

December 18, 2014

Project No. 12-1021-0006

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ENVIRONMENTAL SITE ASSESSMENT – SITE LANDFILL, SÄ DENA HES MINE, YUKON TERRITORY

Dear Ms. Unger,

Kēyeh Néjeh Golder Corp. (KNG) is pleased to submit this letter report entitled *Environmental Site Assessment – Site Landfill, Sä Dena Hes Mine, Yukon Territory* to Teck Resources Ltd. (Teck). The report was prepared in response to the work plan and cost estimate submitted to Teck on August 26, 2014. The technical program was led by Golder Associates Ltd. (Golder).

The attached letter report was prepared on our behalf by Golder, in accordance with the scope of work outlined in KNG's August 26th proposal.

We trust the information contained in this letter report is adequate for your review. Should you have any questions concerning the Environmental Site Assessment, please contact Andrew Bruemmer at 604-296-2740 or andrew_bruemmer@golder.com.

Yours very truly,

KĒYEH NEJĒH GOLDER CORP.



Jeff Bailey, M.A., RPCA
Managing Director, Kēyeh Néjeh Golder Corp.

JB/lih

Attachment: Letter Report

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December 18, 2014

Reference No. 1210210006-024-L-Rev0-11000

Michelle Unger
Teck Resources Limited
Bag 2000
Kimberley, BC
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ENVIRONMENTAL SITE ASSESSMENT – SITE LANDFILL, SÄ DENA HES MINE, YUKON TERRITORY

Dear Michelle;

Golder Associates Ltd. (Golder) was retained by Kēyeh Néjeh Golder Corporation (KNG) and Teck Resources Limited (Teck) to complete an environmental site assessment (ESA) of the landfill facility currently being constructed at the Să Dena Hes mine. The Să Dena Hes mine is located approximately 70 km by road from Watson Lake, Yukon (the Site). The landfill is under construction as part of the approved Detailed Decommissioning & Reclamation Plan for the mine property.

1.0 BACKGROUND

As part of the overall decommissioning and reclamation of the Site, a landfill is being constructed near the former North Creek pump house. The purpose of the landfill is to deposit demolition debris from the mill site, former camp and office buildings, as well as miscellaneous Site debris collected throughout the property. Golder understands that deposited, inert materials consist primarily of metal cladding, piping, concrete and wood debris.

During routine monitoring of the landfill construction, localized sheen and odors were observed on stagnant ponded water adjacent to the deposition cells. Surface water samples that were collected on July 16, 2014 contained measurable concentrations of selected metals and toluene.

Based on the observation of sheen on the ponded surface water, the analytical results for the water sample that was analyzed, and concerns from the local community, further assessment of the landfill area was considered warranted. During a telephone conversation with Golder on August 12, 2014, Teck requested a Phase II ESA of the landfill area, including an evaluation of groundwater quality.

1.1 Objective and Scope of Work

The overall objective of the Phase II ESA was to document whether deposited waste material at the landfill has potentially impacted local groundwater and/or surface water receptors.

In order to meet the project objective, Golder completed the following scope of work:

- Drilling of four (4) boreholes and installation of 4 groundwater monitoring wells;
- Collection of groundwater samples from the 4 newly-installed monitoring wells and 2 pre-existing monitoring wells at the Site;



- Collection of three (3) surface water samples from North Creek. A second round of surface water sampling from the 3 locations was also conducted by SRK Consulting;
- Completion of one test pit and submission of one soil sample for grain size analysis;
- Data analysis and interpretation of the assessment results; and
- Preparation of a report documenting the findings of the ESA (this letter report).

2.0 REGULATORY FRAMEWORK

In the Yukon Territory, environmental matters pertaining to contaminated sites generally fall under the jurisdiction of Environment Yukon, pursuant to the *Environment Act*

In the Yukon Territory, the two key regulations under the *Environment Act* relating to the assessment and remediation of contaminated sites are the Contaminated Sites Regulation (CSR) (Environment Yukon), and the Special Waste Regulations (SWR) (Environment Yukon, updated April 1, 2009).

