

February 13, 2017

EDI Project No: 16Y0089

Assessment and Abandoned Mines
Department of Energy, Mines and Resources
Government of Yukon
Box 2703, K-419
Whitehorse, YT Y1A 2C6

Attention: Emilie Hamm, A/Project Manager

**RE: Mount Nansen Water Resources Investigations – Monthly Report:
January 2017 - FINAL**

This monthly report provides a summary of site conditions and data collected during EDI's January 2017 trip to Mount Nansen as part of the 2016/17 Water Resources Investigation. This report describes site conditions, meteorology, hydrology, water quality data, program recommendations, and additional trip information (Table 1). This January 2017 trip represents the third monitoring event of the winter season.

| | |
|-----------------------------|---|
| Trip dates: | January 10 to 12, 2017 |
| EDI field staff: | Joel MacFabe, Hannah Gray, and Danny Skookum |
| Weather during trip: | Air temperatures ranged from -25 to -6°C, with clear to overcast skies. |

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 meteorological station status and identification of any data gaps or QA/QC issues |
| Hydrology |) Discussion of hydrology data for January) Statement of QA/QC for the data collected this month |
| Water Quality |) Summary of water quality results for January) Statement on QA/QC sample results for this month |
| Program Recommendations |) Program recommendations for meteorological, hydrology and water quality programs |
| Additional Trip Information |) Project safety concerns) Wildlife sightings) Budget and schedule considerations |



| Report Section | Description |
|---------------------|--|
| List of Attachments | <ol style="list-style-type: none"> 1. Maps of Hydrometric Stations and Water Quality Sites 2. Site and Station Photos 3. Hydrology Summary Data Tables 4. Water Quality Summary Data Tables 5. Laboratory Certificates of Analysis (COA) & Yukon Environmental Health Services Bacteriological Results. |

SITE CONDITIONS

The hydrologic and water quality conditions observed during the January 2017 trip were reflective of winter conditions. Air temperatures ranged from lows of -25°C, to daytime highs of -6°C; with clear to overcast skies during the three day sampling event. Seeps and small streams remain frozen, and no samples will be collected at these stations until spring melt. Stations and sites along Pony Creek and Back Creek were frozen to bed, as well as some sites and stations along Dome Creek (WQ -DC-DX, H/WQ-DC-B, H/WQ-DC-R, and H/WQ-DC-D1b). Ice and snow were present at all locations and water levels were low.

METEOROLOGY

Meteorological data was collected at the ATM-ROAD station throughout January 2017 and EDI conducted a preliminary QA/QC review of the available data. From January 1 to January 5 there was a drop in battery voltage which appears to have resulted in missing hourly and daily average data (Table 2). After January 5, the battery voltage increased due to more daylight and no gaps were present in the data. Additionally, YG AAM replaced the battery at the station on January 24; no data was lost due to the battery replacement.

No unnatural disturbance to the snow under the snow depth sensor of the meteorological station was observed at the time of visit on January 10. There were no tracks inside the fenced area but signs of ptarmigans were observed in the surrounding area. During the 2015/16 winter season, the snow depth sensor was determined to provide reliable and accurate snow depth measurements.

Table 2. Summary of January 2017 meteorological data continuity issues.

| Last record | Next record | Interruption | Suspected reason | Effects |
|---------------------|---------------------|--------------|---|--|
| 12/31/2016 13:00 | 01/02/2017 11:00 | 46 hours | Battery voltage dropped below 10 volts. | Missing hourly data No Dec. 31 and Jan. 1 daily average. Hourly relative humidity abnormal drop down to an average of 39% on Jan. 2 (December average of 78.9 %) |
| 01/02/2017 23:00 | 01/03/2017 11:00 | 12 hours | Battery voltage dropped below 10 volts. | Missing hourly data. No Jan. 2 or Jan. 3 daily average. |
| 01/05/2017 00:00 | 01/05/2017 11:00 | 10 hours | Battery voltage dropped below 10 volts. | Missing hourly data |



HYDROLOGY

Seven hydrometric stations provided suitable conditions for discharge measurements during the January 10-12, 2017 trip. A total of nine discharge measurements were scheduled at the Mount Nansen site and two stations did not provide suitable conditions to measure discharge. Dome Creek diversion channel at bridge (H-DC-B) and Back Creek (H-BC) were both dry. Flow rates in Victoria Creek were lower at all stations in January 2017 compared to the December 2016 results. Continuous water level logger records are available for the following four stations: H-VC-U, H-VC-DBC, H-VC-UMN and H-VC-R+290. The review of the continuous hydrometric and barometric data files indicates that all sensors were functioning properly.

Surface water conditions and hydrometric monitoring tasks completed at each station in January 2017 are summarized in Attachment 3. Quality control and quality assurance for the hydrometric data was conducted on both the instantaneous and continuous datasets.

Field Results

-) Discharge measurements were collected using salt dilution gauging at all four Victoria Creek stations, H-VC-U, H-VC-DBC, H-VC-UMN and H-VC-R+290, with discharge values ranging from 0.006 to 0.045 m³/s. There was ice within the channels during the salt tracer measurements, which adds measurement uncertainty to the discharge value.
-) The discharge at H-VC-DBC is greater than the discharge downstream at H-VC-UMN. As identified during the 2015/16 winter period, there is a suspected loss of surface water to groundwater pathways between these two stations.
-) Ice was relatively thin on the creeks throughout the Mount Nansen site. Ice thickness ranged from 0.03 to 0.18 m at the Victoria Creek stations.
-) Salt dilution gauging methods were used at H-DC-DX+105 and the estimated discharge is below the reportable confidence limits (0.001 m³/s). A discharge of 0.003 m³/s was calculated at H-DC-M WP. There was ice within the channels during the salt tracer measurements, which adds measurement uncertainty to the discharge value.
-) The H-SEEP volumetric discharge measurement of 0.003 m³/s. Flow rate observed at the pump in the seepage pond shack (0.002 m³/s).



WATER QUALITY

Water quality samples and in-situ data were collected at the scheduled sites with flowing water during the January 2017 trip. A total of nine sites were sampled (Attachment 4). The drinking water sample, including a bacteriological sample, was collected from the pumphouse well (WQ-PW) on January 12, 2017. All samples were submitted for analysis through ALS Laboratories under chain of custody documentation, except for the bacteriological sample which was submitted to Yukon Government – Health and Social Services for analysis.

Site conditions were noted and a record of the samples collected was compiled (Attachment 4). In-situ and laboratory results summary tables as well as the lab certificates of analysis are attached (Attachment 4 and Attachment 5). Parameters that exceeded the Canadian Council of Ministers of the Environment Freshwater Aquatic Life (CCME-AL) guidelines and/or the Mount Nansen Effluent Quality Standards (EQS) criteria are highlighted in Attachment 6 and discussed below.

Many results reflect typical winter conditions at Mount Nansen when water levels are low and watercourses are covered in ice.

Water Quality Results Summary

Analysis of the January 10-12, 2017 samples indicated that the following parameters exceeded applicable guidelines and standards for each site:

- J The WQ-SEEP samples exceeded CCME-AL guidelines for total and dissolved arsenic, total and dissolved cadmium, total and dissolved copper, total and dissolved iron, total and dissolved zinc. Total iron and manganese exceeded Mount Nansen EQS.
- J Tailings Pond (WQ-TP) samples exceeded CCME-AL guidelines for fluoride, total and dissolved arsenic, cadmium, copper, and zinc, and for total iron and lead. Total manganese and total zinc exceeded Mount Nansen EQS.
- J On Upper Dome Creek site WQ-DC-DX+105, CCME-AL guidelines were exceeded for fluoride, total and dissolved arsenic, cadmium, and zinc, and total iron. Total manganese and total zinc exceeded Mount Nansen EQS.
- J On Lower Dome Creek site WQ-DC-U, the CCME-AL guidelines were exceeded for total aluminum and copper, total and dissolved arsenic, cadmium and iron. Total suspended solids, total iron and total manganese exceeded Mount Nansen EQS.
- J On all Victoria Creek sites (WQ-VC-U, WQ-VC-DBC, WQ-VC-UMN and WQ-VC-R+150), no parameters exceeded CCME-AL guidelines.
- J The bacteriological sample collected at WQ-PW on January 12, 2017 was absent of total coliforms and E. coli.



QA/QC Samples

Travel Blank Sample – did not have any parameters above detection limit. No contamination from storage or transport is suspected.

Field Blank Sample – did not have any parameters above detection limits. No contamination from field sampling methodology is suspected.

Replicate Sample(s) – the average RPD of the replicate sample WQ-VC-R+150-r was 4% with an average difference of 3% for total and 6% for dissolved metals. No parameter had an RPD >20%

PROGRAM RECOMMENDATIONS

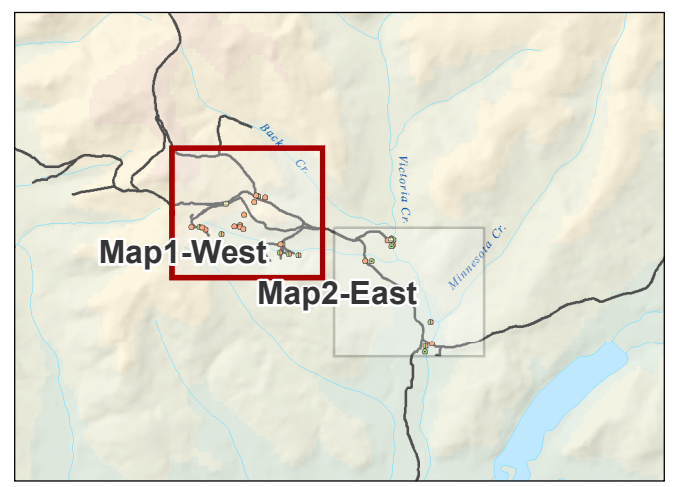
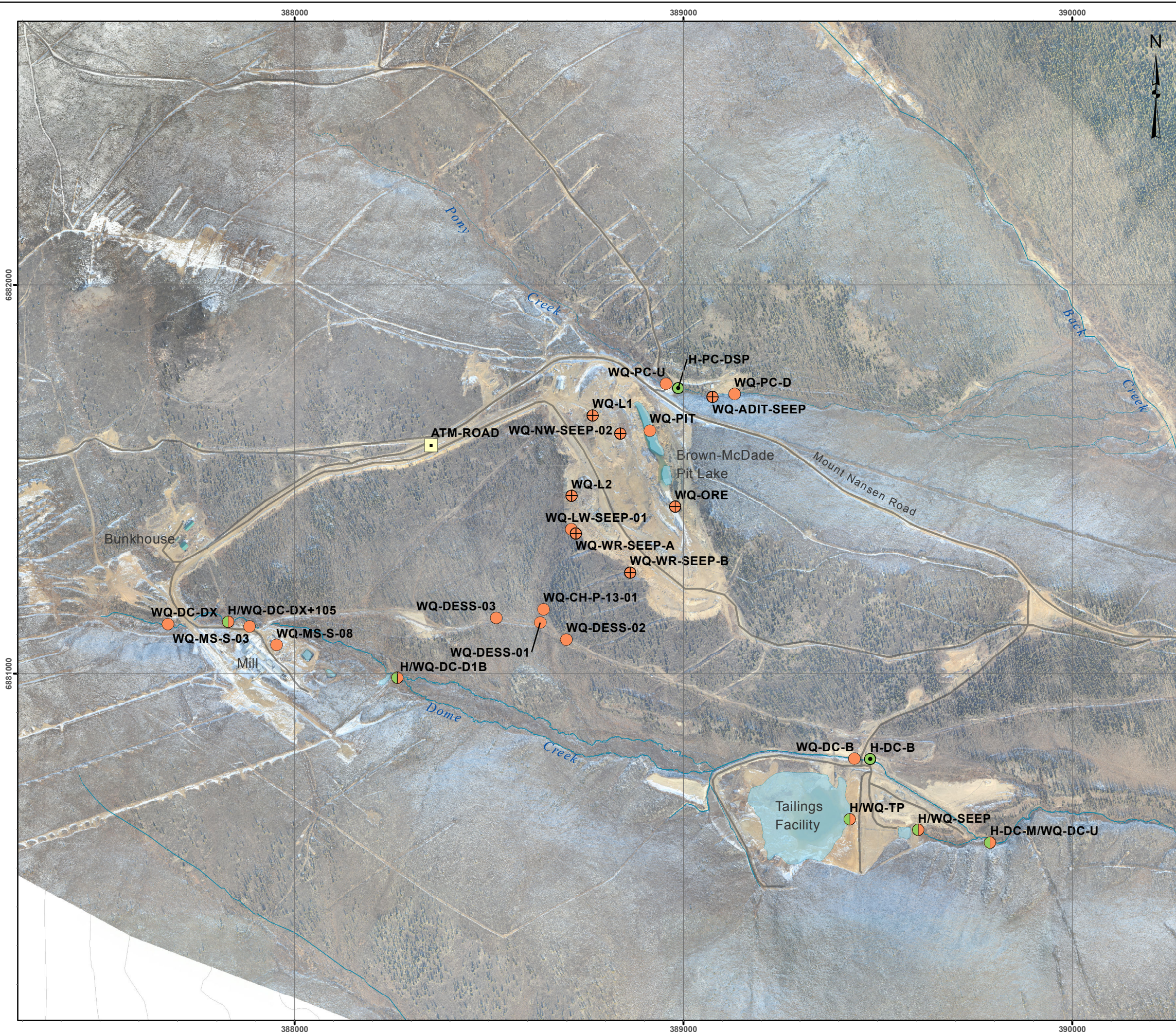
-) During each winter trip, collect photographs adjacent to the meteorological station compound to support snow sensor data interpretation.
-) Where feasible, EDI will collect concurrent discharge measurements whenever salt tracer tests are completed during the 2016/17 winter season using a secondary method (such as velocity-area or volumetric). The secondary measurement is used to validate the winter measurements if poor hydraulic conditions due to complex ice formations are present.

ADDITIONAL TRIP INFORMATION

| | |
|--|---|
| Any changes to project scope (i.e. additional sites sampled): | All sampling and monitoring was conducted within scope. However, a data request from Lorax Environmental Services Ltd. for historical hydrology data required additional office resources. The next trip is scheduled for February 7-9, 2016. The next trip will be the twelfth of the 2016/2017 Water Resources Investigation, and the fourth of the winter season. |
| Any alterations to sample schedule/budget: | EDI compiled historical hydrology data for the Mount Nansen site in response to a request from Lorax. Less than 10 person hours were required to complete this request, and the additional costs should be accommodated under the existing budget. |
| Additional Comments: | Sites that have been determined to be dry or frozen to bed will not be visited until the beginning of spring melt. |
| Wildlife Sightings: | Field crew observed a wolverine at approximately 15 km from the start of the Nansen road. Snowshoe hare were observed while accessing H/WQ-VC-UMN. Fresh signs of ptarmigan were observed at the meteorological station. |
| Site concerns (safety): | None |



**ATTACHMENT 1: MAPS OF HYDROMETRIC
 STATIONS AND WATER
 QUALITY SITES**



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

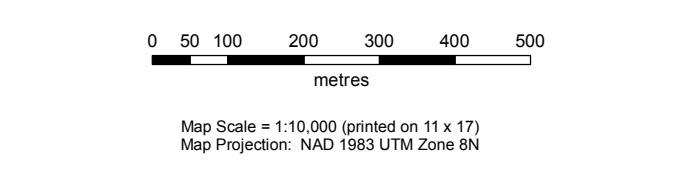
Notes:

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).

