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REPORT ON

Baker Creek Reach 7 Overflow Monitoring Program -Final Report

Submitted to:

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REPORT

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Executive Summary

In May 2011, icing in upper Baker Creek caused changes to the regular flow path of the creek near Giant Mine (the Mine). The normal flow path of Baker Creek is from little Martin Lake to Baker Pond through a series of wetlands and a waterfall upstream of the pond. Over the past winter, ice built up over a distance of approximately one kilometre upstream of Baker Pond, causing early spring flows from Martin Lake to flow northeast around the ice jam instead of the usual flow path through the ice (referred to as "the overflow event" below). The diverted flow eroded an old mine road and entered historic Jo Jo Lake, where sediments have been impacted by mine tailings during the early years of mining (SRK 2009). The flow of water through historic Jo Jo Lake resulted in re-suspension and transport of tailings impacted sediments through lower Baker Creek to Yellowknife Bay. Sediment quality in the area affected by tailings has most notably been characterized by elevated concentrations of metals and metalloids (*e.g., arsenic, cadmium, aluminum, chromium*) (Jacques-Whitford-Axys 2006).

The event timeline for the sediment release and subsequent monitoring was as follows:

- May 14, 2011 Spring flows from Martin Lake deviate from regular flow path and enter historic Jo Jo Lake; regulatory consultation initiated.
- May 16, 2011 Acute toxicity and water quality sampling of creek initiated.
- May 17, 2011 Continued sampling and mobilization of response team.
- May 18, 2011 Project engineers divert overflow back to the original channel; coarse fill laid in the tailings area of Reach 6 prevent flows from circulating upstream.
- May 18 onwards Continued sampling in Baker Creek and Yellowknife Bay and subsequent data analysis.

The main objective of the Baker Creek overflow monitoring program was to characterize water and sediment quality at various locations in Baker Creek and Yellowknife Bay on several occasions during and after the overflow event. To address this objective, water quality data collected between May 16 and June 17, 2011 were evaluated by comparing concentrations of individual parameters with water quality guidelines for the protection of aquatic life and human health (*i.e.,* drinking water) (CCME 1999, with updates to 2011; Health Canada 2010). Concentrations were also compared to the limits outlined in the Metal Mining Effluent Regulations (MMER) (Government of Canada 2002, 2006).

The key findings from the Baker Creek Reach 7 overflow monitoring program include the following:

- In-stream concentrations of TSS and other parameters associated with Mine tailings (*i.e.*, sulphate and metals) indicate that during the overflow event, sediment and tailings in historic Jo Jo Lake were re-suspended and discharged through lower Baker Creek into Yellowknife Bay.
- Toxicity testing conducted during the overflow event indicated that stream water downstream of the tailings impacted area was not acutely toxic.



- TSS concentrations were high during the overflow event, but declined to levels within the typical background range in approximately 10 days. A slight increase in TSS concentration followed, but values subsequently declined and were near or within the background range and below the CCME aquatic life guideline by June 3.
- Levels of cyanide and ammonia, which were historically high at Giant Mine, were within the typical background range for Baker Creek after mitigation.
- Sulphate concentrations in the lower reaches of Baker Creek were higher than typically observed in Baker Creek during spring.
- Concentrations of total metals and metalloids in Baker Creek were elevated during the overflow event, and there was a strong relationship between TSS and total metal concentrations. At high concentrations, such as those observed immediately after the overflow event, only a small proportion of the total metal concentration was in the dissolved form. After mitigation, both total metal concentrations and the percentage of metals in the dissolved form approached values typically measured in Baker Creek.
- A combination of the overflow event and wind-induced mixing likely resulted in elevated TSS and total metals concentrations in Yellowknife Bay, near the mouth of Baker Creek on May 31. Elevated concentrations in the Back Bay public dock area on the same day were likely due to wind-induced mixing and turbulence. By June 8, TSS levels were low, and although concentrations of several metals were above aquatic life guidelines (*i.e.*, aluminum, antimony, arsenic and copper), concentrations were within the typical background ranges.

Water quality monitoring was discontinued on June 17 in Baker Creek, and on June 8 in Yellowknife Bay, because concentrations of TSS and metals had returned to background levels. A shoreline sediment investigation to identify areas of visual sediment deposition will occur in July (weather permitting), followed by a detailed sediment survey in September. Sediment quality data will be reported in a subsequent report, to be issued once monitoring has been completed and a final set of sampling results have been received and analyzed. Fish monitoring in Baker Creek was initiated on June 1, in consultation with Fisheries and Oceans Canada. Findings from that study will also be reported in a separate report at a later date.



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1.0 INTRODUCTION

1.1 Background

In May 2011, icing in upper Baker Creek caused changes to the normal flow path of the creek near Giant Mine (the Mine). The normal flow path of Baker Creek is from upper Baker Creek into Baker Pond, through the lower portion of Baker Creek and then into Yellowknife Bay (Figures 1 and 2). The mouth of Baker Creek is located approximately three kilometres north of the City of Yellowknife.

Upper Baker Creek typically flows from little Martin Lake to Baker Pond through a series of wetlands and a waterfall upstream of the pond (Figure 2). However, over the winter of 2010/2011, ice built up over a distance of approximately one kilometre upstream of Baker Pond, causing early spring runoff waters flows from Martin Lake to flow northeast around the ice jam instead of the usual flow path through the ice (Figure 3). This change in flow path will herein be referred to as "the overflow event". The diverted flow eroded an old mine road and entered historic Jo Jo Lake, where sediments have been impacted by mine tailings during the early years of mining (SRK 2009). The flow of water through historic Jo Jo Lake resulted in re-suspension and transport of tailings impacted sediments through lower Baker Creek to Yellowknife Bay. Sediment quality in historic Jo Jo Lake has been characterized by elevated concentrations of metals and metalloids (*e.g.*, arsenic, cadmium, aluminum and chromium) (Jacques-Whitford-Axys 2006).

Golder Associates Ltd. (Golder) was retained by Public Works Government Services of Canada (PWGSC) through AECOM Engineering to complete a water quality monitoring program in Baker Creek and Yellowknife Bay during and after the overflow event and summarize the resulting data. The scope of the monitoring program included collecting data to characterize in-stream water quality, and using this information in conjunction with supplemental data collected by Indian and Northern Affairs Canada (INAC) and available historical data, to determine if the sediment release negatively affected water quality in Baker Creek. The study area included Baker Creek from immediately upstream of the overflow location to its mouth (Figure 2), Yellowknife Bay near the mouth of Baker Creek and the Back Bay public dock area (Figure 4).

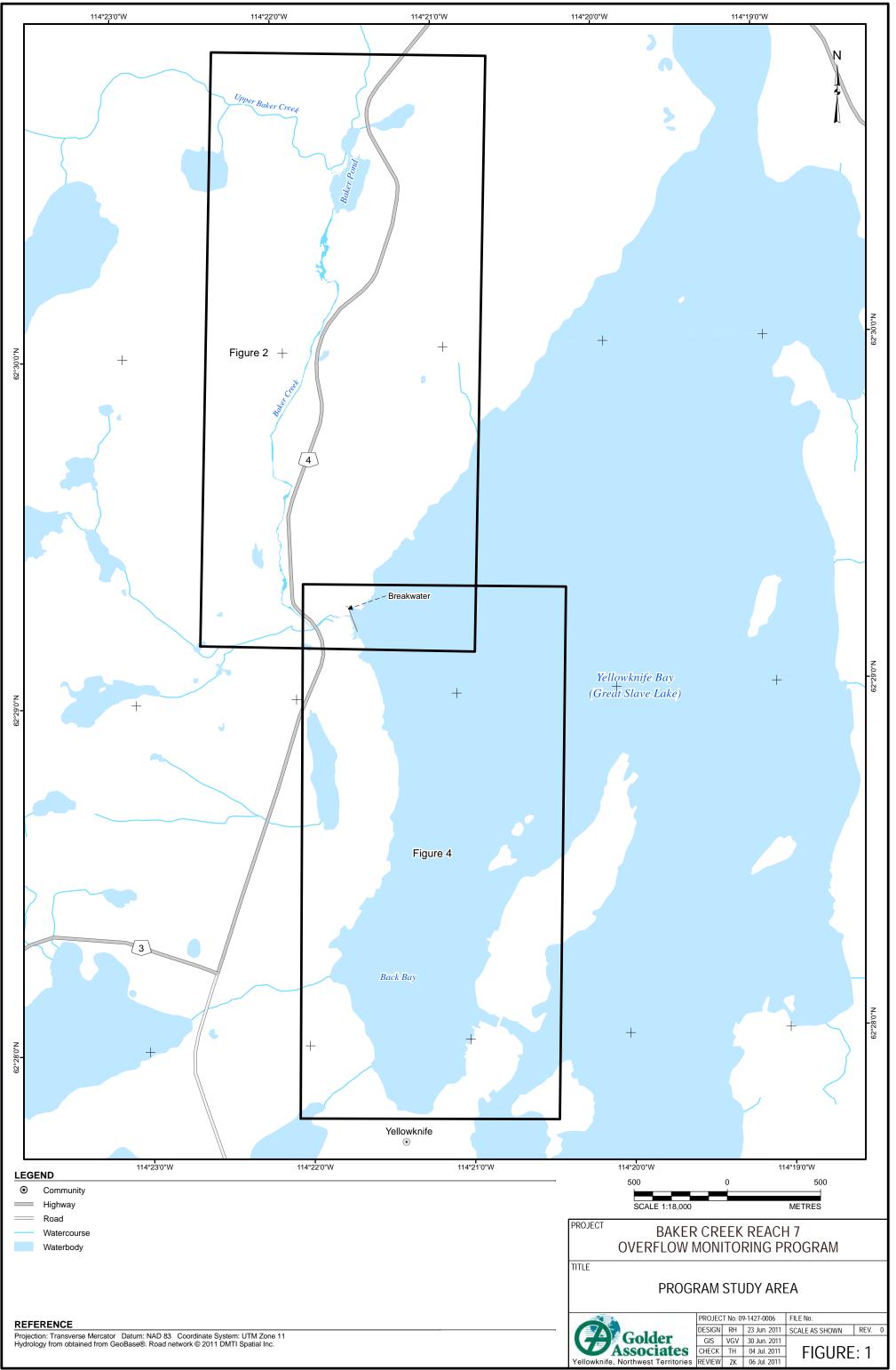
1.2 Event Timeline

The event timeline for the sediment release and subsequent monitoring was as follows:

- May 14, 2011 Spring flows from Martin Lake deviate from the normal flow path and enter historic Jo Jo Lake; regulatory consultation initiated.
- May 16, 2011 Acute toxicity and water quality sampling of creek initiated.
- May 17, 2011 Continued sampling and mobilization of response team.
- May 18, 2011 Project engineers divert overflow back to the original channel; coarse fill laid in the tailings area of Reach 6 prevent flows from circulating upstream.
- May 18 onwards Continued sampling in Baker Creek and Yellowknife Bay and subsequent data analysis.



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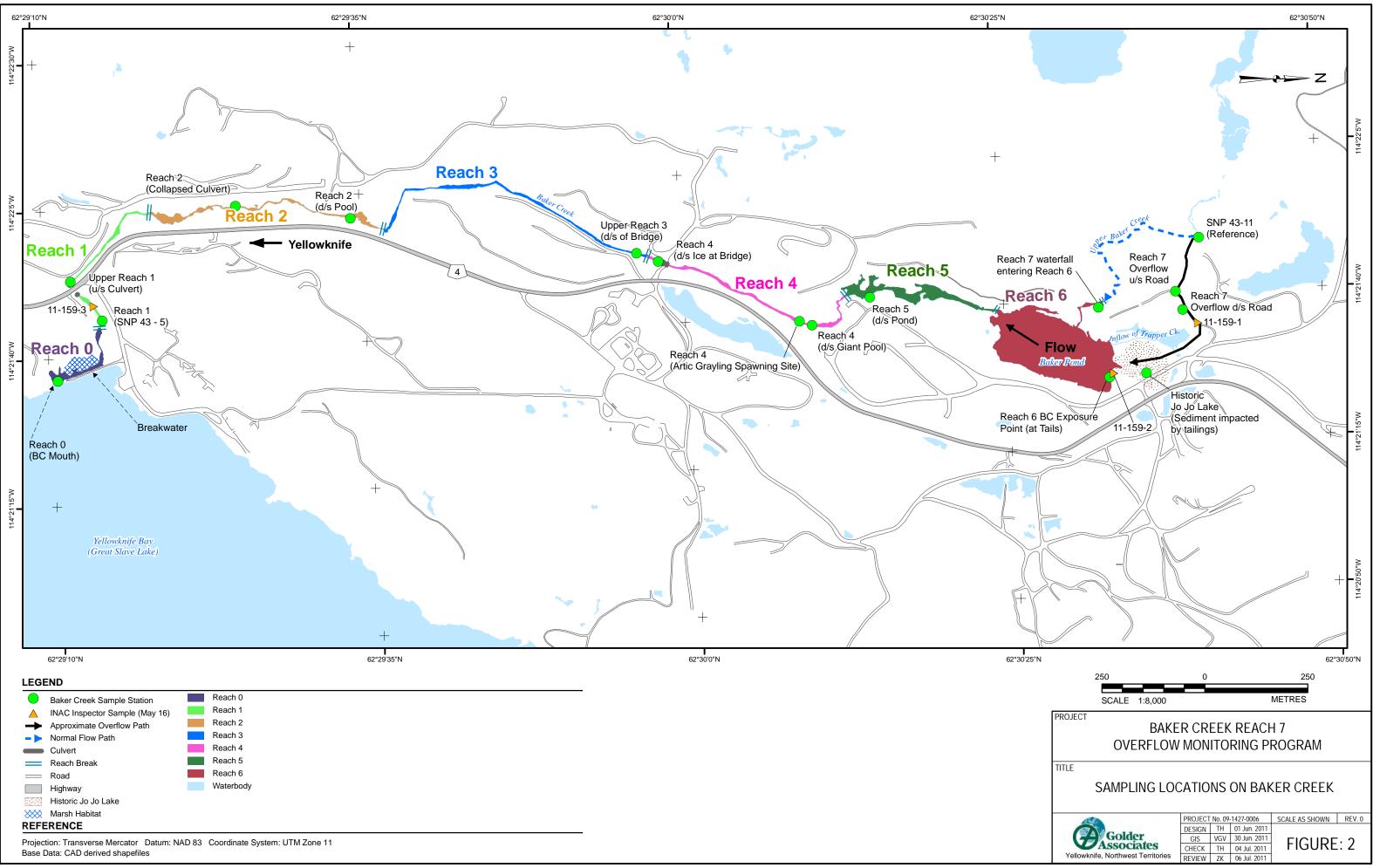




Photo taken by Golder Associates Ltd., courtesy INAC Cumulative Impact Monitoring Program

BAKER CREEK REACH 7 OVERFLOW MONITORING PROGRAM

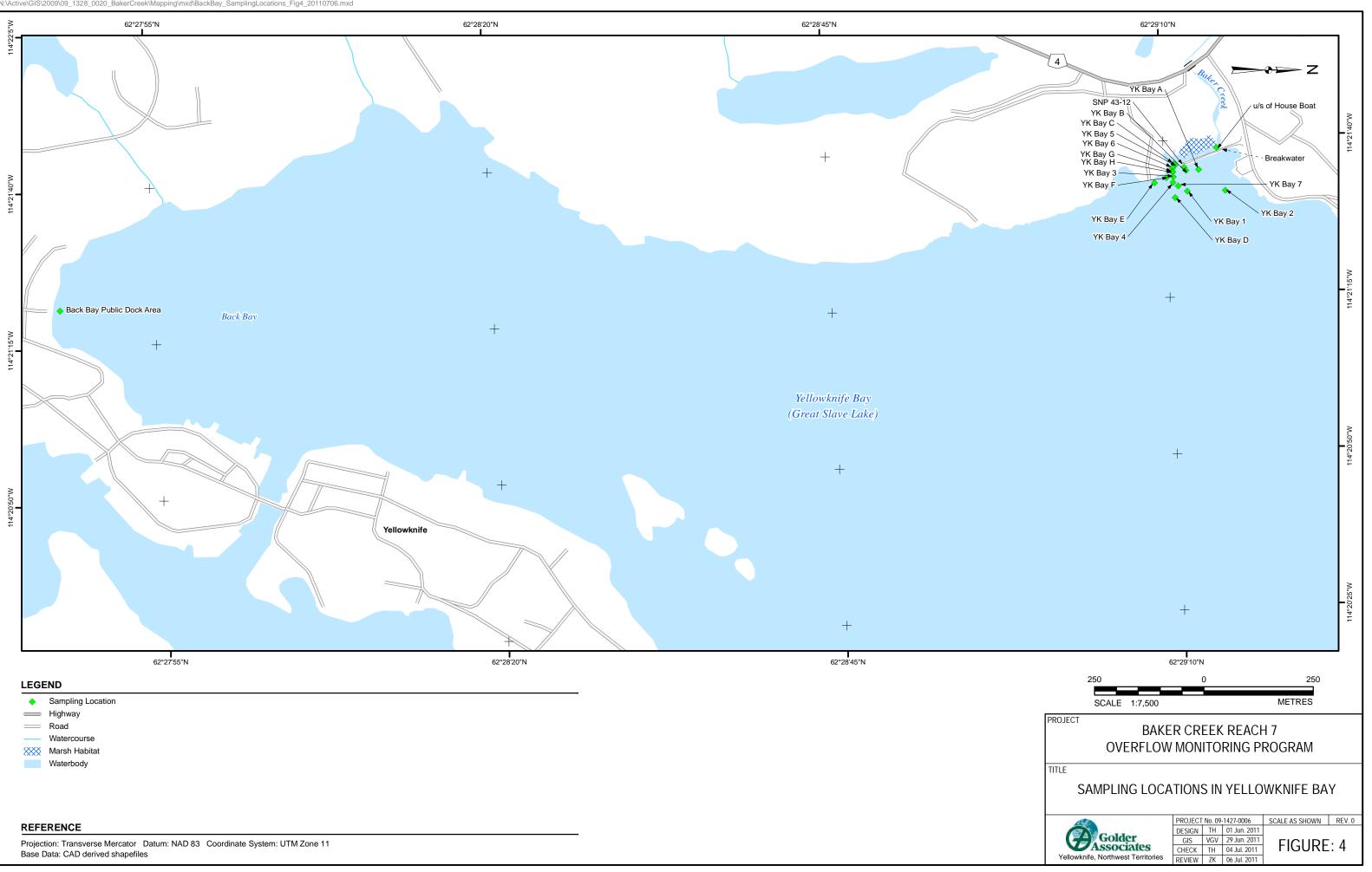
Figure 3: Aerial View of Reaches 6 and 7 of Baker Creek, May 13, 2011

1.3 Study Objectives

The main objective of the Baker Creek overflow monitoring program was to characterize water and sediment quality at various locations in Baker Creek and Yellowknife Bay on several occasions during and after the overflow event. Specifically, monitoring in Baker Creek and Yellowknife Bay was initiated to address the following questions:

- 1) Was stream water downstream of the tailings impacted area acutely toxic to fish and other aquatic life during the overflow event?
- 2) What was the concentration of total suspended solids (TSS) in Baker Creek from upstream of the Mine to Yellowknife Bay during the overflow event and after mitigation?
- 3) What was the detailed water chemistry in Baker Creek during the overflow event and after mitigation?
- 4) What was the detailed water chemistry in Yellowknife Bay after mitigation?
- 5) What was the composition (*i.e.*, chemistry and particle size) of suspended sediments in Baker Creek?
- 6) In areas of visible sediment deposition in Baker Creek, what was the chemistry of the sediment?





1.4 Scope

The scope of this report is to address the first four questions listed in Section 1.3, using recently collected water quality information. The last two questions, related to sediment composition and chemistry, will be addressed at a later date, once a full set of monitoring data are available. Sediment collection will occur in September. The purpose of this report is to provide a summary of the water quality results, to be submitted as part of the record on the sediment release, which will be filed with the appropriate regulators by PWGSC. The scope of this report is as follows:

- Present final results from the toxicity bioassays completed on May 16, 2011;
- Characterize water quality in Baker Creek from upstream of the overflow location to Yellowknife Bay using data collected between May 16 and June 17, 2011 (as received by June 25);
- Characterize water quality in Yellowknife Bay using data collected between May 24 and June 8 (as received by June 25);
- Compare water quality data to applicable background concentrations, aquatic life and drinking water guidelines (CCME 1999; with updates), and limits outlined in the Metal Mining Effluent Regulations (MMER) (Government of Canada 2002, 2006); and
- Describe potential spatial (*i.e.*, with distance downstream) and temporal (*i.e.*, through time) trends in the water quality.

Sediment quality data will be reported in a subsequent report, to be issued once monitoring has been completed and a final set of sampling results have been received and analyzed. Fish monitoring in Baker Creek was initiated on June 1, in consultation with Fisheries and Oceans Canada. Findings from that study will also be reported in a separate report at a later date.

1.5 Report Organization

A description of methods, including sample collection procedures and data analysis methods are provided in Section 2. Study results are presented in Section 3, followed by a summary of key findings in Section 4. Quality assurance and quality control (QA/QC) information is presented in Appendix A, followed by detailed water quality results in Appendix B. A comparison of laboratory TSS measurements and field turbidity readings is presented in Appendix C, and a copy of the final laboratory results and supporting information are provided in Appendix D.



2.0 METHODS

2.1 Sample Locations

Water samples were collected and in-situ measurements were made at the sample stations shown in Figure 2 (Baker Creek) and Figure 3 (Yellowknife Bay). A description of the sampling stations is provided below:

- **Reference** Point $(SNP43-11)^{1}$ Baker Creek, upstream of the overflow location;
- Reach 7 Overflow, upstream (u/s) of road immediately downstream of diversion, u/s of an old mine road;
- Reach 7 Overflow, downstream (d/s) of road downstream of diversion and eroded road, but upstream of tailings deposit;
- Reach 6, Baker Creek Exposure Point near the tailings impacted area;
- Reach 5, d/s pond upper portion of Reach 5, just downstream of Baker Pond;
- Reach 4, d/s Giant Pool upper portion of Reach 4, in a pool area;
- Reach 4, Arctic Grayling spawning site just downstream of the Reach 4 pool area;
- Reach 4, d/s ice at bridge lower portion of Reach 4, taken near the bridge crossing;
- Reach 3, d/s bridge upper portion of Reach 3, downstream of bridge crossing;
- Reach 2, d/s pool lower portion of Reach 2, downstream of pool area;
- Reach 2, collapsed culvert middle portion of Reach 2, near the collapsed culvert;
- Reach 1, u/s culvert middle portion of Reach 1, upstream of culvert;
- Reach 1 (SNP43-5) downstream of the culvert at Highway 4 (*i.e.*, Ingraham Trail) near the mouth of the creek;
- Reach 0 mouth of Baker Creek;
- Yellowknife Bay, stations 1 to 7 and A to H near the mouth of Baker Creek; and
- Sellowknife Bay, Back Bay public dock area within the public use area for the City of Yellowknife.

In addition to the sampling that Golder conducted, Inspectors from INAC collected samples from three locations (Figure 2). Indian and Northern Affairs Canada has made these data available for this assessment; sampling locations and sample names are as follows:

- INAC sample near Golder sample "Reach 7 Overflow, d/s road" (11-159-1);
- INAC sample in Reach 6 (11-159-2); and
- INAC sample in Reach 1 (11-159-3).

¹ Station numbers containing 'SNP' refer to historical sampling stations established as part of the Surveillance Network Program for Giant Mine.

2.2 Field Program

Prior to collecting water samples, water depth (m), temperature (°C), pH, dissolved oxygen (DO) concentration (mg/L), specific conductivity (µS/cm), and turbidity measurements were recorded. A YSI 650 MDS water quality meter connected to an YSI 600 QS multi-parameter water quality probe was used for the physico-chemical field measurements, and field turbidity measurements were obtained using a LaMotte turbidity meter. Surface water samples were collected in accordance with the Mine's Standard Operating Procedure (SOP) (INAC 2010) and specific laboratory instructions. Samples for biological toxicity testing were collected in 20-L plastic carboys, and kept cool (4°C) prior to submitting to the laboratory. All toxicity tests were initiated within five days of sample collection, as required by the SOP.

Sampling frequency and parameters analyzed are provided in Table 1.

2.3 Quality Control

For quality control (QC) purposes, field blanks, travel blanks and a duplicate sample were prepared as part of the sampling program. Field blanks (a deionized water sample prepared at a field site) were used to assess potential sample contamination during collection, handling, shipping and analysis. Travel blanks (bottle pre-filled with deionized water and sealed by the laboratory) were used to detect potential sample contamination during shipping, storage and analysis. The results of the duplicate sample analysis were used to assess within-site variability and precision of the field sampling methods. Detailed information on QC samples is provided in Appendix A.

2.4 Laboratory Analysis

Samples collected for acute toxicity analysis were submitted to HydroQual Laboratories (HydroQual) in Calgary, Alberta. Acute toxicity testing was conducted according to the following methods:

- EPS 1/RM/13 Reference Method for Determining Acute Lethality of Effluents Using Rainbow Trout (Environment Canada 2007); and
- EPS 1/RM/14 Reference Method for Determining Acute Lethality of Effluents Using Daphnia spp. (Environment Canada 2000).

Surface water samples were submitted to ALS Laboratory Group (ALS) in Yellowknife, Northwest Territories, Edmonton, Alberta and Vancouver, British Columbia for analysis of water quality parameters listed in Table 1.





Table 1: Sampling Frequency and Parameters Analyzed for the Baker Creek Reach 7 Overflow Monitoring Program, May and June 2011

Component	Location	Frequency	Parameter	Rationale	Status
Acute toxicity (Question 1 in Section 1.3)	Reach 6 - Baker Ck. Exposure Point Reach 1 (SNP 43-5)	Day 1 – May 16, 2011	Lab – Rainbow Trout and Daphnia magna (LC ₅₀). Method – Reference Methods provided by Environment Canada (2000, 2007)	Characterize the acute toxicity of water near the exposure area and near the mouth of Baker Creek	Complete
TSS-Turbidity Characterization (Question 2 in Section 1.3)	Reach 0 to Reach 7 Yellowknife Bay (near the mouth of Baker Creek; Back Bay public dock area)	Baker Creek – approximately once per day Yellowknife Bay - May 24, May 31, and June 8	Lab – TSS, turbidity Field – turbidity, temperature, conductivity, dissolved oxygen, pH, water depth, photographs Method – surface grab samples (TSS); water quality meter and probe (in-situ parameters).	Characterize extent of sediment plume; use data to establish a TSS-turbidity relationship	Complete
Water characterization (Questions 3 and 4 in Section 1.3)	Reference (SNP43-11), Reach 7 waterfall entering Reach 6 Reach 7 overflow – u/s of road Reach 7 overflow – d/s of road Reach 6 - Baker Ck. Exposure Point Reach 5, d/s pond Reach 4, d/s Giant pool Reach 2, d/s pool Reach 1 (SNP 43-5) Reach 0 (mouth of Baker Creek) Yellowknife Bay (near the mouth of Baker Creek; Back Bay public dock area)	Baker Creek - May 16 to18, 20, 24 - 25, 27, June 6, 8 and 17 <i>Yellowknife Bay</i> - May 24, 31, and June 8	Lab – TSS, turbidity, major ions, nutrients, total and dissolved metals <i>Field</i> – turbidity, temperature, conductivity, dissolved oxygen, pH, water depth, UTM coordinates and photographs <i>Method</i> – surface grab samples; water quality meter and probe (in-situ parameters)	Characterize detailed water quality in Baker Creek and Yellowknife Bay	Complete
Sediment monitoring (Questions 5 and 6 in Section 1.3)	Reach 4 Reach 2 Reach 0 Yellowknife Bay, localized area	TBD	Lab – particle size, TOC, total metals Field – water depth, sediment depth and photographs Method – Ekman grab	Characterize sediment quality in areas of visible deposition, if present; select locations where pre- overflow event sediment data are available	Pending

Notes: TBD = to be determined; Ck = creek; u/s = upstream; d/s = downstream; TOC = total organic carbon; TDS = total dissolved solids; TSS = total suspended solids;

 LC_{50} = concentration of test water resulting in 50% mortality of the test population.



2.5 Data Analysis

Water quality data were plotted spatially (*i.e.*, with distance downstream) and temporally (*i.e.*, through time), then visually examined to identify any potential trends. Emphasis was placed on TSS, because it is a direct measurement of the amount of sediment suspended in the water column. When laboratory TSS was not available, the relationship between field turbidity and laboratory TSS was used to estimate TSS (Appendix C), consistent with methods outlined in CCME (2002). Field turbidity was measured daily. The average of three field turbidity readings was used to represent the daily field turbidity reading at each station during each site visit.

Data from stations "SNP 43-11" and "Reach 7, Overflow u/s of road" were used to represent reference conditions in Baker Creek during and after the overflow event. Reach-specific data collected from Baker Creek in May and June between 2007 and 2010 were used to represent background conditions in the creek (Golder 2011). Water quality in lower Baker Creek was compared to both reference and background data to determine if concentrations had returned to natural conditions. In Yellowknife Bay, data collected near the mouth of Baker Creek in May and June between 2007 and 2010 were used to represent background conditions.

Water quality data were also evaluated by comparing concentrations of individual parameters with water quality guidelines for the protection of aquatic life and human health (*i.e.*, drinking water) (CCME 1999, with updates to 2011; Health Canada 2010). Concentrations were also compared with limits outlined in the Metal Mining Effluent Regulations (MMER) (Government of Canada 2002, 2006).

Water quality guidelines are nationally endorsed indicators of environmental quality for the protection of aquatic ecosystems and designated water uses, to identify parameters of potential concern. Aquatic life guidelines are based on the most current, scientifically defensible toxicological data and are intended to be protective of all forms and life stages of aquatic life (CCME 1999). Exceedance of a guideline does not, therefore, automatically imply unacceptable or harmful conditions.



3.0 **RESULTS**

Was Stream Water Downstream of the Tailings Impacted Area Acutely Toxic to Fish and Other Aquatic Life During the Overflow Event?

Water is considered to be not acutely toxic if more than 50% of the test organisms survive in full-strength (100%) test water (Government of Canada 2002, 2006). Acute toxicity test results are expressed as an LC_{50} (*i.e.*, percent concentration that results in 50% mortality of the test organisms), with non-toxic samples having an LC_{50} value of greater than 100%. No acutely toxic effects were observed in the rainbow trout (*Oncorhynchus mykiss*) or *Daphnia magna* survival tests ($LC_{50} \ge 100\%$) on the samples collected from Baker Creek on May 16, 2011 (Table 2). Therefore, water downstream of the tailings impacted area was not acutely toxic during the period of overflow. Detailed acute toxicity results and supporting information are provided in Appendix C.

Location	Test Species	Biological Endpoint	Statistic		Confidence Limits ^(a)		Pass Limit ^(b)
2000000		of Test	oranono	(%)	Upper	Lower	1 000 2000
Reach 6	Oncorhynchus mykiss (rainbow trout)	Survival	LC ₅₀	>100	not determ	lined	≥100%
	<i>Daphnia magna</i> (water flea)	Survival	LC ₅₀	>100	not determ	ined	≥100%
Reach 1 (SNP 43-5)	Oncorhynchus mykiss (rainbow trout)	Survival	LC ₅₀	>100	not determ	lined	≥100%
(3141 43-3)	<i>Daphnia magna</i> (water flea)	Survival	LC ₅₀	>100	not determ	ined	≥100%

Table 2: Baker Creek Stream Wate	r Toxicitv	^v Characterization	Results for M	<i>l</i> lav 16.	2011
		Onalastonization			

(a) Confidence limits cannot be calculated for non-toxic stream water (refer to HydroQual report, Appendix C).

(b) As defined by Government of Canada (2002).

Notes: LC50 = concentration expressed as the percentage of test water that results in 50% mortality of the test population; > = greater than; ≥ = greater than or equal to; % = percent.

What was the Concentration of Total Suspended Solids in Baker Creek from Upstream of the Mine to Yellowknife Bay During the Overflow Event and After Mitigation? *Temporal Trends*

TSS concentrations at four representative reaches in lower Baker Creek (*i.e.*, Reaches 6, 4, 1 and 0) are presented in Figure 5, panels (a) to (d). Concentrations from reference locations, as well as typical background concentrations are provided for comparison in the same figure. The CCME aquatic life guideline is also shown, which was calculated as a maximum average increase of 5 mg/L from background levels for exposures lasting between 24 hours and 30 days during clear flow periods (CCME 2002). The median TSS concentration (*i.e.*, 3 mg/L) from samples collected at the reference locations during the sampling program was used as background. Therefore, the aquatic life guideline was set at 8 mg/L.



The TSS concentration in Reach 6 was 4,340 milligrams per litre (mg/L) on May 16, indicating that sediment and tailings in historic Jo Jo Lake were re-suspended into the water column. After mitigation (*i.e.*, after May 18), in-stream TSS concentration in Reach 6 declined to 79 mg/L. The TSS concentration then briefly increased to approximately 520 mg/L as a result of re-circulation of water through the tailings. This flow was subsequently blocked with coarse fill, and as a result, TSS values declined again, reaching 5 mg/L on May 27, which was below reference levels on the same date. The TSS concentration increased slightly between May 28 and June 1, with values above the CCME aquatic life guideline. From June 2 to 17, the TSS concentration declined and remained below the guideline and near reference levels (Figure 5; panel a).

In Reach 4, downstream of the pooled area, the post-mitigation TSS concentration declined from 72 mg/L on May 18 to 29 mg/L on May 19. Concentrations remained at this level for one more day, and then increased to 70 mg/L on May 24. The cause of this increase is unknown, although it may have been erosion of a stream bank by instream ice. The TSS concentration declined to 5 and 7 mg/L, on May 25 and 27, respectively, then increased slightly again to levels above the CCME aquatic life guideline between May 28 and June 2, similar to the trend observed in Reach 6. The TSS concentration was below the guideline on June 3 and remained low until June 17, with levels approaching the median historical background concentration of approximately 2 mg/L during spring (Figure 5; panel b).

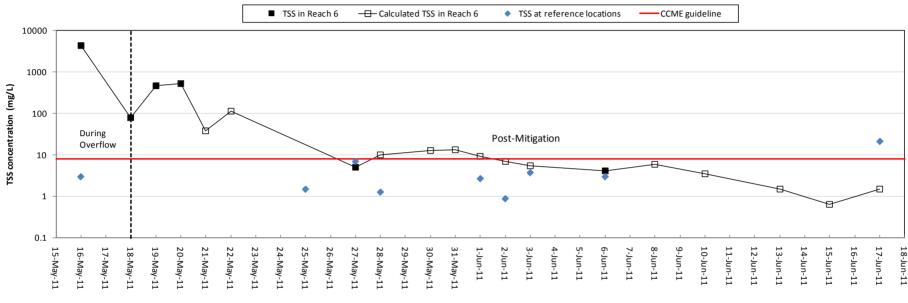
TSS concentrations in Reaches 1 and 0 (*i.e.*, near the mouth of Baker Creek) followed a similar pattern to that observed in Reaches 4 and 6, with values declining after mitigation was in place. In both reaches, TSS concentration was approximately 160 mg/L before mitigation, and then decreased to approximately 10 mg/L on May 27. The TSS concentration was below the CCME aquatic life guideline and within the typical background range in Reach 0 during spring from June 3 to 17 (Figure 5; panels c and d). The exception was the estimated TSS concentration at the mouth of Baker Creek (*i.e.*, Reach 0) on June 13. Strong winds caused the area near the breakwater to be particularly turbulent, which resulted in sediment re-suspension not observed in the other reaches of Baker Creek on that day. The anomalous value was retained in the analysis, but was most likely due to weather-induced mixing of the water column, rather than the overflow event.

In summary, in-stream concentrations of TSS indicate that during the overflow event, sediment and tailings in historic Jo Jo Lake were re-suspended and discharged through lower Baker Creek into Yellowknife Bay. With mitigation in place, TSS levels declined to levels that were within or approaching typical background levels within approximately 10 days. There was a slight increase in TSS levels between May 28 and June 2, but concentrations decreased thereafter, and were below the CCME aquatic life guideline and within the typical background range from June 3 to 17.





a) Reach 6



- Date
- Notes: TSS concentration at the reference locations was defined based on samples collected from SNP 43-11 on May 16 and June 6, and from Reach 7 waterfall entering Reach 6 for the remaining dates between May 25 and June 17.

TSS data collected between May 16 and May 20 were collected from Reach 6 BC Exposure Point (at Tails); data from May 27 and June 6 were collected from Reach 5 (d/s Pond). Calculated TSS was obtained using the TSS/turbidity regression equation presented in Appendix C; calculated TSS on June 17 was set to half the MDL for TSS (*i.e.*, 1.5 mg/L), because the turbidity reading was 0 NTU.

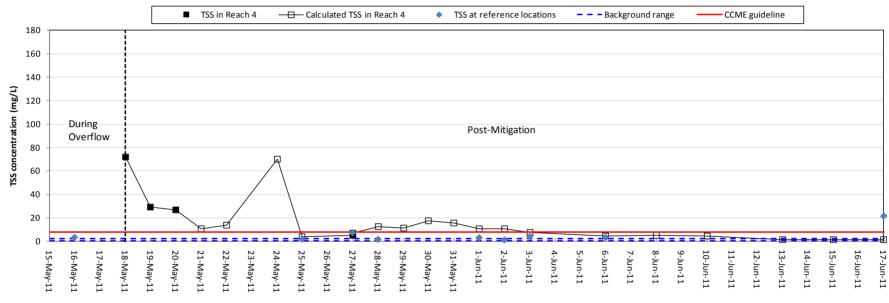
The CCME aquatic life guideline is a maximum average increase of 5 mg/L from background levels for exposures lasting between 24 hours and 30 days; background was set to 3 mg/L using the median TSS concentration calculated from samples collected at the reference locations during the sampling program.

Figure 5: Total Suspended Solids Concentrations at Representative Locations in Baker Creek









Date

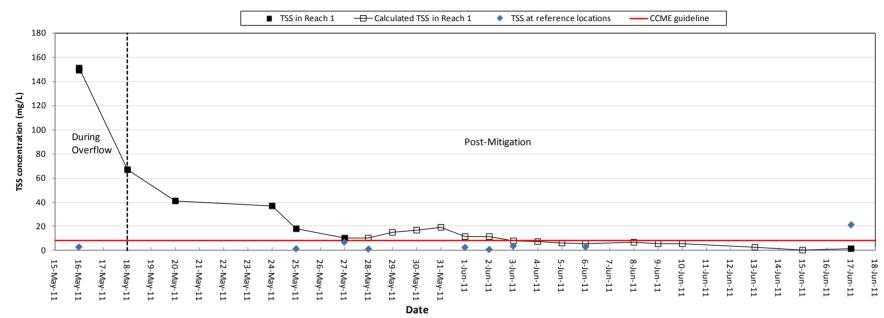
- Notes: TSS concentration at the reference locations was defined based on samples collected from SNP 43-11 on May 16 and June 6, and from Reach 7 waterfall entering Reach 6 for the remaining dates between May 25 and June 17.
 - Reach 4 TSS data were from Reach 4 (d/s Giant Pool), with the exception of May 29, which was collected from Reach 4 (Arctic Grayling spawning site).
 - Background range was defined by minimum and maximum of samples collected in from Reach 4 in May and June between 2007 and 2009 (Golder 2011).
 - Calculated TSS was obtained using the TSS/turbidity regression equation presented in Appendix C; calculated TSS on June 17 was set to half the MDL for TSS (*i.e.*, 1.5 mg/L), because the turbidity reading was 0 NTU.
 - The CCME aquatic life guideline is a maximum average increase of 5 mg/L from background levels for exposures lasting between 24 hours and 30 days; background was set to 3 mg/L, using the median TSS concentration calculated from samples collected at the reference locations during the sampling program.

Figure 5: Total Suspended Solids Concentrations at Representative Locations in Baker Creek (continued)









Notes: TSS concentration at the reference locations was defined based on samples collected from SNP 43-11 on May 16 and June 6, and from Reach 7 waterfall entering Reach 6 for the remaining dates between May 25 and June 17.

Calculated TSS was obtained using the TSS/turbidity regression equation presented in Appendix C.

The CCME aquatic life guideline is a maximum average increase of 5 mg/L from background levels for exposures lasting between 24 hours and 30 days; background was set to

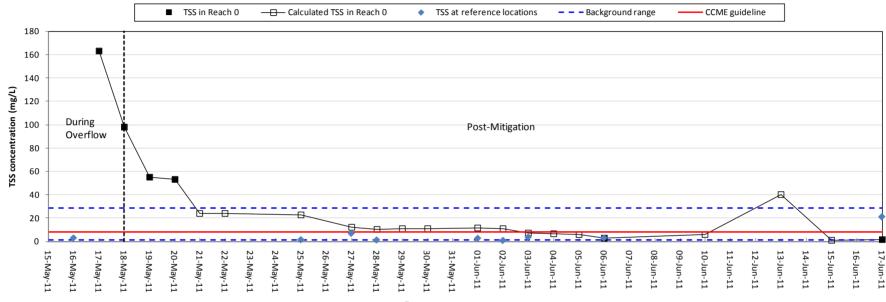
3 mg/L, using the median TSS concentration calculated from samples collected at the reference locations during the sampling program.

Figure 5: Total Suspended Solids Concentrations at Representative Locations in Baker Creek (continued)









Date

Notes: TSS concentration at the reference locations was defined based on samples collected from SNP 43-11 on May 16 and June 6, and from Reach 7 waterfall entering Reach 6 for the remaining dates between May 25 and June 17.

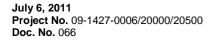
Background range was defined by minimum and maximum of samples collected from Reach 4 in May and June between 2007 and 2009 (Golder 2011).

Calculated TSS was obtained using the TSS/turbidity regression equation presented in Appendix C.

The CCME aquatic life guideline is a maximum average increase of 5 mg/L from background levels for exposures lasting between 24 hours and 30 days; background was set to

3 mg/L, using the median TSS concentration calculated from samples collected at the reference locations during the sampling program.

Figure 5: Total Suspended Solids Concentrations at Representative Locations in Baker Creek (continued)







Spatial Trends

Total suspended solids concentrations at all monitored locations in Baker Creek were plotted for comparison in Figure 6. TSS concentrations were lowest at the reference locations and in Reach 7 (upstream of the old Mine road) during the overflow event. Concentrations were elevated in Reach 7 (downstream of the old Mine road) due to the re-suspension of sediments by water flowing along the old Mine road. Concentrations in Reach 6 were typically the highest, as a result of re-suspension of sediments in the tailings impacted area. In the lower reaches of Baker Creek (*i.e.*, Reaches 4, 3, 2, 1, 0), TSS concentrations were similar and lower than in Reach 6, but slightly above the background range. By May 27, the differences in TSS concentrations among reaches were small, and concentrations at all locations declined to levels within the background range characteristic of lower Baker Creek. There was a slight increase in TSS between May 28 and June 2, but concentrations subsequently decreased, and were below the CCME aquatic life guideline and within the typical background range from June 3 to 17.

What was the Detailed Water Chemistry in Baker Creek during the Overflow Event and after Mitigation?

Between May 16 and June 17, 2011, waters from Baker Creek were well-oxygenated and slightly alkaline (Appendix B; Table B-1). Conductivity and total dissolved solids concentrations were higher downstream of the tailings impacted area than in the upstream reference area, but remained within the ranges previously measured in Baker Creek (Appendix B; Tables B-1 and B-2). Ammonia and cyanide concentrations have historically been high at Giant Mine (Golder 2003, 2005). Although cyanide concentrations were above the water quality guideline for the protection of aquatic life during this study, values were within the background range. Nutrient levels in Baker Creek were generally low during and after the overflow event.

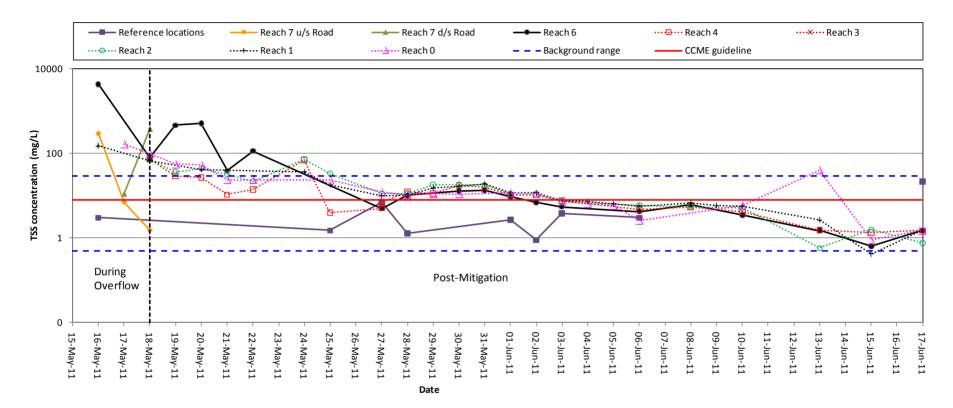
Sulphate concentrations were elevated downstream of the tailings impacted area, which may have resulted from contact of water released during the overflow event with treatment chemical residue present in materials at the bottom of historical Jo Jo Lake. Ferric sulphate is used in the water treatment process at the Mine (INAC 2011). Levels of sulphate in the lower reaches of Baker Creek were higher than typically observed in Baker Creek during spring (Appendix B; Table B-2).

Concentrations of metals and metalloids (herein referred to as metals), were also elevated in lower Baker Creek during the overflow event (Appendix B; Table B-2). With the exception of manganese and arsenic, total metal concentrations were below guidelines in the sample collected from the upstream reference site on May 16. Downstream of the tailings impacted area, total aluminum, antimony, arsenic, cadmium, chromium, copper, iron, lead, manganese, mercury, selenium, silver and zinc were measured at concentrations above water quality guidelines for the protection of aquatic life and/or human health on May 16, indicating contact with tailings. After mitigation, concentrations of total metals decreased to background levels, although some were still above aquatic life and drinking water guidelines at more than one location on June 17 (*i.e.*, aluminum, antimony, arsenic and copper). Levels of total metals above guidelines have historically been observed within Baker Creek (Appendix B; Table B-2).





BAKER CREEK REACH 7 OVERFLOW MONITORING PROGRAM



Notes: TSS concentration at the reference locations was defined based on samples collected from SNP 43-11 on May 16 and June 6, and from Reach 7 waterfall entering Reach 6 for the remaining dates between May 25 and June 17.

TSS data collected between May 16 and May 20 were collected from Reach 6 BC Exposure Point (at Tails); data from May 27 and June 6 were collected from Reach 5 (d/s Pond). Calculated TSS was obtained using the TSS/turbidity regression equation presented in Appendix C; calculated TSS on June 17 was set to half the MDL for TSS (*i.e.*, 1.5 mg/L), because the turbidity reading was 0 NTU.

The CCME aquatic life guideline is a maximum average increase of 5 mg/L from background levels for exposures lasting between 24 hours and 30 days; background was set to 3 mg/L, which is the median TSS concentration from samples collected at the reference locations during the sampling program.

The background range was defined by the minimum and maximum values for samples collected from lower Baker Creek.

(i.e., Reaches 4 and 0) in May and June between 2007 and 2009 (Golder 2011).

Figure 6: Total Suspended Solids Concentrations at Locations Monitored in Baker Creek





Total metals measured at concentrations above guidelines were primarily associated with suspended sediments, as shown by the strong correlation between TSS and total metal concentrations in stream water (Table 3). TSS concentrations in lower Baker Creek declined between May 16 and June 17, and were within background levels by the end of the sampling program (Figures 5 and 6). Total metals followed a similar trend, as expected based on the strong relationships between TSS and total metals.

The dissolved portion of metals is not associated with suspended sediments and does not settle out of the water column. Dissolved metal concentrations are bioavailable and readily taken up by aquatic organisms. Dissolved metal concentration as a percentage of total metal concentration in Baker Creek was plotted for two representative metals (*i.e.*, arsenic and aluminum) in Figure 7, to investigate whether increases total metal concentrations also resulted in proportional increases in dissolved metal concentrations. At high concentrations, such as those observed immediately after the overflow event, only a small proportion (<5%) of the total metal concentrations were not accompanied by proportional increases in dissolved metal concentrations. After mitigation, both the total metal metal concentrations and the percentage in the dissolved form approached values typically measured in Baker Creek.

With the exception of Reach 6, dissolved arsenic concentrations in Baker Creek were within the background range, and remained similar during the overflow event and after mitigation (Figure 8). In Reach 6, dissolved arsenic concentrations were elevated during the overflow event, but declined to levels consistent with those at stations in lower Baker Creek and within the background range by June 8. The dissolved arsenic concentrations in Reaches 1, 4, and 6 on June 17 were higher than the corresponding total metal concentrations, indicating a potential analytical error (see Appendix A for details).

Metal	Correlation Coefficient (r) ^(a)
Aluminum	0.98
Antimony	0.65
Arsenic	0.75
Cadmium	0.75
Chromium	0.82 ^(b)
Cobalt	0.73 ^(b)
Copper	0.70
Iron	0.98
Lead	0.85
Manganese	0.69
Mercury	0.80
Nickel	0.75
Zinc	0.79

 Table 3: Correlations between Total Suspended Solids and Total Metal Concentrations

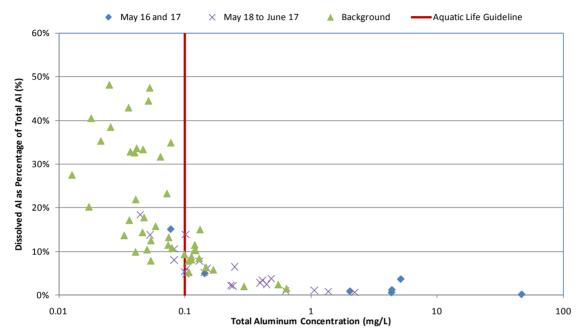
a) Pearson correlations were run for total metals measured above water quality guidelines, after verifying that relationships were linear;
 n = 29 to 31. Silver and selenium were excluded from this analysis, because a high proportion of values were below method detection limits.

b) Data from June 6 to 17 were excluded from the analysis, because a high proportion of values were below method detection limits. n = 21.

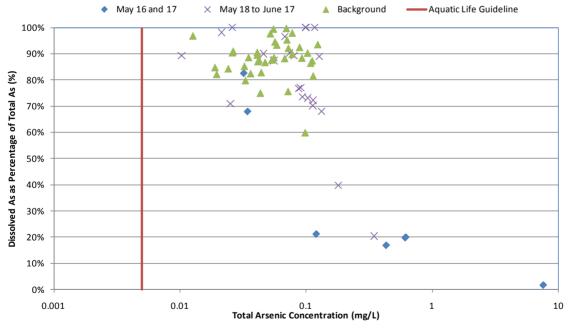




a) Aluminum



b) Arsenic



 Notes:
 AI = aluminum; As = arsenic; % = percent; mg/L = milligrams per litre.

 The proportion of dissolved metal was calculated as: (dissolved metal concentration / total metal concentration) × 100.

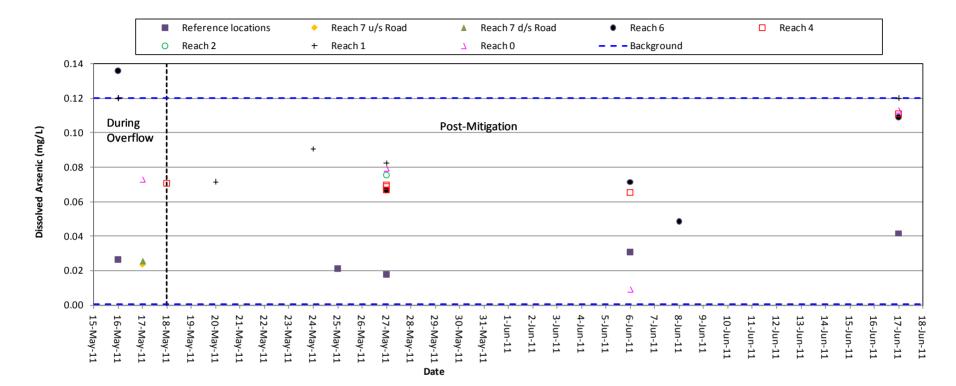
 The proportion of dissolved metal was set to 100% for three samples on June 17 and one sample on June 6, because the dissolved metal concentration was higher than the total metal concentration, indicating a potential analytical error (Appendix A).

Figure 7: Percentage of the Total Metal Concentration in the Dissolved Form





BAKER CREEK REACH 7 OVERFLOW MONITORING PROGRAM



Notes: Dissolved arsenic concentration at the reference locations was defined based on samples collected from SNP 43-11 on May 16 and June 6, and from Reach 7 waterfall entering Reach 6 for the remaining dates between May 25 and June 17.

Dissolved arsenic data collected between May 16 and May 20 were collected from Reach 6 BC Exposure Point (at Tails); data from May 27 and June 6 were collected from Reach 5 (d/s Pond).

Dissolved arsenic concentrations in Reaches 1, 4, and 6 on June 17 were higher than the corresponding total metal concentrations, indicating a potential analytical error (Appendix A).

The background range was defined by the minimum and maximum concentrations in samples collected from lower Baker Creek (*i.e.*, Reaches 4 and 0) in May and June, between 2007 and 2009 (Golder 2011).

Figure 8: Dissolved Arsenic Concentrations at Locations Monitored in Baker Creek





What was the Detailed Water Chemistry in Yellowknife Bay after Mitigation? *Near the Mouth of Baker Creek*

Waters from Yellowknife Bay, near the mouth of Baker Creek, were well-oxygenated, slightly alkaline and low in nutrients for the duration of sampling (*i.e.*, between May 24 and June 8) (Appendix B; Table B-3 and B-4). Concentrations of TSS and metals were highest at Station YK Bay 1 on May 31, with total aluminum, antimony, arsenic, chromium, copper, iron, lead, and manganese measured at concentrations above water quality guidelines for the protection of aquatic life and/or human health. Concentrations of total antimony, arsenic, chromium and copper were also above the typical background ranges, indicating contact with tailings as concentrations of these metals were also above aquatic life guidelines in lower Baker Creek after the overflow event. The field crew noted that May 31 was a very windy day and a sediment plume was visible from shore. The sediment likely originated from the overflow event, with wind-induced mixing causing it to remain in suspension. At other locations (*i.e.*, YK Bay 2, 3, 4), total metal concentrations were within background ranges on May 31; only total aluminum was above an aquatic life guideline.

On June 8, the TSS concentration was below the CCME aquatic life guideline at all locations in Yellowknife Bay (Figure 9; Appendix B, Table B-4). Concentrations of total aluminum, arsenic, antimony and copper were still above aquatic life guidelines, but were within the typical background ranges. Total and dissolved arsenic concentrations in Yellowknife Bay are presented in Figure 10 and 11.

Back Bay Public Dock Area

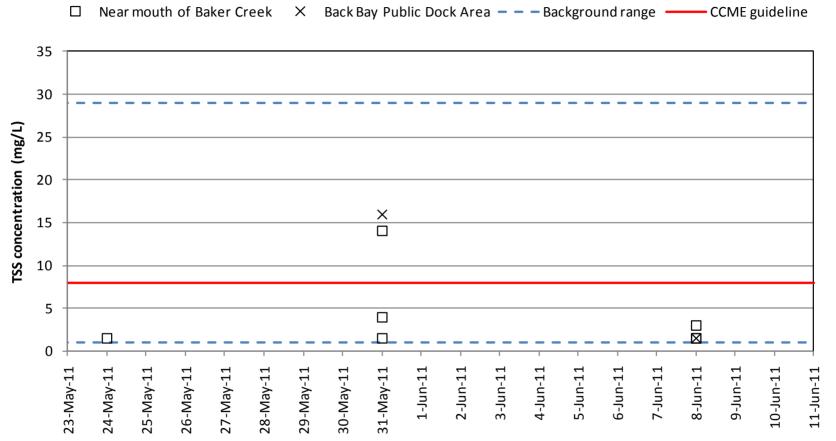
Samples collected from the Back Bay public dock area on May 31 and June 8 were well-oxygenated, slightly alkaline and low in nutrients and ions. The TSS concentration was elevated in the first sample (*i.e.*, May 31), and total aluminum, arsenic, copper and iron concentrations were above aquatic life guidelines. Total aluminum and copper were also above drinking water guidelines. A distinct sediment plume was not visible on May 31; the entire shoreline was turbid due to wind-induced turbulence. On June 8, which was a calm day, concentrations of TSS and total metals were low, and only total aluminum was measured at concentrations above the aquatic life and drinking water guideline. Total aluminum concentrations were within the typical background range for Yellowknife Bay.

Summary

In summary, a combination of the overflow event and wind-induced mixing likely resulted in elevated TSS and total metals concentrations in Yellowknife Bay, near the mouth of Baker Creek on May 31. Elevated concentrations in the Back Bay public dock area on the same day were likely due to wind-induced mixing and turbulence. By June 8, TSS levels were low, and although concentrations of several metals were above aquatic life guidelines (*i.e.*, aluminum, antimony, arsenic and copper), concentrations were within the typical background ranges.







Notes: Data from "Near mouth of Baker Creek" includes samples YK Bay 1 to 4, B, C, G and H.

A strong TSS/turbidity relationship was not evident in Yellowknife Bay due to the high proportion of non-detectable values in the dataset (Appendix C). Therefore, only measured TSS values are presented.

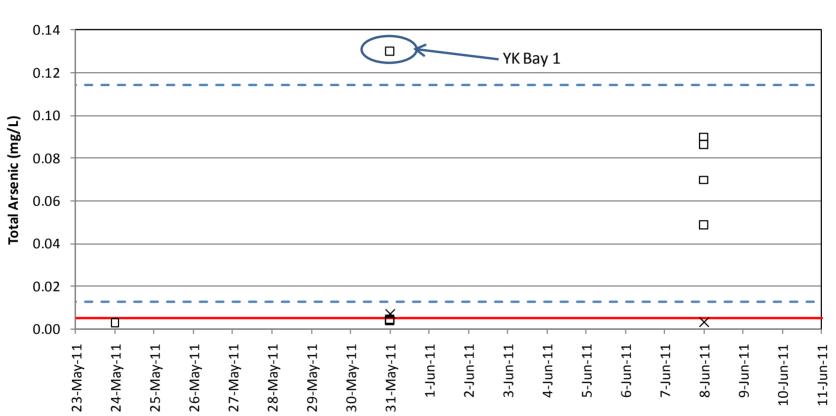
The background range was defined by the minimum and maximum concentrations in samples collected from Surveillance Network Program site SNP 43-12 in May and June, between 2007 and 2010 (Golder 2011).

The CCME aquatic life guideline is a maximum average increase of 5 mg/L from background levels for exposures lasting between 24 hours and 30 days; background was set to the historical median TSS concentration of 3 mg/L.

Figure 9: Total Suspended Solids Concentrations in Yellowknife Bay







Near mouth of Baker Creek × Back Bay Public Dock Area – – – Background range – CCME guideline

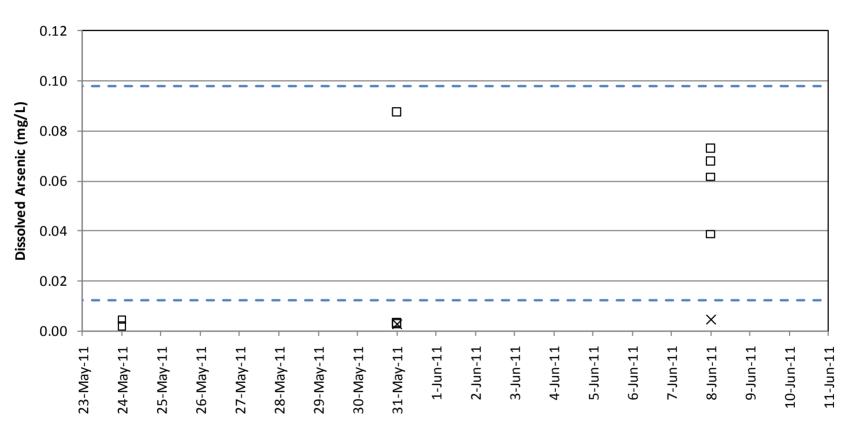
Notes: Data from "Near mouth of Baker Creek" includes samples YK Bay 1 to 4, B, C, G and H.

The background range was defined by the minimum and maximum concentrations in samples collected from Surveillance Network Program site SNP 42-12 in May and June, between 2007 and 2010 (Golder 2011).

Figure 10: Total Arsenic Concentration in Yellowknife Bay







Near mouth of Baker Creek × Back Bay Public Dock Area - - Background range

Notes: Data from "Near mouth of Baker Creek" includes samples YK Bay 1 to 4, B, C, G and H.

The background range was defined by the minimum and maximum concentrations in samples collected from Surveillance Network Program site SNP 42-12 in May and June, between 2007 and 2010 (Golder 2011).

Figure 11: Dissolved Arsenic Concentration in Yellowknife Bay





4.0 SUMMARY OF KEY FINDINGS

The interim key findings from the Baker Creek Reach 7 overflow monitoring program include the following:

- In-stream concentrations of TSS and other parameters associated with Mine tailings (*i.e.*, sulphate and metals) indicate that during the overflow event, sediment and tailings in historic Jo Jo Lake were re-suspended and discharged through lower Baker Creek into Yellowknife Bay.
- Toxicity testing conducted during the overflow event indicated that stream water downstream of the tailings impacted area was not acutely toxic.
- TSS concentrations were high during the overflow event, but declined to levels within the typical background range in approximately 10 days. A slight increase in TSS concentration followed, but values subsequently declined and were near or within the background range and below the CCME aquatic life guideline by June 3.
- Levels of cyanide and ammonia, which were historically high at Giant Mine, were within the typical background range for Baker Creek after mitigation.
- Sulphate concentrations in the lower reaches of Baker Creek were higher than typically observed in Baker Creek during spring.
- Concentrations of total metals and metalloids in Baker Creek were elevated during the overflow event, and there was a strong relationship between TSS and total metal concentrations. At high concentrations, such as those observed immediately after the overflow event, only a small proportion of the total metal concentration was in the dissolved form. After mitigation, both total metal concentrations and the percentage of metals in the dissolved form approached values typically measured in Baker Creek.
- A combination of the overflow event and wind-induced mixing likely resulted in elevated TSS and total metals concentrations in Yellowknife Bay, near the mouth of Baker Creek on May 31. Elevated concentrations in the Back Bay public dock area on the same day were likely due to wind-induced mixing and turbulence. By June 8, TSS levels were low, and although concentrations of several metals were above aquatic life guidelines (*i.e.*, aluminum, antimony, arsenic and copper), concentrations were within the typical background ranges.





5.0 NEXT STEPS

Water quality monitoring was discontinued on June 17 in Baker Creek, and on June 8 in Yellowknife Bay, because concentrations of TSS and metals had returned to background levels. A shoreline sediment investigation to identify areas of visual sediment deposition will occur in July (weather permitting), followed by a detailed sediment survey in September.





6.0 CLOSURE

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APPENDIX A

Quality Assurance and Quality Control



QUALITY ASSURANCE

Golder Associates Ltd. (Golder) has developed Quality Assurance (QA) protocols designed to ensure production of data of known and defensible quality. Golder's QA procedures cover three areas of internal and external management, as outlined in more detail below.

Field Staff Training and Operations

It is important that field data collected are of known, acceptable and defensible quality. Golder field staff are trained to be proficient in standardized field sampling procedures, data recording and equipment operations, and all field work is completed according to specified instructions and established technical procedures.

Surface water samples were collected in accordance with the Mine's Standard Operating Procedure (SOP) (INAC 2010) and specific laboratory instructions. Field crews also use Specific Work Instructions (SWIs), which are standardized forms that detail specific sampling instructions, equipment needs, required technical procedures, sample labelling and shipping protocols, and laboratory contacts.

Laboratory Analysis

To ensure that data of acceptable quality are generated, laboratories used for the water sample analysis are accredited by the Canadian Association for Laboratory Accreditation (CALA). Under CALA's accreditation program, laboratory procedures, methods and internal quality control are evaluated annually.

Office Operations

A data management system is in place to ensure that an organized, consistent system of data control, data analysis and filing was used for the Baker Creek Reach 7 overflow monitoring program. Relevant elements of this system included the following:

- Pre-field meeting to discuss SWIs and review relevant technical procedures with field crew(s);
- Field crews checking-in with task managers every 24 to 48 hours with an update on work completed;
- Designation of one Golder field crew member who is responsible for managing the sample shipping process to ensure that:
 - All required samples are collected;
 - Chain-of-custody/analytical request forms are completed and checked to ensure they are correct;
 - Proper labelling and documentation procedures are followed;
 - Samples are delivered to shipping agents in a timely manner;
 - Samples arrive at the designated laboratory(ies) within two days of being shipped;





- Checking of chain-of-custody/analytical request forms by the task manager to ensure the correct analysis package(s) had been requested;
- Reviewing laboratory data upon receipt to ensure data quality;
- Creating backup files before each major operation as data are manipulated; and
- Completing appropriate logic checks to ensure the accuracy of calculations.

QUALITY CONTROL

Quality Control (QC) is a specific aspect of QA that refers to the internal techniques used to measure and assess data quality. The water quality QC program consisted of the preparation and analysis of the a field blank, a travel blank and one duplicate water sample during the field program in Baker Creek.