The CSR provides Generic Numerical Water Standards (Schedule 3) for use in the assessment of water quality at sites subject to investigation (Environment Yukon, 2002). Water Quality Standards are divided into four different categories based on water use and include: standards based on the protection of freshwater and marine aquatic life (AW-F/AW-M), standards based on the use of water for irrigation purposes (IW), standards based on the consumption of water by livestock (LW), and standards based on the consumption of drinking water by humans (DW).

Based on the potential groundwater uses near the Site, water quality standards for the protection of freshwater aquatic life were used to screen the analytical laboratory results.

Environment Yukon *Protocol 6: Application of Water Quality Standards* (Protocol 6) provides guidance on the application of water quality standards to groundwater or receiving water body (surface water). When water monitoring is conducted from surface water, CSR-AW standards should be divided by a factor of 10, to account for dilution effects within the groundwater aquifer. The factor of 10 has been applied in the comparison of the surface water results described in Section 4.3 of this letter report.

In addition, the Canadian Water Quality Guidelines for the Protection of Aquatic Life (CCME-AW) were included in the assessment of surface water conditions on-Site.

3.0 FIELD METHODS

3.1 Health and Safety

During the completion of the landfill ESA, Golder followed the overall Health and Safety plan that was adopted for the Site assessment work at the mine site. The Health and Safety plan was updated to incorporate specific hazards related to the drilling work and daily tailgate meetings were held prior to the beginning of each field day.

A site-specific Health and Safety Plan was also provided to Golder and Teck by the drilling company (Impact Drilling), prior mobilizing to the Site.

3.2 Borehole Drilling and Monitoring Well Installation

Golder retained Impact Drilling Ltd, of Whitehorse, YT, to complete the borehole drilling and monitoring well installations for the Phase II ESA. Drilling at the Site was completed between September 10 and 12, 2014, using a truck-mounted air-rotary drill rig.

Four boreholes (MW14-01 to MW14-04) were advanced at the Site, and completed as monitoring wells. The boreholes were generally advanced to a depth of approximately 15 m below ground surface (bgs), with the exception of MW14-03, which was advanced to a depth of approximately 6 m bgs. MW14-01 was installed to evaluate up-gradient (i.e., background) groundwater quality in the vicinity of the landfill while MW14-02 to MW14-04 were installed to evaluate potential impacts from the constructed landfill cells.

The soil conditions encountered during drilling, and the results of field testing, were recorded and logged in the field by Golder staff, and were reported on the borehole logs. Final drilling depths were determined by the depth to the water table elevation at each location. Borehole logs are included in Attachment 1.

A surveying contractor hired by Teck surveyed the location and elevation of the top of each well and the elevations were provided to Golder. The surveyed elevation and depth to water allowed the groundwater elevation at each location to be determined and the groundwater flow directions to be assessed.

3.3 Monitoring Well Development and Groundwater Sampling

During the groundwater monitoring program, groundwater samples were collected using standard Golder procedures. The depths to groundwater were initially measured using a water level meter in order to calculate the volume of water in the well. Groundwater samples were collected from the four newly-installed monitoring wells, as well as two historical monitoring well locations downgradient of the landfill (TH09-91 and TH10-91).

Due to the depth to water in the majority of the wells a dedicated disposable bailer was used to remove water from each well. Approximately three well volumes were removed with the bailer. Water was collected from the bailers at regular intervals and parameters consisting of pH, temperature and electrical conductivity were measured using a handheld meter. Once more than three well volumes was removed and the parameters had stabilized (i.e., changes in pH, temperature and electrical conductivity measurements between three successive readings were less than 10%), samples were collected in pre-cleaned containers supplied by Maxxam Laboratory (Maxxam) for analysis of Benzene, Toluene, Ethylbenzene, Xylenes (BTEX), Volatile Petroleum Hydrocarbons (VPHw), Light and Heavy Extractable Petroleum Hydrocarbons (LEPHw/HEPH), Polycyclic Aromatic Hydrocarbons (PAH), Volatile Organic Compounds (VOCs), dissolved metals and anions. The collected samples were stored in coolers with ice and shipped to Maxxam under standard Golder Chain-of-Custody procedures.

The groundwater development and sampling field forms are included in Attachment 2.

3.4 Surface Water Sampling

Three surface water samples were collected from North Creek on September 8, 2014. The surface water sampling locations were selected to document water quality up-gradient of the landfill (SW14-01), adjacent to the landfill (SW14-02), and down-gradient of the landfill (SW14-03).

Surface water samples were collected in pre-cleaned containers provided by the laboratory and submitted for analysis of total metals, BTEX/VPW, LEPHw/HEPH, PAHs, and anions.

A second round of surface water samples was collected by SRK Consulting on October 11, 2014. An additional sample (MH12) located down gradient of the landfill was included, providing four samples during the second round of sampling, which were submitted for analysis of total and dissolved metals.

Field sampling information is included in Attachment 2.

3.5 Laboratory Analyses

Maxxam Analytics (Maxxam), of Burnaby, BC, performed chemical analyses for groundwater and surface water samples collected as part of the landfill ESA, while ALS Laboratory (ALS) analyzed the soil sample collected for grain-size analysis. Environmental samples were transported to Whitehorse in coolers with ice packs and chain-of-custody forms; groundwater and surface water samples were subsequently shipped via Air North to Maxxam's laboratory in Burnaby, BC, while soil samples were delivered to the ALS laboratory in Whitehorse. Information pertaining to sampling location, and the identity of duplicate samples, was not provided to the laboratory to ensure that unbiased analytical procedures were observed, and that the results of the duplicate analyses could be used to assess the quality of the laboratory analyses. Copies of the analytical reports, and the corresponding Chain of Custody forms, are presented in Attachment 4.

The laboratory methods used by ALS and Maxxam to complete the analyses followed accepted provincial/territorial and national methods.

3.6 Quality Assurance and Quality Control

To document that the sampling and analytical data were interpretable, meaningful and reproducible, conformance to a Golder quality assurance and quality control (QA/QC) program was followed. This involved using QA/QC measures in both the collection (field program) and analysis (laboratory) of samples. The following discussion includes a brief summary of the QA/QC measures implemented by Golder during the field program and during the data review, as well as the QA/QC measures implemented by the analytical laboratory.

The quality assurance (QA) measures used in the collection, preservation and shipment of samples included the following management controls:

- Sampling methods were consistent with established Golder protocols and provincial/federal requirements;
- Field notes were recorded during each stage of the investigation;
- Sample locations were recorded, marked and surveyed in the field; and
- Samples were subsequently transported to the laboratory using Golder chain-of-custody procedures.

The quality control (QC) measures established for the field program included the following technical aspects:

- Submission of blind field duplicate samples (i.e., paired sample analyses). A blind field duplicate sample is a second sample of a certain media (e.g., soil or water) from the same location that is submitted to the analytical laboratory under a separate label such that the laboratory has no prior knowledge that it is a duplicate.
- The relative percent difference (RPD) between paired sample results was used to assess duplicate sample data. The RPD is a measure of the variability between two outcomes from the same procedure or process and is calculated by:

$$\text{RPD(\%)} = \text{absolute} \left(\frac{(x_1 - x_2)}{\text{average}(x_1, x_2)} \right) \times 100$$

where x_1 is the original sample result and x_2 is the paired analysis result.

- Where the concentration of a given parameter is less than five times the method detection limit (MDL), the laboratory results are considered to be less precise and the RPD is not calculated. For parameters with concentrations less than five times the MDL, the difference factor (DF) between paired analyses results is calculated by:

$$\text{DF} = \text{absolute} \left(\frac{(x_1 - x_2)}{\text{MDL}} \right)$$

where x_1 is the original sample result and x_2 is the paired analysis result.

Golder's internal data quality objectives (DQOs) for environmental samples are as follows:

- A RPD less than or equal to 20% for groundwater samples submitted for analysis; and
- A DF less than or equal to 2.0.

Where the DQO was exceeded, further investigation of the data quality was required. Data not meeting the DQOs were examined on a case-by-case basis.

The following DQOs and criteria were established for the laboratory analytical program:

- The chemical laboratory that was used must have achieved proficiency certification by the Canadian Association for Laboratory Accreditation Inc. (CALA) for the analyses conducted;
- Laboratory paired analyses results should be within laboratory-applied certified values for inorganic elements and organic compounds;
- Analytical recovery results for reference materials or spiked standards should be within laboratory-applied certified values for inorganic elements and organic compounds;
- Analytical blanks should be less than the detection limits used for the specific analysis; and
- Each laboratory analytical batch should include at least one analytical blank, one matrix spike and one laboratory duplicate sample.

Reports from the laboratory were reviewed internally prior to submission to Golder. If internal QA/QC problems were encountered, the field samples and internal QA/QC samples were re-analyzed. Data quality issues identified by the laboratory were communicated to Golder at the time of data delivery.

4.0 RESULTS

4.1 Field Observations

The geology encountered during the drilling at the landfill consisted of primarily sand, sand and gravel, and silty sand to the maximum depth investigated at 16.7 m depth. Based on test pits that were completed within the footprint of the landfill in 2012, the silty sand layer is present at a depth of approximately 2.5 to 3.0 m bgs. The grey phyllite bedrock that typically underlies the overburden at the Site was not encountered during drilling at the landfill. Borehole logs are provided in Attachment 1.

Groundwater samples collected from the 2014 monitoring wells were generally cloudy in color, which is considered indicative of the elevated silt content of the soil stratigraphy, while groundwater at historical wells TH09-91 and TH09-10 was clear. Hydrocarbon-like odors or sheen were not observed during groundwater sample collection. At each monitoring well location, the depth to water was recorded, and ranged from approximately 5.1 m bgs to 14.5 m bgs. Depths to groundwater and calculated groundwater elevations are shown on Table 1, below.

Table 1: Groundwater Elevations, September 27, 2014

Monitoring Well Location	TOC ¹ Elevation (m)	Ground Elevation (m)	Depth to Bottom ² (m)	Depth to Water ³ (m)	Groundwater Elevation (m)
MW14-01	1040.87	1039.87	15.85	14.12	1026.75
MW14-02	1034.37	1033.32	16.16	14.48	1019.89
MW14-03	1031.26	1030.14	7.20	5.14	1026.12
MW14-04	1029.98	1028.82	13.88	10.13	1019.85
TH09-91*	1008.60	1008.08	12.155	5.335	1003.27
TH10-91*	1014.38	1013.33	18.910	11.345	1003.04

Table Notes:

1. TOC = Top of Well Casing
 2. Depth to bottom measured from TOC
 3. Depth to water measured from TOC
- * TOC measured from Top of Protective Casing

Surface water samples were collected on two separate events. Surface water samples were generally clear and did not exhibit any odors or sheen. During the monitoring event completed on October 11, the flow rate in North Creek was observed to range between 9 and 13 L/s.

4.2 Groundwater Analytical Results

The analytical groundwater results are presented on Tables 2A (inorganics), 2B (petroleum hydrocarbons) and 2C (VOCs) at the end of this letter report.

The results provided by the laboratory indicate that concentrations of the following parameters were greater than the applicable CSR AW standards:

- The cadmium concentration at MW14-03 (2.65 µg/L) was greater than the applicable standard of 0.6 µg/L.

Concentrations of hydrocarbon-based parameters and volatile organic compounds were less than the applicable standards and/or less than the laboratory detection limits.

4.3 Surface Water Analytical Results

The analytical surface water results are presented on Tables 3A (total metals), 3B (dissolved metals), and 3C (hydrocarbons) at the end of this letter report.

The results provided by the laboratory indicate that concentrations of the following parameters were greater than the applicable CSR AW standards:

- Concentrations of cadmium (0.13 µg/L) and lead (6.23 µg/L) at sampling location SW14-03, during the September 8 monitoring round.

The results provided by the laboratory indicate that concentrations of the following parameters were greater than the applicable CCME AW guidelines:

- Concentrations of fluoride (130 µg/L) at sampling location SW14-01, during the September 8 monitoring round; and
- Concentrations of aluminum (236 µg/L), cadmium (0.13 µg/L) and iron (374 µg/L) at sampling location SW14-03, during the September 8 monitoring round.

Concentrations of hydrocarbon-based parameters were less than the applicable standards and less than the laboratory detection limits.

4.4 Grain Size Analysis

One soil sample was analyzed by ALS for grain-size distribution. The particle distribution curve is presented in Attachment 3.

Based on the sieve analysis, the soil consists of approximately 46% fine-grