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August 10, 2015

EDI Project No: 15Y0146

Assessment and Abandoned Mines Branch (AAM) K-149
Department of Energy, Mines and Resources, Yukon Government
Room 2C Royal Center, 4114-4th Avenue
PO 2703, Whitehorse, YT, Y1A 2C6

Attention: Erik Pit, Type II Project Manager

RE: Mount Nansen Water Resources Investigations – Monthly Report: June 2015 – FINAL

Trip dates:	June 15-17, 2015
EDI field staff:	Pat Tobler, Scott Dilling and Danny Skookum
Weather during trip:	Conditions ranged from sunny to cloudy with light winds and daytime high air temperatures from 18 to 22°C.

The following monthly report includes a summary of site conditions and data collected during EDI's June 2015 trip to Mount Nansen as part of the 2015/16 Water Resources Investigations. See Table 1 for a summary of data included in this report.

Table 1. Summary of information provided in this monthly report.

Report Section	Description
Site Conditions	• Summary of weather and general site conditions
Meteorology	• Statement on station status and identification of any data gaps or QA/QC issues
Hydrology	• Discussion of noteworthy hydrology observations • Statement of QA/QC for the data collected this month
Water Quality	• Summary of noteworthy water quality observations • Statement on QA/QC sample results
Program Recommendations	• Program recommendations for meteorological, hydrology and water quality programs
Additional Trip Information	• Project Safety Concerns • Wildlife sightings • Budget and schedule considerations
List of Attachments	• Map of Hydrology Stations and Water Quality Sites • Site and station photos • Data Tables – hydrology and water quality • Lab Result Reports

SITE CONDITIONS

The June 2015 site trip represents post-freshet conditions transitioning to summer. Water levels have receded significantly since the May 2015 trips during freshet conditions. A few small, isolated patches of snow and ice remain in shaded areas. With the exception of H-DC-D1b all channels are free of ice and snow in the vicinity of the measurement locations. The pit lake was sampled for the first time of the open water season (last sampled in April 2015). Active placer mining construction works were observed along Pony Creek upstream of H-PC-DSP/WQ-PC-U, including the construction of multiple earth dams. This work is likely contributing to the zero flow conditions at the measurement and sampling stations along Pony Creek and Back Creek. Dry channel conditions were also present at some of the WQ-DESS sites, and the WQ-MS-S-08, WQ-LW-SEEP-01 and WQ-ADIT-SEEP sites - no water quality samples were collected at these sites.

METEOROLOGY

Meteorological data was collected at the ATM-ROAD station throughout the month of May. Northern Avcom informed AAM that the station's modem was deactivated on April 21, 2015 and that a new telemetry system will be installed likely mid-June. In the meantime, AAM continues to download the data manually when on site. As of the writing of this report, data was available up to July 9, 2015. EDI conducted a preliminary QA/QC review of the June 2015 data and all sensors appear to be functioning as expected. Meteorological data will also be summarized and analyzed following the completion of the open-water season, in the October 2015 Monthly Report. This will include data from April 1, 2015 to October 15, 2015 with plots and tables.

HYDROLOGY

Discharge measurements were collected at all stations with suitable conditions. Water levels were low to moderate across the Mount Nansen Site, having dropped since the end of freshet and with the recent hot and dry conditions. At H-VC-R, all flows are contained in the main channel where the continuous logger is installed and the stilling well will remain in its existing location for the 2015 open water season. The stilling well location is susceptible to ice buildup in the winter and options for better capturing stage data during the winter will be discussed with AAM at a later date.

For the month of June, continuous logger records are available for eight stations: H-PC-DSP, H-DC-B, H-DC-M WP, H-DC-R, H-VC-U, H-VC-DBC, H-VC-UMN and H-VC-R. See attached data tables for a summary of conditions and hydrometric monitoring tasks completed at each station and for a summary of discharge measurement results for the June 15 - 17, 2015 period. Quality control and quality assurance for the hydrometric data was conducted on the instantaneous and continuous data. Noteworthy observations are included below.

Noteworthy Observations

- Discharge measurements were collected with an ADV at H-VC-U, H-VC-DBC, H-VC-UMN and H-VC-R with discharge values ranging from 0.085 to 0.146 m^3/s. The June 2015 trip discharges represent flow conditions much lower than the second May 2015 trip during freshet conditions, when discharges at these sites ranged from 1.163 to 2.328 m^3/s.
- A preliminary review of the discharge patterns along Victoria Creek show that the measured discharge at H-VC-U is greater than the discharge downstream at H-VC-DBC. This anomaly occurred in July 2014, both site trips in May 2015 and June 2015. A more detailed review of the local hydrology along Victoria Creek will be completed at the end of the open water season.
- Discharge measurements were made using salt tracer tests at H-DC-D1b, H-DC-B and H-DC-R, with flows ranging from 0.003 to 0.015 m^3/s, and are in general agreement with the observed field conditions. These flowrates have been updated following a review of the salt tracer calculation tool which previously resulted in overestimated discharge values for the June data. Salt tracer tests prior to June 2015 are unaffected.
- Dry channel conditions are present along Back Creek. Isolated areas of ponded water were observed along the creek upstream of the measurement station. There is minimal evidence of erosion at secondary channels that were active during the spring freshet.
- Active placer mining activity upstream of H-PC-DSP was underway during the site trip. This work included the construction of two earth dams along Pony Creek with ponded water stored upstream of the dams. These dams may be contributing to the downstream dry channel conditions along Pony Creek and Back Creek. Note Pony Creek frequently flows underground during the summer months during low flows.
- Fine sediment in weir pond at H-DC-M has been excavated and moved beyond the banks of the pond. All water is flowing though the weir.

WATER QUALITY

Water quality samples and data were collected at 17 scheduled sites during the June 2015 trip, including the pit lake site (which was now ice free). Eight sampling sites were dry and no samples were collected (WQ-PC-U, WQ-PC-D, WQ-BC, WQ-LW-SEEP-01, WQ-MS-S-08, WQ-ADIT-SEEP, WQ-DESS-02, WQ-DESS-03). The WQ-SEEP LC50 was not scheduled for sampling in June 2015. A drinking water sample for June 2015 was collected from the pumphouse well (WQ-PW).

See attached data tables for a summary of conditions at each site and a record of where samples were collected during each trip. In situ and laboratory results summary tables are also attached. Parameters that exceeded CCME-AL guidelines and/or the Mount Nansen EQS criteria are highlighted. The lab certificates of analysis are also attached. Many results reflect typical conditions for this time of year at Mount Nansen when there is a decrease in surface runoff and water levels following the end of the spring melt – resulting in lower concentrations of many parameters of concern. Noteworthy observations and comments on sample QA/QC are included in the subsections below.

Noteworthy Observations

- Many sites were dry during the June 2015 trip – no samples could be collected from Back Creek or Pony Creek – likely related to hot and dry conditions as well as potential upstream effects of placer mining earthworks. Several seeps were also dry, likely related to the hot and dry weather conditions.
- Samples from Victoria Creek did not exceed any guidelines or standard criteria for any parameters. This is a common occurrence after water levels and surface runoff have decreased following the completion of spring freshet. Also Back Creek was dry and not contributing any flows to Victoria Creek, which could otherwise increase concentrations of some parameters at the downstream sites, such as WQ-VC-DBC (note this would depend on the water quality of Back Creek).
- WQ-CH-P-13-01 and WQ-DESS-01 have similar water chemistry with low pH and several metals that exceeded CCME-AL and/or Mount Nansen EQS criteria (aluminum, cadmium, and zinc).
- The total zinc concentrations in the WQ-SEEP samples continue to decrease and were well below CCME-AL guideline during the June 2015 trip, with a values of 0.0071 mg/L (down from 0.0189 mg/L from the May 13, 2015 sample).

QA/QC Samples

Travel Blank Sample – all parameters were below detection limits, except for ammonia which commonly occurs when samples provided by the lab are dated. No contamination is suspected from actual transport or storage).

Field Blank Sample –all parameters were below detection limits – no contamination suspected from sample handling or processing.

Replicate Sample(s) – the average RPD of the replicate sample set for WQ-VC-DBC-r was 8% with an average difference of 1% for dissolved and 18% for total metals. Total aluminum, iron, and titanium had RPD >50%, likely indicating intrinsically high sample variability or imprecisions in lab instrumentation. The average RPD of the replicate sample set for WQ-DC-DX-r was 8% with an average difference of 5% for dissolved and 7% for total metals. TSS and total iron had RPD>50% and >20%, respectively. The average RPD of the replicate sample set for WQ-SEEP-r was 5% with an average difference of 3% for dissolved and 4% for total metals. Alkalinity (total and bicarbonate) had RPD>20%. The parameters with higher RPDs for the replicate samples were for total metals, and were not reflected in the RPDs of dissolved metals results; which suggests that the large differences are likely related to suspended sediments and natural site variability.

PROGRAM RECOMMENDATIONS

- As discussed with AAM, the pit lake water quality sampling location will be moved away from the west pit wall. Large, precarious rocks were identified as a hazard during the June 17, 2015 sampling (Photos 32 and 33). When sampling from a boat in pit lake, the stability of these rocks was unclear and would pose a significant safety hazard if one fell while sampling. A safer sampling location will be selected during the July site visit and details of its location will be provided to AAM.
- Continue to monitor sediment build-up in the weir pond over the course of the open-water season.
- Continue to monitor the WQ-SEEP (regular standard sampling package monthly and LC50 every second month). Conditions continue to improve.
- Continue to monitor the WQ-LW-SEEP-01 and WQ-ADIT-SEEP during subsequent summer and fall trips, in order to collect opportunistic samples if flowing (both sites were dry during the May and June 2015 trips).

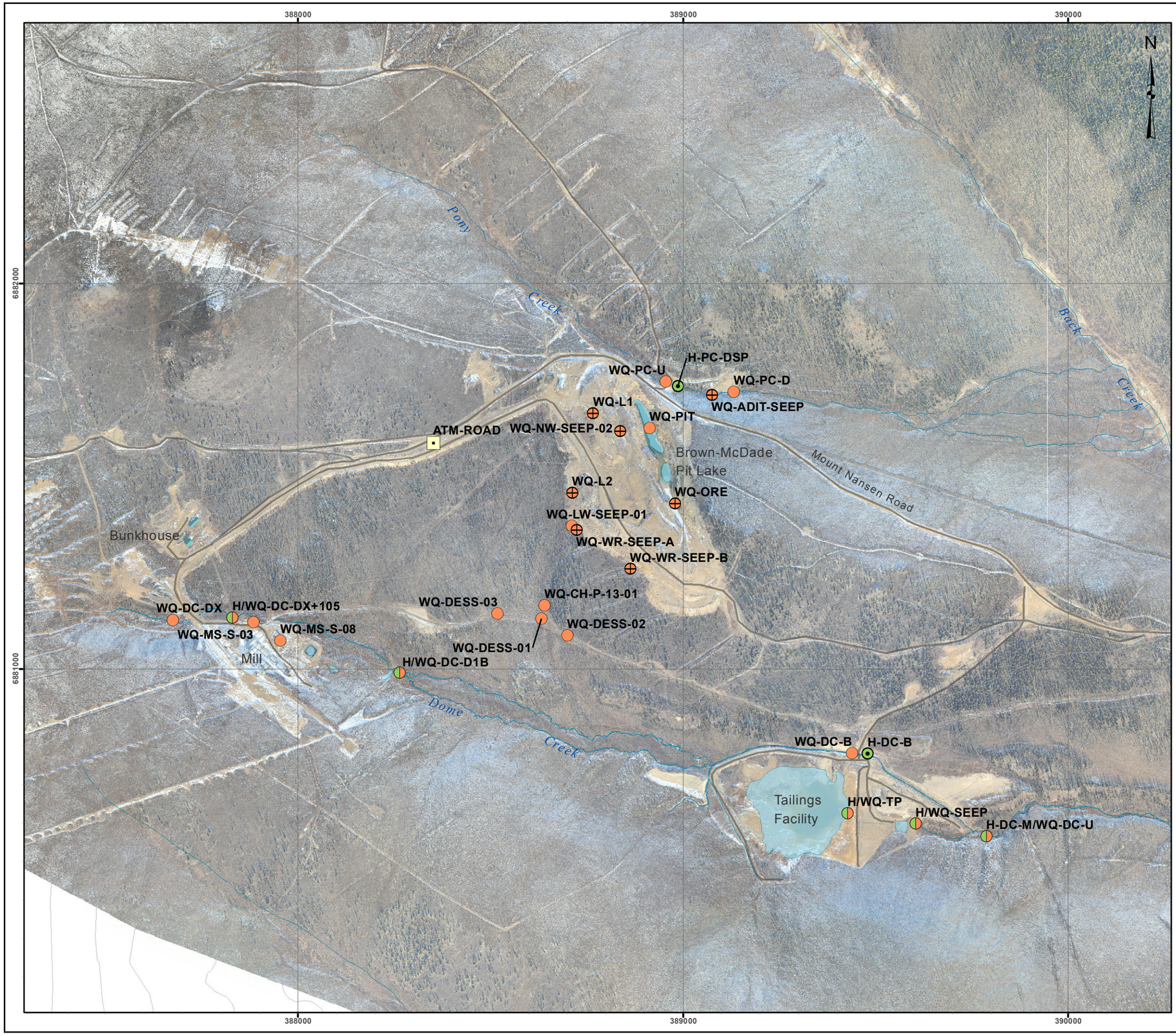
ADDITIONAL TRIP INFORMATION

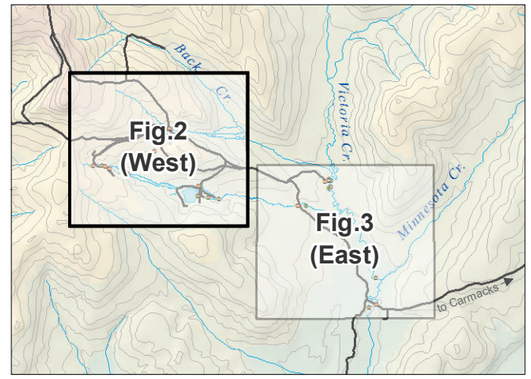
Any changes to project scope (i.e. additional sites sampled):	All sampling and monitoring was conducted within scope.
Any alterations to sample scheduling:	None.
Any events resulting in changes to budget:	None
Additional Comments:	Site conditions have transitioned from spring freshet to early summer conditions. The Mount Nansen site is nearly entirely ice free with only a few small, isolated ice covered areas are persisting. Both Pony Creek and Back Creek water quality and hydrology sites/stations were dry, which may be a result of the influence of upstream placer mining construction activities, compounded by dry and hot weather conditions. Many seeps were also dry.
Wildlife Sightings:	A black bear and a grizzly bear were seen while driving to Carmacks along the Mount Nansen road. Arctic grayling were observed at WQ-VC-UMN and H-VC-R.
Site concerns (safety):	A caribou leg (bait) was discovered during the second May 2015 trip at the access point to the trail for WQ/H-VC-UMN off the Mount Nansen road. The bait was wired to the base of a tree several meters from a trap line sign and appears to be left from winter. May be a wildlife attractant. Along the west wall of the Brown McDade pit, large precarious rocks are present near the sampling location in the centre of the pit lake. The sampling location will be relocated to reduce the risk of rock fall, unless the rocks can be removed. EDI will continue to assess conditions on a trip by trip basis and will not enter the area if it is deemed unsafe.

LIST OF ATTACHMENTS

The following information is attached to this monthly report:

1. Map of Sampling Locations
2. Site and Station Photos from the trip
3. Data Tables
    a. Hydrology – Site Conditions and Tasks Completed & Summary Table of Discharge Measurements
    b. Water Quality – Site Conditions and Samples Collected & Summary Table of In Situ Parameters and Lab Results
4. Water Quality – Copies of Lab Certificate of Analysis (COA) & Yukon Environmental Health Services Bacteriological Results





Legend

- Atmospheric Station (label e.g. ATM-ROAD)
- Hydrometric Station and Water Quality Site (label e.g. H/WQ-VC-UMN)
- Hydrometric Station (label e.g. H-VC-R)
- Water Quality Site (label e.g. WQ-PC-U)
- Temporary Water Quality Site (label e.g. WQ-MS-S-03)
- Unpaved Road/Access

Mount Nansen Site (West): Hydrometric Stations and Water Quality Sites

Notes:

1:50,000 and 1:250,000 Topographic Spatial Data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

Watercourse, drainage areas and Mount Nansen Road layers digitized / modified by EDI (2011) using orthophotos provided by Yukon Government, Energy, Mines and Resources (2011).

Imagery provided by Yukon Government - Energy, Mines and Resources - Abandoned Mines Branch.

Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. (2014/2015) was obtained using Garmin GPS technology.

This document is not an official land survey and the spatial data presented is subject to change.