For the purposes of this study, field blank, travel blank and duplicate samples were defined as follows:

Field Blank

A separate sample prepared in the field using laboratory-provided deionized water to fill a set of sample containers, which are then submitted to the appropriate laboratories for the same analysis as the field water samples. Field blanks are used to detect potential sample contamination during collection, handling, shipping and analysis.

Travel Blank

A separate sample prepared and sealed by the laboratory using laboratory deionized water. The containers are to be taken into the field and then submitted to the appropriate laboratory for the same analysis as the field water samples. Travel blanks are used to detect potential sample contamination during shipping, storage and analysis.

Duplicate Sample

Two samples are collected from one location using identical sampling procedures. They are labelled, preserved individually and submitted separately to the analytical laboratories for identical analyses.

Duplicate samples are used to check within-site variation and the precision of the field sampling methods. The following sections contain a description of the assessment criteria used to determine if QC sample results were indicative of sample contamination or sampling imprecision, along with a discussion of the key findings of the water quality QC program.





Quality Control Assessment Criteria

Field Blanks and Travel Blanks

Although most parameters should not be at detectable concentrations in the field and travel blanks, concentrations were considered notable if they were greater than five times the corresponding Method Detection Limit (MDL). This threshold is based on the Practical Quantitation Limit defined by the United States Environmental Protection Agency (U.S. EPA 1985), which takes into account the potential for data accuracy errors when concentrations approach or are below MDLs.

Notable results observed in the field and travel blanks were evaluated relative to concentrations observed in field samples collected during the sampling trip to determine if sample contamination was limited to the QC sample, or apparent in other samples. If, based on this comparison, sample contamination did not appear to have been an isolated error; field data were flagged and interpreted with this limitation in mind.

Duplicate Samples

One duplicate sample was collected from Reach 4 in the Baker Creek on May 31, 2011. The duplicate sample was used to evaluate within-site variability and precision of the sampling method by calculating the relative percent difference (RPD) between samples. Differences between concentrations measured in duplicate water samples were considered notable if:

- Results in the duplicate samples were greater than five times the relevant reported MDL; and
- Relative percent difference was greater than 20%.

These criteria are consistent with those used by the analytical laboratories for their internal QC procedures and take into account the potential for data accuracy error as concentrations approach MDLs.

Within-site variability and field sampling precision was rated as:

- Low and high, respectively, if less than 10% of the parameters included in the duplicate sample analysis were notably different from one another;
- Moderate if 10 to 30% of the parameters included in the duplicate sample analysis were notably different from one another; or
- High and low, respectively, if more than 30% of the parameters included in the duplicate sample analysis were notably different from one another.





Quality Control Sample Results

Potential Sample Contamination

With the exception of dissolved arsenic on June 8, parameter concentrations in the blank samples were all either below the MDLs or within five times of the relevant MDL (Table A-1). Dissolved arsenic concentrations in the field samples collected during the corresponding sampling trip were an order of magnitude higher, so the sample contamination was likely an isolated error and limited to that particular QC sample. These QC results indicate that, for most part, samples were free of contamination during collection, shipping and analysis.

Within-Site Variability and Field Sampling Precision

Differences of the analytical results between the duplicate samples collected from Reach 4 were generally within the assessment criteria with some exceptions (Table A-2). Notable differences (*i.e.*, RPD greater than 20%) were observed in turbidity and concentrations of dissolved iron, lead and zinc in the duplicate sample. Within-site variability and sampling precision were, therefore, rated as low and high, respectively, with the differences representing less than 10% of the parameters included in the duplicate sample analysis.





BAKER CREEK REACH 7 OVERFLOW MONITORING PROGRAM

		Method		Field Blanks			Travel Blanks		Method	Field	Blanks	Travel	Blanks
Parameter	Units	Detection Limit	20-May-11	6-Jun-11	17-Jun-11	20-May-11	6-Jun-11	17-Jun-11	Detection Limit	31-May-11	8-Jun-11	31-May-11	8-Jun-11
Conventional Parameters	· ·					•			·	·		·	
Acidity (to pH 8.3; as calcium carbonate)	mg/L	1.0	1.8	-	-	2.9	-	-	-	-	-	-	-
Hardness (as calcium carbonate)	mg/L	0.5	0.57	<0.5	<0.5	<0.5	<0.5	<0.5	1.3	<1.3	<1	<1.3	<1
Total Alkalinity (as calcium carbonate)	mg/L	1.0	1.1	-	-	<1	-	-	-	-	-	-	-
Total Dissolved Solids	mg/L	3	<3	-	-	<3	-	-	-	-	-	-	-
Total Suspended Solids	mg/L	1	<1	<1	<3	<1	<1	<3	3	<3	<3	<3	<3
Turbidity	NTU	0.1	0.34	0.25	<0.1	0.27	0.55	<0.1	0.1	<0.1	0.11	0.11	<0.1
lons													
Bromide	mg/L	0.05	<0.05	-	-	<0.05	-	-	-	-	-	-	-
Calcium	mg/L	0.05	0.229	<0.05	<0.05	<0.05	<0.05	<0.05	0.5	<0.5	<0.5	<0.5	<0.5
Chloride	mg/L	0.5	<0.5	-	-	<0.5	-	-	-	-	-	-	-
Fluoride	mg/L	0.02	<0.02	-	-	<0.02	-	-	-	-	-	-	-
Magnesium	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1	<0.1	<0.1
Potassium	mg/L	2	<2	<2	<2	<2	<2	<2	0.1	<0.1	<0.1	<0.1	<0.1
Sodium	mg/L	2	<2	<2	<2	<2	<2	<2	0.5	<0.5	<0.5	<0.5	<0.5
Sulphate	mg/L	0.5	<0.5	-	-	<0.5	-	-	-	-	-	-	-
Total Cyanide	mg/L	0.005	<0.005	-	-	< 0.005	-	-	-	-	-	-	-
Nutrients	· · ·		•	•					•	•	•	•	
Ammonia (as nitrogen)	mg/L	0.005	< 0.005	-	-	< 0.005	-	-	-	-	-	-	-
Nitrate and Nitrite (as nitrogen)	mg/L	0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	<0.0051	0.006	< 0.006	< 0.006	< 0.006	<0.006
Nitrate (as nitrogen)	mg/L	0.005	<0.005	<0.005	<0.005	< 0.005	<0.005	< 0.005	0.006	< 0.006	< 0.006	<0.006	<0.006
Nitrite (as nitrogen)	mg/L	0.001	<0.001	<0.001	<0.0051	<0.001	<0.001	<0.0051	0.002	< 0.002	< 0.002	< 0.002	< 0.002
Total Kjeldahl Nitrogen	mg/L	0.05	< 0.05	0.092	< 0.05	< 0.05	<0.05	< 0.05	0.05	< 0.05	< 0.05	< 0.05	<0.05
Total Dissolved Phosphorus	mg/L	0.002	< 0.002	<0.002	< 0.002	<0.002	<0.002	< 0.002	0.001	<0.001	<0.001	<0.001	<0.001
Total Phosphorus	mg/L	0.002	< 0.002	<0.002	< 0.002	<0.002	<0.002	< 0.002	0.001	<0.001	< 0.001	<0.001	<0.001
Carbon								1	•	1	•	1	
Dissolved Organic Carbon	mg/L	0.5	<0.5	-	-	<0.5	-	-	0.5	<0.5	-	<0.5	-
Total Organic Carbon	mg/L	0.5	0.59	-	-	0.6	-	-	0.5	<0.5	-	<0.5	-
Total Metals			1	1			I	1		1	1	1	
Aluminum	mg/L	0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.02	< 0.02	<0.02	< 0.02	<0.02
Antimony	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Arsenic	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	< 0.0004	<0.0004	< 0.0004	<0.0004
Barium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Beryllium	mg/L	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.001	<0.001	<0.001	<0.001	<0.001
Bismuth	mg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.02	<0.02	<0.02	< 0.02	< 0.02
Cadmium	mg/L	0.00005	< 0.00005	< 0.00005	< 0.00005	<0.00005	<0.00005	< 0.00005	0.0002	< 0.0002	<0.0002	< 0.0002	<0.0002
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0008	< 0.0008	<0.0008	< 0.0008	<0.0008
Cobalt	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0002	<0.0002	<0.0002	< 0.0002	< 0.0002
Copper	mg/L	0.0005	< 0.0005	< 0.0005	< 0.0005	<0.0005	< 0.0005	< 0.0005	0.001	< 0.001	<0.001	< 0.001	< 0.001
Iron	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	< 0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Lead	mg/L	0.00005	< 0.00005	<0.00005	< 0.00005	<0.00005	<0.00005	<0.00005	0.0001	<0.0001	<0.0001	<0.0001	<0.0001

Table A-1: Blank Sample Results for the Baker Creek Reach 7 Overflow Monitoring Program, May and June 2011





BAKER CREEK REACH 7 OVERFLOW MONITORING PROGRAM

		Method		Field Blanks			Travel Blanks		Method	Field I	Blanks	Travel	Blanks
Parameter	Units	Detection Limit	20-May-11	6-Jun-11	17-Jun-11	20-May-11	6-Jun-11	17-Jun-11	Detection Limit	31-May-11	8-Jun-11	31-May-11	8-Jun-11
Manganese	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.002	< 0.002	<0.002	< 0.002	<0.002
Mercury	mg/L	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.00002	< 0.00002	<0.00002	< 0.00002	<0.00002
Molybdenum	mg/L	0.0005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Nickel	mg/L	0.0005	< 0.0005	<0.0005	< 0.0005	< 0.0005	<0.0005	< 0.0005	0.0002	< 0.0002	<0.0002	< 0.0002	<0.0002
Selenium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	< 0.0004	<0.0004	< 0.0004	<0.0004
Silver	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0004	< 0.0004	<0.0004	< 0.0004	<0.0004
Strontium	mg/L	0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	< 0.005	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Thallium	mg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Tin	mg/L	0.03	<0.03	<0.03	< 0.03	<0.03	<0.03	< 0.03	0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Titanium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.005	< 0.005	<0.005	< 0.005	<0.005
Uranium	mg/L	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	mg/L	0.03	< 0.03	< 0.03	< 0.03	< 0.03	<0.03	< 0.03	0.0005	< 0.0005	<0.0005	< 0.0005	<0.0005
Zinc	mg/L	0.004	<0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	0.004	< 0.004	< 0.004	< 0.004	<0.004
Dissolved Metals													
Aluminum	mg/L	0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	< 0.003	0.01	<0.01	<0.01	<0.01	<0.01
Antimony	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	< 0.0004	<0.0004	< 0.0004	<0.0004
Arsenic	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	< 0.0004	0.00665	< 0.0004	<0.0004
Barium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Beryllium	mg/L	0.005	<0.005	<0.005	< 0.005	<0.005	<0.005	<0.005	0.0005	< 0.0005	<0.0005	< 0.0005	<0.0005
Bismuth	mg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.00005	< 0.00005	<0.00005	< 0.00005	<0.00005
Boron	mg/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.002	< 0.002	<0.002	< 0.002	<0.002
Cadmium	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Cobalt	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Copper	mg/L	0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0006	<0.0006	<0.0006	<0.0006	<0.0006
Iron	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01
Lead	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Manganese	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.002	<0.002	<0.002	<0.002	<0.002
Molybdenum	mg/L	0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	0.00002	<0.00002	<0.0001	<0.00002	<0.0001
Mercury	mg/L	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0001	<0.0001	<0.00002	<0.0001	<0.00002
Nickel	mg/L	0.00005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Selenium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Silver	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Strontium	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Thallium	mg/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	0.00005	<0.00005	<0.00005	<0.00005	<0.00005
Tin	mg/L	0.03	<0.03	<0.03	< 0.03	<0.03	<0.03	< 0.03	0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Titanium	mg/L	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Uranium	mg/L	0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	<0.00001	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Vanadium	mg/L	0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Zinc	mg/L	0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	< 0.004	0.001	0.0012	0.0013	0.001	<0.001

Table A-1: Blank Sample Results for the Baker Creek Reach 7 Overflow Monitoring Program, May and June 2011 (continued)

Note: mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units; < = concentration of analyte was less than the method detection limit.

Notable sample results are in **bold**.





Table A-2: Duplicate Sample Results for the Baker Creek Reach 7 Overflow Monitoring Program,May 31 2011

Parameter	Units	Method Detection Limit	Duplicate Samp at Rea (d/s Giar	ich 4	Relative Percent Difference
		Linin	Sample 1	Sample 2	Difference
Conventional Parameters				-	
Total Suspended Solids	mg/L	3.0	5.0	7.0	-
Turbidity	NTU	0.10	8.5	7.0	20%
Total Metals				· · · ·	
Aluminum	mg/L	0.02	0.24	0.25	3%
Antimony	mg/L	0.0004	0.022	0.022	1%
Arsenic	mg/L	0.0004	0.091	0.094	3%
Barium	mg/L	0.0002	0.01	0.011	4%
Beryllium	mg/L	0.001	0.001	0.0011	-
Bismuth	mg/L	0.0002	<0.0002	<0.0002	-
Boron	mg/L	0.02	<0.02	<0.02	-
Cadmium	mg/L	0.0002	<0.0002	<0.0002	-
Calcium	mg/L	0.5	13	13	0%
Chromium	mg/L	0.0008	<0.0008	<0.0008	-
Cobalt	mg/L	0.0002	0.00094	0.00099	-
Copper	mg/L	0.001	0.0095	0.0096	1%
Iron	mg/L	0.01	0.43	0.42	2%
Lead	mg/L	0.0001	0.0028	0.003	7%
Magnesium	mg/L	0.1	3.7	3.6	1%
Manganese	mg/L	0.002	0.15	0.15	1%
Mercury	mg/L	0.00002	<0.00002	<0.00002	-
Molybdenum	mg/L	0.0001	0.0012	0.0014	11%
Nickel	mg/L	0.0002	0.006	0.0063	6%
Potassium	mg/L	0.1	1.3	1.2	1%
Selenium	mg/L	0.0004	< 0.0004	<0.0004	-
Silver	mg/L	0.0004	<0.0004	<0.0004	-
Sodium	mg/L	1.0	3.3	3.2	-
Strontium	mg/L	0.0002	0.058	0.06	3%
Thallium	mg/L	0.0001	<0.0001	<0.0001	-
Tin	mg/L	0.0004	<0.0004	<0.0004	-
Titanium	mg/L	0.005	0.0078	0.0084	-
Uranium	mg/L	0.0001	0.00036	0.00041	-
Vanadium	mg/L	0.0005	0.00093	0.00092	-
Zinc	mg/L	0.004	0.0087	0.01	-
Dissolved Metals					
Aluminum	mg/L	0.01	<0.01	0.016	-
Antimony	mg/L	0.0004	0.02	0.019	3%





Table A-2: Duplicate Sample Results for the Baker Creek Reach 7 Overflow Monitoring Program, May 31 2011 (continued)

Parameter	Units	Method Detection Limit	Duplicate Samp at Rea (d/s Giar	ich 4	Relative Percent Difference
			Sample 1	Sample 2	2
Arsenic	mg/L	0.0004	0.07	0.069	1%
Barium	mg/L	0.0001	0.0092	0.0088	5%
Beryllium	mg/L	0.0005	<0.0005	<0.0005	-
Bismuth	mg/L	0.00005	0.00007	0.00005	-
Boron	mg/L	0.002	0.017	0.017	1%
Cadmium	mg/L	0.0001	0.0001	0.00025	-
Calcium	mg/L	0.5	14	14	1%
Chromium	mg/L	0.0004	0.00051	0.00062	-
Cobalt	mg/L	0.0001	0.00084	0.00076	10%
Copper	mg/L	0.0006	0.0057	0.0059	3%
Iron	mg/L	0.01	0.071	0.091	25%
Lead	mg/L	0.0001	0.0013	0.001	20%
Magnesium	mg/L	0.1	4.0	3.9	1%
Manganese	mg/L	0.002	0.15	0.15	3%
Molybdenum	mg/L	0.0001	0.0014	0.0014	3%
Mercury	mg/l	0.00002	<0.00002	<0.00002	-
Nickel	mg/L	0.0001	0.0058	0.0056	3%
Potassium	mg/L	0.1	1.3	1.3	6%
Selenium	mg/L	0.0004	< 0.0004	0.00049	-
Silver	mg/L	0.0002	<0.0002	<0.0002	-
Sodium	mg/L	0.5	3.5	3.5	0%
Strontium	mg/L	0.0001	0.059	0.057	4%
Thallium	mg/L	0.00005	0.00012	0.000095	-
Tin	mg/L	0.0002	<0.0002	<0.0002	-
Titanium	mg/L	0.0003	0.0023	0.0025	6%
Uranium	mg/L	0.0001	0.00041	0.00039	-
Vanadium	mg/L	0.0001	0.00051	0.00056	9%
Zinc	mg/L	0.001	0.009	0.007	25%

Notes: mg/L = milligrams per litre; µg/L = micrograms per litre; NTU = nephelometric turbidity units; < = concentration of analyte was less than the method detection limit.

Percent difference was calculated using the following formula: (maximum concentration - minimum concentration)/average concentration.

Notable sample results are in **bold**.

- = not applicable, no data, or the percent difference was not calculated, because concentration in one or both of the duplicate samples was <5 times the method detection limit.





Dissolved and Total Metal Concentrations in Water Samples

Between May 18 and June 17, 51 water samples were submitted for total and dissolved metal analyses, including blank samples. Several of those samples contained dissolved metals at a concentration at least 20% greater than the corresponding total metal concentration. The frequency of exceedance varies by metal and is presented in Table A-3. In addition, dissolved arsenic concentrations in one field blank (*i.e.*, June 8) exceeded the total arsenic concentrations by more than 20%. Dissolved concentrations should be lower than total concentrations. Although these exceedances indicate potential analytical errors, some variability is expected. Results for metals with notable results in more than 10% of samples (*i.e.*, boron, cadmium, chromium and thallium), should be interpreted with caution.

Table A-3: Fre Concentratior		d Metal Concentration at	Least 20% Higher than the Total Metal
	Number of	Franciscos	

Metal	Number of Samples	Frequency of Occurrence
Arsenic	3	6%
Beryllium	2	4%
Boron	10	20%
Cadmium	6	12%
Chromium	7	14%
Cobalt	1	2%
Copper	2	4%
Manganese	1	2%
Mercury	3	6%
Selenium	3	6%
Strontium	2	4%
Thallium	7	14%
Uranium	2	4%
Zinc	2	4%

Notes: % = percent

Total number of samples submitted for total and dissolved metals analyses was 51.





APPENDIX B

Detailed Water Quality Results



Table B-1: Field and Laboratory Data for the Baker Creek Reach 7 Overflow Monitoring Program, May and June 2011

				F		Specific	Field Measured	Dissolved		Laboratory Total	
				Parameter	рН	Conductivity	Temperature	Oxygen	Turbidity	Suspended Solids	Turbidity
				Units	-	(µS/cm)	(°C)	(mg/L)	(NTU) max avg increase of	(mg/L) max avg increase of 5	(NTU) max avg increas
	Canadian Wat		rinking Water Qualit	y Guidelines ^(d)	6.5-9.0 6.5-8.5 6.0-9.0	-	-		2 NTU ^(b)		NTU ^(b) 1 ^(e)
		Ma	kimum Authorized C	Median	-	-		ek Background		30	- 2.3 ^W
				Minimum Maximum		-	-	-	-	<1 29 ^c	0.7 8 ^{C,W}
			n les	n s than the MDL	-	-	-	-	-	44 4	26 0
	Sample ID SNP 43-11	Date Sampled 16-May-11	Lab Sample ID L1005341-3			-	-	-	-	3	3 ^w
	Reach 7 Overflow u/s Road Reach 6 BC Exposure Point (at Tails)	16-May-11 16-May-11	11-159-1(Taiga) L100576-1	INAC Golder	- 7.8	- 165	- 1.9	- 12.8	- 834 ^{C,W}	288 ^{M,C} 4,340 ^{M,C}	97 ^{C.W} 2,740 ^{C.V}
ring Overflow Event	Reach 6 BC Exposure Point (in pond) SNP 43-5	16-May-11 16-May-11	11-159-2(Taiga) L1005341-1	INAC DCNJV		-	-	-	-	374 ^{M,C} 149 ^{M,C}	- 219 ^{C,W}
LVCIA	SNP 43-5 Reach 7 overflow u/s Road	16-May-11 17-May-11	L1005341-2 L1008285-1	DCNJV Golder	- 7.4	- 61	- 0.7	- 14.0	- 2 ^W	151 ^{M,C} 7	213 ^{C,W} 3 ^W
	Reach 7 Overflow d/s Road Reach 0 (BC Mouth)	17-May-11 17-May-11	L1008285-2 L1008285-3	Golder Golder	7.4 7.6	61 176	0.9	14.0 12.3	118 ^{C,W} 214 ^{C,W}	279 ^{M,C} 163 ^{M,C}	95 ^{C,W} 134 ^{C,W}
	Reach 7 Overflow u/s Road Reach 7 Overflow d/s Road	18-May-11 18-May-11	L1006655-1 L1006655-2	Golder Golder	7.3 7.4	63 64	4.5 4.5	12.4 12.9	3 ^{C.W} 29 ^{C,W}	<3 11 [°]	8 ^{C,W} 31 ^{C,W}
	Reach 6 BC Exposure Point (at Tails) Reach 4 (d/s Giant Pool)	18-May-11 18-May-11	L1006655-3 L1006658-1	Golder Golder	7.7 7.8	140 126	2.6 0.8	12.2 12.4	1,100 ^{C,W} 636 ^{C,W}	79 ^{M,C} 72 ^{M,C}	491 ^{C,W} 142 ^{C,W}
	Reach 3 (d/s of Bridge) Reach 2 (d/s Pool)	18-May-11 18-May-11	L1006655-4 L1006655-5	Golder Golder	7.8 7.7	128 152	0.7	13.2 12.6	359 ^{C,W} 243 ^{C,W}	72 ^{M,C} 72 ^{M,C}	130 ^{C,W} 129 ^{C,W}
	Reach 1 (u/s Culvert) SNP 43-5	18-May-11 18-May-11	L1006655-6 L1006655-7	Golder Golder	7.7	148 153	0.2	12.8 13.3	169 ^{C,W} 187 ^{C,W}	66 ^{M,C} 67 ^{M,C}	117 ^{C,W} 149 ^{C,W}
	Reach 0 (BC Mouth) Reach 6 BC Exposure Point (at Tails)	18-May-11 19-May-11	L1006655-8 L1007648-3	Golder Golder	7.6 7.5	155 421	1.0 3.4	12.6	235 ^{C,W} 583 ^{C,W}	98 ^{M,C} 460 ^{M,C}	160 ^{C,W} 468 ^{C,W}
	Reach 2 (d/s Pool) Reach 4 (d/s Giant Pool)	19-May-11 19-May-11	L1007648-1 L1007648-2	Golder Golder	7.6	134 129	0.4	12.6	67 ^{C,W} 49 ^{C,W}	36 ^{M,C} 29 ^C	64 ^{C,W} 53 ^{C,W}
	Reach 0 (BC Mouth) Reach 6 BC Exposure Point (at Tails) Reach 4 (d/s Giant Pool)	19-May-11 20-May-11 20-May-11	L1007648-4 L1007649-7 L1007649-5	Golder Golder Golder	7.6 7.5 7.4	158 220 146	0.9 3.0 2.4	12.8 11.8 11.1	70 ^{C,W} 529 ^{C,W} 39 ^{C,W}	55 ^{M,C} 517 ^{M,C} 27 ^C	68 ^{C,W} 349 ^{C,W} 30 ^{C,W}
	Reach 2 (d/s Pool) Reach 0 (BC Mouth)	20-May-11 20-May-11 20-May-11	L1007649-5 L1007649-6 L1007649-4	Golder Golder	7.4 7.5 7.5	146 141 153	2.4 0.6 2.1	11.1 12.3 12.3	81 ^{C,W} 90 ^{C,W}	27° 44 ^{M,C} 53 ^{M,C}	44 ^{C,W} 48 ^{C,W}
	SNP 43-5 Reach 6 BC Exposure Point (at Tails)	20-May-11 20-May-11 21-May-11	L1007649-1	Golder	7.6	153	0.2 4.7	12.3	90 93 ^{C,W} 73 ^{C,W}	53 41 ^{M,C}	48 47 ^{C,W}
	Reach 4 (d/s Giant Pool) Reach 2 (d/s Pool)	21-May-11 21-May-11 21-May-11		-	7.3	-	5.8 1.3	-	9 ^{C,W} 54 ^{C,W}	-	-
	Reach 0 (BC Mouth) Reach 6 BC Exposure Point (at Tails)	21-May-11 22-May-11 22-May-11		-	7.5	-	5.5	-	33 ^{c,w} 415 ^{c,w}	-	
	Reach 4 (d/s Giant Pool) Reach 2 (d/s Pool)	22-May-11 22-May-11	-	-	7.3 7.3	-	2.9 1.2	-	14 ^{C,W} 29 ^{C,W}	-	-
	Reach 0 (BC Mouth) Reach 4 (d/s Giant Pool)	22-May-11 24-May-11	- L1008512-4	- Golder	8.7 ^w 7.4	-	6.6 3.6	-	33 ^{C,W} 57 ^{C,W}	- 70 ^{M,C}	- 53 ^{C,W}
	Reach 2 (d/s Pool) SNP 43-5	24-May-11 24-May-11	L1008512-5 L1008512-3	Golder Golder	7.4 7.5	-	2.2 1.6	-	58 ^{C,W} 40 ^{C,W}	72 ^{M,C} 37 ^{M,C}	51 ^{C,W} 38 ^{C,W}
-	Reach 7 waterfall entering Reach 6 Reach 4 (d/s Giant Pool)	25-May-11 25-May-11	L1009010-1 L1009010-2	Golder Golder	7.5 7.4	86 124	8.8 3.6	11.7 9.9	4 ^W 13 ^{C,W}	<3 4	3 ^W 9 ^{C,W}
	Reach 2 (d/s Pool) Reach 0 (BC Mouth)	25-May-11 25-May-11	L1009010-3 L1009010-5	Golder Golder	- 7.5	168 164	1.9 1.5	10.8 11.8	70 ^{C.W} 43 ^{C.W}	33 ^{M,C} 23 ^C	40 ^{C,W} 33 ^{C,W}
	SNP 43-5 (above) Reach 7 waterfall entering Reach 6	25-May-11 27-May-11	L1009010-4 L1010143-1	Golder Golder	7.5 7.5	- 87	1.6 10.6	- 11.0	40 ^{C,W} 0.3	18 ^C 7	33 ^{C,W} 2 ^W
	Reach 5 (d/s Pond) Reach 4 (d/s Giant Pool)	27-May-11 27-May-11	L1010143-2 L1010143-3	Golder Golder	7.3 7.3	110 119	6.5 4.8	9.6 9.1	6 ^{C.W} 10 ^{C,W}	5 5	9 ^{C,W} 9 ^{C,W}
	Reach 4 (d/s Giant Pool) dup Reach 4 (d/s Ice at Bridge)	27-May-11 27-May-11	L1010143-4 L1010143-5	Golder Golder	- 7.3	- 120	- 2.6	9.7	22 ^{C,W}	7 20 ^C	7 ^{C,W} 17 ^{C,W}
	Reach 2 (d/s Pool) SNP 43-5	27-May-11 27-May-11	L1010143-6 L1010143-7	Golder Golder	<u>.</u>	131	3.7	- 10.2	12 ^{C,W}	11 ^c 10 ^c	11 ^{C,W} 10 ^{C,W}
	Reach 0 (BC Mouth) Reach 7 waterfall entering Reach 6 Reach 5 (d/s Pond)	27-May-11 28-May-11 28-May-11	L1010143-8	Golder - -	7.4 7.5 7.3	116 89 120	3.3 10.9 6.7	11.1 11.0 9.5	11 ^{C,W} 0.3 8.3 ^{C,W}	12 ^c -	11 ^{c,w}
	Reach 4 (d/s Giant Pool) Reach 4 (Arctic Grayling Spawning Site)	28-May-11 28-May-11 28-May-11	-	-	7.3	128	5.6	9.3 9.3	12 ^{C,W} 7.8 ^{C,W}	-	-
	Reach 4 (d/s Ice at Bridge) Upper Reach 2	28-May-11 28-May-11	-	-	7.4 7.4	136 149	4.8 4.1	10.3 10.7	15 ^{C,W} 10 ^{C,W}	-	-
	Reach 1 (SNP 43-5) Reach 0 Mouth of Baker Creek	28-May-11 28-May-11	-	-	7.4 7.4	161 177	2.8 3.8	11.3 10.8	8.8 ^{C,W} 8.9 ^{C,W}	-	
	Reach 4 (Arctic Grayling Spawning Site) Upper Reach 2	29-May-11 29-May-11	-	-	7.2	122 139	8.9 4.9	9.3 10.0	10 ^{C,W} 21 ^{C,W}	-	-
	Reach 1 (SNP 43-5) Reach 0 Mouth of Baker Creek Reach 5 (d/s Pond)	29-May-11 29-May-11			7.4 7.4 7.2	148 176 147	4.4	11.2 11.0	16 ^{C,W} 9.7 ^{C,W} 12 ^{C,W}	-	-
	Reach 5 (d/s Pond) Reach 4 (d/s Giant Pool) Reach 4 (d/s Bridge no Ice)	30-May-11 30-May-11 30-May-11	-	-	7.3 7.3 7.3	147 137 132	11.2 10.5 8.2	9.0 9.4 9.8	20 ^{C,W} 21 ^{C,W}	-	-
	Upper Reach 2 Reach 1 (SNP 43-5)	30-May-11 30-May-11 30-May-11			7.4 7.4	132 139 144	7.7	10.0	21 22 ^{C,W} 19 ^{C,W}	-	-
	Reach 0 Mouth of Baker Creek d/s of Reach 1 (SNP 43-5)	30-May-11 31-May-11	-	-	7.5 7.5	140 155	7.7 10.1	11.1 10.0	9.5 ^{C,W} 23 ^{C,W}	-	-
	Reach 5 (d/s Pond) Reach 4 (d/s Giant Pool)	31-May-11 31-May-11	-	-	7.4 7.4	131 124	12.4 12.7	9.1 9.2	13 ^{C,W} 17 ^{C,W}	-	-
st-Mitigation	Reach 4 (d/s Bridge no Ice) Upper Reach 2	31-May-11 31-May-11		-	7.4	127 139	12.4 11.4	9.7 9.9	18 ^{C,W} 21 ^{C,W}	-	-
	Reach 5 (d/s Pond) Reach 4 (d/s Giant Pool) Reach 2 (d/s Pool)	1-Jun-11 1-Jun-11			7.3 7.4 7.5	143 129 147	12.5 13.6 13.2	7.3 8.9 9.1	7.5 ^{C,W} 8.9 ^{C,W} 9.4 ^{C,W}	-	-
	Reach 2 (d/s Pool) Reach 0 (BC Mouth) SNP43-5	1-Jun-11 1-Jun-11 1-Jun-11	-		7.5 7.5 7.5	147 152 151	13.2 13.0 12.8	9.1 9.5 9.4	9.4 ^{-0.0} 10 ^{C,W} 10 ^{C,W}		
	Reach 7 waterfall entering Reach 6 Reach 5 (d/s Pond)	2-Jun-11 2-Jun-11 2-Jun-11			7.6 7.4	88 139	11.6 10.4	9.4 10.7 8.1	0.2 4.5 ^{C,W}	-	-
	Reach 4 (d/s Giant Pool) Reach 2 (Collapsed Culvert)	2-Jun-11 2-Jun-11	-	-	7.5 7.5	110 137	10.1 9.3	9.8 10.2	8.8 ^{C,W} 9.2 ^{C,W}	-	-
	Reach 2 (d/s Pool) Reach 0 (BC Mouth)	2-Jun-11 2-Jun-11	-	-	7.5 7.6	141 151	9.4 9.4	10.0	9.3 ^{C,W} 9.9 ^{C,W}	-	-
	SNP43-5 Reach 7 waterfall entering Reach 6	2-Jun-11 3-Jun-11		-	7.5 7.6	146 94	9.3 8.8	10.3 11.7	11 ^{C,W} 1.7 ^W 3.1 ^{C,W}	-	-
	Reach 5 (d/s Pond) Reach 4 (d/s Giant Pool) Reach 2 (Collapsed Culvert)	3-Jun-11 3-Jun-11 3-Jun-11	-	-	7.3 7.5 7.6	112 142 150	8.6 8.5 8.1	8.1 10.8 11.0	3.1 ^{°,} " 5.2 ^{°,} " 4.4 ^{°,} "	-	-
	Reach 2 (Collapsed Culvert) Reach 2 (d/s Pool) Reach 0 (BC Mouth)	3-Jun-11 3-Jun-11 3-Jun-11		-	7.5	150 157 159	8.1 8.2 9.0	11.0 10.8 11.4	4.4 ⁻⁰ 4.9 ^{C,W} 5 ^{C,W}	-	
	SNP43-5 Reach 0 (BC Mouth)	3-Jun-11 4-Jun-11	-		7.6 7.6	157 148	8.1 7.4	11.3 11.6	5.5 ^{C,W} 4.1 ^{C,W}	-	-
	SNP43-5 Reach 0 (BC Mouth)	4-Jun-11 5-Jun-11	-	-	7.6 7.7	160 142	7.5 8.9	11.5 11.4	4.9 ^{C,W} 3.5 ^{C,W}	-	-
	SNP43-5 Reach 5 (d/s Pond)	5-Jun-11 6-Jun-11	- L1013401-3	Golder	7.6	138 123	8.7 10.4	11.5 10.3	4 ^{C,W}	- 4.2	4 ^w
	Reach 4 (d/s Bridge no Ice) Reach 4 (d/s Giant Pool)	6-Jun-11 6-Jun-11	L1013401-2	Golder	7.5	88 118	10.5 10.7	10.9 11.1	3.4 ^{C,W} 2.5 ^{C,W}	- 2.6	3.6 ^W
	Reach 2 (d/s Pool) Reach 0 (BC Mouth) SNP43-5	6-Jun-11 6-Jun-11 6-Jun-11	- L1013401-1	- Golder	7.6 7.7 7.6	124 92 128	10.3 9.3 10.2	11.0 11.3 11.1	3.5 ^{C,W} 3.6 ^{C,W} 3.3 ^{C,W}	2.6	3.9 ^W
	SNP43-5 SNP 43-11 Reach 6 - Baker Pond Outflow	6-Jun-11 6-Jun-11 8-Jun-11	L1019377-1	DCNJV	7.6 - 7.6	- 128		- 11.1 - 10.3	3.3 ^{c,w}	3	1.1 ^w 3 ^w
	Reach 5 - Baker Pond Outflow Reach 5 (d/s Pond) Reach 4 (d/s Bridge no Ice)	8-Jun-11 8-Jun-11 8-Jun-11			7.5	107 115 92	11.7 11.3 11.3	9.4	3.6 ^{C,W} 2.9 ^{C,W}		-
	Reach 4 (d/s Giant Pool) Reach 2 (d/s Pool)	8-Jun-11 8-Jun-11	-	-	7.5	112 109	11.3 11.2	10.0 10.1	3 ^{C,W} 3.1 ^{C,W}	-	-
	SNP43-5 SNP43-5	8-Jun-11 9-Jun-11	-	-	7.5 7.7	125 116	11.4 11.7	10.3 10.5	4.4 ^{C,W} 3.4 ^{C,W}	-	-
	Reach 5 (d/s Pond) Reach 5 (old beaver dam)	10-Jun-11 10-Jun-11		-	7.5	120 103	13.1 13.6	9.2 10.9	1.5 ^W 1.9 ^W	-	-
	Reach 4 (d/s Giant pool) Reach 2 (Collapsed Culvert)	10-Jun-11 10-Jun-11	-	-	7.5	104 119	13.9 14.4	10.3	2 ^W 2.7 ^{C,W}	-	-
	Reach 2 (d/s Pool) Reach 0 (BC Mouth)	10-Jun-11 10-Jun-11	-	-	7.7	120 124 123	14.5 14.6	10.3 10.3	2.8 ^{C,W} 3.6 ^{C,W}	-	-

	Reach 0 (BC Mouth)	10-Jun-11	-	-	7.7	124	14.6	10.3	3.6 ^{C,W}	-	-
	SNP43-5	10-Jun-11	-	-	7.7	123	14.5	10.2	3.2 ^{C,W}	-	-
	Reach 5 (d/s Pond)	13-Jun-11	-	-	7.5	68	15.5	8.8	0.4	-	-
	Reach 5 (old beaver dam)	13-Jun-11	-	-	7.5	103	15.5	9.8	0.0	-	-
	Reach 4 (d/s Bridge no Ice)	13-Jun-11	-	-	7.5	114	15.8	9.3	1.7 ^w	-	-
	Reach 4 (d/s Giant Pool)	13-Jun-11	-	-	7.3	109	15.3	9.2	0.4	-	-
	Reach 2 (Collapsed Culvert)	13-Jun-11	-	-	7.6	120	16.3	9.6	0.9	-	-
	Reach 2 (d/s Pool)	13-Jun-11	-	-	7.5	118	15.4	9.7	0.1	-	-
	Reach 0 (BC Mouth)	13-Jun-11	-	-	7.6	128	15.0	9.7	77 ^{C,W,i}	-	-
	SNP43-5	13-Jun-11	-	-	7.6	127	16.2	9.6	1.0	-	-
	Reach 7 waterfall entering Reach 6	15-Jun-11	-	-	7.7	96	17.8	9.7	0.0	-	-
	Reach 5 (d/s Pond)	15-Jun-11	-	-	7.4	115	18.9	8.2	0.1	-	-
	Reach 4 (d/s Bridge no Ice)	15-Jun-11	-	-	7.6	111	19.7	8.8	0.4	-	-
	Reach 4 (d/s Giant Pool)	15-Jun-11	-	-	7.4	115	19.3	8.2	0.3	-	-
	Reach 2 (Collapsed Culvert)	15-Jun-11	-	-	7.6	120	19.8	9.2	0.2	-	-
	Reach 2 (d/s Pool)	15-Jun-11	-	-	7.6	120	20.0	9.2	0.4	-	-
	Reach 0 (BC Mouth)	15-Jun-11	-	-	7.7	126	20.1	9.2	0.2	-	-
	SNP43-5	15-Jun-11	-	-	7.6	124	-	9.2	0.1	-	-
	Reach 6 (Baker Pond Outflow)	17-Jun-11	L1019377-4	Golder	-	-	-	-	-	4	3.6 ^W
	Reach 7 waterfall entering Reach 6	17-Jun-11	L1019377-5	Golder	7.8	98	16.6	9.7	0.5	21	3.1 ^w
	Reach 5 (old beaver dam)	17-Jun-11	-	Golder	7.6	109	18.1	8.4	0.6	-	-
	Reach 5 (d/s Pond)	17-Jun-11	-	Golder	7.3	145	17.2	3.7	0.0	-	-
	Reach 4 (d/s Giant Pool)	17-Jun-11	-	Golder	7.5	113	18.0	8.3	0.0	-	-
	Reach 4 (d/s Bridge no Ice)	17-Jun-11	L1019377-3	Golder	-	-	-	-	-	<3	1.8 ^W
	Reach 2 (d/s Pool)	17-Jun-11	-	Golder	7.6	120	17.6	8.3	0.1	-	-
	Reach 0 (BC Mouth)	17-Jun-11	L1019377-1	Golder	7.3	128	17.4	8.3	0.2	<3	2.5 ^W
	Reach 1 (SNP43-5)	17-Jun-11	L1019377-2	Golder	7.5	102	17.4	8.5	0.1	<3	2.7 ^w
Notes: u/s - unstrea	m; d/s= downstream; mg/L = milligrams per litre; NTU = neph				-	-			÷		
- = no data or guideli											
	bove water quality guidelines.										
(a) Source: Canadian	in Council of Ministers of the Environment (CCME) 2011.										
	in Council of Ministers of the Environment (CCME) 2011. ive states that during clear flow periods, the guideline is a ma	ximum average increase of 2 NTU:	s from background levels	s for a longer term e	opsure (e.g., 30 day	period).					
(c) The CCME narration	In Council of Ministers of the Environment (CCME) 2011. ive states that during clear flow periods, the guideline is a mark to the median turbidity of 2.3 and 5 NTU for field and laborat						Reach 6 between May	25 and June 17).			
^{ic)} The CCME narration Background was set	ive states that during clear flow periods, the guideline is a ma	ory measurements, respectively, at					Reach 6 between May	25 and June 17).			
^(c) The CCME narrati Background was set Turbidity measureme	ive states that during clear flow periods, the guideline is a ma to the median turbidity of 2.3 and 5 NTU for field and laborat	ory measurements, respectively, at E guideline.	reference locations (i.e.	., SNP 43-11 on May	16, and from Reach	7 waterfall entering F	Reach 6 between May	25 and June 17).			
^(c) The CCME narration Background was set Turbidity measureme ^(b) The CCME narration	ive states that during clear flow periods, the guideline is a ma to the median turbidity of 2.3 and 5 NTU for field and laborat ents from the reference locations were not compared to CCM	ory measurements, respectively, at E guideline. ximum average increase of 5 mg/L	reference locations (i.e. from background levels	., SNP 43-11 on May	16, and from Reach sures (i.e. 24 h to 30	7 waterfall entering F days).			ne 17.		
(c) The CCME narration Background was set Turbidity measurement (b) The CCME narration The median TSS contracts of the median TSS contracts of the test of test	ive states that during clear flow periods, the guideline is a ma to the median turbidity of 2.3 and 5 NTU for field and laborat ants from the reference locations were not compared to CCM we states that during clear flow periods, the guideline is a ma	ory measurements, respectively, at E guideline. ximum average increase of 5 mg/L ed for the background concentratio	reference locations (i.e. from background levels	., SNP 43-11 on May	16, and from Reach sures (i.e. 24 h to 30	7 waterfall entering F days).			ne 17.		
^(c) The CCME narration Background was set Turbidity measureme ^(b) The CCME narration The median TSS con TSS concentrations	we states that during clear flow periods, the guideline is a mate to the median turbidity of 2.3 and 5 NTU for field and laborat ms from the reference locations were not compared to CCM we states that during clear flow periods, the guideline is a nocentration of at the reference locations (i.e., 3 mg(1) was us collected from the reference locations were not compared to	ory measurements, respectively, at E guideline. ximum average increase of 5 mg/L ed for the background concentratio	reference locations (i.e. from background levels	., SNP 43-11 on May	16, and from Reach sures (i.e. 24 h to 30	7 waterfall entering F days).			ne 17.		
^{c)} The CCME narrativ Background was set Furbidity measureme ^{b)} The CCME narrativ The median TSS con TSS concentrations ^{d)} Source: Health C	ve states that during clear (how periods, the guideline is a mu to the median turbidly of 2.3 and 5.0 MTL for field and taborat ents from the reference locations were not compared to CCM ve states that during clear flow periods, the guideline is a mu contration of at the reference locations (i.e., 3 mg/L) was us collected from the reference locations were not compared to anada (2010).	ory measurements, respectively, at E guideline. ximum average increase of 5 mg/L ed for the background concentratio	reference locations (i.e. from background levels	., SNP 43-11 on May	16, and from Reach sures (i.e. 24 h to 30	7 waterfall entering F days).			ne 17.		
^(c) The CCME narrating Background was set Turbidity measureme ^(b) The CCME narrating The median TSS con TSS concentrations ^(d) Source: Health C ^(e) Aesthetic objective	ve states that during clear (how periods, the guideline is a mu to the median turbidly of 2.3 and 5.0 MTL for field and taborat ents from the reference locations were not compared to CCM ve states that during clear flow periods, the guideline is a mu contration of at the reference locations (i.e., 3 mg/L) was us collected from the reference locations were not compared to anada (2010).	ory measurements, respectively, at E guideline. ximum average increase of 5 mg/L ed for the background concentratio	reference locations (i.e. from background levels	., SNP 43-11 on May	16, and from Reach sures (i.e. 24 h to 30	7 waterfall entering F days).			ne 17.		
^(c) The CCME narrativ Background was set Turbidity measureme ^(b) The CCME narrativ The median TSS concentrations ^(d) Source: Health C ^(a) Aesthetic objectivy ⁷⁾ Source: Metal Mini	ve states that during clear (how periods, the guideline is a ma to the median turbidity of 2.3 and 5 NTU for field and laborat fisf mort hereference locations were not compared to CCM ve states that during clear (how periods, the guideline is a ma contration of at the reference locations (i.e., 3 mg/L) was us collected from the reference locations were not compared to amada (2010). e.	ory measurements, respectively, al E guideline. ximum average increase of 5 mg/L ed for the background concentratic CCME guideline.	reference locations (i.e. from background levels n; the reference location	., SNP 43-11 on May for longer term expons defined SNP 43-1	16, and from Reach sures (i.e. 24 h to 30	7 waterfall entering F days).			ne 17.		
^(c) The CCME narrativ Background was set Turbidity measureme ^(b) The CCME narrativ The median TSS con TSS concentrations ^(d) Source: Health C ^(e) Aesthetic objectivu ^(f) Source: Metal Minii ^(g) Background conce ^(h) Turbidity value on a ^(h)	ve states that during clear flow periods, the guideline is a mu to the median turbidly of 2.3 and 5.NTI for field and laborat ants from the reference locations were not compared to CQM ve states that during clear flow periods, the guideline is a ma contration of at the reference locations (i.e., 3 mg1) was us collected from the reference locations were not compared to anada (2010). e. mg Effluent Regulations (Government of Canada). Intrations were calculated using data collected from Baker C June 6 from Reach 5 (ds proor) was normalous and a poter	ory measurements, respectively, at E guideline. kimum average increase of 5 mg/L ed for the background concentratic CCME guideline. eek in May and June between 200 tial error, based on the discrepanc	reference locations (i.e. from background levels n; the reference location 7 and 2010 (Golder 201 y between field and labo	., SNP 43-11 on May for longer term expc ns defined SNP 43-1 1). vratory measured turk	 16, and from Reach usures (i.e. 24 h to 30 1 on May 16, and fror bidity values. 	7 waterfall entering F days). n Reach 7 waterfall ¢	entering Reach 6 betw	een May 25 and Jur	ne 17.		
^{e)} The CCME narrativ Background was set Furbidity measureme ⁰⁾ The CCME narrativ The median TSS contrastions ¹⁰ Source: Health C ⁰⁾ Source: Metal Minii ⁰⁾ Background conce ¹⁰⁾ Turbidity value on . ¹⁰ ¹⁰ Turbidity value on . ¹⁰	ve states that during clear (how periods, the guideline is a mu to the median turbidity of 2.3 and 5 NTU for field and laborat test from the reference locations were not compared to CCM ve states that during clear flow periods, the guideline is a mu contration of at the reference locations were not compared to randa (2010). e, ing Effluent Regulations (Government of Canada). Partiations were calculated using data collected from Baker C June 15 from Reach 0 (BC mouth) was anomalous and a poter une 13 from Reach 0 (BC mouth) was anomalous. Strong 9	ory measurements, respectively, at E guideline. kimum average increase of 5 mg/L ed for the background concentratic CCME guideline. eek in May and June between 200 isial error, based on the discrepance midds caused the area near the bre	reference locations (i.e. from background levels n; the reference location 7 and 2010 (Golder 201 y between field and labo akwater to be particular	., SNP 43-11 on May for longer term expc ns defined SNP 43-1 1). vratory measured turk	 16, and from Reach usures (i.e. 24 h to 30 1 on May 16, and fror bidity values. 	7 waterfall entering F days). n Reach 7 waterfall ¢	entering Reach 6 betw	een May 25 and Jur	ne 17.		
⁽²⁾ The CCME narratio Background was set Turbidity measureme ⁽²⁾ The CCME narratio The median TSS con- TSS concentrations ⁽⁴⁾ Source: Health C ⁽⁴⁾ Assthetic objectivity ⁽⁵⁾ Source: Metal Minii ⁽⁵⁾ Background conce ⁽⁵⁾ Turbidity value on . ⁽⁵⁾ = concentration is h	ve states that during clear (how periods, the guideline is an to the median turbidity of 2.3 and 5 NTU for field and laborat first from the reference locations were not compared to CCM ve states that during clear (how periods, the guideline is a ma collected from the reference locations were not compared to anada (2010). e. e. Imig Effluent Regulations (Government of Canada). antrations were calculated using data collected from Baker C June 6 from Reach 0 (BC mouth) was anomalous, strong June 13 from Reach 0 (BC mouth) was anomalous. Strong June 13 from Reach 0 (BC mouth) was anomalous.	ory measurements, respectively, at E guideline. E guideline. ed for the background concentratic CCME guideline. reek in May and June between 200 fail error, based on the discrepanc vinds caused the area near the bre outside the recommended pH rang	reference locations (i.e. from background levels n; the reference location 7 and 2010 (Golder 201 y between field and labo akwater to be particular	., SNP 43-11 on May for longer term expc ns defined SNP 43-1 1). vratory measured turk	 16, and from Reach usures (i.e. 24 h to 30 1 on May 16, and fror bidity values. 	7 waterfall entering F days). n Reach 7 waterfall ¢	entering Reach 6 betw	een May 25 and Jur	ve 17.		
⁽⁶⁾ The CCME narrativ Background was set Turbidity measureme turbidity measureme ⁽⁸⁾ The CCME narrativ The median TSS concentrations ⁽⁶⁾ Source: Health Ci ⁽⁶⁾ Source: Health Ci ⁽⁶⁾ Background conce ⁽⁶⁾ Turbidity value on ⁽⁶⁾ Turbidity value on ⁽⁶⁾ Turbidity value on ⁽⁶⁾ a concentration is h ⁽⁶⁾ = concentration is h	ve states that during clear (how periods, the guideline is a mu to the median turbidity of 2.3 and 5 NTU for field and laborat to the median turbidity of 2.3 and 5 NTU for field and laborat the from the reference locations were not compared to CCM contrained at the reference locations (i.e., 3 mg/L) was us collected from the reference locations were not compared to anada (2010). e. ing Effluent Regulations (Government of Canada). antrations were calculated using data collected from Baker C June 6 from Reach 5 (dis pond) was anomalous and a poter June 13 from Reach 0 (BC mouth) was anomalous. Strong yingher than the relevant CCME aquetic life guideline or outsi	ory massurements, respectively, at E guideline. kimum average increase of 5 mg/L ed for the background concentratic CCME guideline. Teek in May and June between 2000 tital error, based on the discropanc vinds caused the area near the bre putside the recommended pH range the he recommended pH range	reference locations (i.e. from background levels n; the reference location 7 and 2010 (Golder 201 y between field and labo akwater to be particular	., SNP 43-11 on May for longer term expc ns defined SNP 43-1 1). vratory measured turk	 16, and from Reach usures (i.e. 24 h to 30 1 on May 16, and fror bidity values. 	7 waterfall entering F days). n Reach 7 waterfall ¢	entering Reach 6 betw	een May 25 and Jur	1e 17.		
⁽⁶⁾ The CCME narrativ Background was set Turbidity measureme turbidity measureme ⁽⁸⁾ The CCME narrativ The median TSS concentrations ⁽⁶⁾ Source: Health Ci ⁽⁶⁾ Source: Health Ci ⁽⁶⁾ Background conce ⁽⁶⁾ Turbidity value on ⁽⁶⁾ Turbidity value on ⁽⁶⁾ Turbidity value on ⁽⁶⁾ a concentration is h ⁽⁶⁾ = concentration is h	ve states that during clear (how periods, the guideline is an to the median turbidity of 2.3 and 5 NTU for field and laborat first from the reference locations were not compared to CCM ve states that during clear (how periods, the guideline is a ma collected from the reference locations were not compared to anada (2010). e. e. Imig Effluent Regulations (Government of Canada). antrations were calculated using data collected from Baker C June 6 from Reach 0 (BC mouth) was anomalous, strong June 13 from Reach 0 (BC mouth) was anomalous. Strong June 13 from Reach 0 (BC mouth) was anomalous.	ory massurements, respectively, at E guideline. kimum average increase of 5 mg/L ed for the background concentratic CCME guideline. Teek in May and June between 2000 tital error, based on the discropanc vinds caused the area near the bre putside the recommended pH range the he recommended pH range	reference locations (i.e. from background levels n; the reference location 7 and 2010 (Golder 201 y between field and labo akwater to be particular	., SNP 43-11 on May for longer term expc ns defined SNP 43-1 1). vratory measured turk	 16, and from Reach usures (i.e. 24 h to 30 1 on May 16, and fror bidity values. 	7 waterfall entering F days). n Reach 7 waterfall ¢	entering Reach 6 betw	een May 25 and Jur	ne 17.		
⁽⁶⁾ The CCME narrativ Background was set ⁽²⁾ The CCME narrativ The CCME narrativ The median TSS concentrations ⁽³⁾ Source: Health Ci ⁽⁴⁾ Assthetic objectiv ⁽⁷⁾ Source: Health Ci ⁽⁶⁾ Background conce ⁽⁶⁾ Turbidity value on ⁽⁶⁾ Turbidity value on ⁽⁶⁾ Turbidity value on ⁽⁶⁾ a concentration is h ⁽⁶⁾ = concentration is h	ve states that during clear (how periods, the guideline is a mu to the median turbidity of 2.3 and 5 NTU for field and laborat to the median turbidity of 2.3 and 5 NTU for field and laborat the from the reference locations were not compared to CCM contrained at the reference locations (i.e., 3 mg/L) was us collected from the reference locations were not compared to anada (2010). e. ing Effluent Regulations (Government of Canada). antrations were calculated using data collected from Baker C June 6 from Reach 5 (dis pond) was anomalous and a poter June 13 from Reach 0 (BC mouth) was anomalous. Strong yingher than the relevant CCME aquetic life guideline or outsi	ory massurements, respectively, at E guideline. kimum average increase of 5 mg/L ed for the background concentratic CCME guideline. Teek in May and June between 2000 tital error, based on the discropanc vinds caused the area near the bre putside the recommended pH range the he recommended pH range	reference locations (i.e. from background levels n; the reference location 7 and 2010 (Golder 201 y between field and labo akwater to be particular	., SNP 43-11 on May for longer term expc ns defined SNP 43-1 1). vratory measured turk	 16, and from Reach usures (i.e. 24 h to 30 1 on May 16, and fror bidity values. 	7 waterfall entering F days). n Reach 7 waterfall ¢	entering Reach 6 betw	een May 25 and Jur	ne 17.		

									SNP 43-11	Reach 7	Reach 6 BC		During Ove				Reach 7	Reach 0 (BC	Desition			Reach 7	Reach 7	Reach 6	Post-Mitigation		Reach 4 (d/s Giant Pool)	Densil 4 ()	Densi A	Dana' A T			D	l/s Reach 4 (d/s		Reach 6	6 Reach 6	Reach 7		
Parameter	Units	Quality Guidelines	Canadian Drinking Water Quality	Maximum Authorized	Bał	r Creek Backgro	und Conditions	(d)	SNP 43-11 (Reference)	Overflow u/c	Exposure Point (at Tails)	Exposure Point (in pond)	SNP 43-5	SNP 43-5	SNP 43-5	overflow u/s Road	Overflow d/s Road		Reach 4 (d/s Giant Pool)		SNP 43-5	waterfall entering Reach 6	waterfall entering Reach 6	Exposure Point (at Tails)	Reach 5 (d/s Pond)	Reach 4 (d/s Giant Pool)	Giant Pool) Duplicate	Reach 4 (d/s ce at Bridge)	Reach 2 (d/s Pool)	Reach 0 (BC Mouth)	SNP 43-5	SNP 43-11	Reach 5 (d/ Pond)		/s Reach 0 (B0 ge) Mouth)	(Paker Pen	ond (Baker Pon	nd wateriali	Ice at Bridge	
Parameter	Units	for the Protection of Aquatic Life ^(a)	Guidelines (b)	Concentration (c)					16-May-11	16-May-11		16-May-11	16-May-11	16-May-11	16-May-11	17-May-11	17-May-11	17-May-11	18-MAY-11	20-May-11	24-May-11				27-May-11	27-May-11	27-May-11	27-May-11	27-May-11	27-May-11	27-May-11	6-Jun-11	6-Jun-11	6-Jun-11	6-Jun-11	8-Jun-11	1 17-Jun-11			17-Jun-
					Median Min	num Maxim	um n	n less tha MDL	L1005341-3		L1005761-1	11-159- 2(Taiga)	L1005341-1			L1008285-1	L1008285-2	L1008285-3	L1006658-1	L1007649-1	L1008512-3		L1010143-1	L1010143-9	L1010143-2	L1010143-3	L1010143-4			L1010143-8	L1010143-7			3 L1013401-2	2 L1013401-	-1 L1014834	-8 L1019377-	-4 L1019377-	5 L1019377-	3 L101937
red									DCNJV	INAC	Golder	INAC	DCNJV	DCNJV	INAC	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	DCNJV	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golde
	-	6.5 to 9.0	6.5 to 8.5	6.0 to 9.5	-		-	-	-	-	7.8	-		-	-	7.4	7.4	7.6	7.8	7.6	7.5	7.5	7.5		7.3	7.3 119	-	7.3	- 131	7.4 116	-	-	7.1	7.5	7.7	7.6		7.8	<u> </u>	7.3
ductivity	μS/cm °C	-	-	-	-		-	-		-	165 1.9	-		-	-	0.74			0.8	0.2	1.6	86 8.8	87	-	6.5	4.8	-	120 2.6	3.7	3.3	-	-	10	10	9	12		98 16.6		128 17.43
sygen	mg/L NTU	max avg increase of 2	- 1 ^(g)	-	-				-		13 834 ^{C,W}			-	-	14 2.4 ^{c,w}	14 118 ^{C,W}	12 214 ^{C,W}	12 636 ^{C,W}	13 93 ^{C,W}	- 40 [°]	4.3	11 0.29		9.6 6.4 ^{C,W}	9.1 9.7 ^{C,W}		9.7 22 ^{C,W}	10 12 ^{C,W}	11 11 ^{c,w}	-			10.8 3.4 ^{c,w}				9.6	- <u></u>	8.34
I Parameters	NIO	NTU ^(e)	1	-				-	-		634					2.4	118	214	636	95	40	4.5	0.25		6.4	9.7		22	12		-		2.0	3.4	3.6	3.6		1.0		0.2
8.3; as calcium carbonate)	mg/L	-	-	-	3.1	1 12	31	2	-	-	4.0 106	-	-	- 104	-	3.4	3.3 36	2.3	<5 65	3.2	-	-	-	-	-	-	-	-	-		-	- 42.2	- 53.5	- 52.3	-	-	- 48.0	-		- 55
y)	mg/L	6.5 to 9.0	6.5 to 8.5 ^(g)	6.5 to 9.5	7.6 5.3	.w.m 8.7 ^w	34	0	7.9	7.8	7.9	8.0	7.8	7.8	7.9	-	-	-	7.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-					-		-
ductivity ty (as calcium carbonate)	μS/cm mg/L	-		-	42	7 269 1 80	52	4	- 86	87 34	204 57	221 57	230	230	222	32	- 34	- 53	160 46	46	-	-			-	-	-	-			-									
ed Solids ted)	mg/L mg/L		≤ 500 ^(h) ≤ 500 ^(h)		78	5 179	26	0	68	84	148 148	184	151	158		60	62	146	123 84	125					-	-	-	-	-			66.6	-			<u> </u>				
ided Solids	mg/L	max avg increase of 5 mg/L ⁽ⁱ⁾	-	30	3	1 29	44	4	3	288 ^{M,C}	4,340 ^{M,C}	374 ^{M,C}	149 ^{M,C}	151 ^{M,C}	-	7	279 ^{M,C}	163 ^{M,C}	72 ^{M,C}	41 ^{M,C}	37 ^{M,C}	< 3	7	-	5	5	7	20 ^C	11 ^c	12 ^C	10 ^c	3.1	4.2	2.6	2.6	3	4	21 ^c	< 3	< 3
	mg/L	max avg increase of 2 NTU ⁽⁶⁾	1 ^(g)	-	2.3 ^w	69 8 ^{C,W}	26 ^{C,W}	0	3	97 ^{C,W}	2,740 ^{C,W}	-	219 ^{C,W}	213 ^{C,W}	-	3 ^w	95 ^{C,W}	134 ^{C,W}	142 ^{C,W}	47 ^{C,W}	38 ^{C,W}	3	2	-	9 ^{C,W}	9 ^{C,W}	7 ^{C,W}	17 ^{C,W}	11 ^{C,W}	11 ^{C,W}	10 ^{C,W}	1.1	4.0 ^w	3.6 ^W	3.9 ^w	3.0 ^w	3.6 ^w	3.1	1.8 ^w	2.5 ^w
				1	<0.05 <	.05 <0.05					<0.05					<0.05	0.05	<0.05	<0.1	<0.05	1	1	1		1	1	1						1							
	mg/L mg/L	-	-	-		.6 36		0	10	-	31	-	30	30	-	9.1	9.5	29	19	21	19	11	8.9	-	12	14	14	12	15	16	17	11.2	14.9	14.4	8.46	11.8	13.3	12	14	15.2
	mg/L mg/L	-	≤ 250 ^(g) 1.5 ^(h)	-	3.5 0.077 0	4 14 65 0.09	31	0		<0.1	6.6 0.29	7.5 <0.1		-	8.0 <0.1	2.1 0.075	2.1 0.076	11 0.075	5.3 <0.05	8.8 0.074	-				-	-	-	-	-		-	-	-					-		-
	mg/L mg/L		-	-		0 11 5 2.8				-	7.1 <2	-	7.3	7.2	-	2.9 <2		6.6 2.1			4.9		2.7	-	3.5	4.0	3.9 1.3	3.4 1.0	4.0	4.0 1.2	4.4	3.43 < 2		3.95 < 2					3.92	
	mg/L	-	≤ 200 ^(g)	-	3.4	.0 10	68	0	2.6	-	4.8	-	5.1	5.0	-	2.1	2.1	6.7	3.7	5.2	4.7		1.9	-	3.0	3.5	3.5	2.9	3.5	3.7	3.9	2.5	3.4	3.3			3		3.1	3.4
e	mg/L mg/L	0.005 ^(k)	≤ 500 ^(g) 0.2 ^(h)	2		8 5.2 005 0.020	c 26	0	0.007 ^c		41 0.085 ^c	43	0.014	0.015	- 44		3.3 0.0072	39 0.0098	23 0.008	29 0.0059	-	-	-	-	-	-	-	-	-	•	-	0.0052	-					-		-
nitrogen)	mg/L		-	-	0.022 <0	005 0.4	37	9	0.091		0.149	- 1	0.11	0.11		0.11	0.1	0.12	0.15	0.092	-	-			-	-	- 1	- 1	- 1	- 1	-	0.0152						-		-
litrite (as nitrogen)	mg/L	-	- (h)	-		005 0.75		2	-		0.072	0.16		-	- 0.15		0.035	0.14	0.05	0.046	-	-	-	-	-	-		-	-	-	-	-	0.0177	0.00.00	< 0.0051	0.0065			0.0074	< 0.00
rogen) ogen)	mg/L mg/L		45	-	< 0.001	001 0.02	1	1	-	0.08 <0.01	< 0.001	0.16 <0.01	-	-	<0.01	< 0.001	< 0.001	0.0034	0.0028	< 0.001	-	-			-		-	-	-	-	-		< 0.001	< 0.001	< 0.001	0.0029	3 < 0.005 < 0.001	< 0.001	< 0.001	< 0.0
I Nitrogen ed Phosphorus	mg/L	-		-	0.0062 0	5 0.73	5				1.24 0.01	-		-	-	0.009	0.957	0.948		0.0083	<u> </u>				-		-	-	-	-		L:	0.726	0.763 0.763 0.0226	0.296	0.808	1.04	0.639	0.8	0.76
Drus	mg/L mg/L			-	0.019 0.	082 0.046	5 23	0	-	-	2.35			-	-	0.036	0.175	0.077	0.10	0.068		· ·	· ·		-			-			-	· ·	0.0246	0.0226	0.0105	0.022	0.0235	0.0305	0.0203	0.020
ganic Carbon	mg/L		-	-	12	0 14	5	0	-	-	·	-	-	-	-	10.1	10.3	11.5 12.9	12		-	-	-		-	-	-	-	-	-	-	-	-		<u> </u>	<u> </u>	<u> </u>	-		-
Carbon	mg/L	-	-	-	12	0 14	5	0		-		-		-								-	-		-		-	-	-	-	-	-	-					-		-
	mg/L mg/L		0.2 ^(m) 0.006 ⁽ⁿ⁾	-	0.056 0		w 47	0	0.077	4.54 ^{C,W} 0.0021	46.5 ^{C,W} 1.53 ^W	6.37 ^{C,W} 0.449 ^W	4.34 ^{C,W} 0.199 ^W	4.36 ^{C,W} 0.201 ^W	0.166 ^W	0.144 ^{C,W} 0.0017	5.13 ^{C,W} 0.0042	2.03 ^{C,W} 0.124 ^W	2.21 ^{C.W} 0.124 ^W	1.37 ^{C,W} 0.0554 ^W	1.06 ^{C,W} 0.0314 ^W	0.082	0.102 ^{C,W} 0.0018	1.76 ^{C,W} 0.127 ^W	0.231 ^{C,W} 0.0178 ^W	0.239 ^{C.W} 0.0219 ^W	0.247 ^{C,W} 0.0221 ^W	0.481 ^{C,W}		0.395 ^{C,W} 0.0261 ^W	0.446 ^{C,W} 0.0279 ^W	0.0441 0.0013		0.15 ^{C,W}	0.13 ^{C,W} 0.0014	0.101 ^{C,W}	v 0.142 ^{C,W} v 0.0059	0.629 ^{C,W} 0.0012	0.053 0.0098 ^W	0.099
	mg/L mg/L	0.005	0.01 ^(g) 1.0 ^(h)	1	0.054 ^{C,W} 0.0	3 ^{C,W} 0.12 ^C	w 46	0	0.032 ^{C,W} 0.013	0.0021 0.046 ^{C,W} 0.054	7.55 ^{M,C,W}	3.77 ^{M,C,W} 0.021	0.609 ^{C,W} 0.026	0.614 ^{C,W}	0.541 ^{C,W}	0.0343 ^{C,W} 0.012	0.12 ^{C,W}	0.124 ^W 0.43 ^{C,W} 0.022	0.346 ^{C,W} 0.018	0.18 ^{C,W} 0.021	0.133 ^{C,W} 0.019	0.0214 ^{C,W} 0.0096	0.0251 ^{C,W}	0.445 ^{C,W} 0.041	0.0869 ^{C,W} 0.011	0.0905 ^{C,W}	0.0935 ^{C,W}	0.0741 ^{C,W} 0.011	0.103 ^{C,W} 0.013	0.113 ^{C,W}	0.114 ^{C,W} 0.013	0.0259 ^{C,W}	0.0799 ^{C,W} < 0.01	0.0678 ^{C,W}	0.0103 ^{C,W}	0.0554 ^{C,W}	W 0.0985 ^{C,W}	0.0461 ^{C,W}	0.0996 ^{C,W}	0.127 < 0.0
	mg/L	-	-	-	<0.005 <0	005 <0.00	5 54	54	< 0.005	0.0001	< 0.005	0.0001	< 0.005	< 0.005	0.0001	< 0.005	< 0.005	< 0.005	<0.001	< 0.005	<0.001	< 0.001	0.0012	0.0011	0.0013	0.01 0.001 <0.0002	0.0011	0.0017	<0.001	0.0017	0.0018	< 0.005	< 0.005	< 0.005	< 0.005	<0.001	0.011		< 0.005	< 0.0
	mg/L mg/L	1.5	5 ⁽ⁿ⁾	-	<0.2 <	0.2 <0.2 0.1 <0.1	54	54	<0.2 <0.1	-	<0.2 <0.1	-	<0.2 <0.1	<0.2 <0.1	-	<0.2 <0.1	<0.2 <0.1	<0.2 <0.1	<0.0002 <0.02	<0.1	<0.02	< 0.02		0.15	<0.002	0.00	0.00	0.00	<0.0002	<0.02	< 0.02	<0.2 <0.1	< 0.2 < 0.1	< 0.1	< 0.2	<0.0002 <0.02	< 0.2	< 0.2	< 0.2 < 0.1	< 0.
	mg/L mg/L		0.005 ^(h) 0.05 ^(h)	-	<0.00005 ^{D>C} <0.0 <0.01 ^{D>C} <0.0	005 ^{D-C} <0.0000 1 ^{D-C} <0.01 ^D		44 54	<0.00005 ^{D>C} <0.01 ^{D>C}						0.0006 ^c	<0.00005	< 0.000050%	<0.000569 ^C <0.01 ^{D>C}	0.00052 ^C		<0.0002050	<0.0002050		0.00038 ^C 0.0044 ^C	< 0.0002 ^{05C}		<0.002 <0.0002 ^{D>C} <0.0008				0.00021 ^c 0.001	<0.00005 ^{D>C}			<0.00005	<0.0002	S <0.00005 ^{DSI} 3 <0.01 ^{DSC}	>C <0.00005 ^{D>}	C <0.00005 ^{D>4}	c <0.0000 <0.01
	mg/L	0.002 (q)	≤ 1.0 ^(g)		<0.01 <	.01 <0.0 004 0.008		54		0.0026	0.045 0.647 ^{M,C}	0.0095 0.101 ^C	<0.01 0.0617 ^C	< 0.01	0.0074	<0.01 0.0007	<0.01 0.0076 ^C	<0.01 0.0413 ^C	0.0032 0.0342 ^C	< 0.01	0.0019	< 0.0002	< 0.0002	0.007	0.00089 0.0092 ^C	0.00094	0.00099	0.001	0.0012	0.0015 0.0118 ^C	0.0015 0.01 ^c	< 0.01	< 0.01	< 0.01 0.0061 ^C	< 0.01	< 0.0002	2 < 0.01	< 0.01	< 0.01	
	mg/L mg/L	0.3	≤ 0.3 ^(g)	-	0.17 (06 1.03 ^C		0	0.27	5.04 ^{C,W}	99.9 ^{C,W}	15 ^{C,W}	7.59 ^{C,W}	7.63 ^{C,W}	5.61 ^{C,W}	0.41 ^{C,W}	6.02 ^{C,W}	3.82 ^{C,W}	4.17 ^{C,W}	2.1 ^{C,W}	0.0125 ^C 1.57 ^{C,W}	0.21	0.18	3.65 ^{C,W}	0.42 ^{C,W}	0.43 ^{C,W}	0.0096 ^C 0.42 ^{C,W}	0.69 ^{C,W}	0.54 ^{C,W}	0.6 ^{C,W}	0.73 ^{C,W}	0.11	0.24	0.24	0.13	0.18	0.21	0.74 ^{C,W}	0.14	0.000
	mg/L mg/L		0.01 ^(h) ≤ 0.05 ^(g)	- 0.4		0005 0.004 052 0.135	w 54	4	0.00008 0.39 ^W	0.0023 ^C 0.402 ^W	1.62 ^{M,C,W} 3.27 ^W	0.534 ^W	0.434 ^w	0.434 ^W	0.377 ^W	0.479 ^W	0.0052 ^{°°} 0.584 ^W	0.0729 ^{C,W} 0.401 ^W 0.000028 ^C	0.066 ^{C,W} 0.447 ^W	0.0206 ^{C,W} 0.335 ^W	0.0073 ^C 0.267 ^W	0.0003	0.0003	0.613 ^W	0.0048 [°] 0.122 ^W	0.0028 ^C 0.15 ^W	0.149 ^W	0.155 ^W	0.0037 ⁻ 0.152 ^W	0.003 ^C 0.217 ^W	0.0033 ^C 0.232 ^W		0.0012 ^C 0.0287		0.0005		0.0004			< 0.00
1	mg/L mg/L	0.000026 0.073	0.000001 ^(h)	-	<0.00001 <0. 0.0005 0.	0001 <0.0002	^{D>C} 67 9 44	67	<0.00001	-	0.000331 ^c 0.0026	- 0.002	0.000051 ^C 0.0015	0.000049 ^c 0.0016 0.015	- 0.0012	<0.00001 0.0004	<0.00001 0.0005	0.000028 ^C 0.0011	0.00003 ^C 0.0011	0.000011 0.0009	<0.00002	<0.00002	<0.00002	0.000038 ^c 0.0028	<0.00002 0.0009	<0.00002	<0.00002 0.0014	<0.00002	<0.00002 0.0015	<0.00002 0.0016	<0.00002	<0.00001 0.0005	< 0.00001 0.000794	< 0.00001	< 0.00001	<0.00002	< 0.00001 0.0008	1 < 0.00001	< 0.00001	< 0.00
	mg/L	0.065 ^(s)	-	1	0.0009 0.0	006 0.004	3 47	10	<0.0005	0.007	0.126 ^{M,C}	0.026	0.014			<0.0005	0.0074	0.0096	0.0097	0.0064		0.004	0.0009	0.016	0.0032	0.006	0.0063	0.0063	0.0075		0.0082	< 0.0005	0.00215	0.00196	0.00066	0.0008	0.0015	0.0007	0.0014	0.002
	mg/L mg/L	0.0001	0.01 (*)	-	<0.01 ^{D>C} <0.	0001 <0.01 ⁶	^{oC} 53	53	<0.01 ^{D>C}	< 0.0001	< 0.01 ^{D>C}	0.0008 ^C	< 0.01 D>C	<0.01 ^{D>C}	<0.0005 0.0003 ^C				<0.0004 ^{D>C}	<0.01 ^{D-C}	<0.0004 <0.0004 ^{D>C}	< 0.0004 <0.0004 ^{D>C}	<0.002 ^{DSC} <0.0004 ^{DSC}	0.0008 <0.0004 ^{D>C}	<0.0004 <0.0004 ^{D>C}	<0.0004 <0.0004 ^{D>C}	<0.0004 <0.0004 ^{D>C}	<0.0004 <0.0004 ^{D>C}	<0.0004 <0.0004 <0.0004	<0.0008	<0.0004 <0.0004 ^{D>C}	<0.001 D+C	< 0.0001 <0.01 ^{D>C}	< 0.01 ^{D>C}	< 0.01 ^{D>C}	<0.0004	4 < 0.0001 C <0.01	< 0.001	<0.01 ^{D>C}	0.000 <0.01
	mg/L mg/L	0.0008	-	-	<0.2 ^{D>C} <0	138 0.13 1001 <0.2 ^D	-c 52	52	<0.2 ^{D>C}	0.042	0.019 <0.2 ^{D>C}	0.12 0.0001	<0.087	0.087 <0.2 ^{D>C}	<0.0001	0.033 <0.2 ^{0>C}	<0.01 0.048 <0.2 ^{D>C} <0.03	0.082 <0.2 ^{D>C}	0.062	<0.2 ^{D>C}	<0.0001	< 0.0355	<0.0001	<0.0001	0.053 <0.0001	<0.0001	0.06 <0.0001	0.049 <0.0001	0.064 <0.0001	<0.0001	<0.0001	<0.2 ^{0>C}	<0.2 ^{D>C}	0.0547 <0.2 ^{D>C}	<0.2 ^{D>C}	<0.0001	<0.0519 <0.2 ^{D>C}	<0.2 ^{D>C}	<0.2 ^{D>C}	0.062 <0.2 ^D
	mg/L mg/L	-	-	-	<0.03 <0 <0.01 <	001 <0.03	3 53 54	53	<0.03	- 0.18	<0.03 0.24	- 0.056	<0.03	<0.03 0.073	- 0.052	<0.03	<0.03	<0.03 0.039	<0.0004 0.043	<0.03	<0.0004	< 0.0004	<0.0004	<0.0004 0.021	<0.0004 0.0079	<0.0004 0.0078	<0.0004 0.0084	<0.0004 0.017	<0.0004 0.014	<0.0004 0.014	<0.0004 0.014	<0.03 0.00019	< 0.03	< 0.03	< 0.03	<0.0004	< 0.03	< 0.03	< 0.03	< 0.0
	mg/L	0.015	0.02 ^(h)	-		016 0.000			0.00034	0.0007 0.0096					0.0006			0.00072 <0.03	0.00048			0.00021			0.00029 0.00087	0.00036	0.00041 0.00092			0.00048 0.0012	0.00045			0.000241			5 < 0.03 < 0.004			
	mg/L mg/L	0.03	≤ 5.0 ^(g)	1		001 0.01		38	<0.004		2.04 ^{M,C}				0.138 ^{M,C}	<0.004	0.017	0.122 ^{M,C}	0.094 ^C	0.038 ^C	0.018	< 0.004	0.00037	0.065 ^c	0.015	0.009	0.00032	0.015	0.0012	0.0012	0.0014	<0.004		< 0.004						< 0.00
letals	mg/L	-	-	-	0.01 0	0.03	5 68	4	0.012	-	0.024	-	0.021		-			0.016						-	<0.01		0.016	0.018	0.014				0.006				0.007			
	mg/L mg/L	-	-	-	0.0034 0.	006 0.01	3 68	0		-	0.0716	-	0.0416	0.0449	-		0.0017 0.026	0.0359 0.073	0.0233	0.072	0.0246	0.021	0.0015	-	0.0159 0.067	0.0199	0.0193	0.021	0.022	0.024 0.079	0.0242	0.0014	0.0117 0.0714	0.0054	0.0000	0.0404	0.400	0.0012	0.111	0.012
	mg/L	-	-	-	<0.01 <	.01 0.07	68	46	0.01	-	<0.01 <0.005	-	<0.01 <0.005	<0.01 <0.005	-	<0.01 <0.005	0.013	<0.01 <0.005	0.0053	0.01	0.0011	0.0094	0.0077	-	0.0098	0.0092	0.0088	0.0088	0.0088	0.0093	0.0097	< 0.01	<0.01 <0.005	<0.01	<0.01	0.0074	< 0.01	< 0.01	< 0.01	< 0.0
	mg/L mg/L	-		-	<0.2	0.2 <0.2	68	68	<0.2		<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	< 0.00005	<0.2	< 0.00005	< 0.00005	0.00008		0.0001	0.00007	0.00005	0.000075	<0.00005	<0.00005	<0.00005	<0.2	<0.2	<0.2	<0.2	<0.00005	5 < 0.2	< 0.2	< 0.2	
	mg/L mg/L	-		-	<0.1 <0.00005 <0.	0.1 <0.1	05 68	68	< 0.00005	-	<0.1 0.00025	-		<0.1 0.00021	-	<0.1 <0.00005	<0.1 <0.00005					0.009			0.016	0.0001	0.017 0.00025	0.019 0.00024	0.019 0.00021	0.019 0.00023	0.019 0.00023	<0.1 <0.00005	<0.1	<0.1	<0.1	0.0081 i <0.0001	< 0.1 < 0.00005	< 0.1 5 < 0.00005	< 0.1 5 < 0.00005	
	mg/L mg/L	-	-	-	<0.01 <	.01 <0.0 .01 <0.0	68	68 68	<0.01		<0.01	-	< 0.01	<0.01 <0.01	-	<0.01	< 0.01	<0.01 <0.01	< 0.0004	< 0.01	0.0016	0.0007	< 0.0004	-	0.00046	0.00051	0.00062	0.00083	0.00099	0.0013	0.0012	< 0.01	< 0.01	< 0.01	< 0.01	< 0.0004	4 < 0.01	< 0.01	< 0.01	< 0.0
	mg/L	-	-	-	0.003 0.	0.03	68	4	< 0.0005	-	0.021	-	0.015	0.017	-	< 0.0005	0.0009	0.012	0.0093	0.0072	0.0048	0.0048	0.0006		0.0053	0.0057	0.0059	0.006	0.0059	0.0053	0.0054	<0.0005	0.0092	0.0044	0.0012	0.0015	0.0039	0.0007	0.0057	0.006
	mg/L mg/L	-	-	-	0.000056 <0.	.01 0.2 0005 0.000	68 68	31			0.00076	-	0.039 0.00062	0.00118	-	<0.0005	0.25	0.041 0.00084 0.3	0.00092	0.009	0.00055	< 0.0001	0.00027		0.009	0.00125	0.00102	0.004	0.072	0.00062	0.00073	<0.00005	0.0044	0.0019	<0.0005	0.038	0.049 0.00006 0.0113	0.045 < 0.00005	0.00009	0.000
	mg/L mg/L		-	-	0.00043 0.0	005 0.14	79 68	0	0.0004		0.26	-	0.31 0.0014	0.3 0.0015	-	0.0004	0.0004	0.0012	0.001	0.0009	0.0011	0.0006	0.0008	-	0.0012	0.0014	0.0014	0.0016	0.0016	0.0017	0.0016	0.0005	0.0008	0.0008	0.0002	0.0006	0.0009	0.0005	0.0008	0.00
	mg/L mg/L	-	-	-	<0.00001 <0.	0001 <0.00	02 68	64	<0.00001		<0.00005 0.0021		< 0.00001	< 0.00001		<0.00001	<0.00001	<0.00001	< 0.00002	<0.00001	<0.00002	< 0.00002	<0.00002																	
	mg/L		-	-	<0.001 <0	001 <0.00	1 64	64	<0.0005 <0.0001 <0.01 0.036 <0.2 <0.03		<0.0021	-	0.0025	0.0028 0.00014 <0.01	-	<0.0005 <0.0001 <0.01 0.033	<0.0001	<0.0001	<0.0004	<0.0001	<0.0004	0.0003	<0.002	-	<0.0004	<0.0004	0.00049	0.00059	<0.0004	<0.0004	<0.0004	<0.0001	<0.0001	<0.0001	<0.0001	<0.0004	2 <0.00001 0.0014 4 <0.0001 2 <0.01 0.0537 5 <0.2 2 <0.03 	1 < 0.0001	< 0.0001	< 0.00
	mg/L mg/L	-	•	-	<0.01 <0. 0.048 0	I36 0.13	68	68 0	<0.01		0.069	-	<0.01	<0.01	-	<0.01 0.033	<0.01 0.036	<0.01 0.079	<0.0002	<0.01	<0.0002	< 0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002 0.057	<0.0002 0.06	<0.0002	<0.0002	<0.0002	<0.01 0.039	<0.01 0.0585	<0.01	<0.01	<0.0002	< 0.01	< 0.01 0.0448	< 0.01	< 0.0
	mg/L mg/L	-	-	-	<0.2 <0 <0.03 <0	001 <0.2	68 3 68	68	<0.2	-	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2 <0.03	<0.00005	<0.2	<0.00005	< 0.00002	<0.00027	-	0.00014 <0.0002	0.00012 <0.0002	0.000095 <0.0002	0.00009	0.000065 <0.0002	0.000055 <0.0002	0.000065 <0.0002	<0.2	<0.2	<0.2	<0.2	<0.00005	< 0.2	< 0.2	< 0.2	< 0.0
	mg/L	-	-	-	< 0.01 <	.01 <0.0	68	68	< 0.01		<0.01 0.00052	-		< 0.01	-	< 0.01	0.015	< 0.01	0.00045	< 0.01	< 0.0003	0.0004	0.0018																	
	mg/L mg/L	-		-	<0.03 <0	001 <0.0	3 68	68	0.00028		<0.03	-	< 0.03	0.00059 <0.03		0.00021 <0.03	<0.03	<0.03	0.0004	<0.03	0.00033	0.0003	0.0005	-	0.0006	0.0005	0.0006	0.0006	0.0005	0.0005	0.00040	<0.03	<0.03	<0.03	<0.03	0.00022	2 0.0019 < 0.03 < 0.004	< 0.03	< 0.03	< 0.
pstream; d/s = downstream;	mg/L ; mg/L = milligrams	- per litre; μg/L = micros	- rams per litre; Bq/L =	- Becquers per litre;	<0.004 <0 MDL: method detection						0.02 equal to; NTU =	- = nephelometric		0.017 ; TCU = true col		<0.004 Indian and North								- ata or guideline av	0.006 vailable; min = n	0.009 minimum; max=	0.007 naximum,; n = s	0.005 ample size; avg	0.009 = average.	0.003	0.006	<0.004	< 0.004	<0.004	<0.004	<0.001	< 0.004	< 0.004	< 0.004	< 0.0
are above water quality gui dian Council of Ministers of	idelines.																																							
th Canada (2010).																																								
al Mining Effluent Regulation conditions were calculated u			May and June betwe	an 2007 and 2010 (C	Golder 2011).																																			
narrative states that during c ue on June 6 from Reach 5 (clear flow systems,	the guideline is a maxi	num average increa	e of 2 NTUs from bi	ackground levels for a li	nger term exposur	e (e.g., 30 day p	eriod). Backgrou	und was set the me	edian turbidity of 2.3	3 and 5 NTU fo	or field and labo	pratory measure	ements, respect	ively, at reference	e locations (i.e.,	SNP 43-11 on	n May 16, and fro	rom Reach 7 wa	aterfall entering	Reach 6 betwe	een May 25 and	June 17). Turl	bidity measureme	ents from the ref	ference location	were not compa	ared to CCME g	guideline.											
bjectives; the objective for tur				leaciepancy betwee	in neid and laboratory in	asureu turbiuity v	alues.																																	
cceptable concentrations. narrative states that during cl	lear flow periods. tl	ne guideline is a maxim	um average increase	of 5 mg/L from bac	kground levels for lonae	term exposures (.e. 24 h to 30 da	y). The median	TSS concentratio	n of at the reference	e locations (i.e.	., 3 mg/L) was	used for the ba	ackground conce	entration; the refe	erence locations	defined SNP 4	43-11 on May 16	6, and from Re	ach 7 waterfall	entering Reach	h 6 between Mav	y 25 and June 1	17.																
r ammonia shown in the table for free cyanide.																																								
or aluminum shown in the table																																								
al guidance value of aluminum ximum acceptable concentrati		e was designed to appl	y only to drinking wa	er treatment plants i	using aluminum-based	pagulants with the	exception of cor	nventional treatm	nent plants.																															
or cadmium shown in the table mium VI quideline for total chro	le was calculated b	ased on the hardness	alue of 100 mg/L. Ti	e guideline for cadr	nium was calculated bar	ed on the equation	in CCME (2007) using site spec	cific hardness valu	BS.																														
e for copper shown in the table v	was 0.002 mg/L ba	ised on water hardness	of 0 to 120 mg/L Ca	CO3. The guideline	was calculated based o	the site specific h	ardness value.																																	
for lead shown in the table was o for nickel shown in the table w	vas 0.065 mg/L at v	vater hardness of 60 to	120 mg/L CaCO ₃ . T	ne guideline was cal																																				
tration is higher than the relevar ration is higher than the relevan	nt maximum autho	rized concentrations or	outside the recomme	nded pH range.																																				
ation is higher than the relevan	ant drinking water g																																							

Table B-3: Field and Laboratory Measured Data to	r Volowknifo Bay - Baker Creek Beach	7 Overflow Monitoring Program. May and June 2011
Table D-J. Tielu allu Laburatul V Neasureu Data IU	I TEIOWKIIIE Day - Dakei Cieek Keacii	

							Field Measured			Laborator	y Measured
				Parameter	рН	Specific Conductivity	Temperature	Dissolved Oxygen	Turbidity	Total Suspended Solids	Turbidit
				Units	-	(µS/cm)	(°C)	(mg/L)	(NTU)	(mg/L)	(NTU)
				(a)					max avg increase of	f max avg increase of	max avg incre
Can	adian water Qua	lity Guidelines for t	ne Protection of	Aquatic Life (-/	6.5-9.0	-	-	< 6.5	2 NTU (b)	5 mg/L ^(c)	2 NTU ^{(t}
		Canadian Drink	ing Water Qualit	v Guidelines ^(d)	6.5-8.5	-	-	-	1 ^(e)	-	1 ^(e)
			Im Authorized C		6.0-9.0	-	-	-	-	30	-
						•	Yellowknife B	ay Backgroun	d Conditions ^(g)		
				Median	-	-	-	-	-	3	2.4
				Minimum	-	-	-	-	-	1	1.7
				Maximum	-	-	-	-	-	29 ^C	8 ^C
				n	-	-	-	-	-	25	14
			n les	s than the MDL	-	-	-	-	-	0	0
Sample ID		Date Sampled	Lab Sample ID	Collected by				•			
YK Bay 1	surface	24-May-11	L1008512-1	Golder	7.5	68	7.3	12.5	8 ^{CW}	<3	6 ^{CW}
YK Bay 1	bottom	24-May-11	-	-	7.5	69	7.3	12.5	-	-	-
YK Bay 2	surface	24-May-11	L1008512-2	Golder	7.6	67	7.8	12.5	7 ^{CW}	<3	5 ^W
YK Bay 2	bottom	24-May-11	-	-	7.5	74	6.1	12.6	-	-	-
u/s of House Boat	surface	31-May-11	-	-	7.5	156	10.1	10.0	25 ^{CW}	-	-
YK Bay # 1 (Reach 0 BC Mouth)	surface	31-May-11	L1011399-2	Golder	7.5	100	10.7	11.2	7.9 ^{CW}	4	5.5 ^{CW}
YK Bay #2 (d/s of House Boat)	surface	31-May-11	L1011399-1	Golder	7.4	222	10.9	9.9	29 ^{CW}	14 ^C	18 ^{CW}
YK Bay #2 (d/s of House Boat)	bottom	31-May-11	-	-	7.4	167	10.3	10.0	-	-	-
YK Bay # 3	surface	31-May-11	L1011399-3	Golder	7.7	66	10.5	12.0	8 ^{CW}	<3.0	6.4 ^{CW}
YK Bay # 3	bottom	31-May-11	-	-	7.5	96	10.5	11.1	-	-	-
YK Bay # 4	surface	31-May-11	L1011399-4	Golder	7.7	68	10.4	12.0	7.3 ^{CW}	<3.0	6.2 ^{CW}
YK Bay # 4	bottom	31-May-11	-	-	7.6	104	10.6	11.6	-	-	-
YK Bay # 5	surface	31-May-11	-	-	7.5	155	10.2	10.2	21 ^{CW}	-	-
YK Bay # 5	bottom	31-May-11	-	-	7.4	167	10.3	10.1	-	-	-
YK Bay # 6	surface	31-May-11	-	-	7.5	138	10.5	10.4	21 ^{CW}	-	-
YK #7	surface	31-May-11	-	-	7.7	67	10.4	12.0	7.3 ^{CW}	-	-
YK #7	bottom	31-May-11	-	-	7.7	69	9.6	12.1	-	-	-
YK Bay A	surface	8-Jun-11	-	-	7.7	88	9.2	12.1	3.8 ^W	-	-
YK Bay A	bottom	8-Jun-11	-	-	7.6	84	8.9	12.2	-	-	-
YK Bay B	surface	8-Jun-11	L1014834-1	Golder	7.7	86	9.0	12.2	3.7 ^W	<3.0	3.2 ^W
YK Bay B	bottom	8-Jun-11	-	-	7.8	83	8.9	12.3	- - W	-	-
YK Bay C	surface	8-Jun-11	L1014834-2	Golder	7.6	136	11.4	10.4	4.5 ^W	<3.0	3.3 ^W
YK Bay D	surface	8-Jun-11	-	-	7.7	88	9.3	12.1	3.8 ^W	-	-
YK Bay D	bottom	8-Jun-11	-	-	7.6	84	8.8	12.3	- 4.4W	-	-
YK Bay E	surface	8-Jun-11	-	-	7.8	86	9.1	12.4	4.1 ^w	-	-
YK Bay E	bottom	8-Jun-11	-	-	7.8	84	8.9	12.3	-	-	- 0.0 ^W
YK Bay F	surface	8-Jun-11	L1014834-3	Golder	7.7	91	9.2	12.1	3.8 ^W	3	2.6 ^W
YK Bay F	bottom	8-Jun-11	-	-	7.8	83	8.9	12.2	-	-	- 2.4 ^w
YK Bay G	surface	8-Jun-11	L1014834-4	Golder	7.6	126	11.0	11.0	4.0 ^W	<3	2.4"
YK Bay G	bottom	8-Jun-11	-	-	7.7	89	9.2	12.1	- 11 ^{cw}	- 16 ^C	- 14 ^{CW}
Back Bay Public Dock Area	surface	31-May-11	L1011399-5	Golder	7.7	88	14.3	11.0	1 11	16	14

Notes: u/s = upstream; d/s= downstream; mg/L = milligrams per litre; NTU = nephelometric turbidity units; MDL = method detection limit; <= less than = less than or equal to; max = maximum; n = sample size; avg = average; YK = Yellowknife.

- = no data or guideline available.

Values in **bold** are above water quality guidelines.

(a) Source: Canadian Council of Ministers of the Environment (CCME) 2011.

(b) The CCME narrative states that during clear flow periods, the guideline is a maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30 day period).

Because a reference site was not sampled, background was set to the historical median turbidity of 3 NTU (Golder 2011).

(c) The CCME narrative states that during clear flow periods, the guideline is a maximum average increase of 5 mg/L from background levels for longer term exposures (i.e. 24 h to 30 day).

Because a reference site was not sampled, background was set to the historical median TSS value of 3 mg/L (Golder 2011).

^(d) Source: Health Canada (2010).

(e) Aesthetic objective.

(f) Source: Metal Mining Effluent Regulations (Government of Canada).

^(g) Background concentrations were calculated using data collected from Yellowknife Bay (SNP 43-12) in May and June between 2007 and 2010 (Golder 2011).

^c = concentration is higher than the relevant chronic aquatic life guideline or outside the recommended pH range.

Table B-4: Water Quality in Yellowknife Bay during the Baker Creek Reach 7 Overflow Monitoring Program, May and June 2011

Table B-4: Water Quality in Yell	owname L	bay during the D			litering	, riogram,	may and ou	10 2011							Post-M	litigation					
Parameter	Units	Canadian Water Quality Guidelines for the Protection of	Canadian Drinking Water Quality Guidelines ^(b)	Maximum Authorized Concentration ^(c)		Yellowknife E	Bay Background	Conditions ^(d)		YK Bay 1	YK Bay 2	YK Back Bay 1	YK Back Bay 2	YK Back Bay 3	YK Back Bay 4	YK Bay B	YK Bay C	YK Bay F	YK Bay G	Back Bay Dock Area	Bay Back Dock Area
		Aquatic Life ^(a)	Guidennes	concentration	Median	Minimum	Maximum	n	n less than MDL	24-May-11 L1008512-1	24-May-11 L1008512-2	31-May-11 L1011399-2	31-May-11 L1011399-1	31-May-11 L1011399-3	31-May-11 L1011399-4	8-Jun-11 L1014834-1	8-Jun-11 L1014834-2	8-Jun-11 L1014834-3	8-Jun-11 L1014834-4	31-May-11 L1011399-5	8-Jun-11 L1014834-5
Field Measured										Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder	Golder
pН	-	6.5 to 9.0	6.5 to 8.5	6.0 to 9.5	-	-	-			7.5	7.6	7.5	7.4	7.7	7.7	7.7	7.6	7.7	7.6	7.7	7.7
Specific Conductivity	µS/cm			-	-	-	-			68	67	100	222	66	67	86	136	91	126	88	99
Temperature Dissolved Oxygen	°C mg/L	- < 6.5		-					-	7.3	7.8	11	11 9.9	10.5 11.9	10	9 12.2	11 10.4	9 12.1	11 10.9	14 10.9	8 11.8
Turbidity	NTU	max avg increased of 2		-						7.5 [°]	7°	7.9 ^c	29.3 ^c	8 ^c	7.7 ^c	3.7	4.5	3.8	4	10.3	3.2
Conventional Parameters	NIO	NTU (e)	-	-	-		-	-	-	7.5	1	7.9	29.3	0	1.1	5.7	4.5	5.0	-		5.2
Hardness (as calcium carbonate)	mg/L			-	52.6	37.3	91.4	25	0	28	27	76.5	24.9	25	25.4	40.0	52.3	50	51.7	33.1	36.8
Total Suspended Solids	mg/L	max avg increased of 5		30	3	1	29 ^c	25	0	<3	<3	14 ^C	4	<3	<3	<3	<3	3	<3	16 ^C	<3
Turbidity	mg/L	mg/L ^(h) max avg increased of 2 NTU ^(e)	1 ⁽¹⁾		2.4	1.7	8 ^c	14	0	6 ^C	5 ^C	17.5 ^C	5.5 ^c	6.4 ^C	6.2 ^C	3.2	3.3	2.6	2.4	13.5 ^c	1.9
lons		NIO																			1
Calcium	mg/L		-	-	-	-	-			7.3	6.9	21.6	6.36	6.32	6.39	11.3	15	14.3	14.9	8.76	10.3
Magnesium Potassium	mg/L	•		-	-	-			-	2.5	2.3	5.48 1.68	2.18	2.25	2.3 0.85	2.87	3.61 1.28	3.46 1.32	3.52	2.72	2.69
Sodium	mg/L mg/L		≤ 200 ^(f)	-	-	-		-		2.6	2.4	9.36	2.19	2.16	2.2	2.92	4.03	4.04	4.03	2.71	3.02
Nutrients	-						· · ·														-
Ammonia (as nitrogen)	mg/L	1.9 - 5.9 (1)	-	-	0.02	< 0.005	0.236	21	8	-	-	- 0.04	- <0.006	-	- <0.006	- 0.006	- 0.008	- 0.009	- 0.01	-	- <0.006
Nitrate and Nitrite (as nitrogen) Nitrate (as nitrogen)	mg/L mg/L	- 1.3	- 45 ^(g)	-	0.0307	<0.005	0.752	- 11	-	-		0.04	<0.006	<0.006	<0.006	0.006	0.008	0.009	0.01	<0.006	<0.006
Nitrite (as nitrogen)	mg/L	0.06		-					-	-		< 0.002	< 0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	< 0.002
Total Kjeldahl Nitrogen	mg/L	-	-	-				-		-		0.6	0.2	0.2	0.2	0.5	0.7	0.6	0.9	0.5	0.2
Total Dissolved Phosphorus Total Phosphorus	mg/L mg/L	-	-	-	-	-		-	-	-	-	0.051 0.011	0.009	0.01	0.01	0.017	0.025	0.023	0.026	0.055	0.01
Carbon	ing c								· · · · · ·	1						1			1		1
Dissolved Organic Carbon	mg/L		-	-	-	-	-					11	4.77	4.79	4.88	-	-			5.28	
Total Organic Carbon Total Metals	mg/L			-	-				-			11.2	5.04	5.19	5.15	-	-	-	-	5.64	
Aluminum	mg/L	0.100	0.2 ^(k)	-	0.110 ^{C,W}	0.04 ^{C,W}	0.634 ^{C,W}	24	0	0.172 ^{C,W}	0.161 ^{C,W}	0.577 ^{C,W}	0.196 ^{C,W}	0.203 ^{C,W}	0.207 ^{C,W}	0.104 ^{C,W}	0.12 ^{C,W}	0.104 ^{C,W}	0.113 ^{C,W}	0.315 ^{C,W}	0.237 ^{C,W}
Antimony	mg/L		0.006 (1)	-	0.0041 ^W	0.0006 ^W	0.0196 ^W	24	0	0.0008	0.0007	0.0309 ^W	0.0006	0.0009	0.0008	0.0072 ^W	0.0135 ^W	0.0107 ^W	0.0131 ^W	0.0007	0.0005
Arsenic	mg/L	0.005	0.01 (f)	1	0.0535 ^{C,W}	0.0127 ^{C,W}	0.114 ^{C,W}	23	0	0.0029	0.003	0.13 ^{C,W} 0.0161	0.0037	0.0041	0.0044	0.0487 ^{C,W} 0.0087	0.09 ^{C,W} 0.0086	0.0697 ^{C,W} 0.0085	0.0864 ^{C,W} 0.0083	0.0069 ^C 0.0149	0.0034 0.0133
Barium Beryllium	mg/L mg/L		1.0 (9)	-	0.01	< 0.01	0.019	24 24	10	<0.0084	< 0.001	<0.001	<0.0091	<0.0091	<0.009	<0.0087	< 0.001	<0.0085	<0.001	< 0.001	<0.001
Bismuth	mg/L	-		-	<0.2	<0.2	<0.2	24	24	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	< 0.0002	<0.0002
Boron	mg/L	1.5	5(0)	-	<0.1	<0.1	<0.1	24	24	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	< 0.02	<0.02
Cadmium Chromium	mg/L mg/L	0.000033 ^(m) 0.001 ⁽ⁿ⁾	0.005 ^(g) 0.05 ^(g)	-	<0.00005 ^{D>C} <0.01 ^{D>C}	<0.00005 ^{D>C} <0.01 ^{D>C}	<0.00005 ^{D>C} <0.01 ^{D>C}	24 24	24 24	<0.0002 ^{D>C} <0.0008	<0.0002 ^{D>C} <0.0008	<0.0002 ^{D>C}	<0.0002 ^{D>C} <0.0008	<0.0002 ^{D>C} 0.0009	<0.0002 ^{D>C} <0.0008						
Cobalt	mg/L	-	-	-	<0.01	<0.01	<0.01	24	24	< 0.0002	<0.0002	0.0012	<0.0002	<0.0002	<0.0002	< 0.0002	0.0003	0.0002	0.0002	0.0003	<0.0002
Copper	mg/L	0.002 ^(o)	≤ 1.0 ^(f)	0.6	0.0046 ^C	0.0013 ^C	0.0084 ^C	24	0	0.0012	0.0012	0.0141 ^C	0.0013	0.0015	0.0014	0.0041 ^C	0.0069 ^C	0.0055 ^C	0.0066 ^C	0.0029 ^C	0.002
Iron Lead	mg/L mg/L	0.3 0.002 ^(p)	≤ 0.3 ^(f) 0.01 ^(g)	- 0.4	0.18 ^{C,W} 0.0003 ^C	0.09 ^{C,W} 0.00007 ^C	1.03 ^{C,W} 0.0048 ^C	24 24	0	0.18	0.12 0.0002	0.83 ^{C,W} 0.0041 ^C	0.17 0.0002	0.17 0.0002	0.17 0.0002	0.18	0.25	0.2	0.24 0.0008	0.61 ^{C,W} 0.0006	0.1 0.0002
Manganese	mg/L	-	≤ 0.05 ^(f)	-	0.0191 ^W	0.0052 ^W	0.127 ^W	24	0	0.006	0.0052	0.119 ^W	0.0079	0.0076	0.0077	0.0116	0.0198	0.0153	0.019	0.0309	0.0032
Mercury	mg/L	0.000026	0.000001 ^(g)	-	< 0.00001 ^{D>C}	<0.00001 ^{D>C}	<0.0002 ^{D>C}	24	24	0.000057 ^C	<0.00002	< 0.00002	< 0.00002	0.000023	< 0.00002	< 0.00002	<0.00002	< 0.00002	<0.00002	< 0.00002	< 0.00002
Molybdenum Nickel	mg/L mg/L	0.073 0.065 ^(q)		- 1	0.0005	0.0002	0.0007 0.0043	24 24	0	0.0001	0.0001	0.0015	0.0002	0.0002	0.0002	0.0006	0.0008	0.0007	0.0009	0.0002	0.0003
Selenium	mg/L	0.003	0.01 (g)	-	<0.001	< 0.000	<0.001	24	22	<0.0004	<0.0004	< 0.0004	< 0.0004	< 0.0004	< 0.0004	<0.0004	<0.0004	< 0.0004	<0.0004	< 0.0004	< 0.0004
Silver	mg/L	0.0001		-	<0.01 ^{D>C}	<0.01 ^{D>C}	<0.01 ^{DSC}	24	24	< 0.0004 ^{D>C}	< 0.0004 ^{D>C}	<0.0004 ^{D>C}	< 0.0004 ^{D>C}	<0.0004 ^{D>C}	< 0.0004 ^{D>C}	<0.0004 ^{D>C}	< 0.0004 ^{D>C}	< 0.0004 ^{D>C}	<0.0004 ^{D>C}	<0.0004 ^{D>C}	<0.0004 ^{D>C}
Strontium Thallium	mg/L mg/L	0.0008	-	-	0.049 <0.2	0.0394 <0.2	0.0741 <0.2	24 24	0 24	0.03	0.031	0.096	0.0342 <0.0001	0.0336	0.0332 <0.0001	0.051	0.0677	0.0608	0.066	0.0422	0.053
Tin	mg/L	-		-	<0.03	<0.03	<0.03	24	24	0.00072	<0.0004	<0.0004	<0.0004	0.00092	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Titanium	mg/L		-	-	<0.01	<0.01	0.02	24	22	<0.005	0.0052	0.0245	0.0067	0.0072	0.0102	<0.005	<0.005	<0.005	<0.005	0.0109	<0.005
Uranium Vanadium	mg/L	0.015	0.02 (9)	-	0.00028	0.00022	0.00068 <0.03	24	0	0.00026	0.00028	0.00039	0.00026	0.00025	0.00025 <0.0005	0.00028	0.0003	0.00028 <0.0005	0.00029	0.00027	0.00031
Zinc	mg/L mg/L	0.03	≤ 5.0 ^(f)	- 1	<0.03 <0.004	<0.03	<0.03	24 24	24 20	<0.0005	<0.0005	0.0014	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0008	<0.0005
Dissolved Metals																					
Aluminum Antimony	mg/L	-	-	-	0.0092	0.0042	0.0197 0.0182	25 25	1	0.016	0.013	<0.01 0.027	0.014	0.011	0.012	<0.01 0.0063	<0.01	0.01	<0.01 0.0122	<0.01 0.0005	0.011 0.0005
Antimony Arsenic	mg/L mg/L		-	-	0.0036	0.00061	0.0182	25	0	0.00047	0.0004	0.027	0.0005	0.0007	0.0006	0.0063	0.068	0.0103	0.0122	0.0005	0.0005
Barium	mg/L	-	-	-	<0.01	<0.01	0.069	25	20	0.0068	0.0072	0.0123	0.0074	0.0067	0.0068	0.0075	0.0074	0.0074	0.0073	0.0105	0.0112
Beryllium	mg/L	-	-	-	<0.005	<0.005	<0.005	25	25	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005	<0.0005 <0.00005
Bismuth Boron	mg/L mg/L	-	-	-	<0.2 <0.1	<0.2	<0.2 <0.1	25 25	25 25	<0.00005	<0.00005	0.025	<0.0005	<0.00005	<0.0005	<0.00005	<0.00005	<0.00005	0.012	<0.00005	<0.00005
Cadmium	mg/L				<0.00005	<0.00005	<0.00005	25	25	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	< 0.0001	<0.0001	<0.0001	<0.0001
Chromium	mg/L	-	-	-	<0.01	<0.01	<0.01	25	25	0.00177	0.00177	<0.0004	<0.0004	<0.0004 <0.0001	<0.0004 <0.0001	<0.0004 <0.0001	<0.0004	<0.0004 0.00013	<0.0004 0.00015	<0.0004	<0.0004 <0.0001
Cobalt Copper	mg/L mg/L	-	-	-	<0.01 0.00373	<0.01 0.00117	<0.01 0.0276	25 25	25	<0.0001 0.00077	<0.0001 0.00078	0.00057	<0.0001 0.0008	<0.0001 0.0009	<0.0001 0.0009	<0.0001 0.0027	0.00015 0.0043	0.00013 0.0041	0.00015	<0.0001 0.0011	<0.0001
Iron	mg/L	-	-	-	0.00373	<0.01	0.0270	25	1	0.014	<0.01	0.053	<0.01	0.012	<0.01	0.03	0.046	0.048	0.048	0.03	0.016
Lead	mg/L	-	-	-	0.000061	<0.00005	0.000264	25	9	<0.0001	< 0.0001	0.0005	< 0.0001	< 0.0001	< 0.0001	< 0.0001	0.00015	0.00015	0.00022	< 0.0001	<0.0001
Manganese	mg/L	-	-	-	<0.005 0.000441	<0.005 0.000228	0.0151 0.000704	25 25	15 0	0.0026	0.0031	0.0631 0.0013	<0.002	<0.002	<0.002	0.0044	0.0088	0.0084	0.0104	<0.002	<0.002
Molybdenum Mercury	mg/L mg/L			-	<0.000441	<0.000228	<0.000704	25	23	<0.0001	<0.00002	<0.00002	<0.00002	<0.0002	<0.0002	<0.00002	<0.00002	<0.0007	<0.0008	<0.0002	<0.0002
Nickel	mg/L			-	0.00089	0.0005	0.003	25	0	<0.0001	<0.0001	0.0058	0.0004	0.0004	0.0004	0.0012	0.0019	0.0017	0.002	0.0005	0.0005
Selenium	mg/L	-	-	-	<0.001	<0.001	<0.001	23	23	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004	<0.0004
Silver Strontium	mg/L mg/L	-	-	-	<0.01 0.0487	<0.01 0.0416	<0.01 0.0772	25 25	25 0	<0.0002 0.031	<0.0002 0.032	<0.0002 0.0904	<0.0002 0.0315	<0.0002 0.0309	<0.0002 0.0305	<0.0002 0.0478	<0.0002 0.0607	<0.0002 0.0595	<0.0002 0.0632	<0.0002 0.0388	<0.0002 0.048
Thallium	mg/L		-	-	<0.2	<0.2	<0.2	25	25	< 0.00005	<0.00005	<0.00005	<0.00005	< 0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	<0.00005	< 0.00005
Tin	mg/L		-	-	<0.03	<0.03	<0.03	25	25	<0.0002	< 0.0002	<0.0002	< 0.0002	0.00045	0.00022	<0.0002	<0.0002	< 0.0002	<0.0002	< 0.0002	< 0.0002
Titanium Uranium	mg/L mg/L	-		-	<0.01 0.00024	<0.01 0.000181	<0.01 0.000633	25 25	25	0.00032 0.00024	<0.0003 0.00024	<0.0003 0.00047	<0.0003	<0.0003 0.00023	<0.0003 0.00023	<0.0003 0.00026	<0.0003	<0.0003 0.00027	<0.0003 0.00027	<0.0003	<0.0003 0.00028
Vanadium	mg/L	-	-	-	< 0.03	< 0.03	<0.03	25	25	<0.00024	<0.00024	0.00047	<0.00023	<0.00023	<0.00023	0.00026	0.00028	0.00027	0.00027	< 0.00019	<0.00028
Zinc	mg/L			-	<0.004	< 0.004	0.0211	25	21	0.0073	<0.001	0.004	<0.001	<0.001	<0.001	<0.001	0.002	0.002	0.003	<0.001	<0.001
Notes: mg/L = milligrams per litre; µg/L = microg	rams per litre; juidelines	MDL: method detection	limit; < = concentration	of analyte was less th	an the MDL or le	ess than≄;less tha	an or equal to; NTI	U = nephelom	etric turbidity uni	ts; Golder = Gold	der Associates L	.td.; - = no data d	or guideline avai	able; min = minir	num; max= max	kimum,; n = samp	ple size; avg = a	verage; YK = Ye	llowknife.		

Notes: mg/L = miligrams per litte; jg/L = micrograms per litte; MUL: method Values in **bold** are above relevant water quality guidelines. ^(a) Source: Canadian Council of Ministers of the Environment (CCME) 2011. ^(b) Source: Health Canada (2010).

¹⁰ Source: Canadain Council of Ministers of the Environment (CCME) 2011.
 ¹⁰ Source: Metal Mining Effluent Regulations (Government of Canada 2002).
 ¹⁰ Source: Metal Mining Effluent Regulations (Government of Canada 2002).
 ¹⁰ Background conditions were calculated using data collected from Yoldwohrle Bay in May and June between 2007 and 2010 (Golder 2011).
 ¹⁰ The CCME narrative states that during clear flow periods, the guideline is a maximum average increase of 2 NTUs from background levels for a longer term exposure (e.g., 30 day period). Because a reference site was not sampled, background was set to the historical median turbidity of 3 NTU (Golder 2011).
 ¹⁰ Maximum acceptable concentrations.
 ¹⁰ The CCME narrative states that during clear flow periods, the guideline is a maximum average increase of 2 NTUs from background levels for longer term exposures (i.e. 24 h to 30 day). Because a reference site was not sampled, background was set to the historical median TSS of 3 mg/L (Golder 2011).
 ¹⁰ Audition acceptable concentrations.
 ¹⁰ Guideline for aluminum shown in the table was clucitated based on a pH 6.5. The guideline was calculated based on the expection of conventional treatment plants.
 ¹⁰ Operational guidance value of aluminum shown in the table was dualed to a pH 6.5. The guideline for cadmium were accluated based on the equation in CCME (2007) using site specific hardness values.
 ¹⁰ Guideline for total chromium.
 ¹⁰ Guideline for total chromium.
 ¹⁰ Guideline for rotal minum shown in the table was 0.002 mg/L based on the hardness value of 100 mg/L CaGC/The guideline was calculated based on the site specific hardness value.
 ¹⁰ Guideline for rotadim shown in the table was 0.002 mg/L based on the water hardness of 0 to 120 mg/L CaGC/The guideline was calculated based on the site specific hardness value.</

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APPENDIX C

Total Suspended Solids/Turbidity Relationship



TSS/Turbidity Relationship

Baker Creek

Relationships between turbidity and TSS are site-specific, as turbidity is affected by concentration, size and shape of sediment suspended in the water column (CCME 2002). At sites where the relationship between TSS and turbidity is known, turbidity can be used as a surrogate to predict TSS concentrations.

Figure A-1 illustrates the strong relationship between TSS and turbidity in Baker Creek. Using SYSTAT version 11 (SYSTAT 2004), the following two data points were identified as outliers and were removed from the analysis:

- On May 16, the field turbidity in Reach 6 was 834 NTU and the corresponding TSS concentration was 4,340 mg/L. There was a large gap between this point and all others, resulting in a large leverage of this point in the regression analysis.
- On June 6, the field turbidity in Reach 5 was 380 NTU, while the TSS concentration was 4.2 mg/L. There was a large discrepancy between the field turbidity (*i.e.*, 380 NTU) and the laboratory-measured turbidity (*i.e.*, 4.0); therefore, the field measurement was assumed to be an error.

The regression equation based on the remaining data (Y = 0.6213X + 0.4314) had a slope that was significantly different from zero (*P* < 0.001, *n* = 41) and a coefficient of determination (*r*²) of 0.73, indicating a strong relationship (Figure C-1). Based on this regression, TSS concentrations were calculated using the following equation: TSS_{calc} =10^(0.6213*Log Field Turbidity+0.4314).

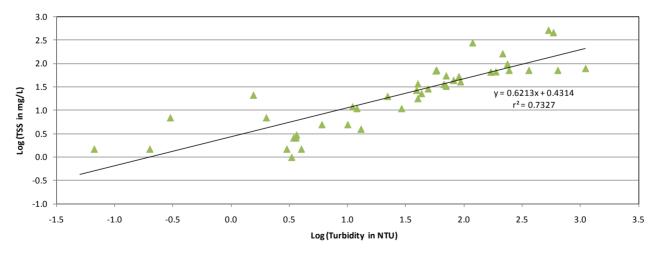


Figure C-1: Relationship between Field Turbidity and Total Suspended Solids Concentration in Baker Creek





Yellowknife Bay

A strong TSS/turbidity relationship was not evident in Yellowknife Bay due to the high proportion of non-detectable TSS values in the dataset (Figure C-2). Eight of the 12 samples analyzed from Yellowknife Bay contained TSS at concentrations less than the method detection limit. TSS concentrations could not be reliably be calculated from field turbidity data in Yellowknife Bay.

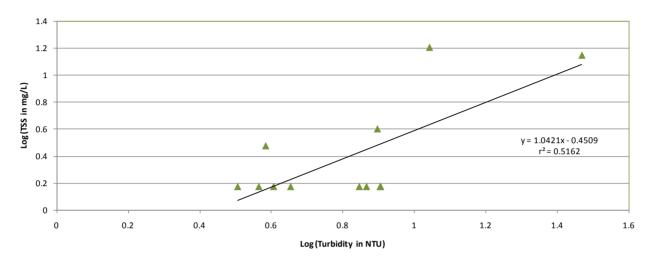


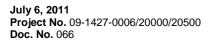
Figure C-2: Relationship between Field Turbidity and Total Suspended Solids Concentration in Yellowknife Bay







Laboratory Results







GOLDER ASSOCIATES LTD. ATTN: Hilary Machtans # 9 - 4905 48th Street Yellowknife NW X1A 3S3 Date Received:17-MAY-11Report Date:03-JUN-11 17:05 (MT)Version:FINAL

Client Phone: 867-873-6319

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1005761 606989 09-1427-0006

1

Comments: Radium-226 was subcontracted to SRC Analytical in Saskatoon, Saskatchewan. Refer to their report appended for detail.

Can Dang Senior Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

L1005761 CONTD.... PAGE 2 of 7 03-JUN-11 17:05 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1005761-1 WATER 16-MAY-11 16:45 BAKER CREEK EXPOSURE POINT (/DOVE)		
Grouping	Analyte	(ABOVE)		
WATER				
Physical Tests	Conductivity (uS/cm)	204		
	Hardness (as CaCO3) (mg/L)	106		
	рН (рН)	7.88		
	Total Suspended Solids (mg/L)	4340		
	Total Dissolved Solids (mg/L)	148		
	Turbidity (NTU)	2740		
Leachable Anions & Nutrients	Anion Sum (meq/L)	2.19		
	Cation Sum (meq/L)	2.36		
	Cation - Anion Balance (%)	3.5		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	4.0		
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	56.7		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0		
	Alkalinity, Total (as CaCO3) (mg/L)	56.7		
	Ammonia (as N) (mg/L)	0.149		
	Bromide (Br) (mg/L)	<0.050		
	Chloride (CI) (mg/L)	6.64		
	Fluoride (F) (mg/L)	0.285		
	Nitrate and Nitrite (as N) (mg/L)	0.0722		
	Nitrate (as N) (mg/L)	0.0722		
	Nitrite (as N) (mg/L)	<0.0010		
	Total Kjeldahl Nitrogen (mg/L)	1.24		
	Phosphorus (P)-Total Dissolved (mg/L)	0.0100		
	Phosphorus (P)-Total (mg/L)	2.35		
	Sulfate (SO4) (mg/L)	41.0		
	Sulphide as S (mg/L)	0.033		
Cyanides	Cyanide, Total (mg/L)	0.0849		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	14.5		
Total Matala	Total Organic Carbon (mg/L)	18.5		
Total Metals	Aluminum (Al)-Total (mg/L)	46.5		
	Antimony (Sb)-Total (mg/L)	1.53		
	Arsenic (As)-Total (mg/L)	7.55		
	Barium (Ba)-Total (mg/L)	0.087		
	Beryllium (Be)-Total (mg/L) Bismuth (Bi)-Total (mg/L)	<0.0050 <0.20		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1005761 CONTD.... PAGE 3 of 7 03-JUN-11 17:05 (MT) Version: FINAL

Grouping	Sample ID Description Sampled Date Sampled Time Client ID Analyte	L1005761-1 WATER 16-MAY-11 16:45 BAKER CREEK EXPOSURE POINT (ABOVE)		
WATER				
Total Metals	Boron (B)-Total (mg/L)	<0.10		
	Cadmium (Cd)-Total (mg/L)	0.0108		
	Calcium (Ca)-Total (mg/L)	182		
	Chromium (Cr)-Total (mg/L)	0.115		
	Cobalt (Co)-Total (mg/L)	0.045		
	Copper (Cu)-Total (mg/L)	0.647		
	Iron (Fe)-Total (mg/L)	99.9		
	Lead (Pb)-Total (mg/L)	1.62		
	Lithium (Li)-Total (mg/L)	0.068		
	Magnesium (Mg)-Total (mg/L)	66.8		
	Manganese (Mn)-Total (mg/L)	3.27		
	Mercury (Hg)-Total (mg/L)	0.000331		
	Molybdenum (Mo)-Total (mg/L)	0.00259		
	Nickel (Ni)-Total (mg/L)	0.00255		
	Phosphorus (P)-Total (mg/L)	1.29		
	Potassium (K)-Total (mg/L)	5.4		
	Selenium (Se)-Total (mg/L)	0.00128		
	Silicon (Si)-Total (mg/L)	44.0		
	Silver (Ag)-Total (mg/L)	<0.010		
	Sodium (Na)-Total (mg/L)	6.6		
	Strontium (Sr)-Total (mg/L)	0.193		
	Thallium (TI)-Total (mg/L)	<0.20		
	Tin (Sn)-Total (mg/L)	<0.030		
	Titanium (Ti)-Total (mg/L)	0.238		
	Uranium (U)-Total (mg/L)	0.00122		
	Vanadium (V)-Total (mg/L)	0.117		
	Zinc (Zn)-Total (mg/L)	2.04		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0240		
	Antimony (Sb)-Dissolved (mg/L)	0.0716		
	Arsenic (As)-Dissolved (mg/L)	0.136		
	Barium (Ba)-Dissolved (mg/L)	<0.010		
	Beryllium (Be)-Dissolved (mg/L)	<0.0050		
	Bismuth (Bi)-Dissolved (mg/L)	<0.20		
	Boron (B)-Dissolved (mg/L)	<0.20		
	Cadmium (Cd)-Dissolved (mg/L)	0.00025		
	Calcium (Ca)-Dissolved (mg/L)	30.9		
	Chromium (Cr)-Dissolved (mg/L)	<0.010		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

L1005761 CONTD.... PAGE 4 of 7 03-JUN-11 17:05 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1005761-1 WATER 16-MAY-11 16:45 BAKER CREEK
Grouping	Analyte	EXPOSURE POINT (ABOVE)
WATER	Allalyte	
Dissolved Metals	Cobalt (Co)-Dissolved (mg/L)	0.040
	Copper (Cu)-Dissolved (mg/L)	<0.010
	Iron (Fe)-Dissolved (mg/L)	0.0210
	Lead (Pb)-Dissolved (mg/L)	0.028
		0.00076
	Lithium (Li)-Dissolved (mg/L)	<0.010
	Magnesium (Mg)-Dissolved (mg/L)	7.05
	Manganese (Mn)-Dissolved (mg/L)	0.261 _{DLM}
	Mercury (Hg)-Dissolved (mg/L)	<0.000050
	Molybdenum (Mo)-Dissolved (mg/L)	0.00134
	Nickel (Ni)-Dissolved (mg/L)	0.0021
	Phosphorus (P)-Dissolved (mg/L)	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0
	Selenium (Se)-Dissolved (mg/L)	DLA <0.00020
	Silicon (Si)-Dissolved (mg/L)	0.649
	Silver (Ag)-Dissolved (mg/L)	<0.010
	Sodium (Na)-Dissolved (mg/L)	4.8
	Strontium (Sr)-Dissolved (mg/L)	0.0689
	Thallium (Tl)-Dissolved (mg/L)	<0.20
	Tin (Sn)-Dissolved (mg/L)	<0.030
	Titanium (Ti)-Dissolved (mg/L)	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000524
	Vanadium (V)-Dissolved (mg/L)	<0.030
	Zinc (Zn)-Dissolved (mg/L)	0.0197
Aggregate	Oil and Grease (mg/L)	<1.0
Organics		

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

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier Description DLA Detection Limit Adjusted For required dilution DLM Detection Limit Adjusted For Sample Matrix Effects Test Method References: ALS Test Code Matrix Method Reference** **Test Description** ACY-PCT-VA Water Acidity by Automatic Titration APHA 2310 "Acidity" This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint. ACY-PCT-VA Water Acidity by Automatic Titration APHA 2310 Acidity This analysis is carried out using procedures adapted from APHA Method 2310 "Acidity". Acidity is determined by potentiometric titration to a specified endpoint. ALK-PCT-VA Water Alkalinity by Auto. 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. Water Alkalinity by Auto. Titration APHA 2320 Alkalinity ALK-PCT-VA 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. ANIONS-BR-IC-VA Water Bromide by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". ANIONS-CL-IC-VA Water Chloride by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". ANIONS-F-IC-VA Water Fluoride by Ion Chromatography APHA 4110 B. This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Water Nitrite & Nitrate in Water (Calculation) FPA 300.0 ANIONS-N+N-CALC-VA Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N). ANIONS-NO2-IC-VA Water Nitrite in Water by Ion Chromatography EPA 300.0 This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance. ANIONS-NO3-IC-VA Water Nitrate in Water by Ion Chromatography EPA 300.0 This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance. APHA 4110 B. ANIONS-SO4-IC-VA Water Sulfate by Ion Chromatography This analysis is carried out using procedures adapted from APHA Method 4110 B. "Ion Chromatography with Chemical Suppression of Eluent Conductivity" and EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". **CARBONS-DOC-VA** Water Dissolved organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC) This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are determined by filtering the sample through a 0.45 micron membrane filter prior to analysis. CARBONS-TOC-VA Water Total organic carbon by combustion APHA 5310 TOTAL ORGANIC CARBON (TOC) This analysis is carried out using procedures adapted from APHA Method 5310 "Total Organic Carbon (TOC)". **CN-T-MID-HH-COL-VA** Water Total Cyanide by HH Distillation APHA 4500-CN Cyanide This analysis is carried out using procedures adapted from APHA Method 4500-CN "Cyanide". Total or strong acid dissociable (SAD) cyanide are determined by sample distillation and analysis using the chloramine-T colourimetric method. EC-PCT-VA APHA 2510 Auto. Conduc. Water Conductivity (Automated) This analysis is carried out using procedures adapted from APHA Method 2510 "Conductivity". Conductivity is determined using a conductivity electrode. 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-DIS-LOW-CVAFS-VA** Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7

Reference Information

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a coldoxidation 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 (EPA Method 245.7).

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low)

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 (EPA Method 245.7).

IONBALANCE-VA Water Ion Balance Calculation

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 Dissolved Metals in Water by CRC ICPMS Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

MET-DIS-ICP-VA Water **Dissolved Metals in Water by ICPOES** EPA SW-846 3005A/6010B

Total Metals in Water by ICPOES

Ammonia in Water by Fluorescence

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

MET-DIS-LOW-ICP-VA Water **Dissolved Metals in Water by ICPOES**

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

Total Metals in Water by CRC ICPMS MET-T-CCMS-VA Water

Water

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

MET-TOT-ICP-VA

EPA SW-846 3005A/6010B

EPA 3005A/6010B

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

Total Metals in Water by ICPOES MET-TOT-LOW-ICP-VA Water

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

NH3-F-VA Water 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.

OGG-LL-SF-VA

Water Oil & Grease by Gravimetric BCMOE GRAVIMETRIC

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3510 & 9071, published by the United States Environmental Protection Agency (EPA), "Standard Methods for the Examination of Water and Wastewater", 20th ed., Method 5520, published by the American Public Health Association, and "BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials," 5th ed., published by the B.C. Ministry of Environment, Lands & Parks, 1994. The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. ALS Environmental's routine detection limit, or Limit of Reporting (LOR), for this method is 2 mg/L for a 1L sample volume. By request, a LOR of 1 mg/L is sometimes applied for this method. The 1 mg/L LOR is equal to the 99% confidence limit Method Detection Limit as defined by the US EPA. A higher degree of variability is expected at levels below 2 mg/L.

P-T-COL-VA

Water Total P in Water by Colour APHA 4500-P Phosphorous

APHA 3030 B&E / EPA SW-846 6020A

APHA 3030 B&E / EPA SW-846 6020A

EPA 3005A/6010B

EPA 245.7

APHA 1030E

Reference Information

This analysis is carried out persulphate digestion of the		lures adapted from APHA Method 4500-P "Phosph	orus". Total Phosphorous is determined colourimetrically after
P-TD-COL-VA	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous
		lures adapted from APHA Method 4500-P "Phosph tion of a sample that has been lab or field filtered th	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H "pH Value"
This analysis is carried out	using proced	lures adapted from APHA Method 4500-H "pH Valu	e". The pH is determined in the laboratory using a pH electrode
It is recommended that this	analysis be o	conducted in the field.	
PH-PCT-VA	Water	pH by Meter (Automated)	APHA 4500-H pH Value
This analysis is carried out	using proced	lures adapted from APHA Method 4500-H "pH Valu	e". The pH is determined in the laboratory using a pH electrode
It is recommended that this	analysis be o	conducted in the field.	
S2-T-COL-VA	Water	Total Sulphide by Colorimetric	APHA 4500-S2 Sulphide
This analysis is carried out colourimetric method.	using proced	lures adapted from APHA Method 4500-S2 "Sulphic	de". Sulphide is determined using the methlyene blue
TDS-LOW-VA	Water	Low Level TDS (3.0mg/L) by Gravimetric	APHA 2540 Gravimetric
			olids are determined gravimetrically. Total dissolved solids v evaporating the filtrate to dryness at 180 degrees celsius.
TKN-COL-VA	Water	TKN in Water by Colour	APHA 4500-NORG (TKN)
This analysis is carried out automated colourimetry.	using proced	lures adapted from APHA Method 4500-Norg "Nitro	ogen (Organic)". Total Kjeldahl Nitrogen is determined using
TSS-LOW-VA	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 Gravimetric
		lures adapted from APHA Method 2540 "Solids". S ole through a glass fibre filter, TSS is determined by	olids are determined gravimetrically. Total suspended solids drying the filter at 104 degrees celsius.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using proced	lures adapted from APHA Method 2130 "Turbidity".	Turbidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using proced	lures adapted from APHA Method 2130 "Turbidity".	Turbidity is determined by the nephelometric method.
** ALS test methods may inco	rporate mod	ifications from specified reference methods to impr	ove performance.
The last two letters of the ab	ove test code	e(s) indicate the laboratory that performed analytica	l analysis for that test. Refer to the list below:
Laboratory Definition Code	Labora	atory Location	
VA	ALS E	NVIRONMENTAL - VANCOUVER, BC, CANADA	

Chain of Custody Numbers:

1

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.



	Workorder:	L100576	1	Report Date: 0	3-JUN-11	Pa	ge 1 of 16
Client: GOLDER ASSOCIA # 9 - 4905 48th Stre Yellowknife NW X1	et						
Contact: Hilary Machtans							
Test Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ACY-PCT-VA Water							
Batch R2192283 WG1282623-8 CRM Acidity (as CaCO3)	VA-ACY-CON	TROL 101		%		85-115	20-MAY-11
WG1282623-11 DUP Acidity (as CaCO3)	L1005761-1 4.0	2.5	J	mg/L	1.5	2	20-MAY-11
ALK-PCT-VA Water							
Batch R2192211 WG1282633-8 CRM Alkalinity, Total (as CaCO3)	VA-ALK-PCT-	CONTROL 102		%		85-115	20-MAY-11
WG1282633-1 MB		4.0					
Alkalinity, Total (as CaCO3) Alkalinity, Bicarbonate (as CaCO3)		<1.0 <1.0		mg/L mg/L		1	20-MAY-11
Alkalinity, Carbonate (as CaCO3)		<1.0		mg/L		1 1	20-MAY-11 20-MAY-11
MG1282633-2 MB Alkalinity, Total (as CaCO3)		<1.0		mg/L			-
Alkalinity, Bicarbonate (as CaCO3)		<1.0		mg/L		1 1	20-MAY-11 20-MAY-11
Alkalinity, Carbonate (as CaCO3)		<1.0		mg/L		1	20-MAY-11
Alkalinity, Hydroxide (as CaCO3)		<1.0		mg/L		1	20-MAY-11
WG1282633-3 MB				Ũ			
Alkalinity, Total (as CaCO3)		<1.0		mg/L		1	20-MAY-11
Alkalinity, Bicarbonate (as CaCO3)		<1.0		mg/L		1	20-MAY-11
Alkalinity, Carbonate (as CaCO3)		<1.0		mg/L		1	20-MAY-11
Alkalinity, Hydroxide (as CaCO3)		<1.0		mg/L		1	20-MAY-11
WG1282633-4 MB Alkalinity, Total (as CaCO3)		<1.0		mg/L		1	20 MAX 11
Alkalinity, Bicarbonate (as CaCO3)		<1.0		mg/L		1 1	20-MAY-11 20-MAY-11
Alkalinity, Carbonate (as CaCO3)		<1.0		mg/L		1	20-MAT-11 20-MAY-11
Alkalinity, Hydroxide (as CaCO3)		<1.0		mg/L		1	20-MAY-11
WG1282633-7 MB				Ũ			
Alkalinity, Total (as CaCO3)		<1.0		mg/L		1	20-MAY-11
Alkalinity, Bicarbonate (as CaCO3)		<1.0		mg/L		1	20-MAY-11
Alkalinity, Carbonate (as CaCO3)		<1.0		mg/L		1	20-MAY-11
Alkalinity, Hydroxide (as CaCO3)		<1.0		mg/L		1	20-MAY-11
ANIONS-BR-IC-VA Water							
Batch R2191948 WG1281739-11 CRM Bromide (Br)	VA-IC-IVA2-IO	N23110 95		%		85-115	19-MAY-11
WG1281739-2 CRM	VA-IC-IVA2-IO	N23110					



		Workorder: L100576	61 Report Date: 03	3-JUN-11	Pa	ge 2 of 16
Test	Matrix	Reference Result	Qualifier Units	RPD	Limit	Analyzed
ANIONS-BR-IC-VA	Water					
Batch R219194	8					
WG1281739-2 CRM Bromide (Br)	n	VA-IC-IVA2-ION23110 101	%		85-115	19-MAY-11
WG1281739-1 MB Bromide (Br)		<0.050	mg/L		0.05	19-MAY-11
WG1281739-10 MB Bromide (Br)		<0.050	mg/L		0.05	19-MAY-11
WG1281739-4 MB Bromide (Br)		<0.050	mg/L		0.05	19-MAY-11
WG1281739-6 MB Bromide (Br)		<0.050	mg/L		0.05	19-MAY-11
WG1281739-8 MB Bromide (Br)		<0.050	mg/L		0.05	19-MAY-11
ANIONS-CL-IC-VA	Water					
Batch R219194	8					
WG1281739-11 CRM Chloride (Cl)	Π	VA-IC-IVA2-ION23110 100	%		85-115	19-MAY-11
WG1281739-2 CRM Chloride (Cl)	٨	VA-IC-IVA2-ION23110 101	%		85-115	19-MAY-11
WG1281739-1 MB Chloride (Cl)		<0.50	mg/L		0.5	19-MAY-11
WG1281739-10 MB Chloride (Cl)		<0.50	mg/L		0.5	19-MAY-11
WG1281739-4 MB Chloride (Cl)		<0.50	mg/L		0.5	19-MAY-11
WG1281739-6 MB Chloride (Cl)		<0.50	mg/L		0.5	19-MAY-11
WG1281739-8 MB Chloride (Cl)		<0.50	mg/L		0.5	19-MAY-11
ANIONS-F-IC-VA	Water					
Batch R219194	8					
WG1281739-11 CRM Fluoride (F)		VA-IC-IVA2-ION23110 105	%		85-115	19-MAY-11
WG1281739-2 CRM Fluoride (F)	Λ	VA-IC-IVA2-ION23110 105	%		85-115	19-MAY-11
WG1281739-1 MB			A			
Fluoride (F)		<0.020	mg/L		0.02	19-MAY-11



					•	•			
			Workorder	: L100576	61	Report Date: 0	3-JUN-11	Pa	age 3 of 16
Test		Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-F-IC-VA		Water							
Batch R2	191948								
WG1281739-4 Fluoride (F)	MB			<0.020		mg/L		0.02	19-MAY-11
WG1281739-6	MB			0.020		iiig, L		0.02	19-1041-11
Fluoride (F)				<0.020		mg/L		0.02	19-MAY-11
WG1281739-8 Fluoride (F)	MB			<0.020		mg/L		0.02	19-MAY-11
ANIONS-NO2-IC-V	Α	Water							
Batch R2	191948								
WG1281739-11 Nitrite (as N)	CRM		VA-IC-IVA2-I	ION23110 95		%		85-115	19-MAY-11
WG1281739-2 Nitrite (as N)	CRM		VA-IC-IVA2-I	ION23110 95		%		85-115	19-MAY-11
WG1281739-1 Nitrite (as N)	MB			<0.0010		mg/L		0.001	19-MAY-11
WG1281739-10 Nitrite (as N)	MB			<0.0010		mg/L		0.001	19-MAY-11
WG1281739-4 Nitrite (as N)	MB			<0.0010		mg/L		0.001	19-MAY-11
WG1281739-6 Nitrite (as N)	MB			<0.0010		mg/L		0.001	19-MAY-11
WG1281739-8 Nitrite (as N)	MB			<0.0010		mg/L		0.001	19-MAY-11
ANIONS-NO3-IC-V	Α	Water							
Batch R2	191948								
WG1281739-11 Nitrate (as N)	CRM		VA-IC-IVA2-I	ION23110 98		%		85-115	19-MAY-11
WG1281739-2 Nitrate (as N)	CRM		VA-IC-IVA2-I	ION23110 102		%		85-115	19-MAY-11
WG1281739-1 Nitrate (as N)	MB			<0.0050		mg/L		0.005	19-MAY-11
WG1281739-10 Nitrate (as N)	MB			<0.0050		mg/L		0.005	19-MAY-11
WG1281739-4 Nitrate (as N)	MB			<0.0050		mg/L		0.005	19-MAY-11
WG1281739-6 Nitrate (as N)	MB			<0.0050		mg/L		0.005	19-MAY-11
WG1281739-8 Nitrate (as N)	MB			<0.0050		mg/L		0.005	19-MAY-11



ANONS-S04-IC-VA Water Batch R2191948 WG1281739-11 CRM Sulfate (S04) 103 Sulfate (S04) 104 WG1281739-1 MB Sulfate (S04) 104 WG1281739-1 MB Sulfate (S04) 0.5 WG1281739-1 MB Sulfate (S04) <0.50 WG1281739-10 MB Sulfate (S04) <0.50 Sulfate (S04) <0.50 WG1281739-4 MB Sulfate (S04) <0.50 WG1281739-4 MB Sulfate (S04) <0.50 WG1281739-4 MB Sulfate (S04) <0.50 WG1281739-8 MB Sulfate (S04) <0.50 WG1281739-8 MB Sulfate (S04) <0.50 CARBONS-DOC-VA Water Batch R2196580 WG1287824-1 MB Total Organic Carbon <0.50 MG1287824-1 MB			Workorder: L10057	761 Report I	Date: 03-JUN-11	Pa	ge 4 of 10
Batch R2191948 WG1281739-11 CRM VA-G-VA-2-ON23110 85-115 19-MAY Sulfate (SO4) 104 % 85-115 19-MAY WG1281739-2 CRM VA-G-VA-2-ON23110 85-115 19-MAY Sulfate (SO4) -0.50 mg/L 0.5 19-MAY WG1281739-1 MB	ſest	Matrix	Reference Result	Qualifier Units	s RPD	Limit	Analyzed
WG1281739-11 CRM VA-IC-IVA2-ION23110 103 % 85-115 19-MAY Sulfate (SO4) ID4 % 85-115 19-MAY WG1281739-1 MB Sulfate (SO4) 0.5 19-MAY WG1281739-1 MB Sulfate (SO4) 0.5 19-MAY WG1281739-10 MB Sulfate (SO4) 0.5 19-MAY WG1281739-10 MB Sulfate (SO4) 0.5 19-MAY WG1281739-10 MB Sulfate (SO4) 0.5 19-MAY WG1281739-6 MB <0.50	ANIONS-SO4-IC-VA	Water					
Sulfate (SO4) 103 % 85-115 19-MAY WG1281739-2 CRM VA-IC-IVA2-ION23110 % 85-115 19-MAY Sulfate (SO4) 104 % 85-115 19-MAY WG1281739-1 MB Sulfate (SO4) 0.5 19-MAY WG1281739-10 MB -0.50 mg/L 0.5 19-MAY WG1281739-4 MB -0.50 mg/L 0.5 19-MAY WG1281739-4 MB -0.50 mg/L 0.5 19-MAY WG1281739-4 MB -0.50 mg/L 0.5 19-MAY WG1281739-6 MB -0.50 mg/L 0.5 19-MAY WG1281739-8 MB -0.50 mg/L 0.5 19-MAY WG1281739-8 MB -0.50 mg/L 0.5 19-MAY CARBONS-DOC-VA Water	Batch R2191948						
Sulfate (SO4) 104 % 85-115 19-MAY WG1221739-1 MB -0.50 mg/L 0.5 19-MAY WG1221739-1 MB -0.50 mg/L 0.5 19-MAY WG1221739-1 MB -0.50 mg/L 0.5 19-MAY WG1221739-4 MB -0.50 mg/L 0.5 19-MAY WG1221739-5 MB -0.50 mg/L 0.5 19-MAY WG1221739-6 MB -0.50 mg/L 0.5 19-MAY WG1221739-6 MB -0.50 mg/L 0.5 19-MAY WG1221739-7 MB -0.50 mg/L 0.5 19-MAY Sulfate (SO4) -0.50 mg/L 0.5 19-MAY CARBONS-DOC-VA Water				%		85-115	19-MAY-11
Sulfate (SO4) -0.50 mg/L 0.5 19-MAY WG1221739-10 MB -0.50 mg/L 0.5 19-MAY Sulfate (SO4) -0.50 mg/L 0.5 19-MAY WG1221739-6 MB -0.50 mg/L 0.5 31-MAY WG1221724-1 MB -0.50 mg/L 0.5 31-MAY WG1223724-1 MB -0.50 mg/L 0.5 31-MAY Tota				%		85-115	19-MAY-11
Sulfate (S04) <0.50 mg/L 0.5 19-MAY WG1281739-4 MB <0.50 mg/L 0.5 19-MAY Sulfate (S04) <0.50 mg/L 0.5 19-MAY Sulfate (S04) <0.50 mg/L 0.5 19-MAY WG1281739-6 MB <0.50 mg/L 0.5 19-MAY Sulfate (S04) <0.50 mg/L 0.5 19-MAY WG1281739-6 MB <0.50 mg/L 0.5 19-MAY Sulfate (S04) <0.50 mg/L 0.5 19-MAY CARBONS-TOC-VA Water Batch R2196578 WG1287824-2 CRM VA-TOC-C-CAFFEINE 80-120 31-MAY WG1287824-1 MB <0.50 mg/L 0.5 31-MAY WG1287824-1 WB <0.50 mg/L 0.5 31-MAY WG1287824-1 WB <0.50 mg/L 0.5 31-MAY			<0.50	mg/	L	0.5	19-MAY-11
Sulfate (S04) <0.50 mg/L 0.5 19-MAY Sulfate (S04) <0.50			<0.50	mg/	L	0.5	19-MAY-11
Sulfate (SO4) <0.50 mg/L 0.5 19-MAY WG1281739-8 MB <0.50 mg/L 0.5 19-MAY CARBONS-DOC-VA Water			<0.50	mg/	L	0.5	19-MAY-11
Sulfate (SO4) <0.50 mg/L 0.5 19-MAY CARBONS-DOC-VA Water MB No.50 mg/L 0.5 31-MAY Batch R2196578 WG1287827-1 MB No.50 mg/L 0.5 31-MAY CARBONS-TOC-VA Water Sufface (Carbon) <0.50 mg/L 0.5 31-MAY CARBONS-TOC-VA Water Sufface (Carbon) VA-TOC-C-CAFFEINE No.50 80-120 31-MAY CARBONS-TOC-VA Water Sufface (Carbon) 105 % 80-120 31-MAY CARBONS-TOC-VA Water Sufface (Carbon) 105 % 80-120 31-MAY WG12837824-1 MB <0.50 mg/L 0.5 31-MAY WG1283071-2 CRM VA-HH-TCN-CONTROL % 80-120 21-MAY WG1283071-5 CRM VA-HH-TCN-CONTROL % 80-120 21-MAY WG1283071-1 MB <0.0050 mg/L 0.005 21-MAY WG1283071-4			<0.50	mg/	L	0.5	19-MAY-11
Batch R2196578 WG1287827-1 MB Dissolved Organic Carbon <0.50 mg/L 0.5 31-MAY CARBONS-TOC-VA Water Water Sach R2196580 Sach Sach R2196580 Sach Sach </td <td></td> <td></td> <td><0.50</td> <td>mg/</td> <td>L</td> <td>0.5</td> <td>19-MAY-11</td>			<0.50	mg/	L	0.5	19-MAY-11
WG1287827-1 MB <0.50 mg/L 0.5 31-MAY CARBONS-TOC-VA Water	CARBONS-DOC-VA	Water					
BatchR2196580 WG1287824-2VA-TOC-CAFFEINE 105%80-12031-MAYTotal Organic Carbon<0.50<0.50mg/L0.531-MAYWG1287824-1MB Total Organic Carbon<0.50mg/L0.531-MAYWG12837824-1MB 	WG1287827-1 MB	on	<0.50	mg/	L	0.5	31-MAY-11
WG1287824-2 CRM VA-TOC-C-CAFFEINE 80-120 31-MAY Total Organic Carbon 105 % 80-120 31-MAY WG1287824-1 MB <0.50	CARBONS-TOC-VA	Water					
Total Organic Carbon <0.50 mg/L 0.5 31-MAY CN-T-MID-HH-COL-VA Water Water Value	WG1287824-2 CRM			%		80-120	31-MAY-11
Batch R2192458 WG1283071-2 Cyanide, Total CRM VA-HH-TCN-CONTROL 93 % 80-120 21-MAY WG1283071-5 Cyanide, Total CRM VA-HH-TCN-CONTROL 84 % 80-120 21-MAY WG1283071-1 Cyanide, Total MB % 80-120 21-MAY WG1283071-1 Cyanide, Total MB WG1283071-4 Cyanide, Total MB </td <td></td> <td></td> <td><0.50</td> <td>mg/</td> <td>L</td> <td>0.5</td> <td>31-MAY-11</td>			<0.50	mg/	L	0.5	31-MAY-11
WG1283071-2 Cyanide, Total CRM VA-HH-TCN-CONTROL 93 % 80-120 21-MAY WG1283071-5 Cyanide, Total CRM VA-HH-TCN-CONTROL 84 % 80-120 21-MAY WG1283071-1 Cyanide, Total MB <0.0050	CN-T-MID-HH-COL-VA	Water					
WG1283071-5 Cyanide, Total CRM VA-HH-TCN-CONTROL 84 % 80-120 21-MAY WG1283071-1 Cyanide, Total MB <0.0050	WG1283071-2 CRM					80.120	21 MAV 11
WG1283071-1 MB <0.0050 mg/L 0.005 21-MAY VG1283071-4 MB <0.0050	WG1283071-5 CRM		VA-HH-TCN-CONTROL				
WG1283071-4 MB Cyanide, Total <0.0050	WG1283071-1 MB				L		21-MAY-11
	WG1283071-4 MB		<0.0050				21-MAY-11
	EC-PCT-VA	Water					



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est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-PCT-VA	Water							
Batch R2192211								
WG1282633-9 CRM Conductivity		VA-EC-PCT	-CONTROL 102		%		90-110	20-MAY-11
WG1282633-1 MB Conductivity			<2.0		uS/cm		2	20-MAY-11
WG1282633-2 MB Conductivity			<2.0		uS/cm		2	20-MAY-11
WG1282633-3 MB Conductivity			<2.0		uS/cm		2	20-MAY-11
WG1282633-4 MB Conductivity			<2.0		uS/cm		2	20-MAY-11
WG1282633-5 MB Conductivity			<2.0		uS/cm		2	20-MAY-11
WG1282633-7 MB Conductivity			<2.0		uS/cm		2	20-MAY-11
IG-DIS-LOW-CVAFS-VA	Water							
Batch R2192101								
WG1282760-2 CRM Mercury (Hg)-Dissolved		VA-HG-WA1	RM 94		%		80-120	20-MAY-11
WG1282089-1 MB Mercury (Hg)-Dissolved			<0.00002	10	mg/L		0.00001	20-MAY-11
WG1282760-1 MB Mercury (Hg)-Dissolved			<0.0000	10	mg/L		0.00001	20-MAY-11
HG-TOT-LOW-CVAFS-VA	Water							
Batch R2192101								
WG1282760-2 CRM Mercury (Hg)-Total		VA-HG-WA1	RM 94		%		80-120	20-MAY-11
WG1282760-1 MB			54		70		00-120	20-IVIA 1-1 1
Mercury (Hg)-Total			<0.00002	10	mg/L		0.00001	20-MAY-11
MET-D-CCMS-VA	Water							
Batch R2192161								
WG1282089-1 MB Aluminum (Al)-Dissolved	ł		<0.0030		mg/L		0.003	20-MAY-11
Antimony (Sb)-Dissolved			<0.00010)	mg/L		0.0001	20 MAT-11 20-MAY-11
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	20-MAY-11
Cadmium (Cd)-Dissolve	d		<0.0000		mg/L		0.00001	20-MAY-11
Copper (Cu)-Dissolved			<0.00050)	mg/L		0.0005	20-MAY-11
Lead (Pb)-Dissolved			<0.00005		mg/L		0.00005	20-MAY-11



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Гest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA	Water							
Batch R2192	161							
WG1282089-1 Mi Molybdenum (Mo)-I			<0.0000	50	~~~/l		0 00005	00 1441/ 44
Nickel (Ni)-Dissolve			<0.0000		mg/L mg/L		0.00005 0.0005	20-MAY-11
Selenium (Se)-Diss			<0.0003		mg/L			20-MAY-11
Uranium (U)-Dissol			<0.0001		mg/L		0.0001 0.00001	20-MAY-11 20-MAY-11
			<0.0000	10	ilig/L		0.00001	20-IVIA 1-1 1
Batch R2193 WG1282089-2 CF	180 RM							
Aluminum (AI)-Diss		VA-HIGH-W	105		%		80-120	20-MAY-11
Antimony (Sb)-Diss	olved		103		%		80-120	20-MAY-11
Arsenic (As)-Dissol	ved		104		%		80-120	20-MAY-11
Cadmium (Cd)-Diss	solved		106		%		80-120	20-MAY-11
Copper (Cu)-Dissol	ved		101		%		80-120	20-MAY-11
Lead (Pb)-Dissolved	b		101		%		80-120	20-MAY-11
Molybdenum (Mo)-I	Dissolved		103		%		80-120	20-MAY-11
Nickel (Ni)-Dissolve	d		105		%		80-120	20-MAY-11
Selenium (Se)-Diss	olved		106		%		80-120	20-MAY-11
Uranium (U)-Dissol	ved		105		%		80-120	20-MAY-11
MET-DIS-ICP-VA	Water							
Batch R2192	175							
	RM	VA-HIGH-W			0/			
Barium (Ba)-Dissol			98		%		80-120	19-MAY-11
Beryllium (Be)-Diss			97		%		80-120	19-MAY-11
Bismuth (Bi)-Dissol			99		%		80-120	19-MAY-11
Boron (B)-Dissolved			100		%		80-120	19-MAY-11
Calcium (Ca)-Disso Chromium (Cr)-Diss			101 98		%		80-120	19-MAY-11
Cobalt (Co)-Dissolv			98 97		%		80-120	19-MAY-11
Lithium (Li)-Dissolv			97 100		%		80-120	19-MAY-11
Magnesium (Mg)-D			100		%		80-120	19-MAY-11
Manganese (Mn)-D			98		%		80-120	19-MAY-11
• • •			98 100				80-120	19-MAY-11
Phosphorus (P)-Dis Potassium (K)-Diss			100		%		80-120	19-MAY-11
Silicon (Si)-Dissolve			101		%		80-120	19-MAY-11
Silver (Ag)-Dissolve			102 96		%		80-120	19-MAY-11
							80-120	19-MAY-11
Sodium (Na)-Dissol	veu		99		%		80-120	19-MAY-11



				ge 7 of
Reference Result	Qualifier Units	RPD	Limit	Analyzed
VA-HIGH-WATRM	0/			
				19-MAY-11
				19-MAY-1
				19-MAY-1
				19-MAY-1
99	70		80-120	19-MAY-1
<0.010	mg/L		0.01	19-MAY-12
	-			19-MAY-12
<0.20	-			19-MAY-1
<0.10	-			19-MAY-1
<0.050	mg/L		0.05	19-MAY-1
<0.010	mg/L		0.01	19-MAY-1
<0.010	mg/L		0.01	19-MAY-1
<0.010	mg/L		0.01	19-MAY-1
<0.10	mg/L		0.1	19-MAY-1
<0.0050	mg/L		0.005	19-MAY-1
<0.30	mg/L		0.3	19-MAY-1
<2.0	mg/L		2	19-MAY-1
<0.050	mg/L		0.05	19-MAY-1
<0.010	mg/L		0.01	19-MAY-1
<2.0	mg/L		2	19-MAY-1
<0.0050	mg/L		0.005	19-MAY-1
<0.20	mg/L		0.2	19-MAY-1
<0.030	mg/L		0.03	19-MAY-1
<0.010	mg/L		0.01	19-MAY-1
<0.030	mg/L		0.03	19-MAY-11
VA-HIGH-WATRM 96	%		80-120	19-MAY-1 [,]
96	%		80-120	19-MAY-1
-0.040	~~~//			
	-		0.01 0.004	19-MAY-1 ⁷ 19-MAY-1 ⁷
	Reference Result VA-HIGH-WATRM 100 98 98 104 99 0.010 0.0050 <0.20	Reference Result Qualifier Units VA-HIGH-WATRM 100 % 98 % 98 % 98 % 98 % 98 % 98 % 98 % 98 % 98 % 98 % 98 % 98 % 98 % 98 % 99 % <0.010	VA-HIGH-WATRM % 100 % 98 % 98 % 104 % 99 %	Reference Result Qualifier Units RPD Limit VA-HIGH-WATRM 100 % 80-120 98 % 80-120 98 % 80-120 98 % 80-120 98 % 80-120 98 80-120 99 % 80-120 99 % 80-120 99 % 80-120 99 % 80-120 <0.010

MET-T-CCMS-VA

Water



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est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-CCMS-VA	Water							
Batch R2192161								
WG1282089-1 MB Aluminum (Al)-Total			<0.0030		mg/L		0.003	20-MAY-11
Antimony (Sb)-Total			<0.00010)	mg/L		0.0001	20-MAY-11
Arsenic (As)-Total			<0.00010)	mg/L		0.0001	20-MAY-11
Cadmium (Cd)-Total			<0.00001	0	mg/L		0.00001	20-MAY-11
Copper (Cu)-Total			<0.00050)	mg/L		0.0005	20-MAY-11
Lead (Pb)-Total			<0.0005	50	mg/L		0.00005	20-MAY-11
Molybdenum (Mo)-Tota			<0.00005	50	mg/L		0.00005	20-MAY-11
Nickel (Ni)-Total			<0.00050)	mg/L		0.0005	20-MAY-11
Selenium (Se)-Total			<0.00010)	mg/L		0.0001	20-MAY-11
Uranium (U)-Total			<0.00001	0	mg/L		0.00001	20-MAY-11
WG1282145-1 MB Aluminum (Al)-Total			<0.0030		mg/L		0.003	20-MAY-11
Antimony (Sb)-Total			<0.00010	h	mg/L		0.003	20-MAY-11 20-MAY-11
Arsenic (As)-Total			<0.00010		mg/L		0.0001	20-MAT-11 20-MAY-11
Cadmium (Cd)-Total			<0.0001		mg/L		0.0001	20-MAY-11 20-MAY-11
Copper (Cu)-Total			<0.00050		mg/L		0.0005	20-MAY-11 20-MAY-11
Lead (Pb)-Total			<0.00005		mg/L		0.00005	20-MAY-11 20-MAY-11
Molybdenum (Mo)-Tota	1		<0.00005		mg/L		0.00005	20-MAY-11
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	20-MAY-11
Selenium (Se)-Total			<0.00010		mg/L		0.0001	20-MAY-11
Uranium (U)-Total			<0.00001		mg/L		0.00001	20-MAY-11
Batch R2193180					5			20
WG1282145-4 CRM		VA-HIGH-W	ATRM					
Aluminum (Al)-Total			106		%		80-120	20-MAY-11
Antimony (Sb)-Total			105		%		80-120	20-MAY-11
Arsenic (As)-Total			103		%		80-120	20-MAY-11
Cadmium (Cd)-Total			105		%		80-120	20-MAY-11
Copper (Cu)-Total			102		%		80-120	20-MAY-11
Lead (Pb)-Total			102		%		80-120	20-MAY-11
Molybdenum (Mo)-Tota	l		104		%		80-120	20-MAY-11
Nickel (Ni)-Total			104		%		80-120	20-MAY-11
Selenium (Se)-Total			104		%		80-120	20-MAY-11
Uranium (U)-Total			105		%		80-120	20-MAY-11

MET-TOT-ICP-VA

Water



					_	age 9 of 1
atrix Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ater						
VA-HIGH-			0/			
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-11
						19-MAY-1
					80-120	19-MAY-1
					80-120	19-MAY-1
					80-120	19-MAY-1
					80-120	19-MAY-17
					80-120	19-MAY-11
	108				80-120	19-MAY-17
	102		%		80-120	19-MAY-11
			•			19-MAY-17
			-			19-MAY-11
						19-MAY-11
			-		0.1	19-MAY-11
	<0.050		mg/L		0.05	19-MAY-11
	<0.010		mg/L		0.01	19-MAY-1
					0.01	19-MAY-17
	<0.010		mg/L		0.01	19-MAY-11
	<0.10		mg/L		0.1	19-MAY-11
	<0.0050		mg/L		0.005	19-MAY-17
	<0.30		mg/L		0.3	19-MAY-11
	<2.0		mg/L		2	19-MAY-17
	atrix Reference later VA-HIGH-	VA-HIGH-WATRM 102 100 101 101 101 102 99 104 102 99 104 102 91 104 102 91 104 102 91 104 105 101 103 104 105 101 103 104 105 101 103 104 105 101 103 104 105 101 102 001 102 0010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010 0.010	VA-HIGH-WATRM 102 100 101 101 101 101 105 102 99 104 102 101 102 99 104 102 101 103 104 105 101 103 104 105 101 103 104 105 101 103 105 101 103 105 101 102 20 20 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 2010 </td <td>VA-HIGH-WATRM % 102 % 100 % 101 % 101 % 101 % 101 % 102 % 101 % 102 % 105 % 102 % 102 % 99 % 102 % 102 % 102 % 104 % 105 % 101 % 103 % 104 % 105 % 105 % 105 % 105 % 105 % 105 % 101 % 102 % 103 % 104 % 105 % 106 % 107 % <0.010</td> mg/L <0.020	VA-HIGH-WATRM % 102 % 100 % 101 % 101 % 101 % 101 % 102 % 101 % 102 % 105 % 102 % 102 % 99 % 102 % 102 % 102 % 104 % 105 % 101 % 103 % 104 % 105 % 105 % 105 % 105 % 105 % 105 % 101 % 102 % 103 % 104 % 105 % 106 % 107 % <0.010	VA-HIGH-WAT RM 102 % 100 % 100 % 101 % 101 % 101 % 101 % 105 % 102 % 102 % 102 % 102 % 102 % 102 % 104 % 102 % 101 % 102 % 101 % 101 % 102 % 102 % 101 % 103 % 105 % 104 % 103 % 105 % 101 % 106 % 102 % 108 % 102 % 102 % 102 % 103 % 102 % 105 % 102 % 102 % 102	trix Reference Result Qualifier Units RPD Limit ater 102 % 80-120 100 % 80-120 101 % 80-120 101 % 80-120 101 % 80-120 101 % 80-120 101 % 80-120 101 % 80-120 105 % 80-120 102 % 80-120 102 % 80-120 102 % 80-120 104 % 80-120 105 % 80-120 106 % 80-120 107 % 80-120 108 % 80-120 105 % 80-120 105 % 80-120 105 % 80-120 105 % 80-120 105 % 80-120



		Workorder: L1005761		Report Date: 03-JUN-11		Page 10 of 16		
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-ICP-VA	Water							
Batch R2192175								
WG1282145-1 MB Silver (Ag)-Total			<0.010		mg/L		0.01	19-MAY-11
Sodium (Na)-Total			<2.0		mg/L		2	19-MAY-11
Strontium (Sr)-Total			<0.0050		mg/L		0.005	19-MAY-11
Thallium (TI)-Total			<0.20		mg/L		0.2	19-MAY-11
Tin (Sn)-Total			<0.030		mg/L		0.03	19-MAY-11
Titanium (Ti)-Total			<0.010		mg/L		0.01	19-MAY-11
Vanadium (V)-Total			<0.030		mg/L		0.03	19-MAY-11
MET-TOT-LOW-ICP-VA	Water							
Batch R2192175								
WG1282145-4 CRM Iron (Fe)-Total		VA-HIGH-WA	TRM 99		%		80-120	19-MAY-11
Zinc (Zn)-Total			97		%		80-120	19-MAY-11
WG1282145-1 MB Iron (Fe)-Total			<0.010		mg/L		0.01	19-MAY-11
Zinc (Zn)-Total			<0.0040		mg/L		0.004	19-MAY-11
NH3-F-VA	Water							
Batch R2196517								
WG1287502-2 CRM Ammonia (as N)		VA-NH3-F	97		%		85-115	31-MAY-11
WG1287502-4 CRM Ammonia (as N)		VA-NH3-F	99		%		85-115	31-MAY-11
WG1287502-6 CRM Ammonia (as N)		VA-NH3-F	100		%		85-115	31-MAY-11
WG1287502-8 CRM Ammonia (as N)		VA-NH3-F	98		%		85-115	31-MAY-11
WG1287502-1 MB Ammonia (as N)			<0.0050		mg/L		0.005	31-MAY-11
WG1287502-3 MB Ammonia (as N)			<0.0050		mg/L		0.005	31-MAY-11
WG1287502-5 MB Ammonia (as N)			<0.0050		mg/L		0.005	31-MAY-11
WG1287502-7 MB Ammonia (as N)			<0.0050		mg/L		0.005	31-MAY-11
WG1287502-10 MS Ammonia (as N)		L1010134-7	106		%		75-125	31-MAY-11
WG1287502-12 MS		L1010175-14						



		-			-			
		Workorder: L1005761			Report Date: 03-JUN-11		Page 11 of 1	
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
NH3-F-VA Batch R2196517 WG1287502-12 MS Ammonia (as N)	Water	L1010175-14	101		%		75-125	31-MAY-11
DGG-LL-SF-VA Batch R2193752 WG1283339-2 LCS Oil and Grease	Water		97		%		50-150	21-MAY-11
P-T-COL-VA Batch R2192232 WG1282843-11 CRM	Water	VA-ERA-PO4						
Phosphorus (P)-Total WG1282843-14 CRM Phosphorus (P)-Total		VA-ERA-PO4	98 98		%		80-120 80-120	20-MAY-11 20-MAY-11
WG1282843-17 CRM Phosphorus (P)-Total		VA-ERA-PO4	94		%		80-120	20-MAY-11
WG1282843-2 CRM Phosphorus (P)-Total		VA-ERA-PO4	96		%		80-120	20-MAY-11
WG1282843-5 CRM Phosphorus (P)-Total		VA-ERA-PO4	97		%		80-120	20-MAY-11
WG1282843-8 CRM Phosphorus (P)-Total		VA-ERA-PO4	99		%		80-120	20-MAY-11
WG1282843-1 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	20-MAY-11
WG1282843-10 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	20-MAY-11
WG1282843-13 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	20-MAY-11
WG1282843-16 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	20-MAY-11
WG1282843-4 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	20-MAY-11
WG1282843-7 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	20-MAY-11
P-TD-COL-VA	Water							



	Workorder:	L100576	1	Report Date: 0	3-JUN-11	Pa	ge 12 of 10
est Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-TD-COL-VA Water							
Batch R2192232							
WG1282843-11 CRM Phosphorus (P)-Total Dissolved	VA-ERA-PO4	98		%		80-120	20-MAY-11
WG1282843-14 CRM Phosphorus (P)-Total Dissolved	VA-ERA-PO4	97		%		80-120	20-MAY-11
WG1282843-17 CRM Phosphorus (P)-Total Dissolved	VA-ERA-PO4	97		%		80-120	20-MAY-11
WG1282843-2 CRM Phosphorus (P)-Total Dissolved	VA-ERA-PO4	96		%		80-120	20-MAY-11
WG1282843-5 CRM Phosphorus (P)-Total Dissolved	VA-ERA-PO4	98		%		80-120	20-MAY-11
WG1282843-8 CRM Phosphorus (P)-Total Dissolved	VA-ERA-PO4	102		%		80-120	20-MAY-11
WG1282843-1 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	20-MAY-11
WG1282843-10 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	20-MAY-11
WG1282843-13 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	20-MAY-11
WG1282843-16 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	20-MAY-11
WG1282843-4 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	20-MAY-11
WG1282843-7 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	20-MAY-11
PH-PCT-VA Water							
Batch R2192211 WG1282633-10 CRM рН	VA-PH7-BUF	6.98		рН		6.9-7.1	20-MAY-11
S2-T-COL-VA Water							
Batch R2192234							
WG1282233-2 CRM Sulphide as S	VA-S2-C	96		%		75-125	19-MAY-11
WG1282233-1 MB Sulphide as S		<0.020		mg/L		0.02	19-MAY-11
TDS-LOW-VA Water							



		Workorder	: L100576	51	Report Date: 0	3-JUN-11	Pa	age 13 of 16
Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TDS-LOW-VA	Water							
Batch R219261	5							
WG1282218-2 LCS Total Dissolved Solids			94		%		85-115	19-MAY-11
WG1282218-1 MB Total Dissolved Solids	6		<3.0		mg/L		3	19-MAY-11
TKN-COL-VA	Water							
Batch R219590)2							
WG1286162-2 CRI Total Kjeldahl Nitroge		VA-TKN-CS	PK1 111		%		75-125	28-MAY-11
WG1286162-5 CR	И	VA-TKN-CS	PK1					
Total Kjeldahl Nitroge			109		%		75-125	28-MAY-11
WG1286162-1 MB Total Kjeldahl Nitroge	'n		<0.060		mg/L		0.06	28-MAY-11
WG1286162-4 MB Total Kjeldahl Nitroge	'n		<0.060		mg/L		0.06	28-MAY-11
TSS-LOW-VA	Water							
Batch R219188	9							
WG1282190-2 LCS Total Suspended Sol			91		%		85-115	19-MAY-11
WG1282190-4 LCS Total Suspended Sol			98		%		85-115	19-MAY-11
WG1282190-1 MB Total Suspended Sol	ids		<1.0		mg/L		1	19-MAY-11
WG1282190-3 MB Total Suspended Sol			<1.0		mg/L		1	19-MAY-11
TURBIDITY-VA	Water		<1.0		iiig/L		I	19-101A1-11
-								
Batch R219161 WG1281945-11 CR								
Turbidity	VI	VA-TURB-S	104		%		85-115	19-MAY-11
WG1281945-14 CRI Turbidity	И	VA-TURB-S	PK-8 106		%		85-115	19-MAY-11
WG1281945-2 CRI Turbidity	И	VA-TURB-S	PK-8 105		%		85-115	19-MAY-11
WG1281945-5 CRI Turbidity	И	VA-TURB-S	PK-8 104		%		85-115	19-MAY-11
WG1281945-8 CRI Turbidity	И	VA-TURB-S	PK-8 105		%		85-115	19-MAY-11
WG1281945-1 MB Turbidity			<0.10		NTU		0.1	
rubluity			NO.10				0.1	19-MAY-11



Quality	Control	Report
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		Workorder	orkorder: L1005761		Report Date: 03-JUN-11		Page 14 of 16		
Test	Matri	x Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
TURBIDITY-VA	Wate	er							
Batch R2 WG1281945-10 Turbidity	191616 МВ		<0.10		NTU		0.1	19-MAY-11	
WG1281945-13 Turbidity	MB		<0.10		NTU		0.1	19-MAY-11	
WG1281945-4 Turbidity	MB		<0.10		NTU		0.1	19-MAY-11	
WG1281945-7 Turbidity	MB		<0.10		NTU		0.1	19-MAY-11	

Workorder: L1005761

Report Date: 03-JUN-11

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Q	Qualifier	Description
J		Duplicate results and limits are expressed in terms of absolute difference.
R	RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Workorder: L1005761

Report Date: 03-JUN-11

Page 16 of 16

Hold Time Exceedances:

		Sample						
ALS Produc	t Description	ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tes	ts							
pH by Me	ter (Automated)							
		1	16-MAY-11 16:45	20-MAY-11 14:03	0.25	93	hours	EHTR-FM
egend & Qu	alifier Definitions:							
EHTR-FM: EHTR: EHTL: EHT: Rec. HT:	Exceeded ALS re Exceeded ALS re	ecommeno ecommeno ecommeno	ded hold time prior to sar ded hold time prior to sar ded hold time prior to and ded hold time prior to and ne (see units)	nple receipt. alysis. Sample was rec				xpiry.

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes. Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1005761 were received on 17-MAY-11 10:56.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

Jun 03, 2011

SRC ANALYTICAL

422 Downey Road Saskatoon, Saskatchewan, Canada S7N 4N1 (306) 933-6932 or 1-800-240-8808 Fax: (306) 933-7922

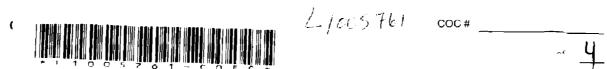
ALS Laboratory Group 8081 Lougheed Hwy Burnaby, BC V5A 1W9 Attn: Can Dang

Page 1 of 1

Sample # Date Sampled: Sample Matrix: Description:	14946 May 16, 2011 WATER L1005761-1 B <i>A</i>	AKER CREEK EX	Date Received:	L1005761 May 20, 2011	
Analyte		Units	Result		DL
Radio Chemistry					
Radium-226		Bq/L	0.03		0.01



•



eport To		Repc				Service Requested (Rush for routine analysis subject to availability)										
	Deton'Cho/Nuna Joint Venture AND Golder As. Ltd.	✓ Standard	Other			🖲 Reg	ular (St	andard Tu	rnarour	nd Time	s · Bus	iness ();	ays)			
	DCNJV: Katrina Nokleby; Golder: Justine Crowe		✓ Exce	Digital		Regular (Standard Turnaround Times - Business Days) O Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT										
ddress:		Email 1:	jcrowe@golder.	cóm	Finergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT					TAT						
			hmachtans@go			🔿 Sarr	ie Day (or Weeker	d Emer	gency -	Contac	t ALS t	o Confir	m 1AT		
hone:	867 669 6735 Fax:		KatrinaN@nuna			<u> </u>				Analys	sis Re	eques	t			
	Same as Report ? Yes Vo	_	oject Informatio			Plea	se inc	licate\be	low Fi	Itered	, Pres	served	or bol	th (F,	P, F/F	2)
	voice with Report? Ses I No	Job #:	09-1427-0006					5 P	R	8	$\hat{\mathbf{v}}$	9	P	PT		21
	Deton'Cho/Nuna Joint Venture	PO / AFE:	606989								-		Part 1	T	S	
ontact:	Brenda Kalis	LSD:	LSD:											<i>"</i>	leta	
ddress:	9838-31st Avenue., Edmonton AB, T6N 1C5					<u>ب</u>							8	Metals	≥ ס	ers
hone:	780 408 2897 Fax: 780 408 5472	Quote #:				ete	1			1			5	ž	ě	tain
	/ork Order #	ALS		1							Grease		Reputed	Level Total	Level Dissolved Metals	Containers
allen i	use only)	Contact:	Can Dang	Sampler:	Justine Crowe	Pa	S	200	í "	Ş	e e		2	⊡	- G	<u> </u>
	Sample Identification		Dete	Time		<u>i</u>	2	nide	ient	F	р Ц		×	Le	Le L	hide
Sample #	(This description will appear on the report)		Date (dd-mmm-yy)	(hh:mm)	Sample Type	Physical	Major Ions	Cyanide	Nutrients	NH3 / TKN	Oil and	P	ğ	Š	ð,	Sulphide Number c
#			- <u> </u>		Surface Water	x		x x	_	X	x	x		x		X 10
	Baker Creek Exposure Point		16-May-11	16:45	Surface water	⊢^ +	<u> </u>	<u>^ </u>	 ^	<u> ^</u>	^	 ^	<u> </u>	<u>^</u>		<u>^ ''</u>
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1 4 Meg-	25 + TSS Analysis = BUSH	<u>,</u>													-	
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Released by		ld by:	Date:	Time:	Temperature:	Verif	fied by		Da	te:		Time	e:		Obser Yes / I	vations No ?



DETON'CHO \ NUNA JOINT VENTURE ATTN: KATRINA NOKLEBY GIANT MINESITE PO BOX 2951 Yellowknife NT X1A 2R2 Date Received:24-MAY-11Report Date:26-MAY-11 18:19 (MT)Version:FINAL

Client Phone: 604-253-4188

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1008285 606989 09-1427-0006

Can Dang Senior Account Manager

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L1008285 CONTD.... PAGE 2 of 7 26-MAY-11 18:19 (MT) Version: FINAL

	Comula ID	L1008285-1	L1008285-2	L1008285-3	
	Sample ID Description	L1000200-1	L 1000200-2	L1000200-3	
	Sampled Date	17-MAY-11 15:15	17-MAY-11 15:00	17-MAY-11 14:15	
	Sampled Time Client ID	REACH 7	REACH 7	REACH 0- BAKER	
		OVERFLOW U/S ROAD	OVERFLOW D/S ROAD	BC MOUTH	
Grouping	Analyte				
WATER					
Physical Tests	Hardness (as CaCO3) (mg/L)	34.5	35.7	99.5	
	Total Suspended Solids (mg/L)	6.7	279	163	
	Total Dissolved Solids (mg/L)	59.5	61.9	146	
	Turbidity (NTU)	3.05	94.9	134	
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	3.4	3.3	2.3	
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	32.4	33.6	53.2	
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0	
	Alkalinity, Total (as CaCO3) (mg/L)	32.4	33.6	53.2	
	Ammonia (as N) (mg/L)	0.105	0.104	0.123	
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050	
	Chloride (Cl) (mg/L)	2.07	2.06	10.6	
	Fluoride (F) (mg/L)	0.075	0.076	0.075	
	Nitrate and Nitrite (as N) (mg/L)	0.0345	0.0352	0.136	
	Nitrate (as N) (mg/L)	0.0345	0.0352	0.133	
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	0.0034	
	Total Kjeldahl Nitrogen (mg/L)	0.941	0.957	0.948	
	Phosphorus (P)-Total Dissolved (mg/L)	0.0087	0.0086	0.0083	
	Phosphorus (P)-Total (mg/L)	0.0357	0.175	0.077	
	Sulfate (SO4) (mg/L)	3.21	3.26	39.3	
	Sulphide as S (mg/L)	<0.020	<0.020	0.025	
Cyanides	Cyanide, Total (mg/L)	0.0088	0.0072	0.0098	
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	10.4	10.3	11.5	
	Total Organic Carbon (mg/L)	11.7	13.2	12.9	
Total Metals	Aluminum (Al)-Total (mg/L)	0.144	5.13	2.03	
	Antimony (Sb)-Total (mg/L)	0.00168	0.00420	0.124	
	Arsenic (As)-Total (mg/L)	0.0343	0.120	0.430	
	Barium (Ba)-Total (mg/L)	0.012	0.064	0.022	
	Beryllium (Be)-Total (mg/L)	<0.0050	<0.0050	<0.0050	
	Bismuth (Bi)-Total (mg/L)	<0.20	<0.20	<0.20	
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	
	Cadmium (Cd)-Total (mg/L)	<0.000050	<0.000050	0.000569	
	Calcium (Ca)-Total (mg/L)	8.93	11.2	30.2	
	Chromium (Cr)-Total (mg/L)	<0.010	0.012	<0.010	
	Cobalt (Co)-Total (mg/L)	<0.010	<0.010	<0.010	
	Copper (Cu)-Total (mg/L)	0.00068	0.00763	0.0413	

L1008285 CONTD.... PAGE 3 of 7 26-MAY-11 18:19 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1008285-1 17-MAY-11 15:15 REACH 7 OVERFLOW U/S	L1008285-2 17-MAY-11 15:00 REACH 7 OVERFLOW D/S	L1008285-3 17-MAY-11 14:15 REACH 0- BAKER BC MOUTH	
Grouping	Analyte	ROAD	ROAD		
WATER					
Total Metals	Iron (Fe)-Total (mg/L)	0.405	6.02	3.82	
	Lead (Pb)-Total (mg/L)	0.405	0.00519	0.0729	
	Lithium (Li)-Total (mg/L)	<0.010	0.00319	<0.0129	
	Magnesium (Mg)-Total (mg/L)	2.81	5.05	7.98	
	Manganese (Mn)-Total (mg/L)	0.479	0.584	0.401	
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.00010	0.000028	
	Molybdenum (Mo)-Total (mg/L)	0.000405	0.000481	0.00108	
	Nickel (Ni)-Total (mg/L)	<0.000405	0.00738	0.00961	
	Phosphorus (P)-Total (mg/L)	<0.00050	<0.30	<0.30	
	Potassium (K)-Total (mg/L)	<2.0	2.5	2.4	
	Selenium (Se)-Total (mg/L)	<0.00010	<0.00010	0.00015	
	Silicon (Si)-Total (mg/L)	0.544	9.40	3.31	
	Silver (Ag)-Total (mg/L)	<0.010	<0.010	< 0.010	
	Sodium (Na)-Total (mg/L)	2.0	2.7	6.6	
	Strontium (Sr)-Total (mg/L)	0.0327	0.0484	0.0820	
	Thallium (TI)-Total (mg/L)	<0.20	<0.20	<0.20	
	Tin (Sn)-Total (mg/L)	<0.030	<0.030	<0.030	
	Titanium (Ti)-Total (mg/L)	<0.010	0.199	0.039	
	Uranium (U)-Total (mg/L)	0.000329	0.000673	0.000723	
	Vanadium (V)-Total (mg/L)	<0.030	<0.030	<0.030	
	Zinc (Zn)-Total (mg/L)	<0.0040	0.0174	0.122	
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0070	0.182	0.0157	
	Antimony (Sb)-Dissolved (mg/L)	0.00156	0.00166	0.0359	
	Arsenic (As)-Dissolved (mg/L)	0.0233	0.0255	0.0729	
	Barium (Ba)-Dissolved (mg/L)	<0.010	0.013	<0.010	
	Beryllium (Be)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	
	Bismuth (Bi)-Dissolved (mg/L)	<0.20	<0.20	<0.20	
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10	<0.10	
	Cadmium (Cd)-Dissolved (mg/L)	<0.000050	<0.000050	0.000164	
	Calcium (Ca)-Dissolved (mg/L)	9.08	9.45	29.0	
	Chromium (Cr)-Dissolved (mg/L)	<0.010	<0.010	<0.010	
	Cobalt (Co)-Dissolved (mg/L)	<0.010	<0.010	<0.010	
	Copper (Cu)-Dissolved (mg/L)	<0.00050	0.00086	0.0118	
	Iron (Fe)-Dissolved (mg/L)	0.086	0.252	0.041	
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.000177	0.000840	
	Lithium (Li)-Dissolved (mg/L)	<0.010	<0.010	<0.010	
	Magnesium (Mg)-Dissolved (mg/L)	2.86	2.93	6.58	

L1008285 CONTD.... PAGE 4 of 7 26-MAY-11 18:19 (MT) Version: FINAL

	Sample ID Description	L1008285-1	L1008285-2	L1008285-3	
	Sampled Date Sampled Time Client ID	17-MAY-11 15:15 REACH 7 OVERFLOW U/S ROAD	17-MAY-11 15:00 REACH 7 OVERFLOW D/S ROAD	17-MAY-11 14:15 REACH 0- BAKER BC MOUTH	
Grouping	Analyte				
WATER					
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	<0.0050	0.0776	0.296	
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	
	Molybdenum (Mo)-Dissolved (mg/L)	0.000350	0.000390	0.00117	
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050	0.00264	
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	2.1	
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	
	Silicon (Si)-Dissolved (mg/L)	0.326	1.08	0.702	
	Silver (Ag)-Dissolved (mg/L)	<0.010	<0.010	<0.010	
	Sodium (Na)-Dissolved (mg/L)	2.1	2.1	6.7	
	Strontium (Sr)-Dissolved (mg/L)	0.0327	0.0357	0.0786	
	Thallium (TI)-Dissolved (mg/L)	<0.20	<0.20	<0.20	
	Tin (Sn)-Dissolved (mg/L)	<0.030	<0.030	<0.030	
	Titanium (Ti)-Dissolved (mg/L)	<0.010	0.015	<0.010	
	Uranium (U)-Dissolved (mg/L)	0.000211	0.000231	0.000579	
	Vanadium (V)-Dissolved (mg/L)	<0.030	<0.030	<0.030	
	Zinc (Zn)-Dissolved (mg/L)	<0.0040	<0.0040	0.0174	

Qualifiers for Sample Submission Listed:

Qualifier	Description		
SFPL	Sample was F	iltered and Preserved at the laboratory - diss	olved metals
est Method Refere	ences:		
ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carri endpoint.	ed out using proced	ures adapted from APHA Method 2310 "Acid	dity". Acidity is determined by potentiometric titration to a specified
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carri endpoint.	ed out using proced	ures adapted from APHA Method 2310 "Acio	dity". Acidity is determined by potentiometric titration to a specified
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"
			alinity". Total alkalinity is determined by potentiometric titration to a pH enolphthalein alkalinity and total alkalinity values.
ALK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity
			alinity". Total alkalinity is determined by potentiometric titration to a pH molphthalein alkalinity and total alkalinity values.
ANIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
		ures adapted from APHA Method 4110 B. "In of Inorganic Anions by Ion Chromatography".	on Chromatography with Chemical Suppression of Eluent Conductivity
ANIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
		ures adapted from APHA Method 4110 B. "I of Inorganic Anions by Ion Chromatography".	on Chromatography with Chemical Suppression of Eluent Conductivity
ANIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
		ures adapted from APHA Method 4110 B. "I of Inorganic Anions by Ion Chromatography".	on Chromatography with Chemical Suppression of Eluent Conductivity
ANIONS-N+N-CALC-	VA Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0
Nitrate and Nitrite (as	s N) is a calculated	parameter. Nitrate and Nitrite (as N) = Nitrite	(as N) + Nitrate (as N).
ANIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis is carri detected by UV abso		ures adapted from EPA Method 300.0 "Dete	rmination of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is carridetected by UV absorb	01	ures adapted from EPA Method 300.0 "Dete	rmination of Inorganic Anions by Ion Chromatography". Nitrate is
ANIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
		ures adapted from APHA Method 4110 B. "In of Inorganic Anions by Ion Chromatography".	on Chromatography with Chemical Suppression of Eluent Conductivity
CARBONS-DOC-VA	Water	Dissolved organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
		ures adapted from APHA Method 5310 "Tot. gh a 0.45 micron membrane filter prior to ana	al Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are lysis.
CARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carri	ed out using proced	ures adapted from APHA Method 5310 "Tot	al Organic Carbon (TOC)".
CN-T-MID-HH-COL-V	A Water	Total Cyanide by HH Distillation	APHA 4500-CN Cyanide
		ures adapted from APHA Method 4500-CN ' alysis using the chloramine-T colourimetric m	'Cyanide". Total or strong acid dissociable (SAD) cyanide are nethod.
HARDNESS-CALC-V	A Water	Hardness	APHA 2340B
		s) is calculated from the sum of Calcium and centrations are preferentially used for the hard	Magnesium concentrations, expressed in CaCO3 equivalents. dness calculation.
HG-DIS-LOW-CVAFS	S-VA Water	Dissolved Mercury in Water by CVAFS(Lo	Dw) EPA SW-846 3005A & EPA 245.7
Public Health Associ Environmental Prote oxidation of the acid	iation, and with proc ction Agency (EPA ified sample using b	edures adapted from "Test Methods for Eva . The procedures may involve preliminary sa	e Examination of Water and Wastewater" published by the American luating Solid Waste" SW-846 published by the United States ample treatment by filtration (EPA Method 3005A) and involves a cold- e sample with stannous chloride. Instrumental analysis is by cold

HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low)

vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

EPA 245.7

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

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American

the sample with stannous chloride. Instrumental analysis is by cold vapour atomic fluorescence spectrophotometry (EPA Method 245.7).

Dissolved Metals in Water by CRC ICPMS

APHA 3030 B&E / EPA SW-846 6020A

Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). MET-DIS-ICP-VA **Dissolved Metals in Water by ICPOES** EPA SW-846 3005A/6010B Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). **Dissolved Metals in Water by ICPOES** MET-DIS-LOW-ICP-VA Water EPA 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). MET-T-CCMS-VA Total Metals in Water by CRC ICPMS Water APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). Total Metals in Water by ICPOES EPA 3005A/6010B MET-TOT-LOW-ICP-VA Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). NH3-F-VA Water Ammonia in Water by Fluorescence 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. **OGG-LL-SF-VA** Water Oil & Grease by Gravimetric BCMOE GRAVIMETRIC This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846. Methods 3510 & 9071, published by the United States Environmental Protection Agency (EPA), "Standard Methods for the Examination of Water and Wastewater", 20th ed., Method 5520, published by the American Public Health Association, and "BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials," 5th ed., published by the B.C. Ministry of Environment, Lands & Parks, 1994. The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to drvness, and the residue weighed to determine Oil and Grease. ALS Environmental's routine detection limit, or Limit of Reporting (LOR), for this method is 2 mg/L for a 1L sample volume. By request, a LOR of 1 mg/L is sometimes applied for this method. The 1 mg/L LOR is equal to the 99% confidence limit Method Detection Limit as defined by the US EPA. A higher degree of variability is expected

at levels below 2 mg/L.

P-T-COL-VA Water Total P in Water by Colour

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

P-TD-COL-VA Water Total Dissolved P in Water by Colour

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter.

Water Total Sulphide by Colorimetric S2-T-COL-VA

This analysis is carried out using procedures adapted from APHA Method 4500-S2 "Sulphide". Sulphide is determined using the methlyene blue colourimetric method.

TDS-I OW-VA

MET-D-CCMS-VA

Water

Water Low Level TDS (3.0mg/L) by Gravimetric APHA 2540 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.

TKN-SIE-VA

Water TKN in Water by SIE APHA 4500-NORG (TKN)

APHA 4500-P Phosphorous

APHA 4500-P Phosphorous

APHA 4500-S2 Sulphide

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined using an ammonia selective electrode.

TSS-LOW-VA

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.

TURBIDITY-VA Water Turbidity by Meter

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

TURBIDITY-VA Water Turbidity by Meter

Water

APHA 2130 Turbidity

APHA 2130 "Turbidity"

APHA 2540 Gravimetric

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:

Total Suspended Solids by Grav. (1 mg/L)

Laboratory Definition Code	Laboratory Location
VA	ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA

Chain of Custody Numbers:

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.

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		Reach 7 Overflow u/s Road (TOC not preserver	11	17-May-11	13:15	Surface Water	x	х	х		X	Х	Х	Х	x	x	x	x	9
# _		Reach 7 Overflow d/s Road		17-May-11	15:00	Surface Water	X	x	X		X	X	X	X	X	x	x	X	9
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GOLDER ASSOCIATES LTD ATTN: JUSTINE CROWE 9 - 4905 48 Street Yellowknife NT X1A 3S3 Date Received:18-MAY-11Report Date:25-MAY-11 15:35 (MT)Version:FINAL

Client Phone: 897-669-6735

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1006658 606989 09-1427-0006

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Shannon Luchka Account Manager

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L1006658 CONTD.... PAGE 2 of 6 25-MAY-11 15:35 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1006658-1 WATER 18-MAY-11 REACH 4 (GIANT POOL)		
Grouping	Analyte			
WATER				
Physical Tests	Total Suspended Solids (mg/L)	72.0		
	Total Dissolved Solids (mg/L)	123		
	Turbidity (NTU)	142		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	<5.0		
	Alkalinity, Total (as CaCO3) (mg/L)	45.8		
	Ammonia (as N) (mg/L)	0.145		
	Bicarbonate (HCO3) (mg/L)	55.9		
	Bromide (Br) (mg/L)	<0.10		
	Carbonate (CO3) (mg/L)	<5.0		
	Chloride (CI) (mg/L)	5.34		
	Conductivity (EC) (uS/cm)	160		
	Fluoride (F) (mg/L)	<0.050		
	Hardness (as CaCO3) (mg/L)	64.9		
	Hydroxide (OH) (mg/L)	<5.0		
	Ion Balance (%)	97.4		
	Nitrate and Nitrite (as N) (mg/L)	0.0503		
	Nitrate (as N) (mg/L)	0.0475		
	Nitrite (as N) (mg/L)	0.0028		
	Total Kjeldahl Nitrogen (mg/L)	1.03		
	рН (рН)	7.89		
	Phosphorus (P)-Total Dissolved (mg/L)	0.0080		
	Phosphorus (P)-Total (mg/L)	0.0995		
	TDS (Calculated) (mg/L)	84.2		
	Sulfate (SO4) (mg/L)	22.9		
	Sulphide (mg/L)	0.0027		
Cyanides	Cyanide, Total (mg/L)	0.0080		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	11.8		
	Total Organic Carbon (mg/L)	12.5		
Total Metals	Aluminum (Al)-Total (mg/L)	2.21		
	Antimony (Sb)-Total (mg/L)	0.124		
	Arsenic (As)-Total (mg/L)	0.346		
	Barium (Ba)-Total (mg/L)	0.0177		
	Beryllium (Be)-Total (mg/L)	<0.0010		
	Bismuth (Bi)-Total (mg/L)	<0.00020		
	Boron (B)-Total (mg/L)	<0.020		
	Cadmium (Cd)-Total (mg/L)	0.00052		

L1006658 CONTD.... PAGE 3 of 6 25-MAY-11 15:35 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1006658-1 WATER 18-MAY-11 REACH 4 (GIANT POOL)		
Grouping	Analyte			
WATER				
Total Metals	Calcium (Ca)-Total (mg/L)	22.0		
	Chromium (Cr)-Total (mg/L)	0.00524		
	Cobalt (Co)-Total (mg/L)	0.00318		
	Copper (Cu)-Total (mg/L)	0.0342		
	Iron (Fe)-Total (mg/L)	4.17		
	Lead (Pb)-Total (mg/L)	0.0660		
	Magnesium (Mg)-Total (mg/L)	6.22		
	Manganese (Mn)-Total (mg/L)	0.447		
	Mercury (Hg)-Total (mg/L)	0.000030		
	Molybdenum (Mo)-Total (mg/L)	0.00111		
	Nickel (Ni)-Total (mg/L)	0.00969		
	Potassium (K)-Total (mg/L)	1.89		
	Selenium (Se)-Total (mg/L)	<0.00040		
	Silver (Ag)-Total (mg/L)	<0.00040		
	Sodium (Na)-Total (mg/L)	4.0		
	Strontium (Sr)-Total (mg/L)	0.0624		
	Thallium (TI)-Total (mg/L)	<0.00010		
	Tin (Sn)-Total (mg/L)	<0.00040		
	Titanium (Ti)-Total (mg/L)	0.0430		
	Uranium (U)-Total (mg/L)	0.00048		
	Vanadium (V)-Total (mg/L)	0.00583		
	Zinc (Zn)-Total (mg/L)	0.0936		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.014		
	Antimony (Sb)-Dissolved (mg/L)	0.0233		
	Arsenic (As)-Dissolved (mg/L)	0.0707		
	Barium (Ba)-Dissolved (mg/L)	0.00526		
	Beryllium (Be)-Dissolved (mg/L)	<0.00050		
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050		
	Boron (B)-Dissolved (mg/L)	0.0131		
	Cadmium (Cd)-Dissolved (mg/L)	0.00015		
	Calcium (Ca)-Dissolved (mg/L)	18.6		
	Chromium (Cr)-Dissolved (mg/L)	<0.00040		
	Cobalt (Co)-Dissolved (mg/L)	0.00109		
	Copper (Cu)-Dissolved (mg/L)	0.00929		
	Iron (Fe)-Dissolved (mg/L)	0.045		
	Lead (Pb)-Dissolved (mg/L)	0.00092		
	Magnesium (Mg)-Dissolved (mg/L)	4.48		

L1006658 CONTD.... PAGE 4 of 6 25-MAY-11 15:35 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1006658-1 WATER 18-MAY-11 REACH 4 (GIANT POOL)		
Grouping	Analyte			
WATER				
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	0.344		
	Mercury (Hg)-Dissolved (mg/L)	<0.000020		
	Molybdenum (Mo)-Dissolved (mg/L)	0.00098		
	Nickel (Ni)-Dissolved (mg/L)	0.00318		
	Potassium (K)-Dissolved (mg/L)	1.50		
	Selenium (Se)-Dissolved (mg/L)	<0.00040		
	Silver (Ag)-Dissolved (mg/L)	<0.00020		
	Sodium (Na)-Dissolved (mg/L)	3.7		
	Strontium (Sr)-Dissolved (mg/L)	0.0541		
	Thallium (TI)-Dissolved (mg/L)	<0.000050		
	Tin (Sn)-Dissolved (mg/L)	<0.00020		
	Titanium (Ti)-Dissolved (mg/L)	0.00045		
	Uranium (U)-Dissolved (mg/L)	0.00040		
	Vanadium (V)-Dissolved (mg/L)	0.00021		
	Zinc (Zn)-Dissolved (mg/L)	0.0150		
Aggregate Organics	Oil and Grease (mg/L)	<1.0		

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects
E	Matrix Spike recovery outside ALS DQO due to analyte background in sample.
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**
ACIDITY-ED	Water	Acidity (as CaCO3)	APHA 2310 B - Potentiometric Titration
BR-IC-ED	Water	Bromide by IC	APHA 4110 B-ION CHROMATOGRAPHY
C-DIS-ORG-ED	Water	Dissolved Organic Carbon	APHA 5310 B-Instrumental
C-TOT-ORG-ED	Water	Total Organic Carbon	APHA 5310 B-Instrumental
CL-IC-ED	Water	Chloride by IC	APHA 4110 B-ION CHROMATOGRAPHY
CN-TOT-YL	Water	Cyanide, Total	APHA 4500 CN-O

Total Cyanide in Water: Simple cyanides are converted to hydrogen cyanide (HCN) by distillation. Complex cyanides are not easily decomposed. Low power UV radiation is used to break down organic, metallic and alkali complexed compounds to free cyanide. The dislillation step isolates HCN from simple cyanides under specific acidic conditions. The liberated HCN is converted to cyanogen chloride with chloramine-T. This further reacts with barbituric acid and isonicotinic acid to form a highly coloured complex.

HG-D-L-CVAA-ED Water Mercury (Hg) - Dissolved EPA 245.7 / EPA 245.1
HG-T-L-CVAA-ED Water Mercury (Hg) EPA 245.7 / EPA 245.1
IONBALANCE-ED Water Ion Balance Calculation APHA 1030E
MET-D-L-ICP-ED Water Diss. Metals in Water by ICPOES (Low) APHA 3120 B-ICP-OES
MET-D-L-MS-ED Water Diss. Metals in Water by ICPMS (Low) SW 846 - 6020-ICPMS
MET-T-L-ICP-ED Water Total Metals in Water by ICPOES (Low) APHA 3120 B-ICP-OES
MET-T-L-MS-ED Water Total Metals in Water by ICPMS (Low) SW 846 - 6020-ICPMS
NH3-L-CFA-ED Water Ammonia in Water by Colour APHA 4500 NH3-NITROGEN (AMMONIA)

This analysis is carried out using procedures adapted from APHA Method 4500 NH3 "NITROGEN (AMMONIA)". Ammonia is determined using the automated phenate colourimetric method.

NO2+NO3-L-CFA-EDWaterNitrite & Nitrate in Water by ColourAPHA 4500 NO3-F

Nitrate in Water (Calculation)

This analysis is carried out using procedures adapted from APHA Method 4500 NO3-F "Automated Cadmium Reduction Method".

NO2-L-CFA-ED Water Nitrite in Water by Colour

This analysis is carried out using procedures adapted from APHA Method 4500 NO3-F "Automated Cadmium Reduction Method", omitting the Cu-Cd reduction step to be selective for nitrite.

Nitrate (as N) is a calculated parameter. Nitrate (as N)

Water

= [Nitrate and Nitrite (as N)] - Nitrite (as N).

