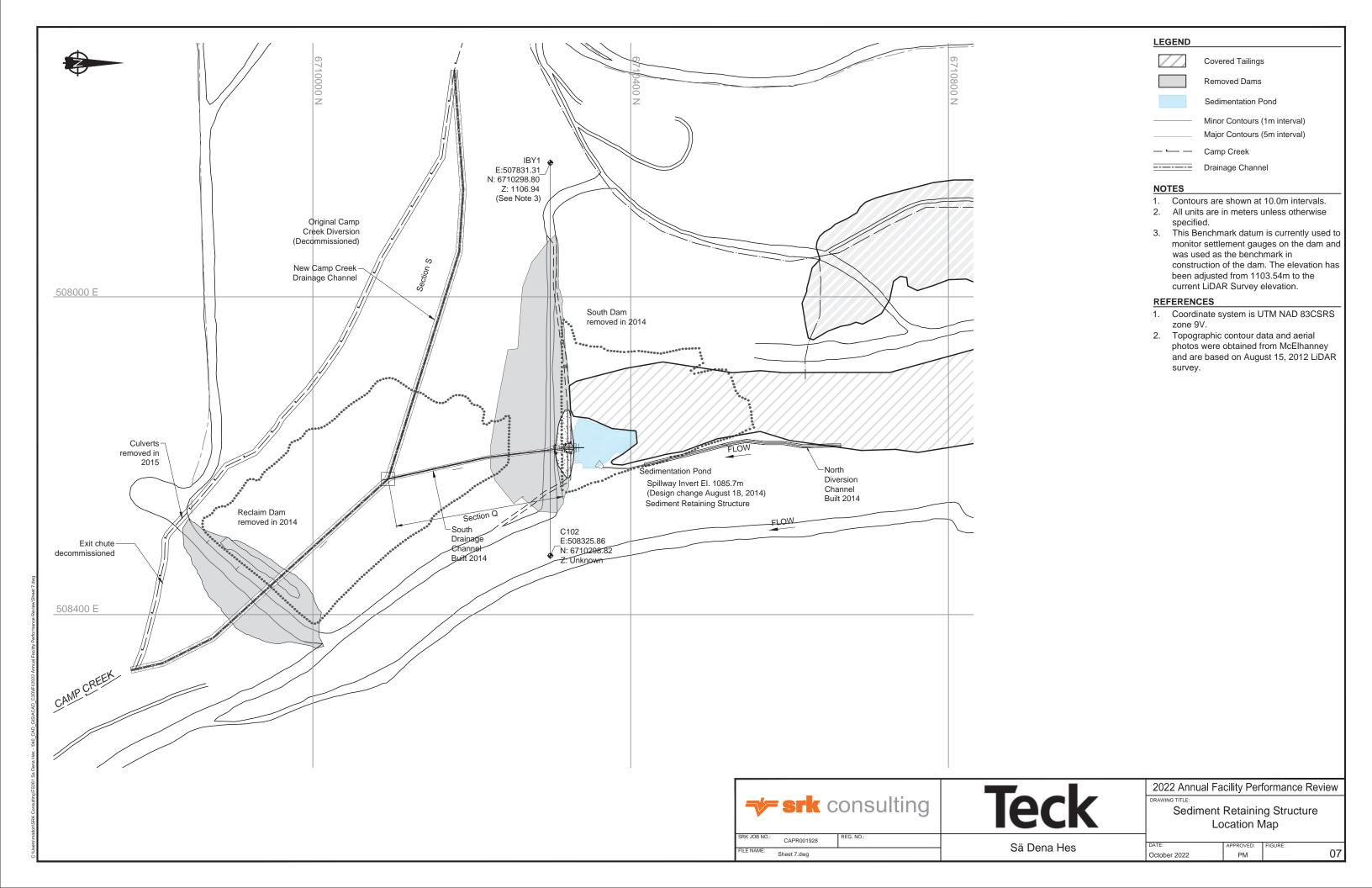
PM October 2022

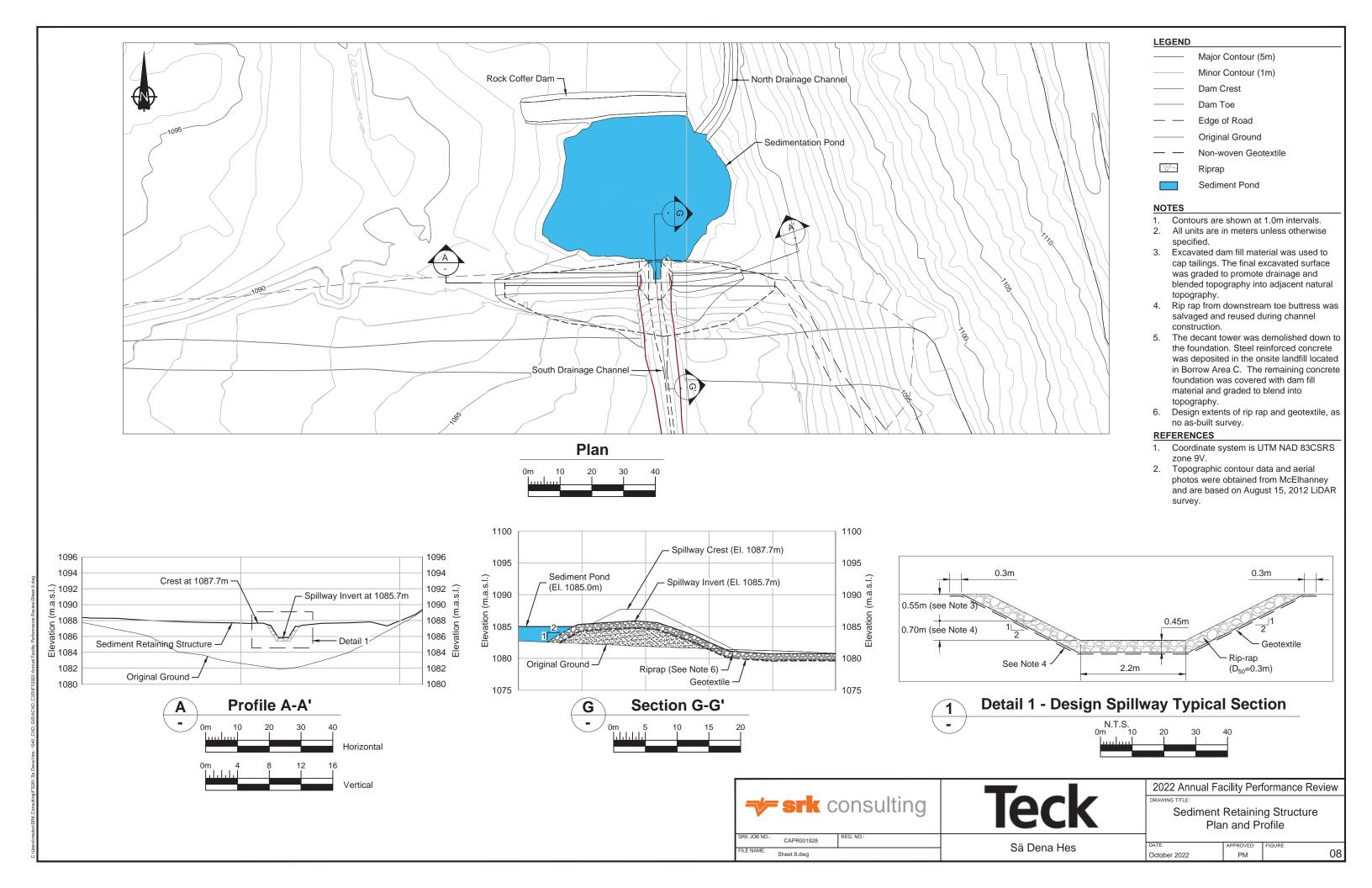
Sheet 4 and 5.dwg

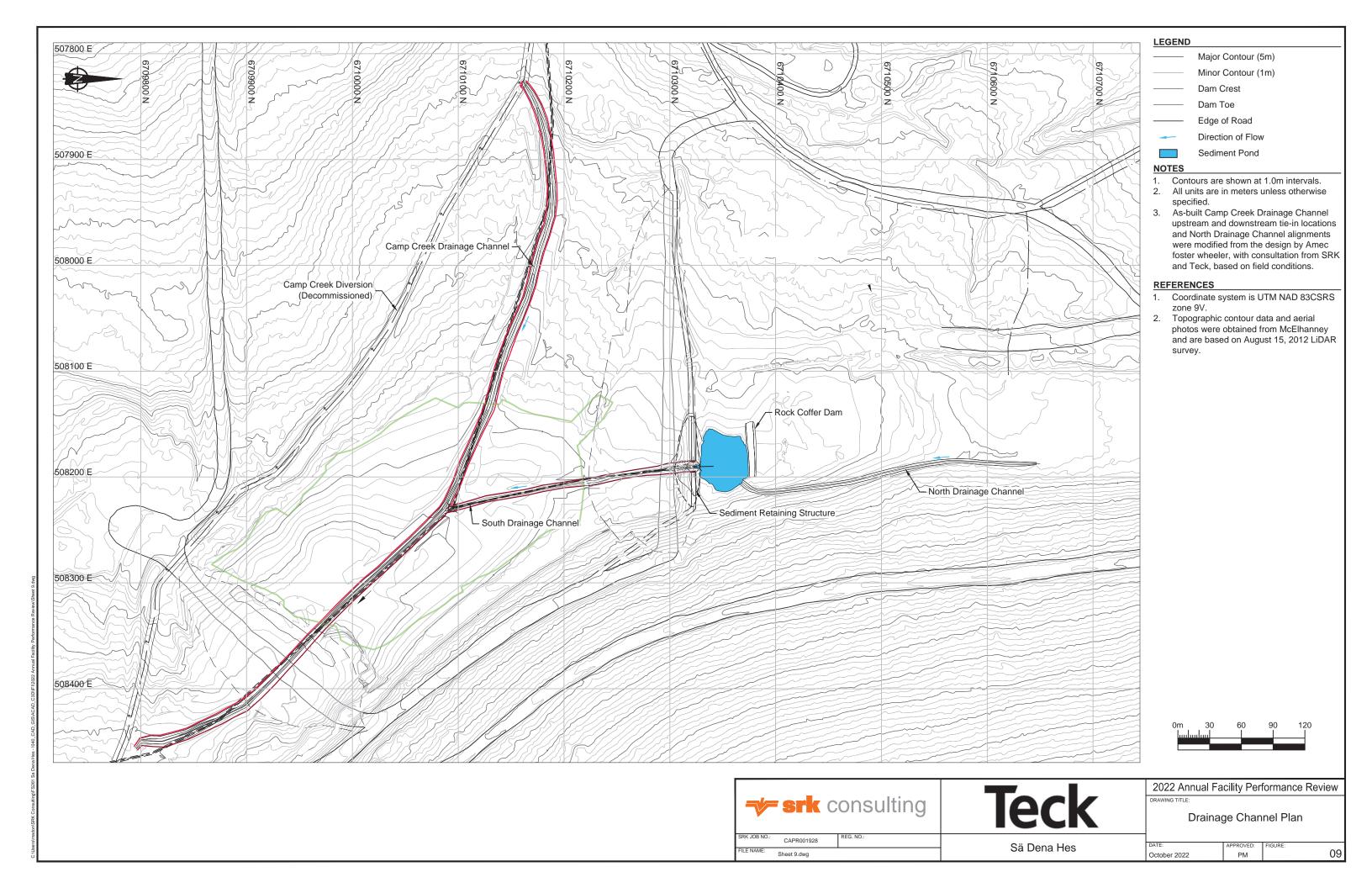
Dam Toe -

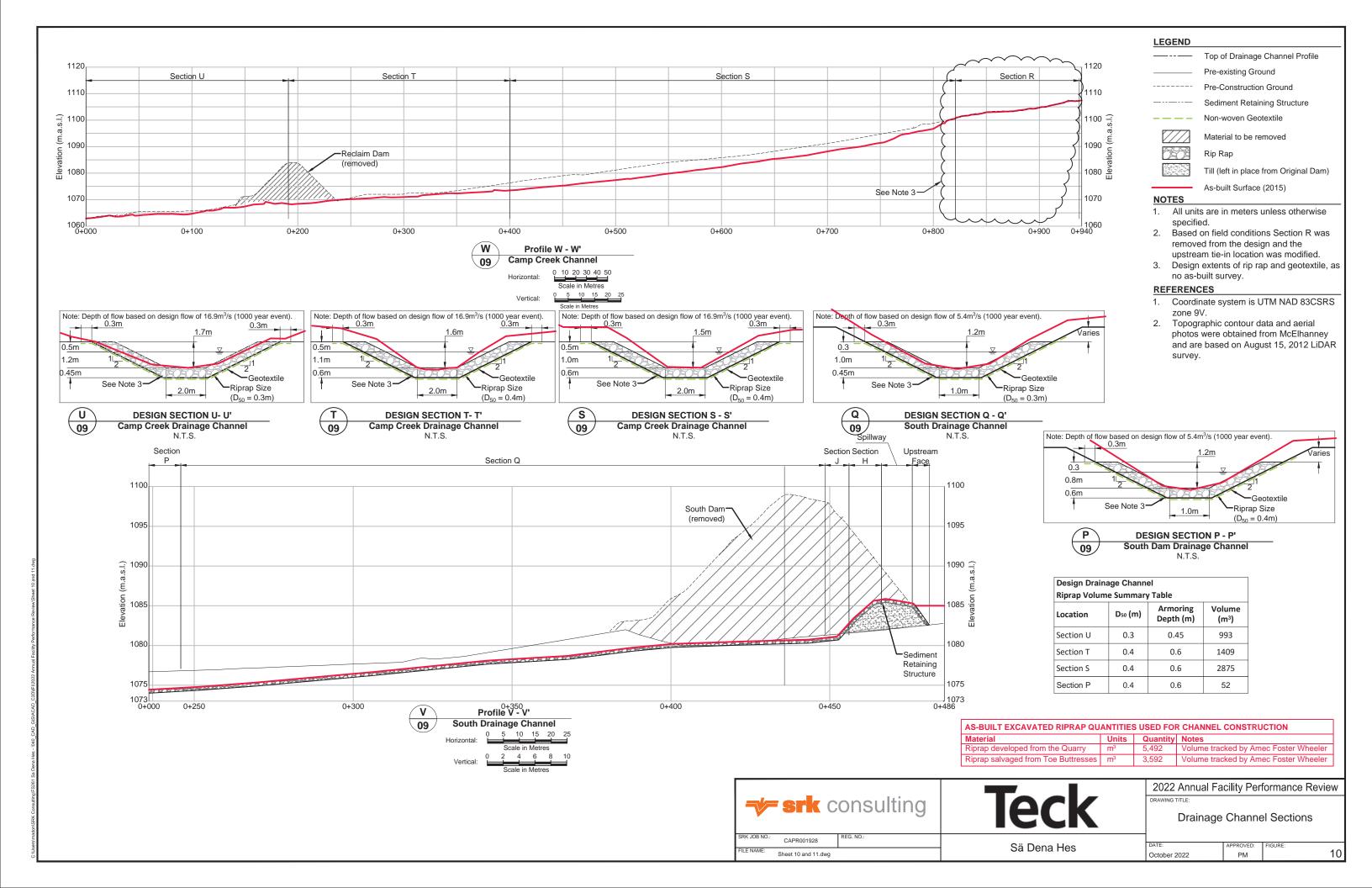














NOTES

Major Contours (5m)

Minor Contours (1m)

Existing Ground (Profile)

Non-woven Geotextile

Sediment Pond (As-built)

As-built Extent of Excavation / Fill

As-built Toe (2015)

As-built Crest (2015)

Covered Tailings (Proposed in Design)

Edge of Road

Rip Rap

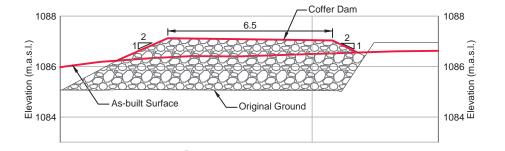
(2015)

Tailings Pipeline

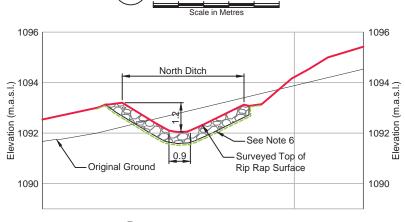
- Contours are shown at 1.0m intervals.
- All units are in meters unless otherwise specified.
- Based on field conditions the North Drainage Channel was realigned to avoid constructing the channel through deposited tailings.
- 4. Based on field conditions a Rock Cofferdam was constructed to retain soft tailings from sliding into the sediment retention pond during cover construction.
- The decant tower was demolished down to the foundation. Steel reinforced concrete was deposited in the onsite landfill located in Borrow Area C. The remaining concrete foundation was covered with dam fill material and graded to blend into topography.
- 6. Design extents of rip rap and geotextile, as no as-built survey.

Design North Tailings Drainage Channel Riprap

olullie Sullillary Table.						
Location	D ₅₀ (m)	Armoring Depth (m)	Volume (m³)			
Υ	0.3	0.45	638			
Discharge Area	0.3	0.45	25			



Section Z - Z'



Section Y - Y'

- 1. Coordinate system is UTM NAD 83CSRS zone 9V.
- 2. Topographic contour data and aerial photos were obtained from McElhanney and are based on August 15, 2012 LiDAR



CAPR001928

Sheet 10 and 11.dwg

North Drainage Channel Plan,

Profile and Sections

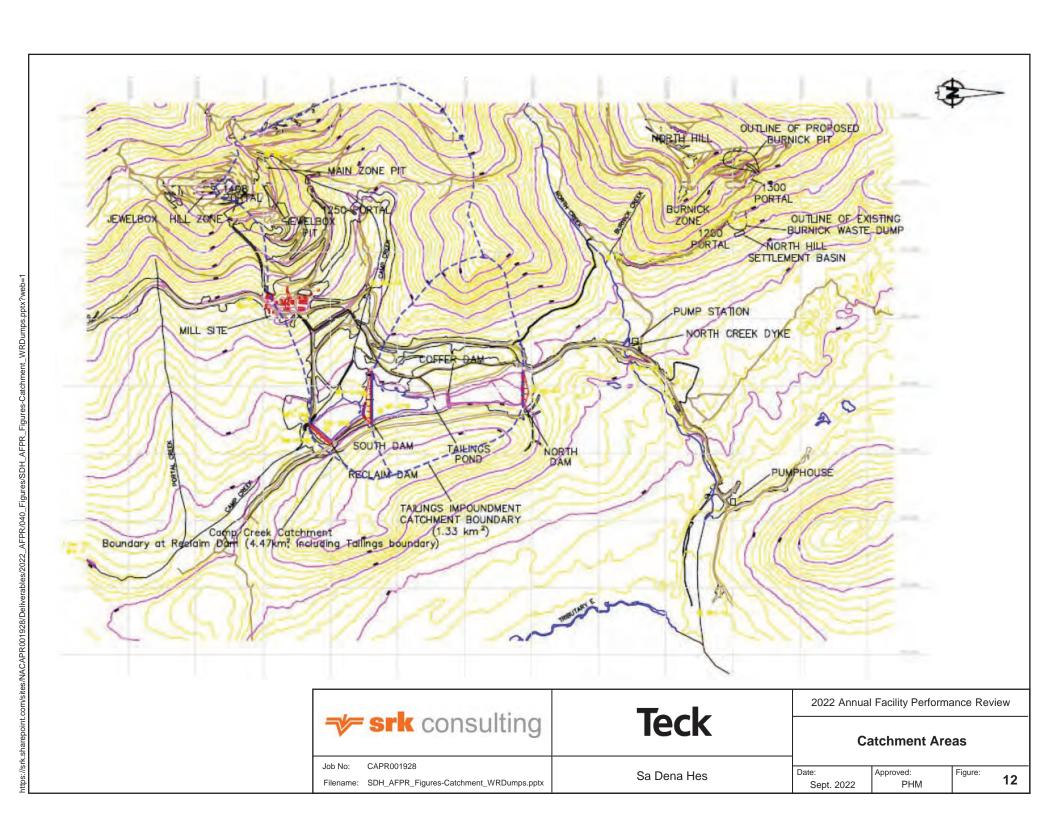
2022 Annual Facility Performance Review

October 2022

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11

Sä Dena Hes





2022 Annual Facility Performance Review

Job No: CAPR001928

Filename: SDH_AFPR_Figures-Catchment_WRDumps.pptx

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Burnick Zone Plan View

Pate: Approved: Sept. 2022 PHM

Figure:

13

2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Plan View

Job No: CAPR001928

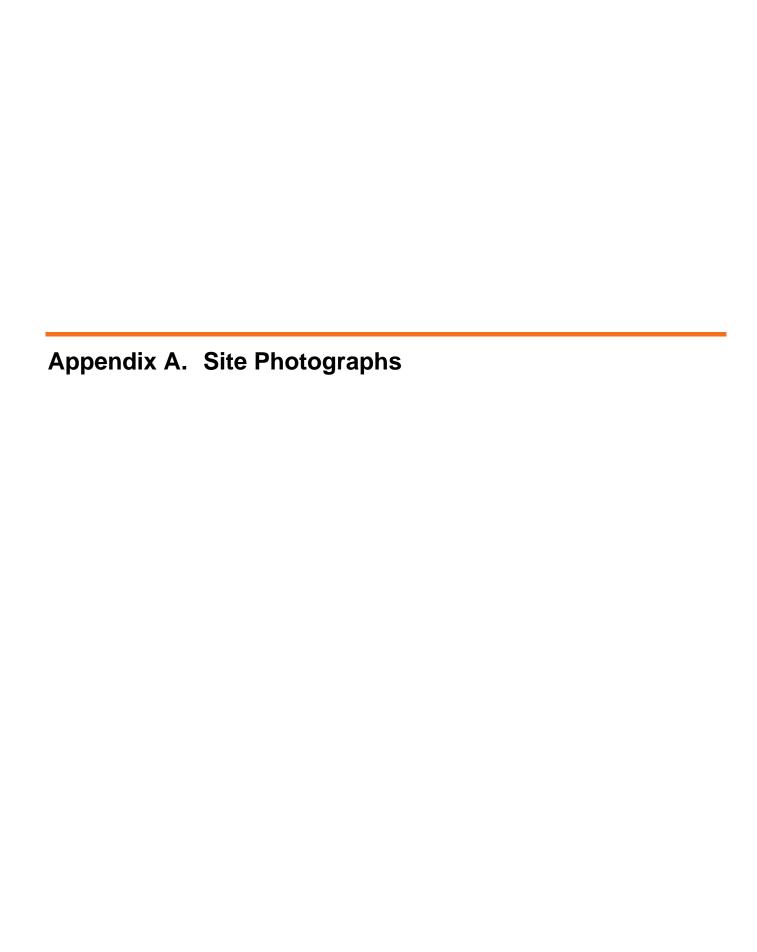
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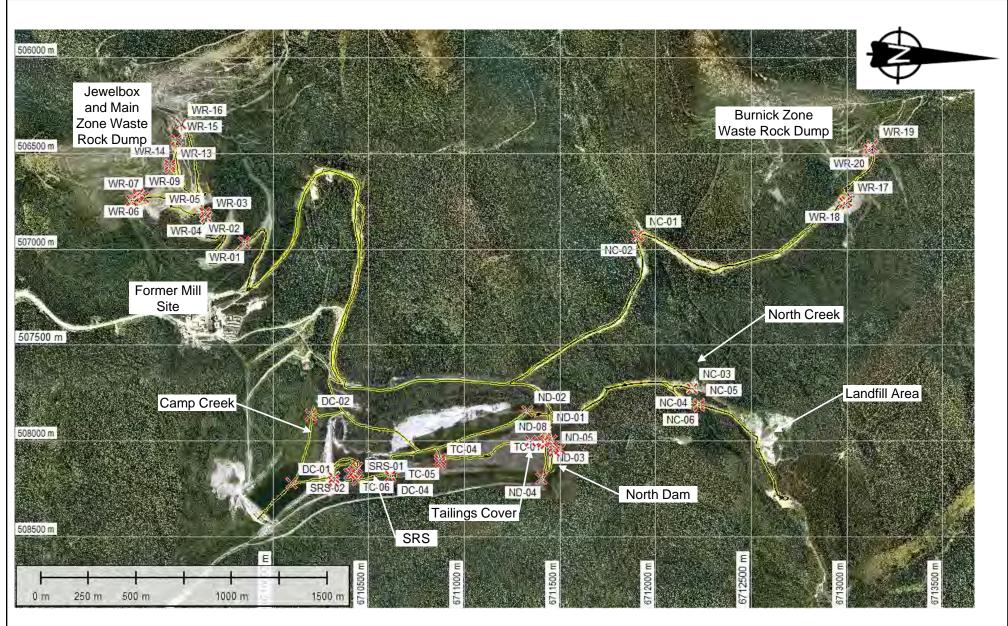
Sa Dena Hes

te: Approved: Sept. 2022 PHM

Figure: 1

14





- Orthographic photo depicts the pre-decommissioned surface on August 15, 2012.
- Coordinate system is UTM NAD83 Zone 9.



2022 Inspection GPS track log Photo location and direction



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2022 Annual Facility Performance Report

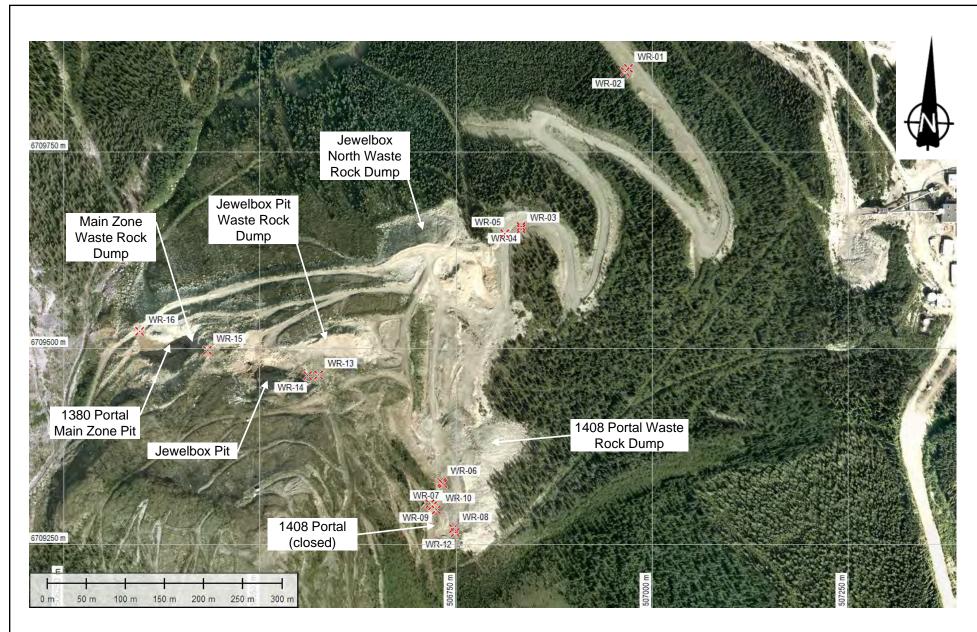
CAPR001928 Job No:

Filename: SDH_2022-SiteInspection-PhotoLocations.pptx

Sa Dena Hes

Inspection Areas and Photo Logs

Approved: Sept. 28, 2022 PHM



- Orthographic photo depicts the pre-decommissioned surface on August 15, 2012.
- 2. Coordinate system is UTM NAD83 Zone 9.



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2022 Annual Facility Performance Report

Main and Jewelbox Zone Waste Rock Dump Photo Locations

Job No: CAPR001928

Filename: SDH_2022-SiteInspection-PhotoLocations.pptx

Sa Dena Hes

Date: Approved: Sept. 28, 2022 PHM

Figure:



- Orthographic photo depicts the pre-decommissioned surface on August 15, 2012.
- Coordinate system is UTM NAD83 Zone 9.



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Job No: CAPR001928

Filename: SDH_2022-SiteInspection-PhotoLocations.pptx

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Burnick Zone Waste Rock Dump Photo Locations

Date: Approved: Sept. 28, 2022 PHM

Figure:



- Orthographic photo depicts the pre-decommissioned surface on August 15, 2012.
- 2. Coordinate system is UTM NAD83 Zone 9.



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2022 Annual Facility Performance Report

North Creek Photo Locations

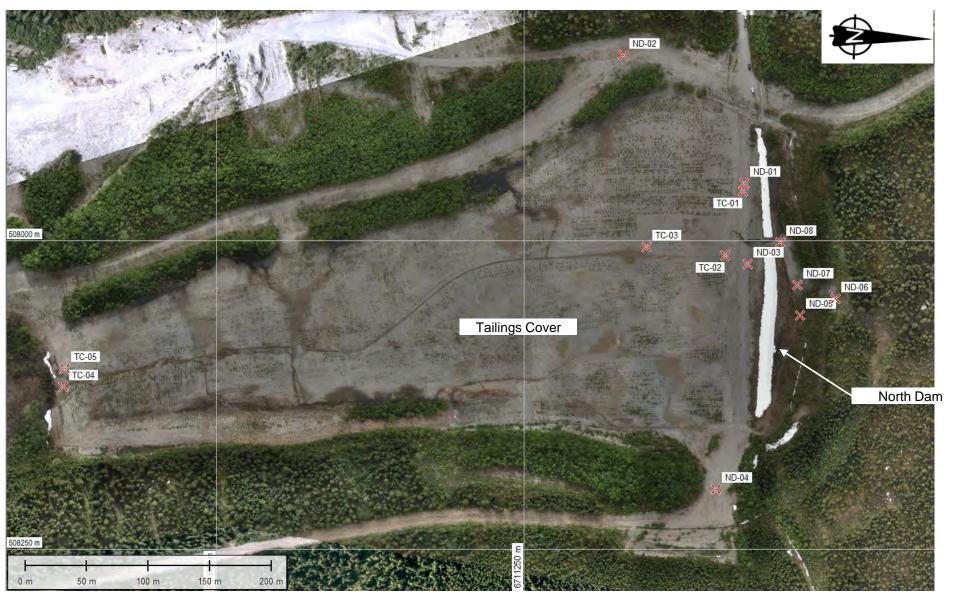
Job No: CAPR001928

Filename: SDH_2022-SiteInspection-PhotoLocations.pptx

Sa Dena Hes

Date: Approved: Sept. 28, 2022 PHM

Figure: A-4



- Orthographic photo of the North Dam and Tailings Cover taken on June 20, 2022. The photo is overlain on top of the August 12 orthophoto shown on the previous figures.
- 2. Coordinate system is UTM NAD83 Zone 9.



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Sa Dena Hes

Date

North Dam and Tailings Cover Photo Locations

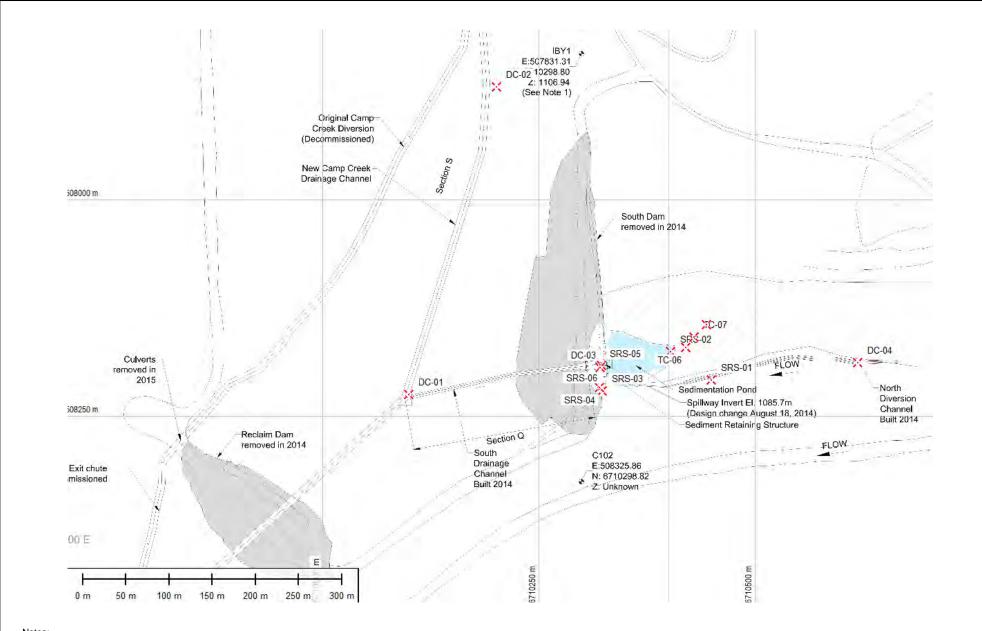
2022 Annual Facility Performance Report

Date: Approved: Sept. 28, 2022 PHM

Figure: A-5

Job No: CAPR001928

Filename: SDH_2022-SiteInspection-PhotoLocations.pptx



 See Figure 5 in this report for further details on the base plan shown.

→ srk consulting

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2022 Annual Facility Performance Report SRS, South Tailings Cover and

Drainage Channel Photo

Locations

Job No: CAPR001928

Filename: SDH_2022-SiteInspection-PhotoLocations.pptx

Sa Dena Hes

Date: Approved: Sept. 28, 2022 PHM

Figure: A-6



Photo DC-01: Camp Creek looking downstream at the confluence with the South Drainage Channel..



Photo DC-02: Camp Creek looking upstream.



Job No:

Filename: SDH_2022-SiteInspection_Photolog.pptx

Teck

Sa Dena Hes

2022 Annual Facility Performance Review

South Diversion Channel and Camp Creek

PHM

A-7

Date: Approved: Figure:

Sept. 28, 2022



Photo DC-03: Upper end of the South Drainage Channel taken from the SRS Spillway.



Photo DC-04: North Diversion Channel looking upstream.



Job No:

Filename: SDH_2022-SiteInspection_Photolog.pptx

Teck

Sa Dena Hes

2022 Annual Facility Performance Review

South Diversion Channel and Camp Creek

Date: Approved: Figure:

Sept. 28, 2022 PHM



Photo NC-01: Channel Erosion at North Creek across the decommissioned access road to Burnick Zone.



Photo NC-02: Channel Erosion at North Creek across the decommissioned access road to Burnick Zone. Seepage observed entering channel leaving a rusty-reddish coloured stain on the soils.



Job No:

Teck

2022 Annual Facility Performance Review

North Creek

Filename: SDH_2022-SiteInspection_Photolog.pptx

Sa Dena Hes

Date: Approved: Sept. 28, 2022 PHM

Figure:



Photo NC-03: Beaver dam at the upstream end of the decommissioned North Creek Dike structure.



Photo NC-04: Channel erosion at the downstream end of the decommissioned North Creek Dike structure with exposed geotextile. The condition appears unchanged compared to 2021 inspection photos.



2022 Annual Facility Performance Review

North Creek

PHM

Date: Approved: Sept. 28, 2022 PH

Figure:

re: A-10

Filename: SDH_2022-SiteInspection_Photolog.pptx

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Photo NC-05: On-going channel and bank erosion at the downstream end of the lower decommissioned access road crossing of North Creek to the landfill area.



Photo NC-06: On-going channel and bank erosion at the upstream end of the lower decommissioned access road crossing of North Creek to the landfill area.

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2022 Annual Facility Performance Review

North Creek

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Date: Approved: Sept. 28, 2022 PHM

gure: **A-11**

Job No:

CAPR001928



Photo ND-01:North Dam looking east towards the erosion gully repair area.



Photo ND-02: Till borrow area used for the North Dam repairs. The borrow slopes have been partially regraded and landformed.

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Job No: CAPR001928 Filename: SDH_2022-SiteInspection_Photolog.pptx	Sa Dena Hes	Date: Sept. 28, 2022	Approved: PHM	Figure: A-12



Photo ND-03: Erosion debris downstream of the dam. The silt fence is placed across the erosion gulley repair area approximately midway down the slope. Historical wind-blown tailings visible to the right of the silt fence, further upslope.



Photo ND-04: North Dam looking west.

	ng Teck North		Facility Performa	ance Review
→ srk consulting			North Dam	
Job No: CAPR001928 Filename: SDH_2022-SiteInspection_Photolog.pptx	Sa Dena Hes	Date: Sept. 28, 2022	Approved: PHM	Figure: A-13



Photo ND-05: Piezometer NDW-4A downstream of the dam toe. The PVC pipe extends above the protective casing.



Photo ND-06: MH-02 flow monitoring pipe.

		2022 Annua	Facility Performa	ance Review
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Job No: CAPR001928 Filename: SDH_2022-SiteInspection_Photolog.pptx	Sa Dena Hes	Date: Sept. 28, 2022	Approved: PHM	Figure: A-14



Photo ND-07: Downstream slope of the North Dam looking southeast from the base of the erosion gully repair area.



Photo ND-08: Downstream toe of the North Dam looking west at the base of the erosion gully repair area.

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2022 Annual Facility Performance Review

North Dam

Approved: Sept. 28, 2022 PHM

Date:

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Photo SRS-01: SRS and pond looking south. The North Drainage Channel is located at the left side of the photo.



Photo SRS-02: SRS in distance, with the coffer dam in the foreground of the photo.



2022 Annual Facility Performance Review

Sediment Retaining Structure (SRS) Area

Job No: CAPR001928

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Photo SRS-03: Crest and downstream slope of the SRS looking west from the spillway.



Photo SRS-04: SRS crest looking west from the east abutment.



Job No:

Filename: SDH_2022-SiteInspection_Photolog.pptx

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2022 Annual Facility Performance Review

Sediment Retaining Structure (SRS) Area

Date: Approved: Sept. 28, 2022 PHM

Figure

⁶ A-17



Photo SRS-05: Downstream face of the SRS on the east side of the spillway looking southwest.



Photo SRS-06: Downstream face of the SRS on the east side of the spillway looking southeast.



Job No:

Filename: SDH_2022-SiteInspection_Photolog.pptx

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2022 Annual Facility Performance Review

Sediment Retaining Structure (SRS) Area

PHM

Date: Approved: A-18

Sept. 28, 2022



Photo TC-01: North Dam crest and tailings cover south of the erosion gully repair area.



Photo TC-02: Upstream end of the Main drainage swale taken from the North Dam looking south.

		2022 Annual Facility Performance Review		
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Job No: CAPR001928 Filename: SDH_2022-SiteInspection_Photolog.pptx	Sa Dena Hes	Date: Approved: Figure: A-		Figure: A-19



Photo TC-03: Main drainage swale that flows south through the middle of the tailings cover.



Photo TC-04: Sediment accumulation at the south end of the Northern Tailings Area at the location of the former Coffer Dam (removed).

		2022 Annua	2022 Annual Facility Performance Review			
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Photo TC-05: Tailings cover looking north.



Photo TC-06: Erosion gully in tailings cover immediately to the south of the SRS Pond. Areas of exposed geotextile observed. No visible tailings observed.

		2022 Annual Facility Performance Review		
→ srk consulting	Teck	Tailings Cover		er
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Filename: SDH_2022-SiteInspection_Photolog.pptx	Sa Della Hes	Sept. 28, 2022	PHM	A-21



Photo TC-07: Upstream end of the erosion gully in the tailings cover south of the SRS Pond.



Photo TC-08: Reclamation cover looking south towards the SRS and the start of the erosion gully.

		2022 Annual Facility Performance Review			
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Job No: CAPR001928 Filename: SDH_2022-SiteInspection_Photolog.pptx	Sa Dena Hes	Date: Sept. 28, 2022	Approved: PHM	Figure: A-22	



Photo WR-01: Rill and gulley erosion across the decommissioned access road to the Jewelbox Waste Rock Dump.



Photo WR-02: Erosion gulley across the decommissioned access road to the Jewelbox Waste Rock Dump.



2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Waste Rock Dump Areas

Job No: CAPR001928

Filename: SDH_2022-SiteInspection_Photolog.pptx

Sa Dena Hes

Date: Approved: Sept. 28, 2022 PHM

ure: **A-23**



Photo WR-03: Jewelbox Waste Rock Dump looking upstream from the erosion gully (Photo WR-04).



Photo WR-04: Erosion gully at the base of the Jewelbox Waste Rock Dump looking downslope. The gully has eroded down to bedrock.



2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Waste Rock Dump Areas

Sa Dena Hes

Date: Approved: Sept. 28, 2022 PHM

A-24

CAPR001928

Job No:



Photo WR-05: Erosion gully at the base of the Jewelbox Waste Dump looking upstream.



Photo WR-06: Overview of the TMA taken from the 1408 Portal Waste Rock Dump.



2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Waste Rock Dump Areas

Sa Dena Hes

Date: Approved: Sept. 28, 2022 PHM

ure: **A-25**



Photo WR-07: 1408 Portal Waste Rock Dump looking north.



Photo WR-08: Surficial slumping near the south end of the 1408 Portal Waste Rock Dump



2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Waste Rock Dump Areas

Job No: CAPR001928

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Date: Approved: Sept. 28, 2022 PHM

Figure: A-26



Photo WR-09: Vent pipe from the 1408 portal.



Photo WR-10: Drainpipes from the 1408 Portal.



2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Waste Rock Dump Areas

Job No: CAPR001928

Filename: SDH_2022-SiteInspection_Photolog.pptx

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Date: Approved: Sept. 28, 2022 PHM

ure: **A-27**



Photo WR-11: Fill placement above the 1408 Portal looking north.



Photo WR-12: Rill erosion at the south end of the 1408 Portal Waste Rock Dump looking southeast.



2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Waste Rock Dump Areas

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e: **A-28**

CAPR001928

Job No:



Photo WR-13: Openings in the Jewelbox Pit wall above the Main Zone Waste Rock Dump



Photo WR-14: Jewelbox Pit wall looking west.



2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Waste Rock Dump Areas

Job No: CAPR001928

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Photo WR-15: Erosion gully down the Main Zone Waste Rock Dump above the 1380 Portal.



Photo WR-16: Backfill at the 1380 Portal below Main Zone Waste Rock Dump.



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2022 Annual Facility Performance Review

Main Zone and Jewelbox Zone Waste Rock Dump Areas

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Date: Approved: Sept. 28, 2022 PHM

A-30



Photo WR-17: Regraded Burnick Waste Rock Dump at the 1200 Portal.



Photo WR-18: 1200 Portal drainpipe.



2022 Annual Facility Performance Review

Burnick Waste Rock Dump Area

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Date: Approved: Sept. 28, 2022 PHM

igure: A

Filename: SDH_2022-SiteInspection_Photolog.pptx

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Job No:

Date



Photo WR-19: Regraded 1300 Portal Waste Rock Dump and 1300 Portal area



Photo WR-20: 1300 Portal drainpipe.



2022 Annual Facility Performance Review

Burnick Waste Rock Dump Area

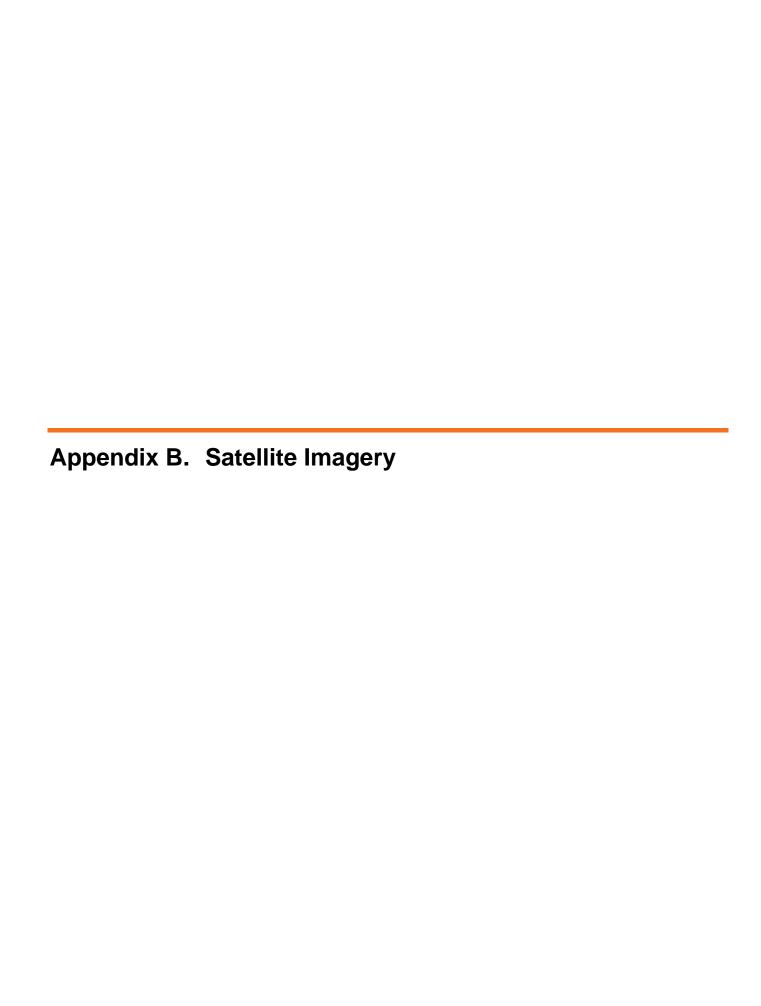
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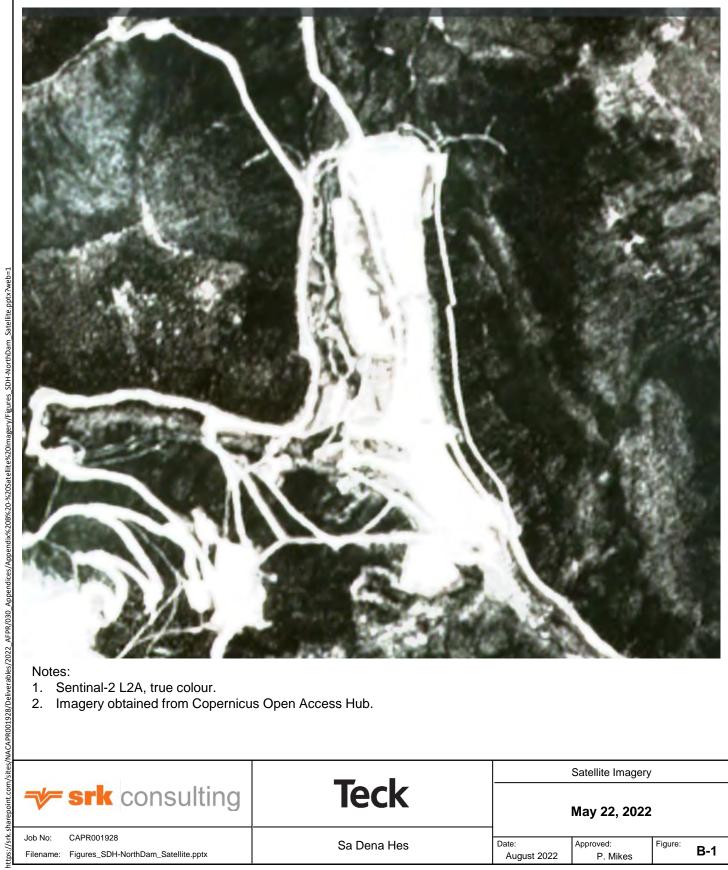
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Date: Approved: Sept. 28, 2022 PHM

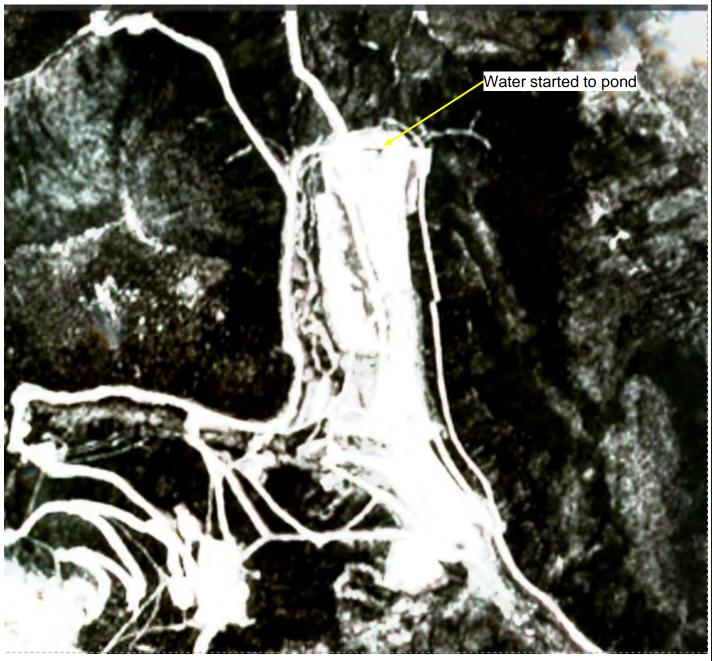
igure: A-32





- Sentinal-2 L2A, true colour.
 Imagery obtained from Copernicus Open Access Hub.

			Satellite Imagery	,	
srk consulting	Teck		May 22, 2022		
Job No: CAPR001928 Filename: Figures_SDH-NorthDam_Satellite.pptx	Sa Dena Hes	Date: August 2022	Approved: P. Mikes	Figure:	B-1



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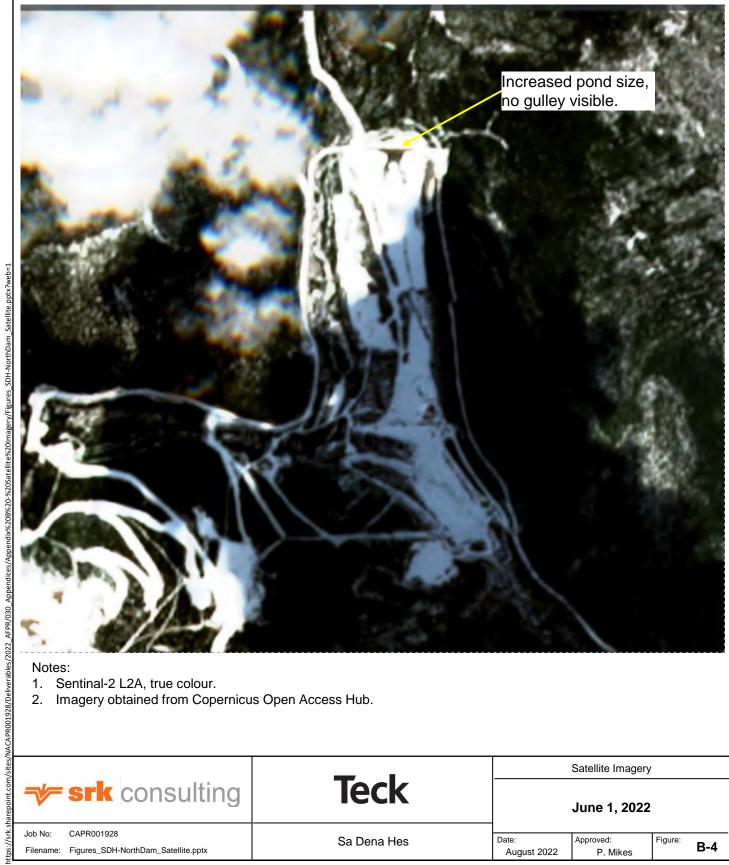
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srk consulting	Teck		May 27, 2022		
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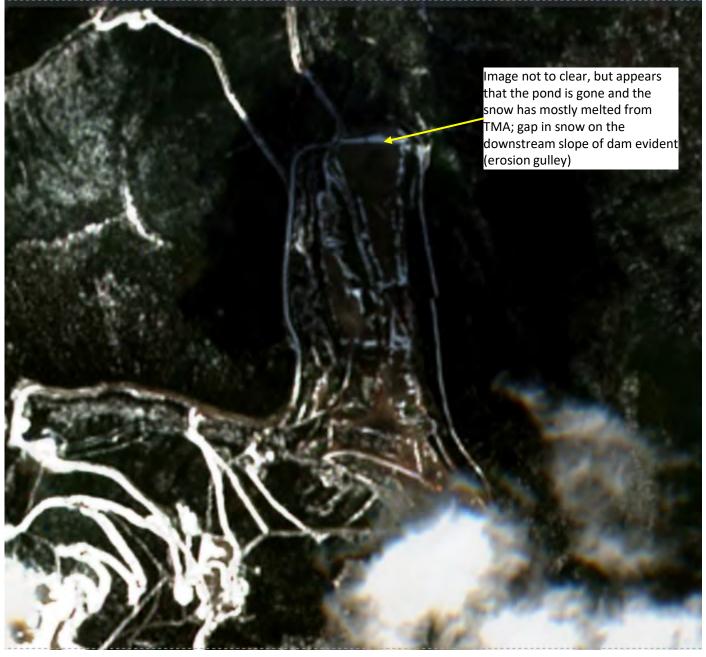
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				Satellite Imagery	,	
*	srk consulting	Teck		May 28, 2022	!	
Job No: Filename:	CAPR001928 Figures_SDH-NorthDam_Satellite.pptx	Sa Dena Hes	Date: August 2022	Approved: P. Mikes	Figure:	B-3



- Sentinal-2 L2A, true colour.
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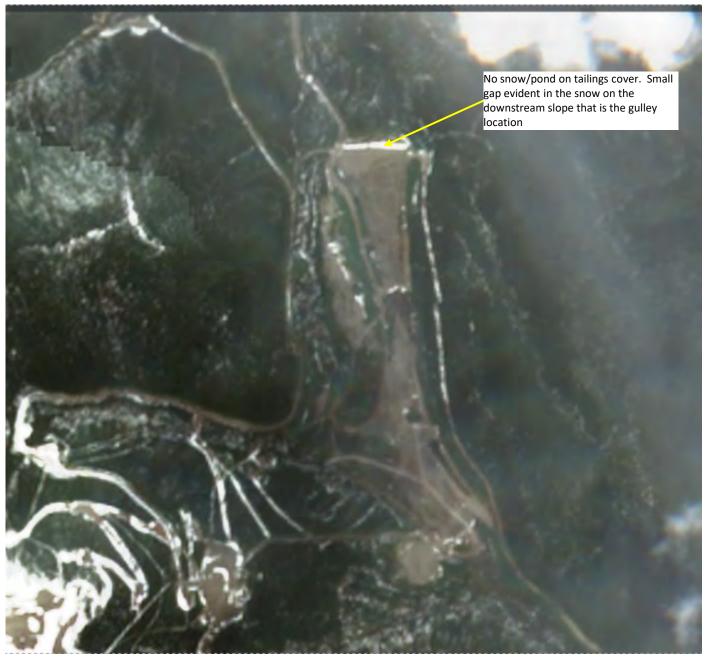
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-∜= sr	k consulting	Teck		June 1, 2022		
Job No: CAPR00 Filename: Figures_	1928 SDH-NorthDam_Satellite.pptx	Sa Dena Hes	Date: August 2022	Approved: P. Mikes	Figure:	B-4



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- 1. Sentinal-2 L2A, true colour.
- 2. Imagery obtained from Copernicus Open Access Hub.

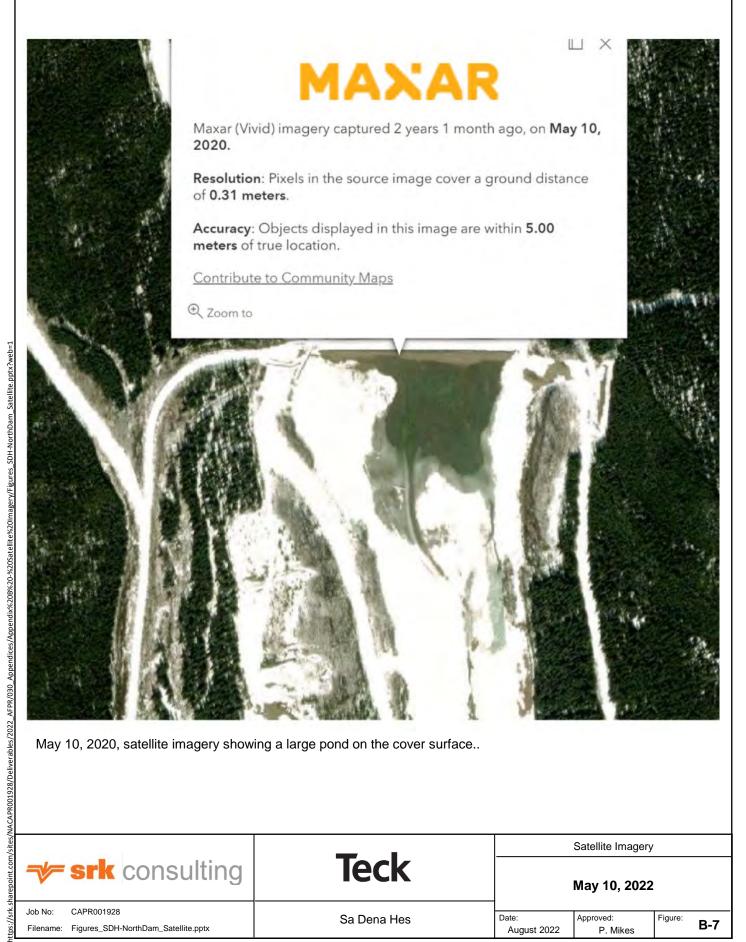
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srk consulting	Teck	June 7, 2022			
Job No: CAPR001928 Filename: Figures_SDH-NorthDam_Satellite.pptx	Sa Dena Hes	Date: August 2022	Approved: P. Mikes	Figure:	B-5



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- Sentinal-2 L2A, true colour.
 Imagery obtained from Copernicus Open Access Hub.

					Satellite Imagery	′	
=	*	srk consulting	Teck		June 11, 2022	2	
2	ob No: ilename:	CAPR001928 Figures_SDH-NorthDam_Satellite.pptx	Sa Dena Hes	Date: August 2022	Approved: P. Mikes	Figure:	B-6



May 10, 2020, satellite imagery showing a large pond on the cover surface..