0 50 100 200 300 400 500
Metres

Map Scale = 1:10,000 (printed on 11 x 17)
Map Projection: NAD 1983 UTM Zone 8N

Drawn: LG	Checked: MM / JB	Date: 08/05/2015	**FIGURE 2**

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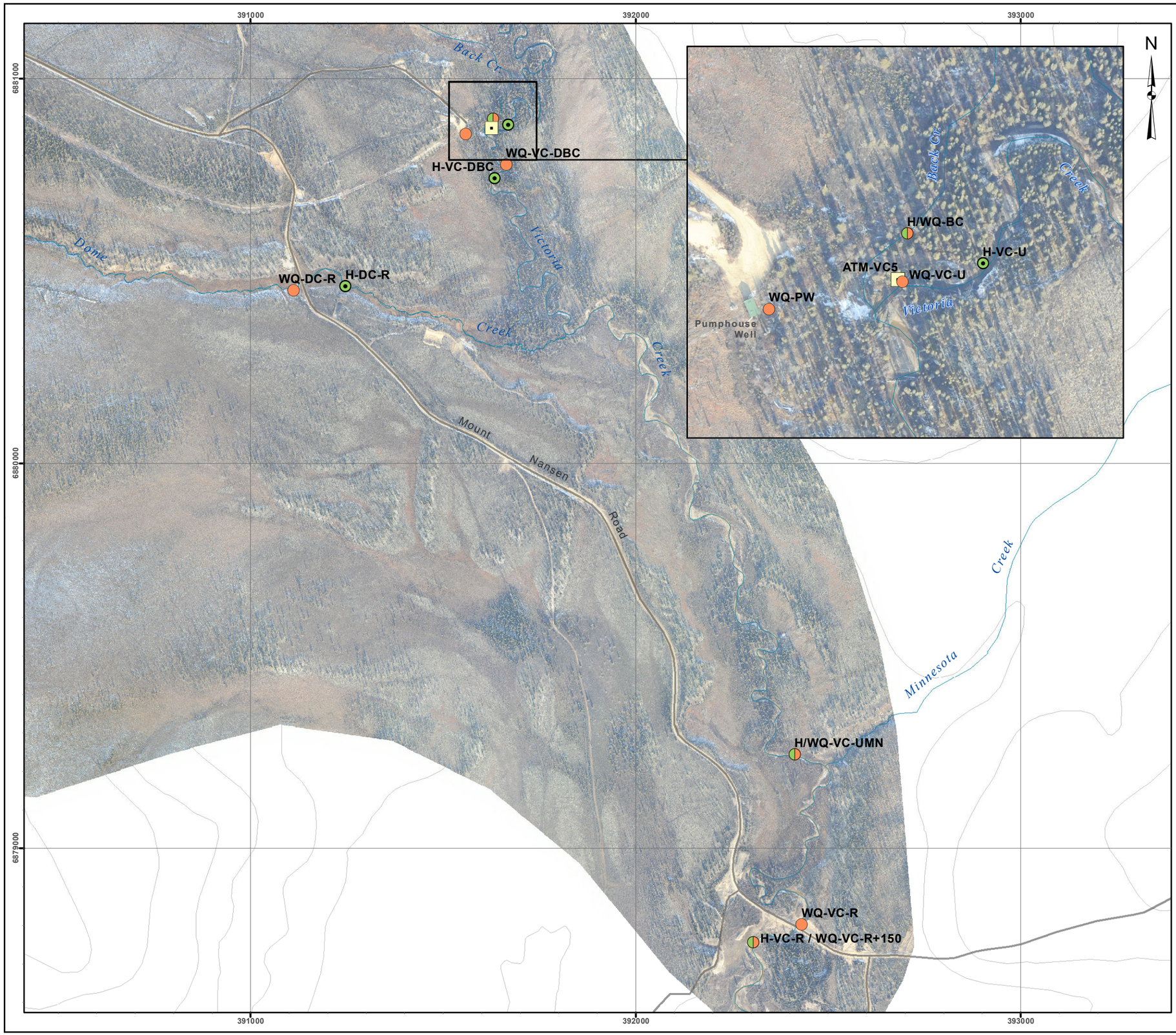

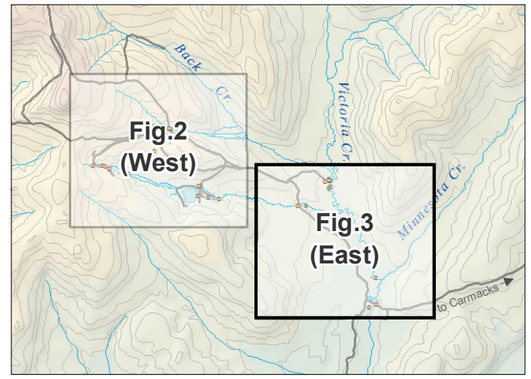

Legend

- Atmospheric Station (label e.g. ATM-ROAD)
- Hydrometric Station and Water Quality Site (label e.g. H/WQ-VC-UMN)
- Hydrometric Station (label e.g. H-VC-R)
- Water Quality Site (label e.g. WQ-PC-U)
- Temporary Water Quality Site (label e.g. WQ-MS-S-03)
- Unpaved Road/Access

Mount Nansen Site (East): Hydrometric Stations and Water Quality Sites

Notes:

1:50,000 and 1:250,000 Topographic Spatial Data provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

Watercourse, drainage areas and Mount Nansen Road layers digitized / modified by EDI (2011) using orthophotos provided by Yukon Government, Energy, Mines and Resources (2011).

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0 50 100 200 300 400 500
Metres

Map Scale = 1:10,000 (printed on 11 x 17)
Map Projection: NAD 1983 UTM Zone 8N

Drawn:	Checked:	Date:	
LG	MM / JB	08/05/2015	**FIGURE 3**

Yukon EDI

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Dome Creek Sites/Stations, Mill Seeps and DESS Seeps

Photo 1. H/WQ-DC-DX+105, looking downstream (June 16, 2015).

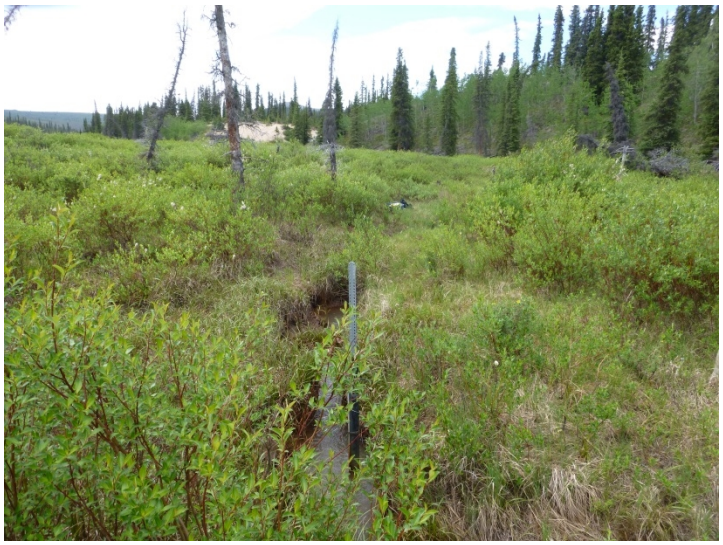

Photo 2. H-DC-R, looking upstream (June 15, 2015).

Photo 3. WQ-DC-R, looking downstream (June 15, 2015).

Photo 4. WQ-DC-DX, looking downstream (June 17, 2015).

Photo 5. WQ-MS-S-03, looking upstream (June 16, 2015).

Photo 6. WQ-MS-S-08, overview of dry conditions (June 16, 2015).

Photo 7. H-DC-B, looking downstream (June 16, 2015).

Photo 8. WQ-DC-B, looking upstream (June 16, 2015).

Photo 9. H-DC-M WP, looking downstream showing sediment excavated from weir pond (June 16, 2015).

Photo 10. H-DC-M WP, looking upstream (June 16, 2015).

Photo 11. WQ-DC-U, looking downstream (June 16, 2015).

Photo 12. H/WQ-DC-D1b, looking upstream (June 16, 2015)

Photo 13. WQ-CH-P-13-01, looking downstream (June 16, 2015).

Photo 14. WQ-DESS-01, looking upstream (June 16, 2015).

Photo 15. WQ-DESS-02, dry conditions (June 16, 2015).

Photo 16. WQ-DESS-03, dry conditions at sampling site (June 16, 2015).

Victoria Creek Sites/Stations

Photo 17. H-VC-U, looking upstream (June 16, 2015).

Photo 18. WQ-VC-U, looking upstream (June 16, 2015).

Photo 19. H-VC-DBC, looking upstream (June 16, 2015).

Photo 20. WQ-VC-DBC, looking upstream (June 16, 2015).

Photo 21. H/WQ-VC-UMN, looking upstream (June 15, 2015).

Photo 22. H-VC-R, looking downstream (June 15, 2015).

Photo 23. H-VC-R, overview looking upstream from road (June 15, 2015).

Pony Creek Sites/Stations

Photo 24. H-PC-DSP, dry channel conditions (June 15, 2015).

Photo 25. Placer mining activity upstream of H-PC-DSP/WQ-PC-U showing construction of earth dams (June 16, 2015).

Photo 26. Placer mining activity upstream of H-PC-DSP/WQ-PC-U showing construction of earth dams and ponded water (June 16, 2015).

Photo 27. WQ-PC-U – no flow into pond, not suitable for sample collection (June 15, 2015).

Photo 28. WQ-PC-D – no flow in channel – site dry (June 15, 2015).

Pit Lake/Tailings Pond/Seepage Pond Discharge

Photo 29. H/WQ-SEEP (June 16, 2015).

Photo 30. H/WQ-TP (June 16, 2015).

Photo 31. H-TP, staff gauges (June 16, 2015).

Photo 32. Overview of Pit Lake (June 17, 2015).

Photo 33. Pit Lake, west pit wall showing potentially unstable rocks above normal sampling location (June 17, 2015).

Back Creek Sites/Stations

Photo 34. H/WQ-BC, dry channel conditions (June 16, 2015).

Photo 35. Victoria Creek upstream of WQ-VC-U. Dry conditions and minimal erosion at location of overland flow entering Victoria Creek during freshet period. (June 16, 2015).

Measurement ID	Hydrometric Identifier (HID)	Measurement Date	Measurement Time	Discharge Measurement Method	Discharge (m^3/s)	Discharge Data Flag	Surveyed Water Elevation (m)	Survey Data Flag	Comments
305	ATM-VC5	16/06/2015		N				N	Redundant atmospheric barologger (SN: 0012039961) downloaded and removed. Existing logger (SN: 0012041756) downloaded and left on site.
314	H-BC	16/06/2015		N	0.000	X			Channel dry with no flow or standing water. Deployed new data logger (SN: 0022041820) in existing stilling well. No overland flow upstream of station and no evidence of erosion from secondary channels active during spring freshet.
309	H-DC-B	16/06/2015	15:00	SS	0.008		1.946		Salt tracer completed for discharge measurement.
308	H-DC-D1b	16/06/2015	18:18	SS	0.003			N	Moderate flow in channel. Water goes to subsurface approximately 15 m downstream of site.
307	H-DC-DX+105	16/06/2015	17:05	V	0.000			N	Low flow in channel. Vegetation along approximately 50% of channel bed.
319	H-DC-M WP	16/06/2015	13:25	V	0.007		2.246		Weir pond recently cleaned by hand by AAM. Piles of sand moved to beyond edges of pond. All flow contained within weir pond and flowing through weir.
311	H-DC-R	15/06/2015	16:49	SS	0.015		0.5855		Dynamic stream channel; channel avulsion upstream of station. Subsurface flows upstream of station for approximately 20 m. Confluence with main channel 15 m upstream of station.
306	H-PC-DSP	15/06/2015		N	0.000	X			Channel dry. No survey completed.
317	H-SEEP	16/06/2015	13:38	V	0.002			N	Seep pump (in shack) total liters = 270046 L; liters/min = 152.1 at 13:38. DES preparing to clean and de-scale pipes; flow was adjusting while measurements collected from 140L/min to 170 L/min.
318	H-TP	16/06/2015	13:59	N		X		N	Low water level in tailings pond.
313	H-VC-DBC	16/06/2015	8:45	ADV-MID	0.085		1.714		Thin layer of fine sediment accumulation on bed in reach upstream of station. Removed remote camera that monitored staff gauge/stage during freshet.
316	H-VC-R	15/06/2015	13:25	ADV-MID	0.146		2.117		Low flow in channel. All flow contained within main channel. No preferred downstream stilling well locations identified during site investigation.
312	H-VC-U	16/06/2015	10:00	ADV-MID	0.100		2.005		ADV used for discharge measurement. (Logger re-installed at incorrect location; continuous stage file will be corrected accordingly for the period June 16-July 13, 2015).
315	H-VC-UMN	15/06/2015	15:10	ADV-MID	0.109		1.571		ADV used for discharge measurement.

Discharge Measurement Method Legend

Measurement Method ID	Measurement Method	Measurement Description
ADV-MID	Mid Section Method - Acoustic Doppler Velocimeter	Cross-sectional velocity using an ADV, mid-section method.
SS	Brine Salt Slug Tracer	Salt dilution gauging using a brine salt slug.
V	Volumetric	Volumetric measurement obtained by filling a graduated contained at a culvert, pipe outlet or weir.
W	Weir	Measurement obtained by a rated structure (v-notch weir).
N	None	No measurement could be obtained.
SD	Dry Salt Slug Tracer	Salt dilution gauging using a dry salt slug.
HWM	High Water Mark - Indirect Method	Indirect method using high water mark in the slope-area calculation for estimating high discharges.
ADCP	Acoustic Doppler Current Profiler	Cross-sectional velocity using an ADCP, mid-section method.
SC	Constant Rate Salt Tracer	Salt dilution gauging using the constant rate method.
CM-MID	Mid Section Method - Current Meter	Cross-sectional velocity using a velocimeter (Swoffer or Pygmy AA)

Hydrometric Stations

Hydrometric ID	Hydrometric Stations
ATM-VC5	Atmospheric Barologger (5) at Victoria Creek
H-BC	Back Creek
H-DC-B	Diversion Channel at Bridge
H-DC-D1B	Dome Creek at D1b
H-DC-DX	Dome Creek at DX
H-DC-DX+105	Dome Creek at DX+105
H-DC-M-WP	Middle Dome Creek at Weir Pond
H-DC-R	Dome Creek at Road
H-PC-DSP	Pony Creek Downstream of Pit
H-SEEP	Seepage Pond Outflow
H-TP	Tailings Pond
H-VC-DBC	Victoria Creek Downstream of Back Creek
H-VC-R	Victoria Creek at Road
H-VC-U	Upper Victoria Creek
H-VC-UMN	Victoria Creek Upstream of Minnesota Creek

Discharge Data Flag Legend

Discharge Data Flag	Discharge Data Flag Description
E	Estimated value
B	Backwater effects (ice related)
F	Instrument malfunction
M	Manual measurement
A	Automated measurement (logged)
ML	Missing length data
MD	Missing depth data
MW	Missing width data
O	Outside of measurement reporting range
P	Potential Place Mining Interference with Flow
S	Suspect data
X	Poor channel conditions for discharge measurement
MI	Missing Data
SH-L	Data logger Shift
SH-SG	Staff Gauge Shift
UR	Under review

Survey Data Flag Legend

Survey Flag	Survey Flag Description
S	Suspect data
MI	Missing data
UR	Under review
F	Instrument Malfunction
O	Outside measurement Accuracy (+/-0.003 m)
N	No survey conducted

Water Quality Site	Sample Collected? (Y/N)	Measurement Date	Comments
WQ-ADIT-SEEP	N	14-Jul-15	Seep is dry; no sample collected.
WQ-BC	N	13-Jul-15	Site has no flowing water; no sample collected
WQ-CH-P-13-01	Y	14-Jul-15	Water level low.
WQ-DC-B	Y	14-Jul-15	Water level low.
WQ-DC-D1b	Y	14-Jul-15	Water level low.
WQ-DC-DX	Y	14-Jul-15	Water level extremely low; sample collected, but under challenging conditions. Water appears clear, but large amounts of sediment stirred up during sampling (unavoidable).
WQ-DC-DX+105	N	14-Jul-15	Site dry; no sample collected.
WQ-DC-R	Y	13-Jul-15	Low flow.
WQ-DC-U	Y	14-Jul-15	Water level low.
WQ-DESS-01	N	16-Jun-15	Not scheduled for this time of year.
WQ-DESS-02	N	16-Jun-15	Not scheduled for this time of year.
WQ-DESS-03	N	16-Jun-15	Not scheduled for this time of year.
WQ-LW-SEEP-01	N	14-Jul-15	Site dry; no sample collected.
WQ-MS-S-03	Y	14-Jul-15	Water level low.
WQ-MS-S-08	N	14-Jul-15	No water or evidence of water present; no sample collected.
WQ-PC-D	N	13-Jul-15	Dry, no sample collected.
WQ-PC-U	N	13-Jul-15	Some pooled water due to recent precipitation, however, no flowing water; no sample collected.
WQ-PIT-1	Y	14-Jul-15	
WQ-PIT-2	Y	14-Jul-15	Depth of sample: 1.5 m. Sample no longer collected in deepest part of pit lake due to safety concerns with falling rocks.
WQ-PIT-3	Y	14-Jul-15	Sample depth 3.0 m. Sample no longer collected in deepest part of pit lake due to safety concerns with falling rcks

Water Quality Site	Sample Collected? (Y/N)	Measurement Date	Comments
WQ-PW	Y	14-Jul-15	Conditions normal.
WQ-SEEP	Y	14-Jul-15	Conditions normal, LC50 samples collected.
WQ-TP	Y	14-Jul-15	Water level very low.
WQ-VC-DBC	Y	13-Jul-15	Water level low.
WQ-VC-R	Y	13-Jul-15	Water level low.
WQ-VC-R+150	N	15-Jun-15	This is the winter/early spring sampling location - samples are collected from WQ-VC-R during the open water season.
WQ-VC-U	Y	13-Jul-15	Water level low.
WQ-VC-UMN	Y	13-Jul-15	Water level low.
QA/QC Samples			
Replicate 1	Y	16-Jun-15	Collected from WQ-DC-B-r
Replicate 2	Y	16-Jun-15	Collected from WQ-VC-UMN-r
Field Blank	Y	17-Jun-15	Sample bottles filled with deionized water supplied by ALS; samples were filtered and preserved as instructed. Collected field blank at WQ-DC-B.
Travel Blank	Y	-	Samples provided by lab and were transported to and from site.

Summary of Water Quality Results for the June 15-17, 2015 Trip.