OGG-ED	Water	Oil and Grease-Gravimetric	APHA 5520 G HEXANE MTBE EXT. GRAVIME
P-T-L-COL-ED	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried ou after persulphate digestion	01	dures adapted from APHA Method 4500-P "Phosphorus le.	s". Total Phosphorous is determined colourimetrically
P-TD-L-COL-ED	Water	Total Dissolved P in Water by Colour	APHA 4500-P PHOSPHORUS
		dures adapted from APHA Method 4500-P "Phosphorus stion of a sample that has been lab or field filtered throu	
PH/EC/ALK-ED	Water	pH, Conductivity and Total Alkalinity	APHA 4500-H, 2510, 2320
SO4-L-IC-ED	Water	Sulfate by IC (Low Level)	APHA 4110 B-ION CHROMATOGRAPHY
SOLIDS-TDS-ED	Water	Total Dissolved Solids	APHA 2540 C
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
SULPHIDE-ED	Water	Sulphide	APHA 4500 -S E-Auto-Colorimetry
TKN-L-CFA-ED	Water	TKN in Water by Colour	APHA 4500-NORG (TKN)
This analysis is carried or	t using proce	dures adapted from APHA Method 4500-Norg "Nitroger	(Organic)" Total Kieldahl Nitrogen is determined by

This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined by sample digestion at 380 celcius with analysis using an automated colourimetric finish.

TURBIDITY-ED

APHA 4500 NO2-A and NO3-F

APHA 4500 NO3-F

** 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
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
YL	ALS ENVIRONMENTAL - YELLOWKNIFE, NW, CANADA

Chain of Custody Numbers:

1

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.





L/00665 Page _____

Report To		TF				Serv	ice R	eque	sted	(Rush	for rou	utine a	inalysis	s subje	ect to a	availat	oility)	
Company:	Deton'Cho/Nuna Joint Venture AND Golder As. Ltd.	Standard	d 🗌 Other			() Re	gular (Standa	ord Tur	naroun	d Times	s - Bus	iness D	ays)				
Contact:	DCNJV: Katrina Nokleby; Golder: Justine Crowe	PDF	Excel	Digital		() Pr	iority (2	2-4 Bus	siness (Days) -	50% S	urchar	ge - Coi	ntact A	LS to C	Confirm	TAT	
Address:		Email 1:	jcrowe@golder.	com		🛈 En	nergen	cy (1-2	Bus. D	ays) -	100% 5	Surcha	rge - Co	ontact /	ALS to	Confirr	n TAT	
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Phone:	867 669 6735 Fax:	Email 3:	KatrinaN@nuna	logistics.com						F	nalys	sis Re	ques	t				_
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Hardcopy of Ir	nvoice with Report? 🔲 Yes 🗹 No	Job #:	09-1427-0006						<u> </u>]	
Company:	Deton'Cho/Nuna Joint Venture	PO / AFE	: 606989													s		
Contact:	Brenda Kalis	LSD:				1	l		ļ				. I	ļ		leta		
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	/ork Order # use only)	ALS Contact:	Can Dang	Sampler:	Justine Crowe	al Parameters	suo	e e	TSS and Turbidity	ţ	NX	Grease			Level Total	Level Dissolved Metals	e	Number of Containers
Sample #	Sample Identification (This description will appear on the report)		Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Physical	Major lons	Cyanide	TSS ar	Nutrients	NH3 / TKN	Oil and		DOC	Low Le	Low Le	Sulphide	Numbe
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Golder Associates Ltd. ATTN: Hilary Machtans 9 - 4905 48 Street Yellowknife NT X1A 3S3 Date Received:18-MAY-11Report Date:21-MAY-11 14:16 (MT)Version:FINAL

Client Phone: 867-873-6319

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1006655 606989 09-1427-0006

1

Shannon Luchka Account Manager

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L1006655 CONTD.... PAGE 2 of 4 21-MAY-11 14:16 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1006655-1 WATER 18-MAY-11 REACH 7 OVERFLOW U/S ROAD	L1006655-2 WATER 18-MAY-11 REACH 7 OVERFLOW D/S ROAD	L1006655-3 WATER 18-MAY-11 REACH 6 BC EXPOSURE POINT (ABOVE)	L1006655-4 WATER 18-MAY-11 UPPER REACH 3 (D/S OF BRIDGE)	L1006655-5 WATER 18-MAY-11 UPPER REACH: (POOL)
Grouping	Analyte	KOAD	ROAD	(ABOVE)		
WATER	·					
Physical Tests	Total Suspended Solids (mg/L)	<3.0	11.0	79.0	72.0	72.0
	Turbidity (NTU)	7.69	30.7	491	130	129
						120

L1006655 CONTD.... PAGE 3 of 4 21-MAY-11 14:16 (MT) Version: FINAL

Description Sampled Trins Citerriti VATER WATER 183/W-11 SPP 455 WATER WATER 183/W-11 SPP 455 Prysical Tests Total Supported Solids (mgL) Turbidity (MTL) 66.0 67.0 98.0 117 149 160 160 160 160		Sample ID	L1006655-6	L1006655-7	L1006655-8	
Sampled Time Client ID UPPER REACH 1 (U/S CULVERT) SNP 43-5 REACH 0 (BC MOUTH) Grouping Analyte WATER Physical Tests Total Suspended Solids (mg/L) 66.0 67.0 98.0		Description	WATER	WATER	WATER	
Client ID UPPER REACH 1 (U/S CULVERT) SNP 43-5 REACH 0 (BC MOUTH) Grouping Analyte MOUTH) WATER 66.0 67.0 98.0		Sampled Date		18-MAY-11	18-MAY-11	
WATER Physical Tests Total Suspended Solids (mg/L) 66.0 67.0 98.0		Client ID	UPPER REACH 1 (U/S CULVERT)	SNP 43-5	REACH 0 (BC MOUTH)	
Physical Tests Total Suspended Solids (mg/L) 66.0 67.0 98.0	Grouping	Analyte				
	WATER					
	Physical Tests	Total Suspended Solids (mg/L)	66.0	67.0	98.0	
		Turbidity (NTU)				

Test Method References:

APHA 2540 D-Gravimetric APHA 2130 B-Nephelometer e methods to improve performance.
e methods to improve performance.
rformed analytical analysis for that test. Refer to the list below:
ALBERTA, CANADA

1

GLOSSARY OF REPORT TERMS

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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.

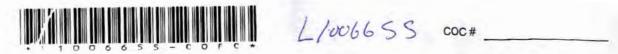
mg/L - milligrams per litre.

< - 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.

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Environmental

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Contact:	DCNJV: Katrina Nokleby; Golder: Justine Crowe	PDF	Exce)	🛄 Digital	Fax	O Pri	ority (2-4	Busir	ness Da	ays) - 5	50% S	urcharg	e - Co	ntact A	LS to C	Confirm	TAT	
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Contact:	Brenda Kalis	LSD:								- 1					s	Meta	. 1	
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	Work Order # b use only)	ALS Contact:	Can Dang	Sampler:	Justine Crowe	al Parar	lons	0	d Turbi	ts	NN	Grease			vel Total	vel Dist		
Sample #	Sample Identification (This description will appear on the repo	rt)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Physical	Major I	Cyanide	TSS and Turbidity	Nutrients	NH3 / TKN	Oil and	TOC	DOC	Low Level	Low Le	Sulphide	Number of
	Reach 7 Overflow u/s Road		18-May-11	1.	Surface Water			T	X									1
	Reach 7 Overflow d/s Road		18-May-11		Surface Water				x							-	1	1
	Reach 6 BC Exposure Point (Above)		18-May-11		Surface Water				x								1	1
	Parch (Gamer Doi)		10.11, 11		Suddeo Water	*	X		*	×	*	~	x	*	X	×	×	-
	Upper Reach 3 (d/s of bridge)		18-May-11		Surface Water				X									1
	Upper Reach 2 (pool)		18-May-11		Surface Water				X									1
	Upper Reach 1 (u/s culvert)		18-May-11		Surface Water				X		1							1
	SNP43-5		18-May-11		Surface Water				X		E D	T.I		17 1				1
	Reach 0 (BC Mouth)		18-May-11		Surface Water				X									1
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Golder Associates Ltd. ATTN: Justine Crowe 9 - 4905 48 Street Yellowknife NT X1A 3S3 Date Received:20-MAY-11Report Date:21-MAY-11 14:17 (MT)Version:FINAL

Client Phone: 867-873-6319

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1007648 606989 09-1427-0006

Shannon Luchka Account Manager

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L1007648 CONTD.... PAGE 2 of 3 21-MAY-11 14:17 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1007648-1 SURFACE WATE 19-MAY-11 11:05 REACH 2 (POOL)	L1007648-2 SURFACE WATE 19-MAY-11 10:40 REACH 4 (GIANT POOL)	L1007648-3 SURFACE WATE 19-MAY-11 10:25 REACH 6 BC EXPOSURE POINT (ABOVE)	L1007648-4 SURFACE WATE 19-MAY-11 11:40 REACH 0 (BC MOUTH)	
Grouping	Analyte					
WATER						
Physical Tests	Total Suspended Solids (mg/L)	36.0	29.0	460	55.0	
	Turbidity (NTU)	63.8	53.0	468	67.9	

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
TURBIDITY-ED	Water	Turbidity	APHA 2130 B-Nephelometer
,	•	ifications from specified reference methoo e(s) indicate the laboratory that performed	s to improve performance. analytical analysis for that test. Refer to the list below:
Laboratory Definition Code		atory Location	
ED	ALS E	NVIRONMENTAL - EDMONTON, ALBER	TA, CANADA
Chain of Custody Numbers	:		
	TEDME		

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.

Chain of Custody / Ana Canada Toll Free: <u>www.alsql</u>



Page _____ of _____

COC#

Report To		Report Fo	rmat / Distribut	tion	7 6 4	8 -	ć" c	F	С"*		<u>.</u>							
Company:	Deton'Cho/Nuna Joint Venture AND Golder As. Ltd.	Standard			-	1/ 10.										availab	inty)	
Contact:	DCNJV: Katrina Nokleby; Golder: Justine Crowe		Excel	Digital	Fax		igular () iority (2							_				
Address:		Email 1:	jcrowe@golder.															
Address.		Email 2:	hmachtans@go				nergeno me Day										TAT	
	867 669 6735 Fax:	Email 3;	KatrinaN@nuna			U Sa	me bay		ekena			_	_				_	
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Company:	Brenda Kalis	LSD:														tals		
Contact:															s.	Met		۲ ۵
Address:	9838-31st Avenue., Edmonton AB, T6N 1C5	<u> </u>				ters			~						leta	Dissolved Metals	Í	ner
Phone:	780 408 2897 Fax: 780 408 5472	Quote #:	_	<u> </u>	·	meters			idity			υ			al⊾	201		Itai
	vork Order # b use only) LIOC7648	ALS Contact:	Can Dang	Sampler:	Justine Crowe	al Para	suo	Ð	and Turbidity	ents	/ TKN	Grease			vel Tot	Level Dis	a	of Co
Sample #	Sample Identification (This description will appear on the report)		Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Physical	Major Ions	Cyanide	TSS ar	Nutrien	NH3 / -	Oil and	тос	DOC	Low Level Total Metais	Low Le	Sulphide	Number of Containers
	Reach 2 (Pool)		19-May-11	11:05	Surface Water				х									1
	Reach 4 (Giant P	al	19-May-11	10:40	Surface Water				x									
	Reach 6 BC Exposure Point (Above)		19-May-11	10:25	Surface Water				x									1
	Reach 0 (BC Mouth)		19-May-11	(1:40	Surface Water				x									1
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	Special Instructions / Regulations with water or lan	d use (CCN	E-Freshwater A	Quatic Life/BC	CSR - Commerci	al/AB	Tier 1	I - Na	itural,	, etc)	/ Haz	zardo	us De	tails				
Please An	alyze As and Se by Hydride*. Note - This water might contai	in high amo	unts of metals. A	II Samples are	RUSH / EMERGEI		111											
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DETON'CHO \ NUNA JOINT VENTURE ATTN: KATRINA NOKLEBY AND GOLDER GIANT MINESITE PO BOX 2951 Yellowknife NT X1A 2R2 Date Received:20-MAY-11Report Date:26-MAY-11 18:24 (MT)Version:FINAL

Client Phone: 604-253-4188

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1007649 606989 09-1427-0006

1

Comments:

Can Dang Senior Account Manager

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L1007649 CONTD.... PAGE 2 of 10 26-MAY-11 18:24 (MT) Version: FINAL

	Sample ID Description	L1007649-1 WATER	L1007649-2	L1007649-3	L1007649-4	L1007649-5
	Sampled Date Sampled Time	20-MAY-11	20-MAY-11	20-MAY-11	20-MAY-11	20-MAY-11
	Client ID	SNP 43-5	FIELD BLANK	TRAVEL BLANK	REACH 0 (BC MOUTH)	REACH 4 (GIAN POOL)
Grouping	Analyte					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	74.0	0.57	<0.50		
-	Total Suspended Solids (mg/L)	41.1	<1.0	<1.0	53.2	26.8
	Total Dissolved Solids (mg/L)	125	<3.0	<3.0	00.2	20.0
	Turbidity (NTU)	47.1	0.34	0.27	48.4	30.3
Anions and Nutrients	Acidity (as CaCO3) (mg/L)	3.2	1.8	2.9	-10.1	00.0
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)	45.6	1.1	<1.0		
	Alkalinity, Carbonate (as CaCO3) (mg/L)	<1.0	<1.0	<1.0		
	Alkalinity, Hydroxide (as CaCO3) (mg/L)	<1.0	<1.0	<1.0		
	Alkalinity, Total (as CaCO3) (mg/L)	45.6	1.1	<1.0		
	Ammonia (as N) (mg/L)	0.0922	<0.0050	<0.0050		
	Bromide (Br) (mg/L)	<0.050	<0.050	<0.050		
	Chloride (Cl) (mg/L)	8.80	<0.50	<0.50		
	Fluoride (F) (mg/L)	0.074	<0.020	<0.020		
	Nitrate and Nitrite (as N) (mg/L)	0.0458	<0.0051	<0.0051		
	Nitrate (as N) (mg/L)	0.0458	<0.0050	<0.0050		
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010		
	Total Kjeldahl Nitrogen (mg/L)	0.852	<0.050	<0.050		
	Phosphorus (P)-Total Dissolved (mg/L)	0.0083	<0.0020	<0.0020		
	Phosphorus (P)-Total (mg/L)	0.0677	<0.0020	<0.0020		
	Sulfate (SO4) (mg/L)	28.7	<0.50	<0.50		
	Sulphide as S (mg/L)	<0.020	<0.020	<0.020		
Cyanides	Cyanide, Total (mg/L)	0.0059	<0.0050	<0.0050		
	Dissolved Organic Carbon (mg/L)	11.0	<0.50	<0.50		
Carbon	Total Organic Carbon (mg/L)	12.2	0.59	0.60 RRV		
Total Metals	Aluminum (Al)-Total (mg/L)	1.37	<0.0030	<0.0030		
	Antimony (Sb)-Total (mg/L)	0.0554	<0.00010	<0.00010		
	Arsenic (As)-Total (mg/L)	0.180	<0.00010	<0.00010		
	Barium (Ba)-Total (mg/L)	0.021	<0.010	<0.010		
	Beryllium (Be)-Total (mg/L)	<0.0050	<0.0050	<0.0050		
	Bismuth (Bi)-Total (mg/L)	<0.20	<0.20	<0.20		
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10		
	Cadmium (Cd)-Total (mg/L)	0.000167	<0.000050	<0.000050		
	Calcium (Ca)-Total (mg/L)	21.9	<0.050	<0.050		
	Chromium (Cr)-Total (mg/L)	<0.010	<0.010	<0.010		
	Cobalt (Co)-Total (mg/L)	<0.010	<0.010	<0.010		
	Copper (Cu)-Total (mg/L)	0.0181	<0.00050	<0.00050		

L1007649 CONTD.... PAGE 3 of 10 26-MAY-11 18:24 (MT) Version: FINAL

	Sample ID	L1007649-6	L1007649-7		
	Description	20-MAY-11	20-MAY-11		
	Sampled Date Sampled Time				
	Client ID	REACH 2 (POOL)	REACH 6 EXPOSURE POINT (ABOVE)		
Grouping	Analyte				
WATER					
Physical Tests	Hardness (as CaCO3) (mg/L)				
	Total Suspended Solids (mg/L)	43.6	517		
	Total Dissolved Solids (mg/L)				
	Turbidity (NTU)	44.2	349		
Anions and Nutrients	Acidity (as CaCO3) (mg/L)				
	Alkalinity, Bicarbonate (as CaCO3) (mg/L)				
	Alkalinity, Carbonate (as CaCO3) (mg/L)				
	Alkalinity, Hydroxide (as CaCO3) (mg/L)				
	Alkalinity, Total (as CaCO3) (mg/L)				
	Ammonia (as N) (mg/L)				
	Bromide (Br) (mg/L)				
	Chloride (Cl) (mg/L)				
	Fluoride (F) (mg/L)				
	Nitrate and Nitrite (as N) (mg/L)				
	Nitrate (as N) (mg/L)				
	Nitrite (as N) (mg/L)				
	Total Kjeldahl Nitrogen (mg/L)				
	Phosphorus (P)-Total Dissolved (mg/L)				
	Phosphorus (P)-Total (mg/L)				
	Sulfate (SO4) (mg/L)				
	Sulphide as S (mg/L)				
Cyanides	Cyanide, Total (mg/L)				
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)				
	Total Organic Carbon (mg/L)				
Total Metals	Aluminum (Al)-Total (mg/L)				
	Antimony (Sb)-Total (mg/L)				
	Arsenic (As)-Total (mg/L)				
	Barium (Ba)-Total (mg/L)				
	Beryllium (Be)-Total (mg/L)				
	Bismuth (Bi)-Total (mg/L)				
	Boron (B)-Total (mg/L)				
	Cadmium (Cd)-Total (mg/L)				
	Calcium (Ca)-Total (mg/L)				
	Chromium (Cr)-Total (mg/L)				
	Cobalt (Co)-Total (mg/L)				
	Copper (Cu)-Total (mg/L)				

L1007649 CONTD.... PAGE 4 of 10 26-MAY-11 18:24 (MT) Version: FINAL

	Sample ID Description	L1007649-1 WATER	L1007649-2	L1007649-3	L1007649-4	L1007649-5
	Sampled Date Sampled Time	20-MAY-11	20-MAY-11	20-MAY-11	20-MAY-11	20-MAY-11
	Client ID	SNP 43-5	FIELD BLANK	TRAVEL BLANK	REACH 0 (BC MOUTH)	REACH 4 (GIAN POOL)
Grouping	Analyte					
WATER						
Total Metals	Iron (Fe)-Total (mg/L)	2.10	<0.010	<0.010		
	Lead (Pb)-Total (mg/L)	0.0206	<0.000050	<0.000050		
	Lithium (Li)-Total (mg/L)	<0.010	<0.010	<0.010		
	Magnesium (Mg)-Total (mg/L)	6.04	<0.10	<0.10		
	Manganese (Mn)-Total (mg/L)	0.335	<0.0050	<0.0050		
	Mercury (Hg)-Total (mg/L)	0.000011	<0.000010	<0.000010		
	Molybdenum (Mo)-Total (mg/L)	0.000932	<0.000050	<0.000050		
	Nickel (Ni)-Total (mg/L)	0.000332	<0.00050	<0.00050		
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30		
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0		
	Selenium (Se)-Total (mg/L)	0.00010	<0.00010	<0.00010		
	Silicon (Si)-Total (mg/L)	2.73	<0.050	< 0.050		
	Silver (Ag)-Total (mg/L)	<0.010	<0.010	<0.030		
	Sodium (Na)-Total (mg/L)	5.5	<2.0	<2.0		
	Strontium (Sr)-Total (mg/L)	0.0784	<0.0050	<0.0050		
	Thallium (TI)-Total (mg/L)	<0.20	<0.20	<0.20		
	Tin (Sn)-Total (mg/L)	<0.030	<0.20	<0.030		
	Titanium (Ti)-Total (mg/L)	0.037	<0.030	<0.030		
	Uranium (U)-Total (mg/L)	0.000597	<0.00010	<0.00010		
	Vanadium (V)-Total (mg/L)	<0.030	<0.030	<0.030		
	Zinc (Zn)-Total (mg/L)	0.0379	<0.0040	<0.0040		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0116	<0.0040	<0.0040		
	Antimony (Sb)-Dissolved (mg/L)	0.0228	<0.00010	<0.00010		
	Arsenic (As)-Dissolved (mg/L)	0.0228	<0.00010	<0.00010		
	Barium (Ba)-Dissolved (mg/L)	0.010	<0.010	<0.010		
	Beryllium (Be)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050		
	Bismuth (Bi)-Dissolved (mg/L)	<0.20	<0.20	<0.20		
	Boron (B)-Dissolved (mg/L)	<0.20	<0.20	<0.20		
	Cadmium (Cd)-Dissolved (mg/L)	0.000081	<0.000050	<0.000050		
	Calcium (Ca)-Dissolved (mg/L)	21.0	0.229	<0.050		
	Chromium (Cr)-Dissolved (mg/L)	<0.010	<0.010	<0.050		
	Cobalt (Co)-Dissolved (mg/L)	<0.010	<0.010	<0.010		
	Copper (Cu)-Dissolved (mg/L)	0.00722	<0.00050	<0.00050		
	Iron (Fe)-Dissolved (mg/L)	0.059	<0.00050	<0.00050		
	Lead (Pb)-Dissolved (mg/L)	0.009	<0.00050	<0.00050		
	Lithium (Li)-Dissolved (mg/L)	<0.000741	<0.00050	<0.00050		
	Magnesium (Mg)-Dissolved (mg/L)	<0.010 5.23	<0.010	<0.010		

L1007649 CONTD.... PAGE 5 of 10 26-MAY-11 18:24 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time	L1007649-6 20-MAY-11	L1007649-7 20-MAY-11		
	Client ID	REACH 2 (POOL)	REACH 6 EXPOSURE POINT (ABOVE)		
Grouping	Analyte				
WATER					
Total Metals	Iron (Fe)-Total (mg/L)				
	Lead (Pb)-Total (mg/L)				
	Lithium (Li)-Total (mg/L)				
	Magnesium (Mg)-Total (mg/L)				
	Manganese (Mn)-Total (mg/L)				
	Mercury (Hg)-Total (mg/L)				
	Molybdenum (Mo)-Total (mg/L)				
	Nickel (Ni)-Total (mg/L)				
	Phosphorus (P)-Total (mg/L)				
	Potassium (K)-Total (mg/L)				
	Selenium (Se)-Total (mg/L)				
	Silicon (Si)-Total (mg/L)				
	Silver (Ag)-Total (mg/L)				
	Sodium (Na)-Total (mg/L)				
	Strontium (Sr)-Total (mg/L)				
	Thallium (Tl)-Total (mg/L)				
	Tin (Sn)-Total (mg/L)				
	Titanium (Ti)-Total (mg/L)				
	Uranium (U)-Total (mg/L)				
	Vanadium (V)-Total (mg/L)				
	Zinc (Zn)-Total (mg/L)				
Dissolved Metals	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)				
	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)				

L1007649 CONTD.... PAGE 6 of 10 26-MAY-11 18:24 (MT) Version: FINAL

	Sample ID	L1007649-1	L1007649-2	L1007649-3	L1007649-4	L1007649-5
	Description Sampled Date	WATER 20-MAY-11	20-MAY-11	20-MAY-11	20-MAY-11	20-MAY-11
	Sampled Time Client ID	SNP 43-5	FIELD BLANK	TRAVEL BLANK	REACH 0 (BC MOUTH)	REACH 4 (GIAI POOL)
Grouping	Analyte					
WATER						
Dissolved Metals	Manganese (Mn)-Dissolved (mg/L)	0.300	<0.0050	<0.0050		
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010		
	Molybdenum (Mo)-Dissolved (mg/L)	0.000865	<0.000050	<0.000050		
	Nickel (Ni)-Dissolved (mg/L)	0.00341	<0.00050	<0.00050		
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30		
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0		
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
	Silicon (Si)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010		
	Silver (Ag)-Dissolved (mg/L)	<0.010	<0.050	<0.050		
	Sodium (Na)-Dissolved (mg/L)	<0.010 5.2	<0.010	<0.010		
	Strontium (Sr)-Dissolved (mg/L)					
	Thallium (TI)-Dissolved (mg/L)	0.0736	<0.0050	<0.0050		
	Tin (Sn)-Dissolved (mg/L)	<0.20	<0.20	<0.20		
	Titanium (Ti)-Dissolved (mg/L)	<0.030	<0.030	< 0.030		
	Uranium (U)-Dissolved (mg/L)	<0.010	<0.010	< 0.010		
	Vanadium (V)-Dissolved (mg/L)	0.000530	<0.000010	<0.000010		
		<0.030	<0.030	<0.030		
	Zinc (Zn)-Dissolved (mg/L)	0.0088	<0.0040	<0.0040		

L1007649 CONTD.... PAGE 7 of 10 26-MAY-11 18:24 (MT) Version: FINAL

	0-m-1- ID	L1007649-6	L1007649-7		
	Sample ID Description	L100/049-0			
	Sampled Date Sampled Time	20-MAY-11	20-MAY-11		
	Client ID	REACH 2 (POOL)	REACH 6 EXPOSURE POINT		
Grouping	Analyte		(ABOVE)		
WATER					
Dissolved Metals	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)				
	Thallium (TI)-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)				

Qualifiers for Individual Parameters Listed:

	escription		
RRV Re	eported Result Verifie	ed By Repeat Analysis	
est Method Refere	ences:		
ALS Test Code	Matrix	Test Description	Method Reference**
ACY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 "Acidity"
This analysis is carr endpoint.	ied out using proced	ures adapted from APHA Method 2310 "Ad	cidity". Acidity is determined by potentiometric titration to a specified
CY-PCT-VA	Water	Acidity by Automatic Titration	APHA 2310 Acidity
This analysis is carr endpoint.	ied out using proced	ures adapted from APHA Method 2310 "Ad	cidity". Acidity is determined by potentiometric titration to a specified
LK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 "Alkalinity"
			kalinity". Total alkalinity is determined by potentiometric titration to a pH henolphthalein alkalinity and total alkalinity values.
LK-PCT-VA	Water	Alkalinity by Auto. Titration	APHA 2320 Alkalinity
			kalinity". Total alkalinity is determined by potentiometric titration to a pH henolphthalein alkalinity and total alkalinity values.
NIONS-BR-IC-VA	Water	Bromide by Ion Chromatography	APHA 4110 B.
This analysis is carr and EPA Method 30	ied out using proced 00.0 "Determination o	ures adapted from APHA Method 4110 B. f Inorganic Anions by Ion Chromatography	"Ion Chromatography with Chemical Suppression of Eluent Conductivity" /".
NIONS-CL-IC-VA	Water	Chloride by Ion Chromatography	APHA 4110 B.
		ures adapted from APHA Method 4110 B. f Inorganic Anions by Ion Chromatography	"Ion Chromatography with Chemical Suppression of Eluent Conductivity" /".
NIONS-F-IC-VA	Water	Fluoride by Ion Chromatography	APHA 4110 B.
		ures adapted from APHA Method 4110 B. f Inorganic Anions by Ion Chromatography	"Ion Chromatography with Chemical Suppression of Eluent Conductivity /".
NIONS-N+N-CALC	-VA Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0
Nitrate and Nitrite (a	as N) is a calculated p	parameter. Nitrate and Nitrite (as N) = Nitrit	te (as N) + Nitrate (as N).
NIONS-NO2-IC-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
		, , , , , , , , , , , , , , , , , , , ,	termination of Inorganic Anions by Ion Chromatography". Nitrite is
NIONS-NO3-IC-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis is carr detected by UV abs	01	ures adapted from EPA Method 300.0 "De	termination of Inorganic Anions by Ion Chromatography". Nitrate is
NIONS-SO4-IC-VA	Water	Sulfate by Ion Chromatography	APHA 4110 B.
		res adapted from APHA Method 4110 B. f Inorganic Anions by Ion Chromatography	"Ion Chromatography with Chemical Suppression of Eluent Conductivity /".
S-D-CCMS-VA	Water	Dissolved Arsenic in Water by CRC ICP	MS APHA 3030 B&E / EPA SW-846 6020A
Public Health Assoc Environmental Prote	ciation, and with proceetion Agency (EPA)	edures adapted from "Test Methods for Ev The procedures may involve preliminary s	the Examination of Water and Wastewater" published by the American valuating Solid Waste" SW-846 published by the United States sample treatment by acid digestion, using hotblock, or filtration (APHA ass spectrometry (modifed from EPA Method 6020A).
S-T-CCMS-VA	Water	Total Arsenic in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
Public Health Assoc Environmental Prote	tiation, and with proce ection Agency (EPA)	edures adapted from "Test Methods for Ev The procedures may involve preliminary	the Examination of Water and Wastewater" published by the American valuating Solid Waste" SW-846 published by the United States sample treatment by acid digestion, using hotblock, or filtration (APHA ass spectrometry (modifed from EPA Method 6020A).
ARBONS-DOC-VA		Dissolved organic carbon by combustion	
		ures adapted from APHA Method 5310 "To h a 0.45 micron membrane filter prior to an	otal Organic Carbon (TOC)". Dissolved carbon (DOC) fractions are alysis.
ARBONS-TOC-VA	Water	Total organic carbon by combustion	APHA 5310 TOTAL ORGANIC CARBON (TOC)
This analysis is carr	ied out using proced	ures adapted from APHA Method 5310 "To	otal Organic Carbon (TOC)".
N-T-MID-HH-COL-	VA Water	Total Cyanide by HH Distillation	APHA 4500-CN Cyanide
		ures adapted from APHA Method 4500-CN Nysis using the chloramine-T colourimetric	N "Cyanide". Total or strong acid dissociable (SAD) cyanide are method.

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HARDNESS-CALC-VA Water Hardness 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. Dissolved Mercury in Water by CVAFS(Low) HG-DIS-LOW-CVAFS-VA Water EPA SW-846 3005A & EPA 245.7 This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and involves a coldoxidation 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 (EPA Method 245.7). HG-TOT-LOW-CVAFS-VA Total Mercury in Water by CVAFS(Low) EPA 245.7 Water 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 (EPA Method 245.7). MET-D-CCMS-VA Water Dissolved Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). MET-DIS-ICP-VA Water **Dissolved Metals in Water by ICPOES** EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). **MET-DIS-LOW-ICP-VA** Water **Dissolved Metals in Water by ICPOES** EPA 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A MET-T-CCMS-VA Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). MET-TOT-ICP-VA Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). MET-TOT-LOW-ICP-VA Water Total Metals in Water by ICPOES EPA 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). Ammonia in Water by Fluorescence J. ENVIRON. MONIT., 2005, 7, 37-42, RSC NH3-F-VA Water 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. OGG-LL-SF-VA Water Oil & Grease by Gravimetric BCMOE GRAVIMETRIC This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3510 & 9071, published by the United States Environmental Protection Agency (EPA), "Standard Methods for the Examination of Water and Wastewater", 20th ed., Method 5520, published by the American Public Health Association, and "BC Environmental Laboratory Manual for the Analysis of Water, Wastewater, Sediment and Biological Materials," 5th ed., published by the B.C. Ministry of Environment, Lands & Parks, 1994. The procedure involves an extraction of the entire water sample with hexane. This extract is then evaporated to dryness, and the residue weighed to determine Oil and Grease. ALS Environmental's routine detection limit, or Limit of Reporting (LOR), for this method is 2 mg/L for a 1L sample volume. By request, a LOR of 1 mg/L is sometimes applied for this method. The 1 mg/L LOR is equal to the 99% confidence limit Method Detection Limit as defined by the US EPA. A higher degree of variability is expected at levels below 2 mg/L. P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. P-TD-COL-VA Water Total Dissolved P in Water by Colour APHA 4500-P Phosphorous

APHA 2340B

		T () O () () () ()	gh a 0.45 micron membrane filter.
S2-T-COL-VA	Water	Total Sulphide by Colorimetric	APHA 4500-S2 Sulphide
This analysis is carried out colourimetric method.	using proce	dures adapted from APHA Method 4500-S2 "Sulphide"	. Sulphide is determined using the methlyene blue
SE-D-CCMS-VA	Water	Dissolved Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
Public Health Association, a Environmental Protection A	and with pro-	cedures adapted from "Test Methods for Evaluating Sc	atment by acid digestion, using hotblock, or filtration (APHA
SE-T-CCMS-VA	Water	Total Selenium in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
Public Health Association, a Environmental Protection A	and with pro-	cedures adapted from "Test Methods for Evaluating Sc	atment by acid digestion, using hotblock, or filtration (APHA
TDS-LOW-VA	Water	Low Level TDS (3.0mg/L) by Gravimetric	APHA 2540 Gravimetric
			ts are determined gravimetrically. Total dissolved solids vaporating the filtrate to dryness at 180 degrees celsius.
KN-SIE-VA	Water	TKN in Water by SIE	APHA 4500-NORG (TKN)
This analysis is carried out ammonia selective electroc		dures adapted from APHA Method 4500-Norg "Nitroge	n (Organic)". Total Kjeldahl Nitrogen is determined using ar
rss-low-va	Water	Total Suspended Solids by Grav. (1 mg/L)	APHA 2540 Gravimetric
		dures adapted from APHA Method 2540 "Solids". Solic ple through a glass fibre filter, TSS is determined by dr	Is are determined gravimetrically. Total suspended solids ying the filter at 104 degrees celsius.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
This analysis is carried out	using proce	dures adapted from APHA Method 2130 "Turbidity". Tu	urbidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried out	using proce	dures adapted from APHA Method 2130 "Turbidity". Tu	urbidity is determined by the nephelometric method.
ALS test methods may inco	rporate mod	difications from specified reference methods to improve	e performance.
The last two letters of the ab	ove test cod	e(s) indicate the laboratory that performed analytical a	nalysis for that test. Refer to the list below:
Laboratory Definition Code	Labo	ratory Location	
VA	ALS E	ENVIRONMENTAL - VANCOUVER, BC, CANADA	

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.





COC #

Page ____of

Lab Work Order # (lab use only) U/C/C7/C/U/C7 ALS Contact: Can Dany Sampler: Justine Crowe End C Sample Sample Sample Sample Identification Date Time Time Time Time	(X X 9
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3 Tier 1 - Natural, etc) / Hazardous Details	
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyse	
SHIPMENT RELEASE (client use) SHIPMENT RECEPTION (lab use only) SHIPMENT VERIFICATION (lab use	
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I. Crowe (May 20 11 13:50 TLB 2:1444-11 #13:50 5 00 00	Observations Yes / No ? If Yes add SIF



GOLDER ASSOCIATES LTD ATTN: Justine Crowe 9 - 4905 48 Street Yellowknife NT X1A 3S3 Date Received:24-MAY-11Report Date:27-MAY-11 20:37 (MT)Version:FINAL

Client Phone: 867-873-6319

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1008512 606989 09-1427-0006-20000-20500

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Shannon Luchka Account Manager

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L1008512 CONTD.... PAGE 2 of 4 27-MAY-11 20:37 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1008512-1 WATER 24-MAY-11 YK BACK BAY 1	L1008512-2 WATER 24-MAY-11 YK BACK BAY 2	L1008512-3 WATER 24-MAY-11 SNP 43-5 (ABOVE)	L1008512-4 WATER 24-MAY-11 REACH 4 (D/S GIANT POOL)	L1008512-5 WATER 24-MAY-11 REACH 2 (POOL
Grouping	Analyte					
WATER	-					
Physical Tests	Hardness (as CaCO3) (mg/L)	28.4	26.8	68.1		
-	Total Suspended Solids (mg/L)	<3.0	<3.0	37.0	70.0	72.0
	Turbidity (NTU)	5.78	5.48	37.7	53.1	51.4
Total Metals	Aluminum (Al)-Total (mg/L)	0.172	0.161	1.06	00.1	01.4
	Antimony (Sb)-Total (mg/L)	0.00080	0.00068	0.0314		
	Arsenic (As)-Total (mg/L)	0.00294	0.00299	0.133		
	Barium (Ba)-Total (mg/L)	0.00843	0.00880	0.0194		
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010		
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020	<0.00020		
	Boron (B)-Total (mg/L)	<0.00020	<0.020	<0.020		
	Cadmium (Cd)-Total (mg/L)	<0.0020	<0.0020	<0.020		
	Calcium (Ca)-Total (mg/L)	7.28	5.08	18.2		
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080	<0.00080		
	Cobalt (Co)-Total (mg/L)	<0.00020	<0.00020	0.00191		
	Copper (Cu)-Total (mg/L)	0.0012	0.0012	0.0125		
	Iron (Fe)-Total (mg/L)	0.182	0.123	1.57		
	Lead (Pb)-Total (mg/L)	0.00020	0.00024	0.00734		
	Magnesium (Mg)-Total (mg/L)	2.54	1.74	4.99		
	Manganese (Mn)-Total (mg/L)	0.0060	0.0052	0.267		
	Mercury (Hg)-Total (mg/L)	0.000057	< 0.00020	<0.000020		
	Molybdenum (Mo)-Total (mg/L)	0.00014	0.00013	0.00116		
	Nickel (Ni)-Total (mg/L)	0.00069	<0.00020	0.00703		
	Potassium (K)-Total (mg/L)	1.10	0.74	1.54		
	Selenium (Se)-Total (mg/L)	<0.00040	<0.00040	<0.00040		
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040	<0.00040		
	Sodium (Na)-Total (mg/L)	2.5	1.8	4.5		
	Strontium (Sr)-Total (mg/L)	0.0295	0.0307	0.0745		
	Thallium (TI)-Total (mg/L)	<0.00010	<0.00010	<0.00010		
	Tin (Sn)-Total (mg/L)	0.00072	<0.00040	<0.00040		
	Titanium (Ti)-Total (mg/L)	<0.0050	0.0052	0.0333		
	Uranium (U)-Total (mg/L)	0.00026	0.00028	0.00060		
	Vanadium (V)-Total (mg/L)	< 0.00050	< 0.00050	0.00260		
	Zinc (Zn)-Total (mg/L)	<0.00000	<0.0040	0.0179		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.016	0.013	0.0179		
	Antimony (Sb)-Dissolved (mg/L)	0.00047	<0.00040	0.0246		
	Arsenic (As)-Dissolved (mg/L)	0.00201	0.00454	0.0905		
	Barium (Ba)-Dissolved (mg/L)	0.00201	0.00716	0.0303		

L1008512 CONTD.... PAGE 3 of 4 27-MAY-11 20:37 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1008512-1 WATER 24-MAY-11 YK BACK BAY 1	L1008512-2 WATER 24-MAY-11 YK BACK BAY 2	L1008512-3 WATER 24-MAY-11 SNP 43-5 (ABOVE)	L1008512-4 WATER 24-MAY-11 REACH 4 (D/S GIANT POOL)	L1008512-5 WATER 24-MAY-11 REACH 2 (POOI
Grouping	Analyte	-				
WATER						
Dissolved Metals	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050		
	Bismuth (Bi)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050		
	Boron (B)-Dissolved (mg/L)	0.0035	0.0039	0.0120		
	Cadmium (Cd)-Dissolved (mg/L)	<0.0035	<0.0039	<0.00120		
	Calcium (Ca)-Dissolved (mg/L)	7.28	6.94	19.2		
	Chromium (Cr)-Dissolved (mg/L)	0.00177	0.00177	0.00157		
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00177	0.00108		
	Copper (Cu)-Dissolved (mg/L)	0.00077	0.00078	0.00108		
	Iron (Fe)-Dissolved (mg/L)	0.00077	<0.010	0.065		
	Lead (Pb)-Dissolved (mg/L)	<0.00010	<0.00010	0.00055		
	Magnesium (Mg)-Dissolved (mg/L)	2.49	2.31	4.90		
	Manganese (Mn)-Dissolved (mg/L)	0.0026	0.0031	0.267		
	Mercury (Hg)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020		
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00010	0.00011	0.00111		
	Nickel (Ni)-Dissolved (mg/L)	<0.00010	<0.0001	0.00630		
	Potassium (K)-Dissolved (mg/L)	1.08	1.03	1.48		
	Selenium (Se)-Dissolved (mg/L)	<0.00040	<0.00040	<0.00040		
	Silver (Ag)-Dissolved (mg/L)	<0.00040	<0.00040	<0.00040		
	Sodium (Na)-Dissolved (mg/L)	2.55	2.42	4.70		
	Strontium (Sr)-Dissolved (mg/L)	0.0306	0.0315	0.0806		
	Thallium (TI)-Dissolved (mg/L)	<0.000050	<0.000050	< 0.000050		
	Tin (Sn)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020		
	Titanium (Ti)-Dissolved (mg/L)	0.00032	<0.00030	<0.00020		
	Uranium (U)-Dissolved (mg/L)	0.00032	0.00024	0.00055		
	Vanadium (V)-Dissolved (mg/L)	<0.00010	<0.00010	0.00023		
	Zinc (Zn)-Dissolved (mg/L)	0.0073	<0.0010	0.0051		
		0.0075	<0.0010	0.0051		

Qualifiers for Individual Parameters Listed:

Qualifier	Description
RRV	Reported Result Verified By Repeat Analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
HG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
HG-T-L-CVAA-ED	Water	Mercury (Hg)	EPA 245.7 / EPA 245.1
MET-D-ICP-ED	Water	Dissolved Metals in Water by ICPOES	APHA 3120 B-ICP-OES
MET-D-L-ICP-ED	Water	Diss. Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-D-L-MS-ED	Water	Diss. Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
MET-T-L-ICP-ED	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-T-L-MS-ED	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
TURBIDITY-ED	Water	Turbidity	APHA 2130 B-Nephelometer

** 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
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA

Chain of Custody Numbers:

1

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.

Released by:				***Please Ar													Sample	(la		Phone:	Contact:	Company:	Hardcopy of	Invoice To	Phone:	2	Address:	Contact:	Company:	Report To	ALS	>
Y: J. UPCWC Date (dd-mmm-yy) Time (hh-mm) Received by: A4 May (1 4:45 1/1	10	Also provided on another Excel tab are the ALS location addresses, phone numbers and sample con	Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab	**Please Analyze As and Se by Hydride****. Please include Mercury in	Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR -					Reach 2 (Pool)		Boach A (Als Giant Bool)	SNP43-5 (above)	Reach u (BC Wouth)	YK Back Bay 2	YK Back Bay 1	Sample Identification (This description will appear on the report)	F		9836-31St Avenue., Edmonton AB, 16N 1C5 780 408 2897 Fax: 780 408 5472	Brenda Kalis	Deton'Cho/Nuna Joint Venture	Hardcopy of Invoice with Report?	Yes] Fax:			DCNJV: Katrina Nokleby; Golder: Justine Crowe	Deton'Cho/Nuna Joint Venture AND Golder As. Ltd.		Environmentel	
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Time:	SHIPMENT RECEPTION (lab use only)	pers and sample	y delay analysis h the Terms and	nis water might c	Aquatic Life/B(Time (hh:mm)	Sampler:					09-1427-0006-20000-20500	tion	KatrinaN@nunalogistics.com	golder.com	er.com	Digital			512-0	
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GOLDER ASSOCIATES LTD ATTN: Justine Crowe 9 - 4905 48 Street Yellowknife NT X1A 3S3 Date Received:25-MAY-11Report Date:28-MAY-11 19:46 (MT)Version:FINAL

Client Phone: 867-873-6319

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1009010 606989 09-1427-0006-20000-20500

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Shannon Luchka Account Manager

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Sample Details/Parameters	Result	Qualifier* D.L.	Units	Extracted	Analyzed	Batch
L1009010-1 REACH 6 (GIANT FALLS)						
Sampled By: JC on 25-MAY-11						
Matrix: WATER						
Hardness						
Dissolved Metals in Water by ICPOES						
Calcium (Ca)-Dissolved	10.6	0.50	mg/L		27-MAY-11	R2194912
Magnesium (Mg)-Dissolved	3.22	0.10	0		27-MAY-11	R2194912
Hardness (from Dissolved Ca and Mg)	0.22	0.10				
Hardness (as CaCO3)	39.7	1.3	mg/L		27-MAY-11	
Dissolved Metals						
Diss. Metals in Water by ICPMS (Low)						
Aluminum (Al)-Dissolved	0.0087	0.01) mg/L		27-MAY-11	R2195149
Antimony (Sb)-Dissolved	0.00165	0.000	40 mg/L		27-MAY-11	R2195149
Arsenic (As)-Dissolved	0.0210	0.000	40 mg/L		27-MAY-11	R2195149
Barium (Ba)-Dissolved	0.00943	0.000	10 mg/L		27-MAY-11	R2195149
Beryllium (Be)-Dissolved	<0.00050	0.000	50 mg/L		27-MAY-11	R2195149
Bismuth (Bi)-Dissolved	<0.00005	0.0000	50 mg/L		27-MAY-11	R2195149
Boron (B)-Dissolved	0.0094	0.002	0 mg/L		27-MAY-11	R2195149
Cadmium (Cd)-Dissolved	<0.0001	0.000	10 mg/L		27-MAY-11	R2195149
Chromium (Cr)-Dissolved	0.00065	0.000	40 mg/L		27-MAY-11	R2195149
Cobalt (Co)-Dissolved	<0.0001	0.000	10 mg/L		27-MAY-11	R2195149
Copper (Cu)-Dissolved	0.00476	0.000	60 mg/L		27-MAY-11	R2195149
Lead (Pb)-Dissolved	<0.0001	0.000	10 mg/L		27-MAY-11	R2195149
Molybdenum (Mo)-Dissolved	0.00059	0.000	10 mg/L		27-MAY-11	R2195149
Nickel (Ni)-Dissolved	0.00047	0.000	10 mg/L		27-MAY-11	R2195149
Selenium (Se)-Dissolved	0.00028	0.000	40 mg/L		27-MAY-11	R2195149
Silver (Ag)-Dissolved	<0.00020	0.000	20 mg/L		27-MAY-11	R2195149
Strontium (Sr)-Dissolved	0.0361	0.000	10 mg/L		27-MAY-11	R2195149
Thallium (TI)-Dissolved	0.000021	0.0000	50 mg/L		27-MAY-11	R2195149
Tin (Sn)-Dissolved	<0.00020	0.000	20 mg/L		27-MAY-11	R2195149
Titanium (Ti)-Dissolved	0.00037	0.000	30 mg/L		27-MAY-11	R2195149
Uranium (U)-Dissolved	0.00033	0.000	10 mg/L		27-MAY-11	R2195149
Vanadium (V)-Dissolved	0.00026	0.000	10 mg/L		27-MAY-11	R2195149
Zinc (Zn)-Dissolved	0.0011	0.001	0 mg/L		27-MAY-11	R2195149
Diss. Metals in Water by ICPOES (Low)						
Calcium (Ca)-Dissolved	10.6	0.50) mg/L		27-MAY-11	R2194912
Iron (Fe)-Dissolved	0.051	0.01	0 mg/L		27-MAY-11	R2194912
Magnesium (Mg)-Dissolved	3.22	0.10	mg/L		27-MAY-11	R2194912
Manganese (Mn)-Dissolved	0.0392	0.002	0 mg/L		27-MAY-11	R2194912
Potassium (K)-Dissolved	1.04	0.10	0		27-MAY-11	R2194912
Sodium (Na)-Dissolved	2.52	0.50) mg/L		27-MAY-11	R2194912
Total Metals						
Total Metals in Water by ICPMS (Low)						
Aluminum (Al)-Total	0.082	0.02	0		27-MAY-11	R2195047
Antimony (Sb)-Total	0.00157	0.000	0		27-MAY-11	R2195047
Arsenic (As)-Total	0.0214	0.000	0		27-MAY-11	R2195047
Barium (Ba)-Total	0.00957	0.000	-		27-MAY-11	R2195047
Beryllium (Be)-Total	<0.0010	0.001	0		27-MAY-11	R2195047
Bismuth (Bi)-Total	<0.00020	0.000	Ũ		27-MAY-11	R2195047
Boron (B)-Total	<0.020	0.02	Ũ		27-MAY-11	R2195047
Cadmium (Cd)-Total	<0.00020	0.000	Ũ		27-MAY-11	R2195047
Chromium (Cr)-Total	0.00655	0.000	Ũ		27-MAY-11	R2195047
Cobalt (Co)-Total	<0.00020	0.000	U U		27-MAY-11	R2195047
Copper (Cu)-Total	0.0011	0.001	0		27-MAY-11	R2195047
Lead (Pb)-Total	0.00027	0.000	-		27-MAY-11	R2195047
Molybdenum (Mo)-Total	0.00043	0.000	10 mg/L		27-MAY-11	R2195047

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Sample Details/	/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1009010-1	REACH 6 (GIANT FALLS)							
Sampled By:	JC on 25-MAY-11							
Matrix:	WATER							
	in Water by ICPMS (Low)							
Nickel (Ni)-T		0.00396		0.00020	mg/L		27-MAY-11	R2195047
Selenium (Se		<0.00040		0.00040	mg/L		27-MAY-11	R2195047
Silver (Ag)-T		<0.00040		0.00040	mg/L		27-MAY-11	R2195047
Strontium (Si		0.0355		0.00020	mg/L		27-MAY-11	R2195047
Thallium (TI)-		<0.00010		0.00010	mg/L		27-MAY-11	R2195047
Tin (Sn)-Tota	al	<0.00040		0.00040	mg/L		27-MAY-11	R2195047
Titanium (Ti)	-Total	<0.0050		0.0050	mg/L		27-MAY-11	R2195047
Uranium (U)-	Total	0.00021		0.00010	mg/L		27-MAY-11	R2195047
Vanadium (V	′)-Total	<0.00050		0.00050	mg/L		27-MAY-11	R2195047
Zinc (Zn)-Tot	tal	<0.0040		0.0040	mg/L		27-MAY-11	R2195047
	in Water by ICPOES (Low)							
Calcium (Ca)		10.7		0.50	mg/L		27-MAY-11	R2194913
Iron (Fe)-Tot		0.211		0.010	mg/L		27-MAY-11	R2194913
Magnesium (3.17		0.10	mg/L		27-MAY-11	R2194913
Manganese (0.0481		0.0020	mg/L		27-MAY-11	R2194913
Potassium (M		1.11		0.10	mg/L		27-MAY-11	R2194913
Sodium (Na)		2.8		1.0	mg/L		27-MAY-11	R2194913
	us Parameters							D 0 / 0 D 0 / 0
Mercury (Hg)		<0.000020		0.000020	mg/L		28-MAY-11	R2195281
Mercury (Hg)-Dissolved		<0.000020		0.000020	mg/L		28-MAY-11	R2195281
Total Suspended Solids		<3.0		3.0	mg/L		27-MAY-11	R2194886
Turbidity		2.56		0.10	NTU		27-MAY-11	R2194859
L1009010-2	REACH 4 (D/S GIANT POOL)							
Sampled By:	JC on 25-MAY-11							
Matrix:	WATER							
Miscellaneou	us Parameters							
Total Susper	nded Solids	4.0		3.0	mg/L		27-MAY-11	R2194886
Turbidity		9.02		0.10	NTU		27-MAY-11	R2194859
L1009010-3	REACH 2 (POOL)							
Sampled By:	JC on 25-MAY-11							
Matrix:	WATER							
	us Parameters							
Total Susper	nded Solids	33.0		3.0	mg/L		27-MAY-11	R2194886
Turbidity		40.3		0.10	NTU		27-MAY-11	R2194859
L1009010-4	SNP 43-5 (ABOVE)			0.10				
Sampled By:	JC on 25-MAY-11							
Matrix:	WATER us Parameters							
		40.0		2.0	ma/l		27-MAY-11	D2404000
Total Susper		18.0		3.0	mg/L			R2194886
Turbidity		32.7		0.10	NTU		27-MAY-11	R2194859
L1009010-5	REACH 0 (BC MOUTH)							
Sampled By:	JC on 25-MAY-11							
Matrix:	WATER							
	us Parameters							
Total Susper	nded Solids	23.0		3.0	mg/L		27-MAY-11	R2194886
Turbidity		32.9		0.10	NTU		27-MAY-11	R2194859

* Refer to Referenced Information for Qualifiers (if any) and Methodology.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**	
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation	
HG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1	
HG-T-L-CVAA-ED	Water	Mercury (Hg)	EPA 245.7 / EPA 245.1	
MET-D-ICP-ED	Water	Dissolved Metals in Water by ICPOES	APHA 3120 B-ICP-OES	
MET-D-L-ICP-ED	Water	Diss. Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES	
MET-D-L-MS-ED	Water	Diss. Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS	
MET-T-L-ICP-ED	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES	
MET-T-L-MS-ED	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS	
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric	
TURBIDITY-ED	Water	Turbidity	APHA 2130 B-Nephelometer	

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
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
Chain of Custody Numbers:	

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GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

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

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

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.





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				Email 2:	hmachtans@	golder.com		C.P.S	nne Da	iy ar Wi	erkennd -					Confirm 3	VI.		
Phone:	867 669 6735	Fax		Email 3.	KatrinaN@nu	nalogistics com				_					quest	-			
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GOLDER ASSOCIATES LTD ATTN: JUSTINE CROWE 9 - 4905 48 Street Yellowknife NT X1A 3S3 Date Received:27-MAY-11Report Date:30-MAY-11 16:00 (MT)Version:FINAL

Client Phone: 897-669-6735

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1010143 606989 09-1427-0006-20000-20500

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L1010143 CONTD.... PAGE 2 of 6 30-MAY-11 16:00 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1010143-1 WATER 27-MAY-11 REACH 6 (GIANT FALLS)	L1010143-2 WATER 27-MAY-11 REACH 5 (D/S POND)	L1010143-3 WATER 27-MAY-11 REACH 4 (D/S GIANT POOL)	L1010143-4 WATER 27-MAY-11 REACH 4 (D/S GIANT POOL) DUP	L1010143-5 WATER 27-MAY-11 REACH 4 (UNDER ICE)
Grouping	Analyte					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	33.1	45.4	51.4	51.6	44.5
	Total Suspended Solids (mg/L)	7.0	5.0	5.0	7.0	20.0
	Turbidity (NTU)	2.33	8.76	8.54	6.97	17.3
Total Metals	Aluminum (Al)-Total (mg/L)	0.102	0.231	0.239	0.247	0.481
	Antimony (Sb)-Total (mg/L)	0.00176	0.0178	0.0219	0.0221	0.0186
	Arsenic (As)-Total (mg/L)	0.0251	0.0869	0.0905	0.0935	0.0741
	Barium (Ba)-Total (mg/L)	0.00976	0.0110	0.0104	0.0108	0.0108
	Beryllium (Be)-Total (mg/L)	0.0012	0.0013	0.0010	0.0011	0.0017
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Boron (B)-Total (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Calcium (Ca)-Total (mg/L)	9.47	11.7	12.9	12.9	12.0
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080	<0.00080	<0.00080	0.00110
	Cobalt (Co)-Total (mg/L)	<0.00020	0.00089	0.00094	0.00099	0.00100
	Copper (Cu)-Total (mg/L)	<0.0010	0.0092	0.0095	0.0096	0.0089
	Iron (Fe)-Total (mg/L)	0.183	0.421	0.433	0.423	0.691
	Lead (Pb)-Total (mg/L)	0.00026	0.00483	0.00276	0.00295	0.00341
	Magnesium (Mg)-Total (mg/L)	2.94	3.48	3.69	3.64	3.46
	Manganese (Mn)-Total (mg/L)	0.0427	0.122	0.150	0.149	0.155
	Mercury (Hg)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Molybdenum (Mo)-Total (mg/L)	0.00065	0.00093	0.00123	0.00138	0.00116
	Nickel (Ni)-Total (mg/L)	0.00087	0.00324	0.00595	0.00630	0.00632
	Potassium (K)-Total (mg/L)	0.99	1.18	1.25	1.24	1.19
	Selenium (Se)-Total (mg/L)	<0.0020	<0.00040	<0.00040	<0.00040	<0.00040
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Sodium (Na)-Total (mg/L)	2.1	2.9	3.3	3.2	3.0
	Strontium (Sr)-Total (mg/L)	0.0370	0.0525	0.0577	0.0595	0.0493
	Thallium (TI)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Titanium (Ti)-Total (mg/L)	<0.0050	0.0079	0.0078	0.0084	0.0169
	Uranium (U)-Total (mg/L)	0.00026	0.00029	0.00036	0.00041	0.00036
	Vanadium (V)-Total (mg/L)	0.00057	0.00087	0.00093	0.00092	0.00138
	Zinc (Zn)-Total (mg/L)	0.0044	0.0147	0.0087	0.0101	0.0149
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	<0.010	<0.010	<0.010	0.016	0.018
	Antimony (Sb)-Dissolved (mg/L)	0.00151	0.0159	0.0199	0.0193	0.0210
	Arsenic (As)-Dissolved (mg/L)	0.0178	0.0667	0.0697	0.0687	0.0669
	Barium (Ba)-Dissolved (mg/L)	0.00768	0.00978	0.00924	0.00875	0.00876

L1010143 CONTD.... PAGE 3 of 6 30-MAY-11 16:00 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1010143-6 WATER 27-MAY-11 REACH 2 (POOL)	L1010143-7 WATER 27-MAY-11 SNP 43-5 (ABOVE)	L1010143-8 WATER 27-MAY-11 REACH 0 (BC MOUTH)	L1010143-9 WATER 21-MAY-11 REACH 6 EXPOSURE POINT (ABOVE)
Grouping	Analyte				
WATER					
Physical Tests	Hardness (as CaCO3) (mg/L)	53.1	59.6	55.3	
	Total Suspended Solids (mg/L)	11.0	10.0	12.0	
	Turbidity (NTU)	11.2	9.88	10.9	
Total Metals	Aluminum (Al)-Total (mg/L)	0.412	0.446	0.395	1.76
	Antimony (Sb)-Total (mg/L)	0.0240	0.0279	0.0261	0.127
	Arsenic (As)-Total (mg/L)	0.103	0.114	0.113	0.445
	Barium (Ba)-Total (mg/L)	0.0127	0.0128	0.0126	0.0408
	Beryllium (Be)-Total (mg/L)	<0.0010	0.0018	0.0017	0.0011
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020
	Boron (B)-Total (mg/L)	<0.020	<0.020	<0.020	0.146
	Cadmium (Cd)-Total (mg/L)	<0.00020	0.00021	<0.00020	0.00038
	Calcium (Ca)-Total (mg/L)	12.5	16.1	14.8	50.0
	Chromium (Cr)-Total (mg/L)	0.00088	0.00097	0.00097	0.00435
	Cobalt (Co)-Total (mg/L)	0.00117	0.00151	0.00150	0.00698
	Copper (Cu)-Total (mg/L)	0.0105	0.0100	0.0118	0.0242
	Iron (Fe)-Total (mg/L)	0.541	0.733	0.604	3.65
	Lead (Pb)-Total (mg/L)	0.00374	0.00334	0.00299	0.0497
	Magnesium (Mg)-Total (mg/L)	3.45	4.29	3.94	16.5
	Manganese (Mn)-Total (mg/L)	0.152	0.232	0.217	0.613
	Mercury (Hg)-Total (mg/L)	<0.000020	<0.000020	<0.000020	0.000038
	Molybdenum (Mo)-Total (mg/L)	0.00146	0.00167	0.00156	0.00280
	Nickel (Ni)-Total (mg/L)	0.00753	0.00820	0.00810	0.0160
	Potassium (K)-Total (mg/L)	1.09	1.20	1.29	3.74
	Selenium (Se)-Total (mg/L)	<0.00040	<0.00040	0.00079	0.00079
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040
	Sodium (Na)-Total (mg/L)	3.2	3.8	3.8	15.9
	Strontium (Sr)-Total (mg/L)	0.0640	0.0711	0.0715	0.215
	Thallium (TI)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040
	Titanium (Ti)-Total (mg/L)	0.0141	0.0143	0.0138	0.0208
	Uranium (U)-Total (mg/L)	0.00044	0.00045	0.00048	0.00204
	Vanadium (V)-Total (mg/L)	0.00123	0.00144	0.00124	0.00546
	Zinc (Zn)-Total (mg/L)	0.0122	0.0108	0.0113	0.0646
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.014	0.011	0.011	
	Antimony (Sb)-Dissolved (mg/L)	0.0220	0.0242	0.0240	
	Arsenic (As)-Dissolved (mg/L)	0.0753	0.0824	0.0793	
	Barium (Ba)-Dissolved (mg/L)	0.00882	0.00968	0.00928	

L1010143 CONTD.... PAGE 4 of 6 30-MAY-11 16:00 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time	L1010143-1 WATER 27-MAY-11	L1010143-2 WATER 27-MAY-11	L1010143-3 WATER 27-MAY-11	L1010143-4 WATER 27-MAY-11	L1010143-5 WATER 27-MAY-11
	Client ID	REACH 6 (GIANT FALLS)	REACH 5 (D/S POND)	REACH 4 (D/S GIANT POOL)	REACH 4 (D/S GIANT POOL) DUP	REACH 4 (UNDE ICE)
Grouping	Analyte					
WATER						
Dissolved Metals	Beryllium (Be)-Dissolved (mg/L)	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
	Bismuth (Bi)-Dissolved (mg/L)	0.000080	0.000100	0.000070	0.000050	0.000075
	Boron (B)-Dissolved (mg/L)	0.0114	0.0158	0.0168	0.0166	0.0186
	Cadmium (Cd)-Dissolved (mg/L)	0.00023	0.00025	0.00010	0.00025	0.00024
	Calcium (Ca)-Dissolved (mg/L)	8.86	12.4	14.1	14.2	12.3
	Chromium (Cr)-Dissolved (mg/L)	<0.00040	0.00046	0.00051	0.00062	0.00083
	Cobalt (Co)-Dissolved (mg/L)	0.00013	0.00070	0.00084	0.00076	0.00076
	Copper (Cu)-Dissolved (mg/L)	0.00061	0.00529	0.00572	0.00590	0.00595
	Iron (Fe)-Dissolved (mg/L)	0.030	0.059	0.071	0.091	0.054
	Lead (Pb)-Dissolved (mg/L)	0.00027	0.00079	0.00125	0.00102	0.00080
	Magnesium (Mg)-Dissolved (mg/L)	2.66	3.52	3.96	3.93	3.38
	Manganese (Mn)-Dissolved (mg/L)	0.0084	0.106	0.152	0.147	0.140
	Mercury (Hg)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Molybdenum (Mo)-Dissolved (mg/L)	0.00079	0.00115	0.00139	0.00135	0.00160
	Nickel (Ni)-Dissolved (mg/L)	0.00074	0.00296	0.00579	0.00564	0.00652
	Potassium (K)-Dissolved (mg/L)	0.86	1.21	1.34	1.26	1.04
	Selenium (Se)-Dissolved (mg/L)	DLM <0.0020	<0.00040	<0.00040	0.00049	0.00059
	Silver (Ag)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	< 0.00020
	Sodium (Na)-Dissolved (mg/L)	1.92	3.03	3.47	3.46	2.88
	Strontium (Sr)-Dissolved (mg/L)	0.0315	0.0528	0.0590	0.0567	0.0599
	Thallium (TI)-Dissolved (mg/L)	0.000265	0.000135	0.000120	0.000095	0.000090
	Tin (Sn)-Dissolved (mg/L)	< 0.000200	< 0.00020	<0.00020	<0.00020	< 0.00020
	Titanium (Ti)-Dissolved (mg/L)	0.00181	0.00206	0.00231	0.00245	0.00220
	Uranium (U)-Dissolved (mg/L)	0.00022	0.00032	0.00041	0.00039	0.00041
	Vanadium (V)-Dissolved (mg/L)	0.00049	0.00056	0.00051	0.00056	0.00057
	Zinc (Zn)-Dissolved (mg/L)	0.0034	0.0058	0.0090	0.0070	0.0045
		0.0004	0.0000	0.0000	0.0070	0.0040
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L1010143 CONTD.... PAGE 5 of 6 30-MAY-11 16:00 (MT) Version: FINAL

Sample ID Description Sampled Time Client ID L1010143-6 WATER Z7MAV:11 L1010143-6 WATER Z7MAV:11 L1010143-6 WATER Z7MAV:11 L1010143-6 WATER Z7MAV:11 Grouping Analyte Z7MAV:11 BEACH 2 (2004) SNP 436 (ABOVE) BEACH 2 (2004) BEACH 2 (2004) Grouping Analyte 0.00224 0.00204 0.00205 EBCACH 2 (2004) BEACH 2 (2004) COD0000 COD00000 COD00000 COD00000 COD00000 COD00000 COD00000 COD000000 COD00100 COD00100 COD0126 COD00100 COD00100 COD00100 COD00100 COD00							
GroupingAnalyteIIIWATER0.002340.002050.0000500.000050Bismuth (Bi)-Dissolved (mg/L)0.002340.002040.00020Boron (B)-Dissolved (mg/L)0.01890.01860.0192Cadimirn (Ca)-Dissolved (mg/L)0.000210.000230.00023Calcimirn (Ca)-Dissolved (mg/L)0.000990.001240.00126Chromiurn (Cr)-Dissolved (mg/L)0.000890.001240.00126Cobalt (Ca)-Dissolved (mg/L)0.000890.001210.00023Cobalt (Ca)-Dissolved (mg/L)0.000890.001210.00126Cobalt (Ca)-Dissolved (mg/L)0.000810.000730.00052Iron (Fe)-Dissolved (mg/L)0.000810.000730.00062Iron (Fe)-Dissolved (mg/L)0.000810.000730.00062Magnesium (Mg)-Dissolved (mg/L)0.001580.001630.00173Marganese (Mh)-Dissolved (mg/L)0.005850.001630.00173Mickel (Ni)-Dissolved (mg/L)0.005810.001730.00020Molybdenum (Mo)-Dissolved (mg/L)0.006910.007080.000716Potassium (K)-Dissolved (mg/L)0.006410.00020<0.00020Solum (Na)-Dissolved (mg/L)0.006430.006730.00640Sitror (Ag)-Dissolved (mg/L)0.006430.006740.00020Solum (Na)-Dissolved (mg/L)0.006400.00020<0.00020Solum (Na)-Dissolved (mg/L)0.006400.000651.000204Sitror (G)-Dissolved (mg/L)0.006400.0006561		Description Sampled Date Sampled Time	WATER 27-MAY-11	WATER 27-MAY-11	WATER 27-MAY-11 REACH 0 (BC	WATER 21-MAY-11 REACH 6 EXPOSURE POINT	
WATER 0.00234 0.00234 0.00204 0.00205 Dissolved Metals Beryllium (Be)-Dissolved (mg/L) 0.00234 0.00050 <0.000050 <0.000050 Boron (B)-Dissolved (mg/L) 0.0188 0.0186 0.0192 Cadmium (Cd)-Dissolved (mg/L) 0.00021 0.00023 0.00023 Catcium (Ca)-Dissolved (mg/L) 0.00099 0.00124 0.00126 Cobatt (Co)-Dissolved (mg/L) 0.00089 0.00121 0.00126 Cobatt (Co)-Dissolved (mg/L) 0.00089 0.00121 0.00062 Lead (Pb)-Dissolved (mg/L) 0.00020 0.00020 Maganesium (Mg)-Dissolved (mg/L) 0.00158 0.00163 0.00173 Maganese (Mn)-Dissolved (mg/L) 0.00158 0.00163 0.00173 Motodenum (Mo)-Dissolved (mg/L) 0.00158 0.00163 0.00173 Moto	Grouping	Analyte				(ABOVE)	
Dissolved Metals Beryllium (Be)-Dissolved (mg/L) 0.00224 0.00204 0.00205 Bismuth (Bi)-Dissolved (mg/L) <0.000050						-	
Bismuth (Bi)-Dissolved (mg/L) COUCLAT COUCLAT COUCLAT Bismuth (Bi)-Dissolved (mg/L) 0.0189 0.0188 0.0192 Cadmium (Cd)-Dissolved (mg/L) 0.00021 0.00023 0.00023 Calcium (Cd)-Dissolved (mg/L) 14.7 16.7 15.5 Chromium (Cr)-Dissolved (mg/L) 0.00089 0.00124 0.00126 Cobatt (Co)-Dissolved (mg/L) 0.00585 0.00540 0.00527 Iron (Fe)-Dissolved (mg/L) 0.00061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 0.00585 0.00123 0.00162 Marganese (Mn)-Dissolved (mg/L) 0.00661 0.00073 0.00062 Manganese (Mn)-Dissolved (mg/L) 0.168 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) 0.0158 0.00163 0.00173 Nickel (Ni)-Dissolved (mg/L) 0.00691 0.00708 0.00716 Pottassint (K)-Dissolved (mg/L) 0.00641 0.00020 <0.00020	Dissolved Metals	Beryllium (Be)-Dissolved (mg/L)	0.00234	0.00204	0.00205		
Boron (B)-Dissolved (mg/L) 0.0189 0.0186 0.0192 Cadmium (Cd)-Dissolved (mg/L) 0.00021 0.00023 0.00023 Calcium (Ca)-Dissolved (mg/L) 14.7 16.7 15.5 Chromium (Cr)-Dissolved (mg/L) 0.00089 0.00124 0.00126 Cobatt (Co)-Dissolved (mg/L) 0.00585 0.00540 0.00527 Iron (Fe)-Dissolved (mg/L) 0.00061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 0.00128 0.00120 4.36 4.02 Marganese (Mn)-Dissolved (mg/L) 0.168 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) 0.00158 0.001020 <0.00020							
Cadmium (Cd)-Dissolved (mg/L) 0.00021 0.00023 0.00023 Calcium (Ca)-Dissolved (mg/L) 14.7 16.7 15.5 Chromium (Cr)-Dissolved (mg/L) 0.00099 0.00124 0.00126 Cobalt (Co)-Dissolved (mg/L) 0.00585 0.00540 0.00527 Iron (Fe)-Dissolved (mg/L) 0.0061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 0.168 0.203 0.216 Magnese (Mn)-Dissolved (mg/L) 0.168 0.2000 <0.000020							
Calcium (Ca)-Dissolved (mg/L) 14.7 16.7 15.5 Chromium (Cr)-Dissolved (mg/L) 0.00099 0.00124 0.00126 Cobalt (Co)-Dissolved (mg/L) 0.00898 0.00121 0.0018 Copper (Cu)-Dissolved (mg/L) 0.00585 0.00540 0.00527 Iron (Fe)-Dissolved (mg/L) 0.00061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 3.96 4.36 4.02 Marganese (Mn)-Dissolved (mg/L) 0.0158 0.00163 0.00173 Mercury (Hg)-Dissolved (mg/L) 0.00158 0.00163 0.00173 Molybdenum (Mo)-Dissolved (mg/L) 0.00691 0.00708 0.00173 Nickel (Ni)-Dissolved (mg/L) 0.00691 0.00163 0.00173 Selenium (Se)-Dissolved (mg/L) 4.000040 <0.00040		Cadmium (Cd)-Dissolved (mg/L)					
Chromium (Cr)-Dissolved (mg/L) 0.00099 0.00124 0.00126 Cobalt (Co)-Dissolved (mg/L) 0.00089 0.00121 0.0018 Copper (Cu)-Dissolved (mg/L) 0.00585 0.00033 0.073 Lead (Pb)-Dissolved (mg/L) 0.00061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 0.168 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) 0.00158 0.00163 0.00173 Molybdenum (Mo)-Dissolved (mg/L) 0.00691 0.00708 0.00173 Nickel (Ni)-Dissolved (mg/L) 0.00020 <0.000020		Calcium (Ca)-Dissolved (mg/L)					
Cobalt (Co)-Dissolved (mg/L) 0.00089 0.00121 0.00118 Copper (Cu)-Dissolved (mg/L) 0.00585 0.00540 0.00527 Iron (Fe)-Dissolved (mg/L) 0.0072 0.0933 0.0733 Lead (Pb)-Dissolved (mg/L) 0.00061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 3.96 4.36 4.02 Manganese (Mn)-Dissolved (mg/L) 0.168 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) 0.00158 0.00163 0.00173 Nickel (Ni)-Dissolved (mg/L) 0.00158 0.00163 0.00176 Potassium (K)-Dissolved (mg/L) 0.00163 0.00020 <0.00020		Chromium (Cr)-Dissolved (mg/L)					
Copper (Cu)-Dissolved (mg/L) 0.00585 0.00540 0.00527 Iron (Fe)-Dissolved (mg/L) 0.072 0.093 0.073 Lead (Pb)-Dissolved (mg/L) 0.00061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 3.96 4.36 4.02 Marganese (Mn)-Dissolved (mg/L) 0.168 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) <0.00020		Cobalt (Co)-Dissolved (mg/L)					
Iron (Fe)-Dissolved (mg/L) 0.072 0.093 0.073 Lead (Pb)-Dissolved (mg/L) 0.00061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 3.96 4.36 4.02 Marganese (Mn)-Dissolved (mg/L) 0.188 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) 0.0061 0.00708 0.00173 Molybdenum (Mo)-Dissolved (mg/L) 0.00158 0.00163 0.00173 Nickel (Ni)-Dissolved (mg/L) 0.00691 0.00708 0.00716 Potassium (K)-Dissolved (mg/L) 1.24 1.33 1.23 Selenium (Se)-Dissolved (mg/L) <0.00020							
Lead (Pb)-Dissolved (mg/L) 0.00061 0.00073 0.00062 Magnesium (Mg)-Dissolved (mg/L) 3.96 4.36 4.02 Manganese (Mn)-Dissolved (mg/L) 0.168 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) 0.00053 0.00020 <0.000020							
Magnesium (Mg)-Dissolved (mg/L) 3.96 4.36 4.02 Manganese (Mn)-Dissolved (mg/L) 0.168 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) <0.00020							
Manganese (Mn)-Dissolved (mg/L) 0.168 0.230 0.216 Mercury (Hg)-Dissolved (mg/L) <0.000020		Magnesium (Mg)-Dissolved (mg/L)					
Mercury (Hg)-Dissolved (mg/L) <0.000020							
Molybdenum (Mo)-Dissolved (mg/L) 0.00158 0.00163 0.00173 Nickel (Ni)-Dissolved (mg/L) 0.00691 0.00708 0.00716 Potassium (K)-Dissolved (mg/L) 1.24 1.33 1.23 Selenium (Se)-Dissolved (mg/L) <0.00040							
Nickel (Ni)-Dissolved (mg/L) 0.00691 0.00708 0.00716 Potassium (K)-Dissolved (mg/L) 1.24 1.33 1.23 Selenium (Se)-Dissolved (mg/L) <0.00040		Molybdenum (Mo)-Dissolved (mg/L)					
Potassium (K)-Dissolved (mg/L) 1.24 1.33 1.23 Selenium (Se)-Dissolved (mg/L) <0.00040							
Selenium (Se)-Dissolved (mg/L) <0.00040		Potassium (K)-Dissolved (mg/L)					
Silver (Ag)-Dissolved (mg/L) <0.00020		Selenium (Se)-Dissolved (mg/L)					
Sodium (Na)-Dissolved (mg/L) 3.52 3.91 3.74 Strontium (Sr)-Dissolved (mg/L) 0.0643 0.0697 0.0698 Thallium (Tl)-Dissolved (mg/L) 0.000065 0.000055 0.000055 Tin (Sn)-Dissolved (mg/L) <0.00200		Silver (Ag)-Dissolved (mg/L)					
Strontium (Sr)-Dissolved (mg/L) 0.0643 0.0697 0.0698 Thallium (Tl)-Dissolved (mg/L) 0.000065 0.000065 0.000055 Tin (Sn)-Dissolved (mg/L) <0.00220							
Thallium (TI)-Dissolved (mg/L) 0.000065 0.000065 0.000055 Tin (Sn)-Dissolved (mg/L) <0.00020		Strontium (Sr)-Dissolved (mg/L)					
Tin (Sn)-Dissolved (mg/L) <0.00020		Thallium (TI)-Dissolved (mg/L)					
Titanium (Ti)-Dissolved (mg/L) 0.00220 0.00141 0.00208 Uranium (U)-Dissolved (mg/L) 0.00040 0.00046 0.00045 Vanadium (V)-Dissolved (mg/L) 0.00052 0.00055 0.00051							
Uranium (U)-Dissolved (mg/L) 0.00040 0.00046 0.00045 Vanadium (V)-Dissolved (mg/L) 0.00052 0.00055 0.00051							
Vanadium (V)-Dissolved (mg/L) 0.00052 0.00055 0.00051		Uranium (U)-Dissolved (mg/L)					
Zing (Zr) Disselved (meth)							
		Zinc (Zn)-Dissolved (mg/L)					
			0.0000	0.0000	0.00330		
			1	1	1		

Qualifiers for Sample Submission Listed:

Qualifier	Description
SRUL	Sample Received Unpreserved. Results may be biased low for indicated parameter(s) - dissolved metal
SFPL	Sample was Filtered and Preserved at the laboratory - dissolved metal

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLM	Detection Limit Adjusted For Sample Matrix Effects

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
HG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
HG-T-L-CVAA-ED	Water	Mercury (Hg)	EPA 245.7 / EPA 245.1
MET-D-L-ICP-ED	Water	Diss. Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-D-L-MS-ED	Water	Diss. Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
MET-T-L-ICP-ED	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-T-L-MS-ED	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
TURBIDITY-ED	Water	Turbidity	APHA 2130 B-Nephelometer

** 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
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, CANADA
Chain of Custody Numbers:	

1

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.





Contact: DCNUV: Katrina Nokleby: Golder: Justine Crowe Ippr Excl Digital Fex Phorty (2.4 Business Days) - 59% Surcharge - Cancel Address: Address: Email 1: invest@Golder com © Emergency (1-2 Bus. Days) - 100% Surcharge - Cancel ALS Days) - 100% Surchar	Dantati DCN.IV: Katrina Nokleby: Guide : Profile Fax Profile	Contact: DCNUV: Katrina Nokleby, Golder: Justine Crowe Cippe Excl Digital Fax Printy (2-4 twanes; Bays) - 50% Survivore: Contact: ALS to Contern TAT Address: Ernall 1: Ernall 2: Imadiation Suppler com © Printy (2-4 twanes; Bays) - 50% Survivore: Contact: ALS to Contern TAT Phone: 867 669 6735 Fax: Email 3: Katrina/Qipunalogistics com © Same Bay or Weekend Emogency - Catact ALS to Contern TAT Invoices the Report? Yes No Job #: 09-1427-0006-20000-20500 Please indicate below Filtered, Preserved or both (F, P. F/P Hardcopy of Invoice with Report? Yes No Job #: 09-1427-0006-20000-20500 Openation (Yes and Yes
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Email 2: Immaditants@uplicer.com O Same Bay or Weekend Emergency - Contact ALS to Same Bay or Weekend Emergency - Contact ALS to Client / Project Information Please Indicate below Filtered, Preserved of Preserved of Preserved of Same Bay or Weekend Emergency - Contact ALS to Company - DetonCho/Nuna Joint Venture Point Cho/Nuna Same Provide With Report ? Vision 2000 - 20	Emili 2: Immalling Supplier cam O Same Day or Weeked Emirance - Canada ALS to Onlow Tat Phone: 867 669 6735 Fax. Emili 3: Katingsh Quanded cam O Same Day or Weeked Emirance - Canada ALS to Onlow Tat Phone: 867 669 6735 Fax. Emili 3: Katingsh Quanded Cam Please Enclose Policy Filtered, Presented to both (F, P, P/P) Iardcopy of Invoice with Report? Yes Job #: 09-1427-0006-20000-20500 Please Enclose Policy Filtered, Presented to both (F, P, P/P) Iardcopy of Invoice with Report? Yes Job #: 09-1427-0006-20000-20500 90<	Email 2 Immachtans@ucder_com O Same Bby or Weekend Imregency - Contact ALS to Contern TAT Phone: 867 669 6735 Fax: Email 3: KatrinaN@thunalogistics com Analysis Request nvoice To Same as Report ? Yes I to O State Bay or Weekend Imregency - Contact ALS to Contern TAT radicopy of Invoice with Report ? Yes I to O bit #: O State Bay or Weekend Imregency - Contact ALS to Contern TAT Contact: Brenda Kalis L SD: Please Indicate below Filtered, Preserved or both (F, P, F/P Lab Work Order # L OLO O LABS LSD: Image: Contact: Brenda Kalis Millice U State: 9838-31st Avenue, Edmonton AB, TSN 1C5 Please only: Image: Contact: Can Dang Sample: Vork Order # L OLO O LABS ALS Contact: Can Dang Sample: Time Sample Type Image: Plan State Preserved or Both (F, P, F/P (lab use only) Lob Work Order # L OLO LABS ALS Contact: Can Dang Sample: Time Sample Type Image: Plan State Preserved or Both (F, P, F/P (lab use only) Sample Identification Lab Work Order #
Phone: 867 669 6735 Fax: Email 3': Katrina N@hunalogistics.com Please Indicate below Filtered, Preserved of lardcopy of invoice with Report? Yes No Client / Project Information Please Indicate below Filtered, Preserved of lardcopy of invoice with Report? Yes No Job #: Op : 427-0006-20000-20500 Please Indicate below Filtered, Preserved of lardcopy of invoice with Report? Yes No Job #: Op : 427-0006-20000-20500 Yes Yes No Job #: Op : 427-0006-20000-20500 Yes No Job #: Op : 427-0006-20000-20500 Yes Yes No Job #: Op : 427-0006-20000-20500 Yes Yes No Job #: Op : 427-0006-20000-20500 Yes Yes Yes No Job #: Yes Ye	https:// 677 669 6735 Fax Email 3': KatringAl@punalogistics.com Please Indicate Margan? Variable Variabl	Phone: 667 669 6735 Fax: Email 3: KatringAlignunglogistigs com Provide 10 Same as Report ? Iteration Provide 10 Same as Report ? Iteration ? Iteration ? Iteration ? Provide 10 Same as Report ? Iteration ? Provide 10 Same as Report ? Iteration ? Provide 10 Same as Report ? Iteration ? Provide 10 Pr
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GOLDER ASSOCIATES LTD ATTN: Justine Crowe 9 - 4905 48 Street Yellowknife NT X1A 3S3 Date Received:01-JUN-11Report Date:22-JUN-11 13:05 (MT)Version:FINAL REV. 2

Client Phone: 867-873-6319

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1011399 606989 09-1427-0006-20000-20500

Comments:

22-JUN-11: IDs fixed

Shannon Luchka Account Manager

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L1011399 CONTD.... PAGE 2 of 7 22-JUN-11 13:05 (MT) Version: FINAL REV. 2

	Sample ID Description Sampled Date Sampled Time Client ID	L1011399-1 WATER 31-MAY-11 YK BACK BAY 1	L1011399-2 WATER 31-MAY-11 YK BACK BAY 2	L1011399-3 WATER 31-MAY-11 YK BACK BAY 3	L1011399-4 WATER 31-MAY-11 YK BACK BAY 4	L1011399-5 WATER 31-MAY-11 BACK BAY DOCK AREA
Grouping	Analyte					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	76.5	24.9	25.0	25.4	33.1
	Total Suspended Solids (mg/L)	14.0	4.0	<3.0	<3.0	16.0
	Turbidity (NTU)	17.5	5.48	6.41	6.20	13.5
Anions and Nutrients	Nitrate and Nitrite (as N) (mg/L)	0.0388	<0.0060	<0.0060	<0.0060	<0.0060
	Nitrate (as N) (mg/L)	0.0388	<0.0060	<0.0060	<0.0060	<0.0060
	Nitrite (as N) (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Total Kjeldahl Nitrogen (mg/L)	0.629	0.198	0.174	0.203	0.467
	Phosphorus (P)-Total Dissolved (mg/L)	0.0113	0.0026	0.0029	0.0033	0.0060
	Phosphorus (P)-Total (mg/L)	0.0509	0.0090	0.0100	0.0097	0.0545
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	11.0	4.77	4.79	4.88	5.28
	Total Organic Carbon (mg/L)	11.2	5.04	5.19	5.15	5.64
Total Metals	Aluminum (Al)-Total (mg/L)	0.577	0.196	0.203	0.207	0.315
	Antimony (Sb)-Total (mg/L)	0.0309	0.00057	0.00091	0.00078	0.00066
	Arsenic (As)-Total (mg/L)	0.130	0.00373	0.00407	0.00444	0.00693
	Barium (Ba)-Total (mg/L)	0.0161	0.00910	0.00911	0.00896	0.0149
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Boron (B)-Total (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Calcium (Ca)-Total (mg/L)	22.2	7.84	6.63	6.53	9.05
	Chromium (Cr)-Total (mg/L)	0.00126	<0.00080	<0.00080	<0.00080	0.00087
	Cobalt (Co)-Total (mg/L)	0.00115	<0.00020	<0.00020	<0.00020	0.00030
	Copper (Cu)-Total (mg/L)	0.0141	0.0013	0.0015	0.0014	0.0029
	Iron (Fe)-Total (mg/L)	0.831	0.173	0.168	0.170	0.606
	Lead (Pb)-Total (mg/L)	0.00412	0.00017	0.00022	0.00023	0.00056
	Magnesium (Mg)-Total (mg/L)	5.89	2.71	2.40	2.36	2.95
	Manganese (Mn)-Total (mg/L)	0.119	0.0079	0.0076	0.0077	0.0309
	Mercury (Hg)-Total (mg/L)	<0.000020	<0.000020	0.000023	<0.000020	<0.000020
	Molybdenum (Mo)-Total (mg/L)	0.00148	0.00019	0.00017	0.00017	0.00022
	Nickel (Ni)-Total (mg/L)	0.00809	0.00087	0.00089	0.00090	0.00140
	Potassium (K)-Total (mg/L)	1.96	1.26	1.12	1.12	1.28
	Selenium (Se)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Silver (Ag)-Total (mg/L)	<0.00040 RRVA	<0.00040	<0.00040	<0.00040	<0.00040
	Sodium (Na)-Total (mg/L)	6.4 ^P	2.6	2.2	2.2	3.0
	Strontium (Sr)-Total (mg/L)	0.0960	0.0342	0.0336	0.0332	0.0422
	Thallium (TI)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010

L1011399 CONTD.... PAGE 3 of 7 22-JUN-11 13:05 (MT) Version: FINAL REV. 2

	Sample ID Description Sampled Date Sampled Time Client ID	L1011399-6 WATER 31-MAY-11 FIELD BLANK	L1011399-7 WATER 31-MAY-11 TRAVEL BLANK		
Grouping	Analyte				
WATER					
Physical Tests	Hardness (as CaCO3) (mg/L)	<1.3	<1.3		
	Total Suspended Solids (mg/L)	<3.0	<3.0		
	Turbidity (NTU)	<0.10	0.11		
Anions and Nutrients	Nitrate and Nitrite (as N) (mg/L)	<0.0060	<0.0060		
	Nitrate (as N) (mg/L)	<0.0060	<0.0060		
	Nitrite (as N) (mg/L)	<0.0020	<0.0020		
	Total Kjeldahl Nitrogen (mg/L)	<0.050	<0.050		
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0010	<0.0010		
	Phosphorus (P)-Total (mg/L)	<0.0010	<0.0010		
Organic / Inorganic Carbon	Dissolved Organic Carbon (mg/L)	<0.50	<0.50		
	Total Organic Carbon (mg/L)	<0.50	<0.50		
Total Metals	Aluminum (Al)-Total (mg/L)	<0.020	<0.020		
	Antimony (Sb)-Total (mg/L)	<0.00040	<0.00040		
	Arsenic (As)-Total (mg/L)	<0.00040	<0.00040		
	Barium (Ba)-Total (mg/L)	<0.00020	<0.00020		
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010		
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020		
	Boron (B)-Total (mg/L)	<0.020	<0.020		
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.00020		
	Calcium (Ca)-Total (mg/L)	<0.50	<0.50		
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080		
	Cobalt (Co)-Total (mg/L)	<0.00020	<0.00020		
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010		
	Iron (Fe)-Total (mg/L)	<0.010	<0.010		
	Lead (Pb)-Total (mg/L)	<0.00010	<0.00010		
	Magnesium (Mg)-Total (mg/L)	<0.10	<0.10		
	Manganese (Mn)-Total (mg/L)	<0.0020	<0.0020		
	Mercury (Hg)-Total (mg/L)	<0.000020	<0.000020		
	Molybdenum (Mo)-Total (mg/L)	<0.00010	<0.00010		
	Nickel (Ni)-Total (mg/L)	<0.00020	<0.00020		
	Potassium (K)-Total (mg/L)	<0.10	<0.10		
	Selenium (Se)-Total (mg/L)	<0.00040	<0.00040		
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040		
	Sodium (Na)-Total (mg/L)	<1.0	<1.0		
	Strontium (Sr)-Total (mg/L) Thallium (TI)-Total (mg/L)	<0.00020	<0.00020		
		<0.00010	<0.00010		

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WATER Total Metals Tir Tit Ur Va Zir Dissolved Metals Alu Ar Ba Be Bis Be Bis Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca	Analyte n (Sn)-Total (mg/L) tanium (Ti)-Total (mg/L) ranium (U)-Total (mg/L) anadium (V)-Total (mg/L) nc (Zn)-Total (mg/L) uminum (Al)-Dissolved (mg/L) rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L) hromium (Cr)-Dissolved (mg/L)	<0.00040 0.0245 0.00039 0.00139 0.0100 <0.010 0.0270 0.0877 0.0123 <0.00050 <0.00050 <0.00050 0.0252 <0.00010 21.6	<0.00040 0.0067 0.00026 <0.00050 <0.0040 0.014 0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048 <0.00010	0.00092 0.0072 0.00025 <0.00050 <0.0040 0.011 0.00066 0.00298 0.00671 <0.00050 <0.00050 0.0058	<0.00040 0.0102 0.00025 <0.00050 <0.0040 0.012 0.00060 0.00329 0.00682 <0.00050 <0.00050	<0.00040 0.0109 0.00027 0.00082 0.0057 <0.010 0.00053 0.00268 0.0105 <0.00050
Total Metals Tir Tit Tit Ur Va Zir Zir Dissolved Metals Alt Dissolved Metals Ba Ba Ba Ba Ba Ca Ca	tanium (Ti)-Total (mg/L) ranium (U)-Total (mg/L) anadium (V)-Total (mg/L) nc (Zn)-Total (mg/L) uminum (Al)-Dissolved (mg/L) ntimony (Sb)-Dissolved (mg/L) rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	0.0245 0.00039 0.00139 0.0100 <0.010 0.0270 0.0877 0.0123 <0.00050 <0.00050 <0.00050 0.0252 <0.00010	0.0067 0.00026 <0.00050 <0.0040 0.014 0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048	0.0072 0.00025 <0.00050 <0.0040 0.011 0.00066 0.00298 0.00671 <0.00050 <0.00050	0.0102 0.00025 <0.00050 <0.0040 0.012 0.00060 0.00329 0.00682 <0.00050 <0.00050	0.0109 0.00027 0.00082 0.0057 <0.010 0.00053 0.00268 0.0105 <0.00050
Tit Ur Va Zir Dissolved Metals An Ar Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba Ba	tanium (Ti)-Total (mg/L) ranium (U)-Total (mg/L) anadium (V)-Total (mg/L) nc (Zn)-Total (mg/L) uminum (Al)-Dissolved (mg/L) ntimony (Sb)-Dissolved (mg/L) rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	0.0245 0.00039 0.00139 0.0100 <0.010 0.0270 0.0877 0.0123 <0.00050 <0.00050 <0.00050 0.0252 <0.00010	0.0067 0.00026 <0.00050 <0.0040 0.014 0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048	0.0072 0.00025 <0.00050 <0.0040 0.011 0.00066 0.00298 0.00671 <0.00050 <0.00050	0.0102 0.00025 <0.00050 <0.0040 0.012 0.00060 0.00329 0.00682 <0.00050 <0.00050	0.0109 0.00027 0.00082 0.0057 <0.010 0.00053 0.00268 0.0105 <0.00050
Ur Va Zir Dissolved Metals Alt Ar Ba Bi Ba Ba <t< td=""><td>ranium (U)-Total (mg/L) anadium (V)-Total (mg/L) nc (Zn)-Total (mg/L) uminum (Al)-Dissolved (mg/L) rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)</td><td>0.0245 0.00039 0.00139 0.0100 <0.010 0.0270 0.0877 0.0123 <0.00050 <0.00050 <0.00050 0.0252 <0.00010</td><td>0.0067 0.00026 <0.00050 <0.0040 0.014 0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048</td><td>0.00025 <0.00050 <0.0040 0.011 0.00066 0.00298 0.00671 <0.00050 <0.00050</td><td>0.0102 0.00025 <0.00050 <0.0040 0.012 0.00060 0.00329 0.00682 <0.00050 <0.00050</td><td>0.0109 0.00027 0.00082 0.0057 <0.010 0.00053 0.00268 0.0105 <0.00050</td></t<>	ranium (U)-Total (mg/L) anadium (V)-Total (mg/L) nc (Zn)-Total (mg/L) uminum (Al)-Dissolved (mg/L) rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	0.0245 0.00039 0.00139 0.0100 <0.010 0.0270 0.0877 0.0123 <0.00050 <0.00050 <0.00050 0.0252 <0.00010	0.0067 0.00026 <0.00050 <0.0040 0.014 0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048	0.00025 <0.00050 <0.0040 0.011 0.00066 0.00298 0.00671 <0.00050 <0.00050	0.0102 0.00025 <0.00050 <0.0040 0.012 0.00060 0.00329 0.00682 <0.00050 <0.00050	0.0109 0.00027 0.00082 0.0057 <0.010 0.00053 0.00268 0.0105 <0.00050
Va Zir Dissolved Metals Alu Ar Ba Bis Bis Bis Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca	anadium (V)-Total (mg/L) nc (Zn)-Total (mg/L) uminum (Al)-Dissolved (mg/L) ntimony (Sb)-Dissolved (mg/L) ersenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	0.00139 0.0100 <0.010 0.0270 0.0877 0.0123 <0.00050 <0.00050 0.0252 <0.00010	<0.00050 <0.0040 0.014 0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048	<0.00050 <0.0040 0.011 0.00066 0.00298 0.00671 <0.00050 <0.00050	<0.00050 <0.0040 0.012 0.00060 0.00329 0.00682 <0.00050 <0.00050	0.00082 0.0057 <0.010 0.00053 0.00268 0.0105 <0.00050
Dissolved Metals Alt Dissolved Metals Alt Art Art Ba Ba Ba<	nc (Zn)-Total (mg/L) uminum (Al)-Dissolved (mg/L) ntimony (Sb)-Dissolved (mg/L) rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) pron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	0.0100 <0.010 0.0270 0.0877 0.0123 <0.00050 <0.000050 0.0252 <0.00010	<0.0040 0.014 0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048	<0.0040 0.011 0.00066 0.00298 0.00671 <0.00050 <0.00050	<0.0040 0.012 0.00060 0.00329 0.00682 <0.00050 <0.00050	0.0057 <0.010 0.00053 0.00268 0.0105 <0.00050
Dissolved Metals Alu Ari Ba Bis Bis Bis Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca	uminum (AI)-Dissolved (mg/L) ntimony (Sb)-Dissolved (mg/L) rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	<0.010 0.0270 0.0877 0.0123 <0.00050 <0.00050 0.0252 <0.00010	0.014 0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048	0.011 0.00066 0.00298 0.00671 <0.00050 <0.00050	0.012 0.00060 0.00329 0.00682 <0.00050 <0.00050	<0.010 0.00053 0.00268 0.0105 <0.00050
Ar Ar Ba Be Bis Bo Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca	ntimony (Sb)-Dissolved (mg/L) rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L)	0.0270 0.0877 0.0123 <0.00050 <0.000050 0.0252 <0.00010	0.00047 0.00302 0.00739 <0.00050 <0.00050 0.0048	0.00066 0.00298 0.00671 <0.00050 <0.000050	0.00060 0.00329 0.00682 <0.00050 <0.000050	0.00053 0.00268 0.0105 <0.00050
Ari Ba Bis Bis Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca	rsenic (As)-Dissolved (mg/L) arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	0.0877 0.0123 <0.00050 <0.00050 0.0252 <0.00010	0.00302 0.00739 <0.00050 <0.00050 0.0048	0.00298 0.00671 <0.00050 <0.000050	0.00329 0.00682 <0.00050 <0.00050	0.00053 0.00268 0.0105 <0.00050
Ba Ba Bis Bo Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca	arium (Ba)-Dissolved (mg/L) eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	0.0123 <0.00050 <0.000050 0.0252 <0.00010	0.00739 <0.00050 <0.00050 0.0048	0.00671 <0.00050 <0.000050	0.00682 <0.00050 <0.000050	0.0105 <0.00050
Be Bis Bo Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca Ca	eryllium (Be)-Dissolved (mg/L) smuth (Bi)-Dissolved (mg/L) oron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	<0.00050 <0.000050 0.0252 <0.00010	<0.00050 <0.000050 0.0048	<0.00050 <0.000050	<0.00050 <0.000050	<0.00050
Bis Bo Ca Ca Cr Co Co Iro Le Ma Ma Ma Ma	smuth (Bi)-Dissolved (mg/L) pron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	<0.000050 0.0252 <0.00010	<0.000050 0.0048	<0.000050	<0.000050	
Bo Ca Ca Ch Co Co Iro Le Ma Ma Ma Ma Ma	bron (B)-Dissolved (mg/L) admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	0.0252 <0.00010	0.0048			
Ca Ca Cr Cc Cc Iro Le Ma Ma Ma Ma Ma	admium (Cd)-Dissolved (mg/L) alcium (Ca)-Dissolved (mg/L)	<0.00010		0.0058		< 0.000050
Ca Cr Cc Cc Iro Le Ma Ma Ma Nie	alcium (Ca)-Dissolved (mg/L)		<0.00010		0.0053	0.0069
CH Co Iro Le Ma Ma Ma Ni		21.6		<0.00010	<0.00010	<0.00010
Co Co Iro Le Ma Ma Ma Ni	hromium (Cr)-Dissolved (ma/l)		6.36	6.32	6.39	8.76
Co Iro Le Ma Ma Ma Ni	······································	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Iro Le Ma Ma Ma Ni	obalt (Co)-Dissolved (mg/L)	0.00057	<0.00010	<0.00010	<0.00010	<0.00010
Le Ma Ma Mo Ni	opper (Cu)-Dissolved (mg/L)	0.00663	0.00081	0.00088	0.00085	0.00105
Ma Ma Mo Ni	on (Fe)-Dissolved (mg/L)	0.053	<0.010	0.012	<0.010	0.030
Ma Ma Nia	ead (Pb)-Dissolved (mg/L)	0.00050	<0.00010	<0.00010	<0.00010	<0.00010
Me Mc Nie	agnesium (Mg)-Dissolved (mg/L)	5.48	2.18	2.25	2.30	2.72
Mo	anganese (Mn)-Dissolved (mg/L)	0.0631	<0.0020	<0.0020	<0.0020	<0.0020
Nie	ercury (Hg)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	olybdenum (Mo)-Dissolved (mg/L)	0.00128	0.00014	0.00015	0.00015	0.00019
Po	ckel (Ni)-Dissolved (mg/L)	0.00582	0.00040	0.00038	0.00042	0.00054
	otassium (K)-Dissolved (mg/L)	1.68	0.71	0.84	0.85	0.98
Se	elenium (Se)-Dissolved (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
Sil	lver (Ag)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
Sc	odium (Na)-Dissolved (mg/L)	9.36	2.19	2.16	2.20	2.71
St	rontium (Sr)-Dissolved (mg/L)	0.0904	0.0315	0.0309	0.0305	0.0388
Th	nallium (TI)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
Tir	n (Sn)-Dissolved (mg/L)	<0.00020	<0.00020	0.00045	0.00022	<0.00020
Tit	tanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
Ur	ranium (U)-Dissolved (mg/L)	0.00047	0.00023	0.00023	0.00023	0.00019
Va	anadium (V)-Dissolved (mg/L)	0.00027	<0.00010	<0.00010	<0.00010	<0.00010
Zir	nc (Zn)-Dissolved (mg/L)	0.0036	<0.0010	<0.0010	<0.0010	<0.0010

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	Sample ID Description Sampled Date Sampled Time Client ID	L1011399-6 WATER 31-MAY-11 FIELD BLANK	L1011399-7 WATER 31-MAY-11 TRAVEL BLANK		
Grouping	Analyte				
WATER					
Total Metals	Tin (Sn)-Total (mg/L)	<0.00040	<0.00040		
	Titanium (Ti)-Total (mg/L)	<0.0050	<0.0050		
	Uranium (U)-Total (mg/L)	<0.00010	<0.00010		
	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050		
	Zinc (Zn)-Total (mg/L)	<0.0040	<0.0040		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	<0.010	<0.010		
	Antimony (Sb)-Dissolved (mg/L)	<0.00040	<0.00040		
	Arsenic (As)-Dissolved (mg/L)	<0.00040	<0.00040		
	Barium (Ba)-Dissolved (mg/L)	<0.00010	<0.00010		
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050		
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050		
	Boron (B)-Dissolved (mg/L)	<0.0020	<0.0020		
	Cadmium (Cd)-Dissolved (mg/L)	<0.00010	<0.00010		
	Calcium (Ca)-Dissolved (mg/L)	<0.50	<0.50		
	Chromium (Cr)-Dissolved (mg/L)	<0.00040	<0.00040		
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010		
	Copper (Cu)-Dissolved (mg/L)	<0.00060	<0.00060		
	Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010		
	Lead (Pb)-Dissolved (mg/L)	<0.00010	<0.00010		
	Magnesium (Mg)-Dissolved (mg/L)	<0.10	<0.10		
	Manganese (Mn)-Dissolved (mg/L)	<0.0020	<0.0020		
	Mercury (Hg)-Dissolved (mg/L)	<0.000020	<0.000020		
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00010	<0.00010		
	Nickel (Ni)-Dissolved (mg/L)	<0.00010	<0.00010		
	Potassium (K)-Dissolved (mg/L)	<0.10	<0.10		
	Selenium (Se)-Dissolved (mg/L)	<0.00040	<0.00040		
	Silver (Ag)-Dissolved (mg/L)	<0.00020	<0.00020		
	Sodium (Na)-Dissolved (mg/L)	<0.50	<0.50		
	Strontium (Sr)-Dissolved (mg/L)	<0.00010	<0.00010		
	Thallium (TI)-Dissolved (mg/L)	<0.000050	<0.000050		
	Tin (Sn)-Dissolved (mg/L)	<0.00020	<0.00020		
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030		
	Uranium (U)-Dissolved (mg/L)	<0.00010	<0.00010		
	Vanadium (V)-Dissolved (mg/L)	<0.00010	<0.00010		
	Zinc (Zn)-Dissolved (mg/L)	0.0012	0.0010		

Qualifiers for Sample Submission Listed:

Qualifier	Description
SPL	Sample was Preserved at the laboratory - TOC-LOW
SFPL	Sample was Filtered and Preserved at the laboratory - DOC-LOW, TDP-LOW
Qualifiers for In	ndividual Parameters Listed:

Qualifier Description RRVAP Reported Result Verified by Alternate Process

Test Method References:

	Matrix	Test Description	Method Reference**
C-DIS-ORG-LOW-ED	Water	Dissolved Organic Carbon	APHA 5310 B-Instrumental
C-TOT-ORG-LOW-ED	Water	Total Organic Carbon	APHA 5310 B-Instrumental
ETL-HARDNESS-DIS-ED	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
IG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
HG-T-L-CVAA-ED	Water	Mercury (Hg)	EPA 245.7 / EPA 245.1
MET-D-L-ICP-ED	Water	Diss. Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-D-L-MS-ED	Water	Diss. Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
MET-T-L-ICP-ED	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-T-L-MS-ED	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
NO2+NO3-L-CFA-ED	Water	Nitrite & Nitrate in Water by Colour	APHA 4500 NO3-F
This analysis is carried ou	ut using proce	edures adapted from APHA Method 4500 NO3-F "A	utomated Cadmium Reduction Method".
NO2-L-CFA-ED	Water	Nitrite in Water by Colour	APHA 4500 NO2-A and NO3-F
This analysis is carried ou reduction step to be select			utomated Cadmium Reduction Method", omitting the Cu-Co
NO3-L-CALC-ED	Water	Nitrate in Water (Calculation)	APHA 4500 NO3-F
Nitrate (as N) is a calcula = [Nitrate and Nitrite (as			
	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
P-I-L-COL-ED	valer		
	ut using proce	edures adapted from APHA Method 4500-P "Phosp ole.	horus". Total Phosphorus is determined colourimetrically
This analysis is carried ou after persulphate digestio	ut using proce	edures adapted from APHA Method 4500-P "Phosp ole. Total Dissolved P in Water by Colour	horus". Total Phosphorus is determined colourimetrically APHA 4500-P PHOSPHORUS
This analysis is carried ou after persulphate digestio P-TD-L-COL-ED This analysis is carried ou	ut using proce n of the sam Water ut using proce	ble. Total Dissolved P in Water by Colour	APHA 4500-P PHOSPHORUS horus". Total Dissolved Phosphorous is determined
This analysis is carried ou after persulphate digestio P-TD-L-COL-ED This analysis is carried ou colourimetrically after per	ut using proce n of the sam Water ut using proce	ble. Total Dissolved P in Water by Colour edures adapted from APHA Method 4500-P "Phosp	APHA 4500-P PHOSPHORUS horus". Total Dissolved Phosphorous is determined
This analysis is carried ou after persulphate digestio P-TD-L-COL-ED This analysis is carried ou colourimetrically after per SOLIDS-TOTSUS-ED	ut using proce n of the sam Water ut using proce sulphate dige	ble. Total Dissolved P in Water by Colour edures adapted from APHA Method 4500-P "Phosp estion of a sample that has been lab or field filtered	APHA 4500-P PHOSPHORUS horus". Total Dissolved Phosphorous is determined through a 0.45 micron membrane filter.
This analysis is carried ou after persulphate digestio P-TD-L-COL-ED This analysis is carried ou colourimetrically after per SOLIDS-TOTSUS-ED TKN-L-CFA-ED This analysis is carried ou	ut using proce n of the sam Water ut using proce sulphate dige Water Water Water ut using proce	ble. Total Dissolved P in Water by Colour edures adapted from APHA Method 4500-P "Phosp estion of a sample that has been lab or field filtered Total Suspended Solids TKN in Water by Colour	APHA 4500-P PHOSPHORUS horus". Total Dissolved Phosphorous is determined through a 0.45 micron membrane filter. APHA 2540 D-Gravimetric
This analysis is carried ou after persulphate digestio P-TD-L-COL-ED This analysis is carried ou colourimetrically after per SOLIDS-TOTSUS-ED TKN-L-CFA-ED This analysis is carried ou sample digestion at 380 c	ut using proce n of the sam Water ut using proce sulphate dige Water Water Water ut using proce	ble. Total Dissolved P in Water by Colour edures adapted from APHA Method 4500-P "Phosp estion of a sample that has been lab or field filtered Total Suspended Solids TKN in Water by Colour edures adapted from APHA Method 4500-Norg "Nit	APHA 4500-P PHOSPHORUS horus". Total Dissolved Phosphorous is determined through a 0.45 micron membrane filter. APHA 2540 D-Gravimetric APHA 4500-NORG (TKN)
This analysis is carried ou after persulphate digestio P-TD-L-COL-ED This analysis is carried ou colourimetrically after per SOLIDS-TOTSUS-ED TKN-L-CFA-ED This analysis is carried ou sample digestion at 380 c TURBIDITY-ED	ut using proce n of the sam Water ut using proce sulphate dige Water Water ut using proce selcius with a Water	Total Dissolved P in Water by Colour edures adapted from APHA Method 4500-P "Phosp estion of a sample that has been lab or field filtered Total Suspended Solids TKN in Water by Colour edures adapted from APHA Method 4500-Norg "Nit nalysis using an automated colourimetric finish.	APHA 4500-P PHOSPHORUS whorus". Total Dissolved Phosphorous is determined through a 0.45 micron membrane filter. APHA 2540 D-Gravimetric APHA 4500-NORG (TKN) rogen (Organic)". Total Kjeldahl Nitrogen is determined by APHA 2130 B-Nephelometer
after persulphate digestio P-TD-L-COL-ED This analysis is carried ou colourimetrically after per SOLIDS-TOTSUS-ED TKN-L-CFA-ED This analysis is carried ou sample digestion at 380 c TURBIDITY-ED * ALS test methods may ind	ut using proce n of the sam Water ut using proce sulphate dige Water ut using proce celcius with a Water corporate mo	Total Dissolved P in Water by Colour edures adapted from APHA Method 4500-P "Phosp estion of a sample that has been lab or field filtered Total Suspended Solids TKN in Water by Colour edures adapted from APHA Method 4500-Norg "Nit nalysis using an automated colourimetric finish. Turbidity	APHA 4500-P PHOSPHORUS whorus". Total Dissolved Phosphorous is determined through a 0.45 micron membrane filter. APHA 2540 D-Gravimetric APHA 4500-NORG (TKN) rogen (Organic)". Total Kjeldahl Nitrogen is determined by APHA 2130 B-Nephelometer prove performance.
This analysis is carried ou after persulphate digestio P-TD-L-COL-ED This analysis is carried ou colourimetrically after per SOLIDS-TOTSUS-ED TKN-L-CFA-ED This analysis is carried ou sample digestion at 380 of TURBIDITY-ED	ut using proce n of the sam Water ut using proce sulphate dige Water ut using proce celcius with a Water corporate mo above test co	Total Dissolved P in Water by Colour edures adapted from APHA Method 4500-P "Phosp estion of a sample that has been lab or field filtered Total Suspended Solids TKN in Water by Colour edures adapted from APHA Method 4500-Norg "Nit nalysis using an automated colourimetric finish. Turbidity difications from specified reference methods to imp	APHA 4500-P PHOSPHORUS whorus". Total Dissolved Phosphorous is determined through a 0.45 micron membrane filter. APHA 2540 D-Gravimetric APHA 4500-NORG (TKN) rogen (Organic)". Total Kjeldahl Nitrogen is determined by APHA 2130 B-Nephelometer prove performance.

Chain of Custody Numbers:

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.



			Workorder:	_1011399	Re	port Date:	22-JUN-11	Pa	ge 1 of 12
Client:	9 - 4905	fe NT X1A 3S3	TD						
Contact: Test	Sustine Of	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
			Kelerence	Result		Units		Linit	Analyzeu
C-DIS-ORG-LC		Water							
Batch WG1289206 Dissolved C	R2197842 6-2 LCS Drganic Carbo	on		103		%		80-120	02-JUN-11
WG1289206 Dissolved C	6-1 MB Drganic Carbo	on		<0.50		mg/L		0.5	02-JUN-11
C-TOT-ORG-LO	OW-ED	Water							
Batch	R2197842								
WG1289206 Total Organ	nic Carbon		L1011399-7 <0.50	<0.50	RPD-NA	mg/L	N/A	20	02-JUN-11
WG1289206 Total Orgar	nic Carbon			103		%		80-120	02-JUN-11
WG1289206 Total Orgar				<0.50		mg/L		0.5	02-JUN-11
WG1289206 Total Orgar			L1011399-6	117		%		70-130	02-JUN-11
HG-D-L-CVAA-	-ED	Water							
Batch WG1288893 Mercury (H	R2197781 3-2 LCS g)-Dissolved			107		%		80-120	02-JUN-11
WG1288893			WG1288893-2 107	106		%	1.4	20	02-JUN-11
WG1288893				<0.000020		mg/L		0.00002	02-JUN-11
WG1288893 Mercury (H	3-11 MS g)-Dissolved		L1009175-1	109		%		70-130	02-JUN-11
HG-T-L-CVAA-	ED	Water							
Batch WG1288893 Mercury (He			L1011399-7 <0.000020	<0.000020	RPD-NA	mg/L	N/A	20	02-JUN-11
WG1288893 Mercury (H	3-2 LCS			107		%		80-120	02-JUN-11
WG1288893 Mercury (H	3-3 LCSD		WG1288893-2 107	106		%	1.4	20	02-JUN-11
WG1288893 Mercury (H	3-1 MB			<0.000020		mg/L		0.00002	02-JUN-11
WG1288893 Mercury (H			L1011399-7	104		%		70-130	02-JUN-11
	-0	Water							

MET-D-L-ICP-ED

Water



		Workorder	L101139	99	Report Date: 2	2-JUN-11	Pa	age 2 of 1
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-ICP-ED	Water							
Batch R2197107								
WG1288034-2 CRM		EU-H-3_OPT			0/			
Calcium (Ca)-Dissolved	1		99		%		80-120	01-JUN-11
Iron (Fe)-Dissolved			98		%		80-120	01-JUN-11
Magnesium (Mg)-Disso			110		%		80-120	01-JUN-11
Manganese (Mn)-Disso			99		%		80-120	01-JUN-11
Potassium (K)-Dissolve			93		%		80-120	01-JUN-11
Sodium (Na)-Dissolved			95		%		80-120	01-JUN-11
WG1288034-1 MB Calcium (Ca)-Dissolved	ł		<0.20		mg/L		0.2	01-JUN-11
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	01-JUN-11
Magnesium (Mg)-Disso	lved		<0.10		mg/L		0.1	01-JUN-11
Manganese (Mn)-Disso	lved		<0.0020		mg/L		0.002	01-JUN-11
Potassium (K)-Dissolve	ed		<0.1		mg/L		0.1	01-JUN-11
Sodium (Na)-Dissolved			<0.50		mg/L		0.5	01-JUN-11
MET-D-L-MS-ED	Water							
Batch R2197547								
WG1288060-2 CRM		ED-HIGH-W						
Aluminum (Al)-Dissolve			97		%		80-120	01-JUN-11
Antimony (Sb)-Dissolve	d		97		%		80-120	01-JUN-11
Arsenic (As)-Dissolved			97		%		80-120	01-JUN-11
Barium (Ba)-Dissolved			98		%		80-120	01-JUN-11
Beryllium (Be)-Dissolve	d		99		%		80-120	01-JUN-11
Bismuth (Bi)-Dissolved			99		%		80-120	01-JUN-11
Boron (B)-Dissolved			92		%		80-120	01-JUN-11
Cadmium (Cd)-Dissolve	ed		99		%		80-120	01-JUN-11
Chromium (Cr)-Dissolv	ed		97		%		80-120	01-JUN-11
Cobalt (Co)-Dissolved			97		%		80-120	01-JUN-11
Copper (Cu)-Dissolved			94		%		80-120	01-JUN-11
Lead (Pb)-Dissolved			98		%		80-120	01-JUN-11
Molybdenum (Mo)-Diss	olved		98		%		80-120	01-JUN-11
Nickel (Ni)-Dissolved			97		%		80-120	01-JUN-11
Selenium (Se)-Dissolve	ed		100		%		80-120	01-JUN-11
Silver (Ag)-Dissolved			97		%		80-120	01-JUN-11
	d						00 100	
Strontium (Sr)-Dissolve	u		101		%		80-120	01-JUN-11



	Workorder:	L101139	9 Re	eport Date: 2	22-JUN-11	Pa	ge 3 of 1
est Mat	rix Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-ED War	ter						
Batch R2197547							
WG1288060-2 CRM	ED-HIGH-WA			0/			
Tin (Sn)-Dissolved		97		%		80-120	01-JUN-11
Titanium (Ti)-Dissolved		88		%		80-120	01-JUN-11
Uranium (U)-Dissolved		99		%		80-120	01-JUN-11
Vanadium (V)-Dissolved		96		%		80-120	01-JUN-11
Zinc (Zn)-Dissolved		96		%		80-120	01-JUN-11
WG1288060-1 MB Aluminum (Al)-Dissolved		<0.0050		mg/L		0.005	01-JUN-11
Antimony (Sb)-Dissolved		<0.00040		mg/L		0.0004	01-JUN-11
Arsenic (As)-Dissolved		<0.00040		mg/L		0.0004	01-JUN-11
Barium (Ba)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Beryllium (Be)-Dissolved		<0.00050		mg/L		0.0005	01-JUN-11
Bismuth (Bi)-Dissolved		<0.00005	D	mg/L		0.00005	01-JUN-11
Boron (B)-Dissolved		<0.0020		mg/L		0.002	01-JUN-11
Cadmium (Cd)-Dissolved		<0.00005	D	mg/L		0.00005	01-JUN-11
Chromium (Cr)-Dissolved		<0.00040		mg/L		0.0004	01-JUN-11
Cobalt (Co)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Copper (Cu)-Dissolved		<0.00060		mg/L		0.0006	01-JUN-11
Lead (Pb)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Molybdenum (Mo)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Nickel (Ni)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Selenium (Se)-Dissolved		<0.00040		mg/L		0.0004	01-JUN-11
Silver (Ag)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Strontium (Sr)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Thallium (TI)-Dissolved		<0.00005	C	mg/L		0.00005	01-JUN-11
Tin (Sn)-Dissolved		<0.00020		mg/L		0.0002	01-JUN-11
Titanium (Ti)-Dissolved		<0.00030		mg/L		0.0003	01-JUN-11
Uranium (U)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Vanadium (V)-Dissolved		<0.00010		mg/L		0.0001	01-JUN-11
Zinc (Zn)-Dissolved		<0.0010		mg/L		0.001	01-JUN-11
MET-T-L-ICP-ED Wa	ter						
Batch R2197819							
WG1288816-2 DUP Calcium (Ca)-Total	L1011399-7 <0.50	<0.50	RPD-NA	mg/L	N/A	20	02-JUN-11
Iron (Fe)-Total	<0.010	<0.010	RPD-NA	mg/L	N/A	20	02-JUN-11



		Workorder:	L1011399	Re	port Date: 2	22-JUN-11	Pa	ge 4 of 1
ſest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-ICP-ED	Water							
Batch R2197819								
WG1288816-2 DUP		L1011399-7	0.40			N 1/A		
Magnesium (Mg)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	02-JUN-11
Manganese (Mn)-Total		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	02-JUN-11
Potassium (K)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	02-JUN-11
Sodium (Na)-Total		<1.0	<1.0	RPD-NA	mg/L	N/A	20	02-JUN-11
WG1288797-2 LCS Calcium (Ca)-Total			104		%		80-120	02-JUN-11
Iron (Fe)-Total			103		%		80-120	02-JUN-11
Magnesium (Mg)-Total			104		%		80-120	02-JUN-11
Manganese (Mn)-Total			104		%		80-120	02-JUN-11
Potassium (K)-Total			100		%		80-120	02-JUN-11
Sodium (Na)-Total			104		%		80-120	02-JUN-11
WG1288797-1 MB Calcium (Ca)-Total			<0.50		mg/L		0.5	02-JUN-11
Iron (Fe)-Total			<0.010		mg/L		0.01	02-JUN-11
Magnesium (Mg)-Total			<0.10		mg/L		0.1	02-JUN-11
Manganese (Mn)-Total			<0.0020		mg/L		0.002	02-JUN-11
Potassium (K)-Total			<0.10		mg/L		0.1	02-JUN-11
Sodium (Na)-Total			<1.0		mg/L		1	02-JUN-11
WG1288816-1 MB Calcium (Ca)-Total			<0.50		mg/L		0.5	02-JUN-11
Iron (Fe)-Total			<0.010		mg/L		0.01	02-JUN-11 02-JUN-11
Magnesium (Mg)-Total			<0.10		mg/L		0.01	02-JUN-11
Manganese (Mn)-Total			<0.0020		mg/L		0.002	02-JUN-11
Potassium (K)-Total			<0.10		mg/L		0.002	02-JUN-11
Sodium (Na)-Total			<1.0		mg/L		1	02-JUN-11
WG1288816-3 MS		L1011399-7			J		-	02 001111
Calcium (Ca)-Total			98		%		70-130	02-JUN-11
Iron (Fe)-Total			96		%		70-130	02-JUN-11
Magnesium (Mg)-Total			100		%		70-130	02-JUN-11
Manganese (Mn)-Total			98		%		70-130	02-JUN-11
Potassium (K)-Total			93		%		70-130	02-JUN-11
Sodium (Na)-Total			98		%		70-130	02-JUN-11

MET-T-L-MS-ED

Water



		Workorder:	L1011399	Re	port Date: 2	22-JUN-11	Pa	age 5 of 12
Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-ED	Water							
Batch R2197838								
WG1288816-2 DUP		L1011399-7	0.040					
Aluminum (Al)-Total		<0.020	<0.010	RPD-NA	mg/L	N/A	20	02-JUN-11
Antimony (Sb)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	02-JUN-11
Arsenic (As)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	02-JUN-11
Barium (Ba)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-JUN-11
Beryllium (Be)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-JUN-11
Bismuth (Bi)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-JUN-11
Boron (B)-Total		<0.020	<0.0040	RPD-NA	mg/L	N/A	20	02-JUN-11
Cadmium (Cd)-Total		<0.00020	<0.000050	RPD-NA	mg/L	N/A	20	02-JUN-11
Chromium (Cr)-Total		<0.00080	<0.00080	RPD-NA	mg/L	N/A	20	02-JUN-11
Cobalt (Co)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-JUN-11
Copper (Cu)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-JUN-11
Lead (Pb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	02-JUN-11
Molybdenum (Mo)-Tota	I	<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	02-JUN-11
Nickel (Ni)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-JUN-11
Selenium (Se)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	02-JUN-11
Silver (Ag)-Total		<0.00040	<0.00010	RPD-NA	mg/L	N/A	20	02-JUN-11
Strontium (Sr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-JUN-11
Thallium (TI)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	02-JUN-11
Tin (Sn)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	02-JUN-11
Titanium (Ti)-Total		<0.0050	<0.00060	RPD-NA	mg/L	N/A	20	02-JUN-11
Uranium (U)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	02-JUN-11
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-JUN-11
Zinc (Zn)-Total		<0.0040	<0.0040	RPD-NA	mg/L	N/A	20	02-JUN-11
WG1288797-2 LCS					0/			
Aluminum (Al)-Total			98		%		80-120	02-JUN-11
Antimony (Sb)-Total			101		%		80-120	02-JUN-11
Arsenic (As)-Total			99		%		80-120	02-JUN-11
Barium (Ba)-Total			104		%		80-120	02-JUN-11
Beryllium (Be)-Total			98		%		80-120	02-JUN-11
Bismuth (Bi)-Total			100		%		80-120	02-JUN-11
Boron (B)-Total			100		%		80-120	02-JUN-11
Cadmium (Cd)-Total			100		%		80-120	02-JUN-11
Chromium (Cr)-Total			102		%		80-120	02-JUN-11
Cobalt (Co)-Total			105		%		80-120	02-JUN-11



		Workorder: L1011399		99	Report Date: 22-JUN-11		Page 6 of 12	
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-ED	Water							
Batch R21978	38							
WG1288797-2 LCS	S		104		0/		00.400	
Copper (Cu)-Total			104 97		%		80-120	02-JUN-11
Lead (Pb)-Total			-		%		80-120	02-JUN-11
Molybdenum (Mo)-Total Nickel (Ni)-Total			102		%		80-120	02-JUN-11
			105		%		80-120	02-JUN-11
Selenium (Se)-Total			103		%		80-120	02-JUN-11
Silver (Ag)-Total			95		%		80-120	02-JUN-11
Strontium (Sr)-Total			103		%		80-120	02-JUN-11
Thallium (TI)-Total			104		%		80-120	02-JUN-11
Tin (Sn)-Total			101		%		80-120	02-JUN-11
Titanium (Ti)-Total			100		%		80-120	02-JUN-11
Uranium (U)-Total			92		%		80-120	02-JUN-11
Vanadium (V)-Total			100		%		80-120	02-JUN-11
Zinc (Zn)-Total			99		%		80-120	02-JUN-11
WG1288797-1 MB Aluminum (Al)-Total	6		<0.010		mg/L		0.01	02 11 11 14
Antimony (Sb)-Total			<0.00040	h	mg/L			02-JUN-11
			<0.00040		-		0.0004	02-JUN-11
Arsenic (As)-Total			<0.00040		mg/L		0.0004	02-JUN-11
Barium (Ba)-Total				J	mg/L		0.0002	02-JUN-11
Beryllium (Be)-Total			<0.0010	`	mg/L		0.001	02-JUN-11
Bismuth (Bi)-Total			<0.00020	J	mg/L		0.0002	02-JUN-11
Boron (B)-Total			<0.0040		mg/L		0.004	02-JUN-11
Cadmium (Cd)-Total			<0.00005		mg/L		0.00005	02-JUN-11
Chromium (Cr)-Total	I		<0.00080		mg/L		0.0008	02-JUN-11
Cobalt (Co)-Total			<0.00020)	mg/L		0.0002	02-JUN-11
Copper (Cu)-Total			<0.0010		mg/L		0.001	02-JUN-11
Lead (Pb)-Total			<0.00010		mg/L		0.0001	02-JUN-11
Molybdenum (Mo)-To	otal		<0.00010		mg/L		0.0001	02-JUN-11
Nickel (Ni)-Total			<0.00020)	mg/L		0.0002	02-JUN-11
Selenium (Se)-Total			<0.00040		mg/L		0.0004	02-JUN-11
Silver (Ag)-Total			<0.00010		mg/L		0.0001	02-JUN-11
Strontium (Sr)-Total			<0.00020)	mg/L		0.0002	02-JUN-11
Thallium (TI)-Total			<0.00010)	mg/L		0.0001	02-JUN-11
Tin (Sn)-Total			<0.00040)	mg/L		0.0004	02-JUN-11
Titanium (Ti)-Total			<0.00060)	mg/L		0.0006	02-JUN-11



		Workorder:	L1011399)	Report Date: 22	2-JUN-11	Pa	ge 7 of [·]
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-ED	Water							
Batch R2197838								
WG1288797-1 MB			0.0004.0					
Uranium (U)-Total			<0.00010		mg/L		0.0001	02-JUN-11
Vanadium (V)-Total			<0.00050		mg/L		0.0005	02-JUN-11
Zinc (Zn)-Total			<0.0040		mg/L		0.004	02-JUN-11
WG1288816-1 MB Aluminum (Al)-Total			<0.010		mg/L		0.01	02-JUN-11
Antimony (Sb)-Total			<0.00040		mg/L		0.0004	02-JUN-11
Arsenic (As)-Total			<0.00040		mg/L		0.0004	02-JUN-11
Barium (Ba)-Total			<0.00020		mg/L		0.0002	02-JUN-11
Beryllium (Be)-Total			<0.0010		mg/L		0.001	02-JUN-11
Bismuth (Bi)-Total			<0.00020		mg/L		0.0002	02-JUN-11
Boron (B)-Total			<0.0040		mg/L		0.004	02-JUN-11
Cadmium (Cd)-Total			<0.000050		mg/L		0.00005	02-JUN-11
Chromium (Cr)-Total			<0.00080		mg/L		0.0008	02-JUN-11
Cobalt (Co)-Total			<0.00020		mg/L		0.0002	02-JUN-11
Copper (Cu)-Total			<0.0010		mg/L		0.001	02-JUN-11
Lead (Pb)-Total			<0.00010		mg/L		0.0001	02-JUN-11
Molybdenum (Mo)-Total			<0.00010		mg/L		0.0001	02-JUN-11
Nickel (Ni)-Total			<0.00020		mg/L		0.0002	02-JUN-11
Selenium (Se)-Total			<0.00040		mg/L		0.0004	02-JUN-11
Silver (Ag)-Total			<0.00010		mg/L		0.0001	02-JUN-11
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	02-JUN-11
Thallium (TI)-Total			<0.00010		mg/L		0.0001	02-JUN-11
Tin (Sn)-Total			<0.00040		mg/L		0.0004	02-JUN-11
Titanium (Ti)-Total			<0.00060		mg/L		0.0006	02-JUN-11
Uranium (U)-Total			<0.00010		mg/L		0.0001	02-JUN-11
Vanadium (V)-Total			<0.00050		mg/L		0.0005	02-JUN-11
Zinc (Zn)-Total			<0.0040		mg/L		0.004	02-JUN-11
WG1288816-3 MS Aluminum (Al)-Total		L1011399-7	118		%		70-130	02-JUN-11
Antimony (Sb)-Total			100		%		70-130	02-JUN-11
Arsenic (As)-Total			119		%		70-130	02-JUN-11
Barium (Ba)-Total			121		%		70-130	02-JUN-11
Beryllium (Be)-Total			115		%		70-130	02-JUN-11
Bismuth (Bi)-Total			97		%		70-130	02-JUN-11
Boron (B)-Total			118		%		70-130	02-JUN-11



		Workorder:	L101139	9 Re	eport Date:	22-JUN-11	Pa	age 8 of 12
Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-ED	Water							
Batch R2197838	3							
WG1288816-3 MS Cadmium (Cd)-Total		L1011399-7	119		%		70-130	02-JUN-11
Chromium (Cr)-Total			119		%		70-130	02-JUN-11
Cobalt (Co)-Total			123		%		70-130	02-JUN-11
Copper (Cu)-Total			126		%		70-130	02-JUN-11
Lead (Pb)-Total			115		%		70-130	02-JUN-11
Molybdenum (Mo)-Tota	al		102		%		70-130	02-JUN-11
Nickel (Ni)-Total			126		%		70-130	02-JUN-11
Selenium (Se)-Total			126		%		70-130	02-JUN-11
Silver (Ag)-Total			102		%		70-130	02-JUN-11
Strontium (Sr)-Total			119		%		70-130	02-JUN-11
Thallium (TI)-Total			117		%		70-130	02-JUN-11
Tin (Sn)-Total			98		%		70-130	02-JUN-11
Titanium (Ti)-Total			101		%		70-130	02-JUN-11
Uranium (U)-Total			121		%		70-130	02-JUN-11
Vanadium (V)-Total			118		%		70-130	02-JUN-11
Zinc (Zn)-Total			124		%		70-130	02-JUN-11
NO2+NO3-L-CFA-ED	Water							
Batch R2197387	7							
WG1288495-6 DUP Nitrate and Nitrite (as N	۷)	L1011399-7 <0.0060	<0.0060	RPD-NA	mg/L	N/A	20	01-JUN-11
WG1288495-3 LCS	I)		99		%		05 445	
Nitrate and Nitrite (as N	N)		99		70		85-115	01-JUN-11
WG1288495-2 MB Nitrate and Nitrite (as N	۷)		<0.0060		mg/L		0.006	01-JUN-11
WG1288495-5 MS Nitrate and Nitrite (as N	۷)	L1010772-1	97		%		75-125	01-JUN-11
NO2-L-CFA-ED	Water							
Batch R2197387	7							
WG1288495-6 DUP Nitrite (as N)		L1011399-7 <0.0020	<0.0020	RPD-NA	mg/L	N/A	20	01-JUN-11
WG1288495-3 LCS Nitrite (as N)			105		%		85-115	01-JUN-11
WG1288495-2 MB							00 110	
Nitrite (as N)			<0.0020		mg/L		0.002	01-JUN-11
WG1288495-5 MS Nitrite (as N)		L1010772-1	102		%		75-125	01-JUN-11



		Workorder:	L1011399) Re	eport Date: 2	2-JUN-11	Pa	ge 9 of 12
ſest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-T-L-COL-ED	Water							
Batch R2197652								
WG1288728-4 DUP Phosphorus (P)-Total		L1011399-6 <0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-JUN-11
WG1288728-3 LCS Phosphorus (P)-Total			103		%		80-120	02-JUN-11
WG1288728-2 MB Phosphorus (P)-Total			<0.0010		mg/L		0.001	02-JUN-11
WG1288728-5 MS Phosphorus (P)-Total		L1011399-6	112		%		70-130	02-JUN-11
P-TD-L-COL-ED	Water							
Batch R2197652								
WG1288728-3 LCS Phosphorus (P)-Total D	issolved		103		%		80-120	02-JUN-11
WG1288728-2 MB Phosphorus (P)-Total D	issolved		<0.0010		mg/L		0.001	02-JUN-11
SOLIDS-TOTSUS-ED	Water							
Batch R2197604								
WG1288619-6 DUP Total Suspended Solids		L1011399-2 4.0	14.0		mg/L	0.0	20	02-JUN-11
WG1288619-2 LCS Total Suspended Solids			98		%		85-115	02-JUN-11
WG1288619-1 MB Total Suspended Solids			<3.0		mg/L		3	02-JUN-11
TKN-L-CFA-ED	Water							
Batch R2197489								
WG1288662-5 DUP Total Kjeldahl Nitrogen		L1011399-6 <0.050	<0.050	RPD-NA	mg/L	N/A	20	02-JUN-11
WG1288662-2 LCS Total Kjeldahl Nitrogen			98		%		75-125	02-JUN-11
WG1288662-3 LCS Total Kjeldahl Nitrogen			94		%		75-125	02-JUN-11
WG1288662-4 LCS Total Kjeldahl Nitrogen			92		%		75-125	02-JUN-11
WG1288662-1 MB Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	02-JUN-11
WG1288662-6 MS Total Kjeldahl Nitrogen		L1011399-7	87		%		61-140	02-JUN-11



		Workorder	: L101139	99	Report Date: 22	2-JUN-11	P	age 10 of 12
Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TURBIDITY-ED	Water							
Batch R21974 WG1288858-1 MB								
Turbidity	-		<0.10		NTU		0.1	02-JUN-11

Workorder: L1011399

Report Date: 22-JUN-11

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Workorder: L1011399

Report Date: 22-JUN-11

Page 12 of 12

Hold Time Exceedances:

	Sample						
ALS Product Description	ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Anions and Nutrients							
Nitrate in Water (Calculation	ı)						
	1	31-MAY-11	06-JUN-11 15:08	48	147	hours	EHT
	2	31-MAY-11	06-JUN-11 15:08	48	147	hours	EHT
	3	31-MAY-11	02-JUN-11 13:28	48	49	hours	EHT
	4	31-MAY-11	02-JUN-11 13:28	48	49	hours	EHT
	5	31-MAY-11	02-JUN-11 13:28	48	49	hours	EHT
	6	31-MAY-11	02-JUN-11 13:28	48	49	hours	EHT
	7	31-MAY-11	02-JUN-11 13:28	48	49	hours	EHT

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended.
EHTR: Exceeded ALS recommended hold time prior to sample receipt.
EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry.
EHT: Exceeded ALS recommended hold time prior to analysis.
Rec. HT: ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes. Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1011399 were received on 01-JUN-11 10:29.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.

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Contact:	DCNJV: Katrina Nokleby; Golder: Justine Crowe	 PDF 	J Éxcel	Digital	Eax [O Priorit	/ (2-4 Bu:	siness Da	O Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT	urcharge	- Contact	ALS to C	Confirm T	AT	
Address:		Email 1:	jcrowe@golder.com	com		Emeri	ency (1-2	Bus. Da	Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT	Surcharge	- Contact	ALS to	Confirm	TAT	
		Email 2:	hmachtans@golder.com	older.com		O Same	Day or W	eekend E	\bigcirc Same Day or Weekend Emergency - Contact ALS to Confirm TAT	Contact	ILS to Con	firm TA	F		
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Invoice To	Same as Report?	Client / Pr	/ Project Information	uo		Pleas	e indica	te belov	Please indicate below Filtered, Preserved or both (F, P, F/P)	, Presei	ved or b	oth (F	P. F/F	2	_
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(lab (lab	Lab Work Order # 1/011399	ALS Contact:	Can Dang	Sampler:	Justine Crowe	iere¶ le		idnuT br		Greas		toT l s ve	siO leva	st of Co	_
Sample.	Sample Identification (This description will appear on the report)		Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	piskyc	DineyC Hardne	IS 221	NH3 \ . Nnfrier	one liQ			97 MO	oinqlu2	
	YK Back Bay 1 (Reci UN O M D UTM)		31-May-11		Surface Water	4	1	×)	 	<u> </u>	×		
	YK Back Bay 2 (d/2 house house		31-May-11		Surface Water		×	×	×			×	X	4	_
			31-May-11		Surface Water		×	×	×			×	X	4	
	YK Back Bay 4		31-May-11		Surface Water		×	×	×			X	×	4	
			A-May-P		Softace Water		*	ł	*			X			Ê.
	Back Bay Dock Area		31-May-11		Surface Water		×	×	×			×	×	4	—
	Field Blank		31-May-11		Surface Water		×	×	×			×	×	4	
	Travel Blank		31-May-11		Surface Water		×	×	×			×	×	4	
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	Special Instructions / Regulations with water or land use (land use (CCN	IE-Freshwater /	Aquatic Life/BC	CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details	al/AB T	er 1 - N	latural	etc) / Ha	Izardou	s Detail	s			
Please Ar	***Please Analyze As and Se by Hydride*. Please include Mercury in the metals analysis. Note - This water might contain high amounts of metals. All Samples are RUSH / EMERGENCY1!!!!	the metals ana	ysis. Note - Thi	s water might col	ntain high amount	s of me	als. All	Sampl	es are Rl	JSH / E	MERGE	NCYII	Ξ		- T
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	Also provided on another Excel tab are the ALS location addre	ition addresse	MENT RECEPT	sesses, phone numbers and sample c	sses, phone numbers and sample container / preservation / holding time table for common analyses. HithMENT RECEPTION /Ish use only)	rvation	/ holdi	ng time	ling time table for common analyses. SHIPMENT VERIFICATION (lab use only)	FICATI	ION (lab	lyses. Use of	MN.		300 #30
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ちして	10 X 31-Mm. 11 15:55	RS	1-2010-1		11.8 °C	_							Yes / No ? If Yes add	Yes / No ? If Yes add SiF	ш
				0. 4								GEN	GENF 18.01 Front	Front	L

Temp at 15:55 on May 31.11 was ~10°C

Jon C



DETON'CHO \ NUNA JOINT VENTURE ATTN: KATRINA NOKLEBY GIANT MINESITE PO BOX 2951 Yellowknife NT X1A 2R2 Date Received:06-JUN-11Report Date:10-JUN-11 18:27 (MT)Version:FINAL

Client Phone: 604-253-4188

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1013401 606989 09-1427-0006-20000-20500

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Comments:

Can Dang Senior Account Manager

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L1013401 CONTD.... PAGE 2 of 6 10-JUN-11 18:27 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1013401-1 WATER 06-JUN-11 12:00 REACH 0 (BC MOUTH)	L1013401-2 WATER 06-JUN-11 12:00 REACH 4 (D/S ICE AT BRIDGE)	L1013401-3 WATER 06-JUN-11 12:00 REACH 5 (D/S POND)	L1013401-4 WATER 06-JUN-11 12:00 FIELD BLANK	L1013401-5 WATER 06-JUN-11 12:00 TRAVEL BLANK
Grouping	Analyte					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	32.2	52.3	53.5	<0.50	<0.50
	Total Suspended Solids (mg/L)	2.6	2.6	4.2	<1.0	<1.0
	Turbidity (NTU)	3.88	3.64	3.98	0.25	0.55
Anions and Nutrients	Nitrate and Nitrite (as N) (mg/L)	<0.0051	0.0106	0.0177	<0.0051	<0.0051
	Nitrate (as N) (mg/L)	<0.0050	0.0106	0.0177	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.296	0.763	0.726	0.092	<0.050
	Phosphorus (P)-Total Dissolved (mg/L)	0.0031	0.0080	0.0076	<0.0020	<0.0020
	Phosphorus (P)-Total (mg/L)	0.0105	0.0226	0.0246	<0.0020	<0.0020
Total Metals	Aluminum (Al)-Total (mg/L)	0.130	0.150	0.103	<0.0030	<0.0030
	Antimony (Sb)-Total (mg/L)	0.00140	0.0102	0.0120	<0.00010	<0.00010
	Arsenic (As)-Total (mg/L)	0.0103	0.0678	0.0799	<0.00010	<0.00010
	Barium (Ba)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bismuth (Bi)-Total (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Calcium (Ca)-Total (mg/L)	8.33	13.7	14.3	<0.050	<0.050
	Chromium (Cr)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cobalt (Co)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Copper (Cu)-Total (mg/L)	0.00443	0.00614	0.0150	<0.00050	<0.00050
	Iron (Fe)-Total (mg/L)	0.133	0.238	0.235	<0.010	<0.010
	Lead (Pb)-Total (mg/L)	0.000521	0.000753	0.00120	<0.000050	<0.000050
	Lithium (Li)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Magnesium (Mg)-Total (mg/L)	2.68	3.81	3.88	<0.10	<0.10
	Manganese (Mn)-Total (mg/L)	0.0059	0.0212	0.0287	<0.0050	<0.0050
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	0.000206	0.000763	0.000794	<0.000050	<0.000050
	Nickel (Ni)-Total (mg/L)	0.00066	0.00196	0.00215	<0.00050	<0.00050
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)	0.580	0.368	0.279	<0.050	<0.050
	Silver (Ag)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Sodium (Na)-Total (mg/L)	2.6	3.1	3.2	<2.0	<2.0
	Strontium (Sr)-Total (mg/L)	0.0368	0.0547	0.0574	<0.0050	<0.0050
	Thallium (TI)-Total (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20

L1013401 CONTD.... PAGE 3 of 6 10-JUN-11 18:27 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1013401-1 WATER 06-JUN-11 12:00 REACH 0 (BC MOUTH)	L1013401-2 WATER 06-JUN-11 12:00 REACH 4 (D/S ICE AT BRIDGE)	L1013401-3 WATER 06-JUN-11 12:00 REACH 5 (D/S POND)	L1013401-4 WATER 06-JUN-11 12:00 FIELD BLANK	L1013401-5 WATER 06-JUN-11 12:00 TRAVEL BLANK
Grouping	Analyte					
WATER						
Total Metals	Tin (Sn)-Total (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Total (mg/L)	0.000254	0.000241	0.000223	<0.000010	<0.000010
	Vanadium (V)-Total (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Zinc (Zn)-Total (mg/L)	<0.0040	<0.0040	0.0062	<0.0040	<0.0040
Dissolved Metals	Aluminum (AI)-Dissolved (mg/L)	0.0101	0.0092	0.0061	<0.0030	<0.0030
	Antimony (Sb)-Dissolved (mg/L)	0.00133	0.0108	0.0117	<0.00010	<0.00010
	Arsenic (As)-Dissolved (mg/L)	0.00919	0.0654	0.0714	<0.00010	<0.00010
	Barium (Ba)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bismuth (Bi)-Dissolved (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Calcium (Ca)-Dissolved (mg/L)	8.46	14.4	14.9	<0.050	<0.050
	Chromium (Cr)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cobalt (Co)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Copper (Cu)-Dissolved (mg/L)	0.00120	0.00437	0.00919	<0.00050	<0.00050
	Iron (Fe)-Dissolved (mg/L)	<0.010	0.047	0.044	<0.010	<0.010
	Lead (Pb)-Dissolved (mg/L)	<0.000050	0.000191	0.000194	<0.000050	<0.000050
	Lithium (Li)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Magnesium (Mg)-Dissolved (mg/L)	2.68	3.95	3.98	<0.10	<0.10
	Manganese (Mn)-Dissolved (mg/L)	<0.0050	<0.0050	0.0113	<0.0050	<0.0050
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.000209	0.000791	0.000770	<0.000050	<0.000050
	Nickel (Ni)-Dissolved (mg/L)	0.00064	0.00181	0.00186	<0.00050	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)	0.365	0.142	0.126	<0.050	<0.050
	Silver (Ag)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Sodium (Na)-Dissolved (mg/L)	2.6	3.3	3.4	<2.0	<2.0
	Strontium (Sr)-Dissolved (mg/L)	0.0369	0.0571	0.0585	<0.0050	<0.0050
	Thallium (TI)-Dissolved (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Tin (Sn)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000240	0.000239	0.000219	<0.000010	<0.000010
	Vanadium (V)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030

L1013401 CONTD.... PAGE 4 of 6 10-JUN-11 18:27 (MT) Version: FINAL

		Sample ID Description Sampled Date Sampled Time Client ID	L1013401-1 WATER 06-JUN-11 12:00 REACH 0 (BC MOUTH)	L1013401-2 WATER 06-JUN-11 12:00 REACH 4 (D/S ICE AT BRIDGE)	L1013401-3 WATER 06-JUN-11 12:00 REACH 5 (D/S POND)	L1013401-4 WATER 06-JUN-11 12:00 FIELD BLANK	L1013401-5 WATER 06-JUN-11 12:00 TRAVEL BLANK
Grouping	Analyte						
WATER	Zinc (Zn)-Dissolved (mg/L)		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Descriptio	n		
MB-LOR	Method Bl analysis is		ALS DQO. LORs adjusted for samples with positiv	ve hits below 5 times blank level. Please contact ALS if re-
est Method F	References	:		
ALS Test Code	9	Matrix	Test Description	Method Reference**
ANIONS-N+N-0	CALC-VA	Water	Nitrite & Nitrate in Water (Calculation)	EPA 300.0
Nitrate and Ni	trite (as N) is	a calculated	parameter. Nitrate and Nitrite (as N) = Nitrite (as N	J) + Nitrate (as N).
ANIONS-NO2-I	C-VA	Water	Nitrite in Water by Ion Chromatography	EPA 300.0
This analysis detected by U			lures adapted from EPA Method 300.0 "Determina	tion of Inorganic Anions by Ion Chromatography". Nitrite is
ANIONS-NO3-I	C-VA	Water	Nitrate in Water by Ion Chromatography	EPA 300.0
This analysis detected by U			lures adapted from EPA Method 300.0 "Determina	tion of Inorganic Anions by Ion Chromatography". Nitrate is
ARDNESS-C	ALC-VA	Water	Hardness	APHA 2340B
			s) is calculated from the sum of Calcium and Mag centrations are preferentially used for the hardness	nesium concentrations, expressed in CaCO3 equivalents. s calculation.
IG-DIS-LOW-0	CVAFS-VA	Water	Dissolved Mercury in Water by CVAFS(Low)	EPA SW-846 3005A & EPA 245.7
American Pub States Environ involves a colo	blic Health As nmental Prote d-oxidation of	sociation, an ection Agency the acidified	d with procedures adapted from "Test Methods for y (EPA). The procedures may involve preliminary	mination of Water and Wastewater" published by the Evaluating Solid Waste" SW-846 published by the United sample treatment by filtration (EPA Method 3005A) and ction of the sample with stannous chloride. Instrumental
IG-TOT-LOW-	CVAFS-VA	Water	Total Mercury in Water by CVAFS(Low)	EPA 245.7
American Pub States Enviror	olic Health Ase nmental Prote	sociation, an ection Agency	d with procedures adapted from "Test Methods for y (EPA). The procedure involves a cold-oxidation of	mination of Water and Wastewater" published by the Evaluating Solid Waste" SW-846 published by the United of the acidified sample using bromine monochloride prior to omic fluorescence spectrophotometry (EPA Method 245.7)
MET-D-CCMS-	VA	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Pub States Enviror	olic Health Ase nmental Prote	sociation, an ection Agency	d with procedures adapted from "Test Methods for y (EPA). The procedures may involve preliminary	mination of Water and Wastewater" published by the Evaluating Solid Waste" SW-846 published by the United sample treatment by acid digestion, using hotblock, or asma - mass spectrometry (modifed from EPA Method
MET-DIS-ICP-\	/A	Water	Dissolved Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Pub States Enviror	olic Health Ase	sociation, an ection Agency	d with procedures adapted from "Test Methods for	mination of Water and Wastewater" published by the Evaluating Solid Waste" SW-846 published by the United ethod 3005A) and analysis by inductively coupled plasma -
MET-DIS-LOW	-ICP-VA	Water	Dissolved Metals in Water by ICPOES	EPA 3005A/6010B
American Pub States Enviror	olic Health Ase	sociation, an ection Agency	d with procedures adapted from "Test Methods for	mination of Water and Wastewater" published by the Evaluating Solid Waste" SW-846 published by the United ethod 3005A) and analysis by inductively coupled plasma -
MET-T-CCMS-	VA	Water	Total Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A
American Pub States Enviror	olic Health As nmental Prote	sociation, an ection Agency	d with procedures adapted from "Test Methods for y (EPA). The procedures may involve preliminary	mination of Water and Wastewater" published by the Evaluating Solid Waste" SW-846 published by the United sample treatment by acid digestion, using hotblock, or asma - mass spectrometry (modifed from EPA Method
MET-TOT-ICP-	VA	Water	Total Metals in Water by ICPOES	EPA SW-846 3005A/6010B
American Pub States Enviror	olic Health As nmental Prote	sociation, an ection Agency	d with procedures adapted from "Test Methods for y (EPA). The procedures may involve preliminary	mination of Water and Wastewater" published by the Evaluating Solid Waste" SW-846 published by the United sample treatment by acid digestion, using either hotblock o Isma - optical emission spectrophotometry (EPA Method
MET-TOT-LOW	V-ICP-VA	Water	Total Metals in Water by ICPOES	EPA 3005A/6010B
		mator	Total Metals III Water by ICFOES	

This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or

Reference Information

microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method

6010B). P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample. P-TD-COL-VA Water Total Dissolved P in Water by Colour APHA 4500-P Phosphorous This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Dissolved Phosphorous is determined colourimetrically after persulphate digestion of a sample that has been lab or field filtered through a 0.45 micron membrane filter. **TKN-COL-VA** Water TKN in Water by Colour APHA 4500-NORG (TKN) This analysis is carried out using procedures adapted from APHA Method 4500-Norg "Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined using automated colourimetry. **TSS-LOW-VA** Total Suspended Solids by Grav. (1 mg/L) Water APHA 2540 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. Water Turbidity by Meter APHA 2130 "Turbidity" TURBIDITY-VA This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method. **TURBIDITY-VA** Water Turbidity by Meter APHA 2130 Turbidity This analysis is carried out using procedures adapted from APHA Method 2130 "Turbidity". Turbidity is determined by the nephelometric method. ** ALS test methods may incorporate modifications from specified reference methods to improve performance. The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below: Laboratory Definition Code Laboratory Location VA ALS ENVIRONMENTAL - VANCOUVER, BC, CANADA Chain of Custody Numbers: 1

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.



			Workorder	: L101340	1	Report Date:	16-JUN-11	Pa	ge 1 of 15
Client:	GIANT M Yellowkni	INESITE PO E fe NT X1A 2F							
Contact:	KATRINA	NOKLEBY							
Test		Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ANIONS-NO2-IC-	VA	Water							
Batch F	2202243								
WG1292761-1 Nitrite (as N)	1 CRM		VA-IC-IVA2-I	ON23110 94		%		85-115	09-JUN-11
WG1292761-2 Nitrite (as N)	CRM		VA-IC-IVA2-I	ON23110 98		%		85-115	09-JUN-11
WG1292761-1 Nitrite (as N)	МВ			<0.0010		mg/L		0.001	09-JUN-11
WG1292761-1 Nitrite (as N)	0 MB			<0.0010		mg/L		0.001	09-JUN-11
WG1292761-4 Nitrite (as N)	МВ			<0.0010		mg/L		0.001	09-JUN-11
WG1292761-6 Nitrite (as N)	МВ			<0.0010		mg/L		0.001	09-JUN-11
WG1292761-8 Nitrite (as N)	МВ			<0.0010		mg/L		0.001	09-JUN-11
ANIONS-NO3-IC-	VA	Water		0.0010		<u>9</u> , <u>–</u>		0.001	03-3011-11
Batch F	2202243								
WG1292761-1 Nitrate (as N)	1 CRM		VA-IC-IVA2-I	ON23110 102		%		85-115	09-JUN-11
WG1292761-2 Nitrate (as N)	CRM		VA-IC-IVA2-I	ON23110 101		%		85-115	09-JUN-11
WG1292761-1 Nitrate (as N)	МВ			<0.0050		mg/L		0.005	09-JUN-11
WG1292761-1 Nitrate (as N)	0 MB			<0.0050		mg/L		0.005	09-JUN-11
WG1292761-4 Nitrate (as N)	МВ			<0.0050		mg/L		0.005	09-JUN-11
WG1292761-6 Nitrate (as N)	МВ			<0.0050		mg/L		0.005	09-JUN-11
WG1292761-8 Nitrate (as N)	МВ			<0.0050		mg/L		0.005	09-JUN-11
HG-DIS-LOW-CV	AFS-VA	Water				Ŭ			
	2200780								
WG1292392-2 Mercury (Hg)-	CRM		VA-HG-WAT	RM 95		%		80-120	08-JUN-11
WG1292392-1 Mercury (Hg)-				<0.00001	0	mg/L		0.00001	08-JUN-11



		Workorder:	L1013401	Re	eport Date: 1	6-JUN-11	Pa	ge 2 of 15
Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-DIS-LOW-CVAFS-VA	Water							
Batch R2201429								
WG1292302-2 DUP Mercury (Hg)-Dissolved		L1013401-1 <0.000010	<0.000010	RPD-NA	mg/L	N/A	20	09-JUN-11
WG1293039-2 LCS Mercury (Hg)-Dissolved			100		%		70-130	09-JUN-11
WG1292281-1 MB Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	09-JUN-11
WG1292302-1 MB Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	09-JUN-11
WG1292302-4 MB Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	09-JUN-11
WG1293039-1 MB Mercury (Hg)-Dissolved			<0.000010		mg/L		0.00001	09-JUN-11
HG-TOT-LOW-CVAFS-VA	Water							
Batch R2200780 WG1292392-2 CRM		VA-HG-WATF	RM					
Mercury (Hg)-Total			95		%		80-120	08-JUN-11
WG1292392-12 DUP Mercury (Hg)-Total		L1013401-3 <0.000010	<0.000010	RPD-NA	mg/L	N/A	20	08-JUN-11
WG1292392-1 MB Mercury (Hg)-Total			<0.000010		mg/L		0.00001	08-JUN-11
Batch R2201429 WG1293039-2 LCS Mercury (Hg)-Total			100		%		70-130	09-JUN-11
WG1293039-1 MB							10 100	
Mercury (Hg)-Total			<0.000010		mg/L		0.00001	09-JUN-11
MET-D-CCMS-VA	Water							
Batch R2201396								
WG1292281-1 MB Aluminum (Al)-Dissolved			<0.0030		mg/L		0.003	08-JUN-11
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	08-JUN-11
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	08-JUN-11
Cadmium (Cd)-Dissolved	ł		<0.00010		mg/L		0.0001	08-JUN-11
Copper (Cu)-Dissolved			<0.00050		mg/L		0.0005	08-JUN-11
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	08-JUN-11
Molybdenum (Mo)-Dissol	lved		<0.000050		mg/L		0.00005	08-JUN-11
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.00005	08-JUN-11 08-JUN-11
			~0.00000				0.0005	00-0011-11



		Workorder:	L1013401		Report Date: 1	6-JUN-11	Pa	ge 3 of 15
Fest M	latrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-CCMS-VA V	Vater							
Batch R2201396								
WG1292281-1 MB Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	08-JUN-11
Batch R2201600								
WG1292302-1 MB Aluminum (Al)-Dissolved			<0.0030		mg/L		0.003	09-JUN-11
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	09-JUN-11
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	09-JUN-11
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	09-JUN-11
Copper (Cu)-Dissolved			<0.00050		mg/L		0.0005	09-JUN-11
Lead (Pb)-Dissolved			<0.000050		mg/L		0.00005	09-JUN-11
Molybdenum (Mo)-Dissolve	ed		<0.000050		mg/L		0.00005	09-JUN-11
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	09-JUN-11
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	09-JUN-11
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	09-JUN-11
WG1292302-4 MB Aluminum (Al)-Dissolved			<0.0030		mg/L		0.003	09-JUN-11
Antimony (Sb)-Dissolved			<0.00010		mg/L		0.0001	09-JUN-11
Arsenic (As)-Dissolved			<0.00010		mg/L		0.0001	09-JUN-11
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	09-JUN-11
Copper (Cu)-Dissolved			<0.00050		mg/L		0.0005	09-JUN-11
Molybdenum (Mo)-Dissolve	ed		<0.000050		mg/L		0.00005	09-JUN-11
Nickel (Ni)-Dissolved			<0.00050		mg/L		0.0005	09-JUN-11
Selenium (Se)-Dissolved			<0.00010		mg/L		0.0001	09-JUN-11
Uranium (U)-Dissolved			<0.000010		mg/L		0.00001	09-JUN-11
Batch R2201855								
WG1292302-2 DUP Aluminum (Al)-Dissolved		L1013401-1 0.0101	0.0097		mg/L	3.8	20	09-JUN-11
Antimony (Sb)-Dissolved		0.00133	0.00135		mg/L	1.5	20	09-JUN-11
Arsenic (As)-Dissolved		0.00919	0.00923		mg/L	0.51	20	09-JUN-11
Cadmium (Cd)-Dissolved		<0.000050	<0.000010	RPD-N	NA mg/L	N/A	20	09-JUN-11
Copper (Cu)-Dissolved		0.00120	0.00119		mg/L	0.43	20	09-JUN-11
Lead (Pb)-Dissolved		<0.000050	<0.000050	RPD-N		N/A	20	09-JUN-11
Molybdenum (Mo)-Dissolve	ed	0.000209	0.000202		mg/L	3.5	20	09-JUN-11
Nickel (Ni)-Dissolved		0.00064	0.00057		mg/L	12	20	09-JUN-11
Selenium (Se)-Dissolved		<0.00010	<0.00010	RPD-N	IA mg/L	N/A	20	09-JUN-11



		Workorder:	L1013401	l Re	eport Date: 1	6-JUN-11	Pa	ge 4 of 1
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
IET-D-CCMS-VA	Water							
Batch R22018	355							
WG1292302-2 DU Uranium (U)-Dissolv		L1013401-1 0.000240	0.000240		mg/L	0.12	20	09-JUN-11
Batch R22019	072							
WG1292302-4 ME Lead (Pb)-Dissolved			0.000112	MB-LOR	mg/L		0.00005	09-JUN-11
Batch R22020)37							
WG1292281-2 CR	М	VA-HIGH-WA	TRM					
Aluminum (Al)-Disso			101		%		80-120	09-JUN-11
Antimony (Sb)-Disso			106		%		80-120	09-JUN-11
Arsenic (As)-Dissolv	ed		103		%		80-120	09-JUN-11
Cadmium (Cd)-Disso	olved		102		%		80-120	09-JUN-11
Copper (Cu)-Dissolv	red		99		%		80-120	09-JUN-11
Lead (Pb)-Dissolved			102		%		80-120	09-JUN-11
Molybdenum (Mo)-D	issolved		102		%		80-120	09-JUN-11
Nickel (Ni)-Dissolved	ł		104		%		80-120	09-JUN-11
Selenium (Se)-Disso	olved		100		%		80-120	09-JUN-11
Uranium (U)-Dissolv	ed		98		%		80-120	09-JUN-11
WG1292302-3 CR		VA-HIGH-WA						
Aluminum (Al)-Disso			101		%		80-120	09-JUN-11
Antimony (Sb)-Disso			106		%		80-120	09-JUN-11
Arsenic (As)-Dissolv			103		%		80-120	09-JUN-11
Cadmium (Cd)-Disso			102		%		80-120	09-JUN-11
Copper (Cu)-Dissolv	red		99		%		80-120	09-JUN-11
Lead (Pb)-Dissolved			102		%		80-120	09-JUN-11
Molybdenum (Mo)-D			102		%		80-120	09-JUN-11
Nickel (Ni)-Dissolved			104		%		80-120	09-JUN-11
Selenium (Se)-Disso	lved		100		%		80-120	09-JUN-11
Uranium (U)-Dissolv	ed		98		%		80-120	09-JUN-11
MET-DIS-ICP-VA	Water							
Batch R22014								
WG1292281-2 CR Barium (Ba)-Dissolve		VA-HIGH-WA	TRM 98		%		80.400	
			98 97		%		80-120	08-JUN-11
Beryllium (Be)-Disso							80-120	08-JUN-11
Bismuth (Bi)-Dissolv	ea		98		%		80-120	08-JUN-11



		Workorder	L101340)1	Report Date: 1	6-JUN-11	Page 5 of 15		
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
MET-DIS-ICP-VA	Water								
Batch R220142	3								
WG1292281-2 CRM	l	VA-HIGH-W/			0/				
Boron (B)-Dissolved	d		98 103		%		80-120	08-JUN-11	
Calcium (Ca)-Dissolve					%		80-120	08-JUN-11	
Chromium (Cr)-Dissol			96		%		80-120	08-JUN-11	
Cobalt (Co)-Dissolved			97		%		80-120	08-JUN-11	
Lithium (Li)-Dissolved	- L I		100		%		80-120	08-JUN-11	
Magnesium (Mg)-Diss			99		%		80-120	08-JUN-11	
Manganese (Mn)-Diss			97		%		80-120	08-JUN-11	
Phosphorus (P)-Disso			100		%		80-120	08-JUN-11	
Potassium (K)-Dissolv	ed		99		%		80-120	08-JUN-11	
Silicon (Si)-Dissolved			109		%		80-120	08-JUN-11	
Silver (Ag)-Dissolved			95		%		80-120	08-JUN-11	
Sodium (Na)-Dissolve	d		98		%		80-120	08-JUN-11	
Strontium (Sr)-Dissolv	ed		99		%		80-120	08-JUN-11	
Thallium (TI)-Dissolve	d		97		%		80-120	08-JUN-11	
Tin (Sn)-Dissolved			99		%		80-120	08-JUN-11	
Titanium (Ti)-Dissolve	d		102		%		80-120	08-JUN-11	
Vanadium (V)-Dissolve	ed		98		%		80-120	08-JUN-11	
WG1292302-3 CRM Barium (Ba)-Dissolved		VA-HIGH-W/	ATRM 98		%		80-120	08-JUN-11	
Beryllium (Be)-Dissolv			97		%		80-120	08-JUN-11	
Bismuth (Bi)-Dissolved			98		%		80-120	08-JUN-11	
Boron (B)-Dissolved	4		98		%		80-120	08-JUN-11	
Calcium (Ca)-Dissolved	h		90 103		%		80-120 80-120		
Chromium (Cr)-Dissolve			96		%			08-JUN-11	
Cobalt (Co)-Dissolved			90 97		%		80-120 80-120	08-JUN-11	
Lithium (Li)-Dissolved					%			08-JUN-11	
			100				80-120	08-JUN-11	
Magnesium (Mg)-Diss Manganese (Mn)-Diss			99 97		%		80-120	08-JUN-11	
o ()			97		%		80-120	08-JUN-11	
Phosphorus (P)-Disso			100		%		80-120	08-JUN-11	
Potassium (K)-Dissolv	eu		99		%		80-120	08-JUN-11	
Silicon (Si)-Dissolved			109		%		80-120	08-JUN-11	
Silver (Ag)-Dissolved			95		%		80-120	08-JUN-11	
Sodium (Na)-Dissolve			98		%		80-120	08-JUN-11	
Strontium (Sr)-Dissolv	ed		99		%		80-120	08-JUN-11	



		Workorder	: L101340)1	Report Date: 1	6-JUN-11	Page 6 of 15		
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
MET-DIS-ICP-VA	Water								
Batch R220142	3								
WG1292302-3 CRM		VA-HIGH-W							
Thallium (TI)-Dissolved	d		97		%		80-120	08-JUN-11	
Tin (Sn)-Dissolved			99		%		80-120	08-JUN-11	
Titanium (Ti)-Dissolved			102		%		80-120	08-JUN-11	
Vanadium (V)-Dissolve	ed		98		%		80-120	08-JUN-11	
WG1292281-1 MB Barium (Ba)-Dissolved	l		<0.010		mg/L		0.01	08-JUN-11	
Beryllium (Be)-Dissolv			< 0.0050		mg/L		0.005	08-JUN-11	
Bismuth (Bi)-Dissolved			<0.20		mg/L		0.2	08-JUN-11	
Boron (B)-Dissolved	-		<0.20		mg/L		0.2	08-JUN-11	
Calcium (Ca)-Dissolve	d		<0.10		mg/L		0.05	08-JUN-11 08-JUN-11	
Chromium (Cr)-Dissolv			<0.000		mg/L		0.03	08-JUN-11	
Cobalt (Co)-Dissolved			<0.010		mg/L		0.01	08-JUN-11	
Lithium (Li)-Dissolved			<0.010		mg/L		0.01	08-JUN-11	
Magnesium (Mg)-Diss	olved		<0.10		mg/L		0.01	08-JUN-11	
Manganese (Mn)-Diss			<0.0050		mg/L		0.005	08-JUN-11	
Phosphorus (P)-Dissol			< 0.30		mg/L		0.3	08-JUN-11	
Potassium (K)-Dissolv			<2.0		mg/L		2	08-JUN-11	
Silicon (Si)-Dissolved			<0.050		mg/L		0.05	08-JUN-11	
Silver (Ag)-Dissolved			<0.010		mg/L		0.01	08-JUN-11	
Sodium (Na)-Dissolved	d		<2.0		mg/L		2	08-JUN-11	
Strontium (Sr)-Dissolve			<0.0050		mg/L		- 0.005	08-JUN-11	
Thallium (TI)-Dissolved			<0.20		mg/L		0.2	08-JUN-11	
Tin (Sn)-Dissolved			< 0.030		mg/L		0.03	08-JUN-11	
Titanium (Ti)-Dissolved	d		<0.010		mg/L		0.01	08-JUN-11	
Vanadium (V)-Dissolve			<0.030		mg/L		0.03	08-JUN-11	
WG1292302-1 MB					-				
Barium (Ba)-Dissolved	l		<0.010		mg/L		0.01	08-JUN-11	
Beryllium (Be)-Dissolve	ed		<0.0050		mg/L		0.005	08-JUN-11	
Bismuth (Bi)-Dissolvec	ł		<0.20		mg/L		0.2	08-JUN-11	
Boron (B)-Dissolved			<0.10		mg/L		0.1	08-JUN-11	
Calcium (Ca)-Dissolve	d		<0.050		mg/L		0.05	08-JUN-11	
Chromium (Cr)-Dissol	ved		<0.010		mg/L		0.01	08-JUN-11	
Cobalt (Co)-Dissolved			<0.010		mg/L		0.01	08-JUN-11	
Lithium (Li)-Dissolved			<0.010		mg/L		0.01	08-JUN-11	
Magnesium (Mg)-Disse	olved		<0.10		mg/L		0.1	08-JUN-11	



		Workorder	: L101340	1	Report Date: 1	6-JUN-11	Pa	age 7 of 1
Fest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	Water							
Batch R2201	423							
WG1292302-1 M								
Manganese (Mn)-D			<0.0050		mg/L		0.005	08-JUN-11
Phosphorus (P)-Dis			<0.30		mg/L		0.3	08-JUN-11
Potassium (K)-Diss			<2.0		mg/L		2	08-JUN-11
Silicon (Si)-Dissolve			<0.050		mg/L		0.05	08-JUN-11
Silver (Ag)-Dissolve			<0.010		mg/L		0.01	08-JUN-11
Sodium (Na)-Disso			<2.0		mg/L		2	08-JUN-11
Strontium (Sr)-Diss	olved		<0.0050		mg/L		0.005	08-JUN-11
Thallium (TI)-Disso	lved		<0.20		mg/L		0.2	08-JUN-11
Tin (Sn)-Dissolved			<0.030		mg/L		0.03	08-JUN-11
Titanium (Ti)-Disso	lved		<0.010		mg/L		0.01	08-JUN-11
Vanadium (V)-Diss	olved		<0.030		mg/L		0.03	08-JUN-11
WG1292302-4 M Barium (Ba)-Dissol ¹			<0.010		mg/L		0.01	08-JUN-11
Beryllium (Be)-Diss			<0.0050		mg/L		0.005	08-JUN-11
Bismuth (Bi)-Dissol			<0.20		mg/L		0.2	08-JUN-11
Boron (B)-Dissolve			<0.10		mg/L		0.1	08-JUN-11
Calcium (Ca)-Disso			<0.050		mg/L		0.05	08-JUN-11
Chromium (Cr)-Dis			<0.010		mg/L		0.01	08-JUN-11
Cobalt (Co)-Dissolv			<0.010		mg/L		0.01	08-JUN-11
Lithium (Li)-Dissolv			<0.010		mg/L		0.01	08-JUN-11
Magnesium (Mg)-D			<0.10		mg/L		0.1	08-JUN-11
Manganese (Mn)-D			<0.0050		mg/L		0.005	08-JUN-11
Phosphorus (P)-Dis			<0.30		mg/L		0.3	08-JUN-11
Potassium (K)-Diss			<2.0		mg/L		0.0 2	08-JUN-11
Silicon (Si)-Dissolve			<0.050		mg/L		0.05	08-JUN-11
Silver (Ag)-Dissolve			<0.030		mg/L		0.05	
Sodium (Na)-Disso			<2.0		mg/L		2	08-JUN-11 08-JUN-11
Strontium (Sr)-Diss			<0.0050		mg/L		2 0.005	08-JUN-11 08-JUN-11
Thallium (TI)-Disso			<0.0000		mg/L		0.005	
Tin (Sn)-Dissolved	1100		<0.20		mg/L			08-JUN-11
Titanium (Ti)-Disso	lved		<0.030 <0.010		mg/L		0.03	08-JUN-11
Vanadium (V)-Disso					•		0.01	08-JUN-11
vanauium (v)-DISS	uveu		<0.030		mg/L		0.03	08-JUN-11



		Workorder:	L101340	1 Re	port Date: 1	I6-JUN-11	Pa	age 8 of 1
Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-DIS-ICP-VA	Water							
Batch R220	1578							
	DUP	L1013401-1	0.040					
Barium (Ba)-Disso		< 0.010	<0.010	RPD-NA	mg/L	N/A	20	09-JUN-11
Beryllium (Be)-Dis		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	09-JUN-11
Bismuth (Bi)-Disso		<0.20	<0.20	RPD-NA	mg/L	N/A	20	09-JUN-11
Boron (B)-Dissolve		<0.10	<0.10	RPD-NA	mg/L	N/A	20	09-JUN-11
Calcium (Ca)-Diss		8.46	8.50		mg/L	0.43	20	09-JUN-11
Chromium (Cr)-Dis		<0.010	<0.010	RPD-NA	mg/L	N/A	20	09-JUN-11
Cobalt (Co)-Dissol	ved	<0.010	<0.010	RPD-NA	mg/L	N/A	20	09-JUN-11
Lithium (Li)-Dissol	ved	<0.010	<0.010	RPD-NA	mg/L	N/A	20	09-JUN-11
Magnesium (Mg)-I	Dissolved	2.68	2.71		mg/L	1.0	20	09-JUN-11
Manganese (Mn)-I	Dissolved	<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	09-JUN-11
Phosphorus (P)-Di	issolved	<0.30	<0.30	RPD-NA	mg/L	N/A	20	09-JUN-11
Potassium (K)-Dis	solved	<2.0	<2.0	RPD-NA	mg/L	N/A	20	09-JUN-11
Silicon (Si)-Dissolv	/ed	0.365	0.363		mg/L	0.63	20	09-JUN-11
Silver (Ag)-Dissolv	red	<0.010	<0.010	RPD-NA	mg/L	N/A	20	09-JUN-11
Sodium (Na)-Disso	olved	2.6	2.6		mg/L	0.83	20	09-JUN-11
Strontium (Sr)-Dis	solved	0.0369	0.0371		mg/L	0.61	20	09-JUN-11
Thallium (TI)-Disso	olved	<0.20	<0.20	RPD-NA	mg/L	N/A	20	09-JUN-11
Tin (Sn)-Dissolved	1	<0.030	<0.030	RPD-NA	mg/L	N/A	20	09-JUN-11
Titanium (Ti)-Disso	olved	<0.010	<0.010	RPD-NA	mg/L	N/A	20	09-JUN-11
Vanadium (V)-Diss	solved	<0.030	<0.030	RPD-NA	mg/L	N/A	20	09-JUN-11
MET-DIS-LOW-ICP-V	A Water							
Batch R220	1423							
	RM	VA-HIGH-WA						
Iron (Fe)-Dissolve			96		%		80-120	08-JUN-11
Zinc (Zn)-Dissolve			96		%		80-120	08-JUN-11
WG1292302-3 C Iron (Fe)-Dissolved		VA-HIGH-WA	ATRM 96		%		80-120	08-JUN-11
Zinc (Zn)-Dissolve	d		96		%		80-120	08-JUN-11
WG1292281-1 M	ЛB							
Iron (Fe)-Dissolve			<0.010		mg/L		0.01	08-JUN-11
Zinc (Zn)-Dissolve	d		<0.0040		mg/L		0.004	08-JUN-11
WG1292302-1 M	ЛВ							
Iron (Fe)-Dissolve	d		<0.010		mg/L		0.01	08-JUN-11
Zinc (Zn)-Dissolve	d		<0.0040		mg/L		0.004	08-JUN-11
WG1292302-4 N	/R							

WG1292302-4 MB



		Workorder:	L1013401	Re	port Date: 1	6-JUN-11	Pa	ge 9 of 1
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
IET-DIS-LOW-ICP-VA	Water							
Batch R2201423								
WG1292302-4 MB								
Iron (Fe)-Dissolved			<0.010		mg/L		0.01	08-JUN-11
Zinc (Zn)-Dissolved			<0.0040		mg/L		0.004	08-JUN-11
Batch R2202236								
WG1292302-2 DUP Iron (Fe)-Dissolved		L1013401-1 <0.010	0.011	RPD-NA	mg/L	N/A	20	09-JUN-11
Zinc (Zn)-Dissolved		<0.0040	<0.0040	RPD-NA	mg/L	N/A N/A	20 20	09-JUN-11
		<0.0040	10.0040			IN/A	20	09-3011-11
IET-T-CCMS-VA	Water							
Batch R2201600 WG1292293-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	09-JUN-11
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	09-JUN-11
Arsenic (As)-Total			<0.00010		mg/L		0.0001	09-JUN-11
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	09-JUN-11
Copper (Cu)-Total			<0.00050		mg/L		0.0005	09-JUN-11
Lead (Pb)-Total			<0.000050		mg/L		0.00005	09-JUN-11
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	09-JUN-11
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	09-JUN-11
Selenium (Se)-Total			<0.00010		mg/L		0.0001	09-JUN-11
Uranium (U)-Total			<0.000010		mg/L		0.00001	09-JUN-11
WG1292406-1 MB								
Aluminum (Al)-Total			<0.0030		mg/L		0.003	09-JUN-11
Antimony (Sb)-Total			<0.00010		mg/L		0.0001	09-JUN-11
Arsenic (As)-Total			<0.00010		mg/L		0.0001	09-JUN-11
Cadmium (Cd)-Total			<0.000010		mg/L		0.00001	09-JUN-11
Copper (Cu)-Total			<0.00050		mg/L		0.0005	09-JUN-11
Lead (Pb)-Total			<0.000050		mg/L		0.00005	09-JUN-11
Molybdenum (Mo)-Total			<0.000050		mg/L		0.00005	09-JUN-11
Nickel (Ni)-Total			<0.00050		mg/L		0.0005	09-JUN-11
Selenium (Se)-Total			<0.00010		mg/L		0.0001	09-JUN-11
Uranium (U)-Total			<0.000010		mg/L		0.00001	09-JUN-11
Batch R2202037								
WG1292293-2 CRM		VA-HIGH-WA			0/		00.400	
Aluminum (Al)-Total			101		%		80-120	09-JUN-11
Antimony (Sb)-Total Arsenic (As)-Total			105 100		% %		80-120 80-120	09-JUN-11 09-JUN-11



		Workorder:	L101340)1	Report Date: 1	6-JUN-11	Page 10 of 15		
ſest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed	
MET-T-CCMS-VA	Water								
Batch R2202037									
WG1292293-2 CRM		VA-HIGH-WA							
Cadmium (Cd)-Total			100		%		80-120	09-JUN-11	
Copper (Cu)-Total			97		%		80-120	09-JUN-11	
Lead (Pb)-Total			101		%		80-120	09-JUN-11	
Molybdenum (Mo)-Tota	l		101		%		80-120	09-JUN-11	
Nickel (Ni)-Total			100		%		80-120	09-JUN-11	
Selenium (Se)-Total			98		%		80-120	09-JUN-11	
Uranium (U)-Total			95		%		80-120	09-JUN-11	
WG1292406-3 CRM		VA-HIGH-WA							
Aluminum (Al)-Total			104		%		80-120	09-JUN-11	
Antimony (Sb)-Total			108		%		80-120	09-JUN-11	
Arsenic (As)-Total			103		%		80-120	09-JUN-11	
Cadmium (Cd)-Total			103		%		80-120	09-JUN-11	
Copper (Cu)-Total			100		%		80-120	09-JUN-11	
Lead (Pb)-Total			104		%		80-120	09-JUN-11	
Molybdenum (Mo)-Tota	ıl		105		%		80-120	09-JUN-11	
Nickel (Ni)-Total			104		%		80-120	09-JUN-11	
Selenium (Se)-Total			100		%		80-120	09-JUN-11	
Uranium (U)-Total			98		%		80-120	09-JUN-11	
MET-TOT-ICP-VA	Water								
Batch R2201423									
WG1292406-3 CRM		VA-HIGH-WA							
Barium (Ba)-Total			101		%		80-120	08-JUN-11	
Beryllium (Be)-Total			100		%		80-120	08-JUN-11	
Bismuth (Bi)-Total			97		%		80-120	08-JUN-11	
Boron (B)-Total			99		%		80-120	08-JUN-11	
Calcium (Ca)-Total			105		%		80-120	08-JUN-11	
Chromium (Cr)-Total			100		%		80-120	08-JUN-11	
Cobalt (Co)-Total			99		%		80-120	08-JUN-11	
Lithium (Li)-Total			106		%		80-120	08-JUN-11	
Magnesium (Mg)-Total			102		%		80-120	08-JUN-11	
Manganese (Mn)-Total			100		%		80-120	08-JUN-11	
							~~ . ~ ~		
Phosphorus (P)-Total			101		%		80-120	08-JUN-11	
Phosphorus (P)-Total Potassium (K)-Total			101 103		%		80-120 80-120	08-JUN-11 08-JUN-11	



		Workorder	: L101340)1	Report Date: 1	6-JUN-11	Pa	ige 11 of 1
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-ICP-VA	Water							
Batch R2201423								
WG1292406-3 CRM		VA-HIGH-W						
Silver (Ag)-Total			101		%		80-120	08-JUN-11
Sodium (Na)-Total			102		%		80-120	08-JUN-11
Strontium (Sr)-Total			103		%		80-120	08-JUN-11
Thallium (TI)-Total			99		%		80-120	08-JUN-11
Tin (Sn)-Total			100		%		80-120	08-JUN-11
Titanium (Ti)-Total			105		%		80-120	08-JUN-11
Vanadium (V)-Total			102		%		80-120	08-JUN-11
WG1292406-1 MB Barium (Ba)-Total			<0.010		mg/L		0.01	08-JUN-11
Beryllium (Be)-Total			<0.0050		mg/L		0.005	08-JUN-11
Bismuth (Bi)-Total			<0.20		mg/L		0.2	08-JUN-11
Boron (B)-Total			<0.10		mg/L		0.1	08-JUN-11
Calcium (Ca)-Total			<0.050		mg/L		0.05	08-JUN-11
Chromium (Cr)-Total			<0.010		mg/L		0.01	08-JUN-11
Cobalt (Co)-Total			<0.010		mg/L		0.01	08-JUN-11
Lithium (Li)-Total			<0.010		mg/L		0.01	08-JUN-11
Magnesium (Mg)-Total			<0.10		mg/L		0.1	08-JUN-11
Manganese (Mn)-Total			<0.0050		mg/L		0.005	08-JUN-11
Phosphorus (P)-Total			<0.30		mg/L		0.3	08-JUN-11
Potassium (K)-Total			<2.0		mg/L		2	08-JUN-11
Silicon (Si)-Total			<0.050		mg/L		0.05	08-JUN-11
Silver (Ag)-Total			<0.010		mg/L		0.01	08-JUN-11
Sodium (Na)-Total			<2.0		mg/L		2	08-JUN-11
Strontium (Sr)-Total			<0.0050		mg/L		0.005	08-JUN-11
Thallium (TI)-Total			<0.20		mg/L		0.2	08-JUN-11
Tin (Sn)-Total			<0.030		mg/L		0.03	08-JUN-11
Titanium (Ti)-Total			<0.010		mg/L		0.01	08-JUN-11
Vanadium (V)-Total			<0.030		mg/L		0.03	08-JUN-11
MET-TOT-LOW-ICP-VA	Water							
Batch R2201423								
WG1292293-2 CRM Iron (Fe)-Total		VA-HIGH-W	ATRM 98		%		80-120	08-JUN-11
Zinc (Zn)-Total			96		%		80-120	08-JUN-11
WG1292406-3 CRM		VA-HIGH-W	ATRM					
Iron (Fe)-Total			101		%		80-120	08-JUN-11



				-	-			
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Fest I	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TOT-LOW-ICP-VA	Water							
Batch R2201423								
WG1292406-3 CRM Zinc (Zn)-Total		VA-HIGH-WA	TRM 97		%		80-120	08-JUN-11
WG1292293-1 MB Iron (Fe)-Total			<0.010		mg/L		0.01	08-JUN-11
Zinc (Zn)-Total			<0.0040		mg/L		0.004	08-JUN-11
WG1292406-1 MB Iron (Fe)-Total			<0.010		mg/L		0.01	08-JUN-11
Zinc (Zn)-Total			<0.0040		mg/L		0.004	08-JUN-11
	Watar				g, =		0.004	00-3011-11
	Water							
Batch R2201594								
WG1292767-11 CRM Phosphorus (P)-Total		VA-ERA-PO4	101		%		80-120	09-JUN-11
WG1292767-15 CRM Phosphorus (P)-Total		VA-ERA-PO4	102		%		80-120	09-JUN-11
WG1292767-2 CRM Phosphorus (P)-Total		VA-ERA-PO4	96		%		80-120	09-JUN-11
WG1292767-5 CRM Phosphorus (P)-Total		VA-ERA-PO4	100		%		80-120	09-JUN-11
WG1292767-8 CRM Phosphorus (P)-Total		VA-ERA-PO4	100		%		80-120	09-JUN-11
WG1292767-1 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	09-JUN-11
WG1292767-10 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	09-JUN-11
WG1292767-14 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	10-JUN-11
WG1292767-4 MB Phosphorus (P)-Total			<0.0020		mg/L		0.002	09-JUN-11
WG1292767-7 MB Phosphorus (P)-Total			< 0.0020		mg/L		0.002	09-JUN-11
	Water				····g, –		0.002	
	Talei							
Batch R2201594 WG1292767-11 CRM Phosphorus (P)-Total Disa	solved	VA-ERA-PO4	103		%		80-120	09-JUN-11
WG1292767-15 CRM Phosphorus (P)-Total Dis		VA-ERA-PO4						
WG1292767-2 CRM		VA-ERA-PO4	103		%		80-120	09-JUN-11
Phosphorus (P)-Total Dis	solved		101		%		80-120	09-JUN-11



	Workorder: I	_1013401		Report Date: 16	6-JUN-11	Pa	ige 13 of 15
Fest Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-TD-COL-VA Water							
Batch R2201594							
WG1292767-5 CRM Phosphorus (P)-Total Dissolved	VA-ERA-PO4	101		%		80-120	09-JUN-11
WG1292767-8 CRM Phosphorus (P)-Total Dissolved	VA-ERA-PO4	101		%		80-120	09-JUN-11
WG1292767-1 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	09-JUN-11
WG1292767-10 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	09-JUN-11
WG1292767-14 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	09-JUN-11
WG1292767-4 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	09-JUN-11
WG1292767-7 MB Phosphorus (P)-Total Dissolved		<0.0020		mg/L		0.002	09-JUN-11
FKN-COL-VA Water							
Batch R2201486							
WG1292538-2 CRM Total Kjeldahl Nitrogen	VA-TKN-CSPK	1 100		%		75-125	09-JUN-11
WG1292538-5 CRM Total Kjeldahl Nitrogen	VA-TKN-CSPK	1 95		%		75-125	09-JUN-11
WG1292538-1 MB Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	09-JUN-11
WG1292538-4 MB Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	09-JUN-11
Batch R2202276							
WG1293235-2 CRM Total Kjeldahl Nitrogen	VA-TKN-CSPK	1 102		%		75-125	10-JUN-11
WG1293235-5 CRM Total Kjeldahl Nitrogen	VA-TKN-CSPK	1 95		%		75-125	10-JUN-11
WG1293235-1 MB Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	10-JUN-11
WG1293235-4 MB Total Kjeldahl Nitrogen		<0.050		mg/L		0.05	10-JUN-11
TSS-LOW-VA Water							
Batch R2201403 WG1292512-2 LCS Total Suspended Solids		104		%		85-115	08-JUN-11
WG1292512-1 MB							



		Workorder:	L101340)1	Report Date: 16	-JUN-11	Pa	age 14 of 15
Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
TSS-LOW-VA	Water							
Batch R2201403								
WG1292512-1 MB								
Total Suspended Solids			<1.0		mg/L		1	08-JUN-11
TURBIDITY-VA	Water							
Batch R2201648								
WG1292885-11 CRM		VA-TURB-SF						
Turbidity			105		%		85-115	09-JUN-11
WG1292885-14 CRM Turbidity		VA-TURB-SF	יK-8 105		%		85-115	09-JUN-11
WG1292885-2 CRM Turbidity		VA-TURB-SP	°K-8 106		%		05 445	00 11 11 44
					70		85-115	09-JUN-11
WG1292885-5 CRM Turbidity		VA-TURB-SF	יK-8 105		%		85-115	09-JUN-11
WG1292885-8 CRM		VA-TURB-SP						
Turbidity			105		%		85-115	09-JUN-11
WG1292885-1 MB Turbidity			<0.10		NTU		0.1	09-JUN-11
WG1292885-10 MB								
Turbidity			<0.10		NTU		0.1	09-JUN-11
WG1292885-13 MB Turbidity			<0.10		NTU		0.1	09-JUN-11
WG1292885-4 MB Turbidity			<0.10		NTU		0.1	09-JUN-11
WG1292885-7 MB								
Turbidity			<0.10		NTU		0.1	09-JUN-11

Workorder: L1013401

Report Date: 16-JUN-11

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



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(ALS) Environmental

COC #

Page	(of)

Report To			ormat / Distribu	tion		Service Requested (Rush for routine analysis subject to availability)											
Company:	Deton'Cho/Nuna Joint Venture AND Golder As. Ltd.	Standard	Other			O Regular (Standard Turnaround Times - Business Days)											
Contact:	DCNJV: Katrina Nokleby; Golder: Justine Crowe	PDF Excel Digital Fax			O Pri	Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT											
Address:		Email 1:	jcrowe@golder	com		R En	Emergency (1-2 BUS. Days) - 100% Surcharge - Contact ALS to Confirm TAT										
1.		Email 2:	hmachtans@ge	older.com		O Sa	me Day	or We	ekend	Emerg	jency -	Conta	ct ALS t	to Conf	irm TA	т	
Phone:	867 669 6735 Fax:	Email 3;	KatrinaN@nun	alogistics.com						A	nalys	is Re	ques	t			
Invoice To	Same as Report ? Yes Vo	Client / Pr	oject Informati	ion		Ple	ase in	dicate	e belo	w Fil	tered,	Pres	erved	or bot	th (F,	P, F/	P)
Hardcopy of I	Invoice with Report? Yes No	Job #: 09-1427-0006-20000-20500															
Company:	Deton'Cho/Nuna Joint Venture	PO / AFE	606989			r lor										s	
Contact:	Brenda Kalis	LSD:				lajo										etal	
Address:	9838-31st Avenue., Edmonton AB, T6N 1C5					NS.									tals	NP	
Phone:	780 408 2897 Fax: 780 408 5472	Quote #:				leter			È						Ne	olve	
	Vork Order # L1013401	ALS Contact:	ALS Can Dang Sampler: Justine Crowe		Physical Parameters/Major lor		SS	TSS and Turbidity	s	KN	Grease			Low Level Total Metals	Low Level Dissolved Metals		
Sample #	Sample Identification (This description will appear on the report)		Date (dd-mmm-yy)	Time (hh.mm)	Sample Type	Physics	Cyanide	Hardness	TSS an	Nutrients	NH3 / TKN	Oil and	TOC	DOC	Low Le	Low Le	Sulphide
	Reach 0 (BC Mouth)		06-Jun-11		Surface Water			x	X	Х				1	X	x	
	Reach 4 (d/s Ice at Bridge)		06-Jun-11		Surface Water			x	X	X					X	x	
	Reach 5 (d/s Pond)	19	06-Jun-11		Surface Water			x	X	X					X	x	
	Field Blank		06-Jun-11		Surface Water			x	x	x					X	x	
	Travel Blank		06-Jun-11		Surface Water			X	X	X					X	X	
-																	
								_	_			_		-	_	_	-
						-		-	_	_		_	-	-	-	-	_
						-		+	_	-		-	-	-	-	-	+
	-					-		-	-				-		-	+	+
								+	-	-			-	-	-	-	+
	Special Instructions / Regulations with water or	and use (CCM	E-Ereshwater	Aquatic Life/BC	CSR - Commerci	ial/AR	Tier	1 - Na	tural	etcl	/Ha	rardo		atails	_	-	_
Please An	alyze As and Se by Hydride****. Please include Mercury in th Failure to complete	ne metals analy all portions o	eis. Note - Thia I this form may	water con / delay analysis	tain high amounts (, Please fill in thi	of met	als. A n LEG	ll San IBLY	nples	ere F	RUSH	/EM			HHI		
	By the use of this form the user at Also provided on another Excel tab are the ALS loca												mon a	analy	ses.		
	SHIPMENT RELEASE (client use)			TION (lab use on	the second se	1000		_	-	-	_	_		lab us	_	y)	
Released by		ved by:	Date: G- 1000 - 11	Time: 4:20	Temperature: 13 - 4 °C		fied by			Date			Time			Obser Yes /	No ?