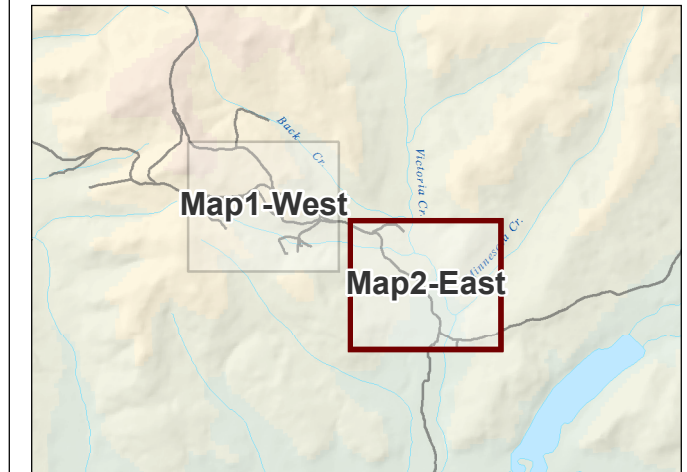
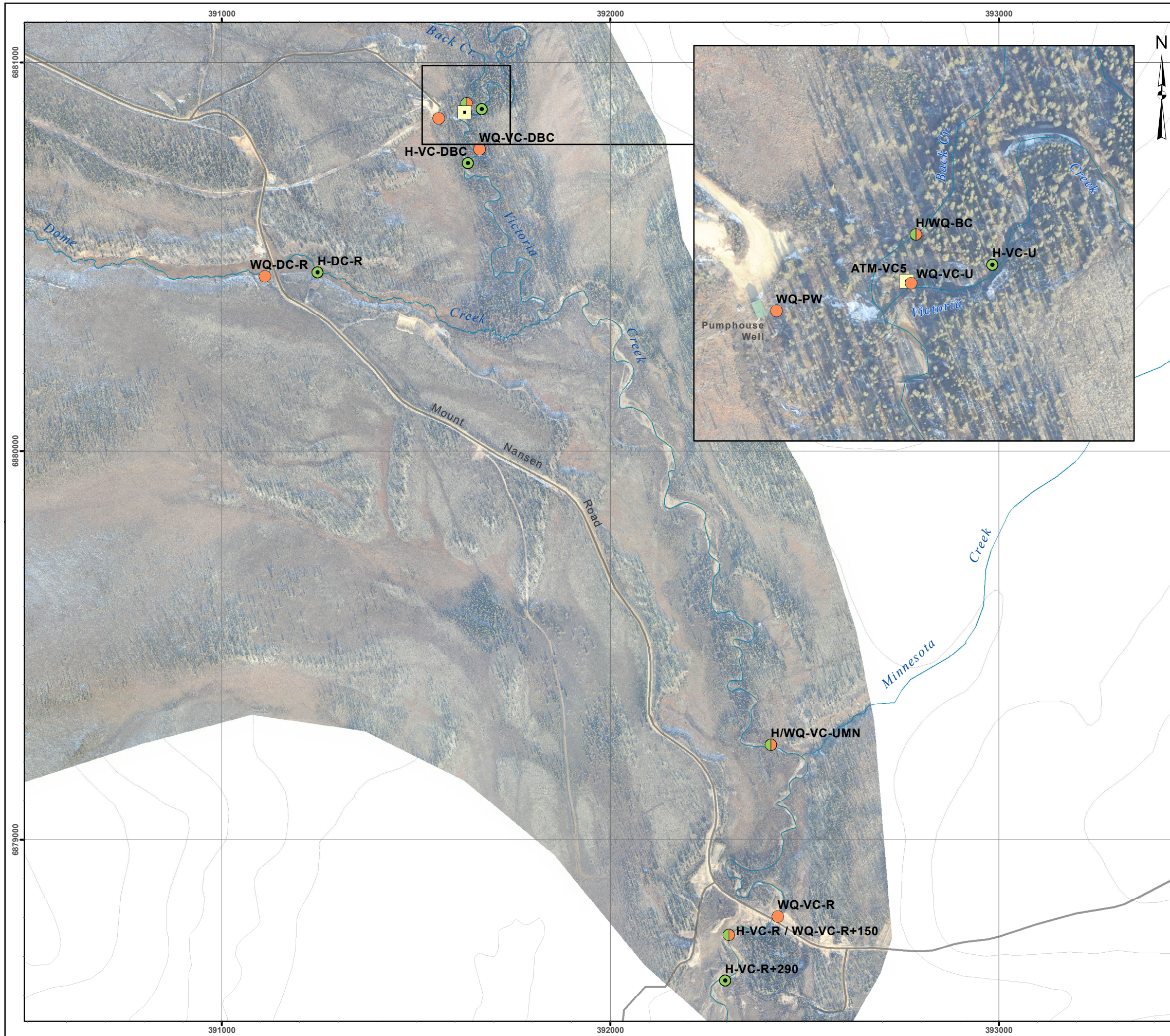
Imagery provided by Yukon Government - Energy, Mines and Resources - Abandoned Mines Branch.

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








| | | | |
|--------------|-------------------|------------------|--------------|
| Drawn: MP | Checked: MM/SD | Date: 21/09/2015 | MAP 1 |
|--------------|-------------------|------------------|--------------|





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

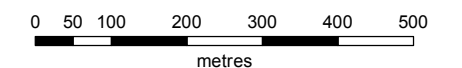
Notes:

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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.

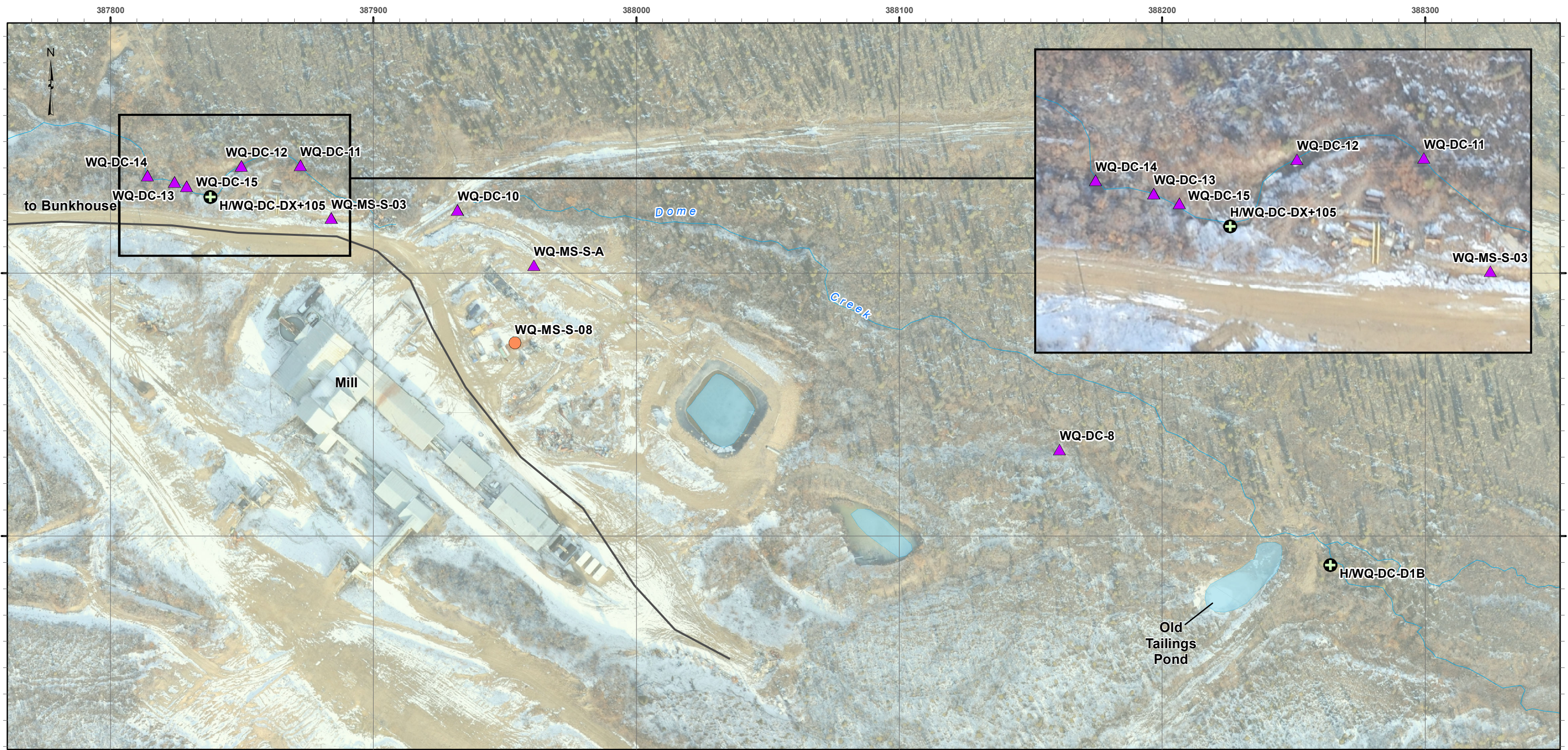
Project data displayed is site specific. Data collected by EDI Environmental Dynamics Inc. (2015) was obtained using Garmin GPS technology.



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





| | | | |
|--------------|-------------------|------------------|--------------|
| Drawn: MP | Checked: MM/SD | Date: 21/09/2015 | MAP 2 |
|--------------|-------------------|------------------|--------------|





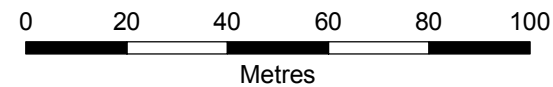
Dome Creek Investigation Sites

Legend

-  Investigation Site
-  Hydrometric Station and Water Quality Site
-  Water Quality Site (label e.g. WQ-PC-U)
-  Unpaved Road/Access

1 centimetre = 15 metres

Map Projection: North American Datum 1983 UTM Zone 8N



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.

Digital Elevation Model provided by Geomatics - Yukon Government via online source (Corporate Spatial Warehouse) www.geomaticsyukon.ca.

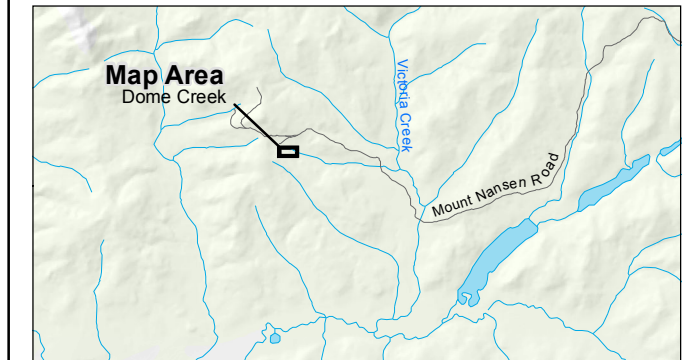
Watercourse, drainage areas and Mount Nansen Road layers digitized / modified by EDI (2011) using orthophotos provided by Yukon Government, Energy, Mines and Resources (2011).

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. (2015) was obtained using Garmin GPS technology.

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

| | | | |
|--------------|-------------------|--------------|------------------|
| Drawn: MP | Checked: MM/SD | MAP 3 | Date: 23/09/2015 |
|--------------|-------------------|--------------|------------------|





**ATTACHMENT 2: SITE AND STATION
 PHOTOS**



Photo 1. H/WQ-DC-DX+105 – looking upstream at discharge measurement site.



Photo 2. H/WQ-DC-DX+105 – looking downstream.



Photo 3. H/WQ-DC-B – looking upstream (site dry).



Photo 4. H/WQ-DC-B – looking downstream (site dry).



Photo 5. WQ-TP – overview of tailings pond.



Photo 6. H-TP – lower staff gauge encased in ice.



Photo 7. H/WQ-SEEP – looking downstream.



Photo 8. H-DC-M WP – looking upstream at weir pond.



Photo 9. H-DC-M WP – looking downstream.



Photo 10. WQ-DC-U – looking downstream.



Photo 11. H/WQ-BC – multiple layers of ice and air voids (no detectable flow at site).



Photo 12. H-VC-U – looking upstream.



Photo 13. H-VC-U – looking downstream.



Photo 14. WQ-VC-U – looking upstream.



Photo 15. WQ-VC-U – looking downstream at confluence of Victoria Creek and Back Creek.



Photo 16. WQ-VC-DBC – looking downstream.



Photo 17. H-VC-DBC – looking upstream.



Photo 18. H/WQ-VC-UMN – looking downstream.



Photo 19. WQ-VC-R+150 – looking upstream.



Photo 20. H-VC-R+290 – looking upstream.



Photo 21. H-VC-R+290 – looking downstream.



Photo 22. WQ-PW – pipe outlet.