Analyte	Units	CCME-WATER-F-AL	Mount Nansen Effluent Discharge Standards	Sample ID/Site ID Date Sampled Detection Limit	WQ-VC-U 6/16/2015 9:45:00 AM	WQ-VC-DBC 6/16/2015 9:10:00 AM	WQ-VC-DBC-r 6/16/2015 9:25:00 AM	QA/QC WQ-VC-DBC-r Replicate Analysis
Temperature (in-situ)	°C	-	-	-	4.0	3.8	-	-
Specific Conductivity (in-situ)	µS/cm	-	-	-	202.3	204.1	-	-
pH (in-situ)	pH	6.5 - 9.0	6.0 - 8.5	-	7.51	7.48	-	-
Dissolved Oxygen (in-situ)	mg/L	-	-	-	11.59	12.36	-	-
Turbidity (In-situ)	NTU	-	-	-	0.14	0.83	-	-
Colour, True	CU	15	-	5	-	-	-	-
Conductivity	µS/cm	-	-	2	196	197	196	1%
Hardness (as CaCO3)	mg/L	-	-	0.5	100	102	102	0%
pH (lab)	pH	6.5 - 9.0	6.0 - 8.5	0.1	8.02	8.05	8.02	0%
Total Suspended Solids	mg/L	-	50	3	<3.0	0	<3.0	<DL
Total Dissolved Solids	mg/L	-	-	1	111	111	111	0%
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	1	91.9	92.2	91.1	1%
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	1	<1.0	<1.0	<1.0	<DL
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	1	<1.0	<1.0	<1.0	<DL
Alkalinity, Total (as CaCO3)	mg/L	-	-	1	91.9	92.2	91.1	1%
Ammonia, Total (as N)	mg/L	0.75	-	0.005	0.0058	<0.0050	<0.0050	<DL
Chloride (Cl)	mg/L	120	-	0.5	<0.50	<0.50	<0.50	<DL
Fluoride (F)	mg/L	0.12	-	0.02	0.046	0.047	0.047	<2xDL
Nitrate (as N)	mg/L	13	-	0.005	0.0674	0.0669	0.0667	0%
Nitrite (as N)	mg/L	0.06	-	0.001	<0.0010	<0.0010	<0.0010	<DL
Sulfate (SO4)	mg/L	-	-	0.3	17.6	17.3	17.3	0%
Cyanide, Weak Acid Diss	mg/L	-	0.1	0.005	<0.0050	<0.0050	<0.0050	<DL
Cyanide, Total	mg/L	-	0.3	0.005	<0.0050	<0.0050	<0.0050	<DL
Cyanate	mg/L	-	-	0.2	<0.20	<0.20	<0.20	<DL
Thiocyanate (SCN)	mg/L	-	-	0.5	<0.50	<0.50	<0.50	<DL
Aluminum (Al)-Total	mg/L	0.1	-	0.003	0.0109	0.0294	0.0133	75%
Antimony (Sb)-Total	mg/L	-	0.15	0.0001	0.0001	0.00011	0.0001	<2xDL
Arsenic (As)-Total	mg/L	0.005	-	0.0001	0.0003	0.00043	0.00033	<2xDL
Barium (Ba)-Total	mg/L	-	1.0	0.00005	0.0703	0.0719	0.0719	0%
Beryllium (Be)-Total	mg/L	-	-	0.00002	<0.000020	<0.000020	<0.000020	<DL
Bismuth (Bi)-Total	mg/L	-	-	0.00005	<0.000050	<0.000050	<0.000050	<DL
Boron (B)-Total	mg/L	-	-	0.01	<0.010	<0.010	<0.010	<DL
Cadmium (Cd)-Total *(Lab Result)*	mg/L	0.00009	0.02	0.000005	0.000013	0.0000131	0.0000099	<2xDL
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	*mg/L*	-	-	-	*0.000158*	*0.000161*	*0.000161*	-
Calcium (Ca)-Total	mg/L	-	-	0.05	25.8	26.2	26.1	0%
Chromium (Cr)-Total	mg/L	0.0089	0.04	0.0001	0.00013	0.00014	0.00014	<2xDL
Cobalt (Co)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<DL
Copper (Cu)-Total *(Lab Result)*	mg/L	0.002	0.2	0.0005	0.00103	0.00113	0.00105	<2xDL
Copper (Cu)-Total (Hardness Adjusted Guideline)	*mg/L*	-	-	-	*0.00236*	*0.00241*	*0.00241*	-
Iron (Fe)-Total	mg/L	0.3	1.0	0.01	0.027	0.051	0.027	62%
Lead (Pb)-Total *(Lab Result)*	mg/L	0.001	0.1	0.00005	<0.000050	0.000125	<0.000050	<DL
Lead (Pb)-Total (Hardness Adjusted Guideline)	*mg/L*	-	-	-	*0.00318*	*0.00326*	*0.00326*	-
Lithium (Li)-Total	mg/L	-	-	0.001	<0.0010	<0.0010	<0.0010	<DL
Magnesium (Mg)-Total	mg/L	-	-	0.1	8.64	8.76	8.74	0%
Manganese (Mn)-Total	mg/L	-	0.5	0.0001	0.0397	0.0447	0.0416	7%
Mercury (Hg)-Total	mg/L	0.000026	0.005	0.000005	<0.0000050	<0.0000050	<0.0000050	<DL
Molybdenum (Mo)-Total	mg/L	0.0073	-	0.00005	0.000429	0.000454	0.00045	1%
Nickel (Ni)-Total *(Lab Result)*	mg/L	0.025	0.3	0.0005	<0.00050	<0.00050	<0.00050	<DL
Nickel (Ni)-Total (Hardness Adjusted Guideline)	*mg/L*	-	-	-	*0.09558*	*0.09703*	*0.09703*	-
Phosphorus (P)-Total	mg/L	-	-	0.05	<0.050	<0.050	<0.050	<DL
Potassium (K)-Total	mg/L	-	-	0.1	0.66	0.64	0.66	3%
Selenium (Se)-Total	mg/L	0.001	-	0.00005	<0.000050	<0.000050	<0.000050	<DL
Silicon (Si)-Total	mg/L	-	-	0.05	5.51	5.59	5.53	1%
Silver (Ag)-Total	mg/L	0.0001	0.1	0.00001	<0.000010	<0.000010	<0.000010	<DL
Sodium (Na)-Total	mg/L	-	-	0.05	2.55	2.54	2.57	1%
Strontium (Sr)-Total	mg/L	-	-	0.0002	0.283	0.287	0.292	2%
Sulfur (S)-Total	mg/L	-	-	0.5	5.85	5.91	5.93	0%
Thallium (Tl)-Total	mg/L	0.0008	-	0.00001	<0.000010	<0.000010	<0.000010	<DL
Tin (Sn)-Total	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<DL
Titanium (Ti)-Total	mg/L	-	-	0.0003	<0.00030	0.00101	0.00036	95%
Uranium (U)-Total	mg/L	0.015	-	0.00001	0.000617	0.000646	0.000659	2%
Vanadium (V)-Total	mg/L	-	-	0.0005	<0.00050	<0.00050	<0.00050	<DL
Zinc (Zn)-Total	mg/L	0.03	0.3	0.003	<0.0030	<0.0030	<0.0030	<DL
Dissolved Metals Filtration Location	-	-	-	-	FIELD	FIELD	FIELD	-
Aluminum (Al)-Dissolved	mg/L	0.1	-	0.001	0.0066	0.007	0.0064	9%
Antimony (Sb)-Dissolved	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<DL
Arsenic (As)-Dissolved	mg/L	0.005	0.15	0.0001	0.00028	0.00027	0.00027	<2xDL
Barium (Ba)-Dissolved	mg/L	-	-	0.00005	0.0708	0.0704	0.0708	1%
Beryllium (Be)-Dissolved	mg/L	-	-	0.00002	<0.000020	<0.000020	<0.000020	<DL
Bismuth (Bi)-Dissolved	mg/L	-	-	0.00005	<0.000050	<0.000050	<0.000050	<DL
Boron (B)-Dissolved	mg/L	-	-	0.01	<0.010	<0.010	<0.010	<DL
Cadmium (Cd)-Dissolved *(Lab Result)*	mg/L	0.00009	-	0.000005	0.0000141	0.000013	0.0000124	<2xDL
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	*mg/L*	-	-	-	*0.000158*	*0.000161*	*0.000161*	-
Calcium (Ca)-Dissolved	mg/L	-	-	0.05	25.8	26.3	26.4	0%
Chromium (Cr)-Dissolved	mg/L	0.0089	-	0.0001	<0.00010	<0.00010	<0.00010	<DL
Cobalt (Co)-Dissolved	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<DL
Copper (Cu)-Dissolved *(Lab Result)*	mg/L	0.002	-	0.0002	0.00101	0.00099	0.001	1%
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	*mg/L*	-	-	-	*0.00236*	*0.00241*	*0.00241*	-
Iron (Fe)-Dissolved	mg/L	0.3	-	0.01	0.017	0.016	0.016	<2xDL
Lead (Pb)-Dissolved *(Lab Result)*	mg/L	0.001	-	0.00005	<0.000050	<0.000050	<0.000050	<DL
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	*mg/L*	-	-	-	*0.00318*	*0.00326*	*0.00326*	-
Lithium (Li)-Dissolved	mg/L	-	-	0.001	<0.0010	<0.0010	<0.0010	<DL
Magnesium (Mg)-Dissolved	mg/L	-	-	0.1	8.67	8.84	8.84	0%
Manganese (Mn)-Dissolved	mg/L	-	-	0.0001	0.0369	0.0384	0.0383	0%
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.000005	<0.0000050	<0.0000050	<0.0000050	<DL
Molybdenum (Mo)-Dissolved	mg/L	0.0073	-	0.00005	0.000405	0.000391	0.000399	2%
Nickel (Ni)-Dissolved *(Lab Result)*	mg/L	0.025	-	0.0005	<0.00050	<0.00050	<0.00050	<DL
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	*mg/L*	-	-	-	*0.09558*	*0.09703*	*0.09703*	-
Phosphorus (P)-Dissolved	mg/L	-	-	0.05	<0.050	<0.050	<0.050	<DL
Potassium (K)-Dissolved	mg/L	-	-	0.1	0.66	0.65	0.66	2%
Selenium (Se)-Dissolved	mg/L	0.001	-	0.00005	0.000051	<0.000050	<0.000050	<DL
Silicon (Si)-Dissolved	mg/L	-	-	0.05	5.53	5.58	5.63	1%
Silver (Ag)-Dissolved	mg/L	0.0001	-	0.00001	<0.000010	<0.000010	<0.000010	<DL
Sodium (Na)-Dissolved	mg/L	-	-	0.05	2.49	2.5	2.52	1%
Strontium (Sr)-Dissolved	mg/L	-	-	0.0002	0.275	0.281	0.28	0%
Sulfur (S)-Dissolved	mg/L	-	-	0.5	5.8	5.87	5.82	1%
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.00001	<0.000010	<0.000010	<0.000010	<DL
Tin (Sn)-Dissolved	mg/L	-	-	0.0001	<0.00010	<0.00010	<0.00010	<DL
Titanium (Ti)-Dissolved	mg/L	-	-	0.0003	<0.00030	<0.00030	<0.00030	<DL
Uranium (U)-Dissolved	mg/L	0.015	-	0.00001	0.000611	0.0006	0.000606	1%
Vanadium (V)-Dissolved	mg/L	-	-	0.0005	<0.00050	<0.00050	<0.00050	<DL
Zinc (Zn)-Dissolved	mg/L	0.03	-	0.001	<0.0010	0.0011	<0.0010	<DL

Analyte	WQ-VC-UMN 6/15/2015 3:00:00 PM	WQ-VC-R 6/15/2015 1:20:00 PM	WQ-DC-DX 6/17/2015 10:30:00 AM	WQ-DC-DX-r 6/17/2015 10:40:00 AM	QA/QC WQ-DC-DX-r Replicate Analysis	WQ-DC-DX+105 6/16/2015 5:05:00 PM	WQ-MS-S-03 6/16/2015 5:25:00 PM	WQ-DC-D1b 6/16/2015 6:00:00 PM	WQ-CH-P-13-01 6/16/2015 3:45:00 PM
Temperature (in-situ)	8.8	9.0	2.8	-	-	2.3	2.6	3.0	3.1
Specific Conductivity (in-situ)	275	244	534	-	-	1228.0	1294.0	1012.0	1474.0
pH (in-situ)	7.07	7.25	7.95	-	-	6.92	7.06	7.87	**5.51**
Dissolved Oxygen (in-situ)	11.03	12.03	9.8	-	-	16.7	5.01	12.24	10.67
Turbidity (In-situ)	1.09	1.52	2.54	-	-	1.62	2.10	6.47	0.27
Colour, True	-	-	-	-	-	-	-	-	-
Conductivity	274	250	437	463	6%	1140	1200	970	1330
Hardness (as CaCO3)	146	130	221	226	2%	704	782	581	856
pH (lab)	7.80	8.14	7.54	7.54	0%	7.43	7.84	7.97	**5.74**
Total Suspended Solids	3.3	<3.0	4.7	10.7	78%	<3.0	18	20.7	<3.0
Total Dissolved Solids	162	151	284	304	7%	852	952	721	1110
Alkalinity, Bicarbonate (as CaCO3)	93.7	87	72.6	79.6	9%	273	296	172	1.4
Alkalinity, Carbonate (as CaCO3)	<1.0	<1.0	<1.0	<1.0	<DL	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	<1.0	<1.0	<1.0	<1.0	<DL	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	93.7	87	72.6	79.6	9%	273	296	172	1.4
Ammonia, Total (as N)	0.0083	0.0052	0.0074	0.0061	<2xDL	0.0183	0.0285	0.221	0.0105
Chloride (Cl)	<0.50	<0.50	<0.50	<0.50	<DL	<1.0	<1.0	<1.0	<1.0
Fluoride (F)	0.046	0.051	0.052	0.053	<2xDL	**0.215**	**0.227**	**0.147**	0.055
Nitrate (as N)	0.0724	0.0683	<0.0050	<0.0050	<DL	<0.010	<0.010	0.057	0.071
Nitrite (as N)	<0.0010	<0.0010	<0.0010	<0.0010	<DL	<0.0020	<0.0020	0.0024	<0.0020
Sulfate (SO4)	50.3	48.9	154	169	9%	435	492	414	806
Cyanide, Weak Acid Diss	<0.0050	<0.0050	<0.0050	<0.0050	<DL	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, Total	<0.0050	<0.0050	<0.0050	<0.0050	<DL	<0.0050	<0.0050	<0.0050	<0.0050
Cyanate	<0.20	<0.20	<0.20	<0.20	<DL	<0.20	<0.20	<0.20	<0.20
Thiocyanate (SCN)	<0.50	<0.50	<0.50	<0.50	<DL	<0.50	<0.50	<0.50	<0.50
Aluminum (Al)-Total	0.0246	0.0374	0.0391	0.0311	23%	0.0035	0.0884	**0.233**	**0.238**
Antimony (Sb)-Total	0.00039	0.00037	0.00091	0.00093	2%	0.00954	0.0168	0.00473	0.00014
Arsenic (As)-Total	0.00214	0.00199	**0.00682**	**0.0059**	14%	**0.024**	**0.0944**	**0.0544**	0.00074
Barium (Ba)-Total	0.0701	0.0686	0.0404	0.0394	3%	0.0143	0.0169	0.0238	0.0152
Beryllium (Be)-Total	<0.000020	<0.000020	<0.000020	<0.000020	<DL	<0.000020	<0.000020	<0.000020	0.000051
Bismuth (Bi)-Total	<0.000050	<0.000050	<0.000050	<0.000050	<DL	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total	<0.010	<0.010	<0.010	<0.010	<DL	<0.010	<0.010	0.034	<0.010
Cadmium (Cd)-Total *(Lab Result)*	0.0000158	0.0000143	0.0000134	0.0000098	<2xDL	**0.0017**	**0.00261**	0.000337	**0.0114**
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	*0.000217*	*0.000197*	*0.000306*	*0.000312*	-	*0.000370*	*0.000370*	*0.000370*	*0.000370*
Calcium (Ca)-Total	38.2	34.1	59.8	61.5	3%	181	201	139	205
Chromium (Cr)-Total	0.00012	0.00018	0.00018	0.00013	<2xDL	<0.00010	0.00015	0.0005	0.00017
Cobalt (Co)-Total	0.00012	0.00013	0.00029	0.00028	<2xDL	0.00064	0.00116	0.00046	0.00022
Copper (Cu)-Total *(Lab Result)*	0.00114	0.00131	0.00113	0.00107	<2xDL	<0.00050	0.00328	0.00167	0.00139
Copper (Cu)-Total (Hardness Adjusted Guideline)	*0.00327*	*0.00296*	*0.00400*	*0.00400*	-	*0.00400*	*0.00400*	*0.00400*	*0.00400*
Iron (Fe)-Total	0.084	0.227	**0.839**	**0.624**	29%	**0.436**	**2.19**	**0.994**	0.125
Lead (Pb)-Total *(Lab Result)*	0.000128	0.000124	0.000119	0.000075	<2xDL	<0.000050	0.00398	0.00354	0.000079
Lead (Pb)-Total (Hardness Adjusted Guideline)	*0.00515*	*0.00444*	*0.00700*	*0.00700*	-	*0.00700*	*0.00700*	*0.00700*	*0.00700*
Lithium (Li)-Total	<0.0010	<0.0010	<0.0010	<0.0010	<DL	0.0091	0.011	0.0046	0.0018
Magnesium (Mg)-Total	12.5	11	16.1	16.4	2%	61.4	68.2	57.7	80
Manganese (Mn)-Total	0.034	0.029	0.155	0.147	5%	**1.29**	**1.46**	**0.736**	0.479
Mercury (Hg)-Total	<0.0000050	<0.0000050	0.0000104	<0.0000050	<DL	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	0.000422	0.000375	0.000063	0.000063	<2xDL	0.000371	0.000353	0.000232	<0.000050
Nickel (Ni)-Total *(Lab Result)*	<0.00050	0.00051	0.00054	<0.00050	<DL	0.0015	0.0021	0.00083	0.00862
Nickel (Ni)-Total (Hardness Adjusted Guideline)	*0.12743*	*0.11667*	*0.15000*	*0.15000*	-	*0.15000*	*0.15000*	*0.15000*	*0.15000*
Phosphorus (P)-Total	<0.050	<0.050	<0.050	<0.050	<DL	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	0.92	0.84	4.2	4.3	2%	3.44	3.47	2.88	0.9
Selenium (Se)-Total	<0.000050	0.000057	<0.000050	<0.000050	<DL	<0.000050	<0.000050	0.00006	<0.000050
Silicon (Si)-Total	5.44	5.58	4.13	4.17	1%	6.44	6.63	4.26	5.28
Silver (Ag)-Total	<0.000010	<0.000010	<0.000010	<0.000010	<DL	<0.000010	0.000058	0.000043	<0.000010
Sodium (Na)-Total	3.79	3.44	3.37	3.4	1%	5.18	5.16	4.21	5.29
Strontium (Sr)-Total	0.314	0.276	0.188	0.19	1%	0.424	0.475	0.367	0.491
Sulfur (S)-Total	19.2	16.9	50.5	50.7	0%	145	164	136	279
Thallium (Tl)-Total	<0.000010	<0.000010	<0.000010	<0.000010	<DL	0.000077	0.000103	0.000016	<0.000010
Tin (Sn)-Total	<0.00010	<0.00010	<0.00010	<0.00010	<DL	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total	0.00083	0.00084	<0.0030	0.0017	<DL	<0.00030	<0.0078	0.0135	<0.0018
Uranium (U)-Total	0.000758	0.000671	0.000096	0.000084	13%	0.00455	0.00472	0.00208	0.000013
Vanadium (V)-Total	<0.00050	<0.00050	<0.00050	<0.00050	<DL	<0.00050	<0.00050	0.00126	<0.00050
Zinc (Zn)-Total	0.0031	<0.0030	<0.0030	<0.0030	<DL	**0.607**	**0.958**	**0.0987**	**3.93**
Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	-	FIELD	FIELD	FIELD	FIELD
Aluminum (Al)-Dissolved	0.0057	0.018	0.0055	0.0051	8%	<0.0010	0.0014	0.0019	**0.234**
Antimony (Sb)-Dissolved	0.00037	0.00034	0.00088	0.00089	1%	0.00922	0.0165	0.00412	0.00013
Arsenic (As)-Dissolved	0.00187	0.00166	**0.00511**	0.00464	10%	**0.0113**	**0.0728**	**0.0384**	0.00065
Barium (Ba)-Dissolved	0.0693	0.0663	0.0386	0.0387	0%	0.014	0.0153	0.0196	0.0149
Beryllium (Be)-Dissolved	<0.000020	<0.000020	<0.000020	<0.000020	<DL	<0.000020	<0.000020	<0.000020	0.000054
Bismuth (Bi)-Dissolved	<0.000050	<0.000050	<0.000050	<0.000050	<DL	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Dissolved	<0.010	<0.010	<0.010	<0.010	<DL	<0.010	<0.010	0.028	<0.010
Cadmium (Cd)-Dissolved *(Lab Result)*	0.0000182	0.0000086	0.0000133	0.0000089	<2xDL	**0.00055**	**0.000797**	0.000112	**0.0122**
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	*0.000217*	*0.000197*	*0.000306*	*0.000312*	-	*0.000370*	*0.000370*	*0.000370*	*0.000370*
Calcium (Ca)-Dissolved	38.1	34.1	61.7	62.9	2%	181	202	138	202
Chromium (Cr)-Dissolved	<0.00010	0.00012	<0.00010	<0.00010	<DL	<0.00010	<0.00010	<0.00010	0.00013
Cobalt (Co)-Dissolved	<0.00010	0.00011	0.00027	0.00025	<2xDL	0.00061	0.00102	0.0003	0.00028
Copper (Cu)-Dissolved *(Lab Result)*	0.00104	0.00119	0.00093	0.00096	<2xDL	<0.00020	<0.00020	0.00048	0.00143
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	*0.00327*	*0.00296*	*0.00400*	*0.00400*	-	*0.00400*	*0.00400*	*0.00400*	*0.00400*
Iron (Fe)-Dissolved	0.021	0.128	**0.463**	**0.388**	18%	**0.331**	**1.75**	0.107	0.105
Lead (Pb)-Dissolved *(Lab Result)*	<0.000050	<0.000050	<0.000050	<0.000050	<DL	<0.000050	0.000186	0.000122	0.000073
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	*0.00515*	*0.00444*	*0.00700*	*0.00700*	-	*0.00700*	*0.00700*	*0.00700*	*0.00700*
Lithium (Li)-Dissolved	<0.0010	<0.0010	<0.0010	<0.0010	<DL	0.0084	0.0104	0.0044	0.0018
Magnesium (Mg)-Dissolved	12.4	10.9	16.4	16.7	2%	60.9	67.7	57.3	85.5
Manganese (Mn)-Dissolved	0.0269	0.0234	0.152	0.137	10%	1.23	1.41	0.681	0.557
Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<DL	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	0.000378	0.000348	<0.000050	0.000054	<DL	0.000344	0.000303	0.000209	<0.000050
Nickel (Ni)-Dissolved *(Lab Result)*	<0.00050	<0.00050	<0.00050	<0.00050	<DL	0.00143	0.00195	0.0005	0.00918
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	*0.12743*	*0.11667*	*0.15000*	*0.15000*	-	*0.15000*	*0.15000*	*0.15000*	*0.15000*
Phosphorus (P)-Dissolved	<0.050	<0.050	<0.050	<0.050	<DL	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	0.9	0.85	4.32	4.36	1%	3.44	3.48	2.81	0.88
Selenium (Se)-Dissolved	<0.000050	<0.000050	<0.000050	<0.000050	<DL	<0.000050	<0.000050	0.000052	<0.000050
Silicon (Si)-Dissolved	5.38	5.48	4.17	4.18	0%	6.42	6.48	3.87	5.33
Silver (Ag)-Dissolved	<0.000010	<0.000010	<0.000010	<0.000010	<DL	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved	3.68	3.3	3.31	3.47	5%	4.95	4.96	4.14	4.98
Strontium (Sr)-Dissolved	0.307	0.267	0.185	0.189	2%	0.406	0.463	0.356	0.477
Sulfur (S)-Dissolved	18.6	16.4	50.7	52.2	3%	144	162	137	276
Thallium (Tl)-Dissolved	<0.000010	<0.000010	<0.000010	<0.000010	<DL	0.000074	0.00009	0.000015	<0.000010
Tin (Sn)-Dissolved	<0.00010	<0.00010	<0.00010	<0.00010	<DL	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved	<0.00030	<0.00030	<0.00030	<0.00030	<DL	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved	0.000725	0.000619	0.00008	0.000082	2%	0.00427	0.00455	0.00193	<0.000010
Vanadium (V)-Dissolved	<0.00050	<0.00050	<0.00050	<0.00050	<DL	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved	0.0027	<0.0010	<0.0010	<0.0010	<DL	**0.585**	**0.931**	**0.0718**	**4.41**