GOLDER ASSOCIATES LTD ATTN: Justine Crowe 9 - 4905 48 Street Yellowknife NT X1A 3S3 Date Received: 08-JUN-11 Report Date: 17-JUN-11 16:27 (MT) Version: FINAL

Client Phone: 867-873-6319

Certificate of Analysis

1

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1014834 606989 09-1427-0006-20000-20500

Comments: ADDITIONAL 16-JUN-11 11:57

Shannon Luchka Account Manager

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L1014834 CONTD.... PAGE 2 of 7 17-JUN-11 16:27 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1014834-1 WATER 08-JUN-11 YK BAY B	L1014834-2 WATER 08-JUN-11 YK BAY C	L1014834-3 WATER 08-JUN-11 YK BAY F	L1014834-4 WATER 08-JUN-11 YK BAY G	L1014834-5 WATER 08-JUN-11 BACK BAY DOCK AREA
Grouping	Analyte					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	40.0	52.3	50.0	51.7	36.8
	Total Suspended Solids (mg/L)	<3.0	<3.0	3.0	<3.0	<3.0
	Turbidity (NTU)	3.23	3.31	2.56	2.37	1.92
Anions and Nutrients	Nitrate and Nitrite (as N) (mg/L)	0.0060	0.0084	0.0087	0.0111	<0.0060
	Nitrate (as N) (mg/L)	0.0060	0.0084	0.0087	0.0111	<0.0060
	Nitrite (as N) (mg/L)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
	Total Kjeldahl Nitrogen (mg/L)	0.486	0.732	0.552	0.918	0.238
	Phosphorus (P)-Total Dissolved (mg/L)	0.0044	0.0152	0.0056	0.0074	0.0018
	Phosphorus (P)-Total (mg/L)	0.0173	0.0249	0.0231	0.0259	0.0095
Total Metals	Aluminum (Al)-Total (mg/L)	0.104	0.120	0.104	0.113	0.237
	Antimony (Sb)-Total (mg/L)	0.00722	0.0135	0.0107	0.0131	0.00050
	Arsenic (As)-Total (mg/L)	0.0487	0.0900	0.0697	0.0864	0.00336
	Barium (Ba)-Total (mg/L)	0.00873	0.00861	0.00854	0.00830	0.0133
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Boron (B)-Total (mg/L)	<0.020	<0.020	<0.020	<0.020	<0.020
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Calcium (Ca)-Total (mg/L)	12.1	16.8	14.3	16.4	10.6
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080
	Cobalt (Co)-Total (mg/L)	<0.00020	0.00025	0.00020	0.00024	<0.00020
	Copper (Cu)-Total (mg/L)	0.0041	0.0069	0.0055	0.0066	0.0020
	Iron (Fe)-Total (mg/L)	0.177	0.249	0.200	0.241	0.104
	Lead (Pb)-Total (mg/L)	0.00048	0.00084	0.00067	0.00084	0.00017
	Magnesium (Mg)-Total (mg/L)	3.56	4.62	4.03	4.53	3.23
	Manganese (Mn)-Total (mg/L)	0.0116	0.0198	0.0153	0.0190	0.0032
	Mercury (Hg)-Total (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Molybdenum (Mo)-Total (mg/L)	0.00055	0.00082	0.00073	0.00085	0.00025
	Nickel (Ni)-Total (mg/L)	0.00138	0.00239	0.00180	0.00218	0.00084
	Potassium (K)-Total (mg/L)	1.26	1.41	1.40	1.42	1.21
	Selenium (Se)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Sodium (Na)-Total (mg/L)	3.2	5.0	4.0	4.8	3.2
	Strontium (Sr)-Total (mg/L)	0.0510	0.0677	0.0608	0.0660	0.0530
	Thallium (TI)-Total (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Tin (Sn)-Total (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Titanium (Ti)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Uranium (U)-Total (mg/L)	0.00028	0.00030	0.00028	0.00029	0.00031

L1014834 CONTD.... PAGE 3 of 7 17-JUN-11 16:27 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1014834-6 WATER 08-JUN-11 FIELD BLANK	L1014834-7 WATER 08-JUN-11 TRAVEL BLANK	L1014834-8 WATER 08-JUN-11 BAKER POND OUTFLOW	
Grouping	Analyte				
WATER					
Physical Tests	Hardness (as CaCO3) (mg/L)	<1.0	<1.0	42.0	
	Total Suspended Solids (mg/L)	<3.0	<3.0	3.0	
	Turbidity (NTU)	0.11	<0.10	2.97	
Anions and Nutrients	Nitrate and Nitrite (as N) (mg/L)	<0.0060	<0.0060	0.0065	
	Nitrate (as N) (mg/L)	<0.0060	<0.0060	<0.0063	
	Nitrite (as N) (mg/L)	<0.0020	<0.0020	0.0029	
	Total Kjeldahl Nitrogen (mg/L)	<0.050	<0.050	0.808	
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0010	<0.0010	0.0067	
	Phosphorus (P)-Total (mg/L)	<0.0010	<0.0010	0.0220	
Total Metals	Aluminum (Al)-Total (mg/L)	<0.020	<0.020	0.101	
	Antimony (Sb)-Total (mg/L)	<0.00040	<0.00040	0.00621	
	Arsenic (As)-Total (mg/L)	<0.00040	<0.00040	0.0554	
	Barium (Ba)-Total (mg/L)	<0.00020	<0.00020	0.00812	
	Beryllium (Be)-Total (mg/L)	<0.0010	<0.0010	<0.0010	
	Bismuth (Bi)-Total (mg/L)	<0.00020	<0.00020	<0.00020	
	Boron (B)-Total (mg/L)	<0.020	<0.020	<0.020	
	Cadmium (Cd)-Total (mg/L)	<0.00020	<0.00020	<0.00020	
	Calcium (Ca)-Total (mg/L)	<0.50	<0.50	12.3	
	Chromium (Cr)-Total (mg/L)	<0.00080	<0.00080	<0.00080	
	Cobalt (Co)-Total (mg/L)	<0.00020	<0.00020	<0.00020	
	Copper (Cu)-Total (mg/L)	<0.0010	<0.0010	0.0021	
	Iron (Fe)-Total (mg/L)	<0.010	<0.010	0.182	
	Lead (Pb)-Total (mg/L)	<0.00010	<0.00010	0.00079	
	Magnesium (Mg)-Total (mg/L)	<0.10	<0.10	3.73	
	Manganese (Mn)-Total (mg/L)	<0.0020	<0.0020	0.0222	
	Mercury (Hg)-Total (mg/L)	<0.000020	<0.000020	<0.000020	
	Molybdenum (Mo)-Total (mg/L)	<0.00010	<0.00010	0.00057	
	Nickel (Ni)-Total (mg/L)	<0.00020	<0.00020	0.00080	
	Potassium (K)-Total (mg/L)	<0.10	<0.10	1.27	
	Selenium (Se)-Total (mg/L)	<0.00040	<0.00040	<0.00040	
	Silver (Ag)-Total (mg/L)	<0.00040	<0.00040	<0.00040	
	Sodium (Na)-Total (mg/L)	<1.0	<1.0	2.8	
	Strontium (Sr)-Total (mg/L)	<0.00020	<0.00020	0.0468	
	Thallium (TI)-Total (mg/L)	<0.00010	<0.00010	<0.00010	
	Tin (Sn)-Total (mg/L)	<0.00040	<0.00040	<0.00040	
	Titanium (Ti)-Total (mg/L)	<0.0050	<0.0050	<0.0050	
	Uranium (U)-Total (mg/L)	<0.00010	<0.00010	0.00024	

L1014834 CONTD.... PAGE 4 of 7 17-JUN-11 16:27 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1014834-1 WATER 08-JUN-11 YK BAY B	L1014834-2 WATER 08-JUN-11 YK BAY C	L1014834-3 WATER 08-JUN-11 YK BAY F	L1014834-4 WATER 08-JUN-11 YK BAY G	L1014834-5 WATER 08-JUN-11 BACK BAY DOCK AREA
Grouping	Analyte					
WATER						
Total Metals	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Zinc (Zn)-Total (mg/L)	<0.0040	<0.0040	<0.0040	<0.0040	0.0069
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	<0.010	<0.010	0.010	<0.010	0.011
	Antimony (Sb)-Dissolved (mg/L)	0.00626	0.0111	0.0103	0.0122	0.00046
	Arsenic (As)-Dissolved (mg/L)	0.0388	0.0680	0.0617	0.0730	0.00443
	Barium (Ba)-Dissolved (mg/L)	0.00752	0.00735	0.00739	0.00733	0.0112
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Boron (B)-Dissolved (mg/L)	0.0081	0.0114	0.0110	0.0121	0.0066
	Cadmium (Cd)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Calcium (Ca)-Dissolved (mg/L)	11.3	15.0	14.3	14.9	10.3
	Chromium (Cr)-Dissolved (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	0.00015	0.00013	0.00015	<0.00010
	Copper (Cu)-Dissolved (mg/L)	0.00273	0.00430	0.00413	0.00504	0.00096
	Iron (Fe)-Dissolved (mg/L)	0.030	0.046	0.048	0.048	0.016
	Lead (Pb)-Dissolved (mg/L)	<0.00010	0.00015	0.00015	0.00022	<0.00010
	Magnesium (Mg)-Dissolved (mg/L)	2.87	3.61	3.46	3.52	2.69
	Manganese (Mn)-Dissolved (mg/L)	0.0044	0.0088	0.0084	0.0104	<0.0020
	Mercury (Hg)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	<0.000020	<0.000020
	Molybdenum (Mo)-Dissolved (mg/L)	0.00049	0.00073	0.00068	0.00081	0.00022
	Nickel (Ni)-Dissolved (mg/L)	0.00121	0.00187	0.00172	0.00198	0.00048
	Potassium (K)-Dissolved (mg/L)	1.05	1.28	1.32	1.26	1.10
	Selenium (Se)-Dissolved (mg/L)	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040
	Silver (Ag)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Sodium (Na)-Dissolved (mg/L)	2.92	4.03	4.04	4.03	3.02
	Strontium (Sr)-Dissolved (mg/L)	0.0478	0.0607	0.0595	0.0632	0.0480
	Thallium (TI)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Tin (Sn)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	<0.00030	<0.00030
	Uranium (U)-Dissolved (mg/L)	0.00026	0.00028	0.00027	0.00027	0.00028
	Vanadium (V)-Dissolved (mg/L)	0.00012	0.00018	0.00022	0.00025	<0.00010
	Zinc (Zn)-Dissolved (mg/L)	<0.0010	0.0016	0.0016	0.0026	<0.0010

L1014834 CONTD.... PAGE 5 of 7 17-JUN-11 16:27 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1014834-6 WATER 08-JUN-11 FIELD BLANK	L1014834-7 WATER 08-JUN-11 TRAVEL BLANK	L1014834-8 WATER 08-JUN-11 BAKER POND OUTFLOW	
Grouping	Analyte				
WATER					
Total Metals	Vanadium (V)-Total (mg/L)	<0.00050	<0.00050	<0.00050	
	Zinc (Zn)-Total (mg/L)	<0.0040	<0.0040	<0.0040	
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	<0.010	<0.010	0.014	
	Antimony (Sb)-Dissolved (mg/L)	<0.00040	<0.00040	0.00546	
	Arsenic (As)-Dissolved (mg/L)	0.00665	<0.00040	0.0484	
	Barium (Ba)-Dissolved (mg/L)	<0.00010	<0.00010	0.00738	
	Beryllium (Be)-Dissolved (mg/L)	<0.00050	<0.00050	<0.00050	
	Bismuth (Bi)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	
	Boron (B)-Dissolved (mg/L)	<0.0020	<0.0020	0.0081	
	Cadmium (Cd)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	
	Calcium (Ca)-Dissolved (mg/L)	<0.50	<0.50	11.8	
	Chromium (Cr)-Dissolved (mg/L)	<0.00040	<0.00040	<0.00040	
	Cobalt (Co)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	
	Copper (Cu)-Dissolved (mg/L)	<0.00060	<0.00060	0.00150	
	Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010	0.038	
	Lead (Pb)-Dissolved (mg/L)	<0.00010	<0.00010	0.00011	
	Magnesium (Mg)-Dissolved (mg/L)	<0.10	<0.10	3.05	
	Manganese (Mn)-Dissolved (mg/L)	<0.0020	<0.0020	0.0034	
	Mercury (Hg)-Dissolved (mg/L)	<0.000020	<0.000020	<0.000020	
	Molybdenum (Mo)-Dissolved (mg/L)	<0.00010	<0.00010	0.00058	
	Nickel (Ni)-Dissolved (mg/L)	<0.00010	<0.00010	0.00063	
	Potassium (K)-Dissolved (mg/L)	<0.10	<0.10	1.06	
	Selenium (Se)-Dissolved (mg/L)	<0.00040	<0.00040	<0.00040	
	Silver (Ag)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	
	Sodium (Na)-Dissolved (mg/L)	<0.50	<0.50	2.67	
	Strontium (Sr)-Dissolved (mg/L)	<0.00010	<0.00010	0.0450	
	Thallium (TI)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	
	Tin (Sn)-Dissolved (mg/L)	<0.00020	<0.00020	<0.00020	
	Titanium (Ti)-Dissolved (mg/L)	<0.00030	<0.00030	<0.00030	
	Uranium (U)-Dissolved (mg/L)	<0.00010	<0.00010	0.00022	
	Vanadium (V)-Dissolved (mg/L)	<0.00010	<0.00010	0.00019	
	Zinc (Zn)-Dissolved (mg/L)	0.0013	<0.0010	<0.0010	

Reference Information

Qualifier	Description		
SFPL	Sample was I	Filtered and Preserved at the laboratory - TDP-low	N
Qualifiers for Individua	al Parameters	Listed:	
Qualifier Descri	otion		
RRV Report	ed Result Veril	fied By Repeat Analysis	
est Method Reference	es:		
ALS Test Code	Matrix	Test Description	Method Reference**
ETL-HARDNESS-DIS-EI	Water	Hardness (from Dissolved Ca and Mg)	APHA 2340 B-Calculation
HG-D-L-CVAA-ED	Water	Mercury (Hg) - Dissolved	EPA 245.7 / EPA 245.1
HG-T-L-CVAA-ED	Water	Mercury (Hg)	EPA 245.7 / EPA 245.1
MET-D-L-ICP-ED	Water	Diss. Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-D-L-MS-ED	Water	Diss. Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
MET-T-L-ICP-ED	Water	Total Metals in Water by ICPOES (Low)	APHA 3120 B-ICP-OES
MET-T-L-MS-ED	Water	Total Metals in Water by ICPMS (Low)	SW 846 - 6020-ICPMS
NO2+NO3-L-CFA-ED	Water	Nitrite & Nitrate in Water by Colour	APHA 4500 NO3-F
This analysis is carried	out using proce	edures adapted from APHA Method 4500 NO3-F	"Automated Cadmium Reduction Method".
NO2-L-CFA-ED	Water	Nitrite in Water by Colour	APHA 4500 NO2-A and NO3-F
This analysis is carried reduction step to be sel			"Automated Cadmium Reduction Method", omitting the Cu-Cd
NO3-L-CALC-ED	Water	Nitrate in Water (Calculation)	APHA 4500 NO3-F
Nitrate (as N) is a calcu = [Nitrate and Nitrite (a			
P-T-L-COL-ED	Water	Total P in Water by Colour	APHA 4500-P PHOSPHORUS
This analysis is carried after persulphate digest			sphorus". Total Phosphorus is determined colourimetrically
P-TD-L-COL-ED	Water	Total Dissolved P in Water by Colour	APHA 4500-P PHOSPHORUS
		edures adapted from APHA Method 4500-P "Phosestion of a sample that has been lab or field filtere	sphorus". Total Dissolved Phosphorous is determined d through a 0.45 micron membrane filter.
SOLIDS-TOTSUS-ED	Water	Total Suspended Solids	APHA 2540 D-Gravimetric
ſKN-L-CFA-ED	Water	TKN in Water by Colour	APHA 4500-NORG (TKN)
		edures adapted from APHA Method 4500-Norg "N nalysis using an automated colourimetric finish.	litrogen (Organic)". Total Kjeldahl Nitrogen is determined by
FURBIDITY-ED	Water	Turbidity	APHA 2130 B-Nephelometer
ALS test methods may i	ncorporate mo	difications from specified reference methods to in	nprove performance.
	above test as	do(a) indicate the laboratory that performed analy	tical analysis for that test. Refer to the list below:
The last two letters of the	above lest co	de(s) indicate the laboratory that performed analy	
The last two letters of the aboratory Definition C		ratory Location	

Chain of Custody Numbers:

1

Reference Information

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. mg/kg - milligrams per kilogram based on dry weight of sample.

mg/kg wwt - milligrams per kilogram based on wet weight of sample.

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.

mg/L - milligrams per litre.

< - Less than.

D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.



		Workorder:	L1014834	Re	port Date:	17-JUN-11	Pa	ge 1 of 13
Onont.	GOLDER ASSOCIATE 9 - 4905 48 Street Yellowknife NT X1A 3							
Contact.	Justine Crowe	Defenses	Descrit Or		11-24-		1.1	A
Test	Matrix	Reference	Result Qu	ualifier	Units	RPD	Limit	Analyzed
HG-D-L-CVAA-ED	Water							
Batch R2 WG1297758-2 Mercury (Hg)-D	2205708 LCS Dissolved		115		%		80-120	17-JUN-11
WG1297758-1 Mercury (Hg)-D	MB Dissolved		<0.000020		mg/L		0.00002	17-JUN-11
HG-T-L-CVAA-ED	Water							
Batch R2 WG1297758-4 Mercury (Hg)-T	2205708 DUP Total	L1014834-7 <0.000020	<0.000020	RPD-NA	mg/L	N/A	20	17-JUN-11
WG1297758-2 Mercury (Hg)-T	LCS		115		%		80-120	17-JUN-11
WG1297758-3 Mercury (Hg)-T	LCSD Total	WG1297758-2 115	119		%	3.6	20	17-JUN-11
WG1297758-1 Mercury (Hg)-T	MB Total		<0.000020		mg/L		0.00002	17-JUN-11
WG1297758-5 Mercury (Hg)-T	MS ^T otal	L1014834-7	115		%		70-130	17-JUN-11
MET-D-L-ICP-ED	Water							
	2203495							
WG1294988-2 Calcium (Ca)-E	CRM Dissolved	EU-H-3_OPTW	/ATER 110		%		80-120	13-JUN-11
Iron (Fe)-Disso			111		%		80-120	13-JUN-11
Magnesium (M			106		%		80-120	13-JUN-11
Manganese (M			111		%		80-120	13-JUN-11
Potassium (K)-	Dissolved		101		%		80-120	13-JUN-11
Sodium (Na)-D	lissolved		110		%		80-120	13-JUN-11
WG1294988-1	MB							
Calcium (Ca)-D	Dissolved		<0.20		mg/L		0.2	13-JUN-11
Iron (Fe)-Disso			<0.010		mg/L		0.01	13-JUN-11
Magnesium (M			<0.10		mg/L		0.1	13-JUN-11
Manganese (M			<0.0020		mg/L		0.002	13-JUN-11
Potassium (K)-			<0.10		mg/L		0.1	13-JUN-11
Sodium (Na)-D	vissolved		<0.50		mg/L		0.5	13-JUN-11
MET-D-L-MS-ED	Water							
WG1296180-2	2204986 CRM	ED-HIGH-WAT			0/		00.100	
Aluminum (Al)-			102		%		80-120	15-JUN-11
Antimony (Sb)-	UISSOIVED		101		%		80-120	15-JUN-11



	Workorder:	L101483	4	Report Date: 1	/-JUN-11	Pa	ge 2 of
est Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-ED Water							
Batch R2204986							
WG1296180-2 CRM	ED-HIGH-WA			0/		00.400	
Arsenic (As)-Dissolved		102 101		%		80-120	15-JUN-11
Barium (Ba)-Dissolved Beryllium (Be)-Dissolved		101		%		80-120	15-JUN-11
Bismuth (Bi)-Dissolved		102		%		80-120	15-JUN-11
Boron (B)-Dissolved		102 96		%		80-120	15-JUN-11
Cadmium (Cd)-Dissolved		90 103		%		80-120	15-JUN-11
		103		%		80-120	15-JUN-11
Chromium (Cr)-Dissolved		96		%		80-120	15-JUN-11
Cobalt (Co)-Dissolved Copper (Cu)-Dissolved		96 101		%		80-120	15-JUN-11
Lead (Pb)-Dissolved		100		%		80-120	15-JUN-11
Molybdenum (Mo)-Dissolved		95		%		80-120	15-JUN-11
Nickel (Ni)-Dissolved		95 102		%		80-120	15-JUN-11
Selenium (Se)-Dissolved		102		%		80-120	15-JUN-11
Silver (Ag)-Dissolved		95		%		80-120	15-JUN-11
Strontium (Sr)-Dissolved		95 105		%		80-120	15-JUN-11
Thallium (TI)-Dissolved		103		%		80-120	15-JUN-11
Tin (Sn)-Dissolved		97		%		80-120	15-JUN-11
Titanium (Ti)-Dissolved		97 103		%		80-120	15-JUN-11
Uranium (U)-Dissolved		95		%		80-120	15-JUN-11
Vanadium (V)-Dissolved		95 101		%		80-120	15-JUN-11
Zinc (Zn)-Dissolved		96				80-120	15-JUN-11
		90		%		80-120	15-JUN-11
WG1296180-1 MB Aluminum (Al)-Dissolved		<0.0050		mg/L		0.005	15-JUN-11
Antimony (Sb)-Dissolved		<0.00040		mg/L		0.0004	15-JUN-11
Arsenic (As)-Dissolved		<0.00040		mg/L		0.0004	15-JUN-11
Barium (Ba)-Dissolved		<0.00010		mg/L		0.0001	15-JUN-11
Beryllium (Be)-Dissolved		<0.00050		mg/L		0.0005	15-JUN-11
Bismuth (Bi)-Dissolved		<0.00005	0	mg/L		0.00005	15-JUN-11
Boron (B)-Dissolved		<0.0020		mg/L		0.002	15-JUN-11
Cadmium (Cd)-Dissolved		<0.00005	0	mg/L		0.00005	15-JUN-11
Chromium (Cr)-Dissolved		<0.00040		mg/L		0.0004	15-JUN-11
Cobalt (Co)-Dissolved		<0.00010		mg/L		0.0001	15-JUN-11
Copper (Cu)-Dissolved		<0.00060		mg/L		0.0006	15-JUN-11
Lead (Pb)-Dissolved		<0.00010		mg/L		0.0001	15-JUN-11



		Workorder:	L1014834	l Re	eport Date: 1	17-JUN-11	Pa	ge 3 of 1
ſest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-ED	Water							
Batch R2204	986							
WG1296180-1 ME			0.0004.0					
Molybdenum (Mo)-E			<0.00010		mg/L		0.0001	15-JUN-11
Nickel (Ni)-Dissolve			<0.00010		mg/L		0.0001	15-JUN-11
Selenium (Se)-Disso			<0.00040		mg/L		0.0004	15-JUN-11
Silver (Ag)-Dissolve			<0.00010		mg/L		0.0001	15-JUN-11
Strontium (Sr)-Disso			<0.00010		mg/L		0.0001	15-JUN-11
Thallium (TI)-Dissol	ved		<0.000050)	mg/L		0.00005	15-JUN-11
Tin (Sn)-Dissolved			<0.00020		mg/L		0.0002	15-JUN-11
Titanium (Ti)-Dissol			<0.00030		mg/L		0.0003	15-JUN-11
Uranium (U)-Dissolv			<0.00010		mg/L		0.0001	15-JUN-11
Vanadium (V)-Disso	lved		<0.00010		mg/L		0.0001	15-JUN-11
Zinc (Zn)-Dissolved			<0.0010		mg/L		0.001	15-JUN-11
MET-T-L-ICP-ED	Water							
Batch R22034	497							
WG1294485-2 DL	JP	L1014834-7	0.50		~~~/l			
Calcium (Ca)-Total		<0.50	<0.50	RPD-NA	mg/L	N/A	20	13-JUN-11
Iron (Fe)-Total	4-1	<0.010	<0.010	RPD-NA	mg/L	N/A	20	13-JUN-11
Magnesium (Mg)-To		<0.10	<0.10	RPD-NA	mg/L	N/A	20	13-JUN-11
Manganese (Mn)-To		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	13-JUN-11
Potassium (K)-Total		<0.10	<0.10	RPD-NA	mg/L	N/A	20	13-JUN-11
Sodium (Na)-Total		<1.0	<1.0	RPD-NA	mg/L	N/A	20	13-JUN-11
WG1294464-3 LC Calcium (Ca)-Total	S		97		%		90 100	4.4
Iron (Fe)-Total			99		%		80-120	14-JUN-11
Magnesium (Mg)-To) tol		99 99		%		80-120	14-JUN-11
Manganese (Mn)-To			99 96		%		80-120	14-JUN-11
5 ()					%		80-120	14-JUN-11
Potassium (K)-Total			96				80-120	14-JUN-11
Sodium (Na)-Total	_		99		%		80-120	14-JUN-11
WG1294464-1 ME Calcium (Ca)-Total	5		<0.50		mg/L		0.5	14-JUN-11
Iron (Fe)-Total			<0.010		mg/L		0.01	14-JUN-11
Magnesium (Mg)-To	otal		<0.10		mg/L		0.01	14-JUN-11
Manganese (Mn)-To			<0.0020		mg/L		0.002	14-JUN-11
Potassium (K)-Total			<0.10		mg/L		0.002	14-JUN-11
Sodium (Na)-Total			<1.0		mg/L			
	3		<1.0		iiig/L		1	14-JUN-11

WG1294464-2 MB



		Workorder:	L101483	4	Report Date: 17	7-JUN-11	Pa	age 4 of 1
lest .	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-ICP-ED	Water							
Batch R2203497								
WG1294464-2 MB Calcium (Ca)-Total			<0.50		mg/L		0.5	14-JUN-11
Iron (Fe)-Total			<0.010		mg/L		0.01	14-JUN-11
Magnesium (Mg)-Total			<0.10		mg/L		0.1	14-JUN-11
Manganese (Mn)-Total			<0.0020		mg/L		0.002	14-JUN-11
Potassium (K)-Total			<0.10		mg/L		0.1	14-JUN-11
Sodium (Na)-Total			<1.0		mg/L		1	14-JUN-11
WG1294485-1 MB Calcium (Ca)-Total			<0.50		mg/L		0.5	13-JUN-11
Iron (Fe)-Total			<0.010		mg/L		0.01	13-JUN-11
Magnesium (Mg)-Total			<0.10		mg/L		0.1	13-JUN-11
Manganese (Mn)-Total			<0.0020		mg/L		0.002	13-JUN-11
Potassium (K)-Total			<0.10		mg/L		0.1	13-JUN-11
Sodium (Na)-Total			<1.0		mg/L		1	13-JUN-11
WG1294464-6 MS		L1014355-1						
Calcium (Ca)-Total			105		%		70-130	15-JUN-11
Iron (Fe)-Total			109		%		70-130	15-JUN-11
Magnesium (Mg)-Total			116		%		70-130	15-JUN-11
Manganese (Mn)-Total			110		%		70-130	15-JUN-11
Potassium (K)-Total			107		%		70-130	15-JUN-11
Sodium (Na)-Total			105		%		70-130	15-JUN-11
WG1294464-8 MS Calcium (Ca)-Total		L1013733-3	110		%		70-130	15-JUN-11
Iron (Fe)-Total			109		%		70-130	15-JUN-11
Magnesium (Mg)-Total			114		%		70-130	15-JUN-11
Manganese (Mn)-Total			110		%		70-130	15-JUN-11
Potassium (K)-Total			107		%		70-130	15-JUN-11
Sodium (Na)-Total			111		%		70-130	15-JUN-11
WG1294485-3 MS		L1014834-7						
Calcium (Ca)-Total			108		%		70-130	13-JUN-11
Iron (Fe)-Total			100		%		70-130	13-JUN-11
Magnesium (Mg)-Total			93		%		70-130	13-JUN-11
Manganese (Mn)-Total			102		%		70-130	13-JUN-11
Potassium (K)-Total			102		%		70-130	13-JUN-11
Sodium (Na)-Total			94		%		70-130	13-JUN-11

MET-T-L-MS-ED

Water



		Workorder:	L1014834	Re	port Date: 1	7-JUN-11	Pa	age 5 of 1
ſest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-ED	Water							
Batch R22044	83							
WG1294485-2 DU	Р	L1014834-7						
Aluminum (Al)-Total		<0.020	<0.010	RPD-NA	mg/L	N/A	20	15-JUN-11
Antimony (Sb)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	15-JUN-11
Arsenic (As)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	15-JUN-11
Barium (Ba)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-JUN-11
Beryllium (Be)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUN-11
Bismuth (Bi)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-JUN-11
Boron (B)-Total		<0.020	<0.0040	RPD-NA	mg/L	N/A	20	15-JUN-11
Cadmium (Cd)-Total		<0.00020	<0.000050	RPD-NA	mg/L	N/A	20	15-JUN-11
Chromium (Cr)-Total	l	<0.00080	<0.00080	RPD-NA	mg/L	N/A	20	15-JUN-11
Cobalt (Co)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-JUN-11
Copper (Cu)-Total		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUN-11
Lead (Pb)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUN-11
Molybdenum (Mo)-To	otal	<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUN-11
Nickel (Ni)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-JUN-11
Selenium (Se)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	15-JUN-11
Silver (Ag)-Total		<0.00040	<0.00010	RPD-NA	mg/L	N/A	20	15-JUN-11
Strontium (Sr)-Total		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	15-JUN-11
Thallium (TI)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUN-11
Tin (Sn)-Total		<0.00040	<0.00040	RPD-NA	mg/L	N/A	20	15-JUN-11
Titanium (Ti)-Total		<0.0050	<0.00060	RPD-NA	mg/L	N/A	20	15-JUN-11
Uranium (U)-Total		<0.00010	<0.00010	RPD-NA	mg/L	N/A	20	15-JUN-11
Vanadium (V)-Total		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	15-JUN-11
Zinc (Zn)-Total		<0.0040	<0.0040	RPD-NA	mg/L	N/A	20	15-JUN-11
WG1294464-3 LC	S							
Aluminum (Al)-Total			103		%		80-120	15-JUN-11
Antimony (Sb)-Total			105		%		80-120	15-JUN-11
Arsenic (As)-Total			105		%		80-120	15-JUN-11
Barium (Ba)-Total			96		%		80-120	15-JUN-11
Beryllium (Be)-Total			100		%		80-120	15-JUN-11
Bismuth (Bi)-Total			97		%		80-120	15-JUN-11
Boron (B)-Total			92		%		80-120	15-JUN-11
Cadmium (Cd)-Total			106		%		80-120	15-JUN-11
Chromium (Cr)-Total	l		104		%		80-120	15-JUN-11
Cobalt (Co)-Total			97		%		80-120	15-JUN-11



		Workorder:	L101483	34	Report Date: 1	7-JUN-11	Pa	nge 6 of 1
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-ED	Water							
Batch R2204483	3							
WG1294464-3 LCS			402		0/			
Copper (Cu)-Total			103		%		80-120	15-JUN-11
Lead (Pb)-Total	.1		103		%		80-120	15-JUN-11
Molybdenum (Mo)-Tota	1		94		%		80-120	15-JUN-11
Nickel (Ni)-Total			104		%		80-120	15-JUN-11
Selenium (Se)-Total			107		%		80-120	15-JUN-11
Silver (Ag)-Total			96		%		80-120	15-JUN-11
Strontium (Sr)-Total			105		%		80-120	15-JUN-11
Thallium (TI)-Total			107		%		80-120	15-JUN-11
Tin (Sn)-Total			99		%		80-120	15-JUN-11
Titanium (Ti)-Total			97		%		80-120	15-JUN-11
Uranium (U)-Total			105		%		80-120	15-JUN-11
Vanadium (V)-Total			104		%		80-120	15-JUN-11
Zinc (Zn)-Total			110		%		80-120	15-JUN-11
WG1294464-4 LCS								
Aluminum (Al)-Total			103		%		80-120	15-JUN-11
Antimony (Sb)-Total			101		%		80-120	15-JUN-11
Arsenic (As)-Total			104		%		80-120	15-JUN-11
Barium (Ba)-Total			96		%		80-120	15-JUN-11
Beryllium (Be)-Total			98		%		80-120	15-JUN-11
Bismuth (Bi)-Total			107		%		80-120	15-JUN-11
Boron (B)-Total			96		%		80-120	15-JUN-11
Cadmium (Cd)-Total			105		%		80-120	15-JUN-11
Chromium (Cr)-Total			103		%		80-120	15-JUN-11
Cobalt (Co)-Total			96		%		80-120	15-JUN-11
Copper (Cu)-Total			102		%		80-120	15-JUN-11
Lead (Pb)-Total			102		%		80-120	15-JUN-11
Molybdenum (Mo)-Tota	al		96		%		80-120	15-JUN-11
Nickel (Ni)-Total			103		%		80-120	15-JUN-11
Selenium (Se)-Total			102		%		80-120	15-JUN-11
Silver (Ag)-Total			95		%		80-120	15-JUN-11
Strontium (Sr)-Total			106		%		80-120	15-JUN-11
Thallium (TI)-Total			107		%		80-120	15-JUN-11
Tin (Sn)-Total			100		%		80-120	15-JUN-11
Titanium (Ti)-Total			100		%		80-120	15-JUN-11



		Workorder	: L101483	4	Report Date: 1	7-JUN-11	Pa	ge 7 of 1
est	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-ED	Water							
Batch R2204483	3							
WG1294464-4 LCS			407		0/			
Uranium (U)-Total			107 103		%		80-120	15-JUN-11
Vanadium (V)-Total					%		80-120	15-JUN-11
Zinc (Zn)-Total			107		70		80-120	15-JUN-11
WG1294464-1 MB Aluminum (Al)-Total			<0.010		mg/L		0.01	15-JUN-11
Antimony (Sb)-Total			<0.00040)	mg/L		0.0004	15-JUN-11
Arsenic (As)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Barium (Ba)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Beryllium (Be)-Total			<0.0010		mg/L		0.001	15-JUN-11
Bismuth (Bi)-Total			<0.00020)	mg/L		0.0002	15-JUN-11
Boron (B)-Total			<0.0040		mg/L		0.004	15-JUN-11
Cadmium (Cd)-Total			<0.00005	0	mg/L		0.00005	15-JUN-11
Chromium (Cr)-Total			<0.00080)	mg/L		0.0008	15-JUN-11
Cobalt (Co)-Total			<0.00020)	mg/L		0.0002	15-JUN-11
Copper (Cu)-Total			<0.0010		mg/L		0.001	15-JUN-11
Lead (Pb)-Total			<0.00010)	mg/L		0.0001	15-JUN-11
Molybdenum (Mo)-Tota	al		<0.00010)	mg/L		0.0001	15-JUN-11
Nickel (Ni)-Total			<0.00020)	mg/L		0.0002	15-JUN-11
Selenium (Se)-Total			<0.00040)	mg/L		0.0004	15-JUN-11
Silver (Ag)-Total			<0.00010)	mg/L		0.0001	15-JUN-11
Strontium (Sr)-Total			<0.00020)	mg/L		0.0002	15-JUN-11
Thallium (TI)-Total			<0.00010)	mg/L		0.0001	15-JUN-11
Tin (Sn)-Total			<0.00040)	mg/L		0.0004	15-JUN-11
Titanium (Ti)-Total			<0.00060)	mg/L		0.0006	15-JUN-11
Uranium (U)-Total			<0.00010)	mg/L		0.0001	15-JUN-11
Vanadium (V)-Total			<0.00050)	mg/L		0.0005	15-JUN-11
Zinc (Zn)-Total			<0.0040		mg/L		0.004	15-JUN-11
WG1294464-2 MB								
Aluminum (Al)-Total			<0.010		mg/L		0.01	15-JUN-11
Antimony (Sb)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Arsenic (As)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Barium (Ba)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Beryllium (Be)-Total			<0.0010		mg/L		0.001	15-JUN-11
Bismuth (Bi)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Boron (B)-Total			<0.0040		mg/L		0.004	15-JUN-11



		Workorder:	L101483	4	Report Date: 1	7-JUN-11	Pa	ge 8 of 1
ſest	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-T-L-MS-ED	Water							
Batch R2204483	3							
WG1294464-2 MB				-				
Cadmium (Cd)-Total			<0.00005	0	mg/L		0.00005	15-JUN-11
Chromium (Cr)-Total			<0.00080		mg/L		0.0008	15-JUN-11
Cobalt (Co)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Copper (Cu)-Total			<0.0010		mg/L		0.001	15-JUN-11
Lead (Pb)-Total			<0.00010		mg/L		0.0001	15-JUN-11
Molybdenum (Mo)-Tota	al		<0.00010		mg/L		0.0001	15-JUN-11
Nickel (Ni)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Selenium (Se)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Silver (Ag)-Total			<0.00010		mg/L		0.0001	15-JUN-11
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Thallium (TI)-Total			<0.00010		mg/L		0.0001	15-JUN-11
Tin (Sn)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Titanium (Ti)-Total			<0.00060		mg/L		0.0006	15-JUN-11
Uranium (U)-Total			<0.00010		mg/L		0.0001	15-JUN-11
Vanadium (V)-Total			<0.00050		mg/L		0.0005	15-JUN-11
Zinc (Zn)-Total			<0.0040		mg/L		0.004	15-JUN-11
WG1294485-1 MB								
Aluminum (Al)-Total			<0.010		mg/L		0.01	15-JUN-11
Antimony (Sb)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Arsenic (As)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Barium (Ba)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Beryllium (Be)-Total			<0.0010		mg/L		0.001	15-JUN-11
Bismuth (Bi)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Boron (B)-Total			<0.0040		mg/L		0.004	15-JUN-11
Cadmium (Cd)-Total			<0.00005	0	mg/L		0.00005	15-JUN-11
Chromium (Cr)-Total			<0.00080		mg/L		0.0008	15-JUN-11
Cobalt (Co)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Copper (Cu)-Total			<0.0010		mg/L		0.001	15-JUN-11
Lead (Pb)-Total			<0.00010		mg/L		0.0001	15-JUN-11
Molybdenum (Mo)-Tota	al		<0.00010		mg/L		0.0001	15-JUN-11
Nickel (Ni)-Total			<0.00020		mg/L		0.0002	15-JUN-11
Selenium (Se)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Silver (Ag)-Total			<0.00010		mg/L		0.0001	15-JUN-11
Strontium (Sr)-Total			<0.00020		mg/L		0.0002	15-JUN-11



		Workorder:	1 101 / 02 /	- 1 □	Penart Data: 4		D -	
	Matrix	Reference	Result	+ r Qualifier	Report Date: 1	RPD	Limit	nge 9 of 1 Analyzed
		1/616161166	Neguit	wuannici	UIIIIS	NF U	Luillt	Analyzeu
MET-T-L-MS-ED	Water							
Batch R2204483								
WG1294485-1 MB Thallium (Tl)-Total			<0.00010		mg/L		0.0001	15-JUN-11
Tin (Sn)-Total			<0.00040		mg/L		0.0004	15-JUN-11
Titanium (Ti)-Total			<0.00060		mg/L		0.0006	15-JUN-11
Uranium (U)-Total			<0.00010		mg/L		0.0001	15-JUN-11
Vanadium (V)-Total			<0.00050		mg/L		0.0005	15-JUN-11
Zinc (Zn)-Total			<0.0040		mg/L		0.004	15-JUN-11
NO2+NO3-L-CFA-ED	Water							
Batch R2204159								
WG1294906-3 LCS Nitrate and Nitrite (as N)			96		%		85-115	13-JUN-11
WG1294906-2 MB Nitrate and Nitrite (as N)			<0.0060		mg/L		0.006	13-JUN-11
WG1294906-5 MS Nitrate and Nitrite (as N)		L1016211-1	102		%		75-125	13-JUN-11
102-L-CFA-ED	Water							
Batch R2204159								
WG1294906-3 LCS Nitrite (as N)			99		%		85-115	13-JUN-11
WG1294906-2 MB								
Nitrite (as N)			<0.0020		mg/L		0.002	13-JUN-11
WG1294906-5 MS Nitrite (as N)		L1016211-1	103		%		75-125	13-JUN-11
P-T-L-COL-ED	Water							
Batch R2204296								
WG1295934-4 DUP Phosphorus (P)-Total		L1014834-7 <0.0010	<0.0010	RPD-NA	mg/L	N/A	20	15-JUN-11
WG1295934-3 LCS Phosphorus (P)-Total			103		%		80-120	15-JUN-11
WG1295934-2 MB Phosphorus (P)-Total			<0.0010		mg/L		0.001	15-JUN-11
WG1295934-5 MS Phosphorus (P)-Total		L1014834-7	112		%		70-130	15-JUN-11
WG1295934-7 MS Phosphorus (P)-Total		L1013656-5	116		%		70-130	15-JUN-11
	Water						10-100	
P-TD-L-COL-ED	Water							



		Workorder:	L101483	4 Re	eport Date:	17-JUN-11	Ра	ge 10 of 13
Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
P-TD-L-COL-ED	Water							
Batch R2204296 WG1295934-3 LCS								
Phosphorus (P)-Total Dis	solved		103		%		80-120	15-JUN-11
WG1295934-2 MB Phosphorus (P)-Total Dis	solved		<0.0010		mg/L		0.001	15-JUN-11
SOLIDS-TOTSUS-ED	Water							
Batch R2203042 WG1294381-4 DUP		L1014834-4						
Total Suspended Solids		<3.0	<3.0	RPD-NA	mg/L	N/A	20	13-JUN-11
WG1294381-2 LCS Total Suspended Solids			110		%		85-115	13-JUN-11
WG1294381-1 MB Total Suspended Solids			<3.0		mg/L		3	13-JUN-11
TKN-L-CFA-ED	Water							
Batch R2202878 WG1294400-5 DUP Total Kjeldahl Nitrogen		L1014834-6 <0.050	<0.050	RPD-NA	mg/L	N/A	20	13-JUN-11
WG1294400-2 LCS Total Kjeldahl Nitrogen			100		%		75-125	13-JUN-11
WG1294400-3 LCS Total Kjeldahl Nitrogen			108		%		75-125	13-JUN-11
WG1294400-4 LCS Total Kjeldahl Nitrogen			104		%		75-125	13-JUN-11
WG1294400-1 MB Total Kjeldahl Nitrogen			<0.050		mg/L		0.05	13-JUN-11
WG1294400-6 MS Total Kjeldahl Nitrogen		L1014834-7	106		%		61-140	13-JUN-11
TURBIDITY-ED	Water							
Batch R2202622 WG1294255-3 DUP		L1014834-8	0.00					
		2.97	2.99		NTU	0.67	8.8	12-JUN-11
WG1294255-1 MB Turbidity			<0.10		NTU		0.1	12-JUN-11

Workorder: L1014834

Report Date: 17-JUN-11

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate
	· · ·

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Workorder: L1014834

Report Date: 17-JUN-11

Page 12 of 13

Hold Time Exceedances:

	Sample						
ALS Product Description	ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifie
Physical Tests							
Turbidity							
	1	08-JUN-11	12-JUN-11 00:00	48	84	hours	EHT
	2	08-JUN-11	12-JUN-11 00:00	48	84	hours	EHT
	3	08-JUN-11	12-JUN-11 00:00	48	84	hours	EHT
	4	08-JUN-11	12-JUN-11 00:00	48	84	hours	EHT
	5	08-JUN-11	12-JUN-11 00:00	48	84	hours	EHT
	6	08-JUN-11	12-JUN-11 00:00	48	84	hours	EHT
	7	08-JUN-11	12-JUN-11 00:00	48	84	hours	EHT
	8	08-JUN-11	12-JUN-11 00:00	48	84	hours	EHT
Anions and Nutrients	C C				0.		
Nitrate in Water (Calculation	n)						
	1	08-JUN-11	15-JUN-11 20:08	48	176	hours	EHT
	2	08-JUN-11	15-JUN-11 20:08	48	176	hours	EHT
	3	08-JUN-11	15-JUN-11 20:08	48	176	hours	EHT
	4	08-JUN-11	15-JUN-11 20:08	48	176	hours	EHT
	5	08-JUN-11	15-JUN-11 20:08	48	176	hours	EHT
	6	08-JUN-11	15-JUN-11 20:08	48	176	hours	EHT
	7	08-JUN-11	15-JUN-11 20:08	48	176	hours	EHT
	8	08-JUN-11	15-JUN-11 20:08	48	176	hours	EHT
Nitrite & Nitrate in Water by	y Colour						
	1	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	2	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	3	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	4	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	5	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	6	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	7	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	8	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
Nitrite in Water by Colour							
	1	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	2	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	3	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	4	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	5	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	6	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	7	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT
	8	08-JUN-11	13-JUN-11 00:00	48	108	hours	EHT

Legend & Qualifier Definitions:

EHTR-FM: Exceeded ALS recommended hold time prior to sample receipt. Field Measurement recommended. EHTR: Exceeded ALS recommended hold time prior to sample receipt. EHTL: Exceeded ALS recommended hold time prior to analysis. Sample was received less than 24 hours prior to expiry. EHT: Exceeded ALS recommended hold time prior to analysis. Rec. HT: ALS recommended hold time (see units).

Notes*:

Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes. Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1014834 were received on 08-JUN-11 16:28.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

Workorder: L1014834

Report Date: 17-JUN-11

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



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Page	1 of	

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Report To		Inchoir I C					Service Requested (Rush for routine analysis subject to availability)											
Company:	Deton'Cho/Nuna Joint Venture AND Golder As. Ltd.	Standard	C Other			_			rd Turr		_							
Contact:	DCNJV: Katrina Nokleby; Golder: Justine Crowe	PDF	Excel	Digital	Fax	🖲 Pri	ority (2	-4 Bus	iness D	lays) -	50% 9	urchar	ge - Co	ntact A	ALS to C	onfirm	TAT	
Address:		Email 1:	vail 1: jcrowe@golder.com O Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS t								ALS to	Confirm	n TAT					
		Email 2:	hmachtans@go	lder.com		O Same Day or Weekend Emergency - Contact ALS to Confirm TAT												
Phone:	867 669 6735 Fax:	Email 3:	KatrinaN@nuna	logistics.com		Analysis Request												
Invoice To	Same as Report ? 🔲 Yes 🔄 No		oject Informatio			Please indicate below Filtered, Preserved or both (F, P, F/P)												
	Invoice with Report? Yes No	Job #:	09-1427-0006-2	0000-20500														
Company:	Deton'Cho/Nuna Joint Venture	PO / AFE:	606989			ь Г										ŝ	ļ	Í
Contact:	Brenda Kalis	LSD:				Maj									n	Metz		
Address:	9838-31st Avenue., Edmonton AB, T6N 1C5	 		·····		ers/									leta	g		Containers
Phone:	780 408 2897 Fax: 780 408 5472	Quote #:				met			idity						S	Sol		ntaii
	Vork Order #	ALS Contact:	Can Dang	Sampler:	Justine Crowe	al Parameters/Major Io	Ð	SS	and Turbidity	lts	NAT	Grease			Low Level Total Metals	Level Dissolved Metals	e	r of Coi
Sample #	Sample Identification (This description will appear on the report)		Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Physical	Cyanide	Hardness	TSS ar	Nutrients	NH3 / TKN	Oil and	100	200	Low Le	Low Le	Sulphide	Number of
	The second se				Surface Water			-)(-	÷.	ł					×	Y		-
	ҮК Вау В		08-Jun-11	1	Surface Water			X	X	X					X	X		4
	ҮК Вау С		08-Jun-11		Surface Water			X	X	X					X	X		4
	ҮК Вау 🛎 🗲		08-Jun-11		Surface Water			X	X	X					X	X		4
	ҮК Вау 🐙 🔓		08-Jun-11		Surface Water			X	X	X					X	X		4
and Sale - Andreas - Sale	Back Bay Dock Area		08-Jun-11		Surface Water			X	Χ	Χ					X	X		4
	Field Blank		08-Jun-11		Surface Water			X	X	Χ					X	X	_	4
	Travel Blank		08-Jun-11		Surface Water			Х	X	Χ					X	X		4
	Baker Pond Outflow		8-Jun-11		1 11			X	X	X					X	X		4
	0																	
																		
	Special Instructions / Regulations with water or land	l use (CCM	E-Freshwater A	quatic Life/BC	CSR - Commerci	al/AB	Tier	1 - N	atura	, etc)) / Ha	zardo	us D	etails	5 			
Please An	alyze As and Se by Hydride*. Please include Mercury in the	motale apol	veis Note - This	water might co	ntain high amount	f	otolo	A 14	Com-			юц /				0		
r iease An	Failure to complete all									ies al	e KU	1011		GEN		; I		
1	By the use of this form the user ackno	wied ges a	nd agrees with	the Terms and	Conditions as pr	ovide	d on	a sej	oarate									
a state of the sta	Also provided on another Excel tab are the ALS location					rvatio	on / h		the second s		_	_	the second value of the se		the second s			
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Released by		by: 7	Date:	Time:	Temperature:	Verified by: Date:				ə:	Time:				Observations: Yes / No ?			
Lla	oue 8-Jun-11 16:20 Ku	5	8 June 1	16:25	13.8°C										- 1	If Yes		
$\overline{\mathbf{U}}$															GENF	18.01	Fron	



DETON'CHO \ NUNA JOINT VENTURE ATTN: KATRINA NOKLEBY GIANT MINESITE PO BOX 2951 Yellowknife NT X1A 2R2 Date Received:17-JUN-11Report Date:24-JUN-11 18:20 (MT)Version:FINAL

Client Phone: 604-253-4188

Certificate of Analysis

Lab Work Order #:

Project P.O. #: Job Reference: Legal Site Desc: C of C Numbers: L1019377 09-1427-0006-20000-205000 09-1427-0006-20000-20500

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Can Dang Senior Account Manager

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L1019377 CONTD.... PAGE 2 of 9 24-JUN-11 18:20 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1019377-1 WATER 17-JUN-11 REACH 0 (BC MOUTH)	L1019377-2 WATER 17-JUN-11 REACH 1 (SNP 43- 5)	L1019377-3 WATER 17-JUN-11 REACH 4 (D/S BRIDGE NO ICE)	L1019377-4 WATER 17-JUN-11 REACH 6 (BAKER POND OUTFLOW)	L1019377-5 WATER 17-JUN-11 REACH 6 (GIANT FALLS)
Grouping	Analyte					
WATER						
Physical Tests	Hardness (as CaCO3) (mg/L)	55.0	56.2	51.0	48.9	45.0
	Total Suspended Solids (mg/L)	<3.0	<3.0	<3.0	4.0	21.3
	Turbidity (NTU)	2.47	2.66	1.79	3.56	3.13
Anions and Nutrients	Nitrate and Nitrite (as N) (mg/L)	<0.0051	<0.0051	0.0074	<0.0051	<0.0051
	Nitrate (as N) (mg/L)	<0.0050	<0.0050	0.0074	<0.0050	<0.0050
	Nitrite (as N) (mg/L)	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
	Total Kjeldahl Nitrogen (mg/L)	0.762	0.704	0.800	1.04	0.639
	Phosphorus (P)-Total Dissolved (mg/L)	0.0087	0.0091	0.0082	0.0085	0.0058
	Phosphorus (P)-Total (mg/L)	0.0203	0.0196	0.0203	0.0235	0.0305
Total Metals	Aluminum (AI)-Total (mg/L)	0.0992	0.0820	0.0530	0.142	0.629
	Antimony (Sb)-Total (mg/L)	0.0127	0.0117	0.00981	0.00594	0.00120
	Arsenic (As)-Total (mg/L)	0.127	0.117	0.0996	0.0985	0.0461
	Barium (Ba)-Total (mg/L)	<0.010	<0.010	<0.010	0.011	0.017
	Beryllium (Be)-Total (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bismuth (Bi)-Total (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Boron (B)-Total (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Total (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Calcium (Ca)-Total (mg/L)	15.3	14.8	13.4	12.7	11.9
	Chromium (Cr)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cobalt (Co)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Copper (Cu)-Total (mg/L)	0.00849	0.00758	0.00683	0.00544	0.00097
	Iron (Fe)-Total (mg/L)	0.196	0.174	0.144	0.210	0.736
	Lead (Pb)-Total (mg/L)	0.000434	0.000342	0.000342	0.000380	0.000211
	Lithium (Li)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Magnesium (Mg)-Total (mg/L)	4.15	4.04	3.75	3.69	3.70
	Manganese (Mn)-Total (mg/L)	0.0157	0.0140	0.0138	0.0236	0.231
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Total (mg/L)	0.000988	0.000966	0.000923	0.000812	0.000519
	Nickel (Ni)-Total (mg/L)	0.00214	0.00183	0.00140	0.00149	0.00071
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Total (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Total (mg/L)	0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Total (mg/L)	0.320	0.293	0.247	0.377	1.46
	Silver (Ag)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Sodium (Na)-Total (mg/L)	3.4	3.3	3.0	2.9	2.6
	Strontium (Sr)-Total (mg/L)	0.0628	0.0607	0.0547	0.0519	0.0462
	Thallium (TI)-Total (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20

L1019377 CONTD.... PAGE 3 of 9 24-JUN-11 18:20 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1019377-6 WATER 17-JUN-11 FIELD BLANK	L1019377-7 WATER 17-JUN-11 TRAVEL BLANK		
Grouping	Analyte				
WATER					
Physical Tests	Hardness (as CaCO3) (mg/L)	<0.50	<0.50		
	Total Suspended Solids (mg/L)	<3.0	<3.0		
	Turbidity (NTU)	<0.10	<0.10		
Anions and Nutrients	Nitrate and Nitrite (as N) (mg/L)	<0.0051	<0.0051		
	Nitrate (as N) (mg/L)	<0.0050	<0.0050		
	Nitrite (as N) (mg/L)	<0.0010	<0.0010		
	Total Kjeldahl Nitrogen (mg/L)	<0.050	<0.050		
	Phosphorus (P)-Total Dissolved (mg/L)	<0.0020	<0.0020		
	Phosphorus (P)-Total (mg/L)	<0.0020	<0.0020		
WATER Physical Tests Anions and	Aluminum (Al)-Total (mg/L)	<0.0030	<0.0030		
	Antimony (Sb)-Total (mg/L)	<0.00010	<0.00010		
	Arsenic (As)-Total (mg/L)	<0.00010	<0.00010		
	Barium (Ba)-Total (mg/L)	<0.010	<0.010		
	Beryllium (Be)-Total (mg/L)	<0.0050	<0.0050		
	Bismuth (Bi)-Total (mg/L)	<0.20	<0.20		
	Boron (B)-Total (mg/L)	<0.10	<0.10		
	Cadmium (Cd)-Total (mg/L)	<0.000050	<0.000050		
	Calcium (Ca)-Total (mg/L)	<0.050	<0.050		
	Chromium (Cr)-Total (mg/L)	<0.010	<0.010		
	Cobalt (Co)-Total (mg/L)	<0.010	<0.010		
	Copper (Cu)-Total (mg/L)	<0.00050	<0.00050		
	Iron (Fe)-Total (mg/L)	<0.010	<0.010		
	Lead (Pb)-Total (mg/L)	<0.000050	<0.000050		
	Lithium (Li)-Total (mg/L)	<0.010	<0.010		
	Magnesium (Mg)-Total (mg/L)	<0.10	<0.10		
	Manganese (Mn)-Total (mg/L)	<0.0050	<0.0050		
	Mercury (Hg)-Total (mg/L)	<0.000010	<0.000010		
	Molybdenum (Mo)-Total (mg/L)	<0.000050	<0.000050		
	Nickel (Ni)-Total (mg/L)	<0.00050	<0.00050		
	Phosphorus (P)-Total (mg/L)	<0.30	<0.30		
	Potassium (K)-Total (mg/L)	<2.0	<2.0		
	Selenium (Se)-Total (mg/L)	<0.00010	<0.00010		
	Silicon (Si)-Total (mg/L)	<0.050	<0.050		
	Silver (Ag)-Total (mg/L)	<0.010	<0.010		
	Sodium (Na)-Total (mg/L)	<2.0	<2.0		
	Strontium (Sr)-Total (mg/L)	<0.0050	<0.0050		
	Thallium (TI)-Total (mg/L)	<0.20	<0.20		

L1019377 CONTD.... PAGE 4 of 9 24-JUN-11 18:20 (MT) Version: FINAL

	Sample ID Description Sampled Date Sampled Time Client ID	L1019377-1 WATER 17-JUN-11 REACH 0 (BC MOUTH)	L1019377-2 WATER 17-JUN-11 REACH 1 (SNP 43- 5)	L1019377-3 WATER 17-JUN-11 REACH 4 (D/S BRIDGE NO ICE)	L1019377-4 WATER 17-JUN-11 REACH 6 (BAKER POND OUTFLOW)	L1019377-5 WATER 17-JUN-11 REACH 6 (GIANT FALLS)
Grouping	Analyte					
WATER						
Total Metals	Tin (Sn)-Total (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010	<0.010	<0.010	0.028
	Uranium (U)-Total (mg/L)	0.000212	0.000202	0.000209	0.000199	0.000334
	Vanadium (V)-Total (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Zinc (Zn)-Total (mg/L)	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	0.0053	0.0066	0.0073	0.0073	0.0062
	Antimony (Sb)-Dissolved (mg/L)	0.0123	0.0126	0.00922	0.00629	0.00124
	Arsenic (As)-Dissolved (mg/L)	0.113	0.122	0.111	0.109	0.0415
	Barium (Ba)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Beryllium (Be)-Dissolved (mg/L)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
	Bismuth (Bi)-Dissolved (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10	<0.10	<0.10	<0.10
	Cadmium (Cd)-Dissolved (mg/L)	<0.000050	<0.000050	<0.000050	<0.000050	<0.000050
	Calcium (Ca)-Dissolved (mg/L)	15.2	15.6	14.0	13.3	12.0
	Chromium (Cr)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Cobalt (Co)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Copper (Cu)-Dissolved (mg/L)	0.00616	0.00618	0.00571	0.00392	0.00074
	Iron (Fe)-Dissolved (mg/L)	0.045	0.051	0.047	0.049	0.045
	Lead (Pb)-Dissolved (mg/L)	0.000120	0.000104	0.000090	0.000060	<0.000050
	Lithium (Li)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Magnesium (Mg)-Dissolved (mg/L)	4.12	4.22	3.92	3.84	3.63
	Manganese (Mn)-Dissolved (mg/L)	0.0088	0.0085	0.0068	0.0113	0.0149
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010	<0.000010	<0.000010	<0.000010
	Molybdenum (Mo)-Dissolved (mg/L)	0.000965	0.000934	0.000825	0.000859	0.000460
	Nickel (Ni)-Dissolved (mg/L)	0.00195	0.00183	0.00144	0.00142	<0.00050
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30	<0.30	<0.30	<0.30
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0	<2.0	<2.0	<2.0
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
	Silicon (Si)-Dissolved (mg/L)	0.158	0.169	0.161	0.151	0.123
	Silver (Ag)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Sodium (Na)-Dissolved (mg/L)	3.4	3.4	3.1	3.0	2.6
	Strontium (Sr)-Dissolved (mg/L)	0.0619	0.0624	0.0564	0.0537	0.0448
	Thallium (TI)-Dissolved (mg/L)	<0.20	<0.20	<0.20	<0.20	<0.20
	Tin (Sn)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010	<0.010	<0.010	<0.010
	Uranium (U)-Dissolved (mg/L)	0.000190	0.000197	0.000181	0.000193	0.000169
	Vanadium (V)-Dissolved (mg/L)	<0.030	<0.030	<0.030	<0.030	<0.030

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	Sample ID Description Sampled Date Sampled Time Client ID	L1019377-6 WATER 17-JUN-11 FIELD BLANK	L1019377-7 WATER 17-JUN-11 TRAVEL BLANK		
Grouping	Analyte				
WATER					
Total Metals	Tin (Sn)-Total (mg/L)	<0.030	<0.030		
	Titanium (Ti)-Total (mg/L)	<0.010	<0.010		
	Uranium (U)-Total (mg/L)	<0.000010	<0.000010		
	Vanadium (V)-Total (mg/L)	<0.030	<0.030		
	Zinc (Zn)-Total (mg/L)	<0.0040	<0.0040		
Dissolved Metals	Aluminum (Al)-Dissolved (mg/L)	<0.0030	<0.0030		
	Antimony (Sb)-Dissolved (mg/L)	<0.00010	<0.00010		
	Arsenic (As)-Dissolved (mg/L)	<0.00010	<0.00010		
	Barium (Ba)-Dissolved (mg/L)	<0.010	<0.010		
	Beryllium (Be)-Dissolved (mg/L)	<0.0050	<0.0050		
	Bismuth (Bi)-Dissolved (mg/L)	<0.20	<0.20		
	Boron (B)-Dissolved (mg/L)	<0.10	<0.10		
	Cadmium (Cd)-Dissolved (mg/L)	<0.000050	<0.000050		
	Calcium (Ca)-Dissolved (mg/L)	<0.050	<0.050		
	Chromium (Cr)-Dissolved (mg/L)	<0.010	<0.010		
	Cobalt (Co)-Dissolved (mg/L)	<0.010	<0.010		
	Copper (Cu)-Dissolved (mg/L)	<0.00050	<0.00050		
	Iron (Fe)-Dissolved (mg/L)	<0.010	<0.010		
	Lead (Pb)-Dissolved (mg/L)	<0.000050	<0.000050		
	Lithium (Li)-Dissolved (mg/L)	<0.010	<0.010		
	Magnesium (Mg)-Dissolved (mg/L)	<0.10	<0.10		
	Manganese (Mn)-Dissolved (mg/L)	<0.0050	<0.0050		
	Mercury (Hg)-Dissolved (mg/L)	<0.000010	<0.000010		
	Molybdenum (Mo)-Dissolved (mg/L)	<0.000050	<0.000050		
	Nickel (Ni)-Dissolved (mg/L)	<0.00050	<0.00050		
	Phosphorus (P)-Dissolved (mg/L)	<0.30	<0.30		
	Potassium (K)-Dissolved (mg/L)	<2.0	<2.0		
	Selenium (Se)-Dissolved (mg/L)	<0.00010	<0.00010		
	Silicon (Si)-Dissolved (mg/L)	<0.050	<0.050		
	Silver (Ag)-Dissolved (mg/L)	<0.010	<0.010		
	Sodium (Na)-Dissolved (mg/L)	<2.0	<2.0		
	Strontium (Sr)-Dissolved (mg/L)	<0.0050	<0.0050		
	Thallium (TI)-Dissolved (mg/L)	<0.20	<0.20		
	Tin (Sn)-Dissolved (mg/L)	<0.030	<0.030		
	Titanium (Ti)-Dissolved (mg/L)	<0.010	<0.010		
	Uranium (U)-Dissolved (mg/L)	<0.000010	<0.000010		
	Vanadium (V)-Dissolved (mg/L)	<0.030	<0.030		

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		Sample ID Description Sampled Date Sampled Time Client ID	L1019377-1 WATER 17-JUN-11 REACH 0 (BC MOUTH)	L1019377-2 WATER 17-JUN-11 REACH 1 (SNP 43- 5)	L1019377-3 WATER 17-JUN-11 REACH 4 (D/S BRIDGE NO ICE)	L1019377-4 WATER 17-JUN-11 REACH 6 (BAKER POND OUTFLOW)	L1019377-5 WATER 17-JUN-11 REACH 6 (GIANT FALLS)
Grouping	Analyte						
WATER							
Dissolved Metals	Zinc (Zn)-Dissolved (mg/L)		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040

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Sampled Date Sampled Time Client ID VATER
Sampled Time Client ID FIELD BLANK TRAVEL BLANK Brouping Analyte VATER
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Jissolved Metals Zine (Zn)-Dissolved (mg/L) <0.0040 <0.0040 <0.0040 <0.0040

Reference Information

Test Method References: ALS Test Code Matrix Method Reference** **Test Description** ANIONS-N+N-CALC-VA Water Nitrite & Nitrate in Water (Calculation) EPA 300.0 Nitrate and Nitrite (as N) is a calculated parameter. Nitrate and Nitrite (as N) = Nitrite (as N) + Nitrate (as N). ANIONS-NO2-IC-VA EPA 300.0 Water Nitrite in Water by Ion Chromatography This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrite is detected by UV absorbance. ANIONS-NO3-IC-VA Water Nitrate in Water by Ion Chromatography EPA 300.0 This analysis is carried out using procedures adapted from EPA Method 300.0 "Determination of Inorganic Anions by Ion Chromatography". Nitrate is detected by UV absorbance. APHA 2340B HARDNESS-CALC-VA Water Hardness 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-DIS-LOW-CVAFS-VA** Water Dissolved Mercury in Water by CVAFS(Low) EPA SW-846 3005A & EPA 245.7 This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by filtration (EPA Method 3005A) and 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 (EPA Method 245.7). HG-TOT-LOW-CVAFS-VA Water Total Mercury in Water by CVAFS(Low) EPA 245.7 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 (EPA Method 245.7). Dissolved Metals in Water by CRC ICPMS MET-D-CCMS-VA Water APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-DIS-ICP-VA Dissolved Metals in Water by ICPOES** EPA SW-846 3005A/6010B Water This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma optical emission spectrophotometry (EPA Method 6010B). **MET-DIS-LOW-ICP-VA** Water **Dissolved Metals in Water by ICPOES** EPA 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedure involves filtration (EPA Method 3005A) and analysis by inductively coupled plasma optical emission spectrophotometry (EPA Method 6010B). **MET-T-CCMS-VA** Water Total Metals in Water by CRC ICPMS APHA 3030 B&E / EPA SW-846 6020A This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using hotblock, or filtration (APHA 3030B&E). Instrumental analysis is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A). **MET-TOT-ICP-VA** Water Total Metals in Water by ICPOES EPA SW-846 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). **MET-TOT-LOW-ICP-VA** Water Total Metals in Water by ICPOES EPA 3005A/6010B This analysis is carried out using procedures adapted from "Standard Methods for the Examination of Water and Wastewater" published by the American Public Health Association, and with procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846 published by the United States Environmental Protection Agency (EPA). The procedures may involve preliminary sample treatment by acid digestion, using either hotblock or microwave oven (EPA Method 3005A). Instrumental analysis is by inductively coupled plasma - optical emission spectrophotometry (EPA Method 6010B). P-T-COL-VA Water Total P in Water by Colour APHA 4500-P Phosphorous

This analysis is carried out using procedures adapted from APHA Method 4500-P "Phosphorus". Total Phosphorous is determined colourimetrically after persulphate digestion of the sample.

Reference Information

		ENVIRONMENTAL - VANCOUVER, BC, CANAI	٨
Laboratory Definition	Code Labo	ratory Location	
The last two letters of the	he above test co	ode(s) indicate the laboratory that performed and	alytical analysis for that test. Refer to the list below:
* ALS test methods may	incorporate mo	difications from specified reference methods to i	mprove performance.
This analysis is carried	l out using proce	edures adapted from APHA Method 2130 "Turbio	dity". Turbidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 Turbidity
This analysis is carried	l out using proce	edures adapted from APHA Method 2130 "Turbio	dity". Turbidity is determined by the nephelometric method.
TURBIDITY-VA	Water	Turbidity by Meter	APHA 2130 "Turbidity"
,	01		". Solids are determined gravimetrically. Total Suspended termined by drying the filter at 104 degrees celsius.
TSS-VA	Water	Total Suspended Solids by Gravimetric	APHA 2540 D - GRAVIMETRIC
This analysis is carried an ammonia selective		edures adapted from APHA Method 4500-Norg "	Nitrogen (Organic)". Total Kjeldahl Nitrogen is determined using
TKN-SIE-VA	Water	TKN in Water by SIE	APHA 4500-NORG (TKN)
		edures adapted from APHA Method 4500-P "Pho stion of a sample that has been lab or field filter	osphorus". Total Dissolved Phosphorous is determined ed through a 0.45 micron membrane filter.
	Water	Total Dissolved P in Water by Colour	APHA 4500-P Phosphorous

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.



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ALS Environmental

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Report To								Service Requested (Rush for routine analysis subject to availability)												
Company:	Deton'Cho/Nuna Joint Ve			Standard				_	_											
Contact:	DCNJV: Katrina Nokleby	; Golder: Ju	sline Crowe	✓ PDF	🗹 Excel	Digital	Fax	🖲 Pri	ority (2	-4 Bus	iness D	ays) -	50% S	urchar	ge - Co	ntact A	LS to C	Confirm	TAT	
Address:				Email 1:	jcrowe@golder.	<u>com</u>		O En	ergeno	γ (1-Z	Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT									
				Email 2: hmachtans@golder.com					O Same Day or Weekend Emergency - Contact ALS to Confirm TAT											
Phone:	867 669 6735	Fax:		Email 3:	KatrinaN@nuna	logistics.com		Analysis Request												
Invoice To] Yes	✓ No	Client / Project Information					Please indicate below Filtered, Preserved or both (F, P, F/P)											
Hardcopy of I] Yes	✓ No	Job #: 09-1427-0006-20000-20500																
Company:	Golder Associates Ltd.			PO / AFE: 09-1427-0006-20000-205000									T					<u>v</u>		
Contact: Nancy Sweetman				LSD:				Majo									м	Aeta		
Address: #9, 4905-48th Street, Yellowknife, NWT, X1A 3S3								i's									etal	뒿		ers
Phone:	867 873 6319	Fax: 86	7 873 6379	Quote #:				hete			l						Ž	ě	ļ	tai
(lab use only) $(lab use only)$				ALS Contact:	Can Dang	Sampler:	Justine Crowe	al Parameters/Major Io	e	ess	and Turbidity	lts	TKN	d Grease			Low Level Total Metals	Level Dissolved Metals	qe	Number of Containers
Sample	•	Sample Ide	ntification ppear on the report)		Date (dd-mmm-yy)	Time (hh;mm)	Sample Type	Physical	Cyanide	Hardness	TSS a	Nutrients	NH3 / TKN	Oil and (100	Soc	Low L	Low L _f	Sulphide	Numb
	Reach 0 (BC Mouth)		17-Jun-11		Surface Water			Х	X	X					X	X		4		
	Reach 1 (SNP43-5)		17-Jun-11		Surface Water		_	Х	Х	Х		_			X	x		4		
Rest representation of the	Reach 4 (d/s Bridge no Ic		17-Jun-11		Surface Water			X	X	Х					X	x	-	4		
	Reach 6 (Baker Pond Out		17-Jun-11		Surface Water			Х	x	Х					X	x	-	4		
	Reach 6 (Giant Falls)				17-Jun-11		Surface Water			Х	X	х					X	x		4
	Field Blank		<u> </u>		17-Jun-11		Surface Water	-		Х	x	X					x	X		4
	Travel Blank				17-Jun-11		Surface Water		_	Х	X	Х					x	x		4
						• ·														
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	· · · · · · · · · · · · · · · · · · ·	4		••••													-			
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	Special Instructio	ns / Regula	tions with water or land	l use (CCM	E-Freshwater A	uquatic Life/BC	CSR - Commercia	al/AB	Tier	– – Na	tural	, etc)	/ Haz	ardo	us De	etails				-
				·														. –	<u> </u>	
Please Ana	lyze As and Se by Hydride	e*. Please	e include Mercury in the	metals anal	lysis. Note - This	s water might co	ntain high amounts	s of m	etals.	All S	Sampl	es ar	e RU	SH / E	EMÉR	GEN	CY!!!!	!		
			Failure to complete all	-	-	• •														
			his form the user ackno																	
Statistic and the second	Also provided on anot							rvatio	n / ho											
-Released by:	SHIPMENT RELEASE (c			and the second	MENT RECEPTI			Ma-1		16	IIPME	****			· · · · · · · · · · · · · · · · · · ·					<u> </u>
		ud-mmm-yy) Ti T		vy.	Date:	Time:	Temperature:	Verified by:				Date:						Observations: Yes / No ?		is:
		June/17	12:03 KU	5	7-June	0/	17-4°C												add \$	3IF
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			100) Q a	+5-1-1)	\4:S 🖗														

At Golder Associates we strive to be the most respected global company providing consulting, design, and construction services in earth, environment, and related areas of energy. Employee owned since our formation in 1960, our focus, unique culture and operating environment offer opportunities and the freedom to excel, which attracts the leading specialists in our fields. Golder professionals take the time to build an understanding of client needs and of the specific environments in which they operate. We continue to expand our technical capabilities and have experienced steady growth with employees who operate from offices located throughout Africa, Asia, Australasia, Europe, North America, and South America.

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