Photo 23. Meteorological Station overview



Photo 24. Meteorological Station overview

ATTACHMENT 3:

**HYDROLOGY
SUMMARY DATA
TABLES**

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 Brack Creek |
| H-VC-R | Victoria Creek at Road |
| H-VC-R+290 | Victoria Creek at Road + 290 |
| 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 |
| 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 |
| B | Backwater effects (ice related) |

| 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 |
|----------------|------------------------------|------------------|------------------|------------------------------|-------------------------------|---------------------|------------------------------|------------------|--|
| 1545 | ATM-VC5 | 11/01/2017 | 17:00 | N | - | - | - | - | Barologger downloaded successfully and functioning properly. |
| 1535 | H-BC | 11/01/2017 | 17:05 | N | - | - | - | - | Channel filled with overflow ice with no signs of fresh ice. Ice approximately 0.45 m thick with 0.15 m air pocket above 0.02 m of stagnant water along bed. Top of overflow ice surface is above banks at the confluence with Victoria Creek. No discharge measurement conducted at site due to non suitable conditions and no flowing water. |
| 1536 | H-DC-B | 11/01/2017 | 9:15 | N | - | - | - | - | Site dry at time of visit. No sign of recent water within excavated portion of channel. |
| 1537 | H-DC-DX+105 | 11/01/2017 | 10:02 | SS | 0.000 | B | - | - | Salt tracer completed for discharge estimate. Ice up to 0.02 m thick at site with snow 0.3 m deep. Estimated flowrate below reportable confidence limits (0.001 m ³ /s). |
| 1538 | H-DC-M WP | 10/01/2017 | 17:27 | SS | 0.003 | B | - | - | Extensive overflow ice at weir, with ice covering the right downstream side of the weir. Some water suspected to be flowing around the support structure for the pond. Ice along right valley wall suspected to be from groundwater seepage. Salt tracer completed for discharge estimate. |
| 1539 | H-SEEP | 10/01/2017 | 18:20 | V | 0.002 | - | - | - | Volumetric discharge measurement collected at pipe outlet. Flow rate at pump meter at 18:30 136.043 L/min (0.002 m ³ /s). Staff gauge at pump shack covered with ice and snow. |
| 1540 | H-TP | 11/01/2017 | 11:50 | N | - | - | - | - | Low water level in pond. Staff gauges encased in snow and ice. |
| 1541 | H-VC-DBC | 11/01/2017 | 15:11 | SS | 0.045 | B | - | - | Low flow in channel. Salt tracer completed for discharge estimate. Ice thickness varies from 0.04 to 0.18 m and snow approximately 0.30 m deep. Data logger downloaded. |
| 1542 | H-VC-R+290 | 10/01/2017 | 14:38 | SS | 0.006 | B | - | - | Low flow in channel. Salt tracer completed for discharge estimate. Multiple layers of ice and air covering channel. Top layer of ice is 0.22 m thick, with 0.15 m airspace below and 0.03 m of ice above water surface. Low flow detected within channel. Data logger downloaded. |
| 1543 | H-VC-U | 11/01/2017 | 17:00 | SS | 0.038 | B | - | - | Low flow in channel. Salt tracer completed for discharge estimate. Ice approximately 0.02 m thick. Data logger downloaded. |
| 1544 | H-VC-UMN | 12/01/2017 | 9:31 | SS | 0.006 | B | - | - | Low flow in channel. Salt tracer completed for discharge estimate. Ice is up to 0.2 m thick. Collapsed ice shelf downstream of stilling well with evidence of ice hinge cracking upstream of well. Data logger downloaded. |



**ATTACHMENT 4: WATER QUALITY SUMMARY DATA
TABLES**

Mount Nansen Mine Site
Water Resources Investigation Program
Water Quality



Monthly Report
Attachment 4: Water Quality Data Tables

| Water Quality Site | Sample Collected? (Y/N) | Measurement Date | Comments |
|--------------------|-------------------------|------------------|--|
| WQ-SEEP | Y | 01/10/17 | Flow rate at pipe is moderate. Water clarity is moderate to light. |
| WQ-TP | Y | 01/11/17 | Sampling hole taken from near middle of pond. Ice is 0.37 m thick. Water is light in colour. |
| WQ-DC-DX+105 | Y | 01/11/17 | Ice thickness is 0.01 m. Flow rate at site is low. Crew let the area settle once cleared out. Water appeared light in colour. |
| WQ-DC-B | N | 01/11/17 | Site was dry at time of visit, no sign of flow. |
| WQ-DC-U | Y | 01/10/17 | Upstream weir pond is iced over edge of weir. Crew disturbed the substrate while clearing ice and waited 5 minutes for it to settle before collecting. Flow is low. |
| WQ-VC-U | Y | 01/11/17 | Ice thickness is 0.03 m, water is clear. Stream section is 99% ice covered. |
| WQ-VC-R+150 | Y | 01/10/17 | Small amount of flow detected at sampling location. Channel is completely ice covered. Ice is 0.10 m thick at sampling location. |
| WQ-VC-DBC | Y | 01/11/17 | Flow was low at time of site visit. Water colour is clear. Channel is completely ice covered. |
| WQ-VC-UMN | Y | 01/11/17 | Water level is low. Flow is very low. Ice is 0.18 m thick. |
| WQ-BC | N | 01/11/17 | Site has overflow ice but without signs of continued growth or fresh ice. Ice is greater than bankfull at confluence with Victoria creek but is contained at station location. Ice is 0.45 m thick followed by at 0.15 m air space, a 0.01 m layer of ice then 0.02 m of water. Crew was unable to detect any flow nor were conditions suitable for measurement. |
| WQ-PW | Y | 01/12/17 | Ice accumulation at pipe outlet was moderate. Water was clear and flow rate moderate. |

Water quality results collected during the monthly surface water monitoring; January 2017

| Analyte | Units | CCME-WATER-F-AL | Mount Nansen Effluent Discharge Standards | Sample ID WQ Site ID Date Sampled Detection Limit | L1879171-4 WQ-SEEP 02/10/17 18:25 | L1879171-7 WQ-TP 01/11/17 11:50 | L1879171-3 WQ-DC-DK-105 01/11/17 09:45 | L1879171-5 WQ-DC-U 01/10/17 16:50 | L1879171-6 WQ-DC-U 01/11/17 16:25 | L1879171-2 WQ-VC-R-150 01/10/17 14:05 | L1879171-1 WQ-VC-R-150-01 01/10/17 14:00 | QA/QC WQ-VC-R-150 Replicate Analysis | L1879171-10 WQ-VC-DBC 01/11/17 15:10 | L1879171-9 WQ-VC-UMN 01/11/17 15:50 | L1879171-12 WQ-PW 01/11/17 11:30 | L1879171-8 FIELD BLANK 01/11/17 13:25 | L1879171-11 TRAVEL BLANK 01/12/17 00:00 |
|--|-------|-----------------|---|---|-----------------------------------|---------------------------------|--|-----------------------------------|-----------------------------------|---------------------------------------|--|--------------------------------------|--------------------------------------|-------------------------------------|----------------------------------|---------------------------------------|---|
| Temperature (in-situ) | °C | - | - | - | 0.3 | 0.4 | 0.2 | 0.0 | 0.1 | 0.1 | 0.1 | - | 0.1 | 0.4 | 0.4 | - | - |
| Specific Conductivity (in-situ) | µS/cm | - | - | - | 1,578 | 2,475 | 1,206 | 1,526 | 217 | 264 | 264 | - | 218 | 257 | 257 | - | - |
| pH (in-situ) | pH | 6.5 - 9.0 | 6.0 - 8.5 | - | 7.22 | 7.26 | 7.00 | 6.88 | 6.92 | 6.56 | 6.56 | - | 6.99 | 7.30 | 7.39 | - | - |
| Dissolved Oxygen (in-situ) | mg/L | - | - | - | 4.06 | 1.32 | 2.54 | 6.36 | 8.81 | 5.97 | 5.97 | - | 9.82 | 6.33 | 7.39 | - | - |
| Turbidity (in-situ) | NTU | - | - | - | 16.79 | 5.69 | 3.00 | 16.88 | 0.39 | 0.09 | 0.05 | - | 0.01 | 0.18 | - | - | - |
| Colour, True | CU | 15 | - | - | 5 | - | - | - | - | - | - | - | - | - | - | - | - |
| Conductivity | µS/cm | - | - | 2 | 1590 | 2400 | 1100 | 1480 | 220 | 258 | 258 | 0% | 222 | 254 | 352 | <5.0 | <2.0 |
| Hardness (as CaCO3) | mg/L | - | - | 0.5 | 853 | 1620 | 641 | 776 | 104 | 131 | 124 | 5% | 111 | 130 | 190 | <5.0 | <5.0 |
| pH (lab) | pH | 6.5 - 9.0 | 6.0 - 8.5 | 0.1 | 7.87 | 8.05 | 8.03 | 7.97 | 7.88 | 7.94 | 7.93 | 0% | 7.94 | 7.96 | 7.96 | 5.69 | 5.39 |
| Total Suspended Solids | mg/L | - | 50 | 3 | 40.4 | <3.0 | <3.0 | 58.1 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 | - | <3.0 | <3.0 |
| Total Dissolved Solids | mg/L | - | - | 1 | 1220 | 2210 | 773 | 1100 | 118 | 144 | 143 | 1% | 122 | 145 | 199 | <1.0 | <1.0 |
| Alkalinity, Bicarbonate (as CaCO3) | mg/L | - | - | 1 | 293 | 252 | 268 | 283 | 97.5 | 100 | 103 | 3% | 99.5 | 98.6 | 164 | <1.0 | <1.0 |
| Alkalinity, Carbonate (as CaCO3) | mg/L | - | - | 1 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | - | <1.0 | <1.0 |
| Alkalinity, Hydroxide (as CaCO3) | mg/L | - | - | 1 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | - | <1.0 | <1.0 |
| Alkalinity, Total (as CaCO3) | mg/L | - | - | 1 | 293 | 252 | 268 | 283 | 97.5 | 100 | 103 | 3% | 99.5 | 98.6 | 164 | <1.0 | <1.0 |
| Ammonia, Total (as N) | mg/L | 19.0 * | - | 0.005 | 4.97 | 0.442 | 0.0239 | 4.36 | 0.0065 | 0.0076 | 0.0098 | <2xDL | <0.0050 | 0.0055 | - | <0.0050 | <0.0050 |
| Bromide (Br) | mg/L | - | - | 0.02 | <0.25 | <0.50 | <0.25 | <0.25 | <0.50 | <0.50 | <0.50 | <DL | <0.050 | <0.050 | - | <0.050 | <0.050 |
| Chloride (Cl) | mg/L | 120 | - | 0.5 | <2.5 | <5.0 | <2.5 | <2.5 | <5.0 | <5.0 | <5.0 | <DL | <0.50 | <0.50 | - | <0.50 | <0.50 |
| Fluoride (F) | mg/L | 0.12 | - | 0.02 | <0.10 | 0.35 | 0.18 | <0.10 | 0.043 | 0.048 | 0.048 | <2xDL | 0.043 | 0.046 | 0.101 | <0.020 | <0.020 |
| Nitrate (as N) | mg/L | 13 | - | 0.005 | 0.883 | 0.087 | <0.025 | 0.445 | 0.0985 | 0.143 | 0.144 | 1% | 0.098 | 0.141 | 0.126 | <0.050 | <0.050 |
| Nitrite (as N) | mg/L | 0.06 | - | 0.001 | 0.0254 | <0.010 | <0.0050 | 0.0173 | <0.0010 | <0.0010 | <0.0010 | <DL | <0.0010 | <0.0010 | <0.0010 | <0.0010 | <0.0010 |
| Sulfate (SO4) | mg/L | - | - | 0.5 | 670 | 1410 | 383 | 606 | 19.5 | 34.3 | 34.3 | 0% | 19.9 | 36 | 31.8 | <3.0 | <3.0 |
| Anion Sum | meq/L | - | - | - | 19.9 | 34.3 | 13.3 | 18.3 | 2.36 | 2.73 | 2.79 | <DL | 2.41 | 2.73 | - | <10 | <10 |
| Cation Sum | meq/L | - | - | - | 20.1 | 34.5 | 13.2 | 17.8 | 2.22 | 2.8 | 2.85 | <DL | 2.36 | 2.77 | - | <10 | <10 |
| Cation - Anion Balance | % | - | - | - | 0.5 | 0.2 | <0.5 | -1.4 | -3.1 | -1.4 | -2.5 | <DL | - | 0.7 | - | 0 | 0 |
| Cyanide, Weak Acid Diss | mg/L | - | 0.1 | 0.005 | 0.0078 | <0.0050 | <0.0050 | 0.0105 | <0.0050 | <0.0050 | <0.0050 | <DL | <0.0050 | - | - | <0.0050 | <0.0050 |
| Cyanide, Total | mg/L | - | 0.3 | 0.005 | 0.0223 | <0.0050 | <0.0050 | 0.0218 | <0.0050 | <0.0050 | <0.0050 | <DL | <0.0050 | <0.0050 | - | <0.0050 | <0.0050 |
| Cyanate | mg/L | - | - | 0.2 | 1.8 | <1.0 | <1.0 | 1.6 | <1.0 | <1.0 | <1.0 | <DL | <1.0 | - | - | <1.0 | - |
| Thiocyanate (SCN) | mg/L | - | - | 0.5 | 5.16 | <0.50 | <0.50 | 3.19 | <0.50 | <0.50 | <0.50 | <DL | <0.50 | <0.50 | - | <0.50 | <0.50 |
| Aluminum (Al)-Total | mg/L | 0.1 | - | 0.003 | 0.0227 | 0.0132 | 0.0048 | 0.0078 | 0.0117 | 0.0076 | 0.0117 | <2xDL | 0.0095 | 0.01 | <0.010 | <0.0030 | <0.0030 |
| Antimony (Sb)-Total | mg/L | - | 0.15 | 0.001 | 0.0052 | 0.0035 | 0.00788 | 0.0043 | 0.0001 | 0.0048 | 0.0005 | 4% | 0.0011 | 0.0066 | <0.0050 | <0.0010 | <0.0010 |
| Arsenic (As)-Total | mg/L | 0.005 | - | 0.0001 | 0.0799 | 0.1820 | 0.0377 | 0.0707 | 0.0003 | 0.0011 | 0.0011 | 0% | 0.0003 | 0.0010 | 0.0004 | <0.0010 | <0.0010 |
| Barium (Ba)-Total | mg/L | - | 1.0 | 0.00005 | 0.0623 | 0.0318 | 0.0122 | 0.0804 | 0.0891 | 0.0854 | 0.0877 | 3% | 0.0897 | 0.0827 | 0.0870 | <0.00050 | <0.00050 |
| Beryllium (Be)-Total | mg/L | - | - | 0.00002 | <0.000020 | <0.000040 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <DL | <0.000020 | <0.000020 | - | <0.000020 | <0.000020 |
| Bismuth (Bi)-Total | mg/L | - | - | 0.0005 | <0.00050 | <0.00010 | <0.00050 | <0.00050 | <0.000050 | <0.000050 | <0.000050 | <DL | <0.000050 | <0.000050 | - | <0.000050 | <0.000050 |
| Boron (B)-Total | mg/L | - | - | 0.01 | 0.046 | 0.128 | <0.010 | 0.038 | <0.010 | <0.010 | <0.010 | <DL | <0.010 | <0.010 | <0.010 | <0.010 | <0.010 |
| Cadmium (Cd)-Total (Lab Result) | mg/L | 0.00009 | 0.02 | 0.00001 | 0.00048 | 0.00273 | 0.00142 | 0.00065 | 0.000317 | 0.000093 | 0.000122 | <2xDL | 0.000045 | 0.000199 | <0.00020 | <0.000050 | <0.000050 |
| Cadmium (Cd)-Total (Hardness Adjusted Guideline) | mg/L | - | - | 0.00001 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00016 | 0.00020 | 0.00019 | - | 0.00020 | 0.00027 | 0.00037 | 0.00037 | 0.00037 |
| Calcium (Ca)-Total | mg/L | - | - | 0.05 | 246 | 525 | 165 | 222 | 27 | 34.6 | 30.9 | 11% | 31 | 35.5 | 44.1 | <0.050 | <0.050 |
| Chromium (Cr)-Total | mg/L | 0.0089 | 0.04 | 0.0001 | 0.0007 | 0.00021 | 0.0004 | 0.00074 | <0.00010 | <0.00010 | <0.00010 | <DL | <0.00010 | 0.0001 | <0.00010 | <0.00010 | <0.00010 |
| Cobalt (Co)-Total | mg/L | - | - | 0.0001 | 0.0075 | 0.00064 | 0.00088 | 0.00601 | <0.00010 | <0.00010 | <0.00010 | <DL | <0.00010 | 0.00014 | - | <0.00010 | <0.00010 |
| Copper (Cu)-Total (Lab Result) | mg/L | 0.002 | 0.2 | 0.0005 | 0.00381 | 0.03910 | <0.00050 | 0.00297 | 0.00129 | 0.00158 | 0.00168 | <2xDL | 0.00126 | 0.00137 | <0.0010 | <0.00050 | <0.00050 |
| Copper (Cu)-Total (Hardness Adjusted Guideline) | mg/L | - | - | 0.0005 | 0.0040 | 0.0040 | 0.0040 | 0.0040 | 0.0024 | 0.0030 | 0.0028 | - | 0.0028 | 0.0040 | 0.0040 | 0.0040 | 0.0040 |
| Iron (Fe)-Total | mg/L | 0.3 | 1 | 0.01 | 17.7 | 0.574 | 0.431 | 8.86 | 0.012 | <0.010 | 0.014 | <DL | 0.011 | 0.077 | <0.030 | <0.010 | <0.010 |
| Lead (Pb)-Total (Lab Result) | mg/L | 0.001 | 0.1 | 0.00005 | 0.000072 | 0.004390 | 0.000072 | 0.000334 | <0.000050 | <0.000050 | 0.000054 | <DL | <0.000050 | 0.000050 | 0.000050 | <0.000050 | <0.000050 |
| Lead (Pb)-Total (Hardness Adjusted Guideline) | mg/L | - | - | 0.00005 | 0.00700 | 0.00700 | 0.00700 | 0.00700 | 0.00334 | 0.00449 | 0.00418 | - | 0.00363 | 0.00444 | 0.00700 | 0.00700 | 0.00700 |
| Lithium (Li)-Total | mg/L | - | - | 0.0005 | 0.0017 | 0.0173 | 0.0096 | 0.0034 | 0.0017 | 0.0019 | 0.0019 | <2xDL | <0.0010 | 0.0012 | - | <0.0010 | <0.0010 |
| Magnesium (Mg)-Total | mg/L | - | - | 0.1 | 63.3 | 89.5 | 62.4 | 60 | 10.2 | 11.7 | 11.7 | 0% | 9.23 | 10.8 | 19.4 | <0.10 | <0.10 |
| Manganese (Mn)-Total | mg/L | - | 0.5 | 0.00005 | 5.72 | 1.23 | 1.14 | 4.89 | 0.157 | 0.0641 | 0.0632 | 1% | 0.17 | 0.0719 | <0.0020 | <0.0010 | <0.0010 |
| Mercury (Hg)-Total | mg/L | 0.000026 | 0.005 | 0.00001 | <0.000050 | 0.000081 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <DL | <0.000050 | <0.000050 | <0.00020 | <0.000050 | <0.000050 |
| Molybdenum (Mo)-Total | mg/L | 0.0073 | - | 0.00005 | 0.00111 | 0.00187 | 0.000506 | 0.000951 | 0.000364 | 0.000385 | 0.000401 | 4% | 0.000352 | 0.000296 | - | <0.000050 | <0.000050 |
| Nickel (Ni)-Total (Lab Result) | mg/L | 0.025 | 0.3 | 0.0005 | 0.00322 | 0.00150 | 0.00145 | 0.00286 | <0.00050 | 0.00053 | <0.00050 | <DL | <0.00050 | <0.00050 | - | <0.00050 | <0.00050 |
| Nickel (Ni)-Total (Hardness Adjusted Guideline) | mg/L | - | - | 0.0005 | 0.1500 | 0.1500 | 0.1500 | 0.1500 | 0.0985 | 0.1173 | 0.1126 | - | 0.1035 | 0.1167 | 0.1500 | 0.1500 | 0.1500 |
| Phosphorus (P)-Total | mg/L | - | - | 0.05 | <0.050 | <0.10 | <0.050 | 0.053 | <0.050 | <0.050 | <0.050 | <DL | <0.050 | <0.050 | - | <0.050 | <0.050 |
| Potassium (K)-Total | mg/L | - | - | 0.1 | 6.15 | 30.8 | 3.39 | 5.12 | 0.71 | 0.89 | 0.89 | 7% | 0.73 | 0.87 | 0.93 | <0.10 | <0.10 |
| Selenium (Se)-Total | mg/L | 0.001 | - | 0.0001 | 0.000288 | 0.00011 | <0.000050 | 0.000223 | <0.000050 | <0.000050 | 0.000067 | <DL | <0.000050 | 0.000094 | <0.0010 | <0.000050 | <0.000050 |
| Silicon (Si)-Total | mg/L | - | - | 0.05 | 8.38 | 7.19 | 7.04 | 7.71 | 6.48 | 6.32 | 6.26 | 1% | 6.45 | 6.69 | - | <0.050 | <0.050 |
| Silver (Ag)-Total | mg/L | 0.00025 | 0.1 | 0.00001 | 0.000036 | 0.000149 | <0.000010 | 0.000039 | <0.000010 | <0.000010 | <0.000010 | <DL | <0.000010 | <0.000010 | - | <0.000010 | <0.000010 |
| Sodium (Na)-Total | mg/L | - | - | 0.05 | 38.7 | 31.4 | 3.84 | 30.2 | 3.54 | 3.64 | 3.54 | | | | | | |

Water quality results collected during the monthly surface water monitoring; January 2017

| Analyte | Units | CCME-WATER-F-AL | Mount Nansen Effluent Discharge Standards | Sample ID WQ Site ID Date Sampled Detection Limit | L1879171-4 WQ-SEEP 01/10/17 18:25 | L1879171-7 WQ-TP 01/11/17 11:50 | L1879171-3 WQ-DC-DK+105 01/11/17 09:45 | L1879171-5 WQ-DC-U 01/10/17 16:50 | L1879171-6 WQ-VC-U 01/11/17 16:25 | L1879171-2 WQ-VC-R+150 01/10/17 14:05 | L1879171-1 WQ-VC-R+150+ 01/10/17 14:00 | QA/QC WQ-VC-R+150 Replicate Analysis | L1879171-10 WQ-VC-DBC 01/11/17 15:10 | L1879171-9 WQ-VC-UMN 01/11/17 12:50 | L1879171-12 WQ-PW 01/11/17 11:30 | L1879171-8 FIELD BLANK 01/11/17 13:25 | L1879171-11 TRAVEL BLANK 01/12/17 00:00 | |
|--|-------|-----------------|---|---|-----------------------------------|---------------------------------|--|-----------------------------------|-----------------------------------|---------------------------------------|--|--------------------------------------|--------------------------------------|-------------------------------------|----------------------------------|---------------------------------------|---|---|
| Aluminum (Al)-Dissolved | mg/L | 0.1 | - | 0.001 | 0.0154 | 0.0024 | 0.0015 | 0.0144 | 0.0065 | 0.0046 | 0.0045 | <2xDL | 0.0066 | 0.0071 | - | - | <0.0010 | - |
| Antimony (Sb)-Dissolved | mg/L | - | - | 0.0001 | 0.00046 | 0.0362 | 0.00781 | 0.00036 | <0.00010 | 0.00047 | 0.00047 | <2xDL | <0.00010 | 0.00064 | - | - | <0.00010 | - |
| Arsenic (As)-Dissolved | mg/L | 0.005 | 0.15 | 0.0001 | 0.05420 | 0.10100 | 0.00717 | 0.05070 | 0.00022 | 0.00109 | 0.00099 | 10% | 0.00023 | 0.00090 | - | - | <0.00010 | - |
| Barium (Ba)-Dissolved | mg/L | - | - | 0.00005 | 0.063 | 0.0309 | 0.0122 | 0.0768 | 0.0928 | 0.085 | 0.0878 | 3% | 0.0907 | 0.0625 | - | - | <0.000050 | - |
| Beryllium (Be)-Dissolved | mg/L | - | - | 0.00002 | <0.00020 | <0.000040 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <0.000020 | <DL | <0.000020 | <0.000020 | - | - | <0.000020 | - |
| Bismuth (Bi)-Dissolved | mg/L | - | - | 0.0005 | <0.000050 | <0.00010 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <DL | <0.000050 | <0.000050 | - | - | <0.000050 | - |
| Boron (B)-Dissolved | mg/L | - | - | 0.01 | 0.044 | 0.12 | <0.010 | 0.036 | <0.010 | <0.010 | <0.010 | <DL | <0.010 | <0.010 | - | - | <0.010 | - |
| Cadmium (Cd)-Dissolved (Lab Result) | mg/L | 0.00009 | - | 0.00001 | 0.000367 | 0.002580 | 0.000320 | 0.000152 | 0.000031 | 0.000015 | 0.000012 | <2xDL | 0.000038 | 0.000015 | - | - | <0.000050 | - |
| Cadmium (Cd)-Diss. (Hardness Adjusted Guideline) | mg/L | - | - | 0.00001 | 0.00037 | 0.00037 | 0.00037 | 0.00037 | 0.00016 | 0.00019 | 0.00019 | - | 0.00037 | 0.00019 | - | - | 0.00037 | - |
| Calcium (Ca)-Dissolved | mg/L | - | - | 0.05 | 246 | 505 | 158 | 217 | 26.1 | 33.4 | 30.4 | 9% | 29.2 | 34.2 | - | - | <0.050 | - |
| Chromium (Cr)-Dissolved | mg/L | 0.0089 | - | 0.0001 | 0.0004 | <0.00020 | <0.00010 | 0.00026 | <0.00010 | <0.00010 | <0.00010 | <DL | <0.00010 | <0.00010 | - | - | <0.00010 | - |
| Cobalt (Co)-Dissolved | mg/L | - | - | 0.0001 | 0.00689 | 0.00059 | 0.00086 | 0.00058 | <0.00010 | <0.00010 | <0.00010 | <DL | <0.00010 | 0.00013 | - | - | <0.00010 | - |
| Copper (Cu)-Dissolved (Lab Result) | mg/L | 0.002 | - | 0.0002 | 0.00227 | 0.03470 | <0.00020 | 0.00113 | 0.00125 | 0.00110 | 0.00121 | 10% | 0.00122 | 0.00115 | - | - | <0.00020 | - |
| Copper (Cu)-Diss. (Hardness Adjusted Guideline) | mg/L | - | - | 0.002 | 0.004 | 0.004 | 0.004 | 0.004 | 0.002 | 0.003 | 0.003 | - | 0.003 | 0.003 | - | - | 0.004 | - |
| Iron (Fe)-Dissolved | mg/L | 0.3 | - | 0.01 | 14.600 | 0.096 | 0.079 | 7.270 | <0.010 | <0.010 | <0.010 | <DL | <0.010 | 0.057 | - | - | <0.010 | - |
| Lead (Pb)-Dissolved (Lab Result) | mg/L | 0.001 | - | 0.00005 | <0.000050 | 0.00073 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <DL | <0.000050 | <0.000050 | - | - | <0.000050 | - |
| Lead (Pb)-Diss. (Hardness Adjusted Guideline) | mg/L | - | - | 0.00005 | 0.00050 | 0.00700 | 0.00700 | 0.00700 | 0.00334 | 0.00449 | 0.00449 | - | 0.00334 | 0.00449 | - | - | 0.00700 | - |
| Lithium (Li)-Dissolved | mg/L | - | - | 0.0005 | 0.002 | 0.0173 | 0.0092 | 0.0016 | <0.0010 | 0.0017 | 0.0018 | <2xDL | <0.0010 | 0.0011 | - | - | <0.0010 | - |
| Magnesium (Mg)-Dissolved | mg/L | - | - | 0.1 | 57.6 | 86.6 | 59.8 | 56.8 | 9.42 | 11.6 | 11.7 | 1% | 9.24 | 10.7 | - | - | <0.10 | - |
| Manganese (Mn)-Dissolved | mg/L | - | - | 0.00005 | 5.3 | 1.18 | 1.13 | 4.79 | 0.15 | 0.0655 | 0.00557 | 16% | 0.17 | 0.0693 | - | - | <0.00010 | - |
| Mercury (Hg)-Dissolved | mg/L | 0.000026 | - | 0.00001 | <0.000050 | 0.000057 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <DL | <0.000050 | <0.000050 | - | - | <0.000050 | - |
| Molybdenum (Mo)-Dissolved | mg/L | 0.0073 | - | 0.00005 | 0.00109 | 0.00181 | 0.000392 | 0.000906 | 0.000335 | 0.000372 | 0.000376 | 1% | 0.00034 | 0.000307 | - | - | <0.000050 | - |
| Nickel (Ni)-Dissolved (Lab Result) | mg/L | 0.025 | - | 0.0005 | 0.00288 | 0.00130 | 0.00138 | 0.00251 | <0.00050 | <0.00050 | <0.00050 | <DL | <0.00050 | <0.00050 | - | - | <0.00050 | - |
| Nickel (Ni)-Diss. (Hardness Adjusted Guideline) | mg/L | - | - | 0.0005 | 0.1500 | 0.1500 | 0.1500 | 0.1500 | 0.0985 | 0.177 | 0.176 | - | 0.0985 | 0.167 | - | - | 0.1500 | - |
| Phosphorus (P)-Dissolved | mg/L | - | - | 0.05 | <0.050 | <0.10 | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 | <DL | <0.050 | <0.050 | - | - | <0.050 | - |
| Potassium (K)-Dissolved | mg/L | - | - | 0.1 | 5.74 | 29.9 | 3.34 | 5.09 | 0.87 | 0.88 | 0.82 | 7% | 0.74 | 0.87 | - | - | <0.10 | - |
| Selenium (Se)-Dissolved | mg/L | 0.001 | - | 0.0001 | 0.000304 | <0.00010 | <0.000050 | 0.0002 | <0.000050 | <0.000050 | <0.000050 | <DL | <0.000050 | 0.000061 | - | - | <0.000050 | - |
| Silicon (Si)-Dissolved | mg/L | - | - | 0.05 | 8.4 | 6.8 | 6.75 | 7.4 | 6.31 | 6.31 | 6.25 | 4% | 6.22 | 6.35 | - | - | <0.050 | - |
| Silver (Ag)-Dissolved | mg/L | 0.00025 | - | 0.00001 | 0.000015 | 0.000048 | <0.000010 | 0.000012 | <0.000010 | <0.000010 | <0.000010 | <DL | <0.000010 | <0.000010 | - | - | <0.000010 | - |
| Sodium (Na)-Dissolved | mg/L | - | - | 0.05 | 35.4 | 30.4 | 5.55 | 29.4 | 2.82 | 3.59 | 3.49 | 3% | 2.86 | 3.47 | - | - | <0.050 | - |
| Strontium (Sr)-Dissolved | mg/L | - | - | 0.0002 | 0.751 | 1.24 | 0.406 | 0.694 | 0.296 | 0.295 | 0.288 | 2% | 0.288 | 0.299 | - | - | <0.00020 | - |
| Sulfur (S)-Dissolved | mg/L | - | - | 0.5 | 240 | 480 | 133 | 209 | 6.29 | 11.1 | 11.3 | 2% | 6.61 | 11.7 | - | - | <0.50 | - |
| Thallium (Tl)-Dissolved | mg/L | 0.0008 | - | 0.00001 | <0.000010 | 0.000183 | 0.000093 | <0.000010 | <0.000010 | <0.000010 | <0.000010 | <DL | <0.000010 | <0.000010 | - | - | <0.000010 | - |
| Tin (Sn)-Dissolved | mg/L | - | - | 0.0001 | <0.00010 | <0.00020 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <DL | <0.00010 | <0.00010 | - | - | <0.00010 | - |
| Titanium (Ti)-Dissolved | mg/L | - | - | 0.0003 | 0.00095 | <0.00060 | <0.00030 | 0.00063 | <0.00030 | <0.00030 | <0.00030 | <DL | <0.00030 | <0.00030 | - | - | <0.00030 | - |
| Uranium (U)-Dissolved | mg/L | 0.015 | - | 0.00001 | 0.0021 | 0.00207 | 0.00428 | 0.00168 | 0.00051 | 0.000501 | 0.000565 | 12% | 0.000436 | 0.000413 | - | - | <0.000010 | - |
| Vanadium (V)-Dissolved | mg/L | - | - | 0.001 | 0.00201 | <0.0010 | <0.00050 | 0.00012 | <0.00050 | <0.00050 | <0.00050 | <DL | <0.00050 | <0.00050 | - | - | <0.00050 | - |
| Zinc (Zn)-Dissolved | mg/L | 0.03 | - | 0.001 | 0.0445 | 0.3070 | 0.6130 | 0.0218 | <0.0010 | 0.0010 | 0.0010 | <2xDL | <0.0010 | 0.0011 | - | - | <0.0010 | - |
| Zirconium (Zr)-Dissolved | mg/L | - | - | 0.0003 | 0.00075 | <0.00060 | <0.00030 | 0.00049 | <0.00030 | <0.00030 | <0.00030 | <DL | <0.00030 | <0.00030 | - | - | <0.00030 | - |