			Satellite Imagery	′	
→ srk consulting	Teck		May 10, 2022	?	
Job No: CAPR001928 Filename: Figures_SDH-NorthDam_Satellite.pptx	Sa Dena Hes	Date: August 2022	Approved:	Figure:	B-7

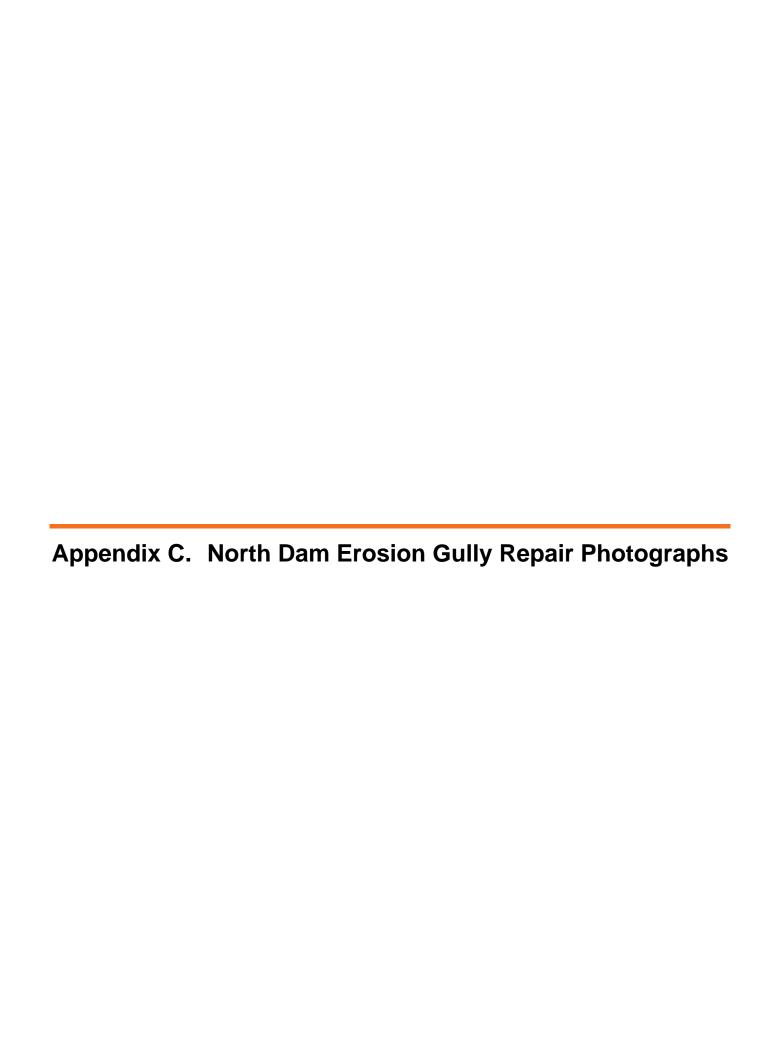




Photo 1: Drone Orthophoto - June 20, 2022



Photo 2: Erosion Gully looking upslope (June 21, 2022).





Photo 3: Erosion of the dam crest and tailings cover at the upstream end of the erosion gully (June 21, 2022).





Photo 4a/b: West and east sides of the erosion gully (June 21, 2022).

		2022 AFPR			
srk consulting Teck			Dam Gully F Photographs	-	
Job No: CAPR001928 Filename: SDH_NorthDamGullyRepair_Photolog.pptx	Sa Dena Hes	Date: Sept. 28, 2022	Approved: PHM	Figure:	C-2



Photo 5: Excavator constructing working platforms down the west side of the gully (June 23, 2022).



Photo 6: French Drain installation at the base of the gully (June 24, 2022).

		2022 AFPR				
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Job No: CAPR001928						
	Sa Dena Hes	Date:	Approved:	Figure:	C-3	
Filename: SDH_NorthDamGullyRepair_Photolog.pptx		Sept. 28, 2022	PHM		U-3	



Photo 7: Sand and Gravel gully side slopes were scaled back and placed at the base of the gully (June 24, 2022).



Photo 8: Compaction of Sand and Gravel in 0.3 m lifts (June 24, 2022).



CAPR001928

Job No:

Filename: SDH_NorthDamGullyRepair_Photolog.pptx

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North Dam Gully Repair Photographs

> Date: Sept. 28, 2022

Approved: PHM

2022 AFPR

Figure:

C-4



Photo 9: Placement of sand and gravel and trimming of the dam slope (June 25, 2022).



Photo 10: Geotextile installation to delineate between the Sand and Gravel and Repair Till embankment zones (June 25, 2022).

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2022 AFPR

North Dam Gully Repair **Photographs**

CAPR001928 Sa Dena Hes Filename: SDH_NorthDamGullyRepair_Photolog.pptx

Date: Sept. 28, 2022 Approved: PHM

C-5



Photo 9: Till placement (June 26, 2022).



Photo 10: Completed repairs looking west (June 28, 2022).



CAPR001928

Job No:

Filename: SDH_NorthDamGullyRepair_Photolog.pptx

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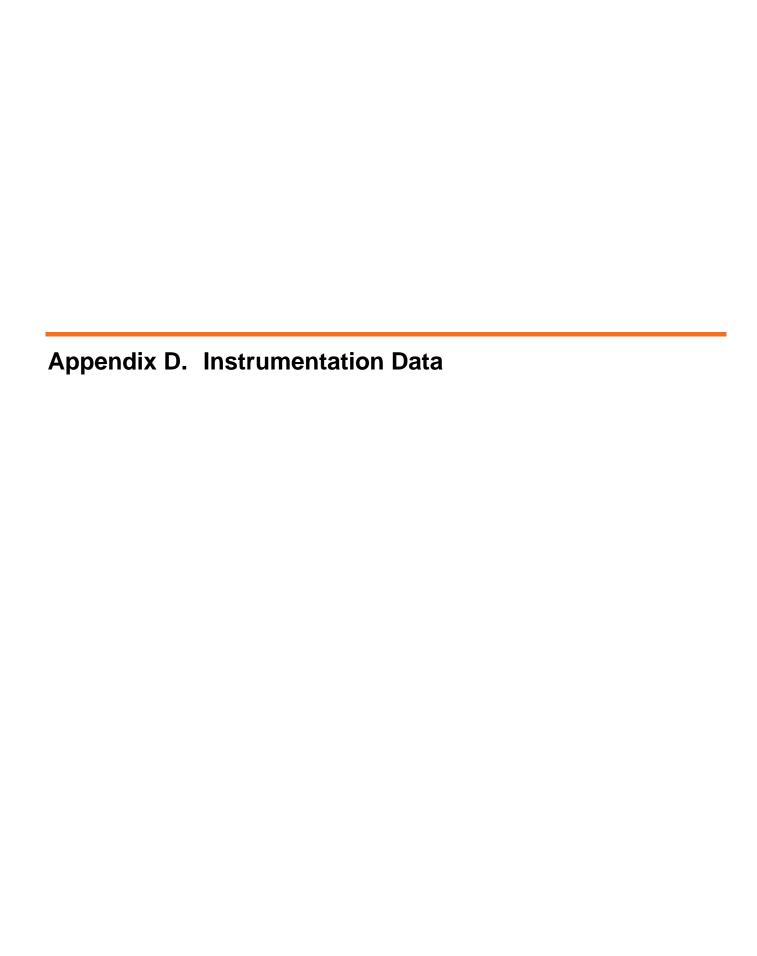
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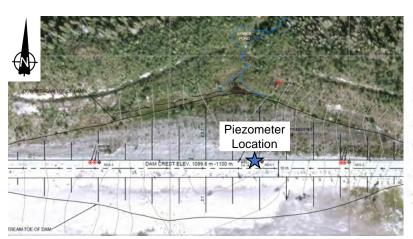
2022 AFPR

North Dam Gully Repair Photographs

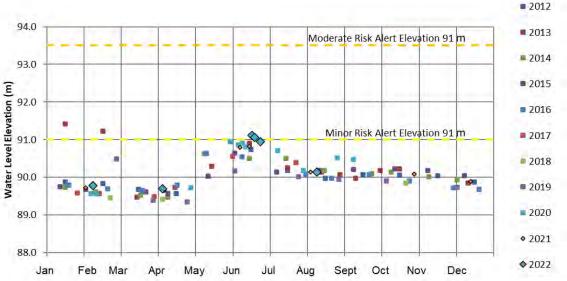
Date: Sept. 28, 2022 Approved: PHM Figure:

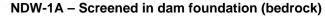
C-6

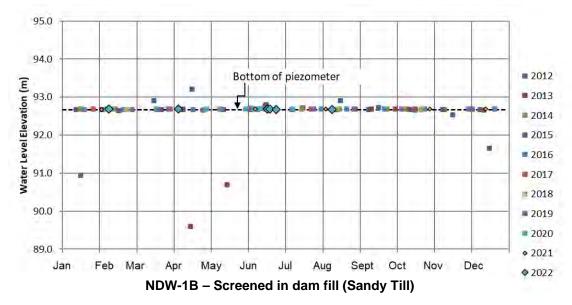




- 1. Orthographic photo depicts the pre-decommissioned surface on August 15, 2012.
- Co-ordinate system is UTM NAD 83 CSRS Zone 9V.









Figures_ND_Piezometers_CAPR001928.pptx

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North Dam Instrumentation

North Dam Piezometers NDW-1A and 1B

Source life: https://srk.sharepoint.com/sites/FS261/Internal/Monitoring%20 Data/NDMPiezolevels_2022Edition.xlsx?web=1

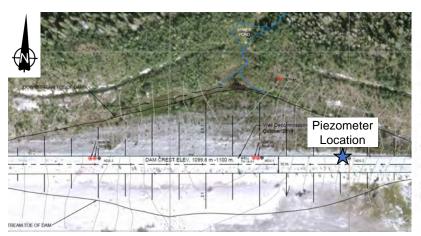
Job No: CAPR001928

Sa Dena Hes

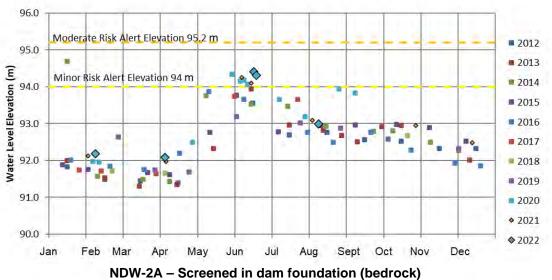
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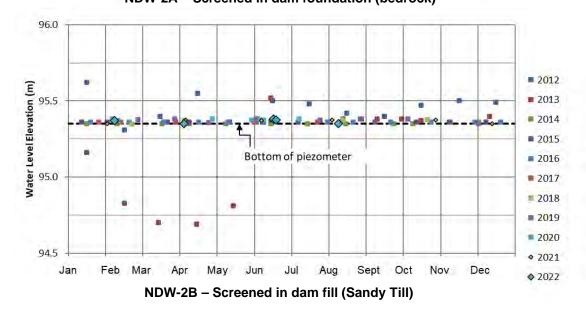
P. Mikes

Figure: **D-1**



- 1. Orthographic photo depicts the pre-decommissioned surface on August 15, 2012.
- Co-ordinate system is UTM NAD 83 CSRS Zone 9V.







Figures_ND_Piezometers_CAPR001928.pptx

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North Dam Instrumentation

North Dam Piezometers NDW-2A and 2B

Source life: https://srk.sharepoint.com/sites/FS261/Internal/Monitoring%20 Data/NDMPiezolevels_2022Edition.xlsx?web=1

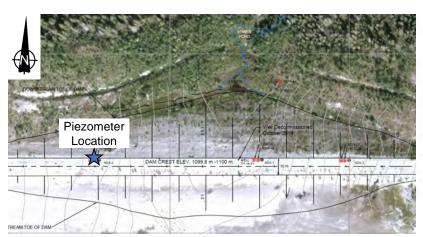
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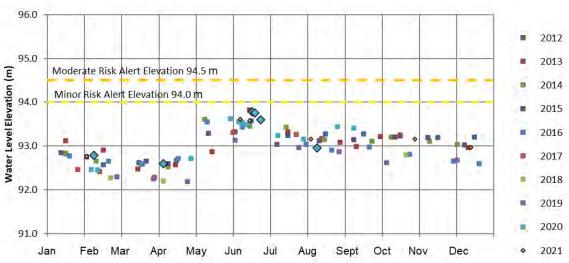
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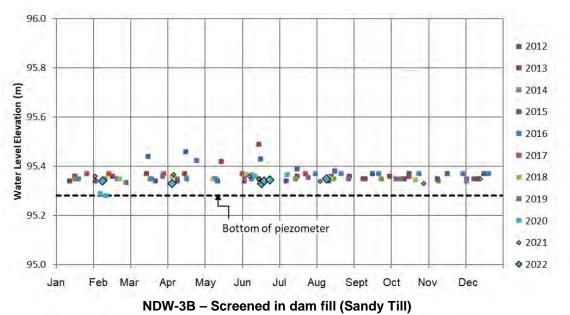
D-2



- 1. Orthographic photo depicts the pre-decommissioned surface on August 15, 2012.
- 2. Co-ordinate system is UTM NAD 83 CSRS Zone 9V.



NDW-3A - Screened in dam foundation (bedrock)





Figures_ND_Piezometers_CAPR001928.pptx

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North Dam Instrumentation

North Dam Piezometers NDW-3A and 3B

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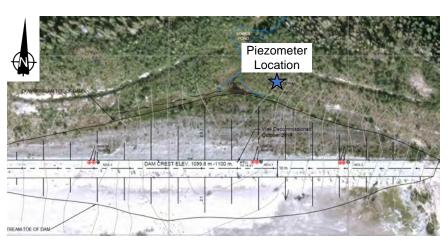
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Sa Dena Hes

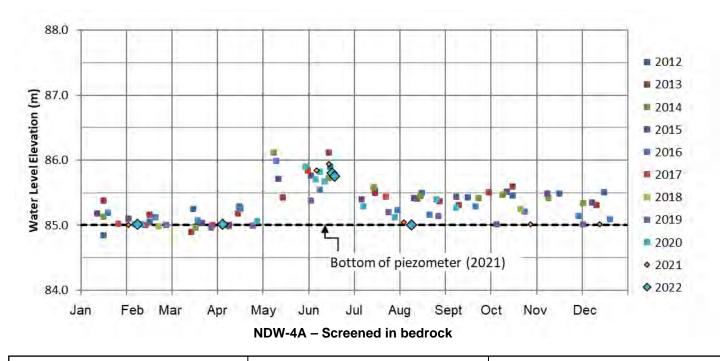
ate: Approved: Approved: P. Mikes

Figure:

D-3



- 1. Orthographic photo depicts the pre-decommissioned surface on August 15, 2012.
- 2. Co-ordinate system is UTM NAD 83 CSRS Zone 9V.





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Filename: Figures_ND_Piezometers_CAPR001928.pptx

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North Dam Piezometers

Job No: CAPR001928

Sa Dena Hes

North Dam Plezometers NDW-4A

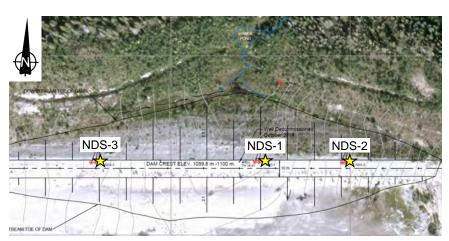
North Dam Instrumentation

ate: Approved: Approved: P. Mikes

Figure:

D-4

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- Orthographic photo depicts the pre-decommissioned surface on August 15, 2012. Co-ordinate system is UTM NAD 83 CSRS Zone 9V. 1.
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(m) 1,100.4	45					
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1,100.3	35					
1,100.3	30					
1,100.2	25 01-Aug-15	01-Aug-16	01-Aug-17	01-Aug-18	01-Aug-19	
		NDS-1	NDS-2	NDS-3		

	THRESHOLD CRITERIA (masl)					
	Acceptable	Warning	Alarm			
NDS-1	1,100.425	1,100.375	1,100.325			
NDS-2	1,100.545	1,100.495	1,100.445			
NDS-3	1,100.570	1,100.520	1,100.470			

Ele	vation Read	ngs					
		:	Set	tlement Pi	าร		
	Date	NDS-1		NDS-2		NDS-3	Notes
	06-Aug-15	1,100.412		1,100.524		1,100.574	
	10-Sep-15	1,100.391		1,100.512		1,100.548	
	01-Jul-16	1 ,100.425		1,100.547		1,100.572	2016 and onward readings
							are relative to BM 103
	01-Aug-17	1 ,100.427		1,100.547		1,100.573	
	25-Jul-18	1,100.426		1,100.546		1,100.571	
	24-Jul-20	1,100.426		1,100.547		1,100.571	

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North Dam Instrumentation

North Dam Settlement Pins

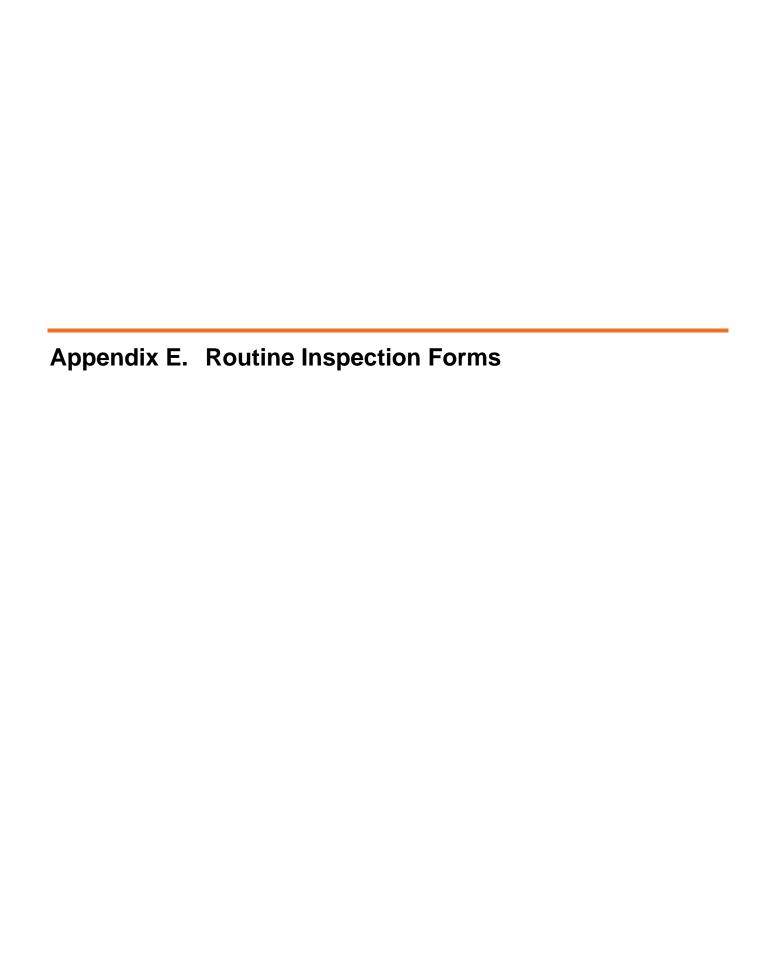
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CAPR001928

Sa Dena Hes

Approved: August 2022 P. Mikes Figure: **D-5**

https://srk.sharepoint.com/sites/FS261/Internal/Monito Data/NDMPiezolevels_2022Edition.xlsx?web=1





General Information

Inspected By:

Jeff Basarich

Jewel Box

Jewelbox Soil Caps

Date:

29/06/2022

General Appearance

Few deepening rills and slumping on hillside below

old capped portal

Erosion

Deepening of erosion at top end of road onto cap.

Settlement/Depressions

Slumping below portal area

Standing Water

No Issues

Vegetation

No Issues

Waste Rock Dumps

Cracks/Scarps

No Issues

Susidence

No Issues

Erosion

None out of the ordinary

Seeps

No Issues

Jewel Box Photo's



Photo Discription	Photo	Photo Location
Hole in the wall still snow covered		

Burnick

Inspection Date:
29/06/2022
Weather:
15 sunny
Burnick 1200 Waste Rock Dump
Cracks/Scarps

No Issues

Subsidence
No Issues
Erosion
No Issues
Seeps
Appears to have had heavy runoff but no excessive erosion or rills.
Water coming from middle portal drain.
Burnick 1300 Waste Rock Dump

Cracks
No Issues
Subsidence
No Issues
Erosion
No Issues
Seeps
No Issues

Burnick Photo's





North Creek Dike Breach

Date 25/06/2022 Sideslopes No Issues Found Settlement/Depressions
No Issues Found
Debris at Inlet
Some beaver debris , clean out with mini excavator

Vegetation
No Issues Found



Riprap

Further erosion of rip rap

Discharge

Discharge end eroding further as rip rap washes

away

North Creek Second Crossing

Date:

25/06/2022

Sideslopes

Substantial erosion unable to safely cross, pull back some rip rap with mini excavator to reestablish a passable road across

Riprap

No Issues Found

Settlement/Depressions

No Issues Found

Debris at Inlet

No Issues Found

Discharge

Discharge erosion is substantially more than last

fall, large round crater.

Vegetation

No Issues Found

North Dam

Date:

17/06/2022 Ponded Water

No Issues Erosion

Major erosion issue, west of center of N. Dam. Large erosion gulley washed from tailings cap to almost the toe of downstream face. Contacted appropriate supervisor and repairs were performed.

Settlement/Depressions

No Issues
Cracks/Movement

No Issues

Vegetation

No Issues

Downstream Toe Seepage

No Issues

North Dam Photo's



Photo Discription	Photo	Photo Location
North Dam erosion		

North Pond Cap

Date:

26/06/2022

General Appearance

Willow growth doing ok, a bit patchy.

Erosion

No Issues

North Pond Photo's

Settlement/Depressions

No Issues

Standing Water

Minimal ponding of shallow water.

Evaporite Salts

No Issues

Vegetation

No Issues

Drainage Swale

Very slight slope but draining as good as possible



Photo Discription	Photo	Photo Location
North pond cap		

Sa Dena Hes Mine Site Geotechnical Inspection

Photo Discription	Photo	Photo Location
After repairs completed		

South Pond Cap

Date: 27/06/2022 General Appearance No Issues Settlement/Depressions
No Issues
Standing Water
No Issues

Vegetation
No Issues
Drainage Swale
No Issues



Erosion Evaporite Salts
No Issues No Issues

South Pond Photo's

Photo Discription	Photo	Photo Location
South pond soil cap	Prioto	Photo Location

North Diversion Channel

Date: Riprap

28/06/2022 No Issues

Slideslopes

No Issues

No Issues

North Diversion Photo's

Teck

Sa Dena Hes Mine Site Geotechnical Inspection

Photo Discription	Photo	Photo Location
North channel		

Sediment Retaining Structure (SRS)

Date:

29/06/2022

Depth of water at spillway

Level with bottom of rip rap

Erosion

No Issues

Settlement/Depressions

No Issues

Vegetation

No Issues

Downstream Toe Seepage

Historic spring at toe seems less than normal



Sloughing of spillway slopes

No Issues

Spillway riprap

No Issues

Debris at spillway inlet

No Issues

Sinkholes East Hillside Seepage

No Issues No Issues

Cracks/Movement

Vertical cracking on downstream face about 30cm

from edge of riprap

Debris

No Issues

SRS Photo's

Photo Discription	Photo	Photo Location
SRS pond		

South Drainage Channel

Date: Riprap

29/06/2022 No Issues

Slideslopes Debris

No Issues No Issues

South Drainage Photo's



Photo Discription	Photo	Photo Location
South channel		

Camp Creek Drainage Channel

Date:Riprap30/06/2022No IssuesSlideslopesDebrisNo IssuesNo Issues

Reclaim Pond Soil Cap

30/06/2022

General Appearance
Osprey's appear to be nesting again on power pole

Erosion

No Issues

Date:

No Issues
Standing Water
No Issues
Vegetation
No Issues

Settlement/Depressions

Drainage Swale No Issues



Reclaim Pond Photo's

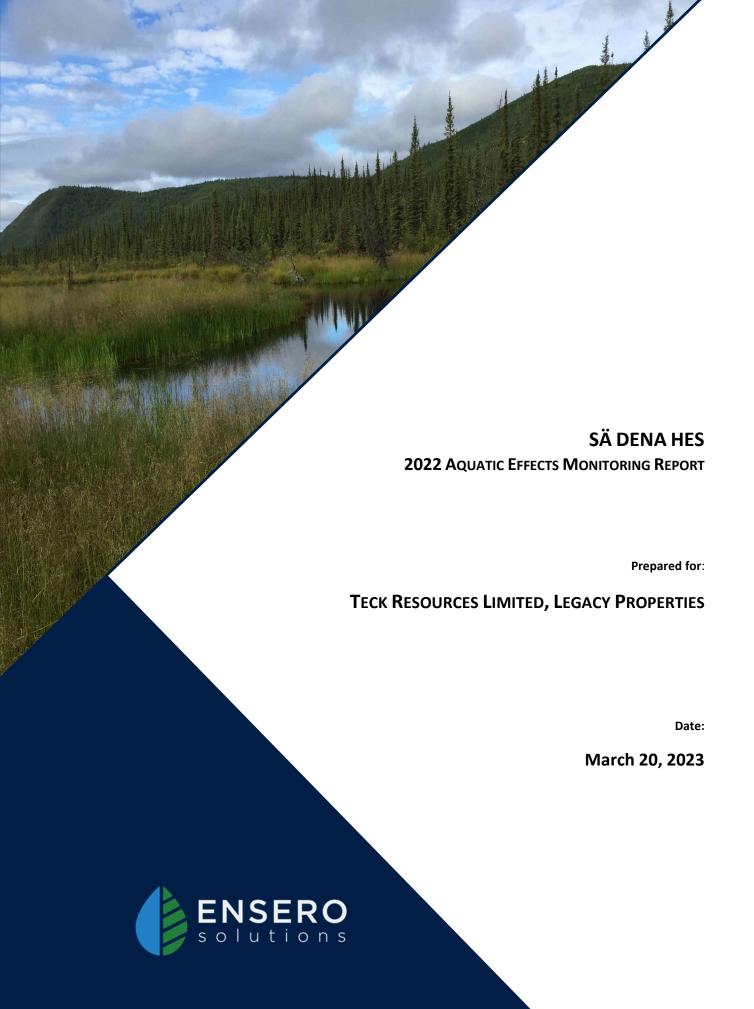
Photo Discription	Photo	Photo Location
Reclain area		

Sian:

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APPENDIX H: 2022 AQUATIC EFFECTS MONITORING REPORT





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REVISION HISTORY

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Appendix E: CABIN Field Sampling Sheets

Appendix F: Sampling Site Photos Appendix G: Water Quality Results

Appendix H: Cordillera Consulting Raw Benthic data Results



LIST OF ACRONYMS

Acronym	Description
ALS	ALS Environmental
CABIN	Canadian Aquatic Biomonitoring Network
CCME	Canadian Council of Ministers of the Environment
CEQG	Canadian Environmental Quality Guidelines
CPUE	Catch per unit effort
DO	dissolved oxygen
DOC	dissolved organic carbon
EPT	Ephemeroptera-Plecoptera-Trichoptera
НВІ	Hilsenhoff Biotic Index
ISQG	interim sediment quality guidelines
К	Condition factor
LOI	loss on ignition
MDL	Method Detection Limit
ORP	oxidation-reduction potential
PEL	probable effect levels
PQL	practical quantitation limit
QA/QC	quality assurance and quality control
RPD	relative percent difference
SDH	Sa Dena Hes
SDI	Simpson's Diversity Index
SPC	specific conductance
TOC	Total Organic Carbon



1 Introduction

The Sä Dena Hes (SDH) property is the site of a former lead-zinc mine that operated from 1991 to 1992. The property is located 45 km north of Watson Lake (Figure 2-1) in the Yukon Territory and is owned by the Sä Dena Hes Operating Corporation which is a joint venture between Teck Resources Limited (Teck) and Pan-Pacific Metal Mining Corp., a wholly owned subsidiary of Korea Zinc. Teck is the operator under the joint venture agreement for the site.

The Yukon Water Board regulates water management of mine sites within Yukon Territory with site-specific Water Use Licences. Water Use Licence QZ16-051 (Appendix A) addressing permanent closure came into effect on April 1, 2017. A requirement of QZ16-051 is that annual reports addressing the terms of the licence be submitted to the Water Board. Ensero Solutions (Ensero) was retained by Teck to prepare the 2022 report.

Monitoring of aquatic biological resources and stream sediments has been ongoing in the SDH study area in various forms since the initial baseline biophysical resource characterization work prior to development of the mine. Teck is continuing to monitor these conditions in the post-reclamation period to provide context to the ongoing water quality results and to provide additional comparison points for the ongoing evaluation of the potential for effects to aquatic resources. The monitoring programs for these resources have been modified to focus on the potential for effects nearer to the mine, as opposed to the very far downstream stations that have been monitored historically.

Sampling for the monitoring of benthic invertebrate communities, stream sediment sampling, and fisheries is conducted every two years during low flow conditions (August or September). The stream sediment quality is conducted in low flow conditions with benthic invertebrate monitoring. Monitoring of benthic invertebrate communities is conducted in low flow conditions to ensure that organisms are developed sufficiently to effectively identify to appropriate taxonomic levels. Harmonized monitoring of these programs allows for more meaningful interpretation of results, and sediment quality is a key link between water column contaminant concentrations and benthic community health. The sample locations include the compliance locations (MH-11 and MH-12) stations MH-04 and MH-13 (downstream of mine sources) and reference stations (MH-29 and MH-30) and are further described in Section 2.

Monitoring of fisheries resources is also conducted in the fall, which is when fish have historically been observed the highest up in the receiving environment watercourses, and individuals are developed to a size which allows for monitoring on the same frequency and timing as the benthic and sediment monitoring programs. The fisheries monitoring is conducted at MH-13 and reference location MH-30.

Aquatic resources monitoring was conducted in 2022, in accordance with Schedule A – Part 3 of the WUL QZ16-051. Sediment, benthic invertebrate, and fisheries sampling was conducted concurrently with the August 2022 surface water and groundwater monitoring between August 8 - 10, 2022. Table 2-1 presents the stations monitored and sample types collected at each station. Station MH-30 was not sampled during the 2022 monitoring event because the site was inaccessible due to flooding by beaver activity. MH-30 was chosen as a reference location, as such it doesn't have an impact on measuring potential downstream effects from the mine site.



2 STUDY AREA

The study area is located in the upper part of the Liard River basin, 40 air kilometers, and 70 road kilometers north of Watson Lake.

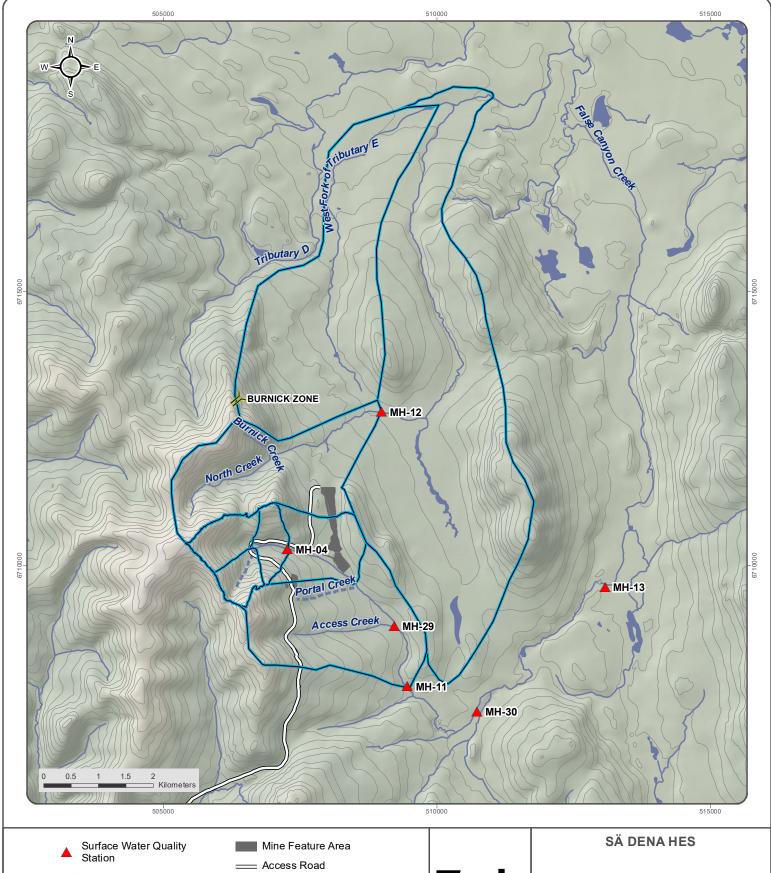
The SDH property lies within the ecoregion known as the Liard Basin. This ecoregion is characterized by low hills separated by broad plains and surrounded by mountains and plateaus. The low elevation, moderate precipitation and relatively long, warm summers results in vigorous forest growth, most notable in the flood plains of the major rivers of the area (Yukon Ecoregions Working Group, 2004).

The tailings management area was dewatered, contoured, covered and revegetated. The mill site and waste dumps were also re-contoured and revegetated. All revegetated areas were revegetated with local native shrubs and grasses. Receiving water sites will be monitored over time. The applicable sites pertinent to this study are described in Table 2-1 and depicted in Figure 2-1.

Table 2-1: Sample Site Descriptions and Locations

	NAD 83, Zone 9V		Site Description	Sample Type	Site Type	
Site #	Easting	Northing	Site Description	Sample Type	, , , , , , , , , , , , , , , , , , ,	
MH-04	507374	6710097	Camp Creek headwaters above former reclaim pond	WQ, BI, SS	Exposed	
MH-11	509241	6708863	Camp Creek	WQ, BI, SS	Exposed	
MH-12	508988	6712814	East Fork of Tributary E	WQ, BI, SS	Exposed	
MH-13	513030	6709693	False Canyon Creek 10 km downstream of the former reclaim pond	F, WQ, BI, SS	Exposed	
MH-29	509213	6708888	Access Creek upstream of Camp Creek	WQ, BI, SS	Reference	
MH-30	510985	6707568	unnamed tributary upstream of False Creek Canyon	F, WQ, BI, SS	Reference	

F = fish, WQ = water quality, BI = benthic invertebrates, SS = stream sediments



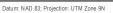
Portal

Sub-Catchment Boundaries

Watercourse

Seasonal Surface Flow

Contour



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FIGURE 2-1 Aquatic Resource Monitoring Locations

MARCH 2023



3 METHODS

3.1 WATER QUALITY AND HYDROLOGY

At each of the surface water monitoring stations, *in situ* field measurements were made prior to sampling at each surface water station. Field parameters (pH, specific conductance (SPC), oxidation-reduction potential (ORP), dissolved oxygen (DO) and temperature) were measured and recorded at each station using a calibrated YSI Professional Plus multimeter to assess *in situ* water chemistry.

Water quality samples were collected in accordance with Canadian Council of Ministers of the Environment (CCME) *Protocols Manual for Water Quality Sampling in Canada* (CCME, 2011). Clean nitrile gloves and sample bottles provided by the analytical laboratory specific to the analytes being tested were used. Dissolved metals, dissolved mercury and dissolved organic carbon (DOC) water samples were filtered using a 0.45 µm syringe filter in the field at the time of sample collection. During the winters, sub-zero temperatures made it impossible to field filter the dissolved samples, due to the water freezing in the syringe. During these months, an additional sterile lab bottle is provided to collect additional water to filter in a warm environment at the day's end. Preservatives were added to the sample bottles for the analysis of total and dissolved metals, total and dissolved mercury, Total Organic Carbon (TOC), DOC, and nutrients, as directed by the analytical laboratory (ALS Environmental [ALS]). Samples were kept in coolers with ice packs and sent to ALS in Burnaby, BC for analysis with an accompanying chain of custody form specifying the analyte(s) to be tested.

When possible, surface water hydrology was also collected at each of the water quality stations. Discharge measurements, during open water, were measured using a Hach FH950 velocity meter and the United States Geological Survey mid-section method. During the winter months, flows were measured using the salt dilution gauging method. The dilution gauging procedure method deposits a known amount of salt into the stream and measures the concentration downstream over time. The measurement period covers the time it takes for the conductivity to respond to the tracer and return to background.

3.1.1 QUALITY ASSURANCE

The water quality monitoring program included a comprehensive quality assurance and quality control (QA/QC) program to verify validity of the data collected, including data quality objectives and documentation of sample variability due to natural variability and analytical variability. The QA/QC program included the following:

- All field staff followed work methods for surface water sample collection that are based on generally accepted
 best industry practices (CCME, 2011). The sampling procedures included measures to avoid sample
 contamination in the field during sample collection, as well as during sample handling and shipping;
- Blind field duplicates collected at a rate of at least one duplicate per 10 samples (10% of overall samples)
 during the surface water event. The field duplicates were linked to one of samples and recorded in field notes
 but were not indicated on the chain of custody forms. Field duplicates were subsequently evaluated for
 variability by evaluating the relative percent difference (RPD);
- Field blanks and trip blanks were collected during the surface water sampling event;



• Following the sampling event, all analytical and QA/QC results received from the laboratory were reviewed to verify data quality and to flag any potential issues (e.g., data quality issues from the information provided by the lab, high ion balance percent difference).

The above QA/QC procedures were followed during the August 2022 water quality monitoring event and data quality objectives were established to evaluate sample variability resulting from natural conditions or as a function of sampling or analytical procedures.

3.1.2 ANALYTICAL VARIABILITY

Laboratory duplicates were used to measure laboratory analytical variability. Results of quality assurance analysis are included in Appendix B within the laboratory reports. All laboratory duplicates met the lab quality control limit of 20% RPD for all parameters tested. ALS also ran analyses on matrix spikes, spiked blanks, and method blanks with internal Data Quality Objectives achieved for all samples ensuring data precision and accuracy.

3.1.3 FIELD VARIABILITY

During the monitoring program, field duplicates were collected to measure field variability between simultaneous grab samples. One field duplicate was collected from the 10 samples in August 2022. The RPD is used to determine variability. RPD was calculated for every analyte of each sample-duplicate couple according to the following formula:

$$RPD (\%) = \frac{\left| \frac{\left(Result_{Sample} - Result_{Replicate} \right)}{\left(\frac{Result_{Sample} + Result_{Replicate}}{2} \right)} \right| \times 100$$

RPD is not considered further where one or both results being compared are less than the practical quantitation limit (PQL). The PQL is five times the Method Detection Limit (MDL) and is defined as the minimum concentration that can be measured within specified limits of precision and accuracy. A constituent with results below the PQL means that the constituent being analyzed is not present in a sufficient amount to be reliably quantified. Typically, as parameters approach their detection limit, high variability is more likely to occur. Where applicable, the RPD of <25% can be used as a benchmark whereby an RPD greater than 25% warrants further comment or consideration.

During the August 2022 surface water event, none of the parameters from the duplicate had an RPD greater than 25%, which met the PQL.

3.1.4 FIELD AND TRAVEL BLANKS

Additional field quality control samples include field blanks and trip blanks, where de-ionized water is handled, processed, and analyzed in the same manner as the site water samples. Blanks can provide an indication of sample contamination occurring in the field (field blank) or laboratory (method blanks) and at any point in between (trip blanks). Concentrations of parameters should not be detectable, though a use of a blank reporting threshold of two-times the MDL allows for slight "noise" around the detection limit.

A field blank is processed by taking de-ionized water (analyte free media) to the sample station, opening it, and exposing it to ambient air and 'collecting' it in the sample bottles. These samples are treated the same as the actual water samples, preserved and filtered as necessary, and their analysis can provide an indication of contamination that may be affecting the actual samples. One field blank was collected during the August 2022 surface water event. None of the parameters in the field blank were detected above 2x the MDL.



Trip blanks (sample of de-ionized water) are supplied and prepared by the lab and are intended to accompany the sample bottles provided by the lab for the monitoring program. The trip blank travels with the sample bottles to the sample stations and is returned unopened back to the lab with the collected samples. The purpose of the trip blank is to identify any potential contamination (e.g., cross contamination from other samples or ambient air conditions) to which the samples may be exposed. One trip blank was collected during the August 2022 surface water event. Two parameters, total suspended solids and ammonia were detected above 2x the MDL in the August 2022 trip blank. Overall, the replicate and blank data indicate the data collected during the August 2022 are suitable for use. Trip blank results greater than 2x the MDL are presented in Table 3-1.

All water quality and QA/QC results are presented in Appendix B.

Table 3-1: Trip Blank Detected Parameters

Site	Date	Analyte	Units	Result	MDL	PQL
Tois Disul	11 4 22	Total Suspended Solids	mg/L	0.0163	0.0050	3.26
Trip Blank	11-Aug-22	Ammonia	mg/L	0.0486	0.0050	9.72

3.2 SEDIMENT

Stream sediment is used as a monitoring tool to support assessments of water quality and benthic invertebrate communities. Many contaminants which are toxic to aquatic biota (i.e., heavy metals) enter aquatic systems and bind to stream sediments. Some contaminants can persist in sediment for years, long after they are no longer detectable in water quality samples. Sediment associated contaminants alter benthic community structure and indirectly affect organisms at higher trophic levels such as fish.

Sediments were collected from the locations listed in Table 2-1, concurrently with the surface water quality and benthic invertebrate sample collection. Fine-grained sediment samples were collected following the "guzzler" method where a hand-operated bilge pump was used to "vacuum" fine sediment from three 1 m² areas within the sample reach. This method is further described in the BC Ministry of Environment Field Sampling Manual (BCMOE, 2021). Three sediment samples were collected at each station. Following collection, samples were refrigerated then shipped to ALS for analysis. At the laboratory, were dried and sieved to determine particle size fractions. The 100µm fraction was analyzed for metals, as well as organics content using loss on ignition (LOI) at 600°C. For QA/QC purposes, duplicate samples were collected at a rate of 10% of the total collected sediment samples, with sample duplicate pairs being compared through relative percent difference. Data was screened against the Canadian Environmental Quality Guidelines (CEQGs) interim sediment quality guidelines (ISQG) and the probable effect levels (PEL) established by the Canadian Council of Ministers of the Environment (CCME, 1999) and evaluated for trends. In addition, trends in metal concentrations were evaluated over time using applicable statistical approaches (i.e., regression).

3.3 Benthic Invertebrates

The benthic invertebrate community surveys were conducted on August 8, 9, and 10, 2022. Samples were collected using the "traveling kick net sampling method". This is the recommended approach for samples being collected as part of the Canadian Aquatic Biomonitoring Network (CABIN), an aquatic monitoring program maintained by Environment Canada (Environment Canada, 2022). Under this approach, sampling is conducted while zigzagging



across/along a riffle stream section to provide a standardized time rather than density estimate of organism abundance. To minimize natural influences on data variability, habitat conditions (sampling depth and substrate properties) were considered when visiting sampling stations.

Following the three-minute collection period, all material and organisms retained in the collection net were transferred into wide-mouth plastic jars containing both internal and external identification labels. The benthic samples were preserved on site with 10% buffered formalin. Samples were sent to Cordillera Consulting (BC). Taxonomy was conducted by a taxonomist certified from the Society of Freshwater Science Taxonomic Certification Program, consistent with CABIN requirements. Quality assurance and quality control methods for benthic invertebrate analyses by Cordillera Consulting are outlined in Appendix C.

Benthic invertebrate community data will be summarized to produce community metrics including total abundance, taxonomic richness, Simpson's Diversity Index (SDI), % of Ephemeroptera-Plecoptera-Trichoptera (EPT), % of Diptera, and the Hilsenhoff Biotic Index (HBI).

3.4 FISH MONITORING

Fisheries monitoring was conducted at MH-13 and MH-30 following methods detailed in the BC Reconnaissance (1:20,000) Fish and Fish Habitat Inventory protocols under the Fisheries and Oceans Canada Licence number XR 230 2022 (Appendix D).

Fisheries monitoring was primarily conducted using a Smith-Root LR-24 backpack unit, operated by a certified electrofishing crew leader, supported by a netter. Electrofishing was conducted in an upstream direction at each station while continually moving the anode in a zigzag pattern from bank to bank to ensure good coverage of the stream sections. Each station was assessed using a single pass with the electrofisher. Block nets were not used to isolate each station. Following electrofishing, the shocking time, distance fished, voltage, frequency, and duty cycle were noted for each sampling event.

Fish were also monitored using six Gee-style minnow traps baited with dry cat food both MH-13 and MH-30. Minnow traps were flagged with the licence number and placed in appropriate fish habitat (pools, eddies, side tributaries, slow runs) for up to 48 hours. After a maximum of 48 hours, traps were removed, and bait was discarded in wildlife-proof bins.

All captured fish were identified to species. Other fish metrics including length (\pm 0.1mm), weight (\pm 0.1g), condition, and age class were also recorded before releasing the live fish at the site of capture.



4 RESULTS AND DISCUSSION

CABIN field sampling sheets for site monitoring are included in Appendix E. Photos of each sampled site are included in Appendix F.

4.1 WATER QUALITY

Water quality samples collected at the aquatic resource monitoring stations (Table 2-1), were collected concurrently with the routine WUL surface water monitoring event in August 2022. Water quality stations MH-11 and MH-12 are monitored under the Water Licence and are regulated under the Receiving Water Quality Standards (QZ16-051 Clause 40). For stations with no standards prescribed by the WUL, water quality was compared to the most recent CCME guidelines, where applicable. August 2022 water quality results are summarised in Table 4-1 and Table 4-2. Full results are compiled in Appendix G.

Table 4-1: August 2022 Water Quality Results at Receiving Environment Stations MH-11 and MH-12

Parameter	Units	MH-11 10-Aug-22	MH-11 WUL standards ¹	MH-12 09-Aug-22	MH-12 WUL standards ¹
рН	pH units	8.2		8.3	
Hard-T	mg/L	187		160	
TSS	mg/L	<1.0		1.0	
SO4	mg/L	12.0	429	7.93	309
Al-D ²	mg/L	0.0069	0.05	0.0025	0.05
Ag-T	mg/L	<0.000010	0.00025	<0.000010	0.00025
As-T	mg/L	0.00062	0.005	0.00087	0.005
Be-T	mg/L	<0.000020	0.00013	<0.000020	0.00013
Cd-D ¹	mg/L	0.0000576	0.000308	0.0000416	0.000268
Co-T	mg/L	<0.00010	0.004	<0.00010	0.004
Cr-T	mg/L	<0.00050	0.001	<0.00050	0.001
Cu-T ¹	mg/L	<0.00050	0.0067	<0.00050	0.0055
Fe-T	mg/L	0.054	1.0	0.012	1.0
Mo-T	mg/L	0.000851	0.073	0.00120	0.073
Ni-T ¹	mg/L	<0.00050	0.14	<0.00050	0.12
Pb-T ¹	mg/L	0.000265	0.0182	0.000281	0.00811
Sb-T	mg/L	0.00015	0.009	0.00022	0.009
Se-T	mg/L	0.000532	0.002	0.000579	0.002
TI-T	mg/L	<0.000010	0.0008	<0.00010	0.0008
Zn-T ¹	mg/L	0.0058	0.163	<0.0030	0.044

Values in bold indicate an exceedance of the WUL standards.

¹ Guideline is hardness dependent.

² Guideline is pH dependent.



Table 4-2: August 2022 Water Quality Results for MH-04, MH-13 and MH-29

Parameter	Units	CCME Guideline	MH-04	MH-13	MH-29			
Date			08-Aug-22	09-Aug-22	10-Aug-22			
Insitu								
Temperature	С	-	4.2	9.7	6.4			
рН	pH Units	6.5-9	8.22	8.26	8.26			
Specific Conductance	μS/cm	_	290.4	348.2	333.9			
Dissolved Oxygen	%		83.3	86.9	80.2			
Dissolved Oxygen	mg/L		10.9	8.15	8.64			
ORP	mV		206.2	155.2	183.9			
		Analytical	Data					
Hardness, total	mg/L	-	144	185	180			
Total Suspended Solids	mg/L	_	<1.0	1.7	<1.0			
Alkalinity	mg/L	_	142	190	182			
Ammonia	mg/L	*	<0.0050	<0.0050	<0.0050			
Nitrate	mg/L	13	0.134	0.127	0.0398			
Nitrite	mg/L	0.06	<0.0010	<0.0010	<0.0010			
Sulphate	mg/L	_	14.7	6.23	2.79			
Aluminum, total	mg/L	0.1	0.0048	0.0128	0.0066			
Arsenic, total	mg/L	0.005	0.00042	0.00054	0.00082			
Cadmium, total	mg/L	*	0.000261	0.0000250	0.0000609			
Chromium, total	mg/L	0.001	<0.00050	<0.00050	<0.00050			
Copper, total	mg/L	*	<0.00050	0.00290	0.00062			
Iron, total	mg/L	0.3	<0.010	0.247	0.014			
Lead, total	mg/L	*	0.000239	0.000132	<0.000050			
Manganese, dissolved	mg/L	*	0.00046	0.00727	0.00320			
Mercury, total	mg/L	0.000026	<0.0000050	<0.0000050	<0.0000050			
Molybdenum, total	mg/L	0.073	0.000665	0.00106	0.000655			
Nickel, total	mg/L	*	<0.00050	<0.00050	<0.00050			
Selenium, total	mg/L	0.001	0.000734	0.000512	0.000497			
Silver, total	mg/L	0.00025	<0.000010	<0.000010	<0.00010			
Uranium, total	mg/L	0.015	0.000745	0.00116	0.000557			
Zinc, dissolved	mg/L	*	0.0045	<0.0010	<0.0010			

Values that exceed the CCME are presented in bold and red.

The waters of the study area were cool, slightly alkaline and well aerated. Conductivity is generally a measure of dissolved ions in water, and the conductivity at all sites was relatively high, predominantly due to the concentrations of calcium and magnesium ions (Appendix G).

Alkalinity is a measure of water's ability to neutralize acid. The creeks sampled in this study had high alkalinity values and the waters ranged from hard to very hard, providing this region with good buffering capacity. Hardness is an important modifying factor in water quality as it can significantly influence the form and hence toxicity of numerous heavy metals, making the toxicity of certain metals increased at lowered hardness levels.

^{&#}x27;*' indicates that the CCME guideline is a calculated value



Ammonia and nitrite were not detected in any samples. Nitrate concentrations ranged from 0.0398 mg/L, at MH-29, to 0.134 mg/L at MH-04. All concentrations of ammonia, nitrate and nitrite met the CCME guidelines.

Sulphate concentrations were low at all sites, ranging from 2.79 mg/L to 14.7 mg/L. Sulphate can contribute to changes in pH in water systems. The alkaline waters of the study area are a reflection of naturally high carbonate/bicarbonate and low sulphate concentrations.

Metals concentrations at the receiving environment stations MH-11 and MH-12 met the Receiving Water Quality Standards for all parameters during the August 2022 monitoring (Table 4-1). For the remaining stations, which were compared to the CCME guidelines, only one exceedance was detected for total cadmium at MH-04 (Table 4-2). Upon review of the water quality database, which covers sampling at MH-04 since 1991, the cadmium exceedance in 2022 is consistent with historical results.

Overall the characteristics of the water in the study area and the overall low concentrations of metals indicated good water quality for the support of freshwater aquatic life.

4.2 SEDIMENT

Sediment particle size fractions are detailed in Table 4-3. Analytical results are compiled in Appendix B. Grain size distribution at each station was consistent with data collected during the 2020 aquatic resources monitoring event. Sand was the dominant fraction, ranging from 81% (MH-29) to 67% (MH-13). The highest % Clay and % Silt were noted at MH-13 which may partially explain the slightly different benthic invertebrate community structure at this station (lowest EPT% and elevated Diptera numbers compared to other stations). Apart from MH-13, sediment composition was uniform across all stations.

Table 4-3: Grain size distributions for each sampling site in 2022

Sediment Size	MH-04	MH-11	MH-12	MH-13	MH-29
Sediment Size	08-Aug-22	10-Aug-22	09-Aug-22	10-Aug-22	10-Aug-22
% Gravel (>2mm)	15.7	18.8	17	13.6	13.2
% Sand (2.0mm - 0.063mm)	72.4	76.0	74.1	67.0	81.0
% Silt (0.063mm - 4μm)	10.3	5.2	8.9	16.4	4.8
% Clay (<4μm)	1.6	<1.0	<1.0	3.0	1.0

Sediment samples were also analyzed for concentrations of total metals, pH, and Total Organic Carbon (TOC). Metal concentrations at each station were then compared to the Canadian Environmental Quality Guidelines (CEQGs) ISQG and PEL guidelines to evaluate exceedances.

The 2022 stream sediment concentrations were consistent with the historic 2018 and 2020 data. Although MH13 has many years of stream sediment data, comparisons have not been made due to the change in methodology in 2018. The 2022 stream sediment results are presented in Table 4-4. The stream sediments at all sample stations were slightly alkaline. Total organic carbon concentrations ranged from 0.400% (MH-12) to 1.67% (MH-13).

In 2022, total arsenic, cadmium, and zinc in sediment exceeded the ISQG or PEL guidelines at all stations. Lead also exceeded ISQG or PEL guidelines at all stations except MH-29. Concentrations of chromium, copper, and mercury



were below the guidelines at all stations. The metal concentrations of parameters which exceeded the ISQG or PEL (i.e., arsenic, cadmium, lead and zinc) are presented in Figure 4-1 to Figure 4-4, alongside the historical 2018 and 2020 sediment results for further comparison.

The data continues to suggest that the reference site, MH-29, is within the mineralized zone of SDH and sometimes has greater concentrations of some metals than at the exposed sites (Laberge, 2021).



Table 4-4. Total Metals Concentrations of Select Parameters for 2022 Sediment Samples.

		Guid	eline	MH-04	MH-11	MH-12	MH-13	MH-29 ¹
Total Metal Concentration	Lab MDL	CCME ISQG	CCME PEL	08-Aug-22	10-Aug-22	09-Aug-22	10-Aug-22	10-Aug-22
pH (pH Units)	0.1	N/A	N/A	8.25	8.55	8.83	8.30	8.50
TOC (%)	0.132	N/A	N/A	1.12	0.422	0.400	1.67	0.563
Arsenic (mg/kg)	0.1	5.9	17	<u>18.7</u>	14.8	14.1	<u>17.1</u>	<u>18.0</u>
Cadmium (mg/kg)	0.02	0.6	3.5	<u>4.51</u>	1.82	1.09	1.68	2.66
Chromium (mg/kg)	0.5	37.3	90	28.4	18.2	21.1	19.1	17.4
Copper (mg/kg)	0.5	35.7	197	18.8	13.4	15.8	18.4	9.39
Lead (mg/kg)	0.5	35	91.3	<u>158</u>	<u>233</u>	77.8	37.5	31.5
Mercury (mg/kg)	0.0050	0.17	0.486	0.0143	0.0140	0.0101	0.0549	0.0162
Zinc (mg/kg)	2	123	315	<u>358</u>	311	187	188	145

¹Reference Station

Samples in blue font indicate an exceedance of the ISQG

Samples in red font indicate and exceedance of the PEL

Samples in red font and underlined indicate an exceedance of both the ISQG and PEL

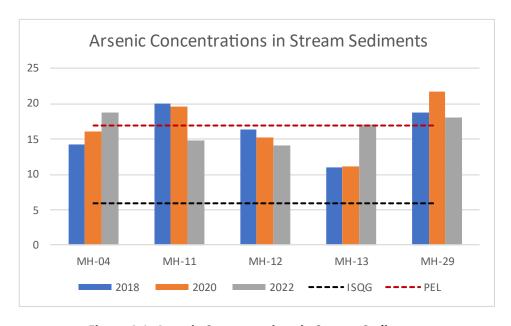


Figure 4-1: Arsenic Concentrations in Stream Sediments



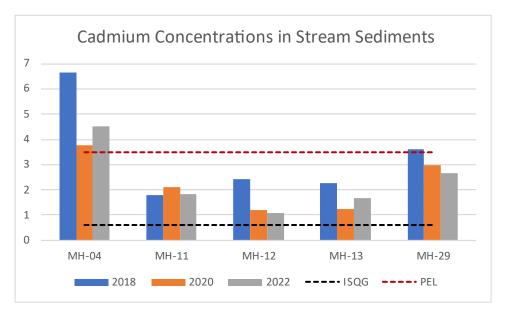


Figure 4-2: Cadmium Concentrations in Steam Sediments

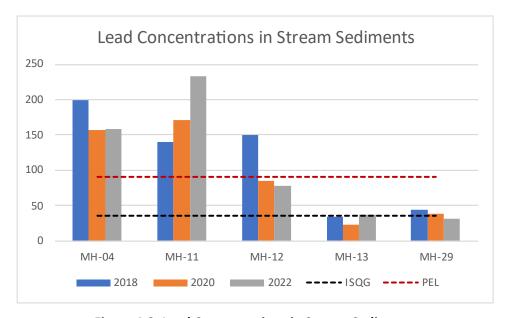


Figure 4-3: Lead Concentrations in Stream Sediments



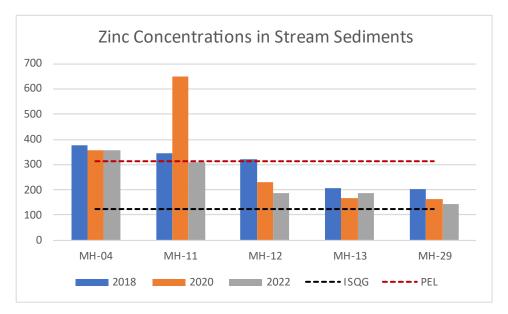


Figure 4-4: Zinc Concentrations in Stream Sediments

4.3 Benthic Invertebrates

Benthic invertebrate samples are collected in late summer at the height of population density following winter conditions. Benthic invertebrates are evaluated on total abundance, taxonomic richness, SDI, % of EPT species, % of Diptera (true fly) species, and the HBI. Total abundance measures total numbers of benthic invertebrates. Taxonomic richness relates to how many taxa of benthic invertebrates are adapted to the conditions of the habitat. SDI is a standard measure of diversity considering number of species and relative abundance, combining the consideration of total abundance and taxonomic richness. EPT species, mayflies, stoneflies, and caddisflies require clean, well oxygenated water, clean gravels, and have low tolerance to pollution. The % of EPT at a sampling site gives a measure of these conditions at the site. Diptera can be indicators of organic or heavy metal pollution (Desrosiers et al., 2008), and the % of Diptera at a sampling site gives a measure of these conditions at the site. The HBI measures water quality categories by evaluating the presence or absence of pollution sensitive or pollution tolerant families (Hauer and Lamberti, 2006). Excellent water quality as measured by the HBI is a number between 0 and 3.75.