Analyte	WQ-DESS-01 6/16/2015 4:50:00 PM	WQ-DC-B 6/16/2015 2:15:00 PM	WQ-TP 6/16/2015 2:00:00 PM	WQ-SEEP 6/16/2015 1:15:00 PM	WQ-SEEP-r 6/16/2015 1:30:00 PM	QA/QC WQ-SEEP-r Replicate Analysis	WQ-DC-U 6/16/2015 12:07:00 PM	WQ-DC-R 6/15/2015 4:15:00 PM	WQ-PIT-1 6/17/2015 9:25:00 AM Top (Depth: 0.3 m)	WQ-PIT-2 6/17/2015 8:45:00 AM Middle (Depth: 3.4 m)	WQ-PIT-3 6/17/2015 9:10:00 AM Bottom (Depth: 6.2 m)
Temperature (in-situ)	13.6	17.6	16.7	9.6	-	-	13.7	8.6	10.6	10.0	6.0
Specific Conductivity (in-situ)	1170.0	1172.0	1243.0	1668.0	-	-	1281.0	953.0	1456.0	1034.0	2563.0
pH (in-situ)	6.83	7.96	8.3	6.84	-	-	7.96	7.63	8.04	7.44	6.84
Dissolved Oxygen (in-situ)	7.87	9.79	9.15	3.35	-	-	9.42	10.87	11.11	8.66	4.56
Turbidity (In-situ)	0.02	18.03	4.82	4.57	-	-	12.42	19.82	1.58	2.91	3.79
Colour, True	-	-	-	-	-	-	-	-	-	-	-
Conductivity	1090	1110	1220	1520	1180	25%	1200	1590	1380	1780	2410
Hardness (as CaCO3)	692	681	713	914	898	2%	736	558	890	1200	1730
pH (lab)	**5.96**	8.03	8.12	7.54	8.18	8%	8.22	7.79	8.17	7.73	7.45
Total Suspended Solids	<3.0	24	<3.0	24	24.7	3%	5.3	9.3	<3.0	<3.0	4.7
Total Dissolved Solids	877	857	856	1290	1250	3%	948	737	1150	1550	2320
Alkalinity, Bicarbonate (as CaCO3)	1.9	171	69.1	238	189	23%	196	242	153	205	209
Alkalinity, Carbonate (as CaCO3)	<1.0	<1.0	<1.0	<1.0	<1.0	<DL	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	<1.0	<1.0	<1.0	<1.0	<1.0	<DL	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3)	1.9	171	69.1	238	189	23%	196	242	153	205	209
Ammonia, Total (as N)	0.0069	0.0997	0.0421	**4.69**	**4.1**	13%	**1.14**	0.593	0.0057	<0.0050	0.0069
Chloride (Cl)	<1.0	<1.0	<1.0	<2.5	<2.5	<DL	<1.0	<1.0	<2.5	<2.5	<5.0
Fluoride (F)	0.049	0.119	**0.214**	**0.21**	**0.22**	5%	0.078	**0.131**	**0.31**	**0.33**	**0.2**
Nitrate (as N)	0.065	0.129	0.157	0.281	0.287	2%	0.251	0.337	<0.025	<0.025	<0.050
Nitrite (as N)	<0.0020	0.0036	0.0058	0.0137	0.0132	4%	0.0128	0.0137	<0.0050	<0.0050	<0.010
Sulfate (SO4)	633	515	530	753	752	0%	554	379	733	991	1550
Cyanide, Weak Acid Diss	<0.0050	<0.0050	<0.0050	0.0144	0.0117	<2xDL	<0.0050	<0.0050	-	-	-
Cyanide, Total	<0.0050	<0.0050	<0.0050	0.0846	0.0892	5%	0.0053	<0.0050	-	-	-
Cyanate	<2.0	<0.20	<0.20	<0.20	<0.20	<DL	<0.20	<0.20	-	-	-
Thiocyanate (SCN)	<0.50	<0.50	<0.50	4.2	3.84	9%	<0.50	<0.50	-	-	-
Aluminum (Al)-Total	**0.108**	**0.315**	0.0258	0.0159	0.0151	5%	0.0653	0.0933	0.0198	0.0287	0.0308
Antimony (Sb)-Total	0.00018	0.0019	0.0364	0.00043	0.00042	<2xDL	0.00123	0.0014	0.0029	0.00235	0.00074
Arsenic (As)-Total	0.00056	**0.00852**	**0.0912**	**0.0535**	**0.0527**	2%	**0.0174**	**0.016**	**0.00857**	**0.0105**	**0.0281**
Barium (Ba)-Total	0.0229	0.0447	0.00858	0.0665	0.066	1%	0.0542	0.0575	0.0216	0.0199	0.0109
Beryllium (Be)-Total	0.000032	<0.000020	<0.000020	<0.000020	<0.000020	<DL	<0.000020	<0.000020	<0.000020	<0.000040	<0.000040
Bismuth (Bi)-Total	<0.000050	<0.000050	0.000094	<0.000050	<0.000050	<DL	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010
Boron (B)-Total	<0.010	0.022	0.076	0.068	0.065	5%	0.033	0.026	<0.010	<0.020	<0.020
Cadmium (Cd)-Total *(Lab Result)*	**0.00515**	0.0000454	**0.00062**	0.000274	0.000318	15%	0.0000487	0.0000594	**0.00189**	**0.00324**	**0.00653**
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	*0.000370*	*0.000370*	*0.000370*	*0.000370*	*0.000370*	-	*0.000370*	*0.000370*	*0.000370*	*0.000370*	*0.000370*
Calcium (Ca)-Total	167	150	204	266	260	2%	185	146	247	333	519
Chromium (Cr)-Total	0.00016	0.00077	0.00075	0.00047	0.00045	<2xDL	0.00026	0.00038	0.00015	<0.00020	<0.00020
Cobalt (Co)-Total	<0.00010	0.0005	0.00053	0.00816	0.00815	0%	0.00199	0.00159	<0.00010	<0.00020	0.00361
Copper (Cu)-Total *(Lab Result)*	0.00156	0.00165	**0.0205**	0.00221	0.0027	20%	0.00121	0.00145	0.00201	0.0023	0.002
Copper (Cu)-Total (Hardness Adjusted Guideline)	*0.00400*	*0.00400*	*0.00400*	*0.00400*	*0.00400*	-	*0.00400*	*0.00400*	*0.00400*	*0.00400*	*0.00400*
Iron (Fe)-Total	0.05	**2.34**	0.186	**10.8**	**10.5**	3%	**2.04**	**3.11**	0.034	0.061	**0.418**
Lead (Pb)-Total *(Lab Result)*	<0.000050	0.0006	**0.00798**	0.000065	0.000083	<2xDL	0.00011	0.000629	0.000516	0.00055	0.00123
Lead (Pb)-Total (Hardness Adjusted Guideline)	*0.00700*	*0.00700*	*0.00700*	*0.00700*	*0.00700*	-	*0.00700*	*0.00700*	*0.00700*	*0.00700*	*0.00700*
Lithium (Li)-Total	0.0017	0.0032	0.0072	<0.0010	<0.0010	<DL	0.0021	0.0015	0.0071	0.007	0.0101
Magnesium (Mg)-Total	65	65.1	42.6	56.7	55.3	3%	63.5	46.8	64.2	89.7	113
Manganese (Mn)-Total	0.148	0.47	0.108	**6.96**	**6.86**	1%	**1.91**	**1.41**	0.0186	0.134	**3.7**
Mercury (Hg)-Total	<0.0000050	<0.0000050	0.0000131	<0.0000050	<0.0000050	<DL	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total	<0.000050	0.000464	0.0015	0.000912	0.000888	3%	0.000554	0.000444	0.000149	0.00011	0.00011
Nickel (Ni)-Total *(Lab Result)*	0.00695	0.00114	0.00087	0.00277	0.00278	0%	0.00124	0.00119	0.0007	<0.0010	0.0018
Nickel (Ni)-Total (Hardness Adjusted Guideline)	*0.15000*	*0.15000*	*0.15000*	*0.15000*	*0.15000*	-	*0.15000*	*0.15000*	*0.15000*	*0.15000*	*0.15000*
Phosphorus (P)-Total	<0.050	<0.050	<0.050	<0.050	<0.050	<DL	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total	0.61	2.64	12	6.12	5.96	3%	3.53	2.85	2.9	3.8	5.27
Selenium (Se)-Total	0.000051	0.000084	0.000062	0.000196	0.000189	<2xDL	0.000104	0.00009	0.000053	<0.00010	<0.00010
Silicon (Si)-Total	6.05	5.07	1.38	7.38	7.22	2%	5.26	4.96	2.82	3.57	3.58
Silver (Ag)-Total	<0.000010	0.00001	**0.000191**	0.000026	0.000027	<2xDL	<0.000010	0.000027	0.000015	<0.000020	0.000039
Sodium (Na)-Total	4.47	7.2	15.7	35.5	35	1%	14.9	12.1	9.67	12.6	14.3
Strontium (Sr)-Total	0.418	0.506	0.524	0.783	0.766	2%	0.611	0.474	0.839	1.04	1.24
Sulfur (S)-Total	225	159	213	251	243	3%	184	141	244	331	521
Thallium (Tl)-Total	<0.000010	<0.000010	0.000214	<0.000010	<0.000010	<DL	<0.000010	<0.000010	0.000056	0.000065	0.000137
Tin (Sn)-Total	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<DL	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020
Titanium (Ti)-Total	<0.00030	0.0154	<0.00090	<0.0015	<0.0015	<DL	0.00349	0.00427	<0.00090	<0.00060	<0.00060
Uranium (U)-Total	<0.000010	0.00295	0.00102	0.00159	0.00162	2%	0.00243	0.00161	0.00328	0.00405	0.0038
Vanadium (V)-Total	<0.00050	0.00253	<0.00050	0.00175	0.0017	<2xDL	0.00082	0.00111	<0.00050	<0.0010	<0.0010
Zinc (Zn)-Total	**2.28**	0.0065	**0.0366**	0.0071	0.0076	<2xDL	0.0042	0.0055	**0.213**	**0.426**	**0.623**
Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD	-	FIELD	FIELD	FIELD	FIELD	FIELD
Aluminum (Al)-Dissolved	**0.105**	0.0124	0.0048	0.0077	0.0079	3%	0.0133	0.0099	0.0025	<0.0020	<0.0020
Antimony (Sb)-Dissolved	0.00016	0.00189	0.0358	0.0004	0.00041	<2xDL	0.00118	0.00125	0.00286	0.00229	0.00066
Arsenic (As)-Dissolved	0.00054	0.00268	**0.0723**	**0.036**	**0.035**	3%	**0.0127**	**0.00674**	**0.00809**	**0.00942**	**0.013**
Barium (Ba)-Dissolved	0.0227	0.0382	0.00827	0.0659	0.0646	2%	0.0524	0.053	0.0212	0.0193	0.0107
Beryllium (Be)-Dissolved	0.000031	<0.000020	<0.000020	<0.000020	<0.000020	<DL	<0.000020	<0.000020	<0.000020	<0.000040	<0.000040
Bismuth (Bi)-Dissolved	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050	<DL	<0.000050	<0.000050	<0.000050	<0.00010	<0.00010
Boron (B)-Dissolved	<0.010	0.018	0.069	0.061	0.061	0%	0.028	0.022	<0.010	<0.020	<0.020
Cadmium (Cd)-Dissolved *(Lab Result)*	**0.00508**	0.0000083	**0.000423**	0.000239	0.000252	5%	0.0000343	0.0000281	**0.00197**	**0.00315**	**0.00581**
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	*0.000370*	*0.000370*	*0.000370*	*0.000370*	*0.000370*	-	*0.000370*	*0.000370*	*0.000370*	*0.000370*	*0.000370*
Calcium (Ca)-Dissolved	171	160	211	274	265	3%	188	146	250	336	509
Chromium (Cr)-Dissolved	0.00013	<0.00010	<0.00010	0.00035	0.00034	<2xDL	0.00012	<0.00010	<0.00010	<0.00020	<0.00020
Cobalt (Co)-Dissolved	<0.00010	0.00034	0.00048	0.0082	0.00806	2%	0.00194	0.00148	<0.00010	<0.00020	0.00365
Copper (Cu)-Dissolved *(Lab Result)*	0.00149	0.00053	**0.015**	0.00165	0.00176	6%	0.00086	0.00091	0.00162	0.00186	0.00095
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	*0.00400*	*0.00400*	*0.00400*	*0.00400*	*0.00400*	-	*0.00400*	*0.00400*	*0.00400*	*0.00400*	*0.00400*
Iron (Fe)-Dissolved	0.048	0.073	0.013	**7.3**	**6.93**	5%	0.285	**0.635**	<0.010	0.013	0.043
Lead (Pb)-Dissolved *(Lab Result)*	<0.000050	<0.000050	0.000549	<0.000050	<0.000050	<DL	<0.000050	<0.000050	0.000079	<0.00010	<0.00010
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	*0.00700*	*0.00700*	*0.00700*	*0.00700*	*0.00700*	-	*0.00700*	*0.00700*	*0.00700*	*0.00700*	*0.00700*
Lithium (Li)-Dissolved	0.0015	0.0029	0.0071	<0.0010	<0.0010	<DL	0.002	0.0013	0.0065	0.0075	0.0102
Magnesium (Mg)-Dissolved	64.3	68.8	45.1	55.9	57	2%	64.6	47	64.5	87.4	112
Manganese (Mn)-Dissolved	0.141	0.471	0.0783	6.95	6.72	3%	1.88	1.32	0.0167	0.156	4.01
Mercury (Hg)-Dissolved	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<DL	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved	<0.000050	0.000419	0.00145	0.000832	0.000831	0%	0.000525	0.000395	0.000139	0.00011	<0.00010
Nickel (Ni)-Dissolved *(Lab Result)*	0.00655	0.00071	0.00066	0.00271	0.00274	1%	0.00119	0.00104	<0.00050	<0.0010	0.0019
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	*0.15000*	*0.15000*	*0.15000*	*0.15000*	*0.15000*	-	*0.15000*	*0.15000*	*0.15000*	*0.15000*	*0.15000*
Phosphorus (P)-Dissolved	<0.050	<0.050	<0.050	<0.050	<0.050	<DL	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved	0.62	2.74	12.3	6.31	5.91	7%	3.54	2.85	2.89	3.66	5.1
Selenium (Se)-Dissolved	<0.000050	0.000066	0.000052	0.000174	0.000167	<2xDL	0.000084	0.000073	<0.000050	<0.00010	<0.00010
Silicon (Si)-Dissolved	6.01	4.86	1.35	7.53	7.21	4%	5.18	4.67	2.78	3.4	3.42
Silver (Ag)-Dissolved	<0.000010	<0.000010	0.000021	<0.000010	<0.000010	<DL	<0.000010	<0.000010	<0.000010	<0.000020	<0.000020
Sodium (Na)-Dissolved	4.24	7.43	15.2	35.4	34.6	2%	14.7	11.9	9.6	12.8	14.4
Strontium (Sr)-Dissolved	0.412	0.512	0.517	0.771	0.784	2%	0.596	0.454	0.813	1.06	1.28
Sulfur (S)-Dissolved	221	165	221	245	245	0%	187	139	243	328	503
Thallium (Tl)-Dissolved	<0.000010	<0.000010	0.000215	<0.000010	<0.000010	<DL	<0.000010	<0.000010	0.000056	0.000063	0.000121
Tin (Sn)-Dissolved	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010	<DL	<0.00010	<0.00010	<0.00010	<0.00020	<0.00020
Titanium (Ti)-Dissolved	<0.00030	<0.00030	<0.00030	<0.00090	<0.00090	<DL	<0.00030	<0.00030	<0.00030	<0.00060	<0.00060
Uranium (U)-Dissolved	<0.000010	0.00289	0.000969	0.00155	0.00165	6%	0.00234	0.00155	0.00322	0.00417	0.00389
Vanadium (V)-Dissolved	<0.00050	<0.00050	<0.00050	0.00122	0.00116	<2xDL	<0.00050	<0.00050	<0.00050	<0.0010	<0.0010
Zinc (Zn)-Dissolved	**2.28**	0.0019	0.0224	0.0067	0.006	11%	0.0033	0.0028	**0.211**	**0.427**	**0.661**

Applied Guidelines: 'Federal CCME Canadian Environmental Quality Guidelines (January 2015), CCME: Freshwater Aquatic Life 'Mount Nansen Effluent Discharge Standards

COLOUR KEY:
Exceeds CCME Guideline
Exceeds MN Effluent Discharge Standards
Exceeds both CCME and MN Standards
Exceeds Hardness Dependent Calculated Guideline (CCME)
Data flag for Detection Limit Adjustment --> Please refer to the lab COA report and lab excel report for more info
QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

Notes:
** WQ-PW is a drinking water sample and the analysis package has different detection limits than all other samples. The results are also compared to the Guidelines for Canadian Drinking Water Quality (Health Canada, October 2014) versus the CCME or MN Effluent Quality Standards.
No in situ data was collected at the WQ-PW site - this was a crew miscommunication.
QA/QC Travel/Field Blank Analysis - Travel blank had an ammonia concentration above detection limit, this can occur when samples provided by lab are dated. The field blank sample had all parameters below detection limits.
QA/QC Replicate Analysis - the average RPD of the replicate sample set for WQ-VC-DBC-r was 8% with an average difference of 1% for dissolved and 18% for total metals. Total aluminum, iron, and titanium had RPD >50%, likely indicating intrinsically high sample variability or imprecisions in lab instrumentation.
The average RPD of the replicate sample set for WQ-DC-DX-r was 8% with an average difference of 5% for dissolved and 7% for total metals. TSS and total iron had had RPD>50% and >20%, respectively.
The average RPD of the replicate sample set for WQ-SEEP-r was 5% with an average difference of 3% for dissolved and 4% for total metals. Alkalinity (total and bicarbonate) had RPD>20%.

Summary of Water Quality Results for the June 15-17, 2015 Trip.

Analyte	Units	CCME-WATER-F-AL	Mount Nansen Effluent Discharge Standards	Sample ID/Site ID Date Sampled Detection Limit	WQ-PW ** 6/17/2015 11:55:00 AM (DRINKING WATER)	FIELD BLANK 6/17/2015 11:00:00 AM	TRAVEL BLANK 5/26/2015 12:00:00 AM
Temperature (in-situ)	°C	-	-	-	-	-	-
Specific Conductivity (in-situ)	µS/cm	-	-	-	-	-	-
pH (in-situ)	pH	6.5 - 9.0	6.0 - 8.5	-	-	-	-
Dissolved Oxygen (in-situ)	mg/L	-	-	-	-	-	-
Turbidity (in-situ)	NTU	-	-	-	-	-	-
Colour, True	CU	15	-	5	<5.0	-	-
Conductivity	µS/cm	-	-	2	372	<2.0	<2.0
Hardness (as CaCO3)	mg/L	-	-	0.5	192	<0.50	-
pH (lab)	pH	6.5 - 9.0	6.0 - 8.5	0.1	8.21	**5.57**	**5.99**
Total Suspended Solids	mg/L	-	50	3	-	<3.0	<3.0
Total Dissolved Solids	mg/L	-	-	1	203	<1.0	<1.0
Alkalinity, Bicarbonate (as CaCO3)	mg/L	-	-	1	-	<1.0	<1.0
Alkalinity, Carbonate (as CaCO3)	mg/L	-	-	1	-	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3)	mg/L	-	-	1	-	<1.0	<1.0
Alkalinity, Total (as CaCO3)	mg/L	-	-	1	167	<1.0	<1.0
Ammonia, Total (as N)	mg/L	0.75	-	0.005	-	<0.0050	0.0066
Chloride (Cl)	mg/L	120	-	0.5	<0.50	<0.50	<0.50
Fluoride (F)	mg/L	0.12	-	0.02	0.093	<0.020	<0.020
Nitrate (as N)	mg/L	13	-	0.005	0.136	<0.0050	<0.0050
Nitrite (as N)	mg/L	0.06	-	0.001	<0.0010	<0.0010	<0.0010
Sulfate (SO4)	mg/L	-	-	0.3	32.5	<0.30	<0.30
Cyanide, Weak Acid Diss	mg/L	-	0.1	0.005	-	<0.0050	<0.0050
Cyanide, Total	mg/L	-	0.3	0.005	-	<0.0050	<0.0050
Cyanate	mg/L	-	-	0.2	-	<0.20	<0.20
Thiocyanate (SCN)	mg/L	-	-	0.5	-	<0.50	<0.50
Aluminum (Al)-Total	mg/L	0.1	-	0.003	<0.010	<0.0030	<0.0030
Antimony (Sb)-Total	mg/L	-	0.15	0.0001	<0.00050	<0.00010	<0.00010
Arsenic (As)-Total	mg/L	0.005	-	0.0001	0.0004	<0.00010	<0.00010
Barium (Ba)-Total	mg/L	-	1.0	0.00005	0.085	<0.000050	<0.000050
Beryllium (Be)-Total	mg/L	-	-	0.00002	-	<0.000020	<0.000020
Bismuth (Bi)-Total	mg/L	-	-	0.00005	-	<0.000050	<0.000050
Boron (B)-Total	mg/L	-	-	0.01	<0.10	<0.010	<0.010
Cadmium (Cd)-Total *(Lab Result)*	mg/L	0.00009	0.02	0.000005	<0.000020	<0.0000050	<0.0000050
Cadmium (Cd)-Total (Hardness Adjusted Guideline)	mg/L	-	-	-	*0.000272*	*0.000370*	*0.000370*
Calcium (Ca)-Total	mg/L	-	-	0.05	44.3	<0.050	<0.050
Chromium (Cr)-Total	mg/L	0.0089	0.04	0.0001	<0.0020	<0.00010	<0.00010
Cobalt (Co)-Total	mg/L	-	-	0.0001	-	<0.00010	<0.00010
Copper (Cu)-Total *(Lab Result)*	mg/L	0.002	0.2	0.0005	<0.0010	<0.000050	<0.000050
Copper (Cu)-Total (Hardness Adjusted Guideline)	mg/L	-	-	-	*0.00410*	*0.00410*	*0.00410*
Iron (Fe)-Total	mg/L	0.3	1.0	0.01	<0.030	<0.010	<0.010
Lead (Pb)-Total *(Lab Result)*	mg/L	0.001	0.1	0.00005	0.00054	<0.000050	<0.000050
Lead (Pb)-Total (Hardness Adjusted Guideline)	mg/L	-	-	-	*0.00150*	*0.00150*	*0.00150*
Lithium (Li)-Total	mg/L	-	-	0.001	-	<0.0010	<0.0010
Magnesium (Mg)-Total	mg/L	-	-	0.1	19.7	<0.10	<0.10
Manganese (Mn)-Total	mg/L	-	0.5	0.0001	<0.0020	<0.00010	<0.00010
Mercury (Hg)-Total	mg/L	0.000026	0.005	0.000005	<0.000020	<0.000050	<0.000050
Molybdenum (Mo)-Total	mg/L	0.0073	-	0.00005	-	<0.000050	<0.000050
Nickel (Ni)-Total *(Lab Result)*	mg/L	0.025	0.3	0.0005	-	<0.000050	<0.000050
Nickel (Ni)-Total (Hardness Adjusted Guideline)	mg/L	-	-	-	-	*0.15000*	*0.15000*
Phosphorus (P)-Total	mg/L	-	-	0.05	-	<0.050	<0.050
Potassium (K)-Total	mg/L	-	-	0.1	0.91	<0.10	<0.10
Selenium (Se)-Total	mg/L	0.001	-	0.00005	<0.0010	<0.000050	<0.000050
Silicon (Si)-Total	mg/L	-	-	0.05	-	<0.050	<0.050
Silver (Ag)-Total	mg/L	0.0001	0.1	0.00001	-	<0.000010	<0.000010
Sodium (Na)-Total	mg/L	-	-	0.05	4.8	<0.050	<0.050
Strontium (Sr)-Total	mg/L	-	-	0.0002	-	<0.00020	<0.00020
Sulfur (S)-Total	mg/L	-	-	0.5	-	<0.50	<0.50
Thallium (Tl)-Total	mg/L	0.0008	-	0.00001	-	<0.000010	<0.000010
Tin (Sn)-Total	mg/L	-	-	0.0001	-	<0.00010	<0.00010
Titanium (Ti)-Total	mg/L	-	-	0.0003	-	<0.00030	<0.00030
Uranium (U)-Total	mg/L	0.015	-	0.00001	0.00168	<0.000010	<0.000010
Vanadium (V)-Total	mg/L	-	-	0.0005	-	<0.00050	<0.00050
Zinc (Zn)-Total	mg/L	0.03	0.3	0.003	<0.050	<0.0030	<0.0030
Dissolved Metals Filtration Location		-	-	-	-	FIELD	n/a
Aluminum (Al)-Dissolved	mg/L	0.1	-	0.001	-	<0.0010	-
Antimony (Sb)-Dissolved	mg/L	-	-	0.0001	-	<0.00010	-
Arsenic (As)-Dissolved	mg/L	0.005	0.15	0.0001	-	<0.00010	-
Barium (Ba)-Dissolved	mg/L	-	-	0.00005	-	<0.000050	-
Beryllium (Be)-Dissolved	mg/L	-	-	0.00002	-	<0.000020	-
Bismuth (Bi)-Dissolved	mg/L	-	-	0.00005	-	<0.000050	-
Boron (B)-Dissolved	mg/L	-	-	0.01	-	<0.010	-
Cadmium (Cd)-Dissolved *(Lab Result)*	mg/L	0.00009	-	0.000005	-	<0.0000050	-
Cadmium (Cd)-Diss. (Hardness Adjusted Guideline)	mg/L	-	-	-	-	*0.000370*	-
Calcium (Ca)-Dissolved	mg/L	-	-	0.05	-	<0.050	-
Chromium (Cr)-Dissolved	mg/L	0.0089	-	0.0001	-	<0.00010	-
Cobalt (Co)-Dissolved	mg/L	-	-	0.0001	-	<0.00010	-
Copper (Cu)-Dissolved *(Lab Result)*	mg/L	0.002	-	0.0002	-	<0.00020	-
Copper (Cu)-Diss. (Hardness Adjusted Guideline)	mg/L	-	-	-	-	*0.00410*	-
Iron (Fe)-Dissolved	mg/L	0.3	-	0.01	-	<0.010	-
Lead (Pb)-Dissolved *(Lab Result)*	mg/L	0.001	-	0.00005	-	<0.000050	-
Lead (Pb)-Diss. (Hardness Adjusted Guideline)	mg/L	-	-	-	-	*0.00150*	-
Lithium (Li)-Dissolved	mg/L	-	-	0.001	-	<0.0010	-
Magnesium (Mg)-Dissolved	mg/L	-	-	0.1	-	<0.10	-
Manganese (Mn)-Dissolved	mg/L	-	-	0.0001	-	<0.00010	-
Mercury (Hg)-Dissolved	mg/L	0.000026	-	0.000005	-	<0.000050	-
Molybdenum (Mo)-Dissolved	mg/L	0.0073	-	0.00005	-	<0.000050	-
Nickel (Ni)-Dissolved *(Lab Result)*	mg/L	0.025	-	0.0005	-	<0.00050	-
Nickel (Ni)-Diss. (Hardness Adjusted Guideline)	mg/L	-	-	-	-	*0.15000*	-
Phosphorus (P)-Dissolved	mg/L	-	-	0.05	-	<0.050	-
Potassium (K)-Dissolved	mg/L	-	-	0.1	-	<0.10	-
Selenium (Se)-Dissolved	mg/L	0.001	-	0.00005	-	<0.000050	-
Silicon (Si)-Dissolved	mg/L	-	-	0.05	-	<0.050	-
Silver (Ag)-Dissolved	mg/L	0.0001	-	0.00001	-	<0.000010	-
Sodium (Na)-Dissolved	mg/L	-	-	0.05	-	<0.050	-
Strontium (Sr)-Dissolved	mg/L	-	-	0.0002	-	<0.00020	-
Sulfur (S)-Dissolved	mg/L	-	-	0.5	-	<0.50	-
Thallium (Tl)-Dissolved	mg/L	0.0008	-	0.00001	-	<0.000010	-
Tin (Sn)-Dissolved	mg/L	-	-	0.0001	-	<0.00010	-
Titanium (Ti)-Dissolved	mg/L	-	-	0.0003	-	<0.00030	-
Uranium (U)-Dissolved	mg/L	0.015	-	0.00001	-	<0.000010	-
Vanadium (V)-Dissolved	mg/L	-	-	0.0005	-	<0.00050	-
Zinc (Zn)-Dissolved	mg/L	0.03	-	0.001	-	<0.0010	-

Applied Guidelines: 'Federal CCME Canadian Environmental Quality Guidelines (January 2015), CCME: Freshwater Aquatic Life 'Mount Nansen Effluent Discharge Standards

COLOUR KEY:

Exceeds CCME Guideline

Exceeds MN Effluent Discharge Standards

Exceeds both CCME and MN Standards

Exceeds Hardness Dependent Calculated Guideline (CCME)

Data flag for Detection Limit Adjustment --> Please refer to the lab COA report and lab excel report for more info

QA/QC Codes: RPD - Relative Percent Difference, <DL - below detection limit, and <2XDL - less than two times the detection limit.

ENVIRONMENTAL DYNAMICS INC.
ATTN: Meghan Marjanovic
2195 - 2nd Ave
Whitehorse YT Y1A 3T8

Date Received: 17-JUN-15
Report Date: 03-JUL-15 10:17 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1628662

Project P.O. #: NOT SUBMITTED
Job Reference: MOUNT NANSEN 15-Y-0146
C of C Numbers: 1, 2, 3
Legal Site Desc:

Can Dang
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628662-1 WQ-DESS-01	L1628662-2 WQ-DCU	L1628662-3 WQ-VC-DBC	L1628662-4 WQ-VC-DBC-R	L1628662-5 WQ-VCU
	Sample ID	L1628662-1	L1628662-2	L1628662-3	L1628662-4	L1628662-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	16-JUN-15	16-JUN-15	16-JUN-15	16-JUN-15	16-JUN-15
	Sampled Time	16:50	12:07	09:10	09:25	09:45
	Client ID	WQ-DESS-01	WQ-DCU	WQ-VC-DBC	WQ-VC-DBC-R	WQ-VCU
WATER						
Physical Tests	Conductivity (uS/cm)	1090	1200	197	196	196
	Hardness (as CaCO3) (mg/L)	692	736	102	102	100
	pH (pH)	5.96	8.22	8.05	8.02	8.02
	Total Suspended Solids (mg/L)	<3.0	5.3	<3.0	<3.0	<3.0
	Total Dissolved Solids (mg/L)	877	948	111	111	111
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	1.9	196	92.2	91.1	91.9
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	1.9	196	92.2	91.1	91.9
	Ammonia, Total (as N) (mg/L)	0.0069	1.14	<0.0050	<0.0050	0.0058
	Chloride (Cl) (mg/L)	<1.0 DLA	<1.0 DLA	<0.50	<0.50	<0.50
	Fluoride (F) (mg/L)	0.049	0.078	0.047	0.047	0.046
	Nitrate (as N) (mg/L)	0.065	0.251	0.0669	0.0667	0.0674
	Nitrite (as N) (mg/L)	<0.0020 DLA	0.0128	<0.0010	<0.0010	<0.0010
	Sulfate (SO4) (mg/L)	633	554	17.3	17.3	17.6
	Anion Sum (meq/L)	13.2	15.5	2.21	2.19	2.21
	Cation Sum (meq/L)	14.1	15.6	2.17	2.18	2.13
	Cation - Anion Balance (%)	3.3	0.4	-0.9	-0.3	-1.8
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)	<0.0050	0.0053	<0.0050	<0.0050	<0.0050
	Cyanate (mg/L)	<2.0 DLIS	<0.20	<0.20	<0.20	<0.20
	Thiocyanate (SCN) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.108	0.0653	0.0294	0.0133	0.0109
	Antimony (Sb)-Total (mg/L)	0.00018	0.00123	0.00011	0.00010	0.00010
	Arsenic (As)-Total (mg/L)	0.00056	0.0174	0.00043	0.00033	0.00030
	Barium (Ba)-Total (mg/L)	0.0229	0.0542	0.0719	0.0719	0.0703
	Beryllium (Be)-Total (mg/L)	0.000032	<0.000020	<0.000020	<0.000020	<0.000020
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	<0.010	0.033	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.00515	0.0000487	0.0000131	0.0000099	0.0000130
	Calcium (Ca)-Total (mg/L)	167	185	26.2	26.1	25.8
	Chromium (Cr)-Total (mg/L)	0.00016	0.00026	0.00014	0.00014	0.00013
	Cobalt (Co)-Total (mg/L)	<0.00010	0.00199	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Total (mg/L)	0.00156	0.00121	0.00113	0.00105	0.00103
	Iron (Fe)-Total (mg/L)	0.050	2.04	0.051	0.027	0.027
	Lead (Pb)-Total (mg/L)	<0.000050	0.000110	0.000125	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	0.0017	0.0021	<0.0010	<0.0010	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628662-6 Water 16-JUN-15 17:25 WQ-MS-S-03	L1628662-7 Water 16-JUN-15 13:15 WQ-SEEP	L1628662-8 Water 15-JUN-15 13:20 WQ-VC-R	L1628662-9 Water 16-JUN-15 15:45 WQ-CH-P-13-01	L1628662-10 Water 15-JUN-15 15:00 WQ-VC-UMN
WATER						
Physical Tests	Conductivity (uS/cm)	1200	1520	250	1330	274
	Hardness (as CaCO3) (mg/L)	782	914	130	856	146
	pH (pH)	7.84	7.54	8.14	5.74	7.80
	Total Suspended Solids (mg/L)	18.0	24.0	<3.0	<3.0	3.3
	Total Dissolved Solids (mg/L)	952	1290	151	1110	162
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	296	238	87.0	1.4	93.7
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	296	238	87.0	1.4	93.7
	Ammonia, Total (as N) (mg/L)	0.0285	4.69	0.0052	0.0105	0.0083
	Chloride (Cl) (mg/L)	<1.0 DLA	<2.5 DLA	<0.50	<1.0 DLA	<0.50
	Fluoride (F) (mg/L)	0.227	0.21	0.051	0.055	0.046
	Nitrate (as N) (mg/L)	<0.010 DLA	0.281	0.0683	0.071	0.0724
	Nitrite (as N) (mg/L)	<0.0020 DLA	0.0137	<0.0010	<0.0020 DLA	<0.0010
	Sulfate (SO4) (mg/L)	492	753	48.9	806	50.3
	Anion Sum (meq/L)	16.2	20.5	2.76	16.8	2.93
	Cation Sum (meq/L)	16.1	21.0	2.77	17.5	3.11
	Cation - Anion Balance (%)	-0.2	1.2	0.1	2.1	3.0
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	0.0144	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)	<0.0050	0.0846	<0.0050	<0.0050	<0.0050
	Cyanate (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Thiocyanate (SCN) (mg/L)	<0.50	4.20	<0.50	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.0884	0.0159	0.0374	0.238	0.0246
	Antimony (Sb)-Total (mg/L)	0.0168	0.00043	0.00037	0.00014	0.00039
	Arsenic (As)-Total (mg/L)	0.0944	0.0535	0.00199	0.00074	0.00214
	Barium (Ba)-Total (mg/L)	0.0169	0.0665	0.0686	0.0152	0.0701
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000020	0.000051	<0.000020
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Total (mg/L)	<0.010	0.068	<0.010	<0.010	<0.010
	Cadmium (Cd)-Total (mg/L)	0.00261	0.000274	0.0000143	0.0114	0.0000158
	Calcium (Ca)-Total (mg/L)	201	266	34.1	205	38.2
	Chromium (Cr)-Total (mg/L)	0.00015	0.00047	0.00018	0.00017	0.00012
	Cobalt (Co)-Total (mg/L)	0.00116	0.00816	0.00013	0.00022	0.00012
	Copper (Cu)-Total (mg/L)	0.00328	0.00221	0.00131	0.00139	0.00114
	Iron (Fe)-Total (mg/L)	2.19	10.8	0.227	0.125	0.084
	Lead (Pb)-Total (mg/L)	0.00398	0.000065	0.000124	0.000079	0.000128
	Lithium (Li)-Total (mg/L)	0.0110	<0.0010	<0.0010	0.0018	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628662-11 WQ-DCR	L1628662-12 WQ-SEEP-R	L1628662-13 WQ-DCB	L1628662-14 WQ-TP	L1628662-15 WQ-DC-D1B
	Sample ID	L1628662-11	L1628662-12	L1628662-13	L1628662-14	L1628662-15
	Description	Water	Water	Water	Water	Water
	Sampled Date	15-JUN-15	16-JUN-15	16-JUN-15	16-JUN-15	16-JUN-15
	Sampled Time	16:15	13:30	14:15	14:00	18:00
	Client ID	WQ-DCR	WQ-SEEP-R	WQ-DCB	WQ-TP	WQ-DC-D1B
WATER						
Physical Tests	Conductivity (uS/cm)	1590	1180	1110	1220	970
	Hardness (as CaCO3) (mg/L)	558	898	681	713	581
	pH (pH)	7.79	8.18	8.03	8.12	7.97
	Total Suspended Solids (mg/L)	9.3	24.7	24.0	<3.0	20.7
	Total Dissolved Solids (mg/L)	737	1250	857	856	721
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	242	189	171	69.1	172
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
	Alkalinity, Total (as CaCO3) (mg/L)	242	189	171	69.1	172
	Ammonia, Total (as N) (mg/L)	0.593 DLA	4.10 DLA	0.0997 DLA	0.0421 DLA	0.221 DLA
	Chloride (Cl) (mg/L)	<1.0	<2.5	<1.0	<1.0	<1.0
	Fluoride (F) (mg/L)	0.131	0.22	0.119	0.214	0.147
	Nitrate (as N) (mg/L)	0.337	0.287	0.129	0.157	0.057
	Nitrite (as N) (mg/L)	0.0137	0.0132	0.0036	0.0058	0.0024
	Sulfate (SO4) (mg/L)	379	752	515	530	414
	Anion Sum (meq/L)	12.8	19.5	14.2	12.4	12.1
	Cation Sum (meq/L)	11.9	20.5	14.0	15.2	11.9
	Cation - Anion Balance (%)	-3.7	2.6	-0.4	10.1	-0.6
Cyanides	Cyanide, Weak Acid Diss (mg/L)	<0.0050	0.0117	<0.0050	<0.0050	<0.0050
	Cyanide, Total (mg/L)	<0.0050	0.0892	<0.0050	<0.0050	<0.0050
	Cyanate (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Thiocyanate (SCN) (mg/L)	<0.50	3.84	<0.50	<0.50	<0.50
Total Metals	Aluminum (Al)-Total (mg/L)	0.0933	0.0151	0.315	0.0258	0.233
	Antimony (Sb)-Total (mg/L)	0.00140	0.00042	0.00190	0.0364	0.00473
	Arsenic (As)-Total (mg/L)	0.0160	0.0527	0.00852	0.0912	0.0544
	Barium (Ba)-Total (mg/L)	0.0575	0.0660	0.0447	0.00858	0.0238
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	0.000094	<0.000050
	Boron (B)-Total (mg/L)	0.026	0.065	0.022	0.076	0.034
	Cadmium (Cd)-Total (mg/L)	0.0000594	0.000318	0.0000454	0.000620	0.000337
	Calcium (Ca)-Total (mg/L)	146	260	150	204	139
	Chromium (Cr)-Total (mg/L)	0.00038	0.00045	0.00077	0.00075	0.00050
	Cobalt (Co)-Total (mg/L)	0.00159	0.00815	0.00050	0.00053	0.00046
	Copper (Cu)-Total (mg/L)	0.00145	0.00270	0.00165	0.0205	0.00167
	Iron (Fe)-Total (mg/L)	3.11	10.5	2.34	0.186	0.994
	Lead (Pb)-Total (mg/L)	0.000629	0.000083	0.000600	0.00798	0.00354
	Lithium (Li)-Total (mg/L)	0.0015	<0.0010	0.0032	0.0072	0.0046

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1628662-16	L1628662-17	L1628662-18	L1628662-19	L1628662-20
Description	Water	Water	Water	Water	Water
Sampled Date	16-JUN-15	17-JUN-15	17-JUN-15	26-MAY-15	17-JUN-15
Sampled Time	17:05	10:30	10:40		11:00
Client ID	WQ-DX105	WQ-DC-DX	WQ-DC-DX-R	TRAVEL BLANK	FIELD BLANK
Grouping / **Analyte**					
WATER					
Physical Tests					
Conductivity (uS/cm)	1140	437	463	<2.0	<2.0
Hardness (as CaCO3) (mg/L)	704	221	226		<0.50
pH (pH)	7.43	7.54	7.54	5.59	5.57
Total Suspended Solids (mg/L)	<3.0	4.7	10.7	<3.0	<3.0
Total Dissolved Solids (mg/L)	852	284	304	<1.0	<1.0
Anions and Nutrients					
Alkalinity, Bicarbonate (as CaCO3) (mg/L)	273	72.6	79.6	<1.0	<1.0
Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	<1.0	<1.0
Alkalinity, Total (as CaCO3) (mg/L)	273	72.6	79.6	<1.0	<1.0
Ammonia, Total (as N) (mg/L)	0.0183	0.0074	0.0061	0.0066 RRV	<0.0050
Chloride (Cl) (mg/L)	<1.0 DLA	<0.50	<0.50	<0.50	<0.50
Fluoride (F) (mg/L)	0.215	0.052	0.053	<0.020	<0.020
Nitrate (as N) (mg/L)	<0.010 DLA	<0.0050	<0.0050	<0.0050	<0.0050
Nitrite (as N) (mg/L)	<0.0020 DLA	<0.0010	<0.0010	<0.0010	<0.0010
Sulfate (SO4) (mg/L)	435	154	169	<0.30	<0.30
Anion Sum (meq/L)	14.5	4.67	5.10	<0.10	<0.10
Cation Sum (meq/L)	14.4	4.71	4.80	<0.10	<0.10
Cation - Anion Balance (%)	-0.3	0.4	-3.0	0.0	0.0
Cyanides					
Cyanide, Weak Acid Diss (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanide, Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Cyanate (mg/L)	<0.20	<0.20	<0.20	<0.20 PEHR	<0.20
Thiocyanate (SCN) (mg/L)	<0.50	<0.50	<0.50	<0.50	<0.50
Total Metals					
Aluminum (Al)-Total (mg/L)	0.0035	0.0391	0.0311	<0.0030	<0.0030
Antimony (Sb)-Total (mg/L)	0.00954	0.00091	0.00093	<0.00010	<0.00010
Arsenic (As)-Total (mg/L)	0.0240	0.00682	0.00590	<0.00010	<0.00010
Barium (Ba)-Total (mg/L)	0.0143	0.0404	0.0394	<0.000050	<0.000050
Beryllium (Be)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
Bismuth (Bi)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Boron (B)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
Cadmium (Cd)-Total (mg/L)	0.00170	0.0000134	0.0000098	<0.0000050	<0.0000050
Calcium (Ca)-Total (mg/L)	181	59.8	61.5	<0.050	<0.050
Chromium (Cr)-Total (mg/L)	<0.00010	0.00018	0.00013	<0.00010	<0.00010
Cobalt (Co)-Total (mg/L)	0.00064	0.00029	0.00028	<0.00010	<0.00010
Copper (Cu)-Total (mg/L)	<0.00050	0.00113	0.00107	<0.00050	<0.00050
Iron (Fe)-Total (mg/L)	0.436	0.839	0.624	<0.010	<0.010
Lead (Pb)-Total (mg/L)	<0.000050	0.000119	0.000075	<0.000050	<0.000050
Lithium (Li)-Total (mg/L)	0.0091	<0.0010	<0.0010	<0.0010	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1628662-1	L1628662-2	L1628662-3	L1628662-4	L1628662-5
	Description	Water	Water	Water	Water	Water
	Sampled Date	16-JUN-15	16-JUN-15	16-JUN-15	16-JUN-15	16-JUN-15
	Sampled Time	16:50	12:07	09:10	09:25	09:45
	Client ID	WQ-DESS-01	WQ-DCU	WQ-VC-DBC	WQ-VC-DBC-R	WQ-VCU
Grouping	**Analyte**					
WATER						
Total Metals	Magnesium (Mg)-Total (mg/L)	65.0	63.5	8.76	8.74	8.64
	Manganese (Mn)-Total (mg/L)	0.148	1.91	0.0447	0.0416	0.0397
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	<0.000050	0.000554	0.000454	0.000450	0.000429
	Nickel (Ni)-Total (mg/L)	0.00695	0.00124	<0.00050	<0.00050	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	0.61	3.53	0.64	0.66	0.66
	Selenium (Se)-Total (mg/L)	0.000051	0.000104	<0.000050	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	6.05	5.26	5.59	5.53	5.51
	Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	4.47	14.9	2.54	2.57	2.55
	Strontium (Sr)-Total (mg/L)	0.418	0.611	0.287	0.292	0.283
	Sulfur (S)-Total (mg/L)	225	184	5.91	5.93	5.85
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.00030	0.00349	0.00101	0.00036	<0.00030
	Uranium (U)-Total (mg/L)	<0.000010	0.00243	0.000646	0.000659	0.000617
	Vanadium (V)-Total (mg/L)	<0.00050	0.00082	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	2.28	0.0042	<0.0030	<0.0030	<0.0030
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.105	0.0133	0.0070	0.0064	0.0066
	Antimony (Sb)-Dissolved (mg/L)	0.00016	0.00118	<0.00010	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00054	0.0127	0.00027	0.00027	0.00028
	Barium (Ba)-Dissolved (mg/L)	0.0227	0.0524	0.0704	0.0708	0.0708
	Beryllium (Be)-Dissolved (mg/L)	0.000031	<0.000020	<0.000020	<0.000020	<0.000020
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	<0.010	0.028	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.00508	0.0000343	0.0000130	0.0000124	0.0000141
	Calcium (Ca)-Dissolved (mg/L)	171	188	26.3	26.4	25.8
	Chromium (Cr)-Dissolved (mg/L)	0.00013	0.00012	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.00194	<0.00010	<0.00010	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00149	0.00086	0.00099	0.00100	0.00101
	Iron (Fe)-Dissolved (mg/L)	0.048	0.285	0.016	0.016	0.017
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0015	0.0020	<0.0010	<0.0010	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628662-6 Water 16-JUN-15 17:25 WQ-MS-S-03	L1628662-7 Water 16-JUN-15 13:15 WQ-SEEP	L1628662-8 Water 15-JUN-15 13:20 WQ-VC-R	L1628662-9 Water 16-JUN-15 15:45 WQ-CH-P-13-01	L1628662-10 Water 15-JUN-15 15:00 WQ-VC-UMN
WATER						
Total Metals	Magnesium (Mg)-Total (mg/L)	68.2	56.7	11.0	80.0	12.5
	Manganese (Mn)-Total (mg/L)	1.46	6.96	0.0290	0.479	0.0340
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.000353	0.000912	0.000375	<0.000050	0.000422
	Nickel (Ni)-Total (mg/L)	0.00210	0.00277	0.00051	0.00862	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	3.47	6.12	0.84	0.90	0.92
	Selenium (Se)-Total (mg/L)	<0.000050	0.000196	0.000057	<0.000050	<0.000050
	Silicon (Si)-Total (mg/L)	6.63	7.38	5.58	5.28	5.44
	Silver (Ag)-Total (mg/L)	0.000058	0.000026	<0.000010	<0.000010	<0.000010
	Sodium (Na)-Total (mg/L)	5.16	35.5	3.44	5.29	3.79
	Strontium (Sr)-Total (mg/L)	0.475	0.783	0.276	0.491	0.314
	Sulfur (S)-Total (mg/L)	164	251	16.9	279	19.2
	Thallium (Tl)-Total (mg/L)	0.000103	<0.000010	<0.000010	<0.000010	<0.000010
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	<0.0078 DLM	<0.0015 DLM	0.00084	<0.0018 DLM	0.00083
	Uranium (U)-Total (mg/L)	0.00472	0.00159	0.000671	0.000013	0.000758
	Vanadium (V)-Total (mg/L)	<0.00050	0.00175	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	0.958	0.0071	<0.0030	3.93	0.0031
	Zirconium (Zr)-Total (mg/L)	<0.00030	0.00050	<0.00030	<0.00030	<0.00030
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0014	0.0077	0.0180	0.234	0.0057
	Antimony (Sb)-Dissolved (mg/L)	0.0165	0.00040	0.00034	0.00013	0.00037
	Arsenic (As)-Dissolved (mg/L)	0.0728	0.0360	0.00166	0.00065	0.00187
	Barium (Ba)-Dissolved (mg/L)	0.0153	0.0659	0.0663	0.0149	0.0693
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	0.000054	<0.000020
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	<0.010	0.061	<0.010	<0.010	<0.010
	Cadmium (Cd)-Dissolved (mg/L)	0.000797	0.000239	0.0000086	0.0122	0.0000182
	Calcium (Ca)-Dissolved (mg/L)	202	274	34.1	202	38.1
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00035	0.00012	0.00013	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00102	0.00820	0.00011	0.00028	<0.00010
	Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00165	0.00119	0.00143	0.00104
	Iron (Fe)-Dissolved (mg/L)	1.75	7.30	0.128	0.105	0.021
	Lead (Pb)-Dissolved (mg/L)	0.000186	<0.000050	<0.000050	0.000073	<0.000050
	Lithium (Li)-Dissolved (mg/L)	0.0104	<0.0010	<0.0010	0.0018	<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628662-11 Water 15-JUN-15 16:15 WQ-DCR	L1628662-12 Water 16-JUN-15 13:30 WQ-SEEP-R	L1628662-13 Water 16-JUN-15 14:15 WQ-DCB	L1628662-14 Water 16-JUN-15 14:00 WQ-TP	L1628662-15 Water 16-JUN-15 18:00 WQ-DC-D1B
WATER						
Total Metals	Magnesium (Mg)-Total (mg/L)	46.8	55.3	65.1	42.6	57.7
	Manganese (Mn)-Total (mg/L)	1.41	6.86	0.470	0.108	0.736
	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	0.0000131	<0.0000050
	Molybdenum (Mo)-Total (mg/L)	0.000444	0.000888	0.000464	0.00150	0.000232
	Nickel (Ni)-Total (mg/L)	0.00119	0.00278	0.00114	0.00087	0.00083
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Total (mg/L)	2.85	5.96	2.64	12.0	2.88
	Selenium (Se)-Total (mg/L)	0.000090	0.000189	0.000084	0.000062	0.000060
	Silicon (Si)-Total (mg/L)	4.96	7.22	5.07	1.38	4.26
	Silver (Ag)-Total (mg/L)	0.000027	0.000027	0.000010	0.000191	0.000043
	Sodium (Na)-Total (mg/L)	12.1	35.0	7.20	15.7	4.21
	Strontium (Sr)-Total (mg/L)	0.474	0.766	0.506	0.524	0.367
	Sulfur (S)-Total (mg/L)	141	243	159	213	136
	Thallium (Tl)-Total (mg/L)	<0.000010	<0.000010	<0.000010	0.000214	0.000016
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Total (mg/L)	0.00427	<0.0015 DLM	0.0154	<0.00090 DLM	0.0135
	Uranium (U)-Total (mg/L)	0.00161	0.00162	0.00295	0.00102	0.00208
	Vanadium (V)-Total (mg/L)	0.00111	0.00170	0.00253	<0.00050	0.00126
	Zinc (Zn)-Total (mg/L)	0.0055	0.0076	0.0065	0.0366	0.0987
	Zirconium (Zr)-Total (mg/L)	<0.00030	0.00049	<0.00030	<0.00030	<0.00030
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD	FIELD	FIELD
	Aluminum (Al)-Dissolved (mg/L)	0.0099	0.0079	0.0124	0.0048	0.0019
	Antimony (Sb)-Dissolved (mg/L)	0.00125	0.00041	0.00189	0.0358	0.00412
	Arsenic (As)-Dissolved (mg/L)	0.00674	0.0350	0.00268	0.0723	0.0384
	Barium (Ba)-Dissolved (mg/L)	0.0530	0.0646	0.0382	0.00827	0.0196
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	0.022	0.061	0.018	0.069	0.028
	Cadmium (Cd)-Dissolved (mg/L)	0.0000281	0.000252	0.0000083	0.000423	0.000112
	Calcium (Ca)-Dissolved (mg/L)	146	265	160	211	138
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	0.00034	<0.00010	<0.00010	<0.00010
	Cobalt (Co)-Dissolved (mg/L)	0.00148	0.00806	0.00034	0.00048	0.00030
	Copper (Cu)-Dissolved (mg/L)	0.00091	0.00176	0.00053	0.0150	0.00048
	Iron (Fe)-Dissolved (mg/L)	0.635	6.93	0.073	0.013	0.107
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	0.000549	0.000122
	Lithium (Li)-Dissolved (mg/L)	0.0013	<0.0010	0.0029	0.0071	0.0044