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

Notes:

^A Ammonia guideline is temperature dependent and the January value is based on a water temperature of 0°C and a pH of 7.0

COLOUR KEY:
Exceeds CCME Guideline
Exceeds MN Effluent Discharge Standards
Exceeds both CCME and MN Standards

QA/QC Comments:

The Travel Blank sample did not have any parameters above detection limit. No contamination from storage or transport is suspected.

The Field Blank did not have any parameters above detection limits. No contamination from field sampling methodology is suspected.

QA/QC Replicate Analysis -

The average RPD of the replicate sample WQ-VC-R+150+ was 4% with an average difference of 3% for total and 6% for dissolved metals.

No parameter had RPD>20%.

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



ATTACHMENT 5:

**LABORATORY
CERTIFICATES OF
ANALYSIS AND
YUKON
ENVIRONMENTAL
HEALTH SERVICES
BACTERIOLOGICAL
RESULTS**



EDI ENVIRONMENTAL DYNAMICS INC.
ATTN: Lyndsay Doetzel
2195 - 2nd Ave
Whitehorse YT Y1A 3T8

Date Received: 13-JAN-17
Report Date: 25-JAN-17 17:28 (MT)
Version: FINAL

Client Phone: 867-393-4882

Certificate of Analysis

Lab Work Order #: L1879171
Project P.O. #: NOT SUBMITTED
Job Reference: MOUNT NANSEN 16-Y-0089
C of C Numbers:
Legal Site Desc:

Comments: ADDITIONAL 25-JAN-17 17:20

Can Dang
Senior Account Manager

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ADDRESS: 8081 Lougheed Hwy, Suite 100, Burnaby, BC V5A 1W9 Canada | Phone: +1 604 253 4188 | Fax: +1 604 253 6700
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID | Description | Sampled Date | Sampled Time | Client ID | L1879171-1 | L1879171-2 | L1879171-3 | L1879171-4 | L1879171-5 |
|-----------------------------|---|----------------------|----------------------|-------------------------|-----------------------|-----------------------|--------------|------------|------------|
| | | | | | WATER | WATER | WATER | WATER | WATER |
| | | | | | 10-JAN-17 | 10-JAN-17 | 11-JAN-17 | 10-JAN-17 | 10-JAN-17 |
| | | | | | 14:00 | 14:05 | 09:45 | 18:25 | 16:50 |
| | | | | | WQ-VC-R+150-R | WQ-VC-R+150 | WQ-DC-DX+105 | WQ-SEEP | WQ-DC-U |
| Grouping | Analyte | | | | | | | | |
| WATER | | | | | | | | | |
| Physical Tests | Colour, True (CU) | | | | | | | | |
| | Conductivity (uS/cm) | 258 | 258 | 1100 | 1590 | 1480 | | | |
| | Hardness (as CaCO3) (mg/L) | 124 | 131 | 641 | 853 | 776 | | | |
| | pH (pH) | 7.93 | 7.94 | 8.03 | 7.87 | 7.97 | | | |
| | Total Suspended Solids (mg/L) | 3.0 | <3.0 | <3.0 | 40.4 | 58.1 | | | |
| | Total Dissolved Solids (mg/L) | | | | | | | | |
| | TDS (Calculated) (mg/L) | 143 | 144 | 773 | 1220 | 1100 | | | |
| | Turbidity (NTU) | | | | | | | | |
| Anions and Nutrients | Alkalinity, Bicarbonate (as CaCO3) (mg/L) | 103 | 100 | 268 | 293 | 283 | | | |
| | 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) | 103 | 100 | 268 | 293 | 283 | | | |
| | Ammonia, Total (as N) (mg/L) | 0.0098 | 0.0076 | 0.0239 | 4.97 | 4.36 | | | |
| | Bromide (Br) (mg/L) | <0.050 | <0.050 | <0.25 ^{DLDS} | <0.25 ^{DLDS} | <0.25 ^{DLDS} | | | |
| | Chloride (Cl) (mg/L) | <0.50 | <0.50 | <2.5 ^{DLDS} | <2.5 ^{DLDS} | <2.5 ^{DLDS} | | | |
| | Fluoride (F) (mg/L) | 0.048 | 0.048 | 0.18 | <0.10 | <0.10 | | | |
| | Nitrate (as N) (mg/L) | 0.144 | 0.143 | <0.025 ^{DLDS} | 0.883 | 0.445 | | | |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | <0.0050 ^{DLDS} | 0.0254 | 0.0173 | | | |
| | Sulfate (SO4) (mg/L) | 34.3 | 34.3 | 383 | 670 | 606 | | | |
| | Anion Sum (meq/L) | 2.79 | 2.73 | 13.3 | 19.9 | 18.3 | | | |
| | Cation Sum (meq/L) | 2.65 | 2.80 | 13.2 | 20.1 | 17.8 | | | |
| | Cation - Anion Balance (%) | -2.5 | 1.4 | -0.5 | 0.5 | -1.4 | | | |
| Cyanides | Cyanide, Weak Acid Diss (mg/L) | <0.0050 | <0.0050 | <0.0050 | 0.0078 | 0.0105 | | | |
| | Cyanide, Total (mg/L) | <0.0050 | <0.0050 | <0.0050 | 0.0223 | 0.0218 | | | |
| | Cyanate (mg/L) | <1.0 ^{DLIS} | <1.0 ^{DLIS} | <1.0 ^{DLIS} | 1.8 ^{DLIS} | 1.6 ^{DLIS} | | | |
| | Thiocyanate (SCN) (mg/L) | <0.50 | <0.50 | <0.50 | 5.16 | 3.19 | | | |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.0117 | 0.0076 | 0.0044 | 0.0227 | 0.187 | | | |
| | Antimony (Sb)-Total (mg/L) | 0.00050 | 0.00048 | 0.00788 | 0.00052 | 0.00043 | | | |
| | Arsenic (As)-Total (mg/L) | 0.00107 | 0.00107 | 0.0377 | 0.0799 | 0.0707 | | | |
| | Barium (Ba)-Total (mg/L) | 0.0877 | 0.0854 | 0.0122 | 0.0623 | 0.0804 | | | |
| | 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 | 0.046 | 0.038 | | | |
| | Cadmium (Cd)-Total (mg/L) | 0.0000122 | 0.0000093 | 0.00142 | 0.000488 | 0.000265 | | | |
| | Calcium (Ca)-Total (mg/L) | 30.9 | 34.6 | 165 | 246 | 222 | | | |
| | Chromium (Cr)-Total (mg/L) | <0.00010 | <0.00010 | 0.00040 | 0.00070 | 0.00074 | | | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | <0.00010 | 0.00088 | 0.00750 | 0.00601 | | | |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID Description Sampled Date Sampled Time Client ID | L1879171-6 WATER 11-JAN-17 16:25 WQ-VC-U | L1879171-7 WATER 11-JAN-17 11:50 WQ-TP | L1879171-8 WATER 11-JAN-17 13:25 WQ-FIELD BLANK | L1879171-9 WATER 11-JAN-17 12:50 WQ-VC-UMN | L1879171-10 WATER 11-JAN-17 15:10 WQ-VC-DBC |
|-----------------------------|---|--|--|---|--|---|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Physical Tests | Colour, True (CU) | | | | | |
| | Conductivity (uS/cm) | 220 | 2400 | <2.0 | 254 | 222 |
| | Hardness (as CaCO3) (mg/L) | 104 | 1620 | <0.50 | 130 | 111 |
| | pH (pH) | 7.88 | 8.05 | 5.69 | 7.96 | 7.94 |
| | Total Suspended Solids (mg/L) | <3.0 | <3.0 | <3.0 | <3.0 | <3.0 |
| | Total Dissolved Solids (mg/L) | | | | | |
| | TDS (Calculated) (mg/L) | 118 | 2210 | <1.0 | 145 | 122 |
| | Turbidity (NTU) | | | | | |
| Anions and Nutrients | Alkalinity, Bicarbonate (as CaCO3) (mg/L) | 97.5 | 252 | <1.0 | 98.6 | 99.5 |
| | 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) | 97.5 | 252 | <1.0 | 98.6 | 99.5 |
| | Ammonia, Total (as N) (mg/L) | 0.0065 | 0.442 | <0.0050 | 0.0055 | <0.0050 |
| | Bromide (Br) (mg/L) | <0.050 | <0.50 ^{DLDS} | <0.050 | <0.050 | <0.050 |
| | Chloride (Cl) (mg/L) | <0.50 | <5.0 ^{DLDS} | <0.50 | <0.50 | <0.50 |
| | Fluoride (F) (mg/L) | 0.043 | 0.35 | <0.020 | 0.046 | 0.043 |
| | Nitrate (as N) (mg/L) | 0.0985 | 0.087 | <0.0050 | 0.141 | 0.0980 |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.010 ^{DLDS} | <0.0010 | <0.0010 | <0.0010 |
| | Sulfate (SO4) (mg/L) | 19.5 | 1410 | <0.30 | 36.0 | 19.9 |
| | Anion Sum (meq/L) | 2.36 | 34.3 | <0.10 | 2.73 | 2.41 |
| | Cation Sum (meq/L) | 2.22 | 34.5 | <0.10 | 2.77 | 2.36 |
| | Cation - Anion Balance (%) | -3.1 | 0.2 | 0.0 | 0.7 | -1.0 |
| 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) | <1.0 ^{DLIS} | <1.0 ^{DLIS} | <1.0 ^{DLIS} | <1.0 ^{DLIS} | <1.0 ^{DLIS} |
| | Thiocyanate (SCN) (mg/L) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 |
| Total Metals | Aluminum (Al)-Total (mg/L) | 0.0101 | 0.0132 | <0.0030 | 0.0100 | 0.0095 |
| | Antimony (Sb)-Total (mg/L) | 0.00010 | 0.0375 | <0.00010 | 0.00066 | 0.00011 |
| | Arsenic (As)-Total (mg/L) | 0.00030 | 0.182 | <0.00010 | 0.00103 | 0.00025 |
| | Barium (Ba)-Total (mg/L) | 0.0891 | 0.0318 | <0.000050 | 0.0827 | 0.0897 |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | <0.000040 ^{DLA} | <0.000020 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | <0.00010 ^{DLA} | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Total (mg/L) | <0.010 | 0.128 | <0.010 | <0.010 | <0.010 |
| | Cadmium (Cd)-Total (mg/L) | 0.0000317 | 0.00273 | <0.0000050 | 0.0000199 | 0.0000345 |
| | Calcium (Ca)-Total (mg/L) | 27.0 | 525 | <0.050 | 35.5 | 31.0 |
| | Chromium (Cr)-Total (mg/L) | <0.00010 | 0.00021 | <0.00010 | 0.00010 | <0.00010 |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | 0.00064 | <0.00010 | 0.00014 | <0.00010 |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | L1879171-11 WATER TRAVEL BLANK | L1879171-12 WATER 12-JAN-17 11:30 WQ-PW | | | |
|---|---|---|--------------------|--|--|
| Grouping | Analyte | | | | |
| WATER | | | | | |
| Physical Tests | Colour, True (CU) | | <5.0 | | |
| | Conductivity (uS/cm) | <2.0 | 352 | | |
| | Hardness (as CaCO3) (mg/L) | <0.50 ^{HTC} | 190 ^{HTC} | | |
| | pH (pH) | 5.39 | 7.96 | | |
| | Total Suspended Solids (mg/L) | <3.0 | | | |
| | Total Dissolved Solids (mg/L) | | 199 | | |
| | TDS (Calculated) (mg/L) | <1.0 | | | |
| | Turbidity (NTU) | | <0.10 | | |
| Anions and Nutrients | Alkalinity, Bicarbonate (as CaCO3) (mg/L) | <1.0 | | | |
| | Alkalinity, Carbonate (as CaCO3) (mg/L) | <1.0 | | | |
| | Alkalinity, Hydroxide (as CaCO3) (mg/L) | <1.0 | | | |
| | Alkalinity, Total (as CaCO3) (mg/L) | <1.0 | 164 | | |
| | Ammonia, Total (as N) (mg/L) | <0.0050 | | | |
| | Bromide (Br) (mg/L) | <0.050 | | | |
| | Chloride (Cl) (mg/L) | <0.50 | <0.50 | | |
| | Fluoride (F) (mg/L) | <0.020 | 0.101 | | |
| | Nitrate (as N) (mg/L) | <0.0050 | 0.126 | | |
| | Nitrite (as N) (mg/L) | <0.0010 | <0.0010 | | |
| | Sulfate (SO4) (mg/L) | <0.30 | 31.8 | | |
| | Anion Sum (meq/L) | <0.10 | | | |
| | Cation Sum (meq/L) | <0.10 | | | |
| | Cation - Anion Balance (%) | 0.0 | | | |
| Cyanides | Cyanide, Weak Acid Diss (mg/L) | <0.0050 | | | |
| | Cyanide, Total (mg/L) | <0.0050 | | | |
| | Cyanate (mg/L) | | | | |
| | Thiocyanate (SCN) (mg/L) | <0.50 | | | |
| Total Metals | Aluminum (Al)-Total (mg/L) | <0.0030 | <0.010 | | |
| | Antimony (Sb)-Total (mg/L) | <0.00010 | <0.00050 | | |
| | Arsenic (As)-Total (mg/L) | <0.00010 | 0.00039 | | |
| | Barium (Ba)-Total (mg/L) | <0.000050 | 0.087 | | |
| | Beryllium (Be)-Total (mg/L) | <0.000020 | | | |
| | Bismuth (Bi)-Total (mg/L) | <0.000050 | | | |
| | Boron (B)-Total (mg/L) | <0.010 | <0.10 | | |
| | Cadmium (Cd)-Total (mg/L) | <0.0000050 | <0.00020 | | |
| | Calcium (Ca)-Total (mg/L) | <0.050 | 44.1 | | |
| | Chromium (Cr)-Total (mg/L) | <0.00010 | <0.0020 | | |
| | Cobalt (Co)-Total (mg/L) | <0.00010 | | | |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | | L1879171-1 WATER 10-JAN-17 14:00 WQ-VC-R+150-R | L1879171-2 WATER 10-JAN-17 14:05 WQ-VC-R+150 | L1879171-3 WATER 11-JAN-17 09:45 WQ-DC-DX+105 | L1879171-4 WATER 10-JAN-17 18:25 WQ-SEEP | L1879171-5 WATER 10-JAN-17 16:50 WQ-DC-U |
|---|---------------------------------------|--|--|---|--|--|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Total Metals | Copper (Cu)-Total (mg/L) | 0.00168 | 0.00150 | <0.00050 | 0.00381 | 0.00297 |
| | Iron (Fe)-Total (mg/L) | 0.014 | <0.010 | 0.431 | 17.7 | 9.86 |
| | Lead (Pb)-Total (mg/L) | 0.000054 | <0.000050 | 0.000072 | 0.000072 | 0.000334 |
| | Lithium (Li)-Total (mg/L) | 0.0019 | 0.0017 | 0.0096 | 0.0017 | 0.0034 |
| | Magnesium (Mg)-Total (mg/L) | 11.7 | 11.7 | 62.4 | 63.3 | 60.0 |
| | Manganese (Mn)-Total (mg/L) | 0.00632 | 0.00641 | 1.14 | 5.72 | 4.89 |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| | Molybdenum (Mo)-Total (mg/L) | 0.000401 | 0.000385 | 0.000506 | 0.00111 | 0.000951 |
| | Nickel (Ni)-Total (mg/L) | <0.00050 | <0.00050 | 0.00145 | 0.00322 | 0.00286 |
| | Phosphorus (P)-Total (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | 0.053 |
| | Potassium (K)-Total (mg/L) | 0.83 | 0.89 | 3.39 | 6.15 | 5.12 |
| | Selenium (Se)-Total (mg/L) | 0.000067 | <0.000050 | <0.000050 | 0.000288 | 0.000223 |
| | Silicon (Si)-Total (mg/L) | 6.26 | 6.32 | 7.04 | 8.38 | 7.71 |
| | Silver (Ag)-Total (mg/L) | <0.000010 | <0.000010 | <0.000010 | 0.000036 | 0.000039 |
| | Sodium (Na)-Total (mg/L) | 3.54 | 3.64 | 5.84 | 38.7 | 30.2 |
| | Strontium (Sr)-Total (mg/L) | 0.299 | 0.300 | 0.424 | 0.761 | 0.719 |
| | Sulfur (S)-Total (mg/L) | 11.6 | 11.5 | 137 | 239 | 208 |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | <0.000010 | 0.000100 | <0.000010 | 0.000011 |
| | Tin (Sn)-Total (mg/L) | <0.00010 | <0.00010 | <0.00010 | <0.00010 | <0.00010 |
| | Titanium (Ti)-Total (mg/L) | <0.00030 | <0.00030 | <0.00030 | 0.00127 | 0.00796 |
| | Uranium (U)-Total (mg/L) | 0.000595 | 0.000554 | 0.00444 | 0.00218 | 0.00177 |
| | Vanadium (V)-Total (mg/L) | <0.00050 | <0.00050 | <0.00050 | 0.00297 | 0.00291 |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | <0.0030 | 0.623 | 0.0457 | 0.0274 |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | <0.00030 | <0.00030 | 0.00081 | 0.00054 |
| 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) | 0.0045 | 0.0046 | 0.0015 | 0.0154 | 0.0144 |
| | Antimony (Sb)-Dissolved (mg/L) | 0.00047 | 0.00047 | 0.00781 | 0.00046 | 0.00036 |
| | Arsenic (As)-Dissolved (mg/L) | 0.00099 | 0.00109 | 0.00717 | 0.0542 | 0.0507 |
| | Barium (Ba)-Dissolved (mg/L) | 0.0878 | 0.0850 | 0.0122 | 0.0630 | 0.0768 |
| | 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) | <0.010 | <0.010 | <0.010 | 0.044 | 0.036 |
| | Cadmium (Cd)-Dissolved (mg/L) | 0.0000117 | 0.0000146 | 0.000320 | 0.000367 | 0.000152 |
| | Calcium (Ca)-Dissolved (mg/L) | 30.4 | 33.4 | 158 | 246 | 217 |
| | Chromium (Cr)-Dissolved (mg/L) | <0.00010 | <0.00010 | <0.00010 | 0.00040 | 0.00026 |
| | Cobalt (Co)-Dissolved (mg/L) | <0.00010 | <0.00010 | 0.00086 | 0.00689 | 0.00580 |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | | Sample ID | L1879171-6 | L1879171-7 | L1879171-8 | L1879171-9 | L1879171-10 |
|-------------------------|---------------------------------------|--------------|------------|--------------------------|----------------|------------|-------------|
| | | Description | WATER | WATER | WATER | WATER | WATER |
| | | Sampled Date | 11-JAN-17 | 11-JAN-17 | 11-JAN-17 | 11-JAN-17 | 11-JAN-17 |
| | | Sampled Time | 16:25 | 11:50 | 13:25 | 12:50 | 15:10 |
| | | Client ID | WQ-VC-U | WQ-TP | WQ-FIELD BLANK | WQ-VC-UMN | WQ-VC-DBC |
| Grouping | Analyte | | | | | | |
| WATER | | | | | | | |
| Total Metals | Copper (Cu)-Total (mg/L) | | 0.00129 | 0.0391 | <0.00050 | 0.00137 | 0.00126 |
| | Iron (Fe)-Total (mg/L) | | 0.012 | 0.574 | <0.010 | 0.077 | 0.011 |
| | Lead (Pb)-Total (mg/L) | | <0.000050 | 0.00439 | <0.000050 | <0.000050 | <0.000050 |
| | Lithium (Li)-Total (mg/L) | | 0.0020 | 0.0173 | <0.0010 | 0.0012 | <0.0010 |
| | Magnesium (Mg)-Total (mg/L) | | 10.2 | 89.5 | <0.10 | 10.8 | 9.23 |
| | Manganese (Mn)-Total (mg/L) | | 0.157 | 1.23 | <0.00010 | 0.0719 | 0.170 |
| | Mercury (Hg)-Total (mg/L) | | <0.0000050 | 0.0000081 | <0.0000050 | <0.0000050 | <0.0000050 |
| | Molybdenum (Mo)-Total (mg/L) | | 0.000364 | 0.00187 | <0.000050 | 0.000296 | 0.000352 |
| | Nickel (Ni)-Total (mg/L) | | 0.00053 | 0.0015 | <0.00050 | <0.00050 | <0.00050 |
| | Phosphorus (P)-Total (mg/L) | | <0.050 | <0.10 ^{DLA} | <0.050 | <0.050 | <0.050 |
| | Potassium (K)-Total (mg/L) | | 0.71 | 30.8 | <0.10 | 0.87 | 0.73 |
| | Selenium (Se)-Total (mg/L) | | <0.000050 | 0.00011 | <0.000050 | 0.000094 | <0.000050 |
| | Silicon (Si)-Total (mg/L) | | 6.48 | 7.19 | <0.050 | 6.69 | 6.45 |
| | Silver (Ag)-Total (mg/L) | | <0.000010 | 0.000149 | <0.000010 | <0.000010 | <0.000010 |
| | Sodium (Na)-Total (mg/L) | | 3.05 | 31.4 | <0.050 | 3.53 | 2.82 |
| | Strontium (Sr)-Total (mg/L) | | 0.305 | 1.29 | <0.00020 | 0.310 | 0.306 |
| | Sulfur (S)-Total (mg/L) | | 6.53 | 498 | <0.50 | 12.4 | 6.82 |
| | Thallium (Tl)-Total (mg/L) | | <0.000010 | 0.000196 | <0.000010 | <0.000010 | <0.000010 |
| | Tin (Sn)-Total (mg/L) | | <0.00010 | <0.00020 ^{DLA} | <0.00010 | <0.00010 | <0.00010 |
| | Titanium (Ti)-Total (mg/L) | | <0.00030 | <0.00060 ^{DLA} | <0.00030 | <0.00030 | <0.00030 |
| | Uranium (U)-Total (mg/L) | | 0.000534 | 0.00217 | <0.000010 | 0.000453 | 0.000496 |
| | Vanadium (V)-Total (mg/L) | | <0.00050 | <0.0010 ^{DLA} | <0.00050 | <0.00050 | <0.00050 |
| | Zinc (Zn)-Total (mg/L) | | <0.0030 | 0.318 | <0.0030 | 0.0048 | <0.0030 |
| | Zirconium (Zr)-Total (mg/L) | | <0.00030 | <0.00060 ^{DLA} | <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) | | 0.0065 | 0.0024 | <0.0010 | 0.0071 | 0.0066 |
| | Antimony (Sb)-Dissolved (mg/L) | | <0.00010 | 0.0362 | <0.00010 | 0.00064 | <0.00010 |
| | Arsenic (As)-Dissolved (mg/L) | | 0.00022 | 0.101 | <0.00010 | 0.00090 | 0.00023 |
| | Barium (Ba)-Dissolved (mg/L) | | 0.0928 | 0.0309 | <0.000050 | 0.0825 | 0.0907 |
| | Beryllium (Be)-Dissolved (mg/L) | | <0.000020 | <0.000040 ^{DLA} | <0.000020 | <0.000020 | <0.000020 |
| | Bismuth (Bi)-Dissolved (mg/L) | | <0.000050 | <0.00010 ^{DLA} | <0.000050 | <0.000050 | <0.000050 |
| | Boron (B)-Dissolved (mg/L) | | <0.010 | 0.120 | <0.010 | <0.010 | <0.010 |
| | Cadmium (Cd)-Dissolved (mg/L) | | 0.0000311 | 0.00258 | <0.0000050 | 0.0000151 | 0.0000384 |
| | Calcium (Ca)-Dissolved (mg/L) | | 26.1 | 505 | <0.050 | 34.2 | 29.2 |
| | Chromium (Cr)-Dissolved (mg/L) | | <0.00010 | <0.00020 ^{DLA} | <0.00010 | <0.00010 | <0.00010 |
| | Cobalt (Co)-Dissolved (mg/L) | | <0.00010 | 0.00059 | <0.00010 | 0.00013 | <0.00010 |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

| | Sample ID Description Sampled Date Sampled Time Client ID | L1879171-11 WATER TRAVEL BLANK | L1879171-12 WATER 12-JAN-17 11:30 WQ-PW | | |
|-------------------------|---|--|---|--|--|
| Grouping | Analyte | | | | |
| WATER | | | | | |
| Total Metals | Copper (Cu)-Total (mg/L) | <0.00050 | <0.0010 | | |
| | Iron (Fe)-Total (mg/L) | <0.010 | <0.030 | | |
| | Lead (Pb)-Total (mg/L) | <0.000050 | 0.00059 | | |
| | Lithium (Li)-Total (mg/L) | <0.0010 | | | |
| | Magnesium (Mg)-Total (mg/L) | <0.10 | 19.4 | | |
| | Manganese (Mn)-Total (mg/L) | <0.00010 | <0.0020 | | |
| | Mercury (Hg)-Total (mg/L) | <0.0000050 | <0.00020 | | |
| | Molybdenum (Mo)-Total (mg/L) | <0.000050 | | | |
| | Nickel (Ni)-Total (mg/L) | <0.00050 | | | |
| | Phosphorus (P)-Total (mg/L) | <0.050 | | | |
| | Potassium (K)-Total (mg/L) | <0.10 | 0.93 | | |
| | Selenium (Se)-Total (mg/L) | <0.000050 | <0.0010 | | |
| | Silicon (Si)-Total (mg/L) | <0.050 | | | |
| | Silver (Ag)-Total (mg/L) | <0.000010 | | | |
| | Sodium (Na)-Total (mg/L) | <0.050 | 4.9 | | |
| | Strontium (Sr)-Total (mg/L) | <0.00020 | | | |
| | Sulfur (S)-Total (mg/L) | <0.50 | | | |
| | Thallium (Tl)-Total (mg/L) | <0.000010 | | | |
| | Tin (Sn)-Total (mg/L) | <0.00010 | | | |
| | Titanium (Ti)-Total (mg/L) | <0.00030 | | | |
| | Uranium (U)-Total (mg/L) | <0.000010 | 0.00152 | | |
| | Vanadium (V)-Total (mg/L) | <0.00050 | | | |
| | Zinc (Zn)-Total (mg/L) | <0.0030 | <0.050 | | |
| | Zirconium (Zr)-Total (mg/L) | <0.00030 | | | |
| Dissolved Metals | Dissolved Mercury Filtration Location | | | | |
| | Dissolved Metals Filtration Location | | | | |
| | Aluminum (Al)-Dissolved (mg/L) | | | | |
| | Antimony (Sb)-Dissolved (mg/L) | | | | |
| | Arsenic (As)-Dissolved (mg/L) | | | | |
| | Barium (Ba)-Dissolved (mg/L) | | | | |
| | Beryllium (Be)-Dissolved (mg/L) | | | | |
| | Bismuth (Bi)-Dissolved (mg/L) | | | | |
| | Boron (B)-Dissolved (mg/L) | | | | |
| | Cadmium (Cd)-Dissolved (mg/L) | | | | |
| | Calcium (Ca)-Dissolved (mg/L) | | | | |
| | Chromium (Cr)-Dissolved (mg/L) | | | | |
| | Cobalt (Co)-Dissolved (mg/L) | | | | |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | L1879171-1 WATER 10-JAN-17 14:00 WQ-VC-R+150-R | L1879171-2 WATER 10-JAN-17 14:05 WQ-VC-R+150 | L1879171-3 WATER 11-JAN-17 09:45 WQ-DC-DX+105 | L1879171-4 WATER 10-JAN-17 18:25 WQ-SEEP | L1879171-5 WATER 10-JAN-17 16:50 WQ-DC-U | |
|---|--|--|---|--|--|------------|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Copper (Cu)-Dissolved (mg/L) | 0.00121 | 0.00110 | <0.00020 | 0.00227 | 0.00113 |
| | Iron (Fe)-Dissolved (mg/L) | <0.010 | <0.010 | 0.079 | 14.6 | 7.27 |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | <0.000050 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | 0.0018 | 0.0017 | 0.0092 | 0.0020 | 0.0016 |
| | Magnesium (Mg)-Dissolved (mg/L) | 11.7 | 11.6 | 59.8 | 57.6 | 56.8 |
| | Manganese (Mn)-Dissolved (mg/L) | 0.00557 | 0.00655 | 1.13 | 5.30 | 4.79 |
| | Mercury (Hg)-Dissolved (mg/L) | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 | <0.0000050 |
| | Molybdenum (Mo)-Dissolved (mg/L) | 0.000376 | 0.000372 | 0.000392 | 0.00109 | 0.000906 |
| | Nickel (Ni)-Dissolved (mg/L) | <0.00050 | <0.00050 | 0.00138 | 0.00288 | 0.00251 |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | <0.050 | <0.050 | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | 0.82 | 0.88 | 3.34 | 5.74 | 5.09 |
| | Selenium (Se)-Dissolved (mg/L) | <0.000050 | <0.000050 | <0.000050 | 0.000304 | 0.000200 |
| | Silicon (Si)-Dissolved (mg/L) | 6.25 | 5.98 | 6.75 | 8.40 | 7.40 |
| | Silver (Ag)-Dissolved (mg/L) | <0.000010 | <0.000010 | <0.000010 | 0.000015 | 0.000012 |
| | Sodium (Na)-Dissolved (mg/L) | 3.49 | 3.59 | 5.55 | 35.4 | 29.4 |
| | Strontium (Sr)-Dissolved (mg/L) | 0.295 | 0.290 | 0.406 | 0.751 | 0.694 |
| | Sulfur (S)-Dissolved (mg/L) | 11.3 | 11.1 | 133 | 240 | 209 |
| | Thallium (Tl)-Dissolved (mg/L) | <0.000010 | <0.000010 | 0.000093 | <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 | 0.00095 | 0.00063 |
| | Uranium (U)-Dissolved (mg/L) | 0.000565 | 0.000501 | 0.00428 | 0.00210 | 0.00168 |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.00050 | <0.00050 | 0.00201 | 0.00120 |
| | Zinc (Zn)-Dissolved (mg/L) | 0.0010 | 0.0010 | 0.613 | 0.0445 | 0.0218 |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | <0.00030 | <0.00030 | 0.00075 | 0.00049 |