A summary of 2022 benthic invertebrate metrics for all sites is shown in Table 4-5. At station MH-30, increased beaver activity and associated flooding made landing at the station unsuccessful in 2022. Raw benthic data is included in Appendix H. Benthic invertebrate abundance was greatest in Camp Creek at MH-04 followed by MH-12, and lowest in Access Creek at MH-29. Species richness was greatest at MH-12, and lowest at MH-11. The proportion of EPT species was greatest at the Camp Creek (MH-11 and MH-04) and Access Creek (MH-29) sites, with the lowest concentrations of EPT measured in False Canyon Creek (MH-13) site.



Table 4-5: 2022 Benthic Invertebrate Community Survey Results

Station	MH-04	MH-11	MH-12	MH-13	MH-29
Date	8-Aug-22	10-Aug-22	9-Aug-22	9-Aug-22	10-Aug-22
Total Abundance	7600	1315	6740	1544	1305
Taxonomic Richness	34	28	38	35	37
Simpson's Diversity Index (1-D)	0.83	0.79	0.89	0.91	0.81
EPT (% of total)	72.89%	92.40%	67.36%	60.62%	75.56%
Diptera (% of total)	19.47%	4.56%	30.56%	28.63%	19.39%
Hilsenhoff Biotic Index	3.89	2.00	3.72	3.18	2.52

4.3.1 TOTAL ABUNDANCE

Abundance represents the total number of benthic organisms present at each site. In 2022, total abundance was highest at MH-04 located on Camp Creek followed by MH-12 located on the east fork of Tributary E (Figure 4-5). Interestingly, Camp Creek abundance sharply declined downstream of MH-04 and the Reclaim Pond based on total abundance noted at MH-11. Similarly, abundance was also low at MH-13 located on False Canyon Creek. Total abundance was lowest at the reference station MH-29. Low abundance at MH-29 was also noted in the 2020 report and may be related to minor differences in habitat between stations. For example, Azimuth (Azimuth, 2015) described MH-29 as a narrow, confined stream with sampling limited to a few small sections within the creek. Furthermore, high amounts of in-stream debris and dense willow cover may also explain the difference in abundance at the reference station compared to the exposed sites.

Total abundance trends are relatively consistent at MH-13 and MH-29. Abundance between 2020 and 2022 were also comparable; however, abundance was much higher at MH-11 and MH-12 in 2018 than in 2020 and 2022. Inversely, abundance was much higher at MH-04 in 2020 and 2022 compared to 2018. Although total abundance fluctuates between years, it is a coarse indicator of benthic community health (Reynoldson and Metcalfe-Smith, 1992). For example, a station with high total abundance and low diversity is typically more impaired than a station with lower total abundance but higher diversity. Therefore, the other benthic metrics can be more representative of benthic invertebrate health.



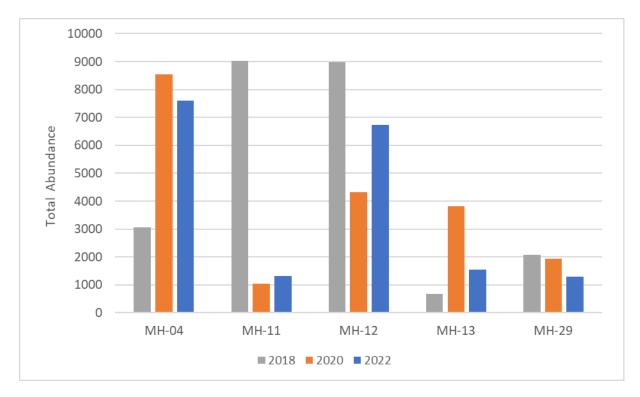


Figure 4-5: Total Abundance at the SDH Aquatic Resources Study Sites, 2018-2022

4.3.2 TAXONOMIC RICHNESS

Taxonomic richness is defined as the count of different species present in a region or ecological environment and is a useful tool to measure benthic invertebrate health. The taxonomic richness at all stations in 2022 were similar, with MH-12 having the highest richness (38 species) and MH-11 having the lowest richness (28 species) as presented in Figure 4-6. Richness also slightly improved at all stations in 2022 when compared to 2020 data, except for station MH-11; however, taxonomic richness is dependant on a variety of environmental factors like sample area, stream depth, diversity of habitats, stream flow, and sample timing.

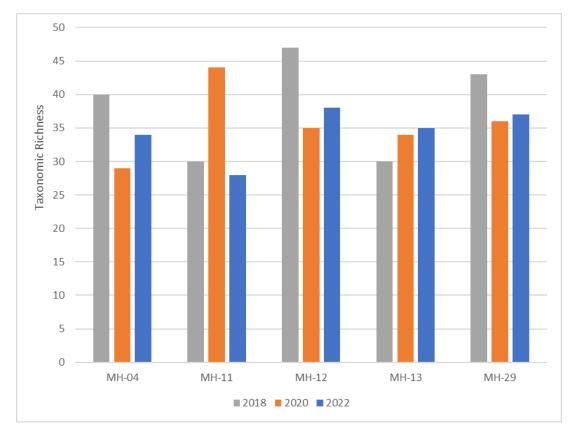


Figure 4-6: Taxonomic Richness at the SDH Aquatic Resources Study Stations, 2018-2022

4.3.3 SIMPSON'S DIVERSITY INDEX

Simpson's Diversity Index considers species richness (i.e., total number of different species in a community) and evenness (i.e., variation of abundance in individuals per species in a community). As values approach 1, benthic communities are considered more diverse whereas values approaching zero indicate less diverse communities.

In 2022, diversity was high across all stations with the highest diversity recorded at MH-13 (0.91) and lowest at MH-11 (0.79; Figure 4-7). Average diversity across all stations was slightly lower (0.77) in 2020 compared to 2022 (0.85), especially at MH-04 and MH-13. Although diversity was generally lower in 2020, elevated diversity in 2018 and 2022 may indicate natural fluctuation in benthic invertebrate diversity due to environmental conditions. It is unlikely that diversity is slightly lower due to mine activities in 2020 since diversity increased again in 2022. If low diversity was attributed to mine effluent, a steady decrease in diversity over many years would be expected.

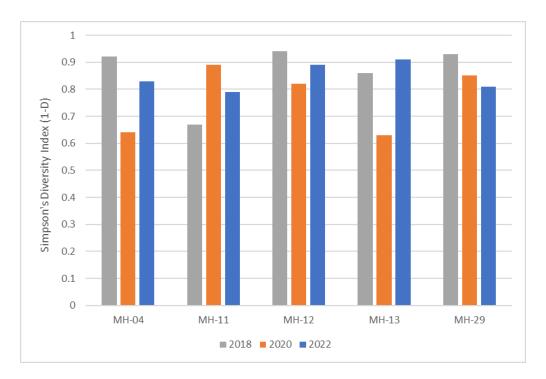


Figure 4-7: Simpson's Diversity Index at the SDH Aquatic Resources Study Stations, 2018-2022

4.3.3.1 Percent (%) of EPT and Diptera

The EPT index is a measure of the relative number of taxa of the Orders Ephemeroptera, Plecoptera, and Trichoptera (mayflies, stoneflies, and caddisflies) combined in each sample. EPT index is considered a reliable indicator of water quality since EPTs are sensitive to pollution or stream degradation (Clements et al., 2000). Generally, a high proportion of EPT indicate good water quality and an undisturbed, complex benthic invertebrate habitat. Conversely to EPT, Diptera (true flies) can be indicators of organic or heavy metal pollution (Desrosiers et al., 2008). Usually, samples containing high proportions of Diptera indicate impaired water quality.

In 2022, more than 50% of each benthic community was composed of Ephemeroptera, Plecoptera, and Trichoptera, indicating that habitat conditions exist to support the growth of sensitive species (Figure 4-8). The highest EPT proportion was noted at MH-11 (92%) and the lowest EPT proportion was noted at MH-13 (61%). The percent of EPT increased from 2018 to 2022 potentially indicating a slight improvement to water quality. Changes in habitat may explain the increased proportion of EPT in 2022.

For example, in 2018 the dominant substrate at MH-13 was described as fines that easily mobilized. However, in 2022 the dominant substrate at MH-13 was noted as large pebbles (the pebbles were not included in the sample; sand shows as the dominant sediment type sampled for this location in Table 4-3). The shift in substrate dominance from fine particulate, habitat preferred by Diptera, to large pebbles, habitat preferred by EPT (Cummings and Lauff, 1968) may explain the corresponding shift in benthic community dominance at MH-13.

Logically, sites with a higher proportion of EPT had a lower proportion of Diptera since EPT and Diptera prefer different microhabitats and conditions. In 2022, Diptera were lowest at MH-11 (4.5%) and highest at MH-12 (31%). Generally, Diptera comprised a small proportion of the benthic community at each station with fewer Diptera



detected at all stations in 2022 compared to 2018 (Figure 4-9). The composition of the benthos communities is presented for each site in Figure 4-10, the major taxonomic groups presented are Ephemeroptera, Plecoptera, Trichoptera, Diptera, Annelida, and other encompasses invertebrates from the orders Collembola and Thysanoptera and from the classes Oligochaeta, Bivalvia and Gastropoda. MH-04 and MH-12 had higher percentages of Ephemeroptera while MH-11 and MH-29 had more than half their composition were Plecoptera, MH-13 is composed more equally of Ephemeroptera (23.8%), Plecoptera (20.8), and Diptera (28.6%)

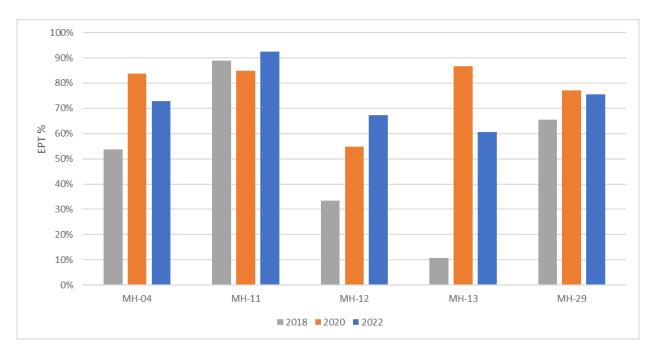


Figure 4-8: % EPT at the SDH Aquatic Resources Study Stations, 2018-2022

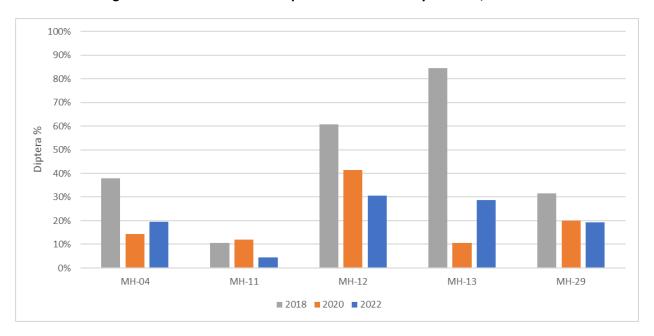


Figure 4-9: Diptera (%) at the SDH Aquatic Resources Study Stations, 2018-2022



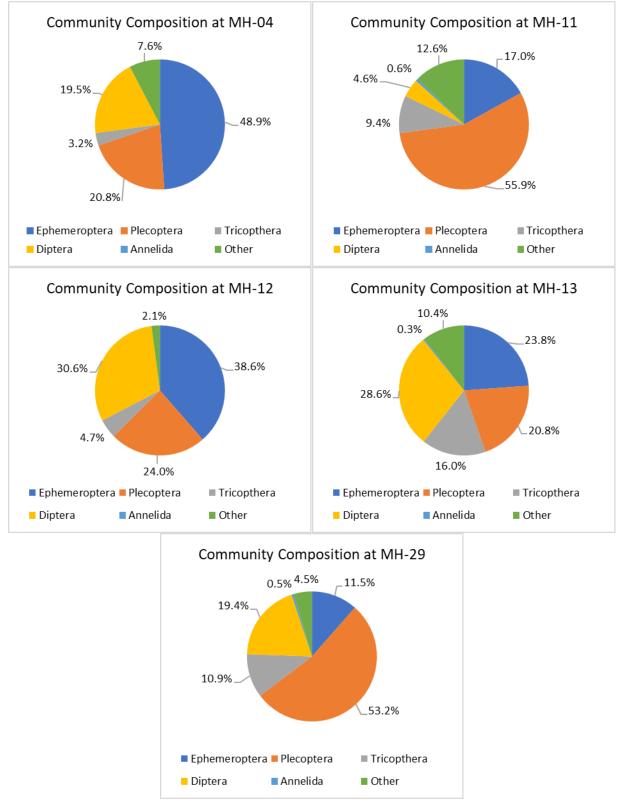


Figure 4-10: Community Composition at the SDH Aquatic Resources Study Stations, 2022



Since EPT community is an indication of overall health of the stream, Table 4-6 shows the EPT count at each site, the proportion of EPT in each community and the EPT richness, which is the variety of taxa found in each site.

Table 4-6: EPT Abundance, Proportion and Richness, 2022

Site	# EPT	% EPT	EPT Richness
MH-04	5540	72.89%	19
MH-11	1081	92.40%	20
MH-12	4540	67.36%	23
MH-13	936	60.62%	25
MH-29	986	75.56%	20

4.3.4 HILSENHOFF BIOTIC INDEX

The Hilsenhoff Biotic Index estimates the overall tolerance of benthic communities to pollution, weighted by the abundance of each taxonomic group detected in the sample. Each organism is assigned a tolerance value based on its sensitivity to pollution. Organisms with a value of 0 (low tolerance values) are pollution sensitive while organisms with a value of 10 (high tolerance values) are pollution tolerant. The HBI index values and their relation to water quality is detailed in Table 4-7.

Table 4-7: Water Quality based on Hilsenhoff Biotic Index (HBI)

Hilsenhoff Biotic Index	Water Quality
0.00 - 3.75	Excellent
3.76 - 4.25	Very Good
4.26 - 5.00	Good
5.01 - 5.75	Fair
5.76 - 6.50	Fairly Poor
6.51 - 7.25	Poor
7.26 - 10.00	Very Poor

In 2022, HBI scores for all stations were indicative of excellent water quality except for the benthic community at MH-04 which described very good water quality. Compared to historic data, water quality at most stations improved based on the HBI scores except for water quality at MH-12 and MH-29. However, the HBI score at these two stations remained within the "excellent" water quality range and therefore the slight difference between years can be considered negligible. Overall, the trend of improving HBI scores over the years is indicative of good water quality and benthic communities composed of pollution intolerant species, as presented in Figure 4-11.

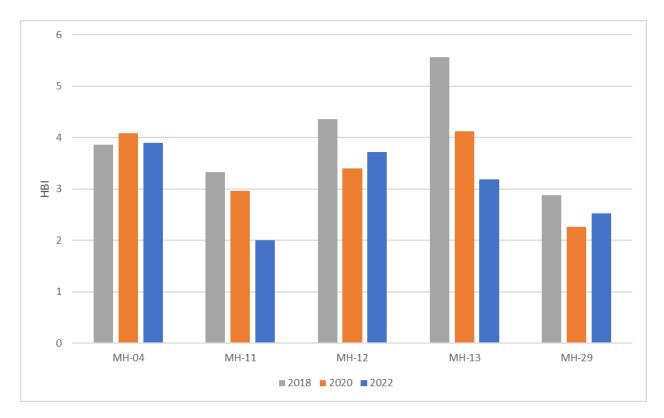


Figure 4-11: Hilsenhoff Biotic Index at the SDH Aquatic Resources Study Stations, 2018-2022

4.3.5 BENTHIC AND SEDIMENT DISCUSSION

Camp Creek, MH-04 sediment samples exceeded the ISQG for Arsenic, which is a change from recent years, and with similar levels of Cadmium, Lead, and Zinc. MH-04 had a sandy substrate. Abundance was slightly lower than in 2020, but taxonomic richness was slightly higher, as was the SDI. There was more Diptera and less EPT than in 2020, but the HBI was similar to 2018 and 2020 levels. Ephemeroptera (mayflies) was the dominant Order, as in 2020. Overall the site appears to be generally similar to 2020 conditions.

MH-11 is also a sandy substrate with lower Arsenic and Zinc than 2020 levels, similar Cadmium levels below the ISQG, and higher lead concentrations than in recent years. Abundance was similar to 2020 levels, but richness was lower, and SDI was slightly lower. % EPT was slightly higher, offset by a slight reduction in % Diptera, reflected in a slight increase in the HBI. Plecoptera (stoneflies) was the dominant Order, as in 2020. Overall the site appears to be slightly improved compared to 2020 conditions.

MH-12 is also a sandy substrate with slightly lower metals levels for Arsenic, Cadmium, Lead, and Zinc from 2020. Abundance, richness, and SDI were between 2018 and 2020 levels, with increased % in EPT and decreased % Diptera. The HBI is between 2018 and 2020 levels. Ephemeroptera was the dominant Order, which was a change from Plecoptera dominance in 2020. Both Ephemeroptera and Plecoptera indicate clean, well oxygenated water, clean gravels, and low pollution, and future sampling will assess if the change in dominant Order is significant.

False Canyon Creek, MH-13 is noted to have a pebbly substrate, changing from a substrate in previous years characterized as predominantly fines. Due to sampling jar constraints, the sediment sample results indicate a



predominantly sandy soil, with higher Arsenic levels, but similar concentrations of Cadmium, Lead, and Zinc. Abundance had dropped from 2020, but richness has increased slightly, with a SDI exceeding 2018 levels. Similar to MH-04, % Diptera has increased from 2020 levels, and % EPT has decreased, with a HBI below previous sample levels. Diptera (true flies) was the dominant Order; however, Ephemeroptera and Plecoptera were also very dominant. This is a change from 2020 where Ephemeroptera was dominant. Overall this site appears to have slightly worse conditions than in previous years; however, it is unknown if this is within the natural variability of the system.

Access Creek, MH-29 is also a sandy substrate with slightly lower concentrations of Arsenic, Cadmium, Lead, and Zinc than previous years. The Lead sample for MH-29 is the only one that is below the PEL guideline. Abundance is lower than in 2020, and richness is similar, with a lower SDI. % EPT and % Diptera are very similar to 2020 levels, and the HBI is between 2018 and 2020 levels. Plecoptera was the dominant Order, as in 2020. Overall, the site appears to be generally similar to 2020 conditions.

4.4 FISH MONITORING

Fish monitoring was required at MH-13 and MH-30 as noted in the Water Use Licence (QZ16-051) found in Appendix A. Unfortunately, due to flooding and extensive beaver activity, no suitable helicopter landing site was found at MH-30. Furthermore, the stream channel at MH-30 has been significantly deepened by beaver activity making traditional fish inventory methods (i.e., electrofishing) challenging. During the fall of 2022, a new helicopter pad was cut at MH-30 enabling future fish and water quality monitoring at this station. Although overall fisheries trends cannot be described at SDH using a single station, fisheries trends at MH-13 can be evaluated using available data from 1994-2022.

In 2022, three slimy sculpin (*Cottus cognatus*) were captured at MH-13 via electrofishing and one slimy sculpin was captured using a minnow trap. A summary of 2022 fishing effort is detailed in Table 4-8, and a comparison of all fish captured since 1992 is presented in Table 4-9 and Figure 4-12. Laberge Consulting (Laberge, 2021) noted that the slimy sculpin population cycle follow a sinusoidal regression; the 2022 catch number do not follow this trend as seen in Figure 4-12. Figure 4-13 is a histogram based on length of captured fish (mm) of the data collected since 1992. Condition factor (K) was also calculated for each fish captured. Condition factor relates fish length and weight to gauge overall fish health (Mohr, 1984). Fish with higher condition factor (values above 1) are considered healthy while fish with a lower condition factor (values approaching 0.5) are considered unhealthy. Condition factor is described by the following formula: condition factor (K) = 100*(body weight/length³). In both 2022 (average K = 1.15) and 2020 (average K = 1.02) fish condition was greater than one, indicating the slimy sculpin were in good condition.

Catch per unit effort (CPUE) was also compared between years to evaluate change in fish community structure. CPUE is calculated by dividing the total catch by the total amount of effort (hours) used to harvest the fish. Higher CPUE values indicate a more abundant fish population (i.e., less effort is needed to catch more fish) compared to a lower CPUE value which indicates a less abundant fish population (i.e., more effort is needed to catch fewer fish). In 2022, CPUE for electrofishing was lower than in 2020. The lower CPUE in 2022 may indicate a slightly less abundant population of slimy sculpin compared to 2020; however, slimy sculpin abundance at MH-13 may naturally fluctuate over time due to changing habitat. For example, slimy sculpin catch at MH-13 have been quite low since 2014 (Laberge, 2021). This may coincide with the increased beaver activity at MH-13. In 2014, Laberge noted many barriers, debris piles, and active beaver dams at MH-13 which may limit fish movement and colonization (Kemp et al., 2022). Slimy sculpin distribution and density are also sensitive to changes in water temperature and alterations in discharge patterns (Edwards and Cunjak, 2007). Beaver dams usually alter discharge patterns and create deeper stagnant pools, potentially increasing water temperature. This may explain the lower abundance of slimy sculpin from 2014-2022. More recently, from 2021-2022 above average snowpack and precipitation was recorded in the



Watson Lake region (Environment Yukon, 2022). High water stemming from above average snowpack and precipitation may have further altered discharge patterns at MH-13 and influenced the dispersion of slimy sculpin populations.

Table 4-8: 2022 Fish Capture Results at MH-13 on August 9, 2022

Method	Method Effort			Length (mm)	Weight (g)	Condition Factor (K)
				62	3.31	1.38
Electrofishing	453 seconds	Slimy sculpin	3	106	15.26	1.28
				112	12.73	0.91
Minnow trapping	147 hours (24.5h per 6 traps)	Slimy sculpin	1	99	10.01	1.03

Table 4-9: Comparison of slimy sculpin catch at MH-13, 1992-2022 (biennial sampling)

	Catch (number of fish)						
Year	Electrofishing	Minnow Trapping	Total				
1992	-	-	9				
1994	19	0	19				
1996	6	12	18				
1998	1	14	15				
2000	4	2	6				
2002	8	0	8				
2004	18	7	25				
2006	20	1	21				
2008	32	46	78				
2010	19	0	19				
2012	20	1	21				
2014	1	0	1				
2016	0	1	1				
2018	3	0	3				
2020	10	2	12				
2022	3	1	4				
Mean (STDEV)	10.9 (9.4)	5.8 (11.6)	16.3 (17.7)				

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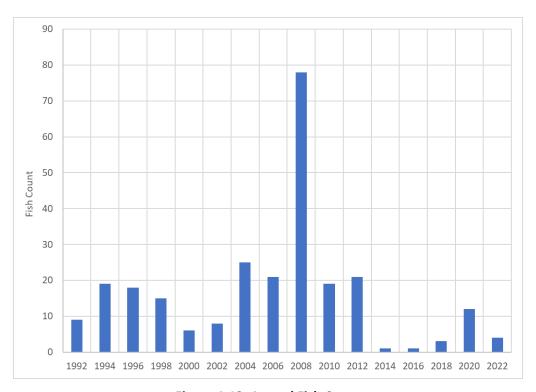


Figure 4-12: Annual Fish Count

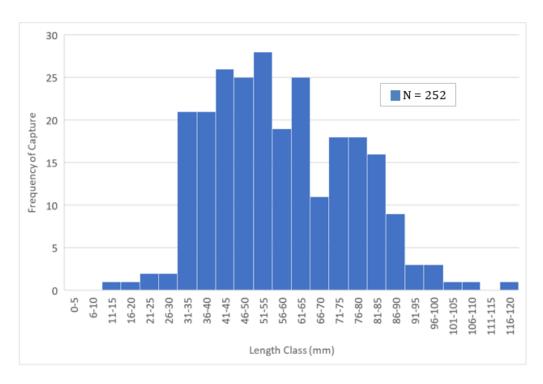


Figure 4-13: Length Frequency Histogram of Slimy Sculpin Captured at MH-13 in False Canyon Creek, 1992 – 2022

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5 SUMMARY AND RECOMMENDATIONS

Overall, benthic and aquatic metrics across the SDH monitoring stations are indicative of good water quality and productive stream ecology. These results are consistent with historical findings from past aquatic assessments. Considering benthic indices are relatively stable across the years, it is unlikely that mine effluent is having an impact on benthic communities. Instead, environmental variability (turbidity, velocity, water depth, and sample timing) likely explain the small variance in benthic and fisheries metrics between years.

At station MH-30, increased beaver activity and associated flooding made landing at the station unsuccessful in 2022. During the fall of 2022, a new helicopter pad was cut at MH-30 enabling future fish and water quality monitoring at this station.

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APPENDIX A: WATER USE LICENCE (QZ16-051)

YUKON WATER BOARD

Pursuant to the Waters Act and Waters Regulation, the Yukon Water Board hereby grants a Type B water licence for a quartz mining undertaking to:

> Sä Dena Hes Operating Corp. c/o Teck Resources Limited 3300-550 Burrard Street Vancouver, BC V6C 0B3

LICENCE NUMBER:

QZ16-051

LICENCE TYPE:

В

UNDERTAKING: QUARTZ

WATER MANAGEMENT

01 Liard

AREA:

LOCATION:

Upper False Canyon Creek and tributaries of False Canyon

Creek, Sä Dena Hes Mine Site

MAP CO-ORDINATES:

Max Latitude: 60° 42' 21" N Max Longitude: 129° 11' 38" W

Min Latitude: 60° 18' 31" N Max Longitude: 128° 34' 08" W

PURPOSE:

To store/alter flow of water associated with maintenance and decommissioning activities and to deposit a waste to water.

EFFECTIVE DATE:

April 1, 2017

EXPIRY DATE:

December 31, 2040

This licence shall be subject to the restrictions and conditions contained herein and to the restrictions and conditions contained in the Waters Act and the Waters Regulation made thereunder.

Dated this 30 day of

Approved by:

March, 2017

Chairperson

YUKON WATER BOARD

PART A - DEFINITIONS

- "Act" means Waters Act and any amendments thereto.
- "Adaptive Management Plan" means the Sä Dena Hes Mine Post-Relcamation Adaptive Management Plan submitted as part of the Application and included in the Register QZ16-051 as part of exhibit 1.16, and any subsequent revisions.
- "Application" means Application QZ16-051, including any additional submissions and/or revisions submitted to the Yukon Water Board by the Licensee, up to the date of the Board's decision.
- "Board" means the Yukon Water Board.
- "Dam Safety Guidelines" means the most current version of the Dam Safety Guidelines issued by the Canadian Dam Association.
- "Detailed Decommissioning and Reclamation Plan" or "DDRP" means the *Detailed Decommissioning and Reclamation Plan* that was submitted as part of the Application and included in Register QZ16-051 as exhibit 1.3 and any subsequent revisions.
- "Environmental Monitoring, Surveillance and Reporting Plan" or "EMSRP" means the *Environmental Monitoring, Surveillance and Reporting Plan* submitted as part of the Application and included in Register QZ16-051 as Exhibit 1.24, and any subsequent revisions.
- "Freshwater Intake end-of Pipe Fish Screen Guideline" means the most current version of the Freshwater Intake end-of Pipe Fish Screen Guideline issued by the Department of Fisheries and Oceans.
- "Inspector" means any person designated as an Inspector under the Act.
- "Natural Boundary" means the visible high water mark of any lake, river, stream or other body of water where the presence and action of water is so common and usual and so long continued as to mark upon the soil of the bed of the lake, river, stream or other body of water a character distinct from that of the banks thereof, both in respect to vegetation and in respect to the nature of the soil itself. In addition, the best estimates of the edge of dormant or old side channels and marsh areas are considered to be Natural Boundaries.
- "Non-Acid Generating and Non-Metal Leaching" means rock with a paste pH \geq 5.0, a Neutralizing Potential: Acid Generation Potential Ratio (NPR) \geq 3:1 and a sulphur content of < 0.3%.
- "Post-Closure Geotechnical Monitoring Plan" means *Proposed Post Reclamation Geotechnical Monitoring Program* that was submitted as part of the Application and included in Register QZ16-051 as Appendix D in exhibit 1.24, and any subsequent revisions.

- "Watercourse" means a natural watercourse, body of water or water supply, whether usually containing water or not, and includes groundwater, springs, swamps, and gulches.
- "Wetted Perimeter" means the horizontal extent of the present water level while the work is taking place.

PART B – WATER USE AND DEPOSIT OF WASTE

- 1. The Licensee is hereby authorized to
 - a) deposit Waste in the form of;
 - i. water from Burnick 1200, via sub-surface flow, to tributaries of False Canyon Creek; and
 - ii. water from 1380 Portal, via sub-surface flow, to Upper False Canyon Creek.
 - iii. seepage from North dam to Tributary E False Canyon Creek;
 - iv. seepage and runoff from the south sediment retaining structure to Upper False Canyon Creek;
 - v. collected runoff from the Jewelbox Hill dumps to Upper False Canyon Creek;
 - vi. collected runoff from the North Hill dumps to tributaries of False Canyon Creek;
 - b) Store and/or alter flow of water associated with the south sediment retention structure;
 - c) carry out ongoing site monitoring and maintenance, including culvert maintenance and replacement; and
 - d) decommission and reclaim the site road and access road, including culvert removal and bank stabilization,

as described in the Application, and subject to the conditions of this licence. Where there is a discrepancy between the Application and this licence, the conditions of this licence shall prevail.

[&]quot;Regulation" means the Waters Regulation made under the Act.

[&]quot;Spill Contingency Plan" means the *Spill Contingency Plan* that was submitted as part of the Application and included in Register QZ16-051 as exhibit 1.28, and any subsequent revisions.

[&]quot;Waste" means any substance as defined in the Act.

PART C – DESIGN AND CONSTRUCTION

- 2. The Licensee shall submit to the Board final detailed design construction drawings, specifications and quality assurance/quality control procedures for the construction of any works associated with the implementation of the DDRP.
- 3. The design of all structures and facilities associated with the project shall be carried out using sound engineering practices and shall be completed and sealed by a Professional Engineer licenced to practice in Yukon.
- 4. The final detailed design construction drawings, specifications and quality assurance/quality control procedures submitted to the Board shall be consistent with the designs in the DDRP.
- 5. At least ten days prior to the proposed date of commencement of construction of any structure or facility, the Licensee shall submit to the Board a written notification, together with a detailed construction schedule and the name and contact number(s) of the construction superintendent.
- 6. Where site conditions require minor modification to the designs submitted to the Board, the Licensee shall notify the Board, at least 10 days in advance, of the details of the modifications or variations from final detailed designs, specifications and quality assurance/quality control procedures previously submitted to the Board, provide a detailed construction schedule and the name and contact number(s) of the construction superintendent. The notice shall be in writing and include an explanation of the reasons for the change and an assessment of the potential impact on the performance of the works. The notice shall be sealed by a Professional Engineer licensed to practice in Yukon.
- 7. As-constructed (record) drawings and construction reports for all structures and facilities shall be submitted to the Board within ninety days of the completion of construction. Each submission shall be sealed by a Professional Engineer licenced to practice in Yukon.

PART D - OPERATING CONDITIONS

- 8. During the term of this licence, the Licensee shall maintain all works in good order in accordance with sound engineering and environmental practices.
- 9. The Licensee shall maintain the main access road from June through September in a manner such that heavy equipment can be taken to the site until the site has stabilized.
- 10. The Licensee shall maintain facilities and structures and undertake all monitoring in accordance with the requirements of this Licence.
- 11. When conducting any instream works, creek flow must be diverted around the work areas.

- 12. Where fish are present, the Licensee shall salvage all fish prior to de-watering any work area.
- 13. All works associated with the undertaking shall be maintained in good repair.
- 14. Construction and/or maintenance equipment shall be mechanically sound and free of leaks.
- 15. The tracks and/or wheels of heavy equipment are prohibited from entering the Wetted Perimeter of any Watercourse.
- 16. Granular bedding and backfill material shall consist of non-frozen material.
- 17. Except as authorized by this licence, no Waste shall enter any Watercourse as a result of any activities carried out by the Licensee.
- 18. All disturbed ground surfaces shall be stabilized in such a manner so as to prevent erosion and surface runoff.

Water Pumps

- 19. All water pumps shall be contained within an impermeable liner/structure that has the capacity to contain 110% of the maximum combined volumetric capacity of the fuel, lubricants and coolants within the engine of the water pump.
- 20. The Licensee shall provide barriers consisting of fish guards, screens, coverings or nets on all water intakes that are consistent with *Freshwater Intake end-of Pipe Fish Screen Guideline*.
- 21. The Licensee shall cease pumping or decanting and take remedial action if there is alteration to the bed or bank of the water channel as a result of pumping.

Rip-rap

22. Rip-rap shall be hard, dense, angular, Non-Acid Generating and Non-Metal Leaching quarry stone or boulders, free of seams, cracks, structural defects and contaminants, freeze-thaw resistant, non-slaking and free of fine-grained materials including silt and sand. Rip-rap gradation will conform to the specifications provided in the Application in Register QZ16-051 exhibit 1.15.

Geotextile

23. Specifications of the geotextile material shall comply with those described in the Application in Register QZ16-051 exhibit 1.2.

Culvert Removal

- 24. When removing culverts, the following procedures shall be followed:
 - a) schedule removal of culverts so as to avoid concentrations of fish if such

concentrations exist;

- b) install or construct non-erodible cofferdams, silt barriers or other suitable methods to control siltation downstream of the work area;
- c) reshape site to conform to grade of adjacent stream bank following removal of the culvert;
- d) use rip-rap or other suitable methods, if required, to stabilize the bank at the work site; and
- e) remove all silt controls following completion of work and ensure the grade of the drainage course is restored.
- 25. Culvert placement, removal and channel excavation shall be done in the dry, with the exception of connecting the existing channel to the diversion channel.

Spills and Unauthorized Discharges

- 26. Where a spill or an unauthorized discharge occurs, that is of a reportable quantity under the Yukon Spills Regulations, the Licensee shall immediately contact the 24-hour Yukon Spill Report number, (867) 667-7244 and implement the Spill Contingency Plan. A detailed written report on any such event including, but not limited to, dates, quantities, parameters, causes and other relevant details and explanations, shall be submitted to the Board not later than 10 days after the occurrence.
- 27. The Licensee shall apply the relevant procedures in the Spill Contingency Plan. The Licensee shall review the Spill Contingency Plan annually and shall provide a summary of that review, including any revisions to the plan, as a component of the annual report.
- 28. The Licensee shall maintain a log book of all spill or unauthorized discharge occurrences, including spills that are less than the reportable quantities under the Yukon Spills Regulations. The log book shall be made available at the request of an Inspector. The log book shall include, but not necessarily be limited to:
 - a) the date and time of the spill or unauthorized discharge occurrence;
 - b) the substance spilt or discharged;
 - c) the approximate amount spilt or discharged;
 - d) the location of the spill;
 - e) the distance between the spill or discharge and the nearest Watercourse; and
 - f) remedial measures taken to contain and clean-up the spill area or to cease the unauthorized discharge.
- 29. The Licensee shall include a summary of all spills or unauthorized discharges that occurred during the year reported, as part of the annual report.
- 30. All personnel shall be trained in procedures to be followed and the equipment to be used in

the containment of a spill.

- 31. Prior to the commencement of construction, the Licensee shall update the Spill Contingency Plan and provide the updated plan to the Board.
- 32. The Spill Contingency Plan shall be posted on site for the duration of the works. Fuel Transfer and Refueling
- 33. Fuel, lubricants, hydraulic fluids, coolants and similar substances, with the exception with liquid associated with the water pump engine, shall be transferred a minimum of 30 metres from the Natural Boundary of any Watercourse, in such a way that said substances are not deposited in or allowed to be deposited in waters.
- 34. Water pumps may be refuelled within the Natural Boundary of any Watercourse. Refueling activities shall adhere to the following:
 - a) no refueling shall be conducted within the Wetted Perimeter of any Watercourse;
 - b) the fuel transfer shall be visually and continually monitored;
 - c) fuel transfer nozzles shall be operated manually and will not be locked in the open position;
 - d) spill kits, including absorbent pads shall be maintained in close proximity to the stationary equipment during refuelling operations;
 - e) fuel transfers shall be conducted with an operator at each end of the transfer hose;
 - f) shall only be conducted during daylight hours; and
 - g) fuel transfer equipment components such as pumps, hoses and nozzles shall be visually checked for leaks or damage prior to each refuelling operation.

PART E - PLANS AND STUDIES

EMSRP Update

- 35. The Licensee shall submit an updated EMSRP to the Board within 90 days of the effective date of this licence. The updated plan shall include, but not be limited to:
 - a) The terms and conditions of this licence;
 - b) An updated groundwater monitoring program that includes the following:
 - i. Quarterly monitoring of the groundwater wells in Schedule A;
 - ii. Quarterly reporting of site water monitoring data; and
 - iii. Addition of dissolved oxygen and oxidation-reduction potential as field parameters for the groundwater program.

Adaptive Management Plan

- 36. The Licensee shall submit an updated Adaptive Management Plan to the Board within 90 days of the effective date of this licence. The updated plan shall include, but not be limited to:
 - a) the terms and conditions of this licence;
 - b) the addition of sulphate to the AMP for mine source flow path water quality and receiving environment surface water quality components of the AMP;
 - c) the addition of specific numerical thresholds for the mine source groundwater quality AMP based on scientifically derived thresholds that are proactive and protective of the receiving environment; and
 - d) as part of the annual reporting on the AMP, a detailed assessment of the full suite of paramaters being measured at AMP indicators stations and identification of any additional indicator parameters that should be incorporated into the AMP.

Groundwater-Surface Water Interaction Study

- 37. Within 90 days of the effective date of this licence, the Licensee shall submit to the Board a plan for the assessment of groundwater-surface water interactions at the site including, but not limited to:
 - a) a review of all monitoring results from all wells on site;
 - b) predictions of groundwater-surface water interactions; and
 - c) verification of existing site information including rationale supporting location of receiving water monitoring stations.
- 38. The Licensee shall carryout the assessment according the plan and submit report documenting the results of the program and any recommendations stemming from the study on or before March 31, 2019.
- 39. Subject to any required assessments, authorizations or approvals, the Licensee shall implement all plans required by this section of this licence.

PART F – RECEIVING WATER QUALITY STANDARDS

40. All results of grab sample analysis for MH-11, MH-12 and MH-15 shall meet the following receiving water quality standards.

Parameter	Maximum Concentration in a Grab Sample
Aluminum, dissolved	if pH $\geq 6.5 = 0.05 \text{ mg/L}$
	if pH $< 6.5 = e[1.6-3.327 (median pH)+0.402 (median pH)^2]$
Antimony, total	9 μg/L

Parameter	Maximum Concentration in a Grab Sample
Arsenic, total	5 μg/L
Beryllium, total	0.13 μg/L
Cadmium, dissolved	$=e^{[0.736 x \ln(hardnesss)-4.943]} \text{ in } \mu g/L$
Chromium VI, total	1 μg/L
Cobalt, total	4 μg/L
Copper, total ¹	if hardness $\leq 50 \text{ mg/L} = 2 \mu\text{g/L}$
* **	if hardness $>$ 50 mg/L = 0.04 x (hardness)
Iron, total ²	1 mg/L
Lead, total ³	MH-12 / MH-15 (µg/L) = ${3.31 + e^{[1.273 \ln(hardness) - 4.704]}}$
	MH-11 (µg/L) = $1.928 \times \{3.31 + e^{[1.273 \ln(hardness) - 4.704]}\}$
Molybdenum, total	0.073 mg/L
Nickel, total	if hardness \leq 60 mg/L or unknown = 25 μ g/L
	if hardness > 60 mg/L and \leq 180 mg/L = [e ^{0.76[ln(hardness)]+1.06}] µg/L
	if hardness > 180 mg/L= 150 μ g/L
Selenium, total	2 μg/L
Silver, total	0.25 μg/L
Sulphate, total	if hardness $\leq 30 \text{ mg/L} = 128 \text{ mg/L}$
	if hardness $> 30 \text{ mg/L}$ and $\leq 75 \text{ mg/L} = 218 \text{ mg/L}$
<u>18</u>	if hardness > 75 mg/L and \leq 180 mg/L = 309 mg/L
	if hardness $> 180 \text{ mg/L} = 429 \text{ mg/L}$
Thallium, total	0.8 μg/L
Zinc, total ³	MH-12 / MH-15 if hardness \leq 90 mg/L = 7.5 μg/L if hardness $>$ 90 mg/L = [7.5 + 0.75(hardness - 90)] μg/L MH-11
Hardness is managed in mall Co	if hardness $\leq 90 \text{ mg/L} = 18.75 \mu\text{g/L}$ if hardness $> 90 \text{ mg/L} = 2.5 x [7.5 + 0.75(hardness - 90)] \mu\text{g/L}$

Hardness is measured in mg/L CaCO3 at monitoring station

PART G - MONITORING AND SURVEILLANCE

- 41. The Licensee shall comply with the water quality monitoring program and surveillance network program as outlined in the EMSRP and in accordance with Schedule A of this licence and shall submit the data that is compiled as a result of these programs and studies as a component of the required annual reports.
- 42. Laboratory analyses shall be performed by a laboratory accredited under the International Organization for Standardization ISO/IEC 17025:2005 standard and the accreditation must include the actual tests being performed by the laboratory.

¹ Standard for Copper during month of May is 4 μ g/L if hardness \leq 50 mg/L or 0.08 x [hardness] if hardness > 50 mg/L

² Standard for Iron during month of May is 3.9 mg/L

^{3.} Apply to dissolved fraction when TSS is 4 mg/L or higher

- 43. Monitoring and sampling shall be carried out in accordance with the procedures and standards described in:
 - a) Guidance Document for the Sampling and Analysis of Metal Mining Effluents, April 2001, (Report: EPS 2/MM/5), Minerals and Metals Division, Environment Canada;
 - b) Guidance Document for Flow Measurement of Metal Mining Effluents, April 2001, (Report: EPS 2/MM/4), Minerals and Metals Division, Environment Canada;
 - c) Standard Guide for Sampling Ground-Water Monitoring Wells, ASTM D4448-01, ASTM International, PA, USA.

Physical Monitoring Program

- 44. The Licensee shall comply with the physical monitoring program as outlined in the EMSRP and Schedule B of this licence and shall submit the data that is compiled as a result of these programs and studies as a component of the required annual reports.
- 45. All earthworks and water retaining structures including, but not limited to, open pits, waste dumps, ditches, dams, dykes, weirs and appurtenances shall be inspected by a Professional Engineer licenced to practice in Yukon as per the Post-Closure Geotechnical Monitoring Plan. The results of the inspection, including all problems identified, remedial measures proposed, and remedial measures implemented, shall be compiled in a report that shall be submitted to the Board as part of the annual report.
- 46. The Licensee shall complete a dam safety review for all water retaining structures, including but not limited to dams, dykes, weirs and appurtenances at least once every ten years, with the first review to be completed no later than 2026. The review shall be conducted in accordance with the most recent Dam Safety Guidelines published by the Canadian Dam Association.
- 47. Details of any maintenance, inspection and/or surveillance activities undertaken in the previous year in relation to dam safety shall be included in the annual report.
- 48. The North tailings dam shall be monitored by the use of instrumentation as required by the Engineer of Record in the Post-Closure Geotechnical Monitoring Plan to ensure long term stability.

Fisheries Monitoring Program

- 49. A fisheries monitoring program shall be conducted in accordance to Schedule A-Part 3 of this licence and the EMSRP. The sample locations shall be marked in the field in a manner that ensures that replicate surveys can be made.
- 50. The Licensee shall survey sites MH-13, and MH-30 beginning in 2018, to confirm:
 - a) a generalized stream bed and substrate characterization and to identify changes since the previous sampling, and

- b) through generally accepted methodology, a catch per unit effort and the general implications of any changes observed as compared to prior sampling periods.
- 51. The results of the fisheries monitoring program shall be included in the Annual Report.

Benthic Invertebrate Monitoring

- 52. Benthic invertebrate monitoring shall be conducted in accordance with Schedule A-Part 3 of this licence and the EMSRP beginning in 2018.
- 53. The Licensee shall collect representative samples in accordance to the Canadian Aquatic Biomonitoring Network (CABIN) Field Manual for wadeable streams, and accepted preservation, enumerative and identification procedures.
- 54. Sample collection, identification, enumeration and data interpretation shall be performed by an individual having qualifications, expertise and experience in the subject.
- 55. Water sampling shall be conducted at each of the collection sites during the sample period per Schedule A.
- 56. Results of the benthic invertebrate monitoring and the water sampling and analysis shall be included in the Annual Report.

Sediment Monitoring

- 57. Sediment monitoring shall be conducted in accordance with Schedule A-Part 3 of this licence and the EMSRP.
- 58. The timing of the sediment monitoring shall coincide with the benthic invertebrate monitoring program. Triplicate samples shall be collected at each of the five sites indicated in the benthic invertebrate monitoring program.
- 59. All data collection shall be conducted in accordance to a nationally recognized sampling protocol (e.g. CCME Protocols Manual for Water Quality Sampling in Canada, 2011). The results shall be included in the Annual Report.

PART H – GENERAL CONDITIONS

60. The Licensee shall ensure a copy of this Licence is maintained at the site during operations at all times.

Other Laws

- 61. No condition of the water use licence limits the applicability of any statutory authority.
- 62. All construction or installation of works authorized by this licence shall occur on property that the Licensee has the right to enter upon and use for that purpose.

Non-Compliance

63. In the event that the Licensee fails to comply with any provision or condition of this licence, the Board may, subject to the Act, cancel the licence.

Correspondence

- 64. Where any direction, notice, order or report under this licence is required to be in writing, it shall be given:
 - a) To the Licensee, if delivered, or mailed by registered mail, to the address identified on page 1 of this licence, and shall be deemed to have been given to the Licensee on the day it was delivered, or 7 days after the day it was mailed, as the case may be; or
 - b) To the Board, if delivered, faxed or mailed by registered mail, to the following address:

Yukon Water Board Suite 106, 419 Range Road Whitehorse YT Y1A 3V1

Fax#: (867) 456-3890

and shall be deemed to have been given to the Board on the day it was delivered or faxed, or 7 days after the day it was mailed, as the case may be.

c) The Board or the Licensee may, by notice in writing, change its address for delivery.

Annual Reports

- 65. The Licensee shall submit annual reports to the Board on or before March 31 of the year following the year reported. The report shall include the information required by the Regulation including, but not necessarily limited to:
 - a) summaries of all data generated as a result of the monitoring requirements of this licence, including analysis and interpretation by a qualified individual or firm and a discussion of any variances from baseline conditions or from previous years' data:
 - b) a detailed record of any major post-reclamation maintenance work carried out on the waste dumps, diversion works, roads or any other aspect on the property that may have an impact on water;
 - c) documentation of any activities carried out at the site including those carried out under the requirements of the DDRP or Adaptive Management Plan;
 - d) reporting on the Adaptive Management Plan; and
 - e) an identification of any recommendations from the physical monitoring program, or from the most recent dam inspections or safety reviews, that were either not implemented, or that did not comply with the schedule proposed in the report, or in the review, including an explanation of why the recommendations was not implemented.

Quarterly Reports

66. Unless otherwise specified in this licence, the Licensee shall forward to the Board a copy of all data collected as part of the monitoring programs of this licence no more than 30 days after the conclusion of each quarterly sampling event in which that data was collected.

Reports

- 67. The Licensee shall provide to the Board one unbound, single-sided, paper copy of all reports required by this licence. All reports must be reproducible by standard photocopier.
- 68. The Licensee shall upload electronic copies of all reports required by this licence to the Yukon Water Board's online licensing registry, Waterline. Electronic copies shall be submitted in one of the following formats: MS Word, MS Excel, or Adobe .pdf format.
- 69. All water quality, water quantity and water level data shall also be submitted in Excel format. Water quality results must be uploaded to Waterline in the format outlined in the most recent version of Yukon's "Laboratory Data Submission Standards for Water Quality". This guide is available on the Yukon Water Board website.

SCHEDULE A – PART 1 SURVEILLANCE MONITORING SITES

Station ID	Station Description	Coord	inates
Station ID	Station Description	Northing	Easting
MH-11	Camp Creek located 2 km downstream of the Reclaim Pond (Upper False Canyon Creek)	6707788	509460
MH-12	East Fork of Tributary E – of False Canyon Creek, approximately 2 km downstream of the north tailings dam	6712755	509688
MH-02	North Dam seepage	6711477	508060
MH-22	Burnick 1200 Portal discharge	6712946	506767
SDH-S2	Drainage from the 1380 Portal, present as a seep in the downslope waste rock dump	6709558	506325
MH-13	False Canyon Creek main channel located 10 km downstream of the mine site	6709113	512541
MH-04	Located near the Camp Creek headwaters above the former Reclaim Pond	6710292	507267
MH-15	West Fork of Tributary E	6718408	510041
MH-29	Access Creek Upstream of Camp Creek	6708895	509146
MH-30	Unnamed Tributary Upstream of False Canyon Creek	6707568	510985
MW13-01	Jewelbox/Main Zone – in 1380 Gully, downgradient of 1380 Portal.	6710202	506635
MW13-04	Main Access Road	6708729	507240
MW13-05	Main Access Road – south of the Mill Site on the Main Access Road.	6709392	507318
MW13-06	Burnick 1200 Portal	6713001	506761
MW13-07	North Dam – north of the North Dam and tailings pond area.	671-1502	507904
MW13-10	Mill site - northeast of the Mill Site	6709866	507774
MW13-08	Downgradient of 1380 Portal	6710234	507325
MW13-13	Downgradient of 1380 Portal	6709814	506452
MW14-01	In proximity to the landfill.	6712303	507861
MW14-02	In proximity to the landfill.	6712330	507967
MW14-03	In proximity to the landfill.	6712442	507922
MW14-04	In proximity to the landfill.	6712365	508005

WATER MONITORING SURVEILLANCE PROGRAM SCHEDULE A – PART 2

				Field			
Station	Ctotton III		Water	Measurements	ements	External An	External Analytical Suite
Category		F10W	Level	Frequency	Parameters	Frequency	Analytical Suite
	MH-11	BM		BM	ນ	BM	¥
Compliance	MH-12	BM		BM	ပ	BM	A
ı Omr	MH-15	BM		BM	ن ا	BM	A
-	MH-02	BM		BM	ပ	BM	A
Discharge Source	MH-22	BM		BM	ပ	BM	A
2011100	SDH-S2	BM		BM	ပ	BM	V
Additional	MH-13	BM		BM	ပ	BM	A
Surface Water	MH-04	BM		BM	C	BM	A
Stations	MH-29	BM		BM	ပ	BM	A
	MH-30	BM		BM	ن ر	BM	V
	MW13-01		δ	0	Q	0	В
	MW13-04		δ	0	D	0	В,Н
	MW13-05		δ	δ	Q	0	В,Н
	MW13-06		Ó	Ò	D	0	В
	MW13-07		0	Ò	D	0	В,Н
Groundwater	MW13-10		0	Ò	D	0	В,Н
Cionidwatci	MW13-08		δ	Ò	D	0	В
	MW13-13		δ	0	D	0	В
	MW14-01		0	Ò	D	0	В,Н
	MW14-02		Ò	δ	D	0	В,Н
	MW14-03		0	δ	D	0	В,Н
	MW14-04		0	0	D	0	B.H

BM: Bi-monthly; S/F: Spring and Fall (freshet and low flow periods); Q:Quarterly (to include freshet and low flow periods

pH, specific conductance, water temperature pH, specific conductance, water temperature, dissolved oxygen, ORP

pH, specific conductance, total alkalinity, TSS, TDS, total and dissolved metals, total ammonia-N, nitrate-N, nitrite-N, dissolved sulphate, hardness pH, specific conductance, total alkalinity, dissolved metals, total ammonia-N, nitrate-N, dissolved sulphate, hardness hydrocarbons including BTEX, LEPH, HEPH, VPH, PAH HWYC.

SCHEDULE A – PART 3 AQUATIC RESOURCES MONITORING PROGRAM

Station ID	Benthics/ Sediments	Fisheries
MH-11	BA-LFF	
MH-12	BA-LFF	
MH-13	BA-LFF	BA-LFF
MH-04	BA-LFF	
MH-29	BA-LFF	
MH-30	BA-LFF	BA-LFF

BA-LFF: Every two years during the low flow period (August or September)

Benthics: field collection and laboratory taxonomy using CABIN wadeable stream protocol.

Sediment: metals, total organic carbon and particle size

Fisheries: population and fish size

SCHEDULE B - PHYSICAL MONITORING

Inspection of Relevant Mine Components

Year	Frequency	
2017- 2026	Annually	
2027-2040	Years 2031, 2036, 2040	



APPENDIX B: ALS LABORATORY RESULTS FOR SURFACE WATER AND SEDIMENT SAMPLES, AUGUST 2022



CERTIFICATE OF ANALYSIS

Work Order : WR2200850-AA

Client : Teck Metals Ltd
Contact : Michelle Unger

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

 Telephone
 : 250 427 8404

 Project
 : Sa Dena Hes

PO : 10289 C-O-C number : ----

Sampler : ----

Site : ECA22YT00199

Quote number : VA22-TECK150-001

No. of samples received : 11

No. of samples analysed : 11

Page : 1 of 10

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 11-Aug-2022 16:45

Date Analysis Commenced : 15-Aug-2022

Issue Date : 23-Aug-2022 14:11

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
Delson Resende	Lab Assistant	Metals, Burnaby, British Columbia
Hamideh Moradi	Analyst	Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Metals, Burnaby, British Columbia
Kyle Chang	Lab Assistant	Metals, Burnaby, British Columbia
Lindsay Gung	Supervisor - Water Chemistry	Inorganics, Burnaby, British Columbia
Miles Gropen	Department Manager - Inorganics	Inorganics, Burnaby, British Columbia
Owen Cheng		Metals, Burnaby, British Columbia

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



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
μg/L	micrograms per litre
μS/cm	Microsiemens per centimetre
mg/L	milligrams per litre
pH units	pH units

<: less 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
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference,
	colour, turbidity).

>: greater than.

Page Work Order

: 3 of 10 : WR2200850-AA Client : Teck Metals Ltd Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cl	ient sample ID	SD_MH-02_202 2-08-08	SD_MH-04_202 2-08-08	SD_MH-11_202 2-08-08	SD_MH-12_202 2-08-08	SD_MH-13_202 2-08-08
(Matrix: Water)					2-00-00	2-00-00	2-00-00	2-00-00	2-00-00
			Client samp	ling date / time	09-Aug-2022 10:02	08-Aug-2022 15:45	10-Aug-2022 10:45	09-Aug-2022 11:45	09-Aug-2022 13:30
Analyte	CAS Number	Method	LOR	Unit	WR2200850-001	WR2200850-002	WR2200850-003	WR2200850-004	WR2200850-005
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	360	142	211	162	190
conductivity		E100	2.0	μS/cm	1070	297	375	317	358
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	584	147	196	170	197
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	564	144	187	160	185
pH		E108	0.10	pH units	7.98	8.17	8.23	8.30	8.27
solids, total dissolved [TDS]		E162	10	mg/L	781	170	201	177	192
solids, total suspended [TSS]		E160-L	1.0	mg/L	5.5	<1.0	<1.0	1.0	1.7
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	<0.0050	0.0089	<0.0050
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.250 DLDS	<0.050	<0.050	<0.050	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0250 DLDS	0.134	0.0854	0.0412	0.0127
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0050 DLDS	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	267	14.7	12.0	7.93	6.23
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0128	0.0048	0.0085	0.0093	0.0128
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	0.00012	0.00015	0.00022	0.00012
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00074	0.00042	0.00062	0.00087	0.00054
barium, total	7440-39-3	E420	0.00010	mg/L	0.193	0.0210	0.0650	0.0738	0.155
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	0.000104	0.000261	0.0000691	0.0000410	0.0000250
calcium, total	7440-70-2	E420	0.050	mg/L	198	52.9	62.4	54.6	53.6
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	0.00100	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00290
iron, total	7439-89-6	E420	0.010	mg/L	0.121	<0.010	0.054	0.012	0.247
lead, total	7439-92-1	E420	0.000050	mg/L	0.000346	0.000239	0.000265	0.000281	0.000132
lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	0.0014	0.0017	0.0015	0.0012
magnesium, total	7439-95-4	E420	0.100	mg/L	17.0	3.00	7.58	5.66	12.5
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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cli	ient sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client samp	ling date / time	09-Aug-2022 10:02	08-Aug-2022 15:45	10-Aug-2022 10:45	09-Aug-2022 11:45	09-Aug-2022 13:30
Analyte	CAS Number	Method	LOR	Unit	WR2200850-001	WR2200850-002	WR2200850-003	WR2200850-004	WR2200850-005
					Result	Result	Result	Result	Result
Total Metals									
manganese, total	7439-96-5	E420	0.00010	mg/L	2.37	0.00075	0.00869	0.00163	0.0113
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	0.00141	0.000665	0.000851	0.00120	0.00106
nickel, total	7440-02-0	E420	0.00050	mg/L	0.00107	<0.00050	<0.00050	<0.00050	<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	2.21	0.379	0.355	0.422	0.293
selenium, total	7782-49-2	E420	0.050	μg/L	0.088	0.734	0.532	0.579	0.512
silicon, total	7440-21-3	E420	0.10	mg/L	6.14	3.33	3.79	4.32	3.38
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	11.0	0.785	1.04	0.950	0.875
strontium, total	7440-24-6	E420	0.00020	mg/L	0.690	0.186	0.248	0.205	0.202
sulfur, total	7704-34-9	E420	0.50	mg/L	100	5.12	4.38	2.69	2.32
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	<0.00030	<0.00030	<0.00030	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.00140	0.000745	0.000952	0.000854	0.00116
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	0.0145	0.0043	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	0.0020	0.0069	0.0025	0.0029
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00010	0.00014	0.00016	0.00021	0.00011
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00071	0.00042	0.00062	0.00087	0.00050
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.184	0.0204	0.0617	0.0792	0.153
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	0.0000692	0.000261	0.0000576	0.0000416	0.0000149
calcium, dissolved	7440-70-2	E421	0.050	mg/L	205	53.7	65.4	58.2	56.7
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	0.00099	<0.00010	<0.00010	<0.00010	<0.00010
	7 770-40-4		0.000.0	1119/1	0.0000		1 .0.00010		0.00010

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Clie	ent sample ID	SD_MH-02_202	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202
(Matrix: Water)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client sampl	ing date / time	09-Aug-2022 10:02	08-Aug-2022 15:45	10-Aug-2022 10:45	09-Aug-2022 11:45	09-Aug-2022 13:30
Analyte	CAS Number	Method	LOR	Unit	WR2200850-001	WR2200850-002	WR2200850-003	WR2200850-004	WR2200850-005
					Result	Result	Result	Result	Result
Dissolved Metals		E 404	0.00000		0.0000	0.00040	0.0004	0.0000	0.00040
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00038	0.00048	0.00034	0.00033	0.00048
iron, dissolved	7439-89-6	E421	0.010	mg/L	0.070	<0.010	0.034	<0.010	0.108
lead, dissolved	7439-92-1	E421	0.000050	mg/L	0.000080	0.000134	0.000114	<0.000050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	<0.0010	0.0015	0.0018	0.0015	0.0012
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	17.6	3.09	7.84	6.01	13.4
manganese, dissolved	7439-96-5	E421	0.00010	mg/L	2.51	0.00046	0.00745	0.00078	0.00727
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	0.00147	0.000715	0.000930	0.00124	0.00106
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	0.00108	<0.00050	<0.00050	<0.00050	<0.00050
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	2.27	0.399	0.366	0.446	0.325
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.118	0.874	0.680	0.668	0.606
silicon, dissolved	7440-21-3	E421	0.050	mg/L	5.71	3.02	3.64	4.35	3.54
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	11.1	0.814	1.05	1.01	0.934
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.729	0.207	0.276	0.227	0.211
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	92.7	5.13	4.28	2.99	2.44
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	0.00143	0.000765	0.000935	0.000910	0.00127
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	0.0134	0.0045	0.0049	0.0015	<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
Speciated Metals									1
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Please refer to the General Comments section for an explanation of any qualifiers detected.

Page Work Order

: 6 of 10 : WR2200850-AA Client : Teck Metals Ltd Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cl	ient sample ID	SD_MH-15_202 2-08-08	SD_MH-22_202 2-08-08	SD_MH-29_202 2-08-08	SD_MH-FB_202 2-08-08	SD_MH-FD_202 2-08-08
(Matrix: Water)					2-00-00	2-00-00	2-00-00	2-00-00	2-00-00
			Client samp	ling date / time	09-Aug-2022 12:00	10-Aug-2022 14:20	10-Aug-2022 12:00	10-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-006	WR2200850-007	WR2200850-008	WR2200850-009	WR2200850-010
					Result	Result	Result	Result	Result
Physical Tests									
alkalinity, total (as CaCO3)		E290	1.0	mg/L	196	106	182	<1.0	196
conductivity		E100	2.0	μS/cm	360	273	337	<2.0	359
hardness (as CaCO3), dissolved		EC100	0.60	mg/L	199	135	182	<0.60	198
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	188	135	180	<0.60	201
рН		E108	0.10	pH units	8.23	7.93	8.25	5.23	8.23
solids, total dissolved [TDS]		E162	10	mg/L	196	158	193	<10	190
solids, total suspended [TSS]		E160-L	1.0	mg/L	1.3	<1.0	<1.0	<1.0	1.3
Anions and Nutrients									
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	0.0056	<0.0050	<0.0050	<0.0050	0.0059
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	0.0076	0.117	0.0398	<0.0050	0.0076
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	2.64	33.3	2.79	<0.30	2.64
Total Metals									
aluminum, total	7429-90-5	E420	0.0030	mg/L	0.0101	<0.0030	0.0066	<0.0030	0.0082
antimony, total	7440-36-0	E420	0.00010	mg/L	0.00011	0.00231	0.00018	<0.00010	0.00011
arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00048	0.00383	0.00082	<0.00010	0.00052
barium, total	7440-39-3	E420	0.00010	mg/L	0.194	0.0159	0.0518	<0.00010	0.196
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	0.0000155	0.00316	0.0000609	<0.000050	0.0000086
calcium, total	7440-70-2	E420	0.050	mg/L	54.6	44.1	63.2	<0.050	59.6
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	<0.00010	<0.00010	<0.00010	<0.00010
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	<0.00050	0.00062	<0.00050	<0.00050
iron, total	7439-89-6	E420	0.010	mg/L	0.172	<0.010	0.014	<0.010	0.163
lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	0.000223	<0.000050	<0.000050	<0.000050
lithium, total	7439-93-2	E420	0.0010	mg/L	0.0012	0.0052	0.0016	<0.0010	0.0012
magnesium, total	7439-95-4	E420	0.100	mg/L	12.5	5.97	5.42	<0.100	12.7
manganese, total	7439-96-5	E420	0.00010	mg/L	0.0128	0.00038	0.00395	<0.00010	0.0125
	1 400-90-0		1 3.333.3	g, _	0.0.20	3.0000	1 0.0000	1	1 3.5.25

Page Work Order

: 7 of 10 : WR2200850-AA Client : Teck Metals Ltd Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water (Matrix: Water)			Clid	ent sample ID	SD_MH-15_202 2-08-08	SD_MH-22_202 2-08-08	SD_MH-29_202 2-08-08	SD_MH-FB_202 2-08-08	SD_MH-FD_202 2-08-08
(many)			Client sampl	ing date / time	09-Aug-2022 12:00	10-Aug-2022 14:20	10-Aug-2022 12:00	10-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-006	WR2200850-007	WR2200850-008	WR2200850-009	WR2200850-010
					Result	Result	Result	Result	Result
Total Metals									
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.000050	<0.0000050	<0.0000050	<0.0000050
molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00182	0.00876	0.000655	<0.000050	0.00183
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	0.00333	<0.00050	<0.00050	<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	0.300	0.545	0.254	<0.100	0.279
selenium, total	7782-49-2	E420	0.050	μg/L	0.427	11.5	0.497	<0.050	0.409
silicon, total	7440-21-3	E420	0.10	mg/L	3.91	4.51	4.05	<0.10	3.83
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, total	7440-23-5	E420	0.050	mg/L	0.975	0.834	0.893	<0.050	0.985
strontium, total	7440-24-6	E420	0.00020	mg/L	0.176	0.201	0.220	<0.00020	0.184
sulfur, total	7704-34-9	E420	0.50	mg/L	0.89	11.9	1.22	<0.50	1.37
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	0.000016	<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	0.00042	<0.00030	<0.00030	<0.00030	<0.00030
uranium, total	7440-61-1	E420	0.000010	mg/L	0.000688	0.00286	0.000557	<0.000010	0.000685
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	0.424	<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	0.0029	<0.0010	0.0022	<0.0010	0.0026
antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00010	0.00234	0.00017	<0.00010	<0.00010
arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00046	0.00378	0.00081	<0.00010	0.00042
barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.195	0.0161	0.0540	<0.00010	0.203
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	<0.00050
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	0.0000092	0.00329	0.0000646	<0.000050	0.0000051
calcium, dissolved	7440-70-2	E421	0.050	mg/L	57.7	44.2	63.9	<0.050	57.6
chromium, dissolved		E421	0.00050		<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
cobalt, dissolved	7440-47-3	E421	0.00030	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
,	7440-48-4			mg/L					
copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00024	0.00037	0.00037	<0.00020	0.00024

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cli	ent sample ID	SD_MH-15_202	SD_MH-22_202	SD_MH-29_202	SD_MH-FB_202	SD_MH-FD_202
(Matrix: Water)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client sampl	ing date / time	09-Aug-2022 12:00	10-Aug-2022 14:20	10-Aug-2022 12:00	10-Aug-2022	09-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-006	WR2200850-007	WR2200850-008	WR2200850-009	WR2200850-010
					Result	Result	Result	Result	Result
Dissolved Metals iron, dissolved	7439-89-6	E421	0.010	mg/L	0.088	<0.010	<0.010	<0.010	0.087
lead, dissolved	7439-92-1	E421	0.000050	mg/L	<0.000050	0.000189	<0.00050	<0.00050	<0.000050
lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0012	0.0052	0.0015	<0.0010	0.0012
magnesium, dissolved	7439-95-4	E421	0.100	mg/L	13.3	6.08	5.52	<0.100	13.2
manganese, dissolved	7439-95-4	E421	0.00010	mg/L	0.00549	0.00036	0.00320	<0.00010	0.00553
mercury, dissolved		E509	0.00010	-	<0.000050	<0.000050	<0.000000	<0.000000	<0.000050
•	7439-97-6	E421	0.000050	mg/L	0.00184	0.00886	0.000633	<0.000050	0.00178
molybdenum, dissolved	7439-98-7			mg/L				<0.00050	
nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	0.00326	<0.00050		<0.00050
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	0.302	0.557	0.270	<0.100	0.289
selenium, dissolved	7782-49-2	E421	0.050	μg/L	0.457	12.0	0.456	<0.050	0.421
silicon, dissolved	7440-21-3	E421	0.050	mg/L	3.88	4.63	4.16	<0.050	3.87
silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
sodium, dissolved	7440-23-5	E421	0.050	mg/L	0.979	0.813	0.888	<0.050	0.966
strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.189	0.217	0.218	<0.00020	0.186
sulfur, dissolved	7704-34-9	E421	0.50	mg/L	0.92	11.8	1.05	<0.50	1.17
thallium, dissolved	7440-28-0	E421	0.000010	mg/L	<0.000010	0.000018	<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	0.000695	0.00294	0.000589	<0.000010	0.000706
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	0.454	<0.0010	<0.0010	<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
Speciated Metals									
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
chromium, trivalent [Cr III], total	16065-83-1	EC535	0.00050	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050

Please refer to the General Comments section for an explanation of any qualifiers detected.

Page Work Order

: 9 of 10 : WR2200850-AA Client : Teck Metals Ltd Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			Cli	ient sample ID	SD_MH-TB_202	 		
(Matrix: Water)					2-08-08			
			Client samp	ling date / time	11-Aug-2022	 		
Analyte	CAS Number	Method	LOR	Unit	WR2200850-011	 		
					Result	 		
Physical Tests								
alkalinity, total (as CaCO3)		E290	1.0	mg/L	<1.0	 		
conductivity		E100	2.0	μS/cm	<2.0	 		
hardness (as CaCO3), from total Ca/Mg		EC100A	0.60	mg/L	<0.60	 		
pH		E108	0.10	pH units	5.23	 		
solids, total dissolved [TDS]		E162	10	mg/L	<10	 		
solids, total suspended [TSS]		E160-L	1.0	mg/L	<1.0	 		
Anions and Nutrients								
ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	 		
bromide	24959-67-9	E235.Br-L	0.050	mg/L	<0.050	 		
nitrate (as N)	14797-55-8	E235.NO3-L	0.0050	mg/L	<0.0050	 		
nitrite (as N)	14797-65-0	E235.NO2-L	0.0010	mg/L	<0.0010	 		
sulfate (as SO4)	14808-79-8	E235.SO4	0.30	mg/L	<0.30	 		
Total Metals								
aluminum, total	7429-90-5	E420	0.0030	mg/L	<0.0030	 		
antimony, total	7440-36-0	E420	0.00010	mg/L	<0.00010	 		
arsenic, total	7440-38-2	E420	0.00010	mg/L	<0.00010	 		
barium, total	7440-39-3	E420	0.00010	mg/L	<0.00010	 		
beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	 		
bismuth, total	7440-69-9	E420	0.000050	mg/L	<0.000050	 		
boron, total	7440-42-8	E420	0.010	mg/L	<0.010	 		
cadmium, total	7440-43-9	E420	0.0000050	mg/L	<0.0000050	 		
calcium, total	7440-70-2	E420	0.050	mg/L	<0.050	 		
chromium, total	7440-47-3	E420	0.00050	mg/L	<0.00050	 		
cobalt, total	7440-48-4	E420	0.00010	mg/L	<0.00010	 		
copper, total	7440-50-8	E420	0.00050	mg/L	<0.00050	 		
iron, total	7439-89-6	E420	0.010	mg/L	<0.010	 		
lead, total	7439-92-1	E420	0.000050	mg/L	<0.000050	 		
lithium, total	7439-93-2	E420	0.0010	mg/L	<0.0010	 		
magnesium, total	7439-95-4	E420	0.100	mg/L	<0.100	 		
manganese, total	7439-96-5	E420	0.00010	mg/L	<0.00010	 		
mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.000050	 		
molybdenum, total	7439-98-7	E420	0.000050	mg/L	<0.000050	 		
1	7-00-00-7		1				I	l

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Surface Water			CI	lient sample ID	SD_MH-TB_202	 	
(Matrix: Water)					2-08-08		
			Client samp	oling date / time	11-Aug-2022	 	
Analyte	CAS Number	Method	LOR	Unit	WR2200850-011	 	
					Result	 	
Total Metals							
nickel, total	7440-02-0	E420	0.00050	mg/L	<0.00050	 	
phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	 	
potassium, total	7440-09-7	E420	0.100	mg/L	<0.100	 	
selenium, total	7782-49-2	E420	0.050	μg/L	<0.050	 	
silicon, total	7440-21-3	E420	0.10	mg/L	<0.10	 	
silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	 	
sodium, total	7440-23-5	E420	0.050	mg/L	<0.050	 	
strontium, total	7440-24-6	E420	0.00020	mg/L	<0.00020	 	
sulfur, total	7704-34-9	E420	0.50	mg/L	<0.50	 	
thallium, total	7440-28-0	E420	0.000010	mg/L	<0.000010	 	
tin, total	7440-31-5	E420	0.00010	mg/L	<0.00010	 	
titanium, total	7440-32-6	E420	0.00030	mg/L	<0.00030	 	
uranium, total	7440-61-1	E420	0.000010	mg/L	<0.000010	 	
vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	 	
zinc, total	7440-66-6	E420	0.0030	mg/L	<0.0030	 	
zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	 	
				1			

Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL REPORT

Work Order :WR2200850-AA

Client : Teck Metals Ltd Contact : Michelle Unger

:601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone 250 427 8404 Project : Sa Dena Hes

: 10289 C-O-C number Sampler

Site : ECA22YT00199 Quote number : VA22-TECK150-001

No. of samples received :11 No. of samples analysed : 11 Page : 1 of 22

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone :+1 867 668 6689 Date Samples Received :11-Aug-2022 16:45 **Date Analysis Commenced**

: 15-Aug-2022

: 23-Aug-2022 14:11 Issue Date

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 Percent Difference (RPD) and Data Quality Objectives

- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

Address

PO

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	Vancouver Metals, Burnaby, British Columbia
Delson Resende	Lab Assistant	Vancouver Metals, Burnaby, British Columbia
Hamideh Moradi	Analyst	Vancouver Metals, Burnaby, British Columbia
Kevin Duarte	Supervisor - Metals ICP Instrumentation	Vancouver Metals, Burnaby, British Columbia
Kim Jensen	Department Manager - Metals	Vancouver Metals, Burnaby, British Columbia
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Owen Cheng		Vancouver Metals, Burnaby, British Columbia

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



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							Labora	tory Duplicate (D	UP) 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: 603737)										
WR2200850-003	SD_MH-11_2022-08-08	pH		E108	0.10	pH units	8.23	8.24	0.121%	4%	
Physical Tests (QC	Lot: 603738)										
WR2200850-003	SD_MH-11_2022-08-08	alkalinity, total (as CaCO3)		E290	1.0	mg/L	211	180	16.0%	20%	
Physical Tests (QC	Lot: 603739)										
WR2200850-003	SD_MH-11_2022-08-08	conductivity		E100	2.0	μS/cm	375	341	9.50%	10%	
Physical Tests (QC	Lot: 604409)										
WR2200849-008	Anonymous	solids, total dissolved [TDS]		E162	20	mg/L	264	266	0.566%	20%	
Anions and Nutrien	ts (QC Lot: 603782)										
WR2200850-001	SD_MH-02_2022-08-08	ammonia, total (as N)	7664-41-7	E298	0.0050	mg/L	<0.0050	<0.0050	0	Diff <2x LOR	
Total Metals (QC Lo	ot: 603794)										
WR2200850-007	SD_MH-22_2022-08-08	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	0.00231	0.00238	2.91%	20%	
		arsenic, total	7440-38-2	E420	0.00010	mg/L	0.00383	0.00387	0.904%	20%	
		barium, total	7440-39-3	E420	0.00010	mg/L	0.0159	0.0155	2.26%	20%	
		beryllium, total	7440-41-7	E420	0.000020	mg/L	<0.000020	<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	0.0000050	mg/L	0.00316	0.00325	2.69%	20%	
		calcium, total	7440-70-2	E420	0.050	mg/L	44.1	44.5	1.00%	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	<0.010	<0.010	0	Diff <2x LOR	
		lead, total	7439-92-1	E420	0.000050	mg/L	0.000223	0.000226	0.000004	Diff <2x LOR	
		lithium, total	7439-93-2	E420	0.0010	mg/L	0.0052	0.0053	0.00006	Diff <2x LOR	
		magnesium, total	7439-95-4	E420	0.100	mg/L	5.97	5.93	0.741%	20%	
		manganese, total	7439-96-5	E420	0.00010	mg/L	0.00038	0.00036	0.00002	Diff <2x LOR	
		molybdenum, total	7439-98-7	E420	0.000050	mg/L	0.00876	0.00919	4.85%	20%	
		nickel, total	7440-02-0	E420	0.00050	mg/L	0.00333	0.00332	0.000007	Diff <2x LOR	
		phosphorus, total	7723-14-0	E420	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	
			7440-09-7	E420	1		0.545	0.543	0.002		1

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Total Metals (QC Lo	ot: 603794) - continued										
WR2200850-007	SD_MH-22_2022-08-08	selenium, total	7782-49-2	E420	0.000050	mg/L	11.5 μg/L	0.0119	3.29%	20%	
		silicon, total	7440-21-3	E420	0.10	mg/L	4.51	4.54	0.501%	20%	
		silver, total	7440-22-4	E420	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, total	7440-23-5	E420	0.050	mg/L	0.834	0.837	0.274%	20%	
		strontium, total	7440-24-6	E420	0.00020	mg/L	0.201	0.209	3.77%	20%	
		sulfur, total	7704-34-9	E420	0.50	mg/L	11.9	11.8	0.758%	20%	
		thallium, total	7440-28-0	E420	0.000010	mg/L	0.000016	0.000016	0.0000008	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	0.00286	0.00290	1.25%	20%	
		vanadium, total	7440-62-2	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		zinc, total	7440-66-6	E420	0.0030	mg/L	0.424	0.429	1.15%	20%	
		zirconium, total	7440-67-7	E420	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
otal Metals (QC Lo	ot: 603802)										
'A22B8907-021	Anonymous	aluminum, total	7429-90-5	E420	0.0150	mg/L	1.21	1.45	18.2%	20%	
		antimony, total	7440-36-0	E420	0.00050	mg/L	0.00106	0.00113	0.00006	Diff <2x LOR	
		arsenic, total	7440-38-2	E420	0.00050	mg/L	0.0416	0.0417	0.220%	20%	
		barium, total	7440-39-3	E420	0.00050	mg/L	0.0395	0.0398	0.733%	20%	
		beryllium, total	7440-41-7	E420	0.000100	mg/L	0.000200	0.000207	0.000007	Diff <2x LOR	
		bismuth, total	7440-69-9	E420	0.000250	mg/L	<0.000250	<0.000250	0	Diff <2x LOR	
		boron, total	7440-42-8	E420	0.050	mg/L	1.41	1.44	2.03%	20%	
		cadmium, total	7440-43-9	E420	0.0000250	mg/L	<0.0000250	<0.0000250	0	Diff <2x LOR	
		calcium, total	7440-70-2	E420	0.250	mg/L	796	834	4.59%	20%	
		chromium, total	7440-47-3	E420	0.00050	mg/L	0.00102	0.00102	0.000006	Diff <2x LOR	
		cobalt, total	7440-48-4	E420	0.00050	mg/L	0.00501	0.00510	1.79%	20%	
		copper, total	7440-50-8	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	
		iron, total	7439-89-6	E420	0.050	mg/L	1.01	1.17	14.2%	20%	
		lead, total	7439-92-1	E420	0.000250	mg/L	0.00112	0.00120	0.000079	Diff <2x LOR	
		lithium, total	7439-93-2	E420	0.0050	mg/L	0.0970	0.102	5.43%	20%	
		magnesium, total	7439-95-4	E420	0.0250	mg/L	71.0	73.2	3.05%	20%	
		manganese, total	7439-96-5	E420	0.00050	mg/L	0.0318	0.0347	8.73%	20%	
		molybdenum, total	7439-98-7	E420	0.000250	mg/L	0.00172	0.00182	0.000109	Diff <2x LOR	
		nickel, total	7440-02-0	E420	0.00250	mg/L	<0.00250	<0.00250	0	Diff <2x LOR	
		phosphorus, total	7723-14-0	E420	0.250	mg/L	0.346	0.327	0.019	Diff <2x LOR	
		potassium, total	7440-09-7	E420	0.250	mg/L	3.69	3.71	0.418%	20%	

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



ub-Matrix: Water					Laboratory Duplicate (DUP) Report						
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
Total Metals (QC Lo	ot: 603802) - continued										
VA22B8907-021	Anonymous	selenium, total	7782-49-2	E420	0.000250	mg/L	0.0124	0.0128	2.95%	20%	
		silicon, total	7440-21-3	E420	0.50	mg/L	26.0	26.5	2.03%	20%	
		silver, total	7440-22-4	E420	0.000050	mg/L	0.000086	0.000097	0.000011	Diff <2x LOR	
		sodium, total	7440-23-5	E420	0.250	mg/L	351	357	1.56%	20%	
		strontium, total	7440-24-6	E420	0.00100	mg/L	9.74	9.86	1.28%	20%	
		sulfur, total	7704-34-9	E420	2.50	mg/L	599	598	0.112%	20%	
		thallium, total	7440-28-0	E420	0.000050	mg/L	0.000180	0.000193	0.000013	Diff <2x LOR	
		tin, total	7440-31-5	E420	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
		titanium, total	7440-32-6	E420	0.00150	mg/L	0.0104	0.0119	0.00151	Diff <2x LOR	
		uranium, total	7440-61-1	E420	0.000050	mg/L	0.0137	0.0141	3.44%	20%	
		vanadium, total	7440-62-2	E420	0.00250	mg/L	0.0254	0.0254	0.124%	20%	
		zinc, total	7440-66-6	E420	0.0150	mg/L	<0.0150	<0.0150	0	Diff <2x LOR	
		zirconium, total	7440-67-7	E420	0.00100	mg/L	0.00229	0.00212	0.00017	Diff <2x LOR	
otal Metals (QC Lo	ot: 610976)										
WR2200830-005	Anonymous	mercury, total	7439-97-6	E508	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
Dissolved Metals (C	QC Lot: 603752)										
/A22B8907-014	Anonymous	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0048	0.0048	0.00002	Diff <2x LOR	
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.0100	0.00991	1.35%	20%	
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.138	0.140	1.20%	20%	
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0399	0.0404	1.22%	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	0.234	0.237	0.900%	20%	
		cadmium, dissolved	7440-43-9	E421	0.0000050	mg/L	0.0000158	0.0000137	0.0000021	Diff <2x LOR	
		calcium, dissolved	7440-70-2	E421	0.050	mg/L	54.7	54.4	0.432%	20%	
		chromium, dissolved	7440-47-3	E421	0.00050	mg/L	0.00098	0.00096	0.00002	Diff <2x LOR	
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR	
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00068	0.00067	0.00001	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	0.000365	0.000370	0.000005	Diff <2x LOR	
		lithium, dissolved	7439-93-2	E421	0.0010	mg/L	0.0884	0.0829	6.40%	20%	
		magnesium, dissolved	7439-95-4	E421	0.0050	mg/L	9.71	9.81	1.02%	20%	
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00163	0.00171	4.73%	20%	
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.0107	0.0104	2.76%	20%	
			1 400-00-1		0.00000			0.010-		2070	

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ub-Matrix: Water					Laboratory Duplicate (DUP) Report							
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie	
issolved Metals (QC Lot: 603752) - cont	inued										
'A22B8907-014	Anonymous	phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	0.535	0.588	9.34%	20%		
		potassium, dissolved	7440-09-7	E421	0.050	mg/L	4.01	4.07	1.53%	20%		
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.00424	0.00429	1.02%	20%		
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	10.7	10.8	0.368%	20%		
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR		
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	75.0	75.2	0.264%	20%		
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	1.24	1.18	4.58%	20%		
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	45.8	45.4	0.829%	20%		
		thallium, dissolved	7440-28-0	E421	0.000010	mg/L	0.000016	0.000014	0.000002	Diff <2x LOR		
		tin, dissolved	7440-31-5	E421	0.00010	mg/L	0.00639	0.00645	0.985%	20%		
		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	0.00251	0.00253	0.554%	20%		
		vanadium, dissolved	7440-62-2	E421	0.00050	mg/L	0.0105	0.0105	0.572%	20%		
		zinc, dissolved	7440-66-6	E421	0.0010	mg/L	0.0180	0.0190	5.74%	20%		
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR		
issolved Metals (OC L et: C027F2\											
VR2200850-004	SD MH-12 2022-08-08	aluminum, dissolved	7429-90-5	E421	0.0010	mg/L	0.0025	0.0025	0.00003	Diff <2x LOR		
		antimony, dissolved	7440-36-0	E421	0.00010	mg/L	0.00021	0.00021	0.000003	Diff <2x LOR		
		arsenic, dissolved	7440-38-2	E421	0.00010	mg/L	0.00087	0.00089	0.00002	Diff <2x LOR		
		barium, dissolved	7440-39-3	E421	0.00010	mg/L	0.0792	0.0734	7.61%	20%		
		beryllium, dissolved	7440-41-7	E421	0.000020	mg/L	<0.000020	<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	<0.010	<0.010	0	Diff <2x LOR		
			7440-43-9	E421	0.0000050	_	0.0000416	0.0000468	0.0000052	Diff <2x LOR		
		cadmium, dissolved	7440-43-9	E421	0.050	mg/L	58.2	58.3	0.0000032	20%	_ 	
		calcium, dissolved			0.00050	mg/L	<0.00050	<0.00050	0.113%	Diff <2x LOR		
		chromium, dissolved	7440-47-3	E421		mg/L						
		cobalt, dissolved	7440-48-4	E421	0.00010	mg/L	<0.00010	<0.00010	0	Diff <2x LOR		
		copper, dissolved	7440-50-8	E421	0.00020	mg/L	0.00033	0.00033	0.000002	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	0.0015	0.0014	0.00004	Diff <2x LOR		
		magnesium, dissolved	7439-95-4	E421	0.100	mg/L	6.01	6.13	1.85%	20%		
		manganese, dissolved	7439-96-5	E421	0.00010	mg/L	0.00078	0.00082	0.00004	Diff <2x LOR		
		molybdenum, dissolved	7439-98-7	E421	0.000050	mg/L	0.00124	0.00119	4.25%	20%		
		nickel, dissolved	7440-02-0	E421	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR		

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ub-Matrix: Water							Labora	tory Duplicate (D	UP) Report		
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie
issolved Metals ((QC Lot: 603753) - conti	nued									
VR2200850-004	SD_MH-12_2022-08-08	phosphorus, dissolved	7723-14-0	E421	0.050	mg/L	<0.050	<0.050	0	Diff <2x LOR	
		potassium, dissolved	7440-09-7	E421	0.100	mg/L	0.446	0.439	0.007	Diff <2x LOR	
		selenium, dissolved	7782-49-2	E421	0.000050	mg/L	0.668 µg/L	0.000680	1.70%	20%	
		silicon, dissolved	7440-21-3	E421	0.050	mg/L	4.35	4.34	0.164%	20%	
		silver, dissolved	7440-22-4	E421	0.000010	mg/L	<0.000010	<0.000010	0	Diff <2x LOR	
		sodium, dissolved	7440-23-5	E421	0.050	mg/L	1.01	0.984	2.50%	20%	
		strontium, dissolved	7440-24-6	E421	0.00020	mg/L	0.227	0.222	2.41%	20%	
		sulfur, dissolved	7704-34-9	E421	0.50	mg/L	2.99	3.26	0.27	Diff <2x LOR	
		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	0.000910	0.000911	0.0904%	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	0.0015	0.0016	0.00007	Diff <2x LOR	
		zirconium, dissolved	7440-67-7	E421	0.00020	mg/L	<0.00020	<0.00020	0	Diff <2x LOR	
issolved Metals(QC Lot: 610979)										
VR2200829-002	Anonymous	mercury, dissolved	7439-97-6	E509	0.0000050	mg/L	<0.0000050	<0.0000050	0	Diff <2x LOR	
peciated Metals((QC Lot: 604157)										
(S2202967-008	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	<0.00050	<0.00050	0	Diff <2x LOR	
peciated Metals (,	
/A22B8954-021	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.00050	mg/L	0.00060	0.00060	0	Diff <2x LOR	

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



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.

Analyte	CAS Number Method	LOR	Unit	Result	Qualifier
Physical Tests (QCLot: 603738)					
lkalinity, total (as CaCO3)	E290	1	mg/L	<1.0	
Physical Tests (QCLot: 603739)					
conductivity	E100	1	μS/cm	<1.0	
Physical Tests (QCLot: 604403)					
olids, total suspended [TSS]	E160-L	1	mg/L	<1.0	
Physical Tests (QCLot: 604409)					
olids, total dissolved [TDS]	E162	10	mg/L	<10	
Anions and Nutrients (QCLot: 603740)					
promide	24959-67-9 E235.Br-L	0.05	mg/L	<0.050	
Anions and Nutrients (QCLot: 603741)					
nitrate (as N)	14797-55-8 E235.NO3-L	0.005	mg/L	<0.0050	
Anions and Nutrients (QCLot: 603742)					
itrite (as N)	14797-65-0 E235.NO2-L	0.001	mg/L	<0.0010	
Anions and Nutrients (QCLot: 603743)					
ulfate (as SO4)	14808-79-8 E235.SO4	0.3	mg/L	<0.30	
Anions and Nutrients (QCLot: 603782)					
mmonia, total (as N)	7664-41-7 E298	0.005	mg/L	<0.0050	
Total Metals (QCLot: 603794)					
luminum, total	7429-90-5 E420	0.003	mg/L	<0.0030	
ntimony, total	7440-36-0 E420	0.0001	mg/L	<0.00010	
rsenic, total	7440-38-2 E420	0.0001	mg/L	<0.00010	
arium, total	7440-39-3 E420	0.0001	mg/L	<0.00010	
eryllium, total	7440-41-7 E420	0.00002	mg/L	<0.000020	
ismuth, total	7440-69-9 E420	0.00005	mg/L	<0.000050	
oron, total	7440-42-8 E420	0.01	mg/L	<0.010	
admium, total	7440-43-9 E420	0.000005	mg/L	<0.000050	
alcium, total	7440-70-2 E420	0.05	mg/L	<0.050	
hromium, total	7440-47-3 E420	0.0005	mg/L	<0.00050	
obalt, total	7440-48-4 E420	0.0001	mg/L	<0.00010	
opper, total	7440-50-8 E420	0.0005	mg/L	<0.00050	
on, total	7439-89-6 E420	0.01	mg/L	<0.010	
ead, total	7439-92-1 E420	0.00005	mg/L	<0.000050	
ithium, total	7439-93-2 E420	0.001	mg/L	<0.0010	

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Work Order : WR2200850-AA
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
otal Metals (QCLot: 603794) -	continued					
nagnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	
manganese, total	7439-96-5	E420	0.0001	mg/L	<0.00010	
nolybdenum, 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	
ootassium, total	7440-09-7	E420	0.05	mg/L	<0.050	
elenium, total	7782-49-2	E420	0.00005	mg/L	<0.000050	
silicon, total	7440-21-3	E420	0.1	mg/L	<0.10	
ilver, total	7440-22-4	E420	0.00001	mg/L	<0.000010	
sodium, total	7440-23-5	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	
hallium, total	7440-28-0	E420	0.00001	mg/L	<0.000010	
in, total	7440-31-5	E420	0.0001	mg/L	<0.00010	
itanium, total	7440-32-6	E420	0.0003	mg/L	<0.00030	
ıranium, total	7440-61-1	E420	0.00001	mg/L	<0.000010	
anadium, total	7440-62-2	E420	0.0005	mg/L	<0.00050	
inc, total	7440-66-6	E420	0.003	mg/L	<0.0030	
zirconium, total	7440-67-7	E420	0.0002	mg/L	<0.00020	
Fotal Metals (QCLot: 603802)						
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	
parium, total	7440-39-3	E420	0.0001	mg/L	<0.00010	
peryllium, total	7440-41-7	E420	0.00002	mg/L	<0.000020	
sismuth, total	7440-69-9	E420	0.00005	mg/L	<0.000050	
poron, total	7440-42-8	E420	0.01	mg/L	<0.010	
admium, total	7440-43-9	E420	0.000005	mg/L	<0.000050	
calcium, total	7440-70-2	E420	0.05	mg/L	<0.050	
chromium, total	7440-47-3	E420	0.0005	mg/L	<0.00050	
obalt, total	7440-48-4	E420	0.0001	mg/L	<0.00010	
copper, total	7440-50-8	E420	0.0005	mg/L	<0.00050	
ron, total	7439-89-6	E420	0.01	mg/L	<0.010	
ead, total	7439-92-1	E420	0.00005	mg/L	<0.000050	
ithium, total	7439-93-2	E420	0.001	mg/L	<0.0010	
magnesium, total	7439-95-4	E420	0.005	mg/L	<0.0050	

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Analyte Total Metals (QCLot: 603802) - conti	CAS Number Method	LOR	Unit		
			- Omit	Result	Qualifier
manganese, total	nued				
	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	7440-23-5 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: 610976)					
mercury, total	7439-97-6 E508	0.000005	mg/L	<0.000050	
Dissolved Metals (QCLot: 603752)					
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	<0.000050	
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	

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Analyte	CAS Number Me	ethod	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 603752)	- continued					
magnesium, dissolved	7439-95-4 E4	21	0.005	mg/L	<0.0050	
manganese, dissolved	7439-96-5 E4	21	0.0001	mg/L	<0.00010	
molybdenum, dissolved	7439-98-7 E4	21	0.00005	mg/L	<0.000050	
nickel, dissolved	7440-02-0 E4	21	0.0005	mg/L	<0.00050	
phosphorus, dissolved	7723-14-0 E4	21	0.05	mg/L	<0.050	
ootassium, dissolved	7440-09-7 E4	21	0.05	mg/L	<0.050	
selenium, dissolved	7782-49-2 E4	21	0.00005	mg/L	<0.000050	
silicon, dissolved	7440-21-3 E4	21	0.05	mg/L	<0.050	
silver, dissolved	7440-22-4 E4	21	0.00001	mg/L	<0.000010	
sodium, dissolved	7440-23-5 E4	21	0.05	mg/L	<0.050	
strontium, dissolved	7440-24-6 E4	21	0.0002	mg/L	<0.00020	
sulfur, dissolved	7704-34-9 E4	21	0.5	mg/L	<0.50	
hallium, dissolved	7440-28-0 E4	21	0.00001	mg/L	<0.000010	
in, dissolved	7440-31-5 E4	21	0.0001	mg/L	<0.00010	
itanium, dissolved	7440-32-6 E4	21	0.0003	mg/L	<0.00030	
uranium, dissolved	7440-61-1 E4	21	0.00001	mg/L	<0.000010	
vanadium, dissolved	7440-62-2 E4	21	0.0005	mg/L	<0.00050	
zinc, dissolved	7440-66-6 E4	21	0.001	mg/L	<0.0010	
zirconium, dissolved	7440-67-7 E4	21	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 603753)						
aluminum, dissolved	7429-90-5 E4	21	0.001	mg/L	<0.0010	
antimony, dissolved	7440-36-0 E4	21	0.0001	mg/L	<0.00010	
arsenic, dissolved	7440-38-2 E4	21	0.0001	mg/L	<0.00010	
parium, dissolved	7440-39-3 E4	21	0.0001	mg/L	<0.00010	
peryllium, dissolved	7440-41-7 E4	21	0.00002	mg/L	<0.000020	
pismuth, dissolved	7440-69-9 E4	21	0.00005	mg/L	<0.000050	
ooron, dissolved	7440-42-8 E4	21	0.01	mg/L	<0.010	
cadmium, dissolved	7440-43-9 E4	21	0.000005	mg/L	<0.0000050	
calcium, dissolved	7440-70-2 E4	21	0.05	mg/L	<0.050	
chromium, dissolved	7440-47-3 E4	21	0.0005	mg/L	<0.00050	
cobalt, dissolved	7440-48-4 E4	21	0.0001	mg/L	<0.00010	
copper, dissolved	7440-50-8 E4	21	0.0002	mg/L	<0.00020	
ron, dissolved	7439-89-6 E4	21	0.01	mg/L	<0.010	
lead, dissolved	7439-92-1 E4	21	0.00005	mg/L	<0.000050	
lithium, dissolved	7439-93-2 E4	21	0.001	mg/L	<0.0010	
magnesium, dissolved	7439-95-4 E4	21	0.005	mg/L	<0.0050	

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Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Dissolved Metals (QCLot: 603753)	continued					
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	<0.00010	
nolybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	<0.000050	
ickel, dissolved	7440-02-0	E421	0.0005	mg/L	<0.00050	
hosphorus, dissolved	7723-14-0	E421	0.05	mg/L	<0.050	
ootassium, dissolved	7440-09-7	E421	0.05	mg/L	<0.050	
elenium, 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	
odium, dissolved	7440-23-5	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	
hallium, dissolved	7440-28-0	E421	0.00001	mg/L	<0.000010	
in, dissolved	7440-31-5	E421	0.0001	mg/L	<0.00010	
itanium, 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	
rirconium, dissolved	7440-67-7	E421	0.0002	mg/L	<0.00020	
Dissolved Metals (QCLot: 610979)						
nercury, dissolved	7439-97-6	E509	0.000005	mg/L	<0.000050	
Speciated Metals (QCLot: 604157)						
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	
Speciated Metals (QCLot: 605956)						
hromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	<0.00050	

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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: 603737)										
рН		E108		pH units	7 pH units	100	98.0	102		
Physical Tests (QCLot: 603738)										
alkalinity, total (as CaCO3)		E290	1	mg/L	500 mg/L	109	85.0	115		
Physical Tests (QCLot: 603739)									1	
conductivity		E100	1	μS/cm	146.9 μS/cm	99.2	90.0	110		
Physical Tests (QCLot: 604403)										
solids, total suspended [TSS]		E160-L	1	mg/L	150 mg/L	106	85.0	115		
Physical Tests (QCLot: 604409)										
solids, total dissolved [TDS]		E162	10	mg/L	1000 mg/L	106	85.0	115		
				-						
Anions and Nutrients (QCLot: 603740)										
bromide	24959-67-9	E235.Br-L	0.05	mg/L	0.5 mg/L	101	85.0	115		
Aniana and Nutrients (OCL at C00744)					J 3					
Anions and Nutrients (QCLot: 603741) nitrate (as N)	14797-55-8	E235.NO3-L	0.005	mg/L	2.5 mg/L	98.8	90.0	110		
				3,	2.0 mg/2	00.0				
Anions and Nutrients (QCLot: 603742) nitrite (as N)	14797-65-0	E235.NO2-L	0.001	mg/L	0.5 mg/L	99.8	90.0	110		
,	71101 00 0	2200102 2	0.001	9/2	0.5 Hig/E	33.0	00.0			
Anions and Nutrients (QCLot: 603743) sulfate (as SO4)	14808-79-8	E235 SO4	0.3	mg/L	100 mg/L	99.8	90.0	110		
,	14000-73-0	L200.004	0.5	mg/L	100 Hig/L	99.0	30.0	110		
Anions and Nutrients (QCLot: 603782)	7664-41-7	E200	0.005		0.0 #	400	85.0	115		
ammonia, total (as N)	7004-41-7	E290	0.005	mg/L	0.2 mg/L	102	65.0	115		
Total Metals (QCLot: 603794)	7429-90-5	E400	0.000			100	00.0	400	ı	
aluminum, total			0.003	mg/L	2 mg/L	103	80.0	120 120		
antimony, total	7440-36-0		0.0001	mg/L	1 mg/L	103	80.0			
arsenic, total	7440-38-2		0.0001	mg/L	1 mg/L	104	80.0	120		
barium, total	7440-39-3		0.0001	mg/L	0.25 mg/L	106	80.0	120		
beryllium, total	7440-41-7		0.00002	mg/L	0.1 mg/L	102	80.0	120		
bismuth, total	7440-69-9		0.00005	mg/L	1 mg/L	104	80.0	120		
boron, total	7440-42-8		0.01	mg/L	1 mg/L	100	80.0	120		
cadmium, total	7440-43-9		0.000005	mg/L	0.1 mg/L	101	80.0	120		
calcium, total	7440-70-2		0.05	mg/L	50 mg/L	102	80.0	120		
chromium, total	7440-47-3		0.0005	mg/L	0.25 mg/L	101	80.0	120		
cobalt, total	7440-48-4		0.0001	mg/L	0.25 mg/L	99.9	80.0	120		
copper, total	7440-50-8	E420	0.0005	mg/L	0.25 mg/L	98.8	80.0	120		

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No. Morias QCLot: 603794) - continued 7439876 2120 0.01 mg/L	Sub-Matrix: Water					Laboratory Control Sample (LCS) Report					
No. Morias QCLot: 603794) - continued 7439876 2120 0.01 mg/L						Spike	Recovery (%)	Recovery	Limits (%)		
On, Dotal 74369-80 6420 620 0.01 mg/L 1 mg/L 1 164 80.0 12	Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier	
On, Dotal 74369-80 6420 620 0.01 mg/L 1 mg/L 1 164 80.0 12	Total Metals (QCLot: 603794) - continued										
thom, noted 749-94-22 E2D	iron, total	7439-89-6	E420	0.01	mg/L	1 mg/L	104	80.0	120		
Page Page	lead, total	7439-92-1	E420	0.00005	mg/L	0.5 mg/L	103	80.0	120		
Angenese, total 7496-86 5 E420 0.0001 mg/L 0.25 mg/L 102 80.0 120	lithium, total	7439-93-2	E420	0.001	mg/L	0.25 mg/L	102	80.0	120		
nolybdenum, total	magnesium, total	7439-95-4	E420	0.005	mg/L	50 mg/L	102	80.0	120		
Address Addr	manganese, total	7439-96-5	E420	0.0001	mg/L	0.25 mg/L	102	80.0	120		
Page Page	molybdenum, total	7439-98-7	E420	0.00005	mg/L	0.25 mg/L	105	80.0	120		
Description Communication	nickel, total	7440-02-0	E420	0.0005	mg/L	0.5 mg/L	101	80.0	120		
Part Part	phosphorus, total	7723-14-0	E420	0.05	mg/L	10 mg/L	97.9	80.0	120		
lilicon, total 7440-21-3 E420	potassium, total	7440-09-7	E420	0.05	mg/L	50 mg/L	107	80.0	120		
ilver, total 7440-22-4	selenium, total	7782-49-2	E420	0.00005	mg/L	1 mg/L	104	80.0	120		
odium, total 7440-23-5	silicon, total	7440-21-3	E420	0.1	mg/L	10 mg/L	109	80.0	120		
trontium, total 7440-244 E420	silver, total	7440-22-4	E420	0.00001	mg/L	0.1 mg/L	95.6	80.0	120		
utifur, total 7704-34-9 k40-28-0 k420 6420 0.5 mg/L 55 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 102 mg/L 103 mg/L 80.0 120 mg/L	sodium, total	7440-23-5	E420	0.05	mg/L	50 mg/L	109	80.0	120		
hallium, total 7440-28-0	strontium, total	7440-24-6	E420	0.0002	mg/L	0.25 mg/L	101	80.0	120		
n, total 7440-31-5 E420 0.0001 mg/L 0.5 mg/L 102 80.0 120	sulfur, total	7704-34-9	E420	0.5	mg/L	50 mg/L	102	80.0	120		
tanium, total 7440-32-6 E420 0.0003 mg/L 0.25 mg/L 100.0 80.0 120	thallium, total	7440-28-0	E420	0.00001	mg/L	1 mg/L	103	80.0	120		
ranium, total 7440-61-1	tin, total	7440-31-5	E420	0.0001	mg/L	0.5 mg/L	102	80.0	120		
anadum, total 7440-62-2 E420 0.0005 mg/L 0.5 mg/L 103 80.0 120	titanium, total	7440-32-6	E420	0.0003	mg/L	0.25 mg/L	100.0	80.0	120		
inc, total 7440-66-6 red 20 0.003 mg/L 0.5 mg/L 100 80.0 120	uranium, total	7440-61-1	E420	0.00001	mg/L	0.005 mg/L	102	80.0	120		
Fotal Metals (QCLot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotal Metals (QClot: 603802) Fotals	vanadium, total	7440-62-2	E420	0.0005	mg/L	0.5 mg/L	103	80.0	120		
Total Metals (QCLot: 603802) Iuluminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 96.6 80.0 120	zinc, total	7440-66-6	E420	0.003	mg/L	0.5 mg/L	100	80.0	120		
Huminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 96.6 80.0 120	zirconium, total	7440-67-7	E420	0.0002	mg/L	0.1 mg/L	97.8	80.0	120		
Huminum, total 7429-90-5 E420 0.003 mg/L 2 mg/L 96.6 80.0 120	Total Metals (OCI of: 603802)									ı	
ntimony, total 7440-36-0 E420 0.0001 mg/L 1 mg/L 97.8 80.0 120	aluminum, total	7429-90-5	E420	0.003	mg/L	2 mg/L	96.6	80.0	120		
reseric, total 7440-38-2 E420 0.0001 mg/L 1 mg/L 95.4 80.0 120	antimony, total	7440-36-0	E420	0.0001		_		80.0	120		
radium, total 7440-39-3 E420 0.0001 mg/L 0.25 mg/L 98.9 80.0 120	arsenic, total	7440-38-2	E420	0.0001	_	_		80.0	120		
recyllium, total 7440-41-7 E420 0.00002 mg/L 0.1 mg/L 97.8 80.0 120 120 mg/L 12	barium, total	7440-39-3	E420	0.0001	_	_		80.0	120		
ismuth, total 7440-69-9 E420 0.00005 mg/L 1 mg/L 92.4 80.0 120 admitum, total 7440-42-8 E420 0.00005 mg/L 0.1 mg/L 94.8 80.0 120 admitum, total 7440-43-9 E420 0.000005 mg/L 0.1 mg/L 94.8 80.0 120 admitum, total 7440-70-2 E420 0.05 mg/L 50 mg/L 96.0 80.0 120 admitum, total 7440-47-3 E420 0.0005 mg/L 0.25 mg/L 91.6 80.0 120 admitum, total 7440-48-4 E420 0.0001 mg/L 0.25 mg/L 94.7 80.0 120 admitum, total 7440-48-4 E420 0.0001 mg/L 0.25 mg/L 93.1 80.0 120 admitum, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 admitum, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total 7439-89-6 E420 0.001 mg/L 1 mg/L 97.8 80.0 120 admitum, total	beryllium, total	7440-41-7	E420	0.00002	_			80.0	120		
oron, total 7440-42-8 E420 0.01 mg/L 1 mg/L 88.8 80.0 120	bismuth, total	7440-69-9	E420	0.00005	_	_		80.0	120		
admium, total 7440-43-9 E420 0.000005 mg/L 0.1 mg/L 94.8 80.0 120 alcium, total 7440-70-2 E420 0.05 mg/L 50 mg/L 96.0 80.0 120 thromium, total 7440-47-3 E420 0.0005 mg/L 0.25 mg/L 91.6 80.0 120 thromium, total 7440-48-4 E420 0.0001 mg/L 0.25 mg/L 94.7 80.0 120 thromium, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 93.1 80.0 120 thromium, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 thromium, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 97.8 80.0 120 thromium, total 7439-89-6 E420 0.01 mg/L 1 mg/L 97.8 80.0 120	boron, total	7440-42-8	E420	0.01	mg/L	_		80.0	120		
ralcium, total 7440-70-2 E420 0.05 mg/L 50 mg/L 96.0 80.0 120 thromium, total 7440-47-3 E420 0.0005 mg/L 0.25 mg/L 91.6 80.0 120 thromium, total 91.6 total 92.5 mg/L 0.25 mg/L 92.5 mg/L 94.7 80.0 120 thromium, total 92.5 mg/L 0.25 mg/L 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.5 total 94.7 80.0 120 thromium, total 94.7 80.0 120 t	cadmium, total	7440-43-9	E420	0.000005		_		80.0	120		
hromium, total 7440-47-3 E420 0.0005 mg/L 0.25 mg/L 91.6 80.0 120 obalt, total 940-48-4 E420 0.0001 mg/L 0.25 mg/L 94.7 80.0 120 opper, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 93.1 80.0 120 on, total 97.8 80.0 120 on, total 97.8 80.0 120	calcium, total				_	_			120		
obalt, total 7440-48-4 E420 0.0001 mg/L 0.25 mg/L 94.7 80.0 120 opper, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 93.1 80.0 120 ron, total 7439-89-6 E420 0.01 mg/L 1 mg/L 97.8 80.0 120	chromium, total	7440-47-3	E420	0.0005		_		80.0	120		
poper, total 7440-50-8 E420 0.0005 mg/L 0.25 mg/L 93.1 80.0 120 ron, total 7439-89-6 E420 0.01 mg/L 1 mg/L 97.8 80.0 120	cobalt, total				_	_					
ron, total 7439-89-6 E420 0.01 mg/L 1 mg/L 97.8 80.0 120	copper, total				_	_					
	iron, total					_					
	lead, total			0.00005	mg/L	0.5 mg/L	92.6	80.0	120		

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 Work Order
 : WR2200850-AA

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water Laboratory Control Sample (LCS) Report								
				Spike	Recovery (%)	Recovery	Limits (%)	
Analyte	CAS Number Method	LOR	Unit	Concentration	LCS	Low	High	Qualifi
otal Metals (QCLot: 603802) - continued								
hium, total	7439-93-2 E420	0.001	mg/L	0.25 mg/L	97.5	80.0	120	
nagnesium, total	7439-95-4 E420	0.005	mg/L	50 mg/L	95.8	80.0	120	
anganese, total	7439-96-5 E420	0.0001	mg/L	0.25 mg/L	93.2	80.0	120	
olybdenum, total	7439-98-7 E420	0.00005	mg/L	0.25 mg/L	95.1	80.0	120	
ickel, total	7440-02-0 E420	0.0005	mg/L	0.5 mg/L	93.3	80.0	120	
hosphorus, total	7723-14-0 E420	0.05	mg/L	10 mg/L	89.0	80.0	120	
otassium, total	7440-09-7 E420	0.05	mg/L	50 mg/L	98.0	80.0	120	
elenium, total	7782-49-2 E420	0.00005	mg/L	1 mg/L	95.7	80.0	120	
licon, total	7440-21-3 E420	0.1	mg/L	10 mg/L	103	80.0	120	
lver, total	7440-22-4 E420	0.00001	mg/L	0.1 mg/L	87.5	80.0	120	
odium, total	7440-23-5 E420	0.05	mg/L	50 mg/L	94.9	80.0	120	
rontium, total	7440-24-6 E420	0.0002	mg/L	0.25 mg/L	98.9	80.0	120	
ulfur, total	7704-34-9 E420	0.5	mg/L	50 mg/L	86.3	80.0	120	
nallium, total	7440-28-0 E420	0.00001	mg/L	1 mg/L	94.2	80.0	120	
n, total	7440-31-5 E420	0.0001	mg/L	0.5 mg/L	93.8	80.0	120	
anium, total	7440-32-6 E420	0.0003	mg/L	0.25 mg/L	93.2	80.0	120	
ranium, total	7440-61-1 E420	0.00001	mg/L	0.005 mg/L	97.0	80.0	120	
anadium, total	7440-62-2 E420	0.0005	mg/L	0.5 mg/L	95.6	80.0	120	
nc, total	7440-66-6 E420	0.003	mg/L	0.5 mg/L	94.8	80.0	120	
rconium, total	7440-67-7 E420	0.0002	mg/L	0.1 mg/L	93.7	80.0	120	
otal Metals (QCLot: 610976)								
ercury, total	7439-97-6 E508	0.000005	mg/L	0.0001 mg/L	102	80.0	120	
•			Ū	,				
bissolved Metals (QCLot: 603752)								
luminum, dissolved	7429-90-5 E421	0.001	mg/L	2 mg/L	97.2	80.0	120	
ntimony, dissolved	7440-36-0 E421	0.0001	mg/L	1 mg/L	100	80.0	120	
rsenic, dissolved	7440-38-2 E421	0.0001	mg/L	1 mg/L	95.9	80.0	120	
arium, dissolved	7440-39-3 E421	0.0001	mg/L	0.25 mg/L	95.7	80.0	120	
eryllium, dissolved	7440-41-7 E421	0.00002	mg/L	0.1 mg/L	98.2	80.0	120	
ismuth, dissolved	7440-69-9 E421	0.00005	mg/L	1 mg/L	89.3	80.0	120	
oron, dissolved	7440-42-8 E421	0.01	mg/L	1 mg/L	93.2	80.0	120	
admium, dissolved	7440-43-9 E421	0.000005	mg/L	0.1 mg/L	93.3	80.0	120	
alcium, dissolved	7440-70-2 E421	0.05	mg/L	50 mg/L	94.5	80.0	120	
nromium, dissolved	7440-47-3 E421	0.0005	mg/L	0.25 mg/L	93.4	80.0	120	
obalt, dissolved	7440-48-4 E421	0.0001	mg/L	0.25 mg/L	94.0	80.0	120	
opper, dissolved	7440-50-8 E421	0.0002	mg/L	0.25 mg/L	96.2	80.0	120	
ppei, uissoiveu	7770-00-0 1721	0.0002	1119/1	0.25 mg/L	90.2	00.0	120	

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 Work Order
 : WR2200850-AA

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water					Laboratory Control Sample (LCS) Report					
					Spike	Recovery (%)	Recovery	Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifie	
Dissolved Metals (QCLot: 603752)	- continued									
ead, dissolved	7439-92-1	E421	0.00005	mg/L	0.5 mg/L	93.5	80.0	120		
thium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	97.3	80.0	120		
nagnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	98.7	80.0	120		
nanganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.0	80.0	120		
nolybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	104	80.0	120		
ickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	94.4	80.0	120		
hosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	101	80.0	120		
otassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	98.3	80.0	120		
elenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	92.0	80.0	120		
ilicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	94.2	80.0	120		
ilver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	92.7	80.0	120		
odium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	95.0	80.0	120		
rontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	102	80.0	120		
ılfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	94.8	80.0	120		
allium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	94.0	80.0	120		
n, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	93.3	80.0	120		
tanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	93.3	80.0	120		
ranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	94.9	80.0	120		
anadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	96.0	80.0	120		
inc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	94.1	80.0	120		
irconium, dissolved	7440-67-7		0.0002	mg/L	0.1 mg/L	98.0	80.0	120		
Dissolved Metals (QCLot: 603753)	7429-90-5	E421	0.001	mg/L	2 mg/L	94.9	80.0	120		
ntimony, dissolved	7440-36-0		0.0001	mg/L	1 mg/L	96.4	80.0	120		
rsenic, dissolved	7440-38-2		0.0001	mg/L	1 mg/L	93.6	80.0	120		
arium, dissolved	7440-39-3		0.0001	mg/L	0.25 mg/L	93.3	80.0	120		
eryllium, dissolved	7440-41-7		0.00002	mg/L	0.1 mg/L	92.4	80.0	120		
ismuth, dissolved	7440-69-9		0.00005	mg/L	1 mg/L	97.8	80.0	120		
oron, dissolved	7440-42-8		0.01	mg/L	1 mg/L	90.4	80.0	120		
admium, dissolved	7440-43-9		0.000005	mg/L	_	97.6	80.0	120		
,	7440-70-2		0.05	-	0.1 mg/L		80.0	120		
alcium, dissolved	7440-70-2		0.005	mg/L	50 mg/L	94.4	80.0	120		
nromium, dissolved				mg/L	0.25 mg/L	92.4				
obalt, dissolved	7440-48-4		0.0001	mg/L	0.25 mg/L	93.6	80.0	120		
opper, dissolved	7440-50-8		0.0002	mg/L	0.25 mg/L	94.1	80.0	120		
on, dissolved	7439-89-6		0.01	mg/L	1 mg/L	106	80.0	120		
ead, dissolved	7439-92-1		0.00005	mg/L	0.5 mg/L	93.7	80.0	120		
thium, dissolved	7439-93-2	E421	0.001	mg/L	0.25 mg/L	91.9	80.0	120		