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1628662-16	L1628662-17	L1628662-18	L1628662-19	L1628662-20
Description	Water	Water	Water	Water	Water
Sampled Date	16-JUN-15	17-JUN-15	17-JUN-15	26-MAY-15	17-JUN-15
Sampled Time	17:05	10:30	10:40		11:00
Client ID	WQ-DX105	WQ-DC-DX	WQ-DC-DX-R	TRAVEL BLANK	FIELD BLANK
Grouping / **Analyte**					
WATER					
Total Metals Magnesium (Mg)-Total (mg/L)	61.4	16.1	16.4	<0.10	<0.10
Manganese (Mn)-Total (mg/L)	1.29	0.155	0.147	<0.00010	<0.00010
Mercury (Hg)-Total (mg/L)	<0.0000050	0.0000104	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Total (mg/L)	0.000371	0.000063	0.000063	<0.000050	<0.000050
Nickel (Ni)-Total (mg/L)	0.00150	0.00054	<0.00050	<0.00050	<0.00050
Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Total (mg/L)	3.44	4.20	4.30	<0.10	<0.10
Selenium (Se)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Silicon (Si)-Total (mg/L)	6.44	4.13	4.17	<0.050	<0.050
Silver (Ag)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Total (mg/L)	5.18	3.37	3.40	<0.050	<0.050
Strontium (Sr)-Total (mg/L)	0.424	0.188	0.190	<0.00020	<0.00020
Sulfur (S)-Total (mg/L)	145	50.5	50.7	<0.50	<0.50
Thallium (Tl)-Total (mg/L)	0.000077	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Total (mg/L)	<0.00030	<0.0030 DLM	0.00170	<0.00030	<0.00030
Uranium (U)-Total (mg/L)	0.00455	0.000096	0.000084	<0.000010	<0.000010
Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Total (mg/L)	0.607	<0.0030	<0.0030	<0.0030	<0.0030
Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Dissolved Metals Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD		FIELD
Dissolved Metals Filtration Location	FIELD	FIELD	FIELD		FIELD
Aluminum (Al)-Dissolved (mg/L)	<0.0010	0.0055	0.0051		<0.0010
Antimony (Sb)-Dissolved (mg/L)	0.00922	0.00088	0.00089		<0.00010
Arsenic (As)-Dissolved (mg/L)	0.0113	0.00511	0.00464		<0.00010
Barium (Ba)-Dissolved (mg/L)	0.0140	0.0386	0.0387		<0.000050
Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020		<0.000020
Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		<0.000050
Boron (B)-Dissolved (mg/L)	<0.010	<0.010	<0.010		<0.010
Cadmium (Cd)-Dissolved (mg/L)	0.000550	0.0000133	0.0000089		<0.0000050
Calcium (Ca)-Dissolved (mg/L)	181	61.7	62.9		<0.050
Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		<0.00010
Cobalt (Co)-Dissolved (mg/L)	0.00061	0.00027	0.00025		<0.00010
Copper (Cu)-Dissolved (mg/L)	<0.00020	0.00093	0.00096		<0.00020
Iron (Fe)-Dissolved (mg/L)	0.331	0.463	0.388		<0.010
Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		<0.000050
Lithium (Li)-Dissolved (mg/L)	0.0084	<0.0010	<0.0010		<0.0010

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1628662-1	L1628662-2	L1628662-3	L1628662-4	L1628662-5
Description	Water	Water	Water	Water	Water
Sampled Date	16-JUN-15	16-JUN-15	16-JUN-15	16-JUN-15	16-JUN-15
Sampled Time	16:50	12:07	09:10	09:25	09:45
Client ID	WQ-DESS-01	WQ-DCU	WQ-VC-DBC	WQ-VC-DBC-R	WQ-VCU
Grouping / **Analyte**					
WATER					
Dissolved Metals Magnesium (Mg)-Dissolved (mg/L)	64.3	64.6	8.84	8.84	8.67
Manganese (Mn)-Dissolved (mg/L)	0.141	1.88	0.0384	0.0383	0.0369
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	0.000525	0.000391	0.000399	0.000405
Nickel (Ni)-Dissolved (mg/L)	0.00655	0.00119	<0.00050	<0.00050	<0.00050
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	0.62	3.54	0.65	0.66	0.66
Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000084	<0.000050	<0.000050	0.000051
Silicon (Si)-Dissolved (mg/L)	6.01	5.18	5.58	5.63	5.53
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	4.24	14.7	2.50	2.52	2.49
Strontium (Sr)-Dissolved (mg/L)	0.412	0.596	0.281	0.280	0.275
Sulfur (S)-Dissolved (mg/L)	221	187	5.87	5.82	5.80
Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved (mg/L)	<0.000010	0.00234	0.000600	0.000606	0.000611
Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	2.28	0.0033	0.0011	<0.0010	<0.0010
Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1628662-6	L1628662-7	L1628662-8	L1628662-9	L1628662-10
Description	Water	Water	Water	Water	Water
Sampled Date	16-JUN-15	16-JUN-15	15-JUN-15	16-JUN-15	15-JUN-15
Sampled Time	17:25	13:15	13:20	15:45	15:00
Client ID	WQ-MS-S-03	WQ-SEEP	WQ-VC-R	WQ-CH-P-13-01	WQ-VC-UMN
Grouping **Analyte**					
WATER					
Dissolved Metals Magnesium (Mg)-Dissolved (mg/L)	67.7	55.9	10.9	85.5	12.4
Manganese (Mn)-Dissolved (mg/L)	1.41	6.95	0.0234	0.557	0.0269
Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
Molybdenum (Mo)-Dissolved (mg/L)	0.000303	0.000832	0.000348	<0.000050	0.000378
Nickel (Ni)-Dissolved (mg/L)	0.00195	0.00271	<0.00050	0.00918	<0.00050
Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
Potassium (K)-Dissolved (mg/L)	3.48	6.31	0.85	0.88	0.90
Selenium (Se)-Dissolved (mg/L)	<0.000050	0.000174	<0.000050	<0.000050	<0.000050
Silicon (Si)-Dissolved (mg/L)	6.48	7.53	5.48	5.33	5.38
Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
Sodium (Na)-Dissolved (mg/L)	4.96	35.4	3.30	4.98	3.68
Strontium (Sr)-Dissolved (mg/L)	0.463	0.771	0.267	0.477	0.307
Sulfur (S)-Dissolved (mg/L)	162	245	16.4	276	18.6
Thallium (Tl)-Dissolved (mg/L)	0.000090	<0.000010	<0.000010	<0.000010	<0.000010
Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00090 DLM	<0.00030	<0.00030	<0.00030
Uranium (U)-Dissolved (mg/L)	0.00455	0.00155	0.000619	<0.000010	0.000725
Vanadium (V)-Dissolved (mg/L)	<0.00050	0.00122	<0.00050	<0.00050	<0.00050
Zinc (Zn)-Dissolved (mg/L)	0.931	0.0067	<0.0010	4.41	0.0027
Zirconium (Zr)-Dissolved (mg/L)	<0.00030	0.00045	<0.00030	<0.00030	<0.00030

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628662-11 Water 15-JUN-15 16:15 WQ-DCR	L1628662-12 Water 16-JUN-15 13:30 WQ-SEEP-R	L1628662-13 Water 16-JUN-15 14:15 WQ-DCB	L1628662-14 Water 16-JUN-15 14:00 WQ-TP	L1628662-15 Water 16-JUN-15 18:00 WQ-DC-D1B
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	47.0	57.0	68.8	45.1	57.3
	Manganese (Mn)-Dissolved (mg/L)	1.32	6.72	0.471	0.0783	0.681
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.0000050	<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000395	0.000831	0.000419	0.00145	0.000209
	Nickel (Ni)-Dissolved (mg/L)	0.00104	0.00274	0.00071	0.00066	0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050	<0.050	<0.050
	Potassium (K)-Dissolved (mg/L)	2.85	5.91	2.74	12.3	2.81
	Selenium (Se)-Dissolved (mg/L)	0.000073	0.000167	0.000066	0.000052	0.000052
	Silicon (Si)-Dissolved (mg/L)	4.67	7.21	4.86	1.35	3.87
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	0.000021	<0.000010
	Sodium (Na)-Dissolved (mg/L)	11.9	34.6	7.43	15.2	4.14
	Strontium (Sr)-Dissolved (mg/L)	0.454	0.784	0.512	0.517	0.356
	Sulfur (S)-Dissolved (mg/L)	139	245	165	221	137
	Thallium (Tl)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	0.000215	0.000015
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00090 DLM	<0.00030	<0.00030	<0.00030
	Uranium (U)-Dissolved (mg/L)	0.00155	0.00165	0.00289	0.000969	0.00193
	Vanadium (V)-Dissolved (mg/L)	<0.00050	0.00116	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Dissolved (mg/L)	0.0028	0.0060	0.0019	0.0224	0.0718
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	0.00046	<0.00030	<0.00030	<0.00030

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628662-16 Water 16-JUN-15 17:05 WQ-DX105	L1628662-17 Water 17-JUN-15 10:30 WQ-DC-DX	L1628662-18 Water 17-JUN-15 10:40 WQ-DC-DX-R	L1628662-19 Water 26-MAY-15 TRAVEL BLANK	L1628662-20 Water 17-JUN-15 11:00 FIELD BLANK
WATER						
Dissolved Metals	Magnesium (Mg)-Dissolved (mg/L)	60.9	16.4	16.7		<0.10
	Manganese (Mn)-Dissolved (mg/L)	1.23	0.152	0.137		<0.00010
	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050		<0.0000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.000344	<0.000050	0.000054		<0.000050
	Nickel (Ni)-Dissolved (mg/L)	0.00143	<0.00050	<0.00050		<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050		<0.050
	Potassium (K)-Dissolved (mg/L)	3.44	4.32	4.36		<0.10
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050		<0.000050
	Silicon (Si)-Dissolved (mg/L)	6.42	4.17	4.18		<0.050
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		<0.000010
	Sodium (Na)-Dissolved (mg/L)	4.95	3.31	3.47		<0.050
	Strontium (Sr)-Dissolved (mg/L)	0.406	0.185	0.189		<0.00020
	Sulfur (S)-Dissolved (mg/L)	144	50.7	52.2		<0.50
	Thallium (Tl)-Dissolved (mg/L)	0.000074	<0.000010	<0.000010		<0.000010
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		<0.00010
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030		<0.00030
	Uranium (U)-Dissolved (mg/L)	0.00427	0.000080	0.000082		<0.000010
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050		<0.00050
	Zinc (Zn)-Dissolved (mg/L)	0.585	<0.0010	<0.0010		<0.0010
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030		<0.00030

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Conductivity	B	L1628662-18
Duplicate	Nitrite (as N)	DLA	L1628662-11
Duplicate	Cyanate	DLIS	L1628662-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -19, -2, -20, -3, -4, -5, -6, -7, -8, -9
Duplicate	Titanium (Ti)-Total	DLM	L1628662-15, -16, -17, -18, -20
Matrix Spike	Sulfate (SO4)	MS-B	L1628662-11
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1628662-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1628662-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1628662-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Ammonia, Total (as N)	MS-B	L1628662-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Barium (Ba)-Total	MS-B	L1628662-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Total	MS-B	L1628662-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Strontium (Sr)-Total	MS-B	L1628662-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Uranium (U)-Total	MS-B	L1628662-1, -10, -11, -12, -13, -14, -2, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1628662-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1628662-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -2, -20, -3, -4, -5, -6, -7, -8, -9
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1628662-1, -10, -11, -12, -13, -14, -15, -16, -17, -18, -2, -20, -3, -4, -5, -6, -7, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
DLA	Detection Limit adjusted for required dilution
DLIS	Detection Limit Adjusted: Insufficient Sample
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
PEHR	Parameter Exceeded Recommended Holding Time On Receipt: Proceed With Analysis As Requested.
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". 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.

BE-D-L-CCMS-VA	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

BE-T-L-CCMS-VA	Water	Total Be (Low) in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

CL-IC-N-WR	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

CN-CNO-WT	Water	Cyanate	APHA 4500-CN-L

Reference Information

This analysis is carried out using procedures adapted from APHA method 4500-CN "Cyanide". Cyanate is determined by the Cyanate hydrolysis method using an ammonia selective electrode

CN-SCN-VA	Water	Thiocyanate by Colour	APHA 4500-CN CYANIDE

This analysis is carried out using procedures adapted from APHA Method 4500-CN- M "Thiocyanate" Thiocyanate is determined by the ferric nitrate colourimetric method.

CN-T-CFA-VA	Water	Total Cyanide in water by CFA	ISO 14403:2002

This analysis is carried out using procedures adapted from ISO Method 14403:2002 "Determination of Total Cyanide using Flow Analysis (FIA and CFA)". Total or strong acid dissociable (SAD) cyanide is determined by in-line UV digestion along with sample distillation and final determination by colourimetric analysis. Method Limitation: This method is susceptible to interference from thiocyanate (SCN). If SCN is present in the sample, there could be a positive interference with this method, but it would be less than 1% and could be as low as zero.

CN-WAD-CFA-VA	Water	Weak Acid Diss. Cyanide in water by CFA	APHA 4500-CN CYANIDE

This analysis is carried out using procedures adapted from APHA Method 4500-CN I. "Weak Acid Dissociable Cyanide". Weak Acid Dissociable (WAD) cyanide is determined by in-line sample distillation with final determination by colourimetric analysis.

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

F-IC-N-WR	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

IONBALANCE-VA	Water	Ion Balance Calculation	APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

MET-D-CCMS-VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-DIS-LOW-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-T-CCMS-VA	Water	Total Metals in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-TOT-LOW-ICP-VA	Water	Total Metals in Water by ICPOES	EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA	Water	Ammonia in Water by Fluorescence	APHA 4500 NH3-NITROGEN (AMMONIA)

Reference Information

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NH3-F-VA	Water	Ammonia in Water by Fluorescence	J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-WR	Water	Nitrite in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-WR	Water	Nitrate in Water by IC (Low Level)	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

S-DIS-ICP-VA	Water	Dissolved Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

S-TOT-ICP-VA	Water	Total Sulfur in Water by ICPOES	EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SO4-IC-N-WR	Water	Sulfate in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-CALC-VA	Water	TDS (Calculated)	APHA 1030E (20TH EDITION)

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".

TSS-MAN-WR	Water	Total Suspended Solids by Gravimetric	APHA 2540 D

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids are determined by filtering a sample through a glass fibre filter and drying the filter at 104 degrees celsius.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Reference Information

Chain of Custody Numbers:

1 2 3

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour 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.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

ENVIRONMENTAL DYNAMICS INC.
ATTN: Meghan Marjanovic
2195 - 2nd Ave
Whitehorse YT Y1A 3A2

Date Received: 17-JUN-15
Report Date: 02-JUL-15 11:33 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1628676

Project P.O. #: NOT SUBMITTED
Job Reference: MOUNT NANSEN 15-Y-0146
C of C Numbers: 1
Legal Site Desc:

Can Dang
Senior Account Manager

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628676-1 Water 17-JUN-15 09:25 WQ-PIT1	L1628676-2 Water 17-JUN-15 08:45 WQ-PIT2	L1628676-3 Water 17-JUN-15 09:10 WQ-PIT3	L1628676-4 Water 17-JUN-15 11:55 WQ-PW (DRINKING WATER)	
WATER						
Physical Tests	Colour, True (CU)				<5.0	
	Conductivity (uS/cm)	1380	1780	2410	372	
	Hardness (as CaCO3) (mg/L)	890	1200	1730	192	
	pH (pH)	8.17	7.73	7.45	8.21	
	Total Suspended Solids (mg/L)	<3.0	<3.0	4.7		
	Total Dissolved Solids (mg/L)	1150	1550	2320	203	
	Turbidity (NTU)				0.26	
Anions and Nutrients	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	153	205	209		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0		
	Alkalinity, Total (as CaCO3) (mg/L)	153	205	209	167	
	Ammonia, Total (as N) (mg/L)	0.0057	<0.0050	0.0069		
	Chloride (Cl) (mg/L)	<2.5 DLA	<2.5 DLA	<5.0 DLA	<0.50	
	Fluoride (F) (mg/L)	0.31	0.33	0.20	0.093	
	Nitrate (as N) (mg/L)	<0.025 DLA	<0.025 DLA	<0.050 DLA	0.136	
	Nitrite (as N) (mg/L)	<0.0050 DLA	<0.0050 DLA	<0.010 DLA	<0.0010	
	Sulfate (SO4) (mg/L)	733	991	1550	32.5	
	Anion Sum (meq/L)	18.3	24.7	36.4	4.03	
	Cation Sum (meq/L)	18.3	24.6	35.5	4.06	
	Cation - Anion Balance (%)	-0.1	-0.2	-1.3	0.4	
Total Metals	Aluminum (Al)-Total (mg/L)	0.0198	0.0287	0.0308	<0.010	
	Antimony (Sb)-Total (mg/L)	0.00290	0.00235	0.00074	<0.00050	
	Arsenic (As)-Total (mg/L)	0.00857	0.0105	0.0281	0.00040	
	Barium (Ba)-Total (mg/L)	0.0216	0.0199	0.0109	0.085	
	Beryllium (Be)-Total (mg/L)	<0.000020	<0.000040 DLA	<0.000040 DLA		
	Bismuth (Bi)-Total (mg/L)	<0.000050	<0.00010 DLA	<0.00010 DLA		
	Boron (B)-Total (mg/L)	<0.010	<0.020 DLA	<0.020 DLA	<0.10	
	Cadmium (Cd)-Total (mg/L)	0.00189	0.00324	0.00653	<0.00020	
	Calcium (Ca)-Total (mg/L)	247	333	519	44.3	
	Chromium (Cr)-Total (mg/L)	0.00015	<0.00020 DLA	<0.00020 DLA	<0.0020	
	Cobalt (Co)-Total (mg/L)	<0.00010	<0.00020 DLA	0.00361		
	Copper (Cu)-Total (mg/L)	0.00201	0.0023	0.0020	<0.0010	
	Iron (Fe)-Total (mg/L)	0.034	0.061	0.418	<0.030	
	Lead (Pb)-Total (mg/L)	0.000516	0.00055	0.00123	0.00054	
	Lithium (Li)-Total (mg/L)	0.0071	0.0070	0.0101		
	Magnesium (Mg)-Total (mg/L)	64.2	89.7	113	19.7	
	Manganese (Mn)-Total (mg/L)	0.0186	0.134	3.70	<0.0020	

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1628676-1 Water 17-JUN-15 09:25 WQ-PIT1	L1628676-2 Water 17-JUN-15 08:45 WQ-PIT2	L1628676-3 Water 17-JUN-15 09:10 WQ-PIT3	L1628676-4 Water 17-JUN-15 11:55 WQ-PW (DRINKING WATER)	
WATER						
Total Metals	Mercury (Hg)-Total (mg/L)	<0.0000050	<0.0000050	<0.0000050	<0.00020	
	Molybdenum (Mo)-Total (mg/L)	0.000149	0.00011	0.00011		
	Nickel (Ni)-Total (mg/L)	0.00070	<0.0010 DLA	0.0018		
	Phosphorus (P)-Total (mg/L)	<0.050	<0.050	<0.050		
	Potassium (K)-Total (mg/L)	2.90	3.80	5.27	0.91	
	Selenium (Se)-Total (mg/L)	0.000053	<0.00010 DLA	<0.00010 DLA	<0.0010	
	Silicon (Si)-Total (mg/L)	2.82	3.57	3.58		
	Silver (Ag)-Total (mg/L)	0.000015	<0.000020 DLA	0.000039		
	Sodium (Na)-Total (mg/L)	9.67	12.6	14.3	4.8	
	Strontium (Sr)-Total (mg/L)	0.839	1.04	1.24		
	Sulfur (S)-Total (mg/L)	244	331	521		
	Thallium (Tl)-Total (mg/L)	0.000056	0.000065	0.000137		
	Tin (Sn)-Total (mg/L)	<0.00010	<0.00020 DLA	<0.00020 DLA		
	Titanium (Ti)-Total (mg/L)	<0.00090 DLM	<0.00060 DLA	<0.00060 DLA		
	Uranium (U)-Total (mg/L)	0.00328	0.00405	0.00380	0.00168	
	Vanadium (V)-Total (mg/L)	<0.00050	<0.0010 DLA	<0.0010 DLA		
	Zinc (Zn)-Total (mg/L)	0.213	0.426	0.623	<0.050	
	Zirconium (Zr)-Total (mg/L)	<0.00030	<0.00060 DLA	<0.00060 DLA		
Dissolved Metals	Dissolved Mercury Filtration Location	FIELD	FIELD	FIELD		
	Dissolved Metals Filtration Location	FIELD	FIELD	FIELD		
	Aluminum (Al)-Dissolved (mg/L)	0.0025	<0.0020 DLA	<0.0020 DLA		
	Antimony (Sb)-Dissolved (mg/L)	0.00286	0.00229	0.00066		
	Arsenic (As)-Dissolved (mg/L)	0.00809	0.00942	0.0130		
	Barium (Ba)-Dissolved (mg/L)	0.0212	0.0193	0.0107		
	Beryllium (Be)-Dissolved (mg/L)	<0.000020	<0.000040 DLA	<0.000040 DLA		
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.00010 DLA	<0.00010 DLA		
	Boron (B)-Dissolved (mg/L)	<0.010	<0.020 DLA	<0.020 DLA		
	Cadmium (Cd)-Dissolved (mg/L)	0.00197	0.00315	0.00581		
	Calcium (Ca)-Dissolved (mg/L)	250	336	509		
	Chromium (Cr)-Dissolved (mg/L)	<0.00010	<0.00020 DLA	<0.00020 DLA		
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00020 DLA	0.00365		
	Copper (Cu)-Dissolved (mg/L)	0.00162	0.00186	0.00095		
	Iron (Fe)-Dissolved (mg/L)	<0.010	0.013	0.043		
	Lead (Pb)-Dissolved (mg/L)	0.000079	<0.00010 DLA	<0.00010 DLA		
	Lithium (Li)-Dissolved (mg/L)	0.0065	0.0075	0.0102		
	Magnesium (Mg)-Dissolved (mg/L)	64.5	87.4	112		
	Manganese (Mn)-Dissolved (mg/L)	0.0167	0.156	4.01		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1628676-1	L1628676-2	L1628676-3	L1628676-4	
	Description	Water	Water	Water	Water	
	Sampled Date	17-JUN-15	17-JUN-15	17-JUN-15	17-JUN-15	
	Sampled Time	09:25	08:45	09:10	11:55	
	Client ID	WQ-PIT1	WQ-PIT2	WQ-PIT3	WQ-PW (DRINKING WATER)	
Grouping	**Analyte**					
WATER						
Dissolved Metals	Mercury (Hg)-Dissolved (mg/L)	<0.0000050	<0.0000050	<0.0000050 DLA		
	Molybdenum (Mo)-Dissolved (mg/L)	0.000139	0.00011	<0.00010		
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.0010 DLA	0.0019		
	Phosphorus (P)-Dissolved (mg/L)	<0.050	<0.050	<0.050		
	Potassium (K)-Dissolved (mg/L)	2.89	3.66	5.10		
	Selenium (Se)-Dissolved (mg/L)	<0.000050	<0.00010 DLA	<0.00010 DLA		
	Silicon (Si)-Dissolved (mg/L)	2.78	3.40	3.42		
	Silver (Ag)-Dissolved (mg/L)	<0.000010	<0.000020 DLA	<0.000020 DLA		
	Sodium (Na)-Dissolved (mg/L)	9.60	12.8	14.4		
	Strontium (Sr)-Dissolved (mg/L)	0.813	1.06	1.28		
	Sulfur (S)-Dissolved (mg/L)	243	328	503		
	Thallium (Tl)-Dissolved (mg/L)	0.000056	0.000063	0.000121		
	Tin (Sn)-Dissolved (mg/L)	<0.00010	<0.00020 DLA	<0.00020 DLA		
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00060 DLA	<0.00060 DLA		
	Uranium (U)-Dissolved (mg/L)	0.00322	0.00417	0.00389		
	Vanadium (V)-Dissolved (mg/L)	<0.00050	<0.0010 DLA	<0.0010 DLA		
	Zinc (Zn)-Dissolved (mg/L)	0.211	0.427	0.661		
	Zirconium (Zr)-Dissolved (mg/L)	<0.00030	<0.00060 DLA	<0.00060 DLA		

* Please refer to the Reference Information section for an explanation of any qualifiers detected.

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Method Blank	Conductivity	B	L1628676-2, -3
Duplicate	Titanium (Ti)-Total	DLM	L1628676-1, -2, -3
Matrix Spike	Barium (Ba)-Dissolved	MS-B	L1628676-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1628676-1, -2, -3
Matrix Spike	Strontium (Sr)-Dissolved	MS-B	L1628676-1, -2, -3
Matrix Spike	Aluminum (Al)-Dissolved	MS-B	L1628676-1, -2, -3
Matrix Spike	Manganese (Mn)-Dissolved	MS-B	L1628676-1, -2, -3
Matrix Spike	Sodium (Na)-Dissolved	MS-B	L1628676-1, -2, -3

Qualifiers for Individual Parameters Listed:

Qualifier	Description
B	Method Blank exceeds ALS DQO. All associated sample results are at least 5 times greater than blank levels and are considered reliable.
DLA	Detection Limit adjusted for required dilution
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-COL-VA	Water	Alkalinity by Colourimetric (Automated)	EPA 310.2

This analysis is carried out using procedures adapted from EPA Method 310.2 "Alkalinity". Total Alkalinity is determined using the methyl orange colourimetric method.

ALK-TITR-VA	Water	Alkalinity Species by Titration	APHA 2320 Alkalinity

This analysis is carried out using procedures adapted from APHA Method 2320 "Alkalinity". 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.

BE-D-L-CCMS-VA	Water	Diss. Be (low) in Water by CRC ICPMS	APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

BE-T-L-CCMS-VA	Water	Total Be (Low) in Water by CRC ICPMS	EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

CL-IC-N-WR	Water	Chloride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

COLOUR-TRUE-VA	Water	Colour (True) by Spectrometer	BCMOE Colour Single Wavelength

This analysis is carried out using procedures adapted from British Columbia Environmental Manual "Colour- Single Wavelength." Colour (True Colour) is determined by filtering a sample through a 0.45 micron membrane filter followed by analysis of the filtrate using the platinum-cobalt colourimetric method.
Colour measurements can be highly pH dependent, and apply to the pH of the sample as received (at time of testing), without pH adjustment. Concurrent measurement of sample pH is recommended.

EC-PCT-VA	Water	Conductivity (Automated)	APHA 2510 Auto. Conduc.

This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode.

F-IC-N-WR	Water	Fluoride in Water by IC	EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

HARDNESS-CALC-VA	Water	Hardness	APHA 2340B

Hardness (also known as Total Hardness) is calculated from the sum of Calcium and Magnesium concentrations, expressed in CaCO3 equivalents. Dissolved Calcium and Magnesium concentrations are preferentially used for the hardness calculation.

HG-D-CVAA-VA	Water	Diss. Mercury in Water by CVAAS or CVAFS	APHA 3030B/EPA 1631E (mod)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-T-CVAA-VA	Water	Total Mercury in Water by CVAAS or CVAFS	EPA 1631E (mod)

Reference Information

Water samples undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS or CVAFS.

HG-TOT-CVAFS-VA Water Total Hg in Water by CVAFS LOR=50ppt EPA 1631E (mod)

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves a cold-oxidation of the acidified sample using bromine monochloride prior to reduction of the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry or atomic absorption spectrophotometry (EPA Method 245.7).

IONBALANCE-VA Water Ion Balance Calculation APHA 1030E

Cation Sum, Anion Sum, and Ion Balance (as % difference) are calculated based on guidance from APHA Standard Methods (1030E Checking Correctness of Analysis). Because all aqueous solutions are electrically neutral, the calculated ion balance (% difference of cations minus anions) should be near-zero.

Cation and Anion Sums are the total meq/L concentration of major cations and anions. Dissolved species are used where available. Minor ions are included where data is present. Ion Balance is calculated as:

Ion Balance (%) = [Cation Sum-Anion Sum] / [Cation Sum+Anion Sum]

MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030B/6020A (mod)

Water samples are filtered (0.45 um), preserved with nitric acid, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-DIS-LOW-ICP-VA Water Dissolved Metals in Water by ICPOES EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-T-CCMS-VA Water Total Metals in Water by CRC ICPMS EPA 200.2/6020A (mod)

Water samples are digested with nitric and hydrochloric acids, and analyzed by CRC ICPMS.

Method Limitation (re: Sulfur): Sulfide and volatile sulfur species may not be recovered by this method.

MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

MET-TOT-LOW-ICP-VA Water Total Metals in Water by ICPOES EPA 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

NH3-F-VA Water Ammonia in Water by Fluorescence APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NH3-F-VA Water Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC

This analysis is carried out, on sulfuric acid preserved samples, using procedures modified from J. Environ. Monit., 2005, 7, 37 - 42, The Royal Society of Chemistry, "Flow-injection analysis with fluorescence detection for the determination of trace levels of ammonium in seawater", Roslyn J. Waston et al.

NO2-L-IC-N-WR Water Nitrite in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

NO3-L-IC-N-WR Water Nitrate in Water by IC (Low Level) EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H "pH Value"

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

Reference Information

It is recommended that this analysis be conducted in the field.

PH-PCT-VA Water pH by Meter (Automated) APHA 4500-H pH Value

This analysis is carried out using procedures adapted from APHA Method 4500-H "pH Value". The pH is determined in the laboratory using a pH electrode

It is recommended that this analysis be conducted in the field.

S-DIS-ICP-VA Water Dissolved Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

S-TOT-ICP-VA Water Total Sulfur in Water by ICPOES EPA SW-846 3005A/6010B

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven, or filtration (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B).

Method Limitation: This method will not give total sulfur results for all samples. Sulfide or other volatile forms of sulfur that may be present in submitted samples, is often lost during the sampling, preservation and analysis process. The data reported as total and/or dissolved sulfur represents all non-volatile forms of sulfur present in a particular sample.

SO4-IC-N-WR Water Sulfate in Water by IC EPA 300.1 (mod)

Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection.

TDS-CALC-VA Water TDS (Calculated) APHA 1030E (20TH EDITION)

This analysis is carried out using procedures adapted from APHA 1030E "Checking Correctness of Analyses".

TSS-MAN-WR Water Total Suspended Solids by Gravimetric APHA 2540 D

This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids are determined by filtering a sample through a glass fibre filter and drying the filter at 104 degrees celsius.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 "Turbidity"

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

TURBIDITY-VA Water Turbidity by Meter APHA 2130 Turbidity

This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WR	ALS ENVIRONMENTAL - WHITEHORSE, YUKON, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

1

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour 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.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Yukon
Health and Social Services
Santé et Affaires sociales
Environmental Health Services
Service d'hygiène du millieu

BACTERIOLOGICAL ANALYSIS OF DRINKING WATER
ANALYSE BACTÉRIOLOGIQUE DE L'EAU POTABLE

#2 Hospital Road, Whitehorse, Yukon Y1A 3H8
phone : (867) 667-8391 fax : (867) 667-8322
Toll free: 1-800-661-0408 ext.8391

2 Hospital Road, Whitehorse (Yukon) Y1A 3H8
Tél. : 867-667-8391 Téléc. : 867-667-8322
Sans frais au Yukon : 1-800-661-0408, poste 8391

Contact Information · *Coordonnées de la personne ressource*

Contact Person / *Personne ressource*: MEGHAN MARJANOVIC
Phone / *Téléphone*: 867-393-4882
Mailing address / *Adresse postale*: 2195 2nd AVE, WHITEHORSE
Fax / *Télécopieur*:
EDI - ENVIRONMENTAL DYNAMICS
Postal code / *Code postal*:
First Nation, Municipal or Business Name / *Nom de la Première nation, de la municipalité ou de l'entreprise*:
Agent / *Agent*:
Fax / *Télécopieur*:

Sampling Location · *Lieu de la prise d'échantillon*

Municipal Address / *Adresse municipale*: MOUNT NANSEN
Subdivision / *Lotissement*:
Legal Description Lot / *Désignation officielle Lot*:
Quad / *Quadrilatère*:
Plan no. / *Plan n°*:
Other Information (e.g., Location, Business / Building Name) / *Autres renseignements (ex. : emplacement, nom de l'entreprise, nom de l'édifice)*:

Sample Collection / *Prélèvement de l'échantillon*

Sample Collected By / *Échantillon prélevé par*: SD, PT
Date / *Date*: 15/06/17 (YY/MM/DD · *AA/MM/JJ*)
Time / *Heure*: 1150 (am / pm)
Sampling Site (e.g., kitchen tap) / *Point d'échantillonnage (ex. : robinet de cuisine)*: PUMPHOUSE WELL
Is this a Resample from a Previous Test? / *Est-ce un deuxième échantillon d'un test antérieur?*: ☐ Yes / *Oui* ☑ No / *Non*
Previous Sample Number / *Numéro de l'échantillon précédent*:

Sample Supply / *Source d'approvisionnement en eau*

☑ Public Supply / *Municipal – par canalisation*
☐ Bulk Water Distributor / *Municipal – par camion*
☐ Business / *Privé – entreprise*
☐ Private Residence / *Privé – résidence*

Sample Source / *Provenance de l'échantillon*

☐ Dug Well / *Puits creusé*
☐ Driven Well / *Puits tubulaire*
☑ Drilled Well / *Puits foré à la sondeuse*
Depth of Well / *Profondeur du puits*:
☐ Water Holding Tank / *Réservoir d'eau*
☐ Other (explain) / *Autre (précisez)*:

Water Treatment / *Traitement de l'eau*

Is the Water Chlorinated? / *L'eau contient-elle du chlore?*: ☐ Yes / *Oui* ☑ No / *Non*
Free Available Chlorine / *Chlore libre disponible*: ppm / *mg/L*
Other Treatment Systems (e.g., UV, softener, filter) / *Autre dispositif de traitement (ex. : désinfection aux rayons UV, adoucisseur d'eau, filtre)*:

For Laboratory Use Only / *À l'usage du laboratoire seulement*

Receipt of Sample / ***Réception de l'échantillon***: Date / *Date*: 15-06-18 (YY/MM/DD · *AA/MM/JJ*) Time / *Heure*: 9150 (am / pm) By / *Par*: SS
Condition of Sample / ***État de l'échantillon***: ☑ Satisfactory / *Satisfaisant* ☐ Unsatisfactory / *Non satisfaisant* Details / *Précisez*: 9.6°C
Incubation / ***Incubation***: Date / *Date*: 15-06-18 (YY/MM/DD · *AA/MM/JJ*) Time / *Heure*: 1015 (am / pm) By / *Par*: SS Incubator / *Incubateur*: 4
Analysis Completed / ***Analyse terminée***: Date / *Date*: 15-06-19 (YY/MM/DD · *AA/MM/JJ*) Time / *Heure*: 1150 (am / pm) By / *Par*: SS

Results (See Reverse Side for Interpretation) per 100 ml
Résultats (Voir au verso l'interprétation des résultats)

Total Coliforms/*Coliformes totaux*	**E. coli**/*E. coli*
☐ Present / *Présence* ☒ Absent / *Absence*	☐ Present / *Présence* ☒ Absent / *Absence*

Comments / *Commentaires*

Report Authorized By / *Rapport autorisé par*: SS
Position / *Poste*: WLT
Date / *Date*: 15-06-19 (YY/MM/DD · *AA/MM/JJ*)

Distribution: / *Distribution :*
White - Chain of Custody / *Blanc - Chaîne de possession*
Yellow - Lab Copy / *Jaune - Laboratoire*
Pink - Client Copy / *Rose - Client*

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Sample Number / ***Numéro de l'échantillon***: 62728