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

| Sample ID Description Sampled Date Sampled Time Client ID | L1879171-6 WATER 11-JAN-17 16:25 WQ-VC-U | L1879171-7 WATER 11-JAN-17 11:50 WQ-TP | L1879171-8 WATER 11-JAN-17 13:25 WQ-FIELD BLANK | L1879171-9 WATER 11-JAN-17 12:50 WQ-VC-UMN | L1879171-10 WATER 11-JAN-17 15:10 WQ-VC-DBC | |
|---|--|--|---|--|---|------------|
| Grouping | Analyte | | | | | |
| WATER | | | | | | |
| Dissolved Metals | Copper (Cu)-Dissolved (mg/L) | 0.00125 | 0.0347 | <0.00020 | 0.00115 | 0.00122 |
| | Iron (Fe)-Dissolved (mg/L) | <0.010 | 0.096 | <0.010 | 0.057 | <0.010 |
| | Lead (Pb)-Dissolved (mg/L) | <0.000050 | 0.00073 | <0.000050 | <0.000050 | <0.000050 |
| | Lithium (Li)-Dissolved (mg/L) | <0.0010 | 0.0173 | <0.0010 | 0.0011 | <0.0010 |
| | Magnesium (Mg)-Dissolved (mg/L) | 9.42 | 86.6 | <0.10 | 10.7 | 9.24 |
| | Manganese (Mn)-Dissolved (mg/L) | 0.150 | 1.18 | <0.00010 | 0.0693 | 0.170 |
| | Mercury (Hg)-Dissolved (mg/L) | <0.0000050 | 0.0000057 | <0.0000050 | <0.0000050 | <0.0000050 |
| | Molybdenum (Mo)-Dissolved (mg/L) | 0.000335 | 0.00181 | <0.000050 | 0.000307 | 0.000304 |
| | Nickel (Ni)-Dissolved (mg/L) | <0.00050 | 0.0013 ^{DLA} | <0.00050 | <0.00050 | <0.00050 |
| | Phosphorus (P)-Dissolved (mg/L) | <0.050 | <0.10 | <0.050 | <0.050 | <0.050 |
| | Potassium (K)-Dissolved (mg/L) | 0.67 | 29.9 ^{DLA} | <0.10 | 0.87 | 0.74 |
| | Selenium (Se)-Dissolved (mg/L) | <0.000050 | <0.00010 ^{DLA} | <0.000050 | 0.000061 | <0.000050 |
| | Silicon (Si)-Dissolved (mg/L) | 6.31 | 6.80 | <0.050 | 6.35 | 6.22 |
| | Silver (Ag)-Dissolved (mg/L) | <0.000010 | 0.000048 | <0.000010 | <0.000010 | <0.000010 |
| | Sodium (Na)-Dissolved (mg/L) | 2.82 | 30.4 | <0.050 | 3.47 | 2.86 |
| | Strontium (Sr)-Dissolved (mg/L) | 0.296 | 1.24 | <0.00020 | 0.299 | 0.288 |
| | Sulfur (S)-Dissolved (mg/L) | 6.29 | 480 | <0.50 | 11.7 | 6.61 |
| | Thallium (Tl)-Dissolved (mg/L) | <0.000010 | 0.000183 ^{DLA} | <0.000010 | <0.000010 | <0.000010 |
| | Tin (Sn)-Dissolved (mg/L) | <0.00010 | <0.00020 ^{DLA} | <0.00010 | <0.00010 | <0.00010 |
| | Titanium (Ti)-Dissolved (mg/L) | <0.00030 | <0.00060 ^{DLA} | <0.00030 | <0.00030 | <0.00030 |
| | Uranium (U)-Dissolved (mg/L) | 0.000510 | 0.00207 ^{DLA} | <0.000010 | 0.000413 | 0.000436 |
| | Vanadium (V)-Dissolved (mg/L) | <0.00050 | <0.0010 ^{DLA} | <0.00050 | <0.00050 | <0.00050 |
| | Zinc (Zn)-Dissolved (mg/L) | <0.0010 | 0.307 ^{DLA} | <0.0010 | 0.0011 | <0.0010 |
| | Zirconium (Zr)-Dissolved (mg/L) | <0.00030 | <0.00060 ^{DLA} | <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 Description Sampled Date Sampled Time Client ID | L1879171-11 WATER TRAVEL BLANK | L1879171-12 WATER 12-JAN-17 11:30 WQ-PW | | |
|-------------------------|---|--|---|--|--|
| Grouping | Analyte | | | | |
| WATER | | | | | |
| Dissolved Metals | Copper (Cu)-Dissolved (mg/L) Iron (Fe)-Dissolved (mg/L) Lead (Pb)-Dissolved (mg/L) Lithium (Li)-Dissolved (mg/L) Magnesium (Mg)-Dissolved (mg/L) Manganese (Mn)-Dissolved (mg/L) Mercury (Hg)-Dissolved (mg/L) Molybdenum (Mo)-Dissolved (mg/L) Nickel (Ni)-Dissolved (mg/L) Phosphorus (P)-Dissolved (mg/L) Potassium (K)-Dissolved (mg/L) Selenium (Se)-Dissolved (mg/L) Silicon (Si)-Dissolved (mg/L) Silver (Ag)-Dissolved (mg/L) Sodium (Na)-Dissolved (mg/L) Strontium (Sr)-Dissolved (mg/L) Sulfur (S)-Dissolved (mg/L) Thallium (Tl)-Dissolved (mg/L) Tin (Sn)-Dissolved (mg/L) Titanium (Ti)-Dissolved (mg/L) Uranium (U)-Dissolved (mg/L) Vanadium (V)-Dissolved (mg/L) Zinc (Zn)-Dissolved (mg/L) Zirconium (Zr)-Dissolved (mg/L) | | | | |

* 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) |
|---------------------|--------------------------|-----------|---|
| Matrix Spike | Barium (Ba)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Boron (B)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Calcium (Ca)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Calcium (Ca)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Iron (Fe)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Magnesium (Mg)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Magnesium (Mg)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Manganese (Mn)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Silicon (Si)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Dissolved | MS-B | L1879171-1, -10, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Barium (Ba)-Total | MS-B | L1879171-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Calcium (Ca)-Total | MS-B | L1879171-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Magnesium (Mg)-Total | MS-B | L1879171-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Sodium (Na)-Total | MS-B | L1879171-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Strontium (Sr)-Total | MS-B | L1879171-1, -10, -11, -12, -2, -3, -4, -5, -6, -7, -8, -9 |
| Matrix Spike | Ammonia, Total (as N) | MS-B | L1879171-1, -10, -11, -2, -3, -4, -5, -6, -7, -8, -9 |

Qualifiers for Individual Parameters Listed:

| Qualifier | Description |
|-----------|--|
| DLA | Detection Limit adjusted for required dilution |
| DLDS | Detection Limit Raised: Dilution required due to high Dissolved Solids / Electrical Conductivity. |
| DLIS | Detection Limit Adjusted: Insufficient Sample |
| HTC | Hardness was calculated from Total Ca and/or Mg concentrations and may be biased high (dissolved Ca/Mg results unavailable). |
| 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. | | | |
| BR-L-IC-N-VA | Water | Bromide in Water by IC (Low Level) | EPA 300.1 (mod) |
| Inorganic anions are analyzed by Ion Chromatography with conductivity and/or UV detection. | | | |
| CL-IC-N-VA | 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.

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.

EC-SCREEN-VA Water Conductivity Screen (Internal Use Only) APHA 2510

Qualitative analysis of conductivity where required during preparation of other tests - e.g. TDS, metals, etc.

F-IC-N-VA 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.

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-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.

Reference Information

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

| | | | |
|--|-------|---------------------------------------|---|
| 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-VA | 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-VA | 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. | | | |
| SO4-IC-N-VA | 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". The Total Dissolved Solids result is calculated from measured concentrations of anions and cations in the sample. | | | |
| TDS-VA | Water | Total Dissolved Solids by Gravimetric | APHA 2540 C - GRAVIMETRIC |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Dissolved Solids (TDS) are determined by filtering a sample through a glass fibre filter, TDS is determined by evaporating the filtrate to dryness at 180 degrees celsius. | | | |
| TSS-VA | Water | Total Suspended Solids by Gravimetric | APHA 2540 D - GRAVIMETRIC |
| This analysis is carried out using procedures adapted from APHA Method 2540 "Solids". Solids are determined gravimetrically. Total Suspended Solids (TSS) are determined by filtering a sample through a glass fibre filter, TSS is determined by drying the filter at 104 degrees celsius. Samples containing very high dissolved solid content (i.e. seawaters, brackish waters) may produce a positive bias by this method. Alternate analysis methods are available for these types of samples. | | | |
| 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 |
|----------------------------|---|
| WT | ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA |
| VA | ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA |

Chain of Custody Numbers:

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.



| Report To Company: EDI Contact: Lyndsay Doetzel Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8 Phone: 867-393-4882 | Report Format / Distribution Select Report Format: <input checked="checked" type="checkbox"/> PDF <input checked="checked" type="checkbox"/> XCEL <input type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="checked" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: ldoetzel@edynamics.com Email 2: Emilie.Hamm@gov.yk.ca Email 3: erik.pit@gov.yk.ca | Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="checked" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge Specify Date Required for E2, E or P: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Invoice To Same as Report To <input checked="checked" type="checkbox"/> Yes <input checked="checked" type="checkbox"/> No Copy of Invoice with Report <input checked="checked" type="checkbox"/> Yes <input type="checkbox"/> No Company: EDI Contact: S Jenner Project Information ALS Quote #: Q55559 Job #: MOUNT NANSEN 16-Y-0089 PO / AFE: LSD: | Invoice Distribution Select Invoice Distribution: <input checked="checked" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: sjenner@edynamics.com Email 2: ldoetzel@edynamics.com Oil and Gas Required Fields (client use) Approver ID: Cost Center: GL Account: Routing Code: Activity Code: Location: ALS Contact: B. Makelki Sampler: | Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below <table border="1"> <tr> <th></th> <th>P</th> <th>P</th> <th>P</th> <th>P</th> <th>P</th> <th>F/P</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> </tr> <tr> <td>ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>ANIONS-ALL-IG-WR, TSS-MAN-WR</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CN-WAD-CFA-VA, CN-T-CFA-VA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CN-CNO-WT</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>CN-SON-VA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>NIH3-F-VA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MET-T-BCMDG-VA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>MET-D-BCMDG-VA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>IONBALANC-VA, TDS-CAL-C-VA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table> | | P | P | P | P | P | F/P | | | | | | | | | | | | | ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA | | | | | | | | | | | | | | | | | | | ANIONS-ALL-IG-WR, TSS-MAN-WR | | | | | | | | | | | | | | | | | | | CN-WAD-CFA-VA, CN-T-CFA-VA | | | | | | | | | | | | | | | | | | | CN-CNO-WT | | | | | | | | | | | | | | | | | | | CN-SON-VA | | | | | | | | | | | | | | | | | | | NIH3-F-VA | | | | | | | | | | | | | | | | | | | MET-T-BCMDG-VA | | | | | | | | | | | | | | | | | | | MET-D-BCMDG-VA | | | | | | | | | | | | | | | | | | | IONBALANC-VA, TDS-CAL-C-VA | | | | | | | | | | | | | | | | | | |
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| IONBALANC-VA, TDS-CAL-C-VA | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Lab Work Order # (lab use only) | | <table border="1"> <thead> <tr> <th>ALS Sample # (lab use only)</th> <th>Sample Identification and/or Coordinates (This description will appear on the report)</th> <th>Date (dd-mmm-yy)</th> <th>Time (hh:mm)</th> <th>Sample Type</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>Number of Containers</th> </tr> </thead> <tbody> <tr> <td></td> <td>WQ-VC-R+150-r</td> <td>10 -JAN-17</td> <td>14:00</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>9</td> </tr> <tr> <td></td> <td>WQ-VC-R+150</td> <td>10 -JAN-17</td> <td>14:05</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>9</td> </tr> <tr> <td></td> <td>WQ-DC-DX+105</td> <td>11 -JAN-17</td> <td>09:45</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>9</td> </tr> <tr> <td></td> <td>WQ-SEEP</td> <td>10 -JAN-17</td> <td>18:25</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>9</td> </tr> <tr> <td></td> <td>WQ-DC-V</td> <td>10 -JAN-17</td> <td>16:50</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>9</td> </tr> <tr> <td></td> <td></td> <td>-JAN-17</td> <td>/</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>9</td> </tr> <tr> <td></td> <td></td> <td>-JAN-17</td> <td>/</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>9</td> </tr> <tr> <td></td> <td></td> <td>-JAN-17</td> <td>/</td> <td>Water</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>9</td> </tr> </tbody> </table> | ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | | | | | | | | | | | | | | | Number of Containers | | WQ-VC-R+150-r | 10 -JAN-17 | 14:00 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | WQ-VC-R+150 | 10 -JAN-17 | 14:05 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | WQ-DC-DX+105 | 11 -JAN-17 | 09:45 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | WQ-SEEP | 10 -JAN-17 | 18:25 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | WQ-DC-V | 10 -JAN-17 | 16:50 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | -JAN-17 | / | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | -JAN-17 | / | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | -JAN-17 | / | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | |
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| | WQ-VC-R+150-r | | 10 -JAN-17 | 14:00 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | WQ-VC-R+150 | | 10 -JAN-17 | 14:05 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | WQ-DC-DX+105 | | 11 -JAN-17 | 09:45 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | WQ-SEEP | | 10 -JAN-17 | 18:25 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | WQ-DC-V | | 10 -JAN-17 | 16:50 | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | -JAN-17 | / | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | -JAN-17 | / | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | -JAN-17 | / | Water | R | R | R | R | R | R | R | R | R | R | R | R | R | R | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drinking Water (DW) Samples (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No | | Special Instructions / Specify Criteria to add on report (client Use) | SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input type="checkbox"/> INITIAL COOLER TEMPERATURES °C: 2.02, 2.54, 11.34, 5.22 FINAL COOLER TEMPERATURES °C: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHIPMENT RELEASE (client use) Released by: Joel MacEbr Date: 2017 12 JAN Time: 15:51 | INITIAL SHIPMENT RECEPTION (lab use only) Received by: EHF Date: 2017 12 JAN Time: 17:53 | FINAL SHIPMENT RECEPTION (lab use only) Received by: J.C Date: 2017 12 JAN Time: 12:10 pm | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