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 Work Order
 : WR2200850-AA

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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: 603753) - cor	ntinued										
magnesium, dissolved	7439-95-4	E421	0.005	mg/L	50 mg/L	95.8	80.0	120			
manganese, dissolved	7439-96-5	E421	0.0001	mg/L	0.25 mg/L	96.3	80.0	120			
molybdenum, dissolved	7439-98-7	E421	0.00005	mg/L	0.25 mg/L	94.2	80.0	120			
nickel, dissolved	7440-02-0	E421	0.0005	mg/L	0.5 mg/L	95.4	80.0	120			
phosphorus, dissolved	7723-14-0	E421	0.05	mg/L	10 mg/L	95.0	80.0	120			
potassium, dissolved	7440-09-7	E421	0.05	mg/L	50 mg/L	94.9	80.0	120			
selenium, dissolved	7782-49-2	E421	0.00005	mg/L	1 mg/L	96.4	80.0	120			
silicon, dissolved	7440-21-3	E421	0.05	mg/L	10 mg/L	103	80.0	120			
silver, dissolved	7440-22-4	E421	0.00001	mg/L	0.1 mg/L	87.9	80.0	120			
sodium, dissolved	7440-23-5	E421	0.05	mg/L	50 mg/L	94.7	80.0	120			
strontium, dissolved	7440-24-6	E421	0.0002	mg/L	0.25 mg/L	96.2	80.0	120			
sulfur, dissolved	7704-34-9	E421	0.5	mg/L	50 mg/L	84.2	80.0	120			
thallium, dissolved	7440-28-0	E421	0.00001	mg/L	1 mg/L	93.5	80.0	120			
tin, dissolved	7440-31-5	E421	0.0001	mg/L	0.5 mg/L	91.4	80.0	120			
titanium, dissolved	7440-32-6	E421	0.0003	mg/L	0.25 mg/L	91.0	80.0	120			
uranium, dissolved	7440-61-1	E421	0.00001	mg/L	0.005 mg/L	100	80.0	120			
vanadium, dissolved	7440-62-2	E421	0.0005	mg/L	0.5 mg/L	95.1	80.0	120			
zinc, dissolved	7440-66-6	E421	0.001	mg/L	0.5 mg/L	97.2	80.0	120			
zirconium, dissolved	7440-67-7	E421	0.0002	mg/L	0.1 mg/L	92.2	80.0	120			
mercury, dissolved	7439-97-6	E509	0.000005	mg/L	0.0001 mg/L	103	80.0	120			
Speciated Metals (QCLot: 604157)											
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	99.3	90.0	110			
Speciated Metals (QCLot: 605956)											
chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.0005	mg/L	0.25 mg/L	99.8	90.0	110			

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



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							
					Spi	ke	Recovery (%)	Recovery	Limits (%)			
aboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifie		
	ents (QCLot: 603740)											
WR2200853-002	Anonymous	bromide	24959-67-9	E235.Br-L	0.482 mg/L	0.5 mg/L	96.3	75.0	125			
nions and Nutri	ents (QCLot: 603741)											
WR2200853-002	Anonymous	nitrate (as N)	14797-55-8	E235.NO3-L	2.34 mg/L	2.5 mg/L	93.6	75.0	125			
nions and Nutri	ents (QCLot: 603742)											
WR2200853-002	Anonymous	nitrite (as N)	14797-65-0	E235.NO2-L	0.472 mg/L	0.5 mg/L	94.3	75.0	125			
nions and Nutri	ents (QCLot: 603743)											
WR2200853-002	Anonymous	sulfate (as SO4)	14808-79-8	E235.SO4	94.8 mg/L	100 mg/L	94.8	75.0	125			
nions and Nutri	ents (QCLot: 603782)					-						
WR2200850-002	SD_MH-04_2022-08-08	ammonia, total (as N)	7664-41-7	E298	0.103 mg/L	0.1 mg/L	103	75.0	125			
otal Metals (QC	Lot: 603794)				31100 1119/2	g						
VR2200850-008	SD MH-29 2022-08-08	aluminum, total	7429-90-5	E420	0.190 mg/L	0.2 mg/L	94.9	70.0	130			
		antimony, total	7429-90-3	E420	0.0194 mg/L	0.2 mg/L	97.2	70.0	130			
		arsenic, total	7440-38-2	E420	0.0202 mg/L	0.02 mg/L	101	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	0.0387 mg/L	0.02 mg/L 0.04 mg/L	96.8	70.0	130			
		bismuth, total	7440-69-9	E420	0.00936 mg/L	0.04 mg/L 0.01 mg/L	93.6	70.0	130			
		boron, total	7440-42-8		_	_		70.0	130			
		cadmium, total	7440-42-8	E420	0.100 mg/L	0.1 mg/L	99.6					
		calcium, total		E420	0.00388 mg/L	0.004 mg/L	96.9	70.0	130			
		chromium, total	7440-70-2	E420	ND mg/L	4 mg/L	ND	70.0	130			
		conomium, total	7440-47-3	E420	0.0388 mg/L	0.04 mg/L	97.1	70.0	130			
		,	7440-48-4	E420	0.0193 mg/L	0.02 mg/L	96.4	70.0	130			
		copper, total	7440-50-8	E420	0.0189 mg/L	0.02 mg/L	94.4	70.0	130			
		lead, total	7439-89-6	E420	1.91 mg/L	2 mg/L	95.7	70.0	130			
			7439-92-1	E420	0.0187 mg/L	0.02 mg/L	93.5	70.0	130			
		lithium, total	7439-93-2	E420	0.0978 mg/L	0.1 mg/L	97.8	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	0.0195 mg/L	0.02 mg/L	97.4	70.0	130			
		molybdenum, total	7439-98-7	E420	0.0199 mg/L	0.02 mg/L	99.5	70.0	130			
		nickel, total	7440-02-0	E420	0.0378 mg/L	0.04 mg/L	94.6	70.0	130			
		phosphorus, total	7723-14-0	E420	9.41 mg/L	10 mg/L	94.1	70.0	130			
		potassium, total	7440-09-7	E420	4.07 mg/L	4 mg/L	102	70.0	130			

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 Work Order
 : WR2200850-AA

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water			Matrix Spike (MS) Report							
					Spi	ke	Recovery (%)	Recover	y Limits (%)	
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
	Lot: 603794) - continu	ed								
WR2200850-008	SD_MH-29_2022-08-08	selenium, total	7782-49-2	E420	0.0432 mg/L	0.04 mg/L	108	70.0	130	
		silicon, total	7440-21-3	E420	9.54 mg/L	10 mg/L	95.4	70.0	130	
		silver, total	7440-22-4	E420	0.00372 mg/L	0.004 mg/L	93.1	70.0	130	
		sodium, total	7440-23-5	E420	1.98 mg/L	2 mg/L	98.8	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	21.2 mg/L	20 mg/L	106	70.0	130	
		thallium, total	7440-28-0	E420	0.00364 mg/L	0.004 mg/L	91.0	70.0	130	
		tin, total	7440-31-5	E420	0.0194 mg/L	0.02 mg/L	97.1	70.0	130	
		titanium, total	7440-32-6	E420	0.0389 mg/L	0.04 mg/L	97.2	70.0	130	
		uranium, total	7440-61-1	E420	0.00369 mg/L	0.004 mg/L	92.3	70.0	130	
		vanadium, total	7440-62-2	E420	0.0983 mg/L	0.1 mg/L	98.3	70.0	130	
		zinc, total	7440-66-6	E420	0.375 mg/L	0.4 mg/L	93.7	70.0	130	
		zirconium, total	7440-67-7	E420	0.0385 mg/L	0.04 mg/L	96.4	70.0	130	
otal Metals (QC	Lot: 603802)									
/A22B8907-022	Anonymous	aluminum, total	7429-90-5	E420	ND mg/L	0.4 mg/L	ND	70.0	130	
		antimony, total	7440-36-0	E420	0.0404 mg/L	0.04 mg/L	101	70.0	130	
		arsenic, total	7440-38-2	E420	0.0406 mg/L	0.04 mg/L	102	70.0	130	
		barium, total	7440-39-3	E420	ND mg/L	0.04 mg/L	ND	70.0	130	
		beryllium, total	7440-41-7	E420	0.0780 mg/L	0.08 mg/L	97.5	70.0	130	
		bismuth, total	7440-69-9	E420	0.0184 mg/L	0.02 mg/L	92.3	70.0	130	
		boron, total	7440-42-8	E420	ND mg/L	0.2 mg/L	ND	70.0	130	
		cadmium, total	7440-43-9	E420	0.00778 mg/L	0.008 mg/L	97.3	70.0	130	
		calcium, total	7440-70-2	E420	ND mg/L	8 mg/L	ND	70.0	130	
		chromium, total	7440-47-3	E420	0.0762 mg/L	0.08 mg/L	95.3	70.0	130	
		cobalt, total	7440-48-4	E420	0.0386 mg/L	0.04 mg/L	96.5	70.0	130	
		copper, total	7440-50-8	E420	0.0366 mg/L	0.04 mg/L	91.5	70.0	130	
		iron, total	7439-89-6	E420	3.80 mg/L	4 mg/L	95.0	70.0	130	
		lead, total	7439-92-1	E420	0.0359 mg/L	0.04 mg/L	89.6	70.0	130	
		lithium, total	7439-93-2	E420	0.191 mg/L	0.2 mg/L	95.5	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	0.0387 mg/L	0.04 mg/L	96.7	70.0	130	
		molybdenum, total	7439-98-7	E420	0.0418 mg/L	0.04 mg/L	105	70.0	130	
		nickel, total	7440-02-0	E420	0.0752 mg/L	0.08 mg/L	94.0	70.0	130	
		phosphorus, total	7723-14-0	E420	20.6 mg/L	20 mg/L	103	70.0	130	
		potassium, total	7440-09-7	E420	7.75 mg/L	8 mg/L	96.9	70.0	130	
	T	selenium, total	7782-49-2	E420	0.0854 mg/L	0.08 mg/L	107	70.0	130	

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 Work Order
 : WR2200850-AA

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water					Matrix Spike (MS) Report						
					Spi	ke	Recovery (%)	Recovery	/ Limits (%)		
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier	
	CLot: 603802) - conti	inued									
VA22B8907-022	Anonymous	silicon, total	7440-21-3	E420	19.2 mg/L	20 mg/L	95.9	70.0	130		
		silver, total	7440-22-4	E420	0.00754 mg/L	0.008 mg/L	94.3	70.0	130		
		sodium, total	7440-23-5	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	0.00714 mg/L	0.008 mg/L	89.2	70.0	130		
		tin, total	7440-31-5	E420	0.0405 mg/L	0.04 mg/L	101	70.0	130		
		titanium, total	7440-32-6	E420	0.0816 mg/L	0.08 mg/L	102	70.0	130		
		uranium, total	7440-61-1	E420	0.00876 mg/L	0.008 mg/L	109	70.0	130		
		vanadium, total	7440-62-2	E420	0.204 mg/L	0.2 mg/L	102	70.0	130		
		zinc, total	7440-66-6	E420	0.736 mg/L	0.8 mg/L	92.1	70.0	130		
		zirconium, total	7440-67-7	E420	0.0799 mg/L	0.08 mg/L	99.8	70.0	130		
Total Metals (QC	Lot: 610976)										
WR2200850-001	SD_MH-02_2022-08-08	mercury, total	7439-97-6	E508	0.000103 mg/L	0.0001 mg/L	103	70.0	130		
issolved Metals	(QCLot: 603752)										
VA22B8907-015	Anonymous	aluminum, dissolved	7429-90-5	E421	ND mg/L	0.2 mg/L	ND	70.0	130		
		antimony, dissolved	7440-36-0	E421	ND mg/L	0.02 mg/L	ND	70.0	130		
		arsenic, dissolved	7440-38-2	E421	0.0198 mg/L	0.02 mg/L	99.2	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	0.0423 mg/L	0.04 mg/L	106	70.0	130		
		bismuth, dissolved	7440-69-9	E421	0.00843 mg/L	0.01 mg/L	84.3	70.0	130		
		boron, dissolved	7440-42-8	E421	ND mg/L	0.1 mg/L	ND	70.0	130		
		cadmium, dissolved	7440-43-9	E421	0.00385 mg/L	0.004 mg/L	96.3	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	0.0361 mg/L	0.04 mg/L	90.4	70.0	130		
		cobalt, dissolved	7440-48-4	E421	0.0193 mg/L	0.02 mg/L	96.6	70.0	130		
		copper, dissolved	7440-50-8	E421	0.0187 mg/L	0.02 mg/L	93.5	70.0	130		
		iron, dissolved	7439-89-6	E421	1.90 mg/L	2 mg/L	95.2	70.0	130		
		lead, dissolved	7439-92-1	E421	0.0188 mg/L	0.02 mg/L	93.9	70.0	130		
		lithium, dissolved	7439-93-2	E421	0.104 mg/L	0.1 mg/L	104	70.0	130		
		magnesium, dissolved	7439-95-4	E421	1.03 mg/L	1 mg/L	103	70.0	130		
		manganese, dissolved	7439-96-5	E421	0.0196 mg/L	0.02 mg/L	98.1	70.0	130		
		molybdenum, dissolved	7439-98-7	E421	ND mg/L	0.02 mg/L	ND	70.0	130		
		nickel, dissolved	7440-02-0	E421	0.0378 mg/L	0.04 mg/L	94.6	70.0	130		
		phosphorus, dissolved	7723-14-0	E421	11.2 mg/L	10 mg/L	112	70.0	130		
	1	potassium, dissolved	7440-09-7	E421	ND mg/L	4 mg/L	ND	70.0	130		

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 Work Order
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 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water	Matrix: Water					Matrix Spike (MS) Report							
					Spi	ke	Recovery (%)	Recovery	Limits (%)				
Laboratory sample	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier			
	(QCLot: 603752) - co	ntinued											
VA22B8907-015	Anonymous	selenium, dissolved	7782-49-2	E421	0.0408 mg/L	0.04 mg/L	102	70.0	130				
		silicon, dissolved	7440-21-3	E421	9.88 mg/L	10 mg/L	98.8	70.0	130				
		silver, dissolved	7440-22-4	E421	0.00403 mg/L	0.004 mg/L	101	70.0	130				
		sodium, dissolved	7440-23-5	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	0.00378 mg/L	0.004 mg/L	94.5	70.0	130				
		tin, dissolved	7440-31-5	E421	ND mg/L	0.02 mg/L	ND	70.0	130				
		titanium, dissolved	7440-32-6	E421	0.0419 mg/L	0.04 mg/L	105	70.0	130				
		uranium, dissolved	7440-61-1	E421	0.00391 mg/L	0.004 mg/L	97.7	70.0	130				
		vanadium, dissolved	7440-62-2	E421	0.100 mg/L	0.1 mg/L	100	70.0	130				
		zinc, dissolved	7440-66-6	E421	0.392 mg/L	0.4 mg/L	98.0	70.0	130				
		zirconium, dissolved	7440-67-7	E421	0.0440 mg/L	0.04 mg/L	110	70.0	130				
Dissolved Metals	(QCLot: 603753)												
WR2200850-005	SD_MH-13_2022-08-08	aluminum, dissolved	7429-90-5	E421	0.202 mg/L	0.2 mg/L	101	70.0	130				
		antimony, dissolved	7440-36-0	E421	0.0194 mg/L	0.02 mg/L	97.2	70.0	130				
		arsenic, dissolved	7440-38-2	E421	0.0205 mg/L	0.02 mg/L	103	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	0.0404 mg/L	0.04 mg/L	101	70.0	130				
		bismuth, dissolved	7440-69-9	E421	0.00889 mg/L	0.01 mg/L	88.9	70.0	130				
		boron, dissolved	7440-42-8	E421	0.097 mg/L	0.1 mg/L	96.9	70.0	130				
		cadmium, dissolved	7440-43-9	E421	0.00412 mg/L	0.004 mg/L	103	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	0.0395 mg/L	0.04 mg/L	98.8	70.0	130				
		cobalt, dissolved	7440-48-4	E421	0.0192 mg/L	0.02 mg/L	95.8	70.0	130				
		copper, dissolved	7440-50-8	E421	0.0187 mg/L	0.02 mg/L	93.6	70.0	130				
		iron, dissolved	7439-89-6	E421	1.96 mg/L	2 mg/L	97.9	70.0	130				
		lead, dissolved	7439-92-1	E421	0.0189 mg/L	0.02 mg/L	94.6	70.0	130				
		lithium, dissolved	7439-93-2	E421	0.0998 mg/L	0.1 mg/L	99.8	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	0.0198 mg/L	0.02 mg/L	98.9	70.0	130				
		molybdenum, dissolved	7439-98-7	E421	0.0196 mg/L	0.02 mg/L	98.1	70.0	130				
		nickel, dissolved	7440-02-0	E421	0.0384 mg/L	0.04 mg/L	96.0	70.0	130				
		phosphorus, dissolved	7723-14-0	E421	10.0 mg/L	10 mg/L	100	70.0	130				
		potassium, dissolved	7440-09-7	E421	3.93 mg/L	4 mg/L	98.3	70.0	130				
	I	selenium, dissolved	7782-49-2	E421	0.0437 mg/L	0.04 mg/L	109	70.0	130				

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 Work Order
 : WR2200850-AA

 Client
 : Teck Metals Ltd

 Project
 : Sa Dena Hes



Sub-Matrix: Water					Matrix Spike (MS) Report							
					Spi	ke	Recovery (%)	Recovery Limits (%)				
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier		
Dissolved Metals	(QCLot: 603753) - cont	tinued										
WR2200850-005	SD_MH-13_2022-08-08	silicon, dissolved	7440-21-3	E421	9.78 mg/L	10 mg/L	97.8	70.0	130			
		silver, dissolved	7440-22-4	E421	0.00381 mg/L	0.004 mg/L	95.2	70.0	130			
		sodium, dissolved	7440-23-5	E421	1.91 mg/L	2 mg/L	95.5	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	22.0 mg/L	20 mg/L	110	70.0	130			
		thallium, dissolved	7440-28-0	E421	0.00370 mg/L	0.004 mg/L	92.5	70.0	130			
		tin, dissolved	7440-31-5	E421	0.0189 mg/L	0.02 mg/L	94.5	70.0	130			
		titanium, dissolved	7440-32-6	E421	0.0415 mg/L	0.04 mg/L	104	70.0	130			
		uranium, dissolved	7440-61-1	E421	0.00402 mg/L	0.004 mg/L	100	70.0	130			
		vanadium, dissolved	7440-62-2	E421	0.100 mg/L	0.1 mg/L	100	70.0	130			
		zinc, dissolved	7440-66-6	E421	0.392 mg/L	0.4 mg/L	98.1	70.0	130			
		zirconium, dissolved	7440-67-7	E421	0.0412 mg/L	0.04 mg/L	103	70.0	130			
Dissolved Metals	(QCLot: 610979)											
WR2200829-003	Anonymous	mercury, dissolved	7439-97-6	E509	0.000103 mg/L	0.0001 mg/L	103	70.0	130			
Speciated Metals	(QCLot: 604157)											
VA22B8762-001	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.256 mg/L	0.25 mg/L	102	85.0	115			
Speciated Metals	(QCLot: 605956)											
VA22B8954-022	Anonymous	chromium, hexavalent [Cr VI], total	18540-29-9	E532	0.256 mg/L	0.25 mg/L	102	85.0	115			



CERTIFICATE OF ANALYSIS

Work Order : WR2200850-AB

Client : Teck Metals Ltd
Contact : Michelle Unger

Address : 601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone : 250 427 8404
Project : Sa Dena Hes

PO : 10289 C-O-C number · ----

Sampler : ---

Site : ECA22YT00199

Quote number : VA22-TECK150-001

No. of samples received : 5
No. of samples analysed : 5

Page : 1 of 4

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address : #12 151 Industrial Road

Whitehorse YT Canada Y1A 2V3

Telephone : +1 867 668 6689

Date Samples Received : 11-Aug-2022 16:45

Date Analysis Commenced : 19-Aug-2022

Issue Date : 23-Aug-2022 14:11

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

Janice Leung

Kim Jensen

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

SignatoriesPositionLaboratory DepartmentHamideh MoradiAnalystMetals, Burnaby, British ColumbiaHedy LaiTeam Leader - InorganicsInorganics, Saskatoon, Saskatchewan

Supervisor - Organics Instrumentation Organics, Burnaby, British Columbia

Department Manager - Metals Metals, Burnaby, British Columbia

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Work Order : WR2200850-AB
Client : Teck Metals Ltd
Project : Sa Dena Hes



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
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
DLDS	Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical
	Conductivity.
DLM	Detection Limit Adjusted due to sample matrix effects (e.g. chemical interference,
	colour, turbidity).

Page Work Order

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Analytical Results

Sub-Matrix: Sediment			CI	ient sample ID	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202	SD_MH-29_202
(Matrix: Soil/Solid)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client samp	ling date / time	08-Aug-2022	10-Aug-2022	09-Aug-2022	10-Aug-2022	10-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-012	WR2200850-013	WR2200850-014	WR2200850-015	WR2200850-016
					Result	Result	Result	Result	Result
Physical Tests									
pH (1:2 soil:water)		E108	0.10	pH units	8.25	8.55	8.83	8.30	8.50
Particle Size									
clay (<0.004mm)		EC184E	1.0	%	1.6	<1.0	<1.0	3.0	1.0
silt (0.063mm - 0.004mm)		EC184E	1.0	%	10.3	5.2	8.9	16.4	4.8
sand (2.0mm - 0.063mm)		EC184E	1.0	%	72.4	76.0	74.1	67.0	81.0
gravel (>2mm)		EC184E	1.0	%	15.7	18.8	17.0	13.6	13.2
Organic / Inorganic Carbon									
carbon, total organic [TOC]		EC356	0.050	%	1.12	0.422	0.400	1.67	0.563
Metals									
aluminum	7429-90-5	E440	50	mg/kg	15200	11700	9950	7540	11400
antimony	7440-36-0	E440	0.10	mg/kg	1.60	1.13	1.76	1.25	0.79
arsenic	7440-38-2	E440	0.10	mg/kg	18.7	14.8	14.1	17.1	18.0
barium	7440-39-3	E440	0.50	mg/kg	66.8	118	108	350	125
beryllium	7440-41-7	E440	0.10	mg/kg	0.56	0.32	0.39	0.38	0.30
bismuth	7440-69-9	E440	0.20	mg/kg	0.21	<0.20	<0.20	<0.20	<0.20
boron	7440-42-8	E440	5.0	mg/kg	<5.0	<5.0	<5.0	<5.0	<5.0
cadmium	7440-43-9	E440	0.020	mg/kg	4.51	1.82	1.09	1.68	2.66
calcium	7440-70-2	E440	50	mg/kg	6100	12900	8130	8550	8230
chromium	7440-47-3	E440	0.50	mg/kg	28.4	18.2	21.1	19.1	17.4
cobalt	7440-48-4	E440	0.10	mg/kg	11.5	8.04	7.03	8.84	9.06
copper	7440-50-8	E440	0.50	mg/kg	18.8	13.4	15.8	18.4	9.39
iron	7439-89-6	E440	50	mg/kg	28000	22100	19500	25200	24100
lead	7439-92-1	E440	0.50	mg/kg	158	233	77.8	37.5	31.5
lithium	7439-93-2	E440	2.0	mg/kg	34.6	23.8	20.7	12.1	24.1
magnesium	7439-95-4	E440	20	mg/kg	9910	7740	6620	4520	8210
manganese	7439-96-5	E440	1.0	mg/kg	550	862	296	1170	1180
mercury	7439-97-6	E510	0.0050	mg/kg	0.0143	0.0140	0.0101	0.0549	0.0162
molybdenum	7439-98-7	E440	0.10	mg/kg	1.09	1.11	2.16	1.80	1.04
nickel	7440-02-0	E440	0.50	mg/kg	27.6	21.5	24.1	28.9	21.3
phosphorus	7723-14-0	E440	50	mg/kg	594	796	1050	1440	733
potassium	7440-09-7	E440	100	mg/kg	580	450	540	700	330

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Work Order : WR2200850-AB
Client : Teck Metals Ltd
Project : Sa Dena Hes



Analytical Results

Sub-Matrix: Sediment			C	lient sample ID	SD_MH-04_202	SD_MH-11_202	SD_MH-12_202	SD_MH-13_202	SD_MH-29_202
(Matrix: Soil/Solid)					2-08-08	2-08-08	2-08-08	2-08-08	2-08-08
			Client samp	oling date / time	08-Aug-2022	10-Aug-2022	09-Aug-2022	10-Aug-2022	10-Aug-2022
Analyte	CAS Number	Method	LOR	Unit	WR2200850-012	WR2200850-013	WR2200850-014	WR2200850-015	WR2200850-016
					Result	Result	Result	Result	Result
Metals									
selenium	7782-49-2	E440	0.20	mg/kg	0.37	0.30	0.39	1.59	0.32
silver	7440-22-4	E440	0.10	mg/kg	0.15	0.11	0.33	0.28	0.17
sodium	7440-23-5	E440	50	mg/kg	68	<50	58	52	<50
strontium	7440-24-6	E440	0.50	mg/kg	29.3	59.3	38.1	47.4	33.0
sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	<1000	<1000	<1000
thallium	7440-28-0	E440	0.050	mg/kg	0.105	0.063	0.092	0.105	<0.050
tin	7440-31-5	E440	2.0	mg/kg	<2.0	<2.0	<2.0	<2.0	<2.0
titanium	7440-32-6	E440	1.0	mg/kg	469	352	409	81.1	182
tungsten	7440-33-7	E440	0.50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50
uranium	7440-61-1	E440	0.050	mg/kg	0.562	0.584	0.898	1.26	0.459
vanadium	7440-62-2	E440	0.20	mg/kg	30.2	25.6	36.3	29.1	20.0
zinc	7440-66-6	E440	2.0	mg/kg	358	311	187	188	145
zirconium	7440-67-7	E440	1.0	mg/kg	<2.0 DLM	2.0	2.0	1.3	1.7

Please refer to the General Comments section for an explanation of any qualifiers detected.



QUALITY CONTROL REPORT

Work Order :WR2200850-AB

Client : Teck Metals Ltd Contact : Michelle Unger

601 Knighton Road

Kimberley BC Canada V1A 3E1

Telephone 250 427 8404 **Project** : Sa Dena Hes

: 10289 C-O-C number Sampler

Site : ECA22YT00199 Quote number : VA22-TECK150-001

No. of samples received : 5 No. of samples analysed : 5 Page : 1 of 10

Laboratory : Whitehorse - Environmental

Account Manager : Can Dang

Address :#12 151 Industrial Road

Whitehorse, Yukon Canada Y1A 2V3

Telephone :+1 867 668 6689 Date Samples Received :11-Aug-2022 16:45

Date Analysis Commenced : 19-Aug-2022

: 23-Aug-2022 14:11 Issue Date

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 Percent Difference (RPD) and Data Quality Objectives

- Reference Material (RM) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

Kim Jensen

Address

PO

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

Department Manager - Metals

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Work Order : WR2200850-AB
Client : Teck Metals Ltd
Project : Sa Dena Hes



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 Service number is a unique identifier assigned to discrete substances.

DQO = Data Quality Objective.

LOR = Limit of Reporting (detection limit).

RPD = Relative Percent Difference

= Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

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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							
aboratory sample ID	Client sample ID	Analyte	CAS Number	Method	LOR	Unit	Original Result	Duplicate Result	RPD(%) or Difference	Duplicate Limits	Qualifie		
Physical Tests (QC	C Lot: 608356)												
VR2200850-012	SD_MH-04_2022-08-08	pH (1:2 soil:water)		E108	0.10	pH units	8.25	8.25	0.0%	5%			
letals (QC Lot: 60	8354)												
WR2200850-012	SD_MH-04_2022-08-08	mercury	7439-97-6	E510	0.0050	mg/kg	0.0143	0.0146	0.0002	Diff <2x LOR			
Metals (QC Lot: 60	8355)												
VR2200850-012	SD_MH-04_2022-08-08	aluminum	7429-90-5	E440	50	mg/kg	15200	15100	0.532%	40%			
		antimony	7440-36-0	E440	0.10	mg/kg	1.60	1.51	6.07%	30%			
		arsenic	7440-38-2	E440	0.10	mg/kg	18.7	14.7	23.7%	30%			
		barium	7440-39-3	E440	0.50	mg/kg	66.8	70.3	5.15%	40%			
		beryllium	7440-41-7	E440	0.10	mg/kg	0.56	0.56	0.006	Diff <2x LOR			
		bismuth	7440-69-9	E440	0.20	mg/kg	0.21	<0.20	0.009	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	4.51	4.41	2.16%	30%			
		calcium	7440-70-2	E440	50	mg/kg	6100	6080	0.316%	30%			
		chromium	7440-47-3	E440	0.50	mg/kg	28.4	30.0	5.45%	30%			
		cobalt	7440-48-4	E440	0.10	mg/kg	11.5	10.2	12.4%	30%			
		copper	7440-50-8	E440	0.50	mg/kg	18.8	15.5	19.3%	30%			
		iron	7439-89-6	E440	50	mg/kg	28000	25900	7.94%	30%			
		lead	7439-92-1	E440	0.50	mg/kg	158	169	6.42%	40%			
		lithium	7439-93-2	E440	2.0	mg/kg	34.6	35.5	2.58%	30%			
		magnesium	7439-95-4	E440	20	mg/kg	9910	9390	5.40%	30%			
		manganese	7439-96-5	E440	1.0	mg/kg	550	470	15.5%	30%			
		molybdenum	7439-98-7	E440	0.10	mg/kg	1.09	1.02	6.89%	40%			
		nickel	7440-02-0	E440	0.50	mg/kg	27.6	27.5	0.0479%	30%			
		phosphorus	7723-14-0	E440	50	mg/kg	594	706	17.3%	30%			
		potassium	7440-09-7	E440	100	mg/kg	580	540	6.87%	40%			
		selenium	7782-49-2	E440	0.20	mg/kg	0.37	0.37	0.001	Diff <2x LOR			
		silver	7440-22-4	E440	0.10	mg/kg	0.15	0.16	0.007	Diff <2x LOR			
		sodium	7440-23-5	E440	50	mg/kg	68	56	12	Diff <2x LOR			
		strontium	7440-24-6	E440	0.50	mg/kg	29.3	29.6	0.733%	40%			
		sulfur	7704-34-9	E440	1000	mg/kg	<1000	<1000	0	Diff <2x LOR			
		thallium	7440-28-0	E440	0.050	mg/kg	0.105	0.104	0.002	Diff <2x LOR			
							1						

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Sub-Matrix: Soil/Solid							Labora	tory Duplicate (D	UP) 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: 60	8355) - continued										
WR2200850-012	SD_MH-04_2022-08-08	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	469	496	5.61%	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	0.562	0.615	9.10%	30%	
		vanadium	7440-62-2	E440	0.20	mg/kg	30.2	30.0	0.920%	30%	
		zinc	7440-66-6	E440	2.0	mg/kg	358	358	0.226%	30%	
		zirconium	7440-67-7	E440	2.0	mg/kg	<2.0	<2.0	0	Diff <2x LOR	

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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
Metals (QCLot: 608354)						
nercury	7439-97-6	E510	0.005	mg/kg	<0.0050	
Metals (QCLot: 608355)						
lluminum	7429-90-5		50	mg/kg	<50	
ntimony	7440-36-0		0.1	mg/kg	<0.10	
rsenic	7440-38-2		0.1	mg/kg	<0.10	
arium	7440-39-3	E440	0.5	mg/kg	<0.50	
eryllium	7440-41-7	E440	0.1	mg/kg	<0.10	
ismuth	7440-69-9	E440	0.2	mg/kg	<0.20	
oron	7440-42-8	E440	5	mg/kg	<5.0	
admium	7440-43-9	E440	0.02	mg/kg	<0.020	
alcium	7440-70-2	E440	50	mg/kg	<50	
hromium	7440-47-3	E440	0.5	mg/kg	<0.50	
obalt	7440-48-4	E440	0.1	mg/kg	<0.10	
opper	7440-50-8	E440	0.5	mg/kg	<0.50	
on	7439-89-6	E440	50	mg/kg	<50	
ead	7439-92-1	E440	0.5	mg/kg	<0.50	
thium	7439-93-2	E440	2	mg/kg	<2.0	
nagnesium	7439-95-4	E440	20	mg/kg	<20	
nanganese	7439-96-5	E440	1	mg/kg	<1.0	
nolybdenum	7439-98-7	E440	0.1	mg/kg	<0.10	
ickel	7440-02-0	E440	0.5	mg/kg	<0.50	
hosphorus	7723-14-0	E440	50	mg/kg	<50	
otassium	7440-09-7	E440	100	mg/kg	<100	
elenium	7782-49-2	E440	0.2	mg/kg	<0.20	
ilver	7440-22-4	E440	0.1	mg/kg	<0.10	
odium	7440-23-5	E440	50	mg/kg	<50	
trontium	7440-24-6	E440	0.5	mg/kg	<0.50	
ılfur	7704-34-9	E440	1000	mg/kg	<1000	
allium	7440-28-0	E440	0.05	mg/kg	<0.050	
1	7440-31-5	E440	2	mg/kg	<2.0	
tanium	7440-32-6	E440	1	mg/kg	<1.0	
ungsten	7440-33-7	E440	0.5	mg/kg	<0.50	
ranium	7440-61-1	E440	0.05	mg/kg	<0.050	

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Sub-Matrix: Soil/Solid

Analyte	CAS Number	Method	LOR	Unit	Result	Qualifier
Metals (QCLot: 608355) - contin	ued					
vanadium	7440-62-2	E440	0.2	mg/kg	<0.20	
zinc	7440-66-6	E440	2	mg/kg	<2.0	
zirconium	7440-67-7	E440	1	mg/kg	<1.0	

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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 L		Limits (%)	imits (%)	
Analyte	CAS Number N	lethod	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Physical Tests (QCLot: 608356)									
pH (1:2 soil:water)	E	108		pH units	6 pH units	100	95.0	105	
Metals (QCLot: 608354)									
mercury	7439-97-6 E	510	0.005	mg/kg	0.1 mg/kg	105	80.0	120	
Metals (QCLot: 608355)									
aluminum	7429-90-5 E	440	50	mg/kg	200 mg/kg	101	80.0	120	
antimony	7440-36-0 E	440	0.1	mg/kg	100 mg/kg	111	80.0	120	
arsenic	7440-38-2 E	440	0.1	mg/kg	100 mg/kg	103	80.0	120	
parium	7440-39-3 E	440	0.5	mg/kg	25 mg/kg	107	80.0	120	
peryllium	7440-41-7 E	440	0.1	mg/kg	10 mg/kg	102	80.0	120	
pismuth	7440-69-9 E	440	0.2	mg/kg	100 mg/kg	104	80.0	120	
poron	7440-42-8 E	440	5	mg/kg	100 mg/kg	101	80.0	120	
cadmium	7440-43-9 E	440	0.02	mg/kg	10 mg/kg	101	80.0	120	
calcium	7440-70-2 E	440	50	mg/kg	5000 mg/kg	106	80.0	120	
chromium	7440-47-3 E	440	0.5	mg/kg	25 mg/kg	103	80.0	120	
cobalt	7440-48-4 E	440	0.1	mg/kg	25 mg/kg	99.5	80.0	120	
copper	7440-50-8 E	440	0.5	mg/kg	25 mg/kg	98.0	80.0	120	
ron	7439-89-6 E	440	50	mg/kg	100 mg/kg	102	80.0	120	
ead	7439-92-1 E	440	0.5	mg/kg	50 mg/kg	113	80.0	120	
ithium	7439-93-2 E	440	2	mg/kg	25 mg/kg	96.3	80.0	120	
magnesium	7439-95-4 E	440	20	mg/kg	5000 mg/kg	106	80.0	120	
manganese	7439-96-5 E	440	1	mg/kg	25 mg/kg	95.8	80.0	120	
nolybdenum	7439-98-7 E	440	0.1	mg/kg	25 mg/kg	104	80.0	120	
nickel	7440-02-0 E	440	0.5	mg/kg	50 mg/kg	99.9	80.0	120	
phosphorus	7723-14-0 E	440	50	mg/kg	1000 mg/kg	104	80.0	120	
ootassium	7440-09-7 E	440	100	mg/kg	5000 mg/kg	98.4	80.0	120	
selenium	7782-49-2 E	440	0.2	mg/kg	100 mg/kg	104	80.0	120	
silver	7440-22-4 E	440	0.1	mg/kg	10 mg/kg	86.8	80.0	120	
sodium	7440-23-5 E	440	50	mg/kg	5000 mg/kg	103	80.0	120	
strontium	7440-24-6 E	440	0.5	mg/kg	25 mg/kg	96.2	80.0	120	
sulfur	7704-34-9 E	440	1000	mg/kg	5000 mg/kg	98.5	80.0	120	
hallium	7440-28-0 E	440	0.05	mg/kg	100 mg/kg	110	80.0	120	
tin	7440-31-5 E	E440	2	mg/kg	50 mg/kg	99.4	80.0	120	
itanium	7440-32-6 E	440	1	mg/kg	25 mg/kg	95.8	80.0	120	

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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: 608355) - continued									
tungsten	7440-33-7	E440	0.5	mg/kg	10 mg/kg	101	80.0	120	
uranium	7440-61-1	E440	0.05	mg/kg	0.5 mg/kg	105	80.0	120	
vanadium	7440-62-2	E440	0.2	mg/kg	50 mg/kg	103	80.0	120	
zinc	7440-66-6	E440	2	mg/kg	50 mg/kg	103	80.0	120	
zirconium	7440-67-7	E440	1	mg/kg	10 mg/kg	96.5	80.0	120	

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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).

ub-Matrix:	o-Matrix:			Reference Material (RM) Report					
					RM Target	Recovery (%)	Recovery I	imits (%)	
aboratory ample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
etals (QCLo	t: 608354)								
·	SCP SS-2	mercury	7439-97-6	E510	0.059 mg/kg	102	70.0	130	
letals (QCLo	t: 608355)								
	SCP SS-2	aluminum	7429-90-5	E440	9817 mg/kg	106	70.0	130	
	SCP SS-2	antimony	7440-36-0	E440	3.99 mg/kg	99.4	70.0	130	
	SCP SS-2	arsenic	7440-38-2	E440	3.73 mg/kg	104	70.0	130	
	SCP SS-2	barium	7440-39-3	E440	105 mg/kg	104	70.0	130	
	SCP SS-2	beryllium	7440-41-7	E440	0.349 mg/kg	109	70.0	130	
	SCP SS-2	boron	7440-42-8	E440	8.5 mg/kg	115	40.0	160	
	SCP SS-2	cadmium	7440-43-9	E440	0.91 mg/kg	103	70.0	130	
	SCP SS-2	calcium	7440-70-2	E440	31082 mg/kg	111	70.0	130	
	SCP SS-2	chromium	7440-47-3	E440	101 mg/kg	108	70.0	130	
	SCP SS-2	cobalt	7440-48-4	E440	6.9 mg/kg	102	70.0	130	
	SCP SS-2	copper	7440-50-8	E440	123 mg/kg	101	70.0	130	
	SCP SS-2	iron	7439-89-6	E440	23558 mg/kg	101	70.0	130	
	SCP SS-2	lead	7439-92-1	E440	267 mg/kg	111	70.0	130	
	SCP SS-2	lithium	7439-93-2	E440	9.5 mg/kg	99.7	70.0	130	
	SCP SS-2	magnesium	7439-95-4	E440	5509 mg/kg	101	70.0	130	
	SCP SS-2	manganese	7439-96-5	E440	269 mg/kg	99.7	70.0	130	
	SCP SS-2	molybdenum	7439-98-7	E440	1.03 mg/kg	103	70.0	130	
	SCP SS-2	nickel	7440-02-0	E440	26.7 mg/kg	102	70.0	130	
	SCP SS-2	phosphorus	7723-14-0	E440	752 mg/kg	97.4	70.0	130	
	SCP SS-2	potassium	7440-09-7	E440	1587 mg/kg	104	70.0	130	
	SCP SS-2	sodium	7440-23-5	E440	797 mg/kg	104	70.0	130	
	SCP SS-2	strontium	7440-24-6	E440	86.1 mg/kg	103	70.0	130	
	SCP SS-2	thallium	7440-28-0	E440	0.0786 mg/kg	106	40.0	160	
	SCP SS-2	tin	7440-31-5	E440	10.6 mg/kg	98.6	70.0	130	
	SCP SS-2	titanium	7440-32-6	E440	839 mg/kg	104	70.0	130	
	SCP SS-2	uranium	7440-61-1	E440	0.52 mg/kg	105	70.0	130	
	SCP SS-2	vanadium	7440-62-2	E440	32.7 mg/kg	104	70.0	130	

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Sub-Matrix:				Reference Material (RM) Report					
					RM Target	Recovery (%)	Recovery L	imits (%)	
Laboratory sample ID	Reference Material ID	Analyte	CAS Number	Method	Concentration	RM	Low	High	Qualifier
Metals (QCLot: 6	Metals (QCLot: 608355) - continued								
	SCP SS-2	zinc	7440-66-6	E440	297 mg/kg	104	70.0	130	
	SCP SS-2	zirconium	7440-67-7	E440	5.73 mg/kg	84.5	70.0	130	



APPENDIX C: QUALITY ASSURANCE AND CONTROL (QAQC) METHODS FOR BENTHIC INVERTEBRATE ANALYSIS (CORDILLERA CONSULTING)

Methods and QC Report 2022

Project ID: Sa Dena Hes

Client: Ensero Solutions



P: 250.494.7553

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Prepared by:

Cordillera Consulting Inc. Summerland, BC © 2022

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Sample Reception

On August 19, 2022, Cordillera Consulting received 5 benthic samples from Ensero Solutions. When samples arrived to Cordillera Consulting, exterior packaging was initially inspected for damage or wet spots that would have indicated damage to the interior containers.

Samples were logged into a proprietary software database (INSTAR1) where the clients assigned sample name was recorded along with a Cordillera Consulting (CC) number for cross-reference. Each sample was checked to ensure that all sites and replicates recorded on field sheets or packing lists were delivered intact and with adequate preservative. Any missing, mislabelled or extra samples were reported to the client immediately to confirm the total numbers and correct names on the sample jars. The client representative was notified of the arrival of the shipment and provided a sample inventory once intake was completed.

See table below for sample inventory:

Site Code	CC#	Date	Size	# of Jars
MH04	CC230252	8/8/2022	400μΜ	1
MH11	CC230253	8/10/2022	400μΜ	1
MH12	CC230254	8/9/2022	400μΜ	1
MH13	CC230255	8/9/2022	400μΜ	1
MH29	CC230256	8/10/2022	400μΜ	1

Sample Sorting

- Using a gridded Petri dish, fine forceps and a low power stereo-microscope (Olympus, Nikon, Leica) the sorting technicians removed the invertebrates and sorted them into family/orders.
- The sorting technician kept a running tally of total numbers excluding organisms from Porifera, Nemata, Platyhelminthes, Ostracoda, Copepoda, Cladocera and terrestrial drop-ins such as aphids. These organisms were marked for their presence (given a value of 1) only and left in the sample. They were not included towards the 300-organism subsample count.
- Where specimens are broken or damaged, only heads were counted.
- Subsampling was conducted with the use of a Marchant Box.
- When using the Marchant box, cells were extracted at the same time in the order indicated by a random number table. If the 300th organism was found part way into sorting a cell then the balance of that cell was sorted. If the organism count had not reached 300 by the 50th cell then the entire sample was sorted.
- The total number of cells sorted and the number of organisms removed were recorded manually on a bench sheet and then recorded into INSTAR1
- Organisms were stored in vials containing 80% ethanol and an interior label indicating the site names, date of sampling, site code numbers and portion

- subsampled. This information was also recorded on the laboratory bench sheet and on INSTAR1.
- The sorted portion of the debris was preserved and labeled separately from the unsorted portion and was tested for sorting efficiency (Sorting Quality Control – Sorting Efficiency). The unsorted portion was also labeled and preserved in separate jars.

Percent sub-sampled and total countable invertebrates pulled from the samples were summarized in the table below.

Table 2: Percent sub-sample and invertebrate count for each sample

Sample	Date	CC#	400 micron fraction	
			% Sampled	# Invertebrates
MH04	08-Aug-22	CC230252	5%	380
MH11	10-Aug-22	CC230253	26%	341
MH12	09-Aug-22	CC230254	5%	337
MH13	09-Aug-22	CC230255	22%	338
MH29	10-Aug-22	CC230256	28%	364

Sorting Quality Control - Sorting Efficiency

As a part of Cordillera's laboratory policy, all projects undergo sorting efficiency checks.

- As sorting progresses, 10% of samples were randomly chosen by senior members of the sorting team for resorting.
- All sorters working on a project had at least 1 sample resorted by another sorter.
- An efficiency of 90 % was expected (95% for CABIN samples).
- If 90/95% efficiency was not met, samples from that sorter were resorted.
- To calculated sorting efficiency the following formula was used:

$$\frac{\#Organisms\ Missed}{Total\ Organisms\ Found}*100 = \%OM$$

Table 3 Summary of sorting efficiency

Total from Percent Sample Efficiency

Site - QC, Sample - QC1, CC# - CC230255, Percent sampled = 22%, Sieve size = 400

Chironomidae

Trichoptera 1

Total: 6 338 98%

Taxonomic Effort

The next procedure was the identification to genus-species level where possible of all the organisms in the sample.

- Identifications were made at the genus/species level for all insect organisms found including Chironomidae (Based on CABIN protocol).
- Non-insect organisms (except those not included in CABIN count) were identified to genus/species where possible and to a minimum of family level with intact and mature specimens.
- The Standard Taxonomic Effort lists compiled by the CABIN manual¹, SAFIT², and PNAMP³ were used as a guide line for what level of identification to achieve where the condition and maturity of the organism enabled.
- Organisms from the same families/order were kept in separate vials with 80% ethanol and an interior label of printed laser paper.
- Chironomidae was identified to genus/species level where possible and was aided by slide mounts. CMC-10 was used to clear and mount the slide.
- Oligochaetes was identified to family/genus level with the aid of slide mounts. CMC-10 was used to clear and mount the slide.
- Other Annelida (leeches, polychaetes) were identified to the family/genus/species level with undamaged, mature specimens.
- Mollusca was identified to family and genus/species where possible
- Decapoda, Amphipoda and Isopoda were identified at family/genus/species level where possible.
- Bryozoans and Nemata remained at the phylum level
- Hydrachnidae and Cnidaria were identified at the family/genus level where possible.
- When requested, reference collections were made containing at least one individual from each taxa listed. Organisms represented will have been identified to the lowest practical level.
- Reference collection specimens were stored in 55 mm glass vials with screw-cap lids with polyseal inserts (museum quality). They were labeled with taxa name, site code, date identified and taxonomist name. The same information was applied to labels on the slide mounts.

Taxonomy Notes: Baetis tricaudatus group has now been renamed to Baetis rhodani group. There has been no change in the determination of the taxa. See Webb 2017 in the taxonomy keys.

Taxonomists

The taxonomists for this project were certified by the Society of Freshwater Science (SFS) Taxonomic Certification Program at level 2 which is the required certification for CABIN projects:

Scott Finlayson: Group 1 General Arthropods (East/West); Group 2 EPT (East/West); Group 3 Chironomidae (East/West); Group 4 Oligochaeta

Adam Bliss: Group 1 General Arthropods (East/West); Group 2 EPT (East/West); Group 3 Chironomidae

Rita Avery: Group 1 General Arthropods (East/West); Group 2 EPT (East/West)

Taxonomic QC

Taxonomic QC was performed in house by someone other than the original taxonomist.

- Quality control protocol involved complete, blind re-identification and reenumeration of at least 10% of samples by a second SFS-certified taxonomist.
- Samples for taxonomic quality control were randomly selected and quality control procedures were conducted as the project progresses through the laboratories.
- The second (QC) taxonomist will calculate and record four types of errors:
 - 1. Misidentification error
 - 2. Enumeration error
 - 3. Questionable taxonomic resolution error
 - 4. Insufficient taxonomic resolution error

The QC coordinator then calculates the following estimates of taxonomic precision.

1. The percent total identification error rate is calculated as:

$$\frac{Sum\ of\ incorrect\ identifications}{total\ or\ ganisms\ counted\ in\ audit}*(100)$$

The average total identification error rate of audited samples did not exceed 5%. All samples that exceed a 5% error rate were re-evaluated to determine whether repeated errors or patterns in error contributed.

2. The percent difference in enumeration (PDE) to quantify the consistency of specimen counts.

$$PDE = \frac{|n_1 - n_2|}{n_1 + n_2} x100$$

3. The percent taxonomic disagreement (PTD) to quantify the shared precision between two sets of identifications.

$$PTD = \left(1 - \left[\frac{a}{N}\right]\right) x100$$

4. Bray Curtis dissimilarity Index to quantify the differences in identifications.

$$BC_{ij} = 1 - \frac{2C_{ij}}{S_j + S_i}$$

Error Summary

All samples report errors within the acceptable limits for CABIN Laboratory methods (less than 5% error).

Table 4 Summary of taxonomic error following QC

Site	Taxa Identified	% Error	PDE	РТ	Bray - Curtis Dissimilarity index
Site - 2022, Sample - MH11, CC# - CC230253,					
Percent sampled = 26%, Sieve size = 400	340	0.00	0.14684288	0.58651026	0.00440529

There will always be disagreements between taxonomists regarding the degree of taxonomic resolution in immature specimens and when laboratories make use of different keys for certain groups (Mollusks is an especially disputed group). It is always possible that some taxa found by the original taxonomist were overlooked in QC.

All of the Taxonomic QC samples that were observed passed testing according to the CABIN misidentification protocols. See the tables below for results from taxonomic QC audit.

Error Rationale

Site - 2022, Sample - MH11, CC# - CC230253, Percent sampled = 26%, Sieve size = 400	Laboratory Count	QC Audit Count	Agreement	Misidentification	Questionable Taxonomic Resolution	Enumeration	Insufficient Taxonomic Resolution	Comments
Ameletus	35	35						
Baetidae	5	6	No			Х		
Baetis	7	6	No			Χ		
Baetis bicaudatus	7	7						
Baetis rhodani group	4	4						
Capniidae	1	1						
Chloroperlidae	8	8						
Cinygmula	17	17						
Epeorus	8	8						
Eukiefferiella	2	2						
Heptageniidae	10	10						
Lebertia	2	2						
Lepidoptera	1	1						
Lumbriculus	2	2						
Oribatida	1	1						
Pagastia	1	1						
Perlodidae	1	1						
Plecoptera	5	5						
Prosimulium	3	3						
Prosimulium/Helodon	2	2						
Rhyacophila	25	25						
Rhyacophila hyalinata								
group	2	2						
Rhyacophila vofixa group	5	5						
Simuliidae	3	3						
Sweltsa	6	6						
Thienemanniella	1	1						
Thysanoptera	1	1						
Tvetenia	3	3						
Wandesia	3	3						
Zapada	4	4						
Zapada cinctipes	2	2						
Zapada columbiana	142	141	No			Χ		
Zapada oregonensis group	22	22						

Total:	341	340						
					0	3	0	
% Total Misidentification	misidentifications	x100 =	0.00	Pass				
Rate =	total number	x100 =						

References

- ¹ McDermott, H., Paull, T., Strachan, S. (May 2014). Laboratory Methods: Processing, Taxonomy, and Quality Control of Benthic Macroinvertebrate Samples, Environment Canada. ISBN: 978-1-100-25417-3
- ² Southwest Association of Freshwater Invertebrate Taxonomists. (2015). www.safit.org
- ³ Pacific Northwest Aquatic Monitoring Partnership (Accessed 2015). www.pnamp.org

Taxonomic Keys

Below is a reference list of taxonomic keys utilized by taxonomists at Cordillera Consulting. Cordillera taxonomists routinely seek out new literature to ensure the most accurate identification keys are being utilized. This is not reflective of the exhaustive list of resources that we use for identification. A more complete list of taxonomic resources can be found at Southwest Association of Freshwater Invertebrate Taxonomists. (2015).

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Clifford, Hugh F. 1991. Aquatic Invertebrates of Alberta. University of Alberta Press Edmonton, Alberta.

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Stonedahl, Gary and John D. Lattin. 1986. The Corixidae of Oregon and Washington (Hemiptera: Heteroptera). Technical Bulletin 150. Oregon State University, Corvalis Oregon.

Thorpe, J. H. and A. P. Covich [Eds.] 1991. Ecology and classification of North American freshwater invertebrates. Academic Press, San Diego.

Tinerella, Paul P. and Ralph W. Gunderson.2005. The Waterboatmen (Insecta: Heteroptera: Corixidae) of Minisota. Publication No.23 Dept. Of Entomology, North Dakota State University, Fargo, North Dakota, USA.

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APPENDIX D:

FISHERIES AND OCEAN CANADA PERMIT - 52 XR 230 2022

Licence Number: XR 230 2022 Valid From: 01-Aug-2022 **Expiry Date:** 31-Oct-2022

This licence and/or permit is issued under the authority of SECTION 52 OF THE FISHERY (GENERAL) REGULATIONS.

This licence and/or permit authorizes the person(s) listed below, subject to the following terms and conditions, to collect the species and quantity of fish identified below for: Scientific purposes. Non-compliance with any condition of this licence and/or permit may result in the cancellation of this licence and/or permit.

Licence/Permit Activity Description:

This licence permits fishing for the purpose of conducting a fish survey to asses the potential impacts of tailings, from the Sa Dena Hes mine on the aquatic system at False canyon located at kilometer 47 of Robert Campbell highway, approximately 75 km north of the community Watson Lake, Yukon.

Period of Activity:

Fishing activity will occur over 2 sampling events during August 8-12, 2022.

Licence Holder:

FIN: 125707 **ENSERO SOLUTIONS**

#3 CALCITE BUSINESS CENTRE, 151 INDUSTRIAL ROAD,

WHITEHORSE YT Y1A 2V3 Contact Number: 867-668-6463 Fax Number: 867-667-4882

Contact Party:

FIN: 129075 LYONS, STEPHANIE Contact Number: 604-295-8360

Individuals or groups assisting with the authorized activity:

FIN: 147173 **WESLEY MOIR** Contact Number: 519-404-0442 FIN: 149238 **BENJAMIN PRINCE** Contact Number: 250-739-9113 FIN: 149328 DAVID MEEKER Contact Number: 519-404-0442

Species, Quantity of Fish, Area(s) and Gear:

Species: ARCTIC GRAYLING (Thymallus arcticus); BURBOT (Lota lota); SLIMY SCULPIN (Cottus

cognatus);

Gear: Electrofishing (Maximum Second per Site: 500 Seconds)

Trap, Gee/Minnow (Maximum Second per Site: 24 Hours; Traps Max: 6 Number of Traps;

Mesh Type: 1/4 inch mesh)

Licence Area: False Canyon Creek (WSC: 25067437536553)

600 To be Released:

Additional Descriptions: Lifestage: All

Reporting Requirements:

Licence Number: XR 230 2022 Valid From: 01-Aug-2022

Expiry Date: 31-Oct-2022

Sampling Data (Mandatory) Report

Due Date 12-Dec-22

See Terms and Conditions: "Reporting" section of this licence for detailed requirements.

Sampling Notification Due Date 12-Dec-22

See Terms and Conditions: "Notice" section of this licence for detailed requirements.

Sampling Fish Data Report Due Date 12-Dec-22

See Terms and Conditions: "Reporting" section of this licence for detailed requirements.

Terms and Conditions:

This licence authorizes collections to be made by the licensee and employees, volunteers and students of the licensee provided that all persons, other than minors who are engaged in activities under the authority of this licence, are carrying suitable photo identification to be produced upon request of a Fishery Officer or Guardian.

This license is subject to immediate termination upon written or verbal notice from a representative of the Government of Yukon, Department of Environment, or of Fisheries and Oceans Canada.

Samplers: It is the responsibility of the Licence Holder to ensure that the Licence Holder and any Individuals or Groups assisting with the authorized activity are experienced and competent in the fish capture methods authorized in this license.

Notice: Prior to commencing sampling, notice must be provided at least 24 hours prior to the start of sampling to:

- Fisheries and Oceans Canada, Yukon Transboundary Rivers Area Licencing Unit Email: yukontransboundary.licence@dfo-mpo.gc.ca
- Fisheries and Oceans Canada, Conservation and Protection Email: Joseph.Humphries@dfo-mpo.gc.ca
- Government of Yukon Fisheries Email: Cameron.Sinclair@yukon.ca
- The Government of Yukon Conservation Officer responsible for any area where sampling is to take place
- The First Nation Government in whose Traditional Territory the activity is taking place

The notice is to include the following information:

- i. The Licence Number;
- ii. The watercourse or water body on which, and the location where the fishing and/or sampling is to take place;
- iii. The dates on which fishing and/or sampling will occur;
- iv. The names of all individuals who will be will engaged in fishing and/or sampling

Release of fish: All live fish must be released unharmed into the water body or course from which they originated and as near as possible to the location from which they were captured. Exception to this is where fish are authorized to be retained for identification or biological / scientific analysis purposes.

Disposition of fish: Any fish captured and retained under the authority of this license are not to enter any commercial markets or establishments. Any fish collected and retained, or incidental mortalities associated with non-lethal sampling, are not to be utilized for human consumption or personal use purposes unless authorized by Fisheries and

Licence Number: XR 230 2022 Valid From: 01-Aug-2022 Expiry Date: 31-Oct-2022

Oceans Canada.

Electrofishing: Electrofishing is not permitted in the vicinity of spawning fish or their redds. A trained and certified electro fisher operator must be a part of the electrofishing crew conducting fishing.

Gear: All gear left unattended must be clearly labelled with the Licence Number and must not interfere with the public right of navigation.

Gee/Minnow Trap: Any fish or fish parts used as bait must be from the drainage basin where the sampling is to occur or must be suitably preserved to remove all risk of the transmission of pathogens.

Disposition of fish: Any fish captured and retained under the authority of this license are not to enter any commercial markets or establishments. Any fish collected and retained, or incidental mortalities associated with non-lethal sampling, are not to be utilized for human consumption or personal use purposes unless authorized by Fisheries and Oceans Canada.

Aquatic Invasive Species: To prevent the introduction of aquatic invasive species: a) Before leaving an area: Drain water from boat, trailer and gear, remove all plant parts and mud and b) Before entering another water body: Wash all equipment and gear (including waders and boots) with soapy water and dry.

For Further Information:

https://www.dfo-mpo.gc.ca/species-especes/ais-eae/index-eng.html

https://www.dfo-mpo.gc.ca/species-especes/ais-eae/prevention/index-eng.html

Species at Risk: Section 32 (1) of Canada's Species at Risk Act prohibits killing, harming, harassing, capturing or taking an individual of a wildlife species which is listed on Schedule 1 as an extirpated species, an endangered species or a threatened species. Refer to the Species at Risk Act Public Registry at http://www.sararegistry.gc.ca to determine if species at risk may be in the Licence Area and to apply for a permit if required.

Transport or transplant of live fish and/or eggs/milt: Live fish and/or eggs (spawn) cannot be transported without a licence granted pursuant to Section 56 of the Fishery (General) Regulations.

Reporting: Sampling Fish Data and the Sampling Data (Mandatory) reports must be submitted following completion of fishing authorized pursuant to this Licence, in electronic form, and provided by email with an electronic copy of this Licence. If fishing does not take place a report is still required. The reports must include:

- a. The Collection Licence number
- b. The location(s) of the sampling with GPS coordinates, and a map with fishing locations identified if GPS coordinates

es et Océans da Licence Number: XR 230 2022 Valid From: 01-Aug-2022

Expiry Date: 31-Oct-2022

were not specifically recorded;

- c. Names of all individuals who engaged in fishing and/or sampling;
- d. The dates on which the fishing and/or sampling occurred;
- e. The number of fish captured, by species;
- f. Any fish mortalities observed

If no sampling takes place a "nil report" is required in the form of an email or identified in the Sampling Data (Mandatory) spreadsheet provided.

The reports must be submitted with the templates provided by the Licensing Unit and must be submitted by the date specified in the **Reporting Requirements** section of this Licence and addressed to:

Fisheries and Oceans Canada, Yukon Territory Licensing Unit Email: yukontransboundary.licence@dfo-mpo.gc.ca

By signing on this document, the person(s) listed below, agree to be bound by the terms and conditions that pertain to each person as an individual and to the group as a whole.

125707

FIN Licence Holder - Print Name Signature Date

Licence Issued: 26 July 2022

Licence Printed: 26 July 2022

Licence Issued By: MICHELLE MADORE, Fisheries and Oceans Canada



APPENDIX E: CABIN FIELD SAMPLING SHEETS

old Crew: Stephanie Gons & Be	Monin Prince Site Code: MH-07
sid Crew: 44 phanie Gons & Be Sampling Date: (DD/MM/YYYY) 08/08/13	0 202
☐ Occupational Health & Safety: Site Inspe	ection Sheet completed
PRIMARY SITE DATA	
CABIN Study Name:	_Local Basin Name:/
River/Stream Name:	
Select one: Test Site Potential Reference Site	
Geographical Description/Notes:	
Surrounding Land Use: (check those present) Forest	☐ Residential/Urban
Dominant Surrounding Land Use: (check one) ☐ Forest ☐ Field/Pasture ☐ Agriculture ☐ Logging ☐ Mining ☐ Commercia	Residential/Urban
Location Data	
Latitude:N Longitude;	
Elevation:(fasl or masl) GPS Datum: [☐ GRS80 (NAD83/WGS84) ☐ Other:
Site Location Map Drawing	
	,
	•
Note: Indicate north	:



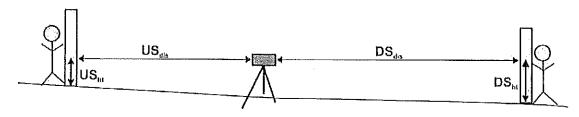
Field Crew: St 4 BP	Site Code: MH - O4
Sampling Date: (DD/MM/YYYY) 08/08/	2022
Photos ☐ Field Sheet ☐ Upstream ☐ Downstre ☐ Substrate (exposed) ☐ Substrate (aquation of the context of the	
REACH DATA (represents 6 times bankfull width)	
1. Habitat Types: <i>(check those present)</i>	n Ø Pool/Back Eddy
2. Canopy Coverage: (stand in middle of stream and lo	ook up, check one) □ 51-75 % □ 76-100 %
3. Macrophyte Coverage: (not algae or moss, check or 0 %	ne) □ 51-75 % □ 76-100 %
4. Streamside Vegetation: (check those present) ☐ ferns/grasses ☐ shrubs ☐ de	eciduous trees Proping alder
5. Dominant Streamside Vegetation: <i>(check one)</i> ☐ ferns/grasses ☐ shrubs ☐ de	sciduous trees \Box coniferous trees $\lor \circ \lor \lor \lor \lor \circ$
6. Periphyton Coverage on Substrate: (benthic algae, r	not moss, check one)
algae (1-5 mm thick) 4 - Rocks are very slippery (algae can be r to dark brown algae (5 mm -20 mm thic	on to light green colour (0.5-1 mm thick) footing is slippery), with patches of thicker green to brown emoved with thumbnail), numerous large clumps of green k) at, extensive green, brown to black algal mass may have
Note: 1 through 5 represent categories entered into the Co	ABIN database.
BENTHIC MACROINVERTEBRATE DATA	
Habitat sampled: (check one) Priffle apids	straight run
400 μm mesh Kick Net	Preservative used: 10% Formation
Person sampling 5L	Sampled sieved on site using "Bucket Swirling Method":
Sampling time (i.e. 3 min.) 3 min	☐ YES ☑ NO If YES, debris collected for QAQC ☐
No. of sample jars	,
Typical depth in kick area (cm)	

Note: Indicate if a sampling method other than the recommended 400 μm mesh kick net is used.



Field Crew: Site Code: MH-04
Sampling Date: (DD/MM/YYYY) <u>O8/08/3033</u>
THE TEN ALIEUM TO THE TEN ALIE
WATER CHEMISTRY DATA Time: 5:45 (24 hr clock) Time zone: PDT
Air Temp:(°C) Water Temp:(°C) pH;
Specific Conductance:(µs/cm) DO:(mg/L) Turbidity:(NTU)
Check if water samples were collected for the following analyses: TSS (Total Suspended Solids) Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia) Phosphorus (Total, Ortho, and/or Dissolved)
Major Ions (i.e. Alkalinity, Hardness, Chloride, and/or Sulphate)
Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN assessments.
CHANNEL DATA
Slope - Indicate how slope was measured: (check one)
Calculated from map Scale:(Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000). contour interval (vertical distance)(m), distance between contour intervals (horizontal distance)(m) slope = vertical distance/horizontal distance =
OR
Measured in field Circle device used and fill out table according to device: a. Survey Equipment b. Hand Level & Measuring Tape

Measurements	Upstream (U/S)	Downstream(D/S)	Calcula	tion
^a Top Hairline (T)		and the state of t		
^a Mid Hairline (ht) OR		and the second s		
^b Height of rod	de son de	and the second		
^a Bottom Hairline (B)				: • .
Distance (dis) OR	A STATE OF THE STA		US _{dis} +D	S _{dls} =
^a T-B x 100	^a US _{dis} =T-B	^a DS _{dis} =T-B		
Change in height (∆ht)		"	DS _{ht} -US	ht=
Slope (Δht/total dis)				



CABIN Field Sheet June 2012

Page 3 of 6



Field Crew: 8L	<u> 18P</u>	Site Co	de:	MH - C	<u>)) </u>
Sampling Date: (DD/MM/YYYY)	08/08/20	70			
Widths and Depth					
Location at site: at kick a	ve co	ndigata whore in camp	ام دمما	s ov dla ofti	iale aron)
A - Bankfull Width: 0,7 (m)					ck area)
		- Wetted Stream Widt			
C - Bankfull-Wetted Depth (height f				•)
C			Δ <u>.</u>		
	† † † † † † † † † † † † † † † † † † †	74 V5 D4 D5			
Note: Wetted widths > 5 m, measure a minimu Wetted widths < 5 m, measure 3-4 equid		tions;			
Check appropriate velocity measuring shore and depth are required regard. Velocity Head Rod (or ruler): Velocity measurements: Rotary meters: Gurley/Price/Min	lless of method: /elocity Equation (m/s) ni-Price/Propeller (Refe	= √ [2(ΔD/100) * 9.81] r to specific meter convei	rsion cha	art for calculatio	
	1 2	3 4	5	6	AVG
Distance from Shore (m)				}	
Depth (D) (cm)					
Velocity Head Rod (ruler)		,			
Flowing water Depth (D ₁) (cm)					
Depth of Stagnation (D ₂) (cm)					
Change in depth (ΔD=D ₂ -D ₁) (cm)					
Rotary meter					
Revolutions					
Time (minimum 40 seconds)		<u> </u>	·		
rano (mamidin 40 0000a3)					



Velocity (V) (m/s)

Field Crew:	SL 4 BD	Site Code:	MH-04
-------------	---------	------------	-------

SUBSTRATE DATA

Surrounding/Interstitial Material

Circle the substrate size category for the surrounding material.

Substrate Size Class	Category
Organic Cover	Q
< 0.1 cm (fine sand, silt or clay)	(1)
0.1-0.2 cm (coarse sand)	2
0.2-1.6 cm (gravel)	3 -
1.6-3.2 cm (small pebble)	4
3.2-6.4 cm (large pebble)	5
6.4-12.8 cm (small cobble)	6
12.8-25.6 cm (cobble)	7
> 25.6 cm (boulder)	8
Bedrock	9

100 Pebble Count & Substrate Embeddedness

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/sill/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

			•	Di u 4 ()						edded, drieinbedd	
	Dlameter (cm)	E	T-	Diameter (cm)	E		Diameter (cm)	E		Diameter (cm)	E
1	O B	0	26	16		51	4.7		76	58	
2	59		27	182		52	4.		77	43	
3	64		28	ŽO		53	26		78	76	
4	65		29	1007		54	149		79	83	
5	34		30	Ù 5	O	55	60		80	60	0
6	47		31	97		56	7,7		81	77	
7	110		32	(0		57	68		82	6,3	T***
8	52		33	40		58	39		83	30	
9	7		34	45		59	67		84	ly to	
10	27		35	43		60	2,4	0	85	67	
11	7.2		36	(0)		61	40		86	105	
12	31		37	38		62	32		87	61	
13	128		38	(a)		63	83		88	70	
14	31		39	54		64	43		89	55	
15	69		40	62	3/4	65	66		90	G. Long	0
16	29		41	81		66	155		91	of the	
17	20,01	(5)	42	178		67	31		92	manere) garage	
18	40		43	100		68	free mility		93	40	
19	46		44	7.4		69	53		94	1,93	
20	2,6	V2	45	43		70	63	1/4	95	The Contract of the Contract o	
21	- à0		46	Ül		71	56	7	96	73	
22	40		47	62		72	110		97	72	
23	36		48	58		73	4.7		98	41	
24	(30		49	4		74	for surely		99	70	
25	79		50	Ŷ 3	1/2	75	20		100	4)	0

Note: The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.



Field Crew: SC + BP	Site Code: MH-04
Sampling Date: (DD/MM/YYYY) <i>ර</i> ිට්/ුර්ව් /	12022
SITE IN	SPECTION
Site Inspected by:	
Communication Information	
☐ Itinerary left with contact person (include contact r	umbers)
Contact Person:	Time checked-in:
Form of communication: ☐ radio ☐ cell ☐ satellite	☐ hotel/pay phone ☐ SPOT
Phone number: ()	
Vehicle Safety	
\square Safety equipment (first aid, fire extinguisher, blank	et, emergency kit in vehicle)
☐ Equipment and chemicals safely secured for trans	port
\square Vehicle parked in safe location; pylons, hazard ligh	nt, reflective vests if necessary
Notes:	
Shore & Wading Safety	
☐ Wading Task Hazard Analysis read by all field staff	
☐ Wading Safe Work Procedures read by all field star	ff
☐ Instream hazards identified (i.e. log jams, deep pod	ols, slippery rocks)
□ PFD worn	
☐ Appropriate footwear, waders, wading belt	
☐ Belay used	
Notes:	



Field Crew:	Site Code: MH-)/					
Sampling Date: (DD/MM/YYYY) 10/68/10	28					
,	ė.					
☐ Occupational Health & Safety: Site Inspe	ction Sheet completed					
PRIMARY SITE DATA	·					
CABIN Study Name:	Local Basin Name:					
River/Stream Name:	_Stream Order: (map scale 1:50,000)					
Select one: Test Site Potential Reference Site						
Geographical Description/Notes:						
Surrounding Land Use: (check those present) Forest Field/Pasture Agriculture Logging Mining Commercia	☐ Residential/Urban					
Dominant Surrounding Land Use: (check one) ☐ Forest ☐ Field/Pasture ☐ Agriculture ☐ Logging ☐ Mining ☐ Commercia	Residential/Urban					
Location Data						
Latitude:N Longitude:						
Elevation:(fasl or masl) GPS Datum:	I GRS80 (NAD83/WGS84) LJ Other:					
Site Location Map Drawing						
Note: Indicate north						



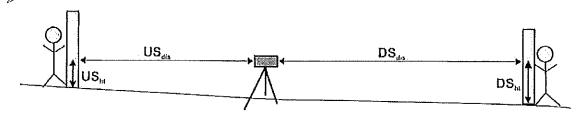
Field Crew: ST	<u> </u>	Site Code: MH-1				
Sampling Date: (DD/MM/YYYY	06/80/01	199-				
Photos ☐ Field Sheet ☐ Upstrear ☐ Substrate (exposed)	m □ Downstrea□ Substrate (aquatic)	I				
REACH DATA (represents 6 t	limes bankfull width)					
1. Habitat Types: (check those pre	, <u> </u>	Pool/Back Eddy				
2. Canopy Coverage: (stand in mid		k up, check one) □ 51-75 % □ 76-100 %				
3. Macrophyte Coverage: (not algo	ae or moss, check one % 26-50 %	' .				
4. Streamside Vegetation: (check ☐ ferns/grasses ☐	those present) shrubs	duous trees coniferous trees				
5. Dominant Streamside Vegetation ferns/grasses	Δ ·	duous trees				
6. Periphyton Coverage on Substr	ate: <i>(benthic algae, no</i>	t moss, check one)				
 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick) 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick) 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick) 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick) 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick) 						
Note: 1 through 5 represent categories entered into the CABIN database.						
BENTHIC MACROINVERTEBRATE DATA						
Habitat sampled: (check one) ☐ riffle ☐ rapids ☐ straight run						
400 μm mesh Kick Net		Preservative used: 10% Formation				
Person sampling Sampled sleved on site using "Bucket Swirling Method":						
Sampling time (i.e. 3 min.)	3 min	☐ YES ☐ NO If YES, debris collected for QAQC ☐				
No. of sample jars		IT I ES, debits collected for QAQC E				
Typical depth in kick area (cm)	36 cm					

Note: Indicate if a sampling method other than the recommended 400 μm mesh kick net is used.



Field Crew: & / BP	Site Code: MH-11					
	*					
WATER CHEMISTRY DATA Time: 10:45 (24 hr clock)	Time zone: PDT					
Air Temp:(°C) Water Temp:(°C)	pH;					
Specific Conductance:(µs/cm) DO:(mg/L)) Turbidity:(NTU)					
Check if water samples were collected for the following analyses: TSS (Total Suspended Solids) Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia) Phosphorus (Total, Ortho, and/or Dissolved)						
Note: Determining alkalinity is recommended, as are other analyses, but not rec						
CHANNEL DATA Slope - Indicate how slope was measured: (check one)	quired for Capity assessments.					
Calculated from map Scale: (Note: small scale map recommended if field me contour interval (vertical distance) (m), distance between contour intervals (horizontal distance) slope = vertical distance/horizontal distance =	and the second second					
OR						
☐ Measured in field Circle device used and fill out table according to device: a. Survey Equipment b. Hand Level & Measuring Tape						
Measurements Upstream (U/S) Downstre	am(D/S) Calculation					
^a Top Hairline (T)						
^a Mid Hairline (ht) OR						

Measurements	Upstream (U/S)	Downstream(D/S)	Calculation
^a Top Hairline (T)			
^a Mid Hairline (ht) OR			
^b Height of rod			
^a Bottom Hairline (B)		- AND CONTRACTOR	The Mills
⁵Distance (dis) OR		4	US _{dis} +DS _{dis} =
^a T-B x 100	^a US _{dis} =T-B	^a DS _{dis} =T-B	
Change in height (Δht)			DS _{ht} -US _{ht} =
Slope (Aht/total dis)			



CABIN Field Sheet June 2012

Page 3 of 6



Field Crew:				Site Co	ode:		
Sampling Date: (DD/MM/YYYY) _							
Widths and Depth							
Location at site: Ws Kick and	Q.,Q	(In	dicate who	ere in sam	ple reach, e	x. d/s of kick	k area)
A - Bankfull Width: \. \. \. \. (m)		В-	Wetted S	tream Wid	th:	(m)	
C - Bankfull-Wetted Depth (height fro	m water surf	ace to Ba	nkfull):			(cm)	
Ic			e 140 per per es en 141 pe 42 :		A		
Y _D	1 V2 1 D2	↑ V3 D3	† † V4 V: D4 D;	B-B-			
Note: Wetted widths > 5 m, measure a minimum Wetted widths < 5 m, measure 3-4 equidis			ons;				
Velocity and Depth Check appropriate velocity measuring shore and depth are required regardle Velocity Head Rod (or ruler): Vel Rotary meters: Gurley/Price/Mini- Direct velocity measurements: Description	ss of method locity Equation Price/Prope	d: on (m/s) = ller (Refer	√[2(∆D/ to specific	100) * 9.81 meter conve] ersion chart fo	or calculation	
	1	2	3	4	5	6	AVG
Distance from Shore (m)							
Depth (D) (cm)							
Velocity Head Rod (ruler)					The second second second second second second second second second second second second second second second se	and the second s	
Flowing water Depth (D ₁) (cm)				and annual by annual an			
Depth of Stagnation (D ₂) (cm)		and the second second	and the second second				
Change in depth (ΔD=D₂-D₁) (cm)							
Rotary meter							
Revolutions							
Time (minimum 40 seconds)							
Direct Measurement or calculation			*				
Velocity (V) (m/s)							uju.



Field Crew:	Site Code:
Sampling Date: (DD/MM/YYYY)	

SUBSTRATE DATA

Surrounding/Interstitial Material

Circle the substrate size category for the surrounding material.

Substrate Size Class	Category
Organic Cover	0
< 0.1 cm (fine sand, silt or clay)	1
0.1-0.2 cm (coarse sand)	(2)
0.2-1.6 cm (gravel)	3
1.6-3.2 cm (small pebble)	4
3.2-6.4 cm (large pebble)	5
6.4-12.8 cm (small cobble)	6
12.8-25.6 cm (cobble)	7
> 25.6 cm (boulder)	8
Bedrock	9

100 Pebble Count & Substrate Embeddedness

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

	Diameter (cm)	Ε		Diameter (cm)	E		Diameter (cm)	E		Diameter (cm)	E
1	3 ə	0	26	18		51	0		76	40	
2	18		27	94 91		52	78		77	<u> </u>	
3	14		28	49		53	al		78	àı	
4	35		29	25		54	140		79	8	
5	g		30		1/9	55	300		80	53	3/4
6	ો હ		31	75		56	19		81	29	
7	10		32	64		57	79		82	a3	
8	20		33	123		58	13		83		
9	ĩa		34	.))		59	5		84	20	
10	170	1/2	35	6		60	(08)	0	85	38	
11	23		36	là.		61	41	(3)	86	9	
12	15		37	84		62	Q		87	95	
13	10		38	95		63	DE 160		88	18	
14	12		39	31		64	Ä.		89	2 8	
15	13		40	150	119	65	76		90	18	0
16	Lia L		41	139	,	66	16		91	19	
17	28		42	77		67	90		92	18	
18	\$K 38)		43	61		68	27		93	q	
19	q		44	112		69	32		94	16	
20	27	0	45	140		70	118	0	95	34	
21	28		46	87	·	71			96	19	
22	9		47	7-7		72	77		97	39	
23	6		48	ài		73	32		98	20	
24	q		49	15		74	I IŽ		99	15	
25	ià		50	03	1/4	75	1 20		100	3(0

Note: The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.



Field Crew: Site Code: Site Code: MH - I]
Sampling Date: (DD/MM/YYYY) 10 /08/2022
SITE INSPECTION
Site Inspected by:
Communication Information
☐ Itinerary left with contact person (include contact numbers)
Contact Person: Time checked-in:
Form of communication: ☐ radio ☐ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT
Phone number: ()
Vehicle Safety
☐ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)
☐ Equipment and chemicals safely secured for transport
☐ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary
Notes:
Shore & Wading Safety
☐ Wading Task Hazard Analysis read by all field staff
☐ Wading Safe Work Procedures read by all field staff
☐ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)
□ PFD worn
☐ Appropriate footwear, waders, wading belt
□ Belay used
Notes:



iew: 55 f 50	Site Code: MH-/2
pling Date: (DD/MM/YYYY) 09/08/30	<i>b</i> 2
4	!
☐ Occupational Health & Safety: Site Inspec	ction Sheet completed
PRIMARY SITE DATA	•
CABIN Study Name:	Local Basin Name:
River/Stream Name:	Stream Order: (map scale 1:50,000)
Select one: Test Site Potential Reference Site	
Geographical Description/Notes:	
Surrounding Land Use: (check those present) Forest	☐ Residential/Urhan
Dominant Surrounding Land Use: (check one) ☐ Forest ☐ Field/Pasture ☐ Logging ☐ Mining ☐ Commercial/	Residential/Urban
Location Data	
Latitude:N Longitude:	
Elevation:(fasl or masl) GPS Datum:	GRS80 (NAD83/WGS84) Other:
Site Location Map Drawing	
Note: Indicate north	



Field Crew: SL / BP	Site Code: <u>MH - 12</u>				
Sampling Date: (DD/MM/YYYY)	2027				
Photos ☐ Field Sheet ☐ Upstream ☐ Downstre ☐ Substrate (exposed) ☐ Substrate (aquati					
REACH DATA (represents 6 times bankfull width)					
1. Habitat Types: <i>(check those present)</i> Riffie □ Rapids □ Straight ru	ın ☐ Pool/Back Eddy				
2. Canopy Coverage: (stand in middle of stream and lo	ook up, check one) □ 51-75 % □ 76-100 %				
3. Macrophyte Coverage: (not algae or moss, check or 0 % 1-25 % 26-50 %	•				
4. Streamside Vegetation: (check those present) ferns/grasses shrubs de	eciduous trees				
5. Dominant Streamside Vegetation: <i>(check one)</i> ☐ ferns/grasses ☐ shrubs ☐ de	eciduous trees Coniferous trees horstail				
6. Periphyton Coverage on Substrate: (benthic algae, r	not moss, check one)				
 1 - Rocks are not slippery, no obvious colour (thin layer < 0.5 mm thick) 2 - Rocks are slightly slippery, yellow-brown to light green colour (0.5-1 mm thick) 3 - Rocks have a noticeable slippery feel (footing is slippery), with patches of thicker green to brown algae (1-5 mm thick) 4 - Rocks are very slippery (algae can be removed with thumbnail), numerous large clumps of green to dark brown algae (5 mm -20 mm thick) 5 - Rocks are mostly obscured by algal mat, extensive green, brown to black algal mass may have long strands (> 20 mm thick) 					
Note: 1 through 5 represent categories entered into the C	ABIN database.				
BENTHIC MACROINVERTEBRATE DATA					
Habitat sampled: (check one) ☐ riffle ☐ rapids ☐	straight run				
400 μm mesh Kick Net	Preservative used: 10% Farmatin				
Person sampling 45	Sampled sieved on site using "Bucket Swirling Method": ☐ YES ☑ NO				
Sampling time (i.e. 3 min.) No. of sample jars	If YES, debris collected for QAQC				
Typical depth in kick area (cm)					

Note: Indicate if a sampling method other than the recommended 400 μm mesh kick net is used.



Field Crew: Site Code; Sampling Date: (DD/MM/YYYY) OC /08 / DOD WATER CHEMISTRY DATA Time: 11:45 (24 hr clock) Time zone: Air Temp: (°C) Water Temp: (°C) pH: Specific Conductance: (µs/cm) DO: (mg/L) Turbidity: Check if water samples were collected for the following analyses: TSS (Total Suspended Solids) Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia) Phosphorus (Total, Ortho, and/or Dissolved)	PAT
Air Temp:(°C) Water Temp:(°C) pH; Specific Conductance:(µs/cm) DO:(mg/L) Turbidity: Check if water samples were collected for the following analyses: TSS (Total Suspended Solids) Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)	
Air Temp:(°C) Water Temp:(°C) pH: Specific Conductance:(µs/cm) DO:(mg/L) Turbidity: Check if water samples were collected for the following analyses: TSS (Total Suspended Solids) Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)	
Specific Conductance:(µs/cm) DO:(mg/L) Turbidity: Check if water samples were collected for the following analyses: TSS (Total Suspended Solids) Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)	
Check if water samples were collected for the following analyses: TSS (Total Suspended Solids) Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)	(NTU)
☐ TSS (Total Suspended Solids) ☐ Nitrogen (i.e. Total, Nitrate, Nitrite, Dissolved, and/or Ammonia)	

Note: Determining alkalinity is recommended, as are other analyses, but not required for CABIN as	sessments.
CHANNEL DATA	
Slope - Indicate how slope was measured: (check one)	
Calculated from map Scale:(Note: small scale map recommended if field measurement is not pos contour interval (vertical distance)(m), distance between contour intervals (horizontal distance)(m) slope = vertical distance/horizontal distance =	sible - I.e. 1:20,000).
☐ Measured in field Circle device used and fill out table according to device; a. Survey Equipment b. Hand Level & Measuring Tape	T
Measurements Upstream (U/S) Downstream(D/S)	Calculation
^a Top Hairline (T)	
^a Mid Hairline (ht) OR	
^b Height of rod	
^a Bottom Hairline (B)	
^b Distance (dis) OR	US _{dis} +DS _{dis} =
^a T-B x 100 aUS _{dis} =T-B aDS _{dis} =T-B Change in height (Δht)	DS _{ht} -US _{ht} =
Slope (Δht/total dis)	
US _{dla} DS _{ds}	DS _M

Field Crew:	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	SL/	BP			Site Code:	MH-	12
Sampling Dat	te: (DD/MM/Y	YYY)_	09	108	12022			

Widths and Depth	
Location at site:	_(Indicate where in sample reach, ex. d/s of kick area)
A - Bankfull Width:(m)	B - Wetted Stream Width:(m)
C - Bankfull–Wetted Depth (height from water surface to	o Bankfull):(cm)
Note: Wetted widths > 5 m, measure a minimum of 5-6 equidistant be Wetted widths < 5 m, measure 3-4 equidistant locations.	D4 V5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5

Velocity and DepthCheck appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

	. , ,
	Velocity Head Rod (or ruler): Velocity Equation (m/s) = $\sqrt{[2(\Delta D/100) * 9.81]}$
	Rotary meters: Gurley/Price/Mini-Price/Propeller (Refer to specific meter conversion chart for calculation)
П	Direct valocity measurements: CLMarsh-McRirney CLSontek or CLOther

	1	2	3	4	5	6	AVG
Distance from Shore (m)							
Depth (D) (cm)							
Velocity Head Rod (ruler)		·		•	•		
Flowing water Depth (D ₁) (cm)							
Depth of Stagnation (D₂) (cm)							
Change in depth (△D=D₂-D₁) (cm)							
Rotary meter		***			•		
Revolutions							Ŋ.
Time (minimum 40 seconds)					•		
Direct Measurement or calculation	1				. :		<u>.</u>
Velocity (V) (m/s)							



Field Crew:	8c/BP	Site Code:	MH-12

SUBSTRATE DATA

Surrounding/Interstitial Material

Circle the substrate size category for the surrounding material.

Substrate Size Class	Category
Organic Cover	0
< 0.1 cm (fine sand, silt or clay)	1
0.1-0.2 cm (coarse sand)	(2)
0.2-1.6 cm (gravel)	3
1.6-3.2 cm (small pebble)	4
3.2-6.4 cm (large pebble)	5
6.4-12.8 cm (small cobble)	6
12.8-25.6 cm (cobble)	7
> 25.6 cm (boulder)	8
Bedrock ·	9

100 Pebble Count & Substrate Embeddedness

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

	Diameter (cm)	Ε		Diameter (cm)	Ē		Diameter (cm)	5		Diameter (cm)	Ε
1	27	1/9	26	36		51	79	·	76	45	
2	27		27	15		52	l ñ		77	FA 72	
3	9.9		28	38		53	13		78	àã	
4	22		29	19		54	54		79	100	1/4
5	29		30	111	1/2	55	27		80	60	
6	20		31	63		56	17-		81	55	
7	aa	ļ	32	la'		57	34		82	85	
8	48		33	37		58	93		83	43	
9	155	ļ	34	460		59	22		84	73	
10	<u> </u>	0	35	aj 14		60	46	0	85	à6	
11	15		36	14		61	95		86	59	
12	27	<u> </u>	37	20		62	46		87	43	
13	24		38	16		63	44		88	59	
14	122		39	24		64	33		89	54	
15	8		40	38	1/9	65	36		90	55	1/a
16	44	ļ	41	57		66	51		91	a 8	
17	19		42	48		67	44		92	24	
18	73		43	43		68	11		93	24	
19	74		44	13/		69	19		94	22	
20	124	14	45	a0		70	43	0_	95	78	
21	31		46	<u>ao</u>		71	38		96	50	
22	42	<u> </u>	47	24		72	24		97	50 :	
23	43		48	13		73	50		98	5	
24	19		49	13		74	46		99	41	(5)
25	<u> </u>		50	de	1/2	75	68		100	260	M

Note: The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.



Field Crew: SL/BP	Site Code: MH-12
Sampling Date: (DD/MM/YYYY) <u>69 / 08 / 2022</u>	
;	
SITE INSPECTION	
Site Inspected by:	
Communication Information	
☐ Itinerary left with contact person (include contact numbers)	
Contact Person: Time c	hecked-in:
Form of communication: radio cell satellite hotel/pay phone	e 🗆 SPOT
Phone number: ()	
Vehicle Safety	
☐ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in	n vehicle)
☐ Equipment and chemicals safely secured for transport	
\square Vehicle parked in safe location; pylons, hazard light, reflective vests if	f necessary
Notes:	
Shore & Wading Safety	
☐ Wading Task Hazard Analysis read by all field staff	
☐ Wading Safe Work Procedures read by all field staff	
☐ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)	
□ PFD worn	
☐ Appropriate footwear, waders, wading belt	
□ Belay used	
Notes:	



12020
Crew: 55 d 50 Site Code: 44-13
ring Date: (DID/MM/YYYY) 09/08/2020
☐ Occupational Health & Safety: Site Inspection Sheet completed
PRIMARY SITE DATA
CABIN Study Name:Local Basin Name:
River/Stream Name: False Canyon Ck. Stream Order: (map scale 1:50,000)
Select one: Test Site Potential Reference Site
Geographical Description/Notes:
\$urrounding Land Use: (check those present) Information Source: FIELD Torest Field/Pasture Residential/Urban Logging Mining Commercial/Industrial Other
Dominant Surrounding Land Use: (check one) Information Source: ☐ Commercial/Industrial ☐ Other ☐ Commercial/Industrial ☐ Othe
Location Data
Latitude:N Longitude:W (DMS or DD)
Elevation:(fasl or masl) GPS Datum: GRS80 (NAD83WGS84) COther:
Site Location Map Drawing
Matay to allow to many the
Note: Indicate north



Field Crew:SL /_	BP		Site Code:	11-15
Sampling Date: (DD/MM/YYYY)	09/08/2	909 2	_	
Photos ☐ Field Sheet ☐ Upstream ☐ Substrate (exposed) ☐	n ☑́Downstre □ Substrate (aquatio	_	ross Site	rial View
REACH DATA (represents 6 to	lmes bankfull width)			
1. Habitat Types: <i>(check those pre</i> ☐ Riffle ☐ Rapids	/ /	n 🗹 P	ool/Back Eddy	
2. Canopy Coverage: (stand in mid		• •) 76-100 %	
3. Macrophyte Coverage: (not alga		e)	☐ 76-100 %	V 1
4. Streamside Vegetation: (check t	<i>those present)</i> ☑ shrubs ☑️ de	ciduous trees	· Coniferous trees	norme tail adder sprece
5. Dominant Streamside Vegetatio ☐ ferns/grasses ☐		ciduous trees	coniferous trees	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
6. Periphyton Coverage on Substra	ate: <i>(benthic algae, n</i>	ot moss, check c	one)	
_	slippery, yellow-browi ceable slippery feel (f k) opery (algae can be ro e (5 mm -20 mm thicl obscured by algal ma	n to light green cooting is slippery emoved with thurk k)	olour (0.5-1 mm thick)), with patches of thick	e clumps of green
Note: 1 through 5 represent catego	ries entered into the CA	ABIN database.		
BENTHIC MACROINVERTE	BRATE DATA			
Habitat sampled: (check one)	riffle \square rapids \square	straight run		
400 μm mesh Kick Net		Preservative us	sed: 10% Form	nalin
Person sampling	50		d on site using "Bucke	t Swirling Method":
Sampling time (i.e. 3 min.)	3min	YES ON		
No. of sample jars	l l	ii YES, debris (collected for QAQC	
Typical depth in kick area (cm)	60 cm			

Note: Indicate if a sampling method other than the recommended 400 μm mesh kick net is used.



Field Crew:Sampling Date: (DD/MM/			Site Code;	WH = 123			
WATER CHEMISTRY I	DATA Time: 1330	_ (24 hr clock)	Time zone:	PDT			
Air Temp:	(ºC) Water Temp:	(°C)	pH;	······			
Specific Conductance:	(µs/cm) DO:	(mg/L)	Turbidity:	(NTU)			
Check if water samples were I TSS (Total Suspended SI Nitrogen (i.e. Total, Nitral Phosphorus (Total, Orthold Major Ions (i.e. Alkalinity	Solids) ite, Nitrite, Dissolved, and/or o, and/or Dissolved)	- Ammonia)	☐ Other				
Note: Determining alkalinity is r	ecommended, as are other ana	alyses, but not requ	lred for CABIN	l assessments.			
CHANNEL DATA							
Slope - Indicate how slope	was measured: (check one	a)		/			
Calculated from map Scale:(Note: small scale map recommended if field measurement is not possible - i.e. 1:20,000). contour interval (vertical distance)(m), distance between contour intervals (horizontal distance)(m) slope = vertical distance/horizontal distance =							
Measurements	Upstream (U/S)	Downstrea	m(D/S)	Calculation			
^a Top Hairline (T)							
^a Mid Hairline (ht) OR		A SALES AND A SALE					
^b Height of rod							
^a Bottom Hairline (B)							
^b Distance (dis) OR				US _{dis} +DS _{dis} =			
^a T-B x 100	aUS _{dis} =T-B	^a DS _{dis} =T-	В				
Change in height (∆ht)	/			DS _{ht} -US _{ht} =			
Slope (Δht/total dis)			-				
US _{iji}	S _{dia}	DS _{ds}		DS _{ht}			

CABIN Field Sheet June 2012

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Fleid Crew:				Site Co	de:		
Sampling Date: (DD/MM/YYYY)_							
Widths and Depth							
Location at site:		(In-	licate whe	re in samp	le reach, e	x. d/s of ki	ck area)
Location at site:(m)		B -			h:		,
C - Bankfull-Wetted Depth (height fro							
		- 100 100 100 100 100 100 100 100 100 10					
	† † † † † † † † † † † † † † † † † † †	† V3		-B-/			
Note: Wetted widths > 5 m, measure a minimum Wetted widths < 5 m, measure 3-4 equide	m of 5-6 equi	idistant locations.	ns;				.*
shore and depth are required regard! Velocity Head Rod (or ruler): Velocity Head Rod (or ruler): Velocity Minus Carley/Price/Minus Direct velocity measurements:	elocity Equa	ation (m/s) = peller (Refer	o specific m	eter conver	sion chart f		n)
	1	2	3	4	5	6	AVG
Distance from Shore (m)							
Depth (D) (cm)							
Velocity Head Rod (ruler)							
Flowing water Depth (D ₁) (cm)							15.19
Depth of Stagnation (D ₂) (cm)							
Change in depth (ΔD=D ₂ -D ₁) (cm)							
Rotary meter						 	
Revolutions			-			: : : : : : : : : : : : : : : : : : :	
Time (minimum 40 seconds)							
Time (minimum 40 seconds) Direct Measurement or calculation					1		



Field Crew:	Site Code:
Sampling Date: (DD/MM/YYYY)	

SUBSTRATE DATA

Surrounding/Interstitial Material

Circle the substrate size category for the surrounding material.

Substrate Size Class	Category		
Organic Cover	0		
< 0.1 cm (fine sand, silt or clay)	1		
0.1-0.2 cm (coarse sand)	2		
0.2-1.6 cm (gravel)	3		
1.6-3.2 cm (small pebble)	4		
3.2-6.4 cm (large pebble)	5		
6.4-12.8 cm (small cobble)	6		
12.8-25.6 cm (cobble)	7		
> 25.6 cm (boulder)	8		
Bedrock	9		

100 Pebble Count & Substrate Embeddedness

- . Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/silt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

	Diameter (cm)	E		Diameter (cm)	E		Diameter (cm)	E		Diameter (cm)	E
1	260	\mathcal{C}	26	47		51	15		76	25	
2	42		27	37		52	80		77	60	
3	47		28	ベッケ		53	taby C		78	100	
4	33		29	54		54	350		79	58	
5	29		30	130	0	55	13		80	58	14
6	19		31	'35		56	51		81	30	
7	37		32	áo		57	17		82	60	
8	23		33	52		58	15		83	59	
9	28		34	72		59	60	0	84	656	(5)
10	19	0	35	29		60	3)		85	27	
11	37		36	99		61	19		86	33	
12	48		37	39		62	600		87	a3	
13	33		38	27		63	37		88	38	
14	37		39	34		64	30		89	53	
15	10		40	72	1/2	65	70		90	35	0
16	62		41	40		66	99		91	15	
17	33		42	40		67	35		92	32	
18	33		43	38	_	68	40		93	24	
19	10/		44	KOM 1	(5)	69	34		94	77	
20	27	0	45	ି ନର୍ଷ		70	40	3/4	95	17	
21	HO		46	50		71	75	. ,	96	8	
22	123		47	50		72	15		97	43	
23	89		48	78		73	382		98	731	
24	39		49	15		74	45		99	57	
25	1 115		50	41	0	75	33		100	36	0

Note: The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.





Field Crew:	Site Code:
Sampling Date: (DD/MM/YYYY)	
SITE INSPI	ECTION
Site Inspected by:	
Communication Information	
☐ Itinerary left with contact person (include contact number	หร)
Contact Person:	Time checked-in:
Form of communication: \square radio \square cell \square satellite \square ho	otel/pay phone □ SPOT
Phone number: ()	
Vehicle Safety	
\square Safety equipment (first aid, fire extinguisher, blanket, em	ergency kit in vehicle)
☐ Equipment and chemicals safely secured for transport	
☐ Vehicle parked in safe location; pylons, hazard light, refle	ective vests if necessary
Notes:	
Shore & Wading Safety	
☐ Wading Task Hazard Analysis read by all field staff	
☐ Wading Safe Work Procedures read by all field staff	
☐ Instream hazards identified (i.e. log jams, deep pools, sli	ppery rocks)
□ PFD worn	
☐ Appropriate footwear, waders, wading belt	
□ Belay used	
Notes:	



Field Crew:	Site Code: WIII 39
Sampling Date: (DD/MM/YYYY) 10 (06/20	78
	· ·
☐ Occupational Health & Safety: Site Inspe	ction Sheet completed
PRIMARY SITE DATA	
CABIN Study Name:	Local Basin Name:
River/Stream Name:	_Stream Order: (map scale 1:50,000)
Select one: Test Site Potential Reference Site	
Geographical Description/Notes:	
Sufrounding Land Use: (check those present) Forest Field/Pasture Agriculture Logging Mining Commercia	Residential/Urban
Dominant Surrounding Land Use: (check one) ☐ Forest ☐ Field/Pasture ☐ Agriculture ☐ Logging ☐ Mining ☐ Commercia	☐ Residential/Urban
Location Data	
Latitude:N Longitude:	
Elevation: (fasl or masl) GPS Datum:	I GRS80 (NAD83/WGS84) LI Other:
Site Location Map Drawing	·
Martin I. Barda and	,



Field Crew:	Site Code: <u>MH - 2 1</u>
Sampling Date: (DD/MM/YYYY) 10 Aug 3	023
Photos ☐ Upstream ☐ Downstream ☐ Substrate (exposed) ☐ Substrate (aquation of the property of t	h
REACH DATA (represents 6 times bankfull width)	
1. Habitat Types: <i>(check those present)</i> ☐ Riffle ☐ Rapids ☐ Straight ru	n 🔲 Pool/Back Eddy
2. Canopy Coverage: (stand in middle of stream and lo	ok up, check one) □ 51-75 % □ 76-100 %
3. Macrophyte Coverage: (not algae or moss, check or 0 %	
4. Streamside Vegetation: (check those present) ☐ ferns/grasses ☐ shrubs ☐ de	ciduous trees Coniferous trees
5. Dominant Streamside Vegetation: <i>(check one)</i> Gerns/grasses Gernubs Gernubs Gernubs	ciduous trees
6. Periphyton Coverage on Substrate: (benthic algae, r	not moss, check one)
algae (1-5 mm thick) 4 - Rocks are very slippery (algae can be r to dark brown algae (5 mm -20 mm thic	ooting is slippery), with patches of thicker green to brown emoved with thumbnail), numerous large clumps of green
Note: 1 through 5 represent categories entered into the Co	ABIN database.
BENTHIC MACROINVERTEBRATE DATA	
Habitat sampled: (check one) ☐ riffle ☐ rapids ☐	straight run
400 μm mesh Kick Net	Preservative used: Formalin
Person sampling 50	Sampled sieved on site using "Bucket Swirling Method":
Sampling time (i.e. 3 min.)	☐ YES ☑ NO If YES, debris collected for QAQC ☐
No. of sample jars	
Typical depth in kick area (cm)	

Note: Indicate if a sampling method other than the recommended 400 μm mesh kick net is used.



Field Crew:BP &	+3L	Site Code;	MH-29
Sampling Date: (DD/MM/Y	yyy) 10 Aug :	2092	
WATER CHEMISTRY D	ATA Time: \200_	_ (24 hr clock) Time zone	PDT
Air Temp:	(°C) Water Temp:	(°C) pH;	A
Specific Conductance:	(µs/cm) DO;	(mg/L) Turbidity:	(NTU)
Check if water samples were ☐ TSS (Total Suspended So ☐ Nitrogen (i.e. Total, Nitrate ☐ Phosphorus (Total, Ortho, ☐ Major Ions (i.e. Alkalinity,	olids) e, <u>Nitrite,</u> Dissolved, and/or , and/or Dissolved)	Ammonia)	
Note: Determining alkalinity is red	commended, as are other апа	lyses, but not required for CABI	N assessments.
CHANNEL DATA			
Slope - Indicate how slope v	was measured: (check one)	
contour interval (vertical d distance between contour	(Note: small scale map recor distance) (n r intervals (horizontal distar norizontal distance =	nce) (m)	t possible - i.e. 1:20,000).
	out table according to devi		
Circle device used and fill a. Survey Equipment b.	. Hand Level & Measuring	Гаре	>
Circle device used and fill a. Survey Equipment b. Measurements			Calculation
Circle device used and fill a. Survey Equipment b. Measurements Top Hairline (T)	. Hand Level & Measuring	Гаре	
Circle device used and fill a. Survey Equipment b. Measurements Top Hairline (T) Mid Hairline (ht) OR	. Hand Level & Measuring	Гаре	
Circle device used and fill a. Survey Equipment b. Measurements a Top Hairline (T) a Mid Hairline (ht) OR b Height of rod	. Hand Level & Measuring	Гаре	
Circle device used and fill a. Survey Equipment b. Measurements Top Hairline (T) Mid Hairline (ht) OR	. Hand Level & Measuring	Гаре	
Circle device used and fill a. Survey Equipment b. Measurements a Top Hairline (T) a Mid Hairline (ht) OR b Height of rod a Bottom Hairline (B)	Hand Level & Measuring Tupstream (U/S)	Tape Downstream(D/S)	
Circle device used and fill a. Survey Equipment b. Measurements aTop Hairline (T) aMid Hairline (ht) OR bHeight of rod aBottom Hairline (B) Distance (dis) OR	. Hand Level & Measuring	Гаре	
Circle device used and fill a. Survey Equipment b. Measurements a Top Hairline (T) a Mid Hairline (ht) OR b Height of rod a Bottom Hairline (B) Distance (dis) OR a T-B x 100	Hand Level & Measuring Tupstream (U/S)	Tape Downstream(D/S)	US _{dis} +DS _{dis} ≃
Circle device used and fill a. Survey Equipment b. Measurements Top Hairline (T) Mid Hairline (ht) OR Height of rod Bottom Hairline (B) Distance (dis) OR T-B x 100 Change in height (Aht)	Hand Level & Measuring Upstream (U/S) auSdis=T-B	Tape Downstream(D/S)	US _{dis} +DS _{dis} ≃

Field Crew:	4 SL	Site Code:	MH-29
Sampling Date: (DD/MM/YY	YY) 10 Aug 2022		

Widths and Depth	
Location at site: at kick eves	_(Indicate where in sample reach, ex. d/s of kick area)
A - Bankfull Width: <u>()</u> (m)	B - Wetted Stream Width:(m)
C - Bankfull–Wetted Depth (height from water surface to	Bankfull):(cm)
Note: Wetted widths > 5 m, measure a minimum of 5-6 equidistant to Wetted widths < 5 m, measure 3-4 equidistant locations.	D4 V5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5 D5

Velocity and DepthCheck appropriate velocity measuring device and fill out the appropriate section in chart below. Distance from shore and depth are required regardless of method:

onero and departation of an area of the months.	
□ Velocity Head Rod (or ruler): Velocity Equation (m/s) = √ [2(ΔD/100) * 9.81]
□ Rotary meters: Gurley/Price/Mini-Price/Propeller (Refer to specific meter conve	ersion chart for calculation)
Direct velocity measurements: Marsh-McBirney Sontek or Other	salt slus

	1	2	3	4	5	6	AVG
Distance from Shore (m)							
Depth (D) (cm)							
Velocity Head Rod (ruler)							
Flowing water Depth (D ₁) (cm)							
Depth of Stagnation (D₂) (cm)							
Change in depth (∆D=D₂-D₁) (cm)							
Rotary meter						!	
Revolutions							
Time (minimum 40 seconds)						***************************************	
Direct Measurement or calculation			<u>, , , , , , , , , , , , , , , , , , , </u>			•	
Velocity (V) (m/s)					, 1		



Field Crew:	BP & SL	Site Code:	MH-29
	w		•

Sampling Date: (DD/MM/YYYY) 10/08/202

SUBSTRATE DATA

Surrounding/Interstitial Material

Circle the substrate size category for the surrounding material.

Substrate Size Class	Category
Organic Cover	0
< 0.1 cm (fine sand, silt or clay)	1
0.1-0.2 cm (coarse sand)	(2)
0.2-1.6 cm (gravel)	3
1.6-3.2 cm (small pebble)	4
3.2-6.4 cm (large pebble)	5
6.4-12.8 cm (small cobble)	6
12.8-25.6 cm (cobble)	7
> 25.6 cm (boulder)	8
Bedrock	9

100 Pebble Count & Substrate Embeddedness

- Measure the intermediate axis (100 rocks) and embeddedness (10 rocks) of substrate in the stream bed.
- Indicate B for bedrock, S for sand/sllt/clay (particles < 0.2 cm) and O for organic material.
- Embeddedness categories (E): Completely embedded = 1, 3/4 embedded, 1/2 embedded, 1/4 embedded, unembedded = 0

	Diameter (cm)	Ξ		Diameter (cm)	E		Diameter (cm)	E		Diameter (cm)	=
1	90	0	26	4		51	58		76	63	
2	40		27	107		52	27		77	51	
3	12		28	781		53	18		78	18	
4	34		29	37		54	3)		79	51	
5	46		30	99	1/4	55	13		80	70	14
6	45		31	18		56	24		81	62	
7	37		32	427		57	1 る1		82	42	
8	33		33	109		58	30		83	à3	
9	250		34	107		59	13		84	61	
10	103	0	35	19		60	22	0	85	22	
11	'99		36	39		61			86	360	
12	2+		37	37		62	27		87	4	
13	109		38	51		63	15		88	33	
14	76		39	51		64	5		89	10	
15	(A)		40	60/	0	65	103		90	40	0
16	237		41	55		66	23		91	43	
17	72		42	2)		67	54		92	40	
18	A.		43	77		68	8		93	37	
19	64		44	22		69	4	•	94	à ³	
20	580	O	45	35		70	3	0	95	57	
21	70		46	77		71	Å		96	(060	
22	<u> </u>		47	78		72	15		97	ĬO	
23	87		48	40		73	24		98	63	
24	26		49	4		74	10		99	19	
25	166		50	(¿Ò	1/4	75	18		100	92	1/4

Note: The Wolman D50 (i.e. median diameter), Wolman Dg (i.e. geometric mean diameter) and the % composition of the substrate classes will be calculated automatically in the CABIN database using the 100 pebble data. All 100 pebbles must be measured in order for the CABIN database tool to perform substrate calculations.