**Short Holding Time
Rush Processing**

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.
1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

Whitehorse Receive

Chain of Custody (COC) / Analytical Request Form



L1879171-COFC

COC Number:

Page 2 of 3

at

Canada Toll Free: 1 800 668 9878

| Report To Company: EDI Contact: Lyndsay Doetzel Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8 Phone: 867-393-4882 | | Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> XCEL <input type="checkbox"/> EDD (DIGITAL) Quality Control (QC) Report with Report: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: ldoetzel@edynamics.com Email 2: Emille.Hamm@gov.yk.ca Email 3: erik.pitt@gov.yk.ca | | Select Service Level Below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge Specify Date Required for E2,E or P: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| Invoice To Same as Report To: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Company: EDI Contact: S Jenner | | Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: sjenner@edynamics.com Email 2: ldoetzel@edynamics.com | | Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below <table border="1"> <thead> <tr> <th colspan="2"></th> <th>P</th> <th>P</th> <th>P</th> <th>P</th> <th>P</th> <th>F/P</th> <th colspan="3"></th> <th rowspan="9">Number of Containers</th> </tr> </thead> <tbody> <tr> <td colspan="2"></td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">ANIONS-ALL-IC-WR, TSS-MAN-WR</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">CN-WAD-CFA-VA, CN-T-CFA-VA</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">CN-CND-WT</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">CN-SON-VA</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">NH3-F-VA</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">MET-T-BCMDG-VA</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">MET-B-BCMDG-VA</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> <tr> <td colspan="2">IONBALANC-VA, TDS-CALC-VA</td> <td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td><td></td><td></td> </tr> </tbody> </table> | | | | P | P | P | P | P | F/P | | | | Number of Containers | | | R | R | R | R | R | R | | | | | ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA | | R | R | R | R | R | R | | | | | ANIONS-ALL-IC-WR, TSS-MAN-WR | | R | R | R | R | R | R | | | | | CN-WAD-CFA-VA, CN-T-CFA-VA | | R | R | R | R | R | R | | | | | CN-CND-WT | | R | R | R | R | R | R | | | | | CN-SON-VA | | R | R | R | R | R | R | | | | | NH3-F-VA | | R | R | R | R | R | R | | | | | MET-T-BCMDG-VA | | R | R | R | R | R | R | | | | | MET-B-BCMDG-VA | | R | R | R | R | R | R | | | | | IONBALANC-VA, TDS-CALC-VA | | R | R | R | R | R | R | | | | |
| | | P | P | P | P | P | F/P | | | | Number of Containers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| ALK-PCT-VA, EC-PCT-VA, PH-PCT-VA | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ANIONS-ALL-IC-WR, TSS-MAN-WR | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CN-WAD-CFA-VA, CN-T-CFA-VA | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CN-CND-WT | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| CN-SON-VA | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| NH3-F-VA | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MET-T-BCMDG-VA | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| MET-B-BCMDG-VA | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| IONBALANC-VA, TDS-CALC-VA | | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Information ALS Quote #: Q55559 Job #: MOUNT NANSEN 16-Y-0089 PO / AFE: LSD: | | Oil and Gas Required Fields (client use) Approver ID: GL Account: Activity Code: Location: | | ALS Contact: B. Makeki Sampler: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ALS Lab Work Order # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | | | | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | <table border="1"> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td></td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>9</td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>9</td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>9</td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>9</td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>9</td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>9</td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>9</td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>9</td></tr> <tr><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td>R</td><td></td><td>7</td></tr> </table> | | | | R | R | R | R | R | R | R | R | R | R | | | R | R | R | R | R | R | R | R | R | R | | 9 | R | R | R | R | R | R | R | R | R | R | | 9 | R | R | R | R | R | R | R | R | R | R | | 9 | R | R | R | R | R | R | R | R | R | R | | 9 | R | R | R | R | R | R | R | R | R | R | | 9 | R | R | R | R | R | R | R | R | R | R | | 9 | R | R | R | R | R | R | R | R | R | R | | 9 | R | R | R | R | R | R | R | R | R | R | | 9 | R | R | R | R | R | R | R | R | R | R | | 7 | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| R | R | R | R | R | R | R | R | R | R | | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drinking Water (DW) Samples ¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No Are samples for human drinking water use? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | No Dissolved Parameters for Travel Blank | | | / Specify Criteria to add on report (client use) | | | | SAMPLE CONDITION AS RECEIVED (lab use only) Frozen: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No SIF Observations: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Ice packs: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody seal intact: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Cooling initiated: <input checked="" type="checkbox"/> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| SHIPMENT RELEASE (client use) Released by: Joel Mackaber Date: 12 Jan 2017 Time: 15:51 | | | INITIAL SHIPMENT RECEPTION (lab use only) Received by: [Signature] Date: 12 JAN 2017 Time: 15:53 | | | FINAL SHIPMENT RECEPTION (lab use only) Received by: [Signature] Date: 12 JAN 2017 Time: 12:10 pm | | | | INITIAL COOLER TEMPERATURES °C: 2.0 FINAL COOLER TEMPERATURES °C: 2.2 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Short Holding Time
Rush Processing

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY | YELLOW - CLIENT COPY

NA-FM 0326 (v17) 1/26/04 January 2014

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.
1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.



L1879171-COFC

COC Number:

Page 3 of 3

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Canada Toll Free: 1 800 668 9878

| | | | | | | | | | | | |
|--|---|---|------------------|--------------|---|-----|--|--|--|--|--|
| Report To Company: EDI Contact: Lyndsay Doetzel Address: 2195 - 2nd Avenue Whitehorse, YT Y1A 3T8 Phone: 867-393-4882 | | Report Format / Distribution Select Report Format: <input checked="" type="checkbox"/> PDF <input checked="" type="checkbox"/> EXCEL <input type="checkbox"/> DOC (DIGITAL) Quality Control (QC) Report with Report <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Criteria on Report - provide details below if box checked Select Distribution: <input type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input checked="" type="checkbox"/> FAX Email 1 or Fax: ldoetzel@edynamics.com Email 2: Emilie.Hamm@gov.yk.ca Email 3: erik.plt@gov.yk.ca | | | Select Service Level below (Rush Turnaround Time (TAT) is not available for all tests) R <input checked="" type="checkbox"/> Regular (Standard TAT if received by 3 pm - business days) P <input type="checkbox"/> Priority (2-4 bus. days if received by 3pm) 50% surcharge - contact ALS to confirm TAT E <input type="checkbox"/> Emergency (1-2 bus. days if received by 3pm) 100% surcharge - contact ALS to confirm TAT E2 <input type="checkbox"/> Same day or weekend emergency - contact ALS to confirm TAT and surcharge Specify Date Required for E2, E or P: | | | | | | |
| Invoice To Same as Report To <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Copy of Invoice with Report <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Company: EDI Contact: S Jenner | | Invoice Distribution Select Invoice Distribution: <input checked="" type="checkbox"/> EMAIL <input type="checkbox"/> MAIL <input type="checkbox"/> FAX Email 1 or Fax: sjenner@edynamics.com Email 2: ldoetzel@edynamics.com | | | Analysis Request Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below | | | | | | |
| Project Information ALS Quote #: Q55556 Job #: MOUNT NANSEN 16-Y-0089 PO / AFE: LSD: | | Oil and Gas Required Fields (client use) Approver ID: _____ Cost Center: _____ GL Account: _____ Routing Code: _____ Activity Code: _____ Location: _____ | | | FULL-TOT-DW-WR Number of Containers | | | | | | |
| ALS Lab Work Order # (lab use only) | | ALS Contact: B. Makelki | Sampler: | | | | | | | | |
| ALS Sample # (lab use only) | Sample Identification and/or Coordinates (This description will appear on the report) | | Date (dd-mmm-yy) | Time (hh:mm) | Sample Type | | | | | | |
| | WQ-PW | | 12 - Jan-17 | 11:30 | Water | R 3 | | | | | |
| Drinking Water (DW) Samples¹ (client use) Are samples taken from a Regulated DW System? <input type="checkbox"/> Yes <input type="checkbox"/> No Are samples for human drinking water use? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | | Special Instructions / Specify Criteria to add on report (client Use) | | | SAMPLE CONDITION AS RECEIVED (lab use only) Frozen <input type="checkbox"/> SIF Observations Yes <input type="checkbox"/> No <input type="checkbox"/> Ice packs Yes <input type="checkbox"/> No <input type="checkbox"/> Custody seal intact Yes <input type="checkbox"/> No <input type="checkbox"/> Cooling Initiated <input checked="" type="checkbox"/> INITIAL COOLER TEMPERATURES °C: _____ FINAL COOLER TEMPERATURES °C: _____ _____ 27.5/6 _____ 13.7 _____ 15.2/2 | | | | | | |
| SHIPMENT RELEASE (client use) Released by: Joel Mackie Date: 12 Jan 2017 Time: 15:51 | | INITIAL SHIPMENT RECEPTION (lab use only) Received by: _____ Date: 12 Jan 2017 Time: 15:53 | | | FINAL SHIPMENT RECEPTION (lab use only) Received by: JIC Date: 12 Jan 2017 Time: 12:10 pm | | | | | | |

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

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



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

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 Lynelisy Dostel Phone 867 393 4852
Personne ressource Lynelisy Dostel Téléphone 867 393 4852
Mailing address 2195 Second Ave Fax 867 393 4883
Adresse postale Whitehorse YT Télécopieur 867 393 4883
Postal code Y1A 3T8
Code postal Y1A 3T8

First Nation, Municipal or Business Name ENVIRONMENTAL DYNAMICS INC (EDI)
Nom de la Première nation, de la municipalité ou de l'entreprise ENVIRONMENTAL DYNAMICS INC (EDI)
Agent Jool MacFabe Fax
Agent Jool MacFabe Télécopieur

Sampling Location • Lieu de la prise d'échantillon

Municipal Address MT NAVSEN Subdivision PUMP HOUSE WELL
Adresse municipale MT NAVSEN Lotissement PUMP HOUSE WELL
Legal Description Lot Quad Plan no.
Designation officielle Lot WG - PW Plan n°
Other Information (e.g., Location, Business / Building Name)
Autres renseignements (ex. : emplacement, nom de l'entreprise, nom de l'édifice) WG - PW

Sample Collection / Prélèvement de l'échantillon

Sample Collected By JM/HG/DS Date 17-01-12 Time 11:30 am
Echantillon prélevé par JM/HG/DS Date 17-01-12 Heure 11:30 am
YY/MM/DD • AA/MM/JJ

Sampling Site (e.g., kitchen tap) WG - PW
Point d'échantillonnage (ex. : robinet de cuisine) WG - PW
Is this a Resample from a Previous Test? Yes No Previous Sample Number
Est-ce un deuxième échantillon d'un test antérieur? Oui Non Numéro de l'échantillon précédent

Sample Supply / Source d'approvisionnement en eau

Public Supply Bulk Water Distributor Business Private Residence
Municipal - par canalisation Municipal - par camion Privé - entreprise Privé - résidence

Sample Source / Provenance de l'échantillon

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

Water Treatment / Traitement de l'eau

Is the Water Chlorinated? Yes No Free Available Chlorine ppm
L'eau contient-elle du chlore? Oui Non Chlore libre disponible 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 Date 2017/01/12 Time 4:00 am By SK
Réception de l'échantillon Date 2017/01/12 Heure 4:00 pm Par SK
YY/MM/DD • AA/MM/JJ

Condition of Sample Satisfactory Unsatisfactory Details 3.0
État de l'échantillon Satisfaisant Non satisfaisant Précisez 3.0

Incubation Date 17/01/12 Time 4:00 am By SK Incubator 4
Incubation Date 17/01/12 Heure 4:00 pm Par SK Incubateur 4
YY/MM/DD • AA/MM/JJ

Analysis Completed Date 17 01 13 Time 4:30 am By HF
Analyse terminée Date 17 01 13 Heure 4:30 pm Par HF
YY/MM/DD • AA/MM/JJ

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

Total Coliforms/Coliformes totaux

Present / Présence Absent / Absence

E. coli/E. coli

Present / Présence Absent / Absence

Comments / Commentaires

Report Authorized By [Signature] Position EHO Date 17-01-13
Rapport autorisé par [Signature] Poste EHO Date 17-01-13
YY/MM/DD • AA/MM/JJ

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