Field Crew: BP + 8L Site Code: MH - 29
Sampling Date: (DD/MM/YYYY) 10 / 08 / 2-2
SITE INSPECTION
Site Inspected by:
Communication Information
☐ Itinerary left with contact person (include contact numbers)
Contact Person: Time checked-in:
Form of communication: ☐ radio ☐ cell ☐ satellite ☐ hotel/pay phone ☐ SPOT
Phone number: ()
Vehicle Safety
☐ Safety equipment (first aid, fire extinguisher, blanket, emergency kit in vehicle)
☐ Equipment and chemicals safely secured for transport
☐ Vehicle parked in safe location; pylons, hazard light, reflective vests if necessary
Notes:
Shore & Wading Safety
☐ Wading Task Hazard Analysis read by all field staff
☐ Wading Safe Work Procedures read by all field staff
☐ Instream hazards identified (i.e. log jams, deep pools, slippery rocks)
□ PFD worn
☐ Appropriate footwear, waders, wading belt
□ Belay used
Notes:





APPENDIX F: SAMPLING SITE PHOTOS

PHOTOGRAPHS

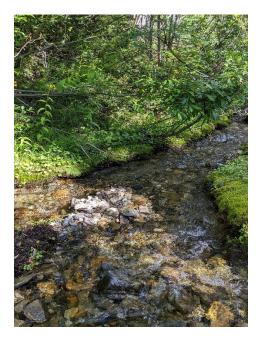


Photo 1: MH-04 Downstream, Aug 2022



Photo 2: MH-04 Upstream, Aug 2022



Photo 3: MH-11 Downstream, Aug 2022



Photo 4: MH-04 Upstream, Aug 2022



Photo 5: MH-12 Downstream, Aug 2022



Photo 6: MH-12 Upstream, Aug 2022



Photo 7: MH-13 Downstream, Aug 2022



Photo 8: MH-13 Upstream, Aug 2022



Photo 9: MH-29 Downstream, Aug 2022



Photo 10: MH-29 Upstream, Aug 2022



APPENDIX G: WATER QUALITY RESULTS

		MH-11	MH-12	MH-15	MH-02	MH-04	MH-29	MH-22	MH-22A	MH-30	MH-13	SDH-S2
		Upper False Canyon Creek	East Fork Tributary E False Canyon Creek	West Fork Tributary E False Canyon Creek	North Dam Seepage	Lower Camp Creek	Access Creek, u/s of Camp Creek	Burnick 1200 Portal	Burnick 1200 Portal - Discharge Bypass	Waste rock below Main Zone	False Canyon Creek (10 km)	Waste Rock Seep Below Main Zone
	Units	10-Aug-22	09-Aug-22	09-Aug-22	09-Aug-22	08-Aug-22	09-Aug-22	10-Aug-22	10-Aug-22	09-Aug-22	09-Aug-22	09-Aug-22
Discharge	L/min	3680	-	7344	20	1180	690	40			13720	
Temperature - Field	С	7.1	5.6	9.2	10.8	4.2	6.4	2.7			9.7	
pH - Field	pН	8.2	8.3	7.96	7.35	8.22	8.26	7.18]		8.26	
pH - Lab	pН	8.23	8.30	8.23	7.98	8.17	8.25	7.93			8.27	
Hardness (Dissolved, CaCO3)	mg/L	196	170	199	584	147	182	135			197	
Conductivity - Field	μS/cm	362.7	310.6	350.5	1067	290.4	333.9	274.2			348.2	
Conductivity - Lab	μS/cm	375	317	360	1070	297	337	273			358	
Total Dissolved Solids	mg/L	201	177	196	781	170	193	158			192	
Total Suspended Solids	mg/L	<1.0	1.0	1.3	5.5	<1.0	<1.0	<1.0			1.7	
Ammonia Nitrogen	mg/L	<0.0050	0.0089	0.0056	<0.0050	<0.0050	<0.0050	<0.0050			<0.0050	
NO2-W	mg/L	<0.0010	<0.0010	<0.0010	<0.0050	<0.0010	<0.0010	<0.0010			<0.0010	
NO3-W	mg/L	0.0854	0.0412	0.0076	<0.0250	0.134	0.0398	0.117]		0.0127	
Sulphate	mg/L	12.0	7.93	2.64	267	14.7	2.79	33.3]		6.23	
Fluoride_Name	mg/L	-	-	-	-	-	-	-			-	
Chloride_Name	mg/L	-	-	-	-	-	-	-			-	
Bromide	mg/L	<0.050	<0.050	<0.050	<0.250	<0.050	<0.050	<0.050			<0.050	
Dissolved Oxygen	mg/L	8.8	9.25	9.14	6.14	10.86	8.64	10.74			8.15	
Dissolved Oxygen	%	82.9	73.1	79.6	56	83.3	80.2	80.5			86.9	
Redox	mV	185.1	206.5	167.5	144	206.2	183.9	73.9			155.2	
Alkalinity (CaCO3)	mg/L	211	162	196	360	142	182	106			190	
Total Silver	mg/L	<0.000010	<0.00010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			<0.00010	
Total Aluminum	mg/L	0.0085	0.0093	0.0101	0.0128	0.0048	0.0066	<0.0030			0.0128	
Total Arsenic	mg/L	0.00062	0.00087	0.00048	0.00074	0.00042	0.00082	0.00383			0.00054	
Total Barium	mg/L	0.0650	0.0738	0.194	0.193	0.0210	0.0518	0.0159			0.155	
Total Beryllium	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	Not Sampled - Site	Not Sampled - Site	<0.000020	Water not
Total Boron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	Inaccessible	Inaccessible	<0.010	Accessible
Total Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050			<0.000050	
Total Calcium	mg/L	62.4	54.6	54.6	198	52.9	63.2	44.1			53.6	
Total Cadmium	mg/L	0.0000691	0.0000410	0.0000155	0.000104	0.000261	0.0000609	0.00316			0.0000250	
Total Cobalt	mg/L	<0.00010	<0.00010	<0.00010	0.00100	<0.00010	<0.00010	<0.00010			<0.00010	
Total Chromium III	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050			<0.00050	
Total Chromium VI	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050			<0.00050	
Total Chromium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050			<0.00050	
Total Copper	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00062	<0.00050			0.00290	
Total Iron	mg/L	0.054	0.012	0.172	0.121	<0.010	0.014	<0.010			0.247	
Total Mercury	mg/L	<0.000050	<0.0000050	<0.0000050	<0.000050	<0.000050	<0.0000050	<0.0000050			<0.0000050	
Total Potassium	mg/L	0.355	0.422	0.300	2.21	0.379	0.254	0.545			0.293	
Total Lithium	mg/L	0.0017	0.0015	0.0012	<0.0010	0.0014	0.0016	0.0052			0.0012	
Total Magnesium	mg/L	7.58	5.66	12.5	17.0	3.00	5.42	5.97			12.5	
Total Manganese	mg/L	0.00869	0.00163	0.0128	2.37	0.00075	0.00395	0.00038			0.0113	
Total Molybdenum	mg/L	0.000851	0.00120	0.00182	0.00141	0.000665	0.000655	0.00876			0.00106	
Total Sodium	mg/L	1.04	0.950	0.975	11.0	0.785	0.893	0.834			0.875	
Total Nickel	mg/L	<0.00050	<0.00050	<0.00050	0.00107	<0.00050	<0.00050	0.00333	1		<0.00050	
Total Lead	mg/L	0.000265	0.000281	<0.000050	0.000346	0.000239	<0.000050	0.000223	1		0.000132	
Total Phosphorus	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	1		<0.050	
Total Antimony	mg/L	0.00015	0.00022	0.00011	<0.00010	0.00012	0.00018	0.00231]		0.00012	
Total Selenium	mg/L	0.000532	0.000579	0.000427	0.000088	0.000734	0.000497	0.0115]		0.000512	
Total Silicon	mg/L	3.79	4.32	3.91	6.14	3.33	4.05	4.51]		3.38	
Total Tin	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010			<0.00010	
Total Strontium	mg/L	0.248	0.205	0.176	0.690	0.186	0.220	0.201	1		0.202	

Water Licence QZ16-051 - 2022 Q3 Quarterly Report Surface Water Quality

		MH-11	MH-12	MH-15	MH-02	MH-04	MH-29	MH-22	MH-22A	MH-30	MH-13	SDH-S2
		Upper False Canyon Creek	East Fork Tributary E False Canyon Creek	West Fork Tributary E False Canyon Creek	North Dam Seepage	Lower Camp Creek	Access Creek, u/s of Camp Creek	Burnick 1200 Portal	Burnick 1200 Portal - Discharge Bypass	Waste rock below Main Zone	False Canyon Creek (10 km)	Waste Rock Seep Below Main Zone
	Units	10-Aug-22	09-Aug-22	09-Aug-22	09-Aug-22	08-Aug-22	09-Aug-22	10-Aug-22	10-Aug-22	09-Aug-22	09-Aug-22	09-Aug-22
Total Sulphur	mg/L	4.38	2.69	0.89	100	5.12	1.22	11.9			2.32	
Total Titanium	mg/L	<0.00030	<0.00030	0.00042	<0.00030	<0.00030	<0.00030	<0.00030			<0.00030	
Total Thallium	mg/L	<0.000010	<0.00010	<0.000010	<0.000010	<0.00010	<0.000010	0.000016			<0.000010	
Total Uranium	mg/L	0.000952	0.000854	0.000688	0.00140	0.000745	0.000557	0.00286			0.00116	
Total Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050			<0.00050	
Total Zinc	mg/L	0.0058	<0.0030	<0.0030	0.0145	0.0043	<0.0030	0.424			<0.0030	
Total Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			<0.00020	
Dissolved Arsenic	mg/L	0.00062	0.00087	0.00046	0.00071	0.00042	0.00081	0.00378			0.00050	
Dissolved Silver	mg/L	<0.000010	<0.00010	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010			<0.000010	
Dissolved Aluminium	mg/L	0.0069	0.0025	0.0029	0.0024	0.0020	0.0022	<0.0010	-		0.0029	-
Dissolved Barium	mg/L	0.0617	0.0792	0.195	0.184	0.0204	0.0540	0.0161	-		0.153	-
Dissolved Beryllium	mg/L	<0.00020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020	-		<0.000020	-
Dissolved Boron	mg/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-		<0.010	
Dissolved Bismuth	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	-		<0.000050	
Dissolved Calcium	mg/L	65.4	58.2	57.7	205	53.7	63.9	44.2	-		56.7	
Dissolved Cadmium	mg/L	0.0000576	0.0000416	0.0000092	0.0000692	0.000261	0.0000646	0.00329	_		0.0000149	
Dissolved Cobalt	mg/L	<0.00010	<0.00010	<0.00010	0.00099	<0.00010	<0.00010	<0.00010			<0.000113	
Dissolved Chromium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-		<0.00050	
Dissolved Copper	mg/L	0.00034	0.00033	0.00024	0.00038	0.00048	0.00037	0.00037	-		0.00048	
Dissolved Iron	mg/L	0.034	<0.010	0.088	0.070	<0.010	<0.010	<0.010	-		0.108	
Dissolved Mercury	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	Not Sampled - Site	Not Sampled - Site	<0.0000050	Water not
Dissolved Potassium	mg/L	0.366	0.446	0.302	2.27	0.399	0.270	0.557	Inaccessible	Inaccessible	0.325	Accessible
Dissolved Lithium		0.0018	0.0015	0.0012	<0.0010	0.0015	0.0015	0.0052	-		0.0012	
Dissolved Magnesium	mg/L	7.84	6.01	13.3	17.6	3.09	5.52	6.08	-		13.4	_
Dissolved Manganese	mg/L mg/L	0.00745	0.00078	0.00549	2.51	0.00046	0.00320	0.0036	-		0.00727	
	mg/L	0.000930	0.00124	0.00184	0.00147	0.000715	0.000633	0.00886	-		0.00106	_
Dissolved Molybdenum Dissolved Sodium		1.05	1.01	0.979	11.1	0.814	0.888	0.813	_		0.934	-
	mg/L	<0.00050	<0.00050	<0.00050	0.00108	<0.00050	<0.00050	0.00326	-		<0.00050	-
Dissolved Nickel Dissolved Lead	mg/L	0.000114	<0.00050	<0.00050	0.000080	0.00030	<0.00050	0.00328			<0.00050	-
	mg/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-		<0.050	
Dissolved Phosphorus Dissolved Antimony	mg/L mg/L	0.00016	0.00021	0.00010	0.00010	0.00014	0.00017	0.00234	-		0.00011	-
		4.28	2.99	0.92	92.7	5.13	1.05	11.8	_		2.44	-
Dissolved Sulphur	mg/L	0.000680	0.000668	0.000457	0.000118	0.000874	0.000456	0.0120	_		0.000606	-
Dissolved Selenium	mg/L					3.02			-		3.54	-
Dissolved Silicon	mg/L	3.64	4.35 <0.00010	3.88 <0.00010	5.71 <0.00010	<0.00010	4.16 <0.00010	4.63 <0.00010	-		<0.00010	-
Dissolved Tin	mg/L	<0.00010		0.189	0.729	0.207			-		0.211	-
Dissolved Strontium	mg/L	0.276	0.227				0.218	0.217	-		<0.00030	-
Dissolved Titanium	mg/L	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030	-			
Dissolved Thallium	mg/L	<0.000010	<0.000010	<0.00010	<0.00010	<0.00010	<0.00010	0.000018	-		<0.00010	-
Dissolved Uranium	mg/L	0.000935	0.000910	0.000695	0.00143	0.000765	0.000589	0.00294	-		0.00127	_
Dissolved Vanadium	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	-		<0.00050	
Dissolved Zinc	mg/L	0.0049	0.0015	<0.0010	0.0134	0.0045	<0.0010	0.454	_		<0.0010	
Dissolved Zirconium	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020			<0.00020	



APPENDIX H:

CORDILLERA CONSULTING RAW BENTHIC DATA RESULTS



Ensero Solutions

Taxonomist: Scott Finlayson

scottfinlayson@cordilleraconsulting.ca

250-494-7553

Site:	2022	2022	2022	2022	2022
Sample:	MH04	MH11	MH12	MH13	MH29
Sample Collection Date:	08-Aug-22	10-Aug-22	09-Aug-22	09-Aug-22	10-Aug-22
CC#:	CC230252	CC230253	CC230254	CC230255	CC230256
Phylum: Arthropoda	0	0	0	0	0
Order: Collembola	0	0	20	0	11
,					
Subphylum: Hexapoda	0	0	0	0	0
Class: Insecta	0	0	0	0	0
Order: Ephemeroptera	0	0	0	0	0
Family: Ameletidae	0	0	0	0	0
<u>Ameletus</u>	580	135	140	32	114
Family: Baetidae	80	19	20	36	0
<u>Baetis</u>	2780	27	200	82	14
<u>Baetis rhodani group</u>	140	15	260	0	0
<u>Baetis bicaudatus</u>	80	27	1560	0	4
Family: Ephemerellidae	0	0	0	18	0
<u>Drunella coloradensis</u>	0	0	0	5	0
<u>Drunella doddsii</u>	0	0	0	59	0
Family: Heptageniidae	40	38	80	77	7
<u>Cinygmula</u>	20	65	320	59	4
<u>Epeorus</u>	0	31	20	0	7
Order: Plecoptera	40	19	40	5	14
Family: Capniidae	20	4	20	32	4
Family: Chloroperlidae	40	31	160	0	4
<u>Haploperla</u>	40	0	20	0	0
<u>Sweltsa</u>	40	23	120	36	39
Family: Leuctridae	0	0	0	5	32
Family: Nemouridae	0	0 0	0	23 5	4
<u>Visoka cataractae</u> Zapada	100 0	15	20 80	5 14	18 50
Zapada oregonensis group	0	85	0	14	7
Zapada cinctipes	940	8	20	14	0
Zapada columbiana	220	546	1080	155	518
Family: Perlodidae	120	4	20	18	0
Megarcys	20	0	0	0	4
<u>Skwala</u>	0	0	20	0	0
Family: Taeniopterygidae	0	0	0	0	0
<u>Taenionema</u>	0	0	20	0	0
Order: Trichoptera	0	0	0	0	0
Family: Apataniidae	0	0	0	0	0
<u>Allomyia</u>	80	0	0	0	0
Family: Hydropsychidae	0	0	0	5	0
<u>Parapsyche</u>	0	0	0	14	0
Parapsyche elsis	0	0	0	14	0
Family: Lepidostomatidae	0	0	0	0	0
<u>Lepidostoma</u>	0	0	0	0	21
Family: Limnephilidae	160	0	0	0	0
<u>Dicosmoecus</u>	0	0	0	5	0
Family: Rhyacophilidae	0	0	0	0	0

Site: Sample:	2022 MH04	2022 MH11	2022 MH12	2022 MH13	2022 MH29
Sample Collection Date: CC#:	08-Aug-22 CC230252	10-Aug-22 CC230253	09-Aug-22 CC230254	09-Aug-22 CC230255	10-Aug-22 CC230256
Rhyacophila	0	96	60	100	114
Rhyacophila hyalinata group	0	8	40	0	0
<u>Rhyacophila vofixa group</u>	0	19	220	109	7
Order: Diptera	0	0	0	0	0
Family: Ceratopogonidae	0	0	0	0	0
<u>Ceratopogon</u>	0	0	0	0	7
Family: Chironomidae	80	0	200	68	11
Subfamily: Chironominae	0	0	0	0	0
Tribe: Tanytarsini	20	0	0	0	0
<u>Micropsectra</u> <u>Rheotanytarsus</u>	20 0	0 0	20 0	0 5	0
Stempellinella	0	0	0	295	4
<u>Tanytarsus</u>	0	0	0	5	0
Subfamily: Diamesinae	0	0	0	0	0
Tribe: Diamesini	0	0	0	0	0
<u>Diamesa</u>	0	0	40	0	0
<u>Pagastia</u> Pseudodiamesa	0 20	4 0	160 0	0 0	0
Subfamily: Orthocladiinae	0	0	40	0	4
Brillia	0	0	20	0	18
<u>Corynoneura</u>	60	0	0	0	0
<u>Eukiefferiella</u>	200	8	60	0	0
<u>Heleniella</u>	0	0	0	0	54
<u>Hydrobaenus</u>	60	0	20	0	0
<u>Limnophyes</u> <u>Orthocladius complex</u>	20 180	0 0	40 80	0 0	4 0
<u>Parametriocnemus</u>	0	0	20	18	0
<u>Parorthocladius</u>	160	0	240	0	0
<u>Platysmittia</u>	0	0	20	0	0
<u>Rheocricotopus</u>	60	0	0	5	0
<u>Thienemanniella</u>	0	4	0	0	0
<u>Tvetenia</u> Subfamily: Tanypodinae	280 0	12 0	280 0	5 0	32 0
Tribe: Pentaneurini	0	0	0	0	0
<u>Telmatopelopia</u>	0	0	0	0	7
Tribe: Procladiini	0	0	0	0	0
<u>Procladius</u>	0	0	0	0	4
Family: Empididae Neoplasta	0 0	0 0	0 20	0 36	0
<u>Oreogeton</u>	240	0	80	5	68
Family: Psychodidae	0	0	0	0	0
<u>Pericoma/Telmatoscopus</u>	0	0	380	0	4
Family: Simuliidae	0	12	100	0	0
Prosimulium	80 0	12 8	0	0 0	0 7
<u>Prosimulium/Helodon</u> Simulium	0	0	220 0	0	25
Family: Tipulidae	0	0	20	0	0
TOTAL	1480	60	2060	442	253
Order: Hemiptera	0 0	0	0 0	0 0	4 0
Order: Lepidoptera Order: Thysanoptera	0	4 4	0	0	0
, State in sanispecia		7		V	
Subphylum: Chelicerata	0	0	0	0	0
Class: Arachnida	0	0	0	0	0
Order: Trombidiformes	40	0	0	5	0
Family: Hydryphantidae	0 360	0	0 0	0	0
<u>Albertathyas</u> Wandesia	360 40	0 12	0	0 0	0 11
Family: Hygrobatidae	0	0	0	0	0
<u>Hygrobates</u>	0	0	0	14	4

Site:	2022	2022	2022	2022	2022
Sample:	MH04	MH11	MH12	MH13	MH29
Sample Collection Date:	08-Aug-22	10-Aug-22	09-Aug-22	09-Aug-22	10-Aug-22
CC#:	CC230252	CC230253	CC230254	CC230255	CC230256
Family: Lebertiidae	0	0	0	0	0
<u>Lebertia</u>	80	8	80	73	11
Family: Sperchontidae	0	0	0	0	0
<u>Sperchon</u>	60	0	0	64	4
Order: Sarcoptiformes	0	0	0	0	0
Order: Oribatida	0	4	0	0	7
Family: Hydrozetidae	0	0	0	5	0
Phylum: Annelida	0	0	0	0	0
Subphylum: Clitellata	0	0	0	0	0
Class: Oligochaeta	0	0	0	0	0
Order: Lumbriculida	0	0	0	0	0
Family: Lumbriculidae	0	0	0	0	0
<u>Lumbriculus</u>	0	8	0	0	0
Order: Tubificida	0	0	0	0	0
Family: Enchytraeidae	0	0	0	0	0
<u>Enchytraeus</u>	0	0	40	5	14
Totals:	9080	1375	8800	1986	1558
Taxa present but not included:					
Phylum: Arthropoda	0	0	0	0	0
Subphylum: Crustacea	0	0	0	0	0
Class: Ostracoda	20	4	0	5	4
Class: Maxillipoda	0	0	0	0	0
Class: Copepoda	0	4	0	0	0
Phylum: Nemata	0	0	0	5	4
Phylum: Platyhelminthes	0	0	0	0	0
Class: Turbellaria	20	4	20	5	4
Totals:	40	12	20	15	12

ND designation of a taxa represents a non-distinct taxa. This adjusts where the associated taxa fall in the metrics for this sample because the individuals are likely represented by Genus or Species level identifications.



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250-494-7553

Site:	2022	2022	2022	2022	2022
Sample:	MH04	MH11	MH12	MH13	MH29
Sample Collection Date:	08-Aug-22	10-Aug-22	09-Aug-22	09-Aug-22	10-Aug-22
CC#:	CC230252	CC230253	CC230254	CC230255	CC230256
Phylum: Arthropoda	0	0	0	0	0
Order: Collembola	0	0	20	0	11
·					
Subphylum: Hexapoda	0	0	0	0	0
Class: Insecta	0	0	0	0	0
Order: Ephemeroptera	0	0	0	0	0
Family: Ameletidae	580	135	140	32	114
Family: Baetidae	3080	88	2040	118	18
Family: Ephemerellidae	0	0	0	82	0
Family: Heptageniidae	60	134	420	136	18
Order: Plecoptera	40	19	40	5	14
Family: Capniidae	20	4	20	32	4
Family: Chloroperlidae	120	54	300	36	43
Family: Leuctridae	0	0	0	5	32
Family: Nemouridae	1260	654	1200	225	597
Family: Perlodidae	140	4	40	18	4
Family: Taeniopterygidae	0	0	20	0	0
Order: Trichoptera	0	0	0	0	0
Family: Apataniidae	80	0	0	0	0
Family: Hydropsychidae	0	0	0	33	0
Family: Lepidostomatidae	0	0	0	0	21
Family: Limnephilidae	160	0	0	5	0
Family: Rhyacophilidae	0	123	320	209	121
Order: Diptera	0	0	0	0	0
Family: Ceratopogonidae	0	0	0	0	7
Family: Chironomidae	1160	28	1240	401	138
Family: Empididae	240	0	100	41	72
Family: Psychodidae	0	0	380	0	4
Family: Simuliidae	80	32	320	0	32
Family: Tipulidae	0	0	20	0	0
Order: Hemiptera	0	0	0	0	4
Order: Lepidoptera	0	4	0	0	0
Order: Thysanoptera	0	4	0	0	0
Corbon books on the Corporate	0	0	0		0
Subphylum: Chelicerata	0	0	0	0	0
Class: Arachnida	0	0	0	0	0
Order: Trombidiformes	40	0	0	5	0
Family: Hydryphantidae	400	12	0	0	11
Family: Hygrobatidae	0	0	0	14	4
Family: Lebertiidae	80	8	80	73	11
Family: Sperchontidae	60	0	0	64	4
L Order: Sarcentiformes	0	0	0	0	0
Order: Sarcoptiformes Order: Oribatida	0	0 4	0	0	0 7
Order: Oribatida	0	4	U	0	/

Family: Hydrozetidae	0	0	0	5	0
Phylum: Annelida	0	0	0	0	0
-		•			
Subphylum: Clitellata	0	0	0	0	0
Class: Oligochaeta	0	0	0	0	0
Order: Lumbriculida	0	0	0	0	0
Family: Lumbriculidae	0	8	0	0	0
Order: Tubificida	0	0	0	0	0
Family: Enchytraeidae	0	0	40	5	14
Totals:	7600	1315	6740	1544	1305
Taxa present but not included:					
Taxa present but not included:					
Taxa present but not included: Phylum: Arthropoda	0	0	0	0	0
•	0 0	0 0	0 0	0 0	0 0
Phylum: Arthropoda		•	0 0 0	0 0 5	· ·
Phylum: Arthropoda Subphylum: Crustacea	0	0	0 0 0 0	0 0 5 0	0
Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda	0 20	0	0 0 0 0	0 0 5 0	0 4
Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda	0 20 0	0 4 0	0 0 0	0 5 0	0 4 0
Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda	0 20 0	0 4 0	0 0 0	0 5 0	0 4 0
Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda Class: Copepoda	0 20 0	0 4 0 4	0 0 0 0	0 5 0 0	0 4 0
Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda Class: Copepoda Phylum: Nemata	0 20 0 0	0 4 0 4	0 0 0 0	0 5 0 0	0 4 0 0

ND designation of a taxa represents a non-distinct taxa. This adjusts where the associated taxa fall in the metrics for this sample because the individuals are likely represented by Genus or Species level identifications.



Ensero Solutions

Taxonomist: Scott Finlayson

 $\underline{scottfinlayson@cordilleraconsulting.ca}$

250-494-7553

% Gatherer

Site	2022	2022	2022	2022	2022
Sample		MH11	MH12	MH13	MH29
Sample Collection Date:		10-Aug-22	09-Aug-22	09-Aug-22	10-Aug-22
	CC230252	CC230253	CC230254	CC230255	CC230256
Richness Measures	CCZSUZSZ	CC250255	CC23023 1	CC230233	CC250250
Species Richness	34	28	38	35	37
EPT Richness	16	16			
Ephemeroptera Richness	6	6	6		
	8	7	9		
Plecoptera Richness		3			
Trichoptera Richness	2		3		
Chironomidae Richness	12	4	12		
Oligochaeta Richness		1	1	1	1
Non-Chiro. Non-Olig. Richness					
Abundance Measures					
Corrected Abundance	7600	1315	6740	1544	1305
EPT Abundance	5540	1215	4540	936	986
Dominance Measures					
1st Dominant Taxon	Baetis	Zapada columbiana	Baetis bicaudatus	Stempellinella	Zapada columbiana
1st Dominant Abundance	2854	560	1575	355	532
2nd Dominant Taxon	Zapada cinctipes	Ameletus	Zapada columbiana	Zapada columbiana	Ameletus
2nd Dominant Abundance	964	135	1186	175	114
3rd Dominant Taxon	Ameletus	Zapada oregonensis gro	Cinygmula	Rhyacophila vofixa grou	Rhyacophila
3rd Dominant Abundance	580	103	395	109	114
% 1 Dominant Taxon	37.55%	42.62%	23.37%	23.01%	40.78%
% 2 Dominant Taxon	12.69%	10.27%	17.60%	11.36%	8.74%
% 3 Dominant Taxon	7.63%	7.81%	5.86%	7.06%	8.74%
Percent Dominance	57.88%	60.70%	46.84%	41.43%	58.26%
Community Composition					
% Ephemeroptera	48.95%	27.15%	38.58%		
% Plecoptera	20.79%	55.89%	24.04%	20.79%	53.18%
% Trichoptera	3.16%	9.35%	4.75%	16.00%	10.88%
% EPT	72.89%	92.40%	67.36%	60.62%	75.56%
% Diptera	19.47%	4.56%	30.56%	28.63%	19.39%
% Oligochaeta		0.61%	0.59%	0.32%	1.07%
% Baetidae	40.53%	6.69%	30.27%	7.64%	1.38%
% Chironomidae	15.26%	2.13%	18.40%	25.97%	10.57%
% Odonata					
Functional Group Composition					
% Predators	14.30%	15.71%	12.59%	32.40%	22.17%
% Shredder-Herbivores	17.28%	51.67%	19.23%	17.24%	52.67%
% Collector-Gatherers	61.05%	19.09%	55.78%	16.73%	20.11%
% Scrapers	1.84%	10.19%			
% Macrophyte-Herbivore					
% Collector-Filterer	1.05%	2.43%	4.75%	24.11%	2.79%
% Omnivore	3.42%	0.61%			
% Parasite	2.12/0	2.32/0	2/0	2.7.2/0	
% Piercer-Herbivore					
0/ Catharas					

% Unclassified	1.05%	0.30%			0.89%
Functional Group Richness					
Predators Richness	9	9	10	14	14
Shredder-Herbivores Richness	4	5	6	6	7
Collector-Gatherers Richness	14	8	17	7	9
Scrapers Richness	3	2	2	2	2
MH Richness					
CF Richness	1	2	1	4	3
OM Richness	2	1	2	2	
PA Richness					
Piercer-Herbivore Richness					
Gatherer Richness					
Unclassified	1	1			2

EPA Functional Group Composition

% Predators

% Parasite

% Collector-Gatherers

% Collector-Filterer

% Macrophyte-Herbivore

% Xylophage

% Scraper

% Shredder

% Piercer

% Omnivore

% Unclassified

EPA Functional Group Richness

Predators

Parasite

Collector-Gatherers

Collector-Filterer

Macrophyte-Herbivore

Xylophage

Scraper

Shredder

Piercer

Omnivore

Unclassified

SAFIT Functional Group Composition

% Predators

% Parasite

% Collector-Gatherers

% Collector-Filterer

% Macrophyte-Herbivore

% Periphyton-Herbivore

% Scraper

% Shredder

% Omnivore

% Unclassified

SAFIT Functional Group Richness

Predators

Parasite

Collector-Gatherers

Collector-Filterer

Macrophyte-Herbivore

Periphyton-Herbivore

Scraper

Shredder

Omnivore

Unclassified

EPA Habitat Composition

% Clinger

% Climber

% Sprawler

% Burrower

% Swimmer

% Diver

% Skater

EPA Habitat Richness

Clinger

Climber

Sprawler

Burrower

Swimmer

Diver

Skater

Voltinism	Composit	ior

Voltinism Composition					
% Univoltine	20.32%	10.89%	2.71%	7.99%	10.34%
% Semivoltine	5.13%	44.42%	21.84%	14.09%	45.25%
% Multivoltine	38.61%	2.62%	3.00%	5.63%	2.99%
Voltinism Richness					
Univoltine	2	2	3	3	2
Semivoltine	3	2	3	3	3
Multivoltine	2	1	1	2	2
Diversity/Evenness Measures					
Shannon-Weiner H' (log 10)	1.09	0.97	1.20	1.24	1.06
Shannon-Weiner H' (log 2)	3.61	3.22	4.00	4.12	3.52
Shannon-Weiner H' (log e)	2.50	2.23	2.77	2.86	2.44
Simpson's Index (D)	0.17	0.21	0.11	0.09	0.19
Simpson's Index of Diversity (1 - D)	0.83	0.79	0.89	0.91	0.81
Simpson's Reciprocal Index (1/D)	5.79	4.71	9.40	10.95	5.21
Biotic Indices					
Hilsenhoff Biotic Index	3.89	2.00	3.72	3.18	2.52



Ensero Solutions
Taxonomist: Scott Finlayson
scottfinlayson@cordilleraconsulting.ca
250-494-7553

Site:	2022		2022		2022		2022		2022	
Sample:	MH04		MH11		MH12		MH13		MH29	
Sample Collection Date:	08-Aug-22		10-Aug-22		09-Aug-22		09-Aug-22		10-Aug-22	!
CC#:	CC230252		CC230253		CC230254		CC230255		CC230256	
Sieve Size:	400		400		400		400		400	
Subsample %:	5		26		5		22		28	
Phylum: Arthropoda	0		0		0		0		0	
Order: Collembola	0		0		1		0		3	
Subphylum: Hexapoda	0		0		0		0		0	
Class: Insecta	0		0		0		0		0	
Order: Ephemeroptera	0		0		0		0		0	
Family: Ameletidae	0		0		0		0		0	
Ameletus	29	ND	35 5	ND	7	ND	7		32	
Family: Baetidae	4 139	ND	5 7	ND	1 10	ND	8 18		0 4	
<u>Baetis</u> Baetis rhodani group	7		4		13		0		0	
Baetis hicaudatus	4		7		78		0		1	
Family: Ephemerellidae	0		0		0		4	ND	0	
Drunella coloradensis	0		0		0		1	ND	0	
Drunella doddsii	0		0		0		13		0	
Family: Heptageniidae	2		10	ND	4	ND	17		2	ND
<u>Cinyamula</u>	1		17		16		13		1	
<u>Epeorus</u>	0		8		1		0		2	
			-				-			
Order: Plecoptera	2	ND	5	ND	2	ND	1	ND	4	ND
Family: Capniidae	1		1		1		7		1	
Family: Chloroperlidae	2	ND	8		8	ND	0		1	
<u>Haploperla</u>	2		0		1		0		0	
<u>Sweltsa</u>	2		6		6		8		11	
Family: Leuctridae	0		0		0		1		9	
Family: Nemouridae	0		0		0		5	ND	1	ND
<u>Visoka cataractae</u>	5		0		1		1		5	
<u>Zapada</u>	0		4	ND	4	ND	3	ND	14	ND
Zapada oregonensis group	0		22		0		3		2	
Zapada cinctipes	47		2		1		3		0	
Zapada columbiana	11		142		54		34		145	
Family: Perlodidae	6		1		1		4		0	
Megarcys	1 0		0 0		0		0		1	
Skwala	0		0		1 0		0 0		0	
Family: Taeniopterygidae <u>Taenionema</u>	0		0		1		0		0	
raemonema	O		U		-		Ū		Ü	
Order: Trichoptera	0		0		0		0		0	
Family: Apataniidae	0		0		0		0		0	
<u>Allomyia</u>	4		0		0		0		0	
Family: Hydropsychidae	0		0		0		1		0	
<u>Parapsyche</u>	0		0		0		3		0	
Parapsyche elsis	0		0		0		3		0	
Family: Lepidostomatidae	0		0		0		0		0	
<u>Lepidostoma</u>	0		0		0		0		6	
Family: Limnephilidae	8		0		0		0		0	
<u>Dicosmoecus</u>	0		0		0		1		0	
Family: Rhyacophilidae	0		0		0		0		0	
<u>Rhyacophila</u>	0		25		3		22		32	
Rhyacophila hyalinata group	0		2		2		0		0	
Rhyacophila vofixa group	0		5		11		24		2	
L Oudam Dintara	6				•		•		•	
Order: Diptera	0		0		0		0		0	
Family: Ceratopogonidae	0		0		0		0		0	
Ceratopogon	0		0		0	ND	0	ND	2	214
Family: Chironomidae	4		0 0		10 0	ND	15 0	ND	3	ND
Subfamily: Chironominae Tribe: Tanytarsini	1		0		0		0		0	
Tribe: Tanytarsini <u>Micropsectra</u>	1		0		1		0		0	
Rheotanytarsus	0		0		0		1		0	
Stempellinella	0		0		0		65		1	
	,		-						-	

<u>Tanytarsus</u>								
	0	0		0		1	0	
Subfamily: Diamesinae	0	0		0		0	0	
Tribe: Diamesini	0	0		0		0	0	
-								
<u>Diamesa</u>	0	0		2		0	0	
<u>Pagastia</u>	0	1		8		0	0	
<u>Pseudodiamesa</u>	1	0		0		0	0	
Subfamily: Orthocladiinae	0	0		2	ND	0	1	ND
•					ND			ND
<u>Brillia</u>	0	0		1		0	5	
Corynoneura	3	0		0		0	0	
<u>Eukiefferiella</u>	10	2		3		0	0	
<u>Heleniella</u>	0	0		0		0	15	
<u>Hydrobaenus</u>	3	0		1		0	0	
<u>Limnophyes</u>	1	0		2		0	1	
Orthocladius complex	9	0		4		0	0	
<u>Parametriocnemus</u>	0	0		1		4	0	
<u>Parorthocladius</u>	8	0		12		0	0	
Platysmittia	0	0		1		0	0	
· · ·								
<u>Rheocricotopus</u>	3	0		0		1	0	
<u>Thienemanniella</u>	0	1		0		0	0	
<u>Tvetenia</u>	14	3		14		1	9	
Subfamily: Tanypodinae	0	0		0		0	0	
Tribe: Pentaneurini	0	0		0		0	0	
<u>Telmatopelopia</u>	0	0		0		0	2	
Tribe: Procladiini	0	0		0		0	0	
Procladius	0	0		0		0	1	
Family: Empididae	0	0		0		0	0	
<u>Neoplasta</u>	0	0		1		8	1	
<u>Oreogeton</u>	12	0		4		1	19	
Family: Psychodidae	0	0		0		0	0	
Pericoma/Telmatoscopus	0	0		19		0	1	
Family: Simuliidae	0	3	ND	5	ND	0	0	
Prosimulium	4	3		0		0	0	
Prosimulium/Helodon	0	2		11		0	2	
<u>Simulium</u>	0	0		0		0	7	
Family: Tipulidae	0	0		1		0	0	
Order: Hemiptera	0	0		0		0	1	
Order: Lepidoptera	0	1		0		0	0	
Order: Thysanoptera	0	1		0		0	0	
Subphylum: Chelicerata	0	0		0		0	0	
Class: Arachnida	0	0		0		0	0	
Order: Trombidiformes	2	ND 0		0		1	0	
Family: Hydryphantidae	0	0		0		0	0	
<u>Albertathyas</u>	18	0		0		0	0	
		U						
<u>Wandesia</u>								
	2	3		0		0	3	
Family: Hygrobatidae	2 0	3 0						
Family: Hygrobatidae	0	0		0 0		0 0	3	
Family: Hygrobatidae <u>Hygrobates</u>	0 0	0 0		0 0 0		0 0 3	3 0 1	
Family: Hygrobatidae <u>Hygrobates</u> Family: Lebertiidae	0 0 0	0 0 0		0 0 0		0 0 3 0	3 0 1 0	
Family: Hygrobatidae <u>Hygrobates</u>	0 0	0 0		0 0 0		0 0 3	3 0 1	
Family: Hygrobatidae <u>Hygrobates</u> Family: Lebertiidae	0 0 0	0 0 0		0 0 0		0 0 3 0	3 0 1 0	
Family: Hygrobatidae <u>Hygrobates</u> Family: Lebertiidae <u>Lebertia</u> Family: Sperchontidae	0 0 0 4 0	0 0 0 2 0		0 0 0 0 4 0		0 0 3 0 16 0	3 0 1 0 3 0	
Family: Hygrobatidae <u>Hygrobates</u> Family: Lebertiidae <u>Lebertia</u>	0 0 0 4	0 0 0 2		0 0 0 0 4		0 0 3 0 16	3 0 1 0 3	
Family: Hygrobatidae <u>Hygrobates</u> Family: Lebertiidae <u>Lebertio</u> Family: Sperchontidae <u>Sperchon</u>	0 0 0 4 0 3	0 0 0 2 0		0 0 0 0 4 0		0 0 3 0 16 0	3 0 1 0 3 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes	0 0 0 4 0 3	0 0 0 2 0 0		0 0 0 0 4 0 0		0 0 3 0 16 0 14	3 0 1 0 3 0 1	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida	0 0 0 4 0 3	0 0 0 2 0 0		0 0 0 0 4 0 0		0 0 3 0 16 0	3 0 1 0 3 0 1	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes	0 0 0 4 0 3	0 0 0 2 0 0		0 0 0 0 4 0 0		0 0 3 0 16 0 14	3 0 1 0 3 0 1	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida	0 0 0 4 0 3	0 0 0 2 0 0		0 0 0 0 4 0 0		0 0 3 0 16 0 14	3 0 1 0 3 0 1	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertii Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae	0 0 0 4 0 3	0 0 0 2 0 0		0 0 0 0 4 0 0		0 0 3 0 16 0 14 0 0	3 0 1 0 3 0 1	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida	0 0 0 4 0 3 0 0	0 0 0 2 0 0 0		0 0 0 0 4 0 0 0		0 0 3 0 16 0 14 0 0	3 0 1 0 3 0 1	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata	0 0 0 4 0 3 0 0 0	0 0 0 2 0 0 0		0 0 0 0 4 0 0 0		0 0 3 0 16 0 14 0 0 1	3 0 1 0 3 0 1 0 2 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida	0 0 0 4 0 3 0 0	0 0 0 2 0 0 0		0 0 0 0 4 0 0 0		0 0 3 0 16 0 14 0 0	3 0 1 0 3 0 1	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta	0 0 0 4 0 3 0 0 0	0 0 0 2 0 0 0 1 0		0 0 0 0 4 0 0 0		0 0 3 0 16 0 14 0 0 1	3 0 1 0 3 0 1 0 2 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida	0 0 0 4 0 3 0 0 0	0 0 0 2 0 0 0 1 0		0 0 0 4 0 0 0 0		0 0 3 0 16 0 14 0 0 1	3 0 1 0 3 0 1 0 2 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae	0 0 0 4 0 3 0 0 0 0	0 0 0 2 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1	3 0 1 0 3 0 1 0 2 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida	0 0 0 4 0 3 0 0 0	0 0 0 2 0 0 0 1 0		0 0 0 4 0 0 0 0		0 0 3 0 16 0 14 0 0 1	3 0 1 0 3 0 1 0 2 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus	0 0 0 4 0 3 0 0 0 0	0 0 0 2 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1	3 0 1 0 3 0 1 0 2 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus	0 0 0 4 0 3 0 0 0 0	0 0 0 2 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1	3 0 1 0 3 0 1 0 2 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertio Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida	0 0 0 4 0 3 0 0 0 0 0 0	0 0 0 2 0 0 0 0 1 0 0 0 0 0 0 0 0		0 0 0 4 0 0 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida Family: Enchytraeidae	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0	0 0 0 2 0 0 0 1 0 0 0 0 0 0 0		0 0 0 4 0 0 0 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida Family: Enchytraeidae Enchytraeus	0 0 0 4 0 3 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 0 0 0 0 0 0 2		0 0 0 4 0 0 0 0 0 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida Family: Enchytraeidae	0 0 0 4 0 3 0 0 0 0 0 0 0	0 0 0 2 0 0 0 1 0 0 0 0 0 0 0		0 0 0 4 0 0 0 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida Family: Enchytraeidae Enchytraeus Totals:	0 0 0 4 0 3 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 0 0 0 0 0 0 2		0 0 0 4 0 0 0 0 0 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida Family: Enchytraeidae Enchytraeus	0 0 0 4 0 3 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 0 0 0 0 0 0 2		0 0 0 4 0 0 0 0 0 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida Family: Enchytraeidae Enchytraeus Totals: Taxa present but not included:	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 2 0 0 0 0		0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 3 0 16 0 14 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida Family: Enchytraeidae Enchytraeus	0 0 0 4 0 3 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 0 0 0 0 0 0 2		0 0 0 4 0 0 0 0 0 0 0 0 0 0		0 0 3 0 16 0 14 0 0 0 1 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates Family: Lebertiidae Lebertia Family: Sperchontidae Sperchon Order: Sarcoptiformes Order: Oribatida Family: Hydrozetidae Phylum: Annelida Subphylum: Clitellata Class: Oligochaeta Order: Lumbriculida Family: Lumbriculidae Lumbriculus Order: Tubificida Family: Enchytraeidae Enchytraeus Totals: Taxa present but not included: Phylum: Arthropoda	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 3 0 16 0 14 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 13 0 16 0 14 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 16 0 14 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 3 0 16 0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 16 0 14 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 3 0 16 0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 16 0 14 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 4 0 3 3 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 2 0 0 0 0 1 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 16 0 14 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 16 0 14 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 3 0 16 0 0 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Family: Hygrobatidae Hygrobates	0 0 0 4 0 3 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 0 0 4 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		0 0 16 0 14 0 0 0 1 1 0 0 0 0 0 0 0 0 0 0 0 0	3 0 1 0 3 0 1 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	

ND designation of a taxa represents a non-distinct taxa.	This adjusts where the associated taxa	fall in the metrics for this sample bec	ause the individuals are likely repre	sented by Genus or Specie



Ensero Solutions Taxonomist: Scott Finlayson

scottfinlayson@cordilleraconsulting.ca

250-494-7553

Site:	2022	2022	2022	2022	2022
Sample:	MH04	MH11	MH12	MH13	MH29
Sample Collection Date:	08-Aug-22	10-Aug-22	09-Aug-22	09-Aug-22	10-Aug-22
CC#:	CC230252	CC230253	CC230254	CC230255	CC230256
Sieve Size:	400	400	400	400	400
Subsample %:	5	26	5	22	28
Phylum: Arthropoda	0	0	0	0	0
Order: Collembola	0	0	1	0	3
Subphylum: Hexapoda	0	0	0	0	0
Class: Insecta	0	0	0	0	0
Order: Ephemeroptera	0	0	0	0	0
Family: Ameletidae	0	0	0	0	0
<u>Ameletus</u>	29	35	7	7	32
Family: Baetidae	4	5	1	8	0
<u>Baetis</u>	139	7	10	18	4
<u>Baetis rhodani group</u>	7	4	13	0	0
<u>Baetis bicaudatus</u>	4	7	78	0	1
Family: Ephemerellidae	0	0	0	4	0
<u>Drunella coloradensis</u>	0	0	0	1	0
<u>Drunella doddsii</u>	0	0	0	13	0
Family: Heptageniidae	2	10	4	17	2
<u>Cinygmula</u>	1	17	16	13	1
<u>Epeorus</u>	0	8	1	0	2
Order: Plecoptera	2	5	2	1	4
Family: Capniidae	1	1	1	7	1
Family: Chloroperlidae	2	8	8	0	1
<u>Haploperla</u>	2	0	1	0	0
<u>Sweltsa</u>	2	6	6	8	11
Family: Leuctridae	0	0	0	1	9
Family: Nemouridae	0	0	0	5	1
<u>Visoka cataractae</u>	5	0	1	1	5
<u>Zapada</u>	0	4	4	3	14
Zapada oregonensis group	0	22	0	3	2
<u>Zapada cinctipes</u>	47	2	1	3	0
<u>Zapada columbiana</u>	11	142	54	34	145
Family: Perlodidae	6	1	1	4	0
<u>Megarcys</u>	1	0	0	0	1
<u>Skwala</u>	0	0	1	0	0
Family: Taeniopterygidae	0	0	0	0	0
<u>Taenionema</u>	0	0	1	0	0
L Ouden Trick outen	0	0	0	0	0
Order: Trichoptera	0	0	0	0	0
Family: Apataniidae	0	0	0	0	0
Allomyia	4	0	0	0	0
Family: Hydropsychidae	0	0	0	1	0
<u>Parapsyche</u> <u>Parapsyche elsis</u>	0	0	0 0	3 3	0 0
Family: Lepidostomatidae	0	0 0	0	0	0
Lepidostoma Lepidostoma	0	0	0	0	6
Family: Limnephilidae	8	0	0	0	0
i i anniy. Linniepinnuae	0	U	0	U	U

<u>Dicosmoecus</u>	0	0	0	1	0
Family: Rhyacophilidae	0	0	0	0	0
<u>Rhyacophila</u>	0	25	3	22	32
Rhyacophila hyalinata group	0	2	2	0	0
Rhyacophila vofixa group	0	5	11	24	2
Order: Diptera	0	0	0	0	0
Family: Ceratopogonidae	0	0	0	0	0
<u>Ceratopogon</u>	0	0	0	0	2
Family: Chironomidae	4	0	10	15	3
Subfamily: Chironominae	0	0	0	0	0
Tribe: Tanytarsini	1	0	0	0	0
<u>Micropsectra</u>	1	0	1	0	0
Rheotanytarsus	0	0	0	1	0
<u>Stempellinella</u>	0	0	0	65	1
<u>Tanytarsus</u>	0	0	0	1	0
Subfamily: Diamesinae	0	0	0	0	0
Tribe: Diamesini		0			
-	0		0	0	0
<u>Diamesa</u>	0	0	2	0	0
<u>Paqastia</u>	0	1	8	0	0
<u>Pseudodiamesa</u>	1	0	0	0	0
Subfamily: Orthocladiinae	0	0	2	0	1
<u>Brillia</u>	0	0	1	0	5
<u>Corynoneura</u>	3	0	0	0	0
<u>Eukiefferiella</u>	10	2	3	0	0
<u>Heleniella</u>	0	0	0	0	15
<u>Hydrobaenus</u>	3	0	1	0	0
<u>Limnophyes</u>	1	0	2	0	1
Orthocladius complex	9	0	4	0	0
<u>Parametriocnemus</u>	0	0	1	4	0
<u>Parorthocladius</u>	8	0	12	0	0
<u>Platysmittia</u>	0	0	1	0	0
Rheocricotopus	3	0	0	1	0
	0		0	0	0
<u>Thienemanniella</u>		1			
Tvetenia	14	3	14	1	9
Subfamily: Tanypodinae	0	0	0	0	0
Tribe: Pentaneurini	0	0	0	0	0
<u>Telmatopelopia</u>	0	0	0	0	2
Tribe: Procladiini	0	0	0	0	0
<u>Procladius</u>	0	0	0	0	1
Family: Empididae	0	0	0	0	0
<u>Neoplasta</u>	0	0	1	8	1
<u>Oreogeton</u>	12	0	4	1	19
Family: Psychodidae	0	0	0	0	0
Pericoma/Telmatoscopus	0	0	19	0	1
Family: Simuliidae	0	3	5	0	0
 <u>Prosimulium</u>	4	3	0	0	0
<u>Prosimulium/Helodon</u>	0	2	11	0	2
Simulium	0	0	0	0	7
Family: Tipulidae	0	0	1	0	0
	•	•		•	
Order: Hemiptera	0	0	0	0	1
Order: Lepidoptera	0	1	0	0	0
Order: Thysanoptera	0	1	0	0	0
i oraci. mysanoptera	0	1	U	U	U U
Subphylum: Chelicerata	0	0	0	0	0
Class: Arachnida	0	0	0	0	0
Order: Trombidiformes	2	0	0	1	0
Family: Hydryphantidae	0	0	0	0	0
<u>Albertathyas</u>	18	0	0	0	0
<u>Wandesia</u>	2	3	0	0	3
Family: Hygrobatidae	0	0	0	0	0
<u>Hygrobates</u>	0	0	0	3	1
Family: Lebertiidae	0	0	0	0	0
<u>Lebertia</u>	4	2	4	16	3
Family: Sperchontidae	0	0	0	0	0

<u>Sperchon</u>	3	0	0	14	1
Order: Sarcoptiformes	0	0	0	0	0
Order: Oribatida	0	1	0	0	2
Family: Hydrozetidae	0	0	0	1	0
Phylum: Annelida	0	0	0	0	0
Subphylum: Clitellata	0	0	0	0	0
Class: Oligochaeta	0	0	0	0	0
Order: Lumbriculida	0	0	0	0	0
Family: Lumbriculidae	0	0	0	0	0
<u>Lumbriculus</u>	0	2	0	0	0
Order: Tubificida	0	0	0	0	0
Family: Enchytraeidae	0	0	0	0	0
<u>Enchytraeus</u>	0	0	2	1	4
Enchytraeus Totals:		0 341	2 337	1 338	364
Totals:				=	·
				=	·
Totals:	380	341	337	338	364
Totals: Taxa present but not included: Phylum: Arthropoda	380 0	341 0	337 0	338	364
Totals: Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea	380	341	337	338	364
Totals: Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda	0 0 1	341 0	337 0	338	0 0 1
Totals: Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda	0 0 1 0	341 0	0 0 0 0	0 0 1 0	0 0 0 1
Totals: Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda	0 0 1	0 0 1	0 0 0	338 0 0 1	0 0 1
Totals: Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda Class: Copepoda	0 0 1 0	0 0 1 0	0 0 0 0 0	0 0 1 0	0 0 0 1
Totals: Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda Class: Copepoda Phylum: Nemata	0 0 1 0 0	0 0 0 1 0 1	0 0 0 0 0	0 0 1 0 0	0 0 0 1 0 0
Totals: Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda Class: Copepoda Phylum: Nemata Phylum: Platyhelminthes	0 0 1 0	0 0 1 0	0 0 0 0 0	0 0 1 0	0 0 0 1 0
Totals: Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda Class: Copepoda Phylum: Nemata	0 0 1 0 0 0	0 0 0 1 0 1	0 0 0 0 0	0 0 1 0 0	0 0 0 1 0 0

ND designation of a taxa represents a non-distinct taxa. This adjusts where the associated taxa fall in the metrics for this sample because the individuals are like



Ensero Solutions

Taxonomist: Scott Finlayson

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250-494-7553

Site - 2022	. Sample	 MH04. 	. CC# - CC230252.	Percent sami	pled = 5%	, Sieve size = 400

Chironomidae	Pupa	4
Tanytarsini	Juvenile/Dam	1
Micropsectra	Larvae	1
Pseudodiamesa	Larvae	1
Eukiefferiella	Larvae	10
Hydrobaenus	Larvae	3
Limnophyes	Larvae	1
Orthocladius complex	Larvae	9
Parorthocladius	Larvae	8
Rheocricotopus	Larvae	3
Tvetenia	Larvae	14
Corynoneura	Larvae	3
Oreogeton	Larvae	12
Prosimulium	Larvae	4
Ameletus	Larvae	29
Baetidae	Juvenile/Dam	4
Baetis	Larvae	139
Baetis bicaudatus	Larvae	4
Heptageniidae	Juvenile/Dam	2
Cinygmula	Larvae	1
Plecoptera	Juvenile/Dam	2
Capniidae	Juvenile/Dam	1
Chloroperlidae	Juvenile/Dam	2
Sweltsa	Larvae	2
Visoka cataractae	Larvae	5
Zapada cinctipes	Larvae	47
Zapada columbiana	Larvae	11
Perlodidae	Juvenile/Dam	6
Megarcys	Larvae	1
Allomyia	Larvae	4
Limnephilidae	Juvenile/Dam	8
Trombidiformes	Juvenile/Dam	2
Wandesia	Adult	2
Lebertia	Adult	4
Sperchon	Adult	3
Haploperla	Larvae	2
Baetis rhodani group	Larvae	7
Albertathyas	Adult	18

Thysanoptera	None	1
Oribatida	Adult	1
Lebertia	Adult	2
Lumbriculus	None	2
Rhyacophila vofixa group	Larvae	5
Wandesia	Adult	3
Rhyacophila hyalinata group	Larvae	2
Rhyacophila	Larvae	25
Zapada columbiana	Larvae	142
Zapada cinctipes	Larvae	2
Zapada oregonensis group	Larvae	22
Perlodidae	Juvenile/Dam	1
Zapada	Larvae	4
Sweltsa	Larvae	6
Capniidae	Juvenile/Dam	1
Chloroperlidae	Juvenile/Dam	8
Epeorus	Larvae	8
Lepidoptera	None	1
Plecoptera	Juvenile/Dam	5
Cinygmula	Larvae	17
Heptageniidae	Juvenile/Dam	10
Baetis bicaudatus	Larvae	7
Baetis	Larvae	7
Baetidae	Juvenile/Dam	5
Ameletus	Larvae	35
Simuliidae	Pupa	3
Prosimulium	Larvae	3
Thienemanniella	Larvae	1
Tvetenia	Larvae	3
Pagastia	Larvae	1
Eukiefferiella	Larvae	2

Larvae

4

Baetis rhodani group

Total: 341

Site - 2022, Sample - MH12, CC# - CC230254, Percent sampled = 5%, Sieve size = 400 Brillia Larvae 1

Brillid	Larvae	1
Eukiefferiella	Larvae	3
Hydrobaenus	Larvae	1
Limnophyes	Larvae	2
Parorthocladius	Larvae	12
Platysmittia	Larvae	1
Orthocladius complex	Larvae	4
Parametriocnemus	Larvae	1
Orthocladiinae	Juvenile/Dam	2
Diamesa	Larvae	2
Pagastia	Larvae	8
Micropsectra	Larvae	1
Chironomidae	Adult	3
Chironomidae	Pupa	7
Pericoma/Telmatoscopus	Larvae	19
Simuliidae	Juvenile/Dam	5
Tvetenia	Larvae	14
Neoplasta	Larvae	1
Tipulidae	Juvenile/Dam	1
Ameletus	Larvae	7
Oreogeton	Larvae	4
Heptageniidae	Juvenile/Dam	4

Baetidae	Juvenile/Dam	1
Baetis	Larvae	10
Baetis bicaudatus	Larvae	78
Epeorus	Larvae	1
Cinygmula	Larvae	16
Plecoptera	Juvenile/Dam	2
Capniidae	Juvenile/Dam	1
Chloroperlidae	Juvenile/Dam	8
Sweltsa	Larvae	6
Zapada	Larvae	4
Visoka cataractae	Larvae	1
Zapada cinctipes	Larvae	1
Zapada columbiana	Larvae	54
Perlodidae	Juvenile/Dam	1
Rhyacophila	Larvae	3
Skwala	Larvae	1
Taenionema	Larvae	1
Rhyacophila hyalinata group	Larvae	2
Rhyacophila vofixa group	Larvae	11
Lebertia	Adult	4
Enchytraeus	None	2
Collembola	None	1
Baetis rhodani group	Larvae	13
Prosimulium/Helodon	Larvae	11
Haploperla	Larvae	1

Site - 2022	. Sample - MH13	. CC# - CC230255	, Percent sampled = 22%	6. Sieve size = 400

31te - 2022, 3a11ple - Win13, CC# - CC23	0255, Percent Sampi	eu – 22	70, Sieve Size –
Hydrozetidae	Adult	1	
Sperchon	Adult	14	
Enchytraeus	None	1	
Trombidiformes	Adult	1	velvet mite
Hygrobates	Adult	3	
Lebertia	Adult	16	
Rhyacophila vofixa group	Larvae	24	
Dicosmoecus	Larvae	1	
Rhyacophila	Larvae	22	
Zapada columbiana	Larvae	34	
Zapada oregonensis group	Larvae	3	
Hydropsychidae	Juvenile/Dam	1	
Parapsyche	Larvae	3	
Parapsyche elsis	Larvae	3	
Perlodidae	Juvenile/Dam	4	
Zapada	Larvae	3	
Zapada cinctipes	Larvae	3	
Sweltsa	Larvae	8	
Nemouridae	Juvenile/Dam	5	
Visoka cataractae	Larvae	1	
Leuctridae	Juvenile/Dam	1	
Capniidae	Juvenile/Dam	7	
Plecoptera	Juvenile/Dam	1	
Cinygmula	Larvae	13	
Ephemerellidae	Juvenile/Dam	4	
Drunella coloradensis	Larvae	1	
Drunella doddsii	Larvae	13	
Heptageniidae	Juvenile/Dam	17	
Baetis	Larvae	18	

Baetidae	Juvenile/Dam	8	
Ameletus	Larvae	7	
Neoplasta	Larvae	8	
Oreogeton	Larvae	1	
Tvetenia	Larvae	1	
Rheotanytarsus	Larvae	1	
Stempellinella	Larvae	65	
Chironomidae	Pupa	15	
Tanytarsus	Larvae	1	
Parametriocnemus	Larvae	4	
Rheocricotopus	Larvae	1	
Total:	•	220	

Site - 2022, Sample - MH2	9, CC# - CC230256, Percent sam	oled = 28%, Sieve size = 400

Limnophyes	Larvae	1	
Heleniella	Larvae	15	
Orthocladiinae	Juvenile/Dam	1	
Brillia	Larvae	5	
Stempellinella	Larvae	1	
Ceratopogon	Larvae	2	
Chironomidae	Pupa	3	
Procladius	Larvae	1	
Neoplasta	Larvae	1	
Tvetenia	Larvae	9	
Oreogeton	Larvae	19	
Pericoma/Telmatoscopus	Larvae	1	
Ameletus	Larvae	32	
Simulium	Larvae	7	
Baetis	Larvae	4	
Baetis bicaudatus	Larvae	1	
Heptageniidae	Juvenile/Dam	2	
Cinygmula	Larvae	1	
Plecoptera	Juvenile/Dam	4	
Capniidae	Juvenile/Dam	1	
Epeorus	Larvae	2	
Hemiptera	None	1	lace bug
Chloroperlidae	Juvenile/Dam	1	
Sweltsa	Larvae	11	
Leuctridae	Juvenile/Dam	9	
Nemouridae	Juvenile/Dam	1	
Visoka cataractae	Larvae	5	
Zapada	Larvae	14	
Megarcys	Larvae	1	
Lepidostoma	Larvae	6	
Zapada columbiana	Larvae	145	
Zapada oregonensis group	Larvae	2	
Rhyacophila	Larvae	32	
Wandesia	Adult	3	
Hygrobates	Adult	1	
Rhyacophila vofixa group	Larvae	2	
Lebertia	Adult	3	
Sperchon	Adult	1	
Enchytraeus	None	4	
Collembola	None	3	
Oribatida	Adult	2	
Prosimulium/Helodon	Larvae	2	
Telmatopelopia	Larvae	2	



Ensero Solutions

Taxonomist: Scott Finlayson

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250-494-7553

Client	Project	Site		Sample	Date	CC#	400 micron	fraction
							% Sampled	# Invertebrates
Ensero So	lι Sa Dena H	le	2022	MH04	08-Aug-22	CC230252	5%	380
Ensero So	lι Sa Dena H	le	2022	MH11	10-Aug-22	CC230253	26%	341
Ensero So	lι Sa Dena H	le	2022	MH12	09-Aug-22	CC230254	5%	337
Ensero So	lι Sa Dena H	le	2022	MH13	09-Aug-22	CC230255	22%	338
Ensero So	lι Sa Dena H	le	2022	MH29	10-Aug-22	CC230256	28%	364



Ensero Solutions

Taxonomist: Scott Finlayson scottfinlayson@cordilleraconsulting.ca 250-494-7553

	Functional Feeding Groups	Abbreviation	ITIS Number	Tolerance	Voltinism	Habit
Phylum: Arthropoda	Unclassified		82696			
Order: Collembola	Collector-Gatherer	CG	99237	10		
•						
Subphylum: Hexapoda	Unclassified		563886			
Class: Insecta	Unclassified		99208			
Order: Ephemeroptera	Collector-Gatherer	CG	100502			
Family: Ameletidae	Collector-Gatherer	CG	568544		Unclassified	
<u>Ameletus</u>	Collector-Gatherer	CG	100996		UV	
Family: Baetidae	Collector-Gatherer	CG	100755	4	Unclassified	
<u>Baetis</u>	Collector-Gatherer	CG	100800	5	MV	
<u>Baetis rhodani group</u>	Collector-Gatherer	CG	100800B	6	Unclassified	
<u>Baetis bicaudatus</u>	Collector-Gatherer	CG	100823	4	Unclassified	
Family: Ephemerellidae	Collector-Gatherer	CG	101232	1	Unclassified	
<u>Drunella coloradensis</u>	Predator	Р	101389		Unclassified	
<u>Drunella doddsii</u>	Collector-Gatherer	CG	698494		UV	
Family: Heptageniidae	Scraper	SC	100504	4	Unclassified	
<u>Cinygmula</u>	Scraper	SC	100557	4	Unclassified	
<u>Epeorus</u>	Scraper	SC	100626		Unclassified	
L Code of Black and	111261		402467		11	
Order: Plecoptera	Unclassified	SH	102467	1	Unclassified	
Family: Capniidae Family: Chloroperlidae	Shredder-Herbivore Predator	эп Р	102643 103202	1 1	Unclassified Unclassified	
Haploperla	Predator	P	103260	1	Unclassified	
<u>Sweltsa</u>	Predator	P	103273	1	SV	
Family: Leuctridae	Shredder-Herbivore	SH	102840	1	Unclassified	
Family: Nemouridae	Shredder-Herbivore	SH	102517	2	Unclassified	
Visoka cataractae	Shredder-Herbivore	SH	102615	2	SV	
Zapada	Shredder-Herbivore	SH	102591	2	Unclassified	
Zapada oregonensis group	Shredder-Herbivore	SH	102591B	2	Unclassified	
Zapada cinctipes	Shredder-Herbivore	SH	102594	2	UV	
Zapada columbiana	Shredder-Herbivore	SH	102596	2	SV	
Family: Perlodidae	Predator	P	102994	2	Unclassified	
<u>Megarcys</u>	Predator	Р	103110	2	Unclassified	
Skwala	Predator	Р	103102	2	UV	
Family: Taeniopterygidae	Shredder-Herbivore	SH	102788	2	Unclassified	
Taenionema	Omnivore	OM	102519	2	Unclassified	
Order: Trichoptera	Unclassified		115095			
Family: Apataniidae	Unclassified		598182		Unclassified	
<u>Allomyia</u>	Scraper	SC	116438		MV	
Family: Hydropsychidae	Collector-Filterer	CF	115398	4	Unclassified	
<u>Parapsyche</u>	Predator	Р	115556		Unclassified	
Parapsyche elsis	Predator	Р	115560	1		
Family: Lepidostomatidae	Shredder-Herbivore	SH	116793	1	Unclassified	
<u>Lepidostoma</u>	Shredder-Herbivore	SH	116794	1	UV	
Family: Limnephilidae	Collector-Gatherer	CG	115933	4	Unclassified	
<u>Dicosmoecus</u>	Omnivore	OM	116265	1	Unclassified	
Family: Rhyacophilidae	Predator	P	115096		Unclassified	
Rhyacophila	Predator	P P	115097 115097H	1	Unclassified	
Rhyacophila hyalinata group	Predator Predator	P	115097H 115097S	1	Unclassified Unclassified	
Rhyacophila vofixa group	Fredatoi	r	1130973		Officiassified	
Order: Diptera	Unclassified		118831			
Family: Ceratopogonidae	Predator	Р	127076	6		
<u>Ceratopogon</u>	Predator	Р	127564	6		
Family: Chironomidae	Unclassified		127917	6		
Subfamily: Chironominae	Collector-Gatherer	CG	129228	6		
Tribe: Tanytarsini	Collector-Gatherer	CG	129872	6		
<u>Micropsectra</u>	Collector-Gatherer	CG	129890	7		
Rheotanytarsus	Collector-Filterer	CF	129952	6		
Stempellinella	Collector-Filterer	CF	129969	4		
<u>Tanytarsus</u>	Collector-Filterer	CF	129978	6		
Subfamily: Diamesinae	Collector-Gatherer	CG	128341	2		

Tribe: Diamesini	Collector-Gatherer	CG		128351	4	
<u>Diamesa</u>	Collector-Gatherer	CG		128355	5	
Pagastia	Collector-Gatherer	CG		128401	1	
Pseudodiamesa	Collector-Gatherer	CG		128416	6	
Subfamily: Orthocladiinae	Collector-Gatherer	CG		128457	5	
<u>Brillia</u>	Shredder-Herbivore	SH		128477	5	
<u>Corynoneura</u>	Collector-Gatherer	CG		128563	7	
<u>Eukiefferiella</u>	Omnivore	OM		128689	8	
<u>Heleniella</u>	Collector-Gatherer	CG		128730	6	
<u>Hydrobaenus</u>	Collector-Gatherer	CG		128750	8	
<u>Limnophyes</u>	Collector-Gatherer	CG		128776	8	
Orthocladius complex	Collector-Gatherer	CG	128874A		6	
<u>Parametriocnemus</u>	Collector-Gatherer	CG		128978	5	
<u>Parorthocladius</u>	Collector-Gatherer	CG		129011	6	
<u>Platysmittia</u>	Collector-Gatherer	CG		129013	5	
Rheocricotopus	Omnivore	ОМ		129086	6	
<u>Thienemanniella</u>	Collector-Gatherer	CG		129182	6	
<u>Tvetenia</u>	Collector-Gatherer	CG		129197	5	
Subfamily: Tanypodinae	Predator	Р		127994	7	
Tribe: Pentaneurini	Predator	Р		128078	6	
<u>Telmatopelopia</u>	Unclassified		127994A			
Tribe: Procladiini	Predator	Р		128270	9	
<u>Procladius</u>	Predator	Р		128277	9	
Family: Empididae	Predator	Р		135830	6	UV
Neoplasta	Predator	Р		136352	6	
<u>Oreogeton</u>	Predator	Р		136377	6	
Family: Psychodidae	Collector-Gatherer	CG		125351	10	
Pericoma/Telmatoscopus	Collector-Gatherer	CG	125351A		4	
Family: Simuliidae	Collector-Filterer	CF		126640	6	
<u>Prosimulium</u>	Collector-Filterer	CF		126703	3	
Prosimulium/Helodon	Collector-Filterer	CF	126640B		6	
Simulium	Collector-Filterer	CF		126774	6	MV
Family: Tipulidae	Shredder-Herbivore	SH		118840	3	
Order: Hemiptera	Unclassified			103359		
Order: Lepidoptera	Shredder-Herbivore	SH		117232		
Order: Thysanoptera	Unclassified			103348		
Subphylum: Chelicerata	Unclassified			82697		
Class: Arachnida	Predator	Р		82708	5	
Order: Trombidiformes	Predator	Р		82769	5	
Family: Hydryphantidae	Predator	Р		83212	5	Unclassified
<u>Albertathyas</u>	Predator	Р	83212A			
Wandesia	Predator	Р		83172	5	Unclassified
Family: Hygrobatidae	Predator	Р		83281	8	Unclassified
<u>Hygrobates</u>	Predator	Р		83297	8	Unclassified
Family: Lebertiidae	Predator	Р		83033	5	Unclassified
<u>Lebertia</u>	Predator	Р		83034	8	Unclassified
Family: Sperchontidae	Unclassified			895710	5	Unclassified
Sperchon	Predator	Р		83006	8	Unclassified
Order: Sarcoptiformes	Predator	Р		83538		
Order: Oribatida	Predator	Р		733326	5	
Family: Hydrozetidae	Predator	Р		553091	5	MV
Phylum: Annelida	Unclassified			64357		
Subphylum: Clitellata	Unclassified			568832		
Class: Oligochaeta	Collector-Gatherer	CG		68422	5	
Order: Lumbriculida	Collector-Gatherer	CG		68439	7	
				68440	8	
Family: Lumbriculidae	Collector-Gatherer	CG		00440		
Family: Lumbriculidae Lumbriculus	Collector-Gatherer Collector-Gatherer	CG CG		68441		
•						
•						
<u>Lumbriculus</u>	Collector-Gatherer			68441	10	
Lumbriculus Order: Tubificida	Collector-Gatherer Unclassified	CG		68441 68498		
Lumbriculus Order: Tubificida Family: Enchytraeidae	Collector-Gatherer Unclassified Collector-Gatherer	CG		68441 68498 68510	10	
Lumbriculus Order: Tubificida Family: Enchytraeidae	Collector-Gatherer Unclassified Collector-Gatherer	CG		68441 68498 68510	10	
Lumbriculus Order: Tubificida Family: Enchytraeidae Enchytraeus	Collector-Gatherer Unclassified Collector-Gatherer	CG		68441 68498 68510	10	
Lumbriculus Order: Tubificida Family: Enchytraeidae Enchytraeus Taxa present but not included:	Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer	CG		68441 68498 68510 68531	10	
Order: Tubificida Family: Enchytraeidae Enchytraeus Taxa present but not included: Phylum: Arthropoda	Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer	CG CG CG		68441 68498 68510 68531	10 10	
Order: Tubificida	Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified Collector-Gatherer	CG CG CG		68441 68498 68510 68531 82696 83677	10 10	
Order: Tubificida	Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer	CG CG CG		68441 68498 68510 68531 82696 83677 84195	10 10	
Order: Tubificida Family: Enchytraeidae Enchytraeus Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda	Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified	CG CG CG CG		68441 68498 68510 68531 82696 83677 84195 610004	10 10 8 8	
Order: Tubificida Family: Enchytraeidae Enchytraeus Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda	Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified	CG CG CG CG		68441 68498 68510 68531 82696 83677 84195 610004	10 10 8 8	
Order: Tubificida Family: Enchytraeidae Enchytraeus Taxa present but not included: Phylum: Arthropoda Subphylum: Crustacea Class: Ostracoda Class: Maxillipoda Class: Copepoda	Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified Collector-Gatherer	CG CG CG CG CG		68441 68498 68510 68531 82696 83677 84195 610004 85257	10 10 8 8	
Order: Tubificida Family: Enchytraeidae Family: Enchytraeidae Enchytroeus	Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified Collector-Gatherer Collector-Gatherer Unclassified Collector-Gatherer Unclassified Collector-Gatherer	CG CG CG CG CG		68441 68498 68510 68531 82696 83677 84195 610004 85257 563956	10 10 8 8 8	



Project: Sa Dena Hes - ECA22YT000199 - SQ-213 Ensero Solutions Taxonomist: Scott Finlayson scottfinlayson@cordilleraconsulting.ca 250-494-7553

Phylum Sub Phylum Class Order Family Subfamily Tribe	Taxonomy ITIS Code Voltinism Group Habi	tat Maturity	Name ND Site	Sample	Date	CC# Count	Percent Sampled	Seive Size	Season	Reach	Site	Transect	Parent
Arthropoda Hexapoda Insecta Plecoptera Chloroperlidae	Haploperla 103260 Unclassified P	Larvae I	Haploperla	2022 MH04	08-Aug-22	CC230252	2	5 400					
Arthropoda Hexapoda Insecta Ephemeropter Baetidae	Baetis 100800B Unclassified CG		Baetis rhodani group	2022 MH04	08-Aug-22	CC230252		5 400					
Arthropoda Chelicerata Arachnida Trombidiforme Hydryphantidae	Albertathyas 83212A P		Albertathyas	2022 MH04	08-Aug-22		18	5 400					
Arthropoda Chelicerata Arachnida Trombidiforme Sperchontidae Arthropoda Chelicerata Arachnida Trombidiforme Lebertiidae	Sperchon 83006 Unclassified P Lebertia 83034 Unclassified P		Sperchon Lebertia	2022 MH04 2022 MH04	08-Aug-22 08-Aug-22	CC230252 CC230252	3	5 400					
Arthropoda Chelicerata Arachnida Trombidiformes	82769 P		Trombidiformes ND	2022 MH04 2022 MH04	08-Aug-22	CC230252 CC230252	7	5 400					
Arthropoda Chelicerata Arachnida Trombidiforme Hydryphantidae	Wandesia 83172 Unclassified P		Wandesia	2022 MH04	08-Aug-22	CC230252	2	5 400					
Arthropoda Hexapoda Insecta Trichoptera Apataniidae	Allomyia 116438 MV SC	Larvae	Allomyia	2022 MH04	08-Aug-22	CC230252	4	5 400					
Arthropoda Hexapoda Insecta Trichoptera Limnephilidae	115933 Unclassified CG	Juvenile/Damaged I	Limnephilidae	2022 MH04	08-Aug-22	CC230252	8	5 400					
Arthropoda Hexapoda Insecta Plecoptera Perlodidae	102994 Unclassified P	Juvenile/Damaged	Perlodidae	2022 MH04	08-Aug-22	CC230252	6	5 400					
Arthropoda Hexapoda Insecta Plecoptera Perlodidae	Megarcys 103110 Unclassified P		Megarcys	2022 MH04	08-Aug-22	CC230252	1	5 400					
Arthropoda Hexapoda Insecta Plecoptera Nemouridae Arthropoda Hexapoda Insecta Plecoptera Nemouridae	Zapada cinctipes 102594 UV SH Zapada columbiana 102596 SV SH		Zapada cinctipes Zapada columbiana	2022 MH04 2022 MH04	08-Aug-22 08-Aug-22	CC230252 CC230252	47	5 400 5 400					
Arthropoda Hexapoda Insecta Piecoptera Nemoundae Arthropoda Hexapoda Insecta Piecoptera Chloroperlidae	Zapada columbiana 102596 SV SH Sweltsa 103273 SV P		Zapada columbiana Sweltsa	2022 MH04 2022 MH04	08-Aug-22 08-Aug-22	CC230252 CC230252	11	5 400					
Arthropoda Hexapoda Insecta Piecoptera Nemouridae	Visoka cataractae 102615 SV SH		Visoka cataractae	2022 MH04 2022 MH04	08-Aug-22	CC230252 CC230252	5	5 400					
Arthropoda Hexapoda Insecta Plecoptera Capniidae	102643 Unclassified SH	Juvenile/Damaged	Capniidae	2022 MH04	08-Aug-22	CC230252	1	5 400					
Arthropoda Hexapoda Insecta Plecoptera Chloroperlidae	103202 Unclassified P	Juvenile/Damaged	Chloroperlidae ND	2022 MH04	08-Aug-22	CC230252	2	5 400					
Arthropoda Hexapoda Insecta Plecoptera	102467 Unclassified	Juvenile/Damaged	Plecoptera ND	2022 MH04	08-Aug-22	CC230252	2	5 400					
Arthropoda Hexapoda Insecta Ephemeropter Heptageniidae	100504 Unclassified SC		Heptageniidae	2022 MH04	08-Aug-22	CC230252	2	5 400					
Arthropoda Hexapoda Insecta Ephemeropter Heptageniidae Arthropoda Hexapoda Insecta Ephemeropter Baetidae	Cinygmula 100557 Unclassified SC Baetis 100800 MV CG		Cinygmula Baetis	2022 MH04 2022 MH04	08-Aug-22	CC230252 CC230252	1	5 400 5 400					
Arthropoda Hexapoda Insecta Ephemeropter Baetidae Arthropoda Hexapoda Insecta Ephemeropter Baetidae	Baetis 100800 MV CG Baetis bicaudatus 100823 Unclassified CG		Baetis bicaudatus	2022 MH04 2022 MH04	08-Aug-22 08-Aug-22	CC230252 CC230252	139	5 400					
Arthropoda Hexapoda Insecta Ephemeropter Ameletidae	Ameletus 100996 UV CG		Ameletus	2022 MH04 2022 MH04	08-Aug-22	CC230252 CC230252	79	5 400					
Arthropoda Hexapoda Insecta Ephemeropter Baetidae	100755 Unclassified CG		Baetidae ND	2022 MH04	08-Aug-22	CC230252	4	5 400					
Arthropoda Hexapoda Insecta Diptera Simuliidae	Prosimulium 126703 CF		Prosimulium	2022 MH04	08-Aug-22	CC230252	4	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Corynoneura 128563 CG	Larvae	Corynoneura	2022 MH04	08-Aug-22	CC230252	3	5 400					
Arthropoda Hexapoda Insecta Diptera Empididae	Oreogeton 136377 P		Oreogeton	2022 MH04	08-Aug-22	CC230252	12	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Parorthocladius 129011 CG		Parorthocladius	2022 MH04	08-Aug-22	CC230252	8	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Rheocricotopus 129086 OM Tvetenia 129197 CG		Rheocricotopus Tvetenia	2022 MH04 2022 MH04	08-Aug-22 08-Aug-22	CC230252 CC230252	14	5 400 5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Eukiefferiella 128689 OM		Eukiefferiella	2022 MH04 2022 MH04	08-Aug-22	CC230252	10	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Hydrobaenus 128750 CG		Hydrobaenus	2022 MH04	08-Aug-22	CC230252	3	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Limnophyes 128776 CG	Larvae I	Limnophyes	2022 MH04	08-Aug-22	CC230252	1	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Orthocladius complex 128874A CG	Larvae	Orthocladius complex	2022 MH04	08-Aug-22	CC230252	9	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Diamesinae Diamesini	Pseudodiamesa 128416 CG		Pseudodiamesa	2022 MH04	08-Aug-22	CC230252	1	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Chironominae Tanytarsini			Micropsectra	2022 MH04	08-Aug-22	CC230252	1	5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Arthropoda Hexapoda Insecta Diptera Chironomidae Chironominae Tanytarsini	127917 129872 CG		Chironomidae Tanytarsini	2022 MH04 2022 MH04	08-Aug-22 08-Aug-22	CC230252 CC230252	4	5 400 5 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Diamesinae Diamesinai	Pagastia 128401 CG		Pagastia	2022 MH11	10-Aug-22	CC230252 CC230253	1 3	26 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Eukiefferiella 128689 OM		Eukiefferiella	2022 MH11	10-Aug-22	CC230253	2 2	26 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Tvetenia 129197 CG	Larvae	Tvetenia	2022 MH11	10-Aug-22	CC230253	3 2	26 400					
Arthropoda Hexapoda Insecta Diptera Chironomidae Orthocladiinae	Thienemanniella 129182 CG		Thienemanniella	2022 MH11	10-Aug-22	CC230253	1 2	26 400					
Arthropoda Hexapoda Insecta Diptera Simuliidae	126640 CF		Simuliidae ND	2022 MH11	10-Aug-22	CC230253	3 2	26 400					
Arthropoda Hexapoda Insecta Diptera Simuliidae	Prosimulium 126703 CF		Prosimulium	2022 MH11	10-Aug-22	CC230253	3 2	26 400					
Arthropoda Hexapoda Insecta Ephemeropter Ameletidae Arthropoda Hexapoda Insecta Ephemeropter Raetidae	Ameletus 100996 UV CG 100755 Unclassified CG		Ameletus Baetidae ND	2022 MH11 2022 MH11	10-Aug-22 10-Aug-22	CC230253 CC230253	35 2	26 400 26 400					
Arthropoda Hexapoda Insecta Ephemeropter Baetidae	Baetis 100800 MV CG		Baetis	2022 MH11 2022 MH11	10-Aug-22 10-Aug-22	CC230253	7 2	26 400					
Arthropoda Hexapoda Insecta Ephemeropter Baetidae	Baetis bicaudatus 100823 Unclassified CG		Baetis bicaudatus	2022 MH11	10-Aug-22	CC230253	7 2	26 400					
Arthropoda Hexapoda Insecta Ephemeropter Heptageniidae	100504 Unclassified SC	Juvenile/Damaged	Heptageniidae ND	2022 MH11	10-Aug-22	CC230253	10 2	26 400					
Arthropoda Hexapoda Insecta Ephemeropter Heptageniidae	Cinygmula 100557 Unclassified SC		Cinygmula	2022 MH11	10-Aug-22	CC230253	17	26 400					
Arthropoda Hexapoda Insecta Ephemeropter Heptageniidae	Epeorus 100626 Unclassified SC		Epeorus	2022 MH11	10-Aug-22	CC230253	8 2	26 400					
Arthropoda Hexapoda Insecta Lepidoptera	117232 SH		Lepidoptera	2022 MH11	10-Aug-22	CC230253	1 7	26 400					
Arthropoda Hexapoda Insecta Plecoptera Arthropoda Hexapoda Insecta Plecoptera Chloroperlidae	102467 Unclassified 103202 Unclassified P		Plecoptera ND Chloroperlidae	2022 MH11 2022 MH11	10-Aug-22 10-Aug-22	CC230253 CC230253	5 2	26 400 26 400					
Arthropoda Hexapoda Insecta Piecoptera Chioroperildae Arthropoda Hexapoda Insecta Plecoptera Capniidae	103202 Unclassified P		Capniidae	2022 MH11 2022 MH11	10-Aug-22 10-Aug-22	CC230253	1 7	26 400					
Arthropoda Hexapoda Insecta Plecoptera Chloroperlidae	Sweltsa 103273 SV P		Sweltsa	2022 MH11	10-Aug-22	CC230253	6 2	26 400					
Arthropoda Hexapoda Insecta Plecoptera Nemouridae	Zapada 102591 Unclassified SH		Zapada ND	2022 MH11	10-Aug-22	CC230253	4 2	26 400					
Arthropoda Hexapoda Insecta Plecoptera Nemouridae	Zapada cinctipes 102594 UV SH		Zapada cinctipes	2022 MH11	10-Aug-22	CC230253	2 2	26 400					
Arthropoda Hexapoda Insecta Plecoptera Nemouridae	Zapada columbiana 102596 SV SH		Zapada columbiana	2022 MH11	10-Aug-22		142 2	26 400					
Arthropoda Hexapoda Insecta Plecoptera Nemouridae Arthropoda Hexapoda Insecta Plecoptera Perlodidae	Zapada 102591B Unclassified SH		Zapada oregonensis group	2022 MH11	10-Aug-22	CC230253	22 2	26 400 26 400					
Arthropoda Hexapoda Insecta Plecoptera Perlodidae Arthropoda Hexapoda Insecta Trichoptera Rhyacophilidae	102994 Unclassified P Rhyacophila 115097H Unclassified P		Perlodidae Rhyacophila hyalinata group	2022 MH11 2022 MH11	10-Aug-22 10-Aug-22	CC230253 CC230253	1 2	26 400 26 400					
Arthropoda Hexapoda Insecta Trichoptera Rhyacophilidae Arthropoda Hexapoda Insecta Trichoptera Rhyacophilidae	Rhyacophila 11509/H Unclassified P Rhyacophila 115097 Unclassified P		Rhyacophila nyalinata group Rhyacophila	2022 MH11 2022 MH11	10-Aug-22 10-Aug-22	CC230253 CC230253	25 7	26 400					
Arthropoda Hexapoda Insecta Trichoptera Rhyacophilidae	Rhyacophila 115097S Unclassified P		Rhyacophila vofixa group	2022 MH11	10-Aug-22	CC230253	5 2	26 400					
Arthropoda Chelicerata Arachnida Trombidiforme Hydryphantidae	Wandesia 83172 Unclassified P		Wandesia	2022 MH11	10-Aug-22	CC230253	3 2	26 400					

Arthropoda Chelicerata Arachnida	Trombidiforms I shartiidae	Lebertia 83034	4 Unclassified P	Adult	Lebertia	2022 MH11	10-Aug-22	CC230253	2	26	400
	eta Lumbriculida Lumbriculidae	Lumbriculus 68441		None	Lumbriculus	2022 MH11					400
Arthropoda Hexapoda Insecta	Thysanoptera	103348			Thysanoptera	2022 MH11					400
Arthropoda Hexapoda Insecta	Ephemeropter Baetidae	Baetis 100800B	Unclassified CG		Baetis rhodani group	2022 MH11		CC230253			400
Arthropoda Chelicerata Arachnida	a Sarcoptiformes	733326			Oribatida	2022 MH11	10-Aug-22	CC230253	1	26	400
Arthropoda Hexapoda Insecta	Diptera Simuliidae	Prosimulium/Helodon 126640B	CF	Larvae	Prosimulium/Helodon			CC230253	2	26	400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Chironominae Tanytarsini	Micropsectra 129890) CG	Larvae	Micropsectra	2022 MH12	09-Aug-22	CC230254	1	5	400
Arthropoda Hexapoda Insecta	Diptera Chironomidae	127917	7	Pupa	Chironomidae ND	2022 MH12	09-Aug-22	CC230254	7	5	400
Arthropoda Hexapoda Insecta	Diptera Chironomidae	127917			Chironomidae ND	2022 MH12	09-Aug-22	CC230254	3	5	400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae	128457		Juvenile/Damaged	Orthocladiinae ND				2	-	400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae	Parametriocnemus 128978			Parametriocnemus						400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae	Orthocladius complex 128874A			Orthocladius complex			CC230234			400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae	Parorthocladius 129011			Parorthocladius						400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae	Limnophyes 128776			Limnophyes			CC230254			400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae	Hydrobaenus 128750			Hydrobaenus				-	-	400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Diamesinae Diamesini	Diamesa 128355			Diamesa		-				400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Diamesinae Diamesini	Pagastia 128401			Pagastia			CC230254			400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae	Brillia 128477			Brillia				1		400
Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae	Eukiefferiella 128689 Tvetenia 129197		Larvae	Eukiefferiella	2022 MH12 2022 MH12	-	CC230254	4		400
					Tvetenia					-	400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta	Diptera Chironomidae Orthocladiinae Diptera Empididae	Platysmittia 129013 Oreogeton 136377		Larvae Larvae	Platysmittia			CC230254 CC230254			400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta	Diptera Empididae Diptera Empididae	Oreogeton 1363// Neoplasta 136352		Larvae Larvae	Oreogeton Neoplasta						400
Arthropoda Hexapoda Insecta	Diptera Tipulidae	118840		Juvenile/Damaged	Tipulidae			CC230254			400
Arthropoda Hexanoda Inserta	Enhemeronter Ameletidae	Ameletus 100996			Ameletus						400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta	Diptera Psychodidae	Pericoma/Telmatoscopus 125351A		Larvae	Pericoma/Telmatoscopus					-	400
Arthropoda Hexapoda Insecta	Dintera Simuliidae	126640			Simuliidae ND			CC230254 1			400
Arthropoda Hexapoda Insecta	Ephemeropter Baetidae				Baetidae ND		-	CC230254	-		400
Arthropoda Hexapoda Insecta	Ephemeropter Baetidae	Baetis 100800		Larvae	Baetis	2022 MH12			-		400
Arthropoda Hexapoda Insecta	Ephemeropter Baetidae				Baetis bicaudatus						400
Arthropoda Hexapoda Insecta	Ephemeropter Heptageniidae				Cinygmula	2022 MH12					400
Arthropoda Hexapoda Insecta	Plecoptera		7 Unclassified		Plecoptera ND	2022 MH12				5	400
Arthropoda Hexapoda Insecta	Ephemeropter Heptageniidae	100504	4 Unclassified SC	Juvenile/Damaged	Heptageniidae ND	2022 MH12	09-Aug-22	CC230254	4	5	400
Arthropoda Hexapoda Insecta	Plecoptera Chloroperlidae			Juvenile/Damaged	Chloroperlidae ND			CC230254	8	5	400
Arthropoda Hexapoda Insecta	Ephemeropter Heptageniidae	Epeorus 100626			Epeorus	2022 MH12	09-Aug-22	CC230254	1	5	400
Arthropoda Hexapoda Insecta	Plecoptera Capniidae	102643	3 Unclassified SH	Juvenile/Damaged	Capniidae	2022 MH12	09-Aug-22	CC230254	1	5	400
Arthropoda Hexapoda Insecta	Plecoptera Chloroperlidae	Sweltsa 103273	3 SV P	Larvae	Sweltsa	2022 MH12		CC230254	6	5	400
Arthropoda Hexapoda Insecta	Plecoptera Nemouridae	Zapada 102591	1 Unclassified SH	Larvae	Zapada ND	2022 MH12	09-Aug-22	CC230254	4	5	400
Arthropoda Hexapoda Insecta	Plecoptera Nemouridae	Visoka cataractae 102615		Larvae	Visoka cataractae	2022 MH12		CC230254	1		400
Arthropoda Hexapoda Insecta	Plecoptera Nemouridae	Zapada cinctipes 102594	4 UV SH	Larvae	Zapada cinctipes	2022 MH12	09-Aug-22	CC230254	1	5	400
Arthropoda Hexapoda Insecta	Plecoptera Nemouridae	Zapada columbiana 102596	S SV SH	Larvae	Zapada columbiana	2022 MH12	09-Aug-22	CC230254 5	i4	5	400
Arthropoda Hexapoda Insecta											
	Plecoptera Perlodidae	Skwala 103102		Larvae	Skwala			CC230254		5	400
Arthropoda Hexapoda Insecta	Plecoptera Perlodidae Plecoptera Taeniopterygidae		9 Unclassified OM	Larvae	Skwala Taenionema	2022 MH12 2022 MH12				5	400 400
		Taenionema 102519 102994	9 Unclassified OM 4 Unclassified P	Larvae		2022 MH12 2022 MH12	09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254	1	5 5 5	400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perlodidae Trichoptera Rhyacophilidae	Taenionema 102519 102994 Rhyacophila 115097H	9 Unclassified OM 4 Unclassified P Unclassified P	Larvae Juvenile/Damaged Larvae	Taenionema Perlodidae Rhyacophila hyalinata group	2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254	1 1 1	5 5 5	400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perlodidae	Taenionema 102519 102994 Rhyacophila 115097H	9 Unclassified OM 4 Unclassified P	Larvae Juvenile/Damaged Larvae	Taenionema Perlodidae	2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254	1 1 1 2	5 5 5	400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Insecta	Plecoptera Taeniopterygidae Plecoptera Periodidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae	Taenionema 102519 102994 Rhyacophila 115097H Rhyacophila 115097S Rhyacophila 115097	9 Unclassified OM 4 Unclassified P Unclassified P Unclassified P 7 Unclassified P	Larvae Juvenile/Damaged Larvae Larvae Larvae	Taenionema Periodidae Rhyacophila hyalinata group Rhyacophila vofixa group Rhyacophila	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 1	1 1 1 2 1	5 5 5 5 5	400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Chelicerata Arachnida	Piecoptera Taeniopterygidae Piecoptera Perfodidae Trichoptera Niyacophilidae Trichoptera Niyacophilidae Trichoptera Riyacophilidae Trombidiforms Lebertiidae	Taenionema 102519 Incomplete 102994 Rhyacophila 115097H Rhyacophila 115097 Rhyacophila 115097 Lebertia 83034	3 Unclassified OM 4 Unclassified P Unclassified P Unclassified P Unclassified P Unclassified P	Larvae Juvenile/Damaged Larvae Larvae Larvae Adult	Taenionema Periodide Phiscophila hyalinata group Phiscophila voftina group Rhyacophila Lebertia	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 1 CC230254 CC230254 CC230254	1 1 1 2 1 3 4	5 5 5 5 5 5	400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Chelicerata Arachnida Arthropoda	Plecoptera Taeniopterygidae Plecoptera Perfodidee Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trimbidiforma Lebertiidae Collembola	Taenionema 102519 10294 11597H Rhyacophila 115097S Rhyacophila 115097 Lebertia 83034 99237 99237	B Unclassified OM Unclassified P Unclassified P Unclassified P Unclassified P Unclassified P Conclassified P Conclassified P	Larvae Juvenile/Damaged Larvae Larvae Larvae Adult None	Taenionema Periodide Phiscophila hyalinata group Rhyacophila vofixa group Rhyacophila televisa Lebertia Collembola	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254	1 1 1 2 2 3 4	5 5 5 5 5 5 5	400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Chelicerata Arachnida Arthropoda Arthropoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodidae Trichoptera Niyacophilidae Trichoptera Trichoptera Niyacophilidae Trichoptera Trichoptera Trichoptera Niyacophilidae Trichoptera Taeniopterygidae	Taerionema	0 Unclassified OM 1 Unclassified P Unclassified P Unclassified P Unclassified P 4 Unclassified P CG Unclassified P	Larvae Juvenile/Damaged Larvae Larvae Larvae Adult None Larvae	Taentonema Perfodidae Pilipacophila hyalinata group Rihyacophila vofina group Rihyacophila Lebertia Collembola Hapioperin	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 1 CC230254 1 CC230254 CC230254 CC230254 CC230254	1 1 2 2 3 4 1	5 5 5 5 5 5 5 5 5	400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Chelicerata Arzachida Arthropoda Arsenida Insecta Arthropoda Insecta Oligochae	Plecoptera Taeniopterygidae Plecoptera Perfodide Trichoptera Niyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Plecoptera Collembola Plecoptera Chi	Taenionema	3 Unclassified OM Unclassified P Unclassified P Unclassified P Unclassified P Unclassified P CG OUClassified P CG CG	Larvae Juvenile/Damaged Larvae Larvae Larvae Adult None Larvae None	Taenionema Periodide Physocophila hyalinsta group Bhyacophila volfixa group Bhyacophila Lebertia Collembola Haploperla Endyrteess	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 1 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254	1 1 1 2 2 1 3 4 1 1 1	5 5 5 5 5 5 5 5 5 5 5	400 400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Annelida Clifiellata Oligochae Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodidee Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Collembola Plecoptera Chloroperidae Tubiliticida Enchytraeidae Diptera Simulidae	Taerionema	3 Unclassified OM 1 Unclassified P Unclassified P Unclassified P Unclassified P Unclassified P CG O Unclassified P CG CG CG CF	Larvae Juvenile/Damaged Larvae Larvae Larvae Adult None Larvae None Larvae	Taenionema Periodide Physocophila hyalinata group Rhyacophila vofina group Rhyacophila telebertia Lebertia Collembola Haploperta Enchyraeus Prosimulium/Helodon	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254	1 1 1 2 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Cheliceata Arachrida Arthropoda Cheliceata Arachrida Arthropoda Hexapoda Insecta	Plecoptera Taeniopterygidae Plecoptera Petrodisde Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rebertiidae Collembola Plecoptera Chiloroperiidae Ta Tubilidida Enchytraeidae Diptera Simuliidae Ephemeopter Baetidae	Tuerionema	3 Unclassified OM 1 Unclassified P Unclassified P Unclassified P Unclassified P 1 Unclassified P CG Unclassified CG Unclassified CG	Larvae Juvenile/Damaged Larvae Larvae Larvae Adult None Larvae None Larvae Larvae	Taenionema Periodide Phisocophila hyalinata group Phisocophila voltus group Phisocophila Lebertis Collembola Haploperia Endylyteras Prosimilum/Nelodon Baetis rhodani group	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255 CC30255 CC30255 CC30255 CC30255 CC30255 CC30255 CC30255	1 1 1 2 1 3 4 1 1 2 2 1 3 4 1 1 1 2 2 1 1 3	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	400 400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Annelida Citelalta Oligoche Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodide Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Rhyacophilidae Trichoptera Chicroperidae Trichoptera Chicroperidae Tubilicida Enchytraeidae Diptera Simuliidae Ephemeropter Baetidae Ephemeropter Baetidae Lichinoomidae	Taerionema	3 Unclassified OM 1 Unclassified P Unclassified P Unclassified P Unclassified P Unclassified P Unclassified P CG CG Unclassified P CG CG Unclassified P CG CG Unclassified P	Larvae Juvenile/Damaged Larvae Larvae Larvae Adult None Larvae None Larvae Larvae	Taenionema Periodide Phispacophila hyalinata group Rhyacophila volfus group Rhyacophila bebertis Collembola Hapioperia Endrytraeus Prosimilium/Nelodon Baetis rhodani group Chironomidee ND	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12	09-Aug-22 05-Aug-22 05-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255 1 CC230255 1	1 1 1 2 1 1 3 4 1 1 1 2 1 1 3 5 5	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	400 400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodiade Trichoptera Nilyacophilidae Trichoptera Nilyacophilidae Trichoptera Nilyacophilidae Trichoptera Nilyacophilidae Trichoptera Nilyacophilidae Trichoptera Chioroperidae Ta Tublificida Enchytraeidae Diptera Chioromidae Ephemeropter Baetidae Diptera Chironomidae Chironomidae Chironomidae Chironomiae Tarytarinii	Taenionema	### Unclassified OM ### Unclassified P ### Unclassified P ### Unclassified P ### Unclassified P ### Unclassified P ### Unclassified P ### Unclassified P ### Unclassified P ### Unclassified CG #### Unclassified CG #### Unclassified CG #### Unclassified P #### Unclassified CG #### Unclassified CG #### Unclassified CG #### Unclassified CG #### Unclassified CG ##### Unclassified CG ##### Unclassified CG ##### Unclassified CG ###### Unclassified CG ###################################	Larvae Juvenie/Damaged Jarvae Larvae Adult None Larvae None Larvae Larvae	Taentonema Perfedidate Pilipacophila hyalinata group Rihyacophila hyalinata group Rihyacophila Lebertia Collembola Hapioperia Endrytraeus Prosimulium/Netodon Baetis rhodani group Chironomidee ND Tamyarusus	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH13	09-Aug-22 05-Aug-27 05-Aug-27 05-Aug-27 05-Aug-22 05-Aug-22 09-Aug-22 09-Aug-22 05-Aug-22 05-Aug-22 05-Aug-22 05-Aug-22 05-Aug-22 05-Aug-22 05-Aug-22 05-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255 1 CC230255 1 CC230255	1 1 1 2 2 1 3 4 1 1 2 2 1 3 5 1 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	400 400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Chelicerata Arachrida Arthropoda Hexapoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Chiroperidae Tarbificida Enchyraeidae Diptera Simulidae Diptera Chironomidae	Tanytarsus 102519	3 Unclassified OM 1 Unclassified P Unclassified P Unclassified P 1 Unclassified P 1 Unclassified P 2 Unclassified P CG CF Unclassified P CG CF CF CF CF	Larvae Juvenie/Damaged Larvae Larvae Adult None Larvae Larvae Larvae Larvae Larvae Larvae Larvae Larvae Larvae Larvae	Taenionema Periodide Phispacophila hyalinata group Phispacophila voltus group Rhyacophila Lebertia Collembola Haploperia Endlytraeus Prosimulium/Helodon Baestis modani group Chironomidae ND Tanyfarsus Horboanyfarsus	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH13 2022 MH13 2022 MH13	09-Aug-22 05-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255 CC230255 1 CC230255 1 CC230255 1 CC230255	1 1 1 2 1 3 4 1 1 2 2 1 5 5 1 1	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	400 400 400 400 400 400 400 400 400 400
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Arthropoda Hexapoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodidae Trichoptera Pikyacophilidae Trichoptera Pikyacophilidae Trichoptera Pikyacophilidae Trichoptera Pikyacophilidae Trichoptera Pikyacophilidae Trichoptera Pikyacophilidae Trichoptera Chironeridae Diptera Empididae Ephemeropter Saetidae Ephemeropter Fiphemerelidae Ephemeropter Fiphemerelidae Ephemeropter Fiphemerelidae Ephemeropter Fiphemerelidae Ephemeropter Phemarelidae Ephemeropter Heptageniidae Piecoptera Plecoptera Repotera R	Tuerionema	3 Unclassified OM 1 Unclassified P 1 Unclassified P 1 Unclassified P 2 Unclassified P 3 Unclassified P 4 Unclassified P 5 Unclassified P 6 CG 7 CG 8 CF 9 CF	Larvae Larvae Larvae Larvae Larvae Larvae Adult None Larvae	Taenionema Periodide Pinkacophila hyalinata group Pinkacophila voltus group Pinkacophila voltus group Pinkacophila voltus group Pinkacophila voltus group Pinkacophila voltus group Pinkacophila voltus group Callembiola tapaloperia Finchlytraus Prodimilum/Piedorin Baestis modeni group Chironomidae ND Tanaytarsus Pincariatum ND Tanaytarsus Pincar	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH13	09-Aug-22 03-Aug-27 05-Aug-27	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255	1 1 1 1 2 3 4 4 1 1 2 2 1 1 1 2 4 1 1 1 3 5 1 1 1 1 8 8 4 1 1 7 8 8 8 4 1 1 7 7 1 1 7 7 1 1 1 7 7 1 1 1 1 7 7 1	5 5 5 5 5 5 5 5 5 5 5 22 22 22 22 22 22	400 400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Insecta Insecta Arthropoda Insecta Insecta Arthropoda Insecta Insecta Insecta Insecta Insecta Insecta Insecta Insecta Insecta Insecta Insecta Insec	Plecoptera Taeniopterygidae Plecoptera Perfodiade Trichoptera Pikyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Chioroperidae Ta Tublificida Enchytraeidae Diptera Chioromidae Diptera Empididae Ephemeropter Baetidae Ephemeropter Ephemerelidae Ephemeropter Ephemerelidae Ephemeropter Ephemerelidae Ephemeropter Ephemerelidae Ephemeropter Sphemerelidae Ephemeropter Ephemerelidae Ephemeropter Sphemerelidae Ephemeropter Acquaintae Plecoptera Plecoptera Plecoptera Plecoptera Plecoptera Plecoptera Plecoptera Plecoptera Plecoptera Plecoptera Plecoptera Plecoptera	Tuerionema	Unclassified	Larvae Larvae Larvae Larvae Adult None Larvae	Taentonema Perfedidate Perfedi	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH13	09-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255	1 1 1 2 2 1 3 4 1 1 1 2 2 1 3 3 4 1 1 1 7 8 8 8 4 1 1 1 8 1 1 7 8 8 8 4 1 1 1 3 7 7 5 1 1 8 1 1 1 1 8 1 1 1 1 8 1 1 1 1 8 1 1 1 1 8 1 1 1 1 8 1 1 1 1 8 1 1 1 1 8 1 1 1 1 8 1 1 1 1 8 1 1 1 1 1 8 1 1 1 1 1 8 1	5 5 5 5 5 5 5 5 5 5 5 5 22 22 22 22 22 2	400 400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodidae Trichoptera Piwpacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Chiroroperidae Tarbificida Enchytraeidae Diptera Chiroromidae Diptera Empididae Ephemecopter Repelidae Ephemecopter Remetidae Ephemecopter Ephemerellidae Ephemecopter Ephemerellidae Ephemecopter Ephemerellidae Ephemecopter Ephemerellidae Ephemecopter Replaceilidae Plecoptera Recoptera Plecoptera	Tuerionema	Unclassified OM Unclassified P P P Unclassified CG CG CG CG CG CG CG C	Larvae Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged Luvenie/Damaged	Taenionema Periodide Periodide Periodide Physocophila hyalinata group Physocophila	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH13	09-Aug-22 03-Aug-27 03-Aug	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255	1 1 1 1 2 2 1 1 3 4 1 1 2 2 1 1 1 5 1 1 1 7 8 8 1 1 7 8 8 8 1 1 7 8 8 8 1 1 1 7 8 8 8 1 1 1 7 8 8 8 8	5 5 5 5 5 5 5 5 5 5 5 5 5 5 22 22 22 22	400 400 400 400 400 400 400 400 400 400
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Arthropoda Hexapoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodiade Trichoptera Piwpacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Chiroropridae Torbificida Enchytraeidae Diptera Chiroromidae Diptera Empididae Diptera Empididae Ephemeropter Ephemerellidae Ephemeropter Sphemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Phecoptera Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae	Tuesionema	Unclassified	Larvae Larvae Larvae Larvae Adult None Larvae	Taentonema Perfodiate Perfodiate Perfodiate Physacophila hyalinata group Physacophila vofina group Physacophila Lebertia Collembola Istaylorenia Residentia 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH13	09-Aug-22 07-Aug-27	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255	1 1 1 2 3 4 1 1 1 2 1 1 3 4 1 1 1 2 1 1 3 3 5 1 1 1 7 8 8 4 1 1 3 7 8 8 4 1 1 7 8 8 4 1 1 7 8 8 4 1 1 7 8 8 4 1 1 3 7 7 8 8 8 4 1 1 3 7 7 8 8 8 4 1 1 3 3 7 7 8 8 8 4 1 1 3 3 7 7 8 8 8 4 1 1 3 3 7 7 8 8 8 4 1 1 3 3 7 7 8 8 8 4 1 1 3 3 3 7 7 8 8 8 4 1 1 3 3 3 1 7 7 8 8 8 1 1 3 3 3 3	5 5 5 5 5 5 5 5 5 5 5 22 22 22 22 22 22	400 400 400 400 400 400 400 400 400 400	
Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Hexapoda Insecta Arthropoda Cheliceata Arthropoda Hexapoda Insecta Arthropoda Insecta Arthropoda Insecta Arthropoda Insecta Arthrop	Plecoptera Taeniopterygidae Plecoptera Perfodidae Trichoptera Physocophilidae Trichoptera Physocophilidae Trichoptera Physocophilidae Trichoptera Physocophilidae Trichoptera Physocophilidae Trichoptera Physocophilidae Trichoptera Chironomidae Trichoptera Chironomidae Diptera Empididae Ephemeropter Benedidae Ephemeropter Baetidae Ephemeropter Sphemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Ephemeropter Heptageniidae Plecoptera Plecoptera Plecoptera Nemouridae	Tuesionema	3 Unclassified OM 1 Unclassified P 1 Unclassified P 1 Unclassified P 2 Unclassified P 3 Unclassified P 4 Unclassified P 5 Unclassified P 6 CG 7 CG 7 CG 8 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 Unclassified CG 1 Unclassified CG 1 Unclassified CG 1 Unclassified CG 2 Unclassified CG 3 Unclassified CG 4 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified SC	Larvae Larvae Larvae Larvae Larvae Larvae Adult None Larvae	Taenionema Periodide Pinkacophila hyalinata group Pinkacophila bylanata group Pinkacophila Ubertria Collembola Hapoperia Encilytraes Prosimilum/Pelodin Baetis hodeni group Chironomide ND Tanyarsus Ribectanytarsus Stempellinella Parametriocnemus Ribectotopus Tretenia Neoplata Oreogeton Anneleus Baetis Baetis Baetis Baetis Baetide Cingmula Heptageriidde ND Dunnella doddii Heptageriidde ND Dunnella doddii Heptageriidde ND Dunnella doddii Heptageriidde ND Dunnella doddii Heptageriidde ND Nonless Anneleus Baetis Baetidae Gungmula Percoptera ND Caprilidae ND Nonless Anneleus Nonless Anneleus Baetidae Gungmula Petcoptera ND Caprilidae ND Nonless Anneleus Nonless Anneleus Baetidae Gungmula Petcoptera ND Caprilidae ND Nonless Anneleus N	2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH13	09-Aug-22 07-Aug-22 07-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255	1 1 1 1 2 2 1 1 3 3 4 4 1 1 1 2 2 1 1 1 3 3 5 1 1 7 7 5 1 1 8 8 4 4 1 1 3 7 7 7 3 1 1 7 7 5 1 1 8 8 1 1 3 3 3 3 3 3 3 3	5 5 5 5 5 5 5 5 5 5 5 5 5 2 2 2 2 2 2 2	400 400 400 400 400 400 400 400 400 400
Arthropoda Hexapoda Insecta Arthropoda Insecta	Plecoptera Taeniopterygidae Plecoptera Perfodiade Trichoptera Piwpacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Riyacophilidae Trichoptera Chiroropridae Torbificida Enchytraeidae Diptera Chiroromidae Diptera Empididae Diptera Empididae Ephemeropter Ephemerellidae Ephemeropter Sphemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Ephemeropter Ephemerellidae Phecoptera Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae Plecoptera Nemouridae	Tuesionema	3 Unclassified OM 1 Unclassified P 1 Unclassified P 1 Unclassified P 2 Unclassified P 3 Unclassified P 4 Unclassified P 5 Unclassified P 6 CG 7 CG 7 CG 8 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 CF 9 Unclassified CG 1 Unclassified CG 1 Unclassified CG 1 Unclassified CG 2 Unclassified CG 3 Unclassified CG 4 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified CG 5 Unclassified SC	Larvae Larvae Larvae Larvae Larvae Larvae Adult None Larvae	Taentonema Perfodiate Perfodiate Perfodiate Physacophila hyalinata group Physacophila vofina group Physacophila Lebertia Collembola Istaylorenia Residentia 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH12 2022 MH13	09-Aug-22 07-Aug-22 07-Aug-22 09-Aug-22	CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230254 CC230255	1 1 1 1 2 2 1 1 3 3 4 4 1 1 1 2 2 1 1 1 3 3 5 1 1 7 7 5 1 1 8 8 4 4 1 1 3 7 7 7 3 1 1 7 7 5 1 1 8 8 1 1 3 3 3 3 3 3 3 3	5 5 5 5 5 5 5 5 5 5 5 5 5 2 2 2 2 2 2 2	400 400 400 400 400 400 400 400 400 400	

Arthropod	a Hexapoda	Insecta	Plecoptera	Perlodidae			102994	Unclassified	P	Juvenile/Damaged	Perlodidae			2022 MH13	09-Aug-22	CC230255	4	22	400
Arthropod	a Hexapoda	Insecta	Trichoptera	Limnephilidae		Dicosmoecus	116265	Unclassified	OM	Larvae	Dicosmoecus			2022 MH13	09-Aug-22	CC230255	1	22	400
Arthropod	a Hexapoda	Insecta	Trichoptera	Rhyacophilidae		Rhyacophila	115097	Unclassified	P	Larvae	Rhyacophila			2022 MH13	09-Aug-22	CC230255	22	22	400
Arthropod	a Hexapoda	Insecta	Trichoptera	Hydropsychidae			115398	Unclassified	CF	Juvenile/Damaged	Hydropsychidae			2022 MH13	09-Aug-22	CC230255	1	22	400
Arthropod	a Hexapoda	Insecta	Trichoptera	Hydropsychidae		Parapsyche	115556	Unclassified	P	Larvae	Parapsyche			2022 MH13	09-Aug-22	CC230255	3	22	400
Arthropod	a Hexapoda	Insecta	Trichoptera	Hydropsychidae		Parapsyche elsis	115560		P	Larvae	Parapsyche elsis			2022 MH13	09-Aug-22	CC230255	3	22	400
Arthropod		Arachnida	Trombidiforn				82769		P	Adult	Trombidiformes			2022 MH13	09-Aug-22	CC230255	1	22	400
Arthropod		Insecta	Trichoptera	Rhyacophilidae		Rhyacophila		Unclassified	p	Larvae	Rhyacophila vofixa gro	un.		2022 MH13	09-Aug-22	CC230255	24	22	400
Arthropos				ne Sperchontidae		Sperchon		Unclassified		Adult	Sperchon	ш		2022 MH13	09-Aug-22	CC230255	14	22	400
Annelida	Clitellata	Oligochaeta	Tubificida	Enchytraeidae		Enchytraeus	68531		CG	None	Enchytraeus			2022 MH13 2022 MH13	09-Aug-22	CC230255	14	22	400
Arthropod				nt Hygrobatidae		Hygrobates		Unclassified	-	Adult	Hygrobates			2022 MH13	09-Aug-22	CC230255		22	400
Arthropod				nt riygrobatidae nt Lebertiidae		Lebertia		Unclassified	P	Adult	Lebertia			2022 MH13	09-Aug-22	CC230255	16	22	400
						Lebertia			-						-		16		
Arthropod		Arachnida		e: Hydrozetidae			553091		P	Adult	Hydrozetidae			2022 MH13	09-Aug-22	CC230255	1	22	400
Arthropod		Arachnida	Sarcoptiform				733326		Р	Adult	Oribatida			2022 MH29	10-Aug-22	CC230256	2	28	400
Arthropod		Insecta	Diptera	Simuliidae		Prosimulium/Helodon	126640B		CF	Larvae	Prosimulium/Helodon			2022 MH29	10-Aug-22	CC230256	2	28	400
Arthropod		Insecta	Diptera	Chironomidae	Tanypodinae Pentaneurini		127994A			Larvae	Telmatopelopia			2022 MH29	10-Aug-22	CC230256	2	28	400
Annelida	Clitellata	Oligochaeta		Enchytraeidae		Enchytraeus	68531		CG	None	Enchytraeus			2022 MH29	10-Aug-22	CC230256	4	28	400
Arthropod	a		Collembola				99237		CG	None	Collembola			2022 MH29	10-Aug-22	CC230256	3	28	400
Arthropod	a Chelicerata	Arachnida	Trombidiforn	ne Hydryphantidae		Wandesia	83172	Unclassified	P	Adult	Wandesia			2022 MH29	10-Aug-22	CC230256	3	28	400
Arthropod	a Chelicerata	Arachnida	Trombidiforn	nt Hygrobatidae		Hygrobates	83297	Unclassified	P	Adult	Hygrobates			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod	a Chelicerata	Arachnida	Trombidiforn	nt Lebertiidae		Lebertia	83034	Unclassified	P	Adult	Lebertia			2022 MH29	10-Aug-22	CC230256	3	28	400
Arthropod	a Chelicerata	Arachnida	Trombidiforn	ne Sperchontidae		Sperchon	83006	Unclassified	P	Adult	Sperchon			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod	a Hexapoda	Insecta	Trichoptera	Rhyacophilidae		Rhyacophila	1150975	Unclassified	P	Larvae	Rhyacophila vofixa gro	up		2022 MH29	10-Aug-22	CC230256	2	28	400
Arthropod	a Hexapoda	Insecta	Trichoptera	Rhyacophilidae		Rhyacophila	115097	Unclassified	P	Larvae	Rhyacophila			2022 MH29	10-Aug-22	CC230256	32	28	400
Arthropod	a Hexapoda	Insecta	Trichoptera	Lepidostomatidae		Lepidostoma	116794	UV	SH	Larvae	Lepidostoma			2022 MH29	10-Aug-22	CC230256	6	28	400
Arthropod	a Hexapoda	Insecta	Plecoptera	Perlodidae		Megarcys	103110	Unclassified	P	Larvae	Megarcys			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod	a Hexapoda	Insecta	Plecoptera	Nemouridae		Zapada	102591B	Unclassified	SH	Larvae	Zapada oregonensis gr	oup		2022 MH29	10-Aug-22	CC230256	2	28	400
Arthropod	a Hexapoda	Insecta	Plecoptera	Nemouridae		Zapada columbiana	102596	SV	SH	Larvae	Zapada columbiana			2022 MH29	10-Aug-22	CC230256	145	28	400
Arthropod	a Hexapoda	Insecta	Plecoptera	Nemouridae		Zapada			SH	Larvae	Zapada	ND		2022 MH29	10-Aug-22	CC230256	14	28	400
Arthropod		Inserta	Plecontera	Nemouridae		Visoka cataractae	102615		SH	Larvae	Visoka cataractae			2022 MH29	10-Aug-22	CC230256	5	28	400
Arthropod		Insecta	Plecoptera	Leuctridae					SH	Juvenile/Damaged	Leuctridae			2022 MH29	10-Aug-22	CC230256		28	400
Arthropod		Insecta	Plecoptera	Nemouridae					SH	Juvenile/Damaged	Nemouridae	ND		2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod		Insecta	Plecontera	Hemodridae				Unclassified	311	Juvenile/Damaged	Plecontera	ND		2022 MH29	10-Aug-22	CC230256	4	28	400
Arthropod		Insecta	Plecoptera	Capniidae					SH		Capniidae	ND		2022 MH29		CC230256	4	28	400
,			,						511	Juvenile/Damaged					10-Aug-22		1	28	400
Arthropod		Insecta	Plecoptera	Chloroperlidae				Unclassified	P	Juvenile/Damaged	Chloroperlidae			2022 MH29	10-Aug-22	CC230256	1		
Arthropod		Insecta	Plecoptera	Chloroperlidae		Sweltsa	103273		Р	Larvae	Sweltsa			2022 MH29	10-Aug-22	CC230256	11	28	400
Arthropod		Insecta		er Heptageniidae		Epeorus			SC	Larvae	Epeorus			2022 MH29	10-Aug-22	CC230256	2	28	400
Arthropod		Insecta	Hemiptera				103359			None	Hemiptera			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod		Insecta		er Heptageniidae		Cinygmula			SC	Larvae	Cinygmula			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod		Insecta	Ephemeropte			Baetis	100800		CG	Larvae	Baetis			2022 MH29	10-Aug-22	CC230256	4	28	400
Arthropod	a Hexapoda	Insecta		er Heptageniidae					SC	Juvenile/Damaged	Heptageniidae	ND		2022 MH29	10-Aug-22	CC230256	2	28	400
Arthropod	a Hexapoda	Insecta	Ephemeropte	er Baetidae		Baetis bicaudatus			CG	Larvae	Baetis bicaudatus			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod	a Hexapoda	Insecta	Ephemeropte	er Ameletidae		Ameletus	100996	UV	CG	Larvae	Ameletus			2022 MH29	10-Aug-22	CC230256	32	28	400
Arthropod	a Hexapoda	Insecta	Diptera	Simuliidae		Simulium	126774	MV	CF	Larvae	Simulium			2022 MH29	10-Aug-22	CC230256	7	28	400
Arthropod	a Hexapoda	Insecta	Diptera	Chironomidae	Tanypodinae Procladiini	Procladius	128277		P	Larvae	Procladius			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod	a Hexapoda	Insecta	Diptera	Empididae		Neoplasta	136352		P	Larvae	Neoplasta			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod	a Hexapoda	Insecta	Diptera	Empididae		Oreogeton	136377		P	Larvae	Oreogeton			2022 MH29	10-Aug-22	CC230256	19	28	400
Arthropod	a Hexapoda	Insecta	Diptera	Psychodidae		Pericoma/Telmatoscopus	125351A		CG	Larvae	Pericoma/Telmatoscop	ous		2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod	a Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Tvetenia	129197		CG	Larvae	Tvetenia			2022 MH29	10-Aug-22	CC230256	9	28	400
Arthropod	a Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae	Heleniella	128730		CG	Larvae	Heleniella			2022 MH29	10-Aug-22	CC230256	15	28	400
Arthropod		Insecta	Diptera	Chironomidae	Orthocladiinae	Limnophyes	128776		CG	Larvae	Limnophyes			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod	a Hexapoda	Insecta	Diptera	Chironomidae	Orthocladiinae		128457		CG	Juvenile/Damaged	Orthocladiinae	ND		2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod		Insecta	Diptera	Chironomidae	Orthocladiinae	Brillia	128477		SH	Larvae	Brillia			2022 MH29	10-Aug-22	CC230256	5	28	400
Arthropos		Insecta	Diptera	Chironomidae	Chironominae Tanytarsini	Stempellinella	129969		CF	Larvae	Stempellinella			2022 MH29	10-Aug-22	CC230256	1	28	400
Arthropod		Insecta	Diptera	Ceratopogonidae		Ceratopogon	127564		p	Larvae	Ceratopogon			2022 MH29	10-Aug-22	CC230256	2	28	400
Arthropod		Insecta	Diptera	Chironomidae			127917			Pupa	Chironomidae	ND		2022 MH29	10-Aug-22	CC230256	2	28	400
Artinopod	• пехарода	ansecta	Dibreia	Cintollollilluae			12/91/			· upa	Cim Ollottilluae		11	AULE WINES	10 mg-22	CCESOESO	3		+00

ND designation of a taxa represents a non-distinct taxa. This adjusts where the associated taxa fall in the metrics for this sample because the individuals are likely represented by Genus or Species level identifications.



Ensero Solutions

Taxonomist: Scott Finlayson

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250-494-7553 Total from Sample Percent Efficiency

Site - QC, Sample - QC1, CC# - CC230255, Percent sampled = 22%, Sieve size = 400									
Chironomidae		3							
Plecoptera		2							
Trichoptera		1							
	Total:	6	338	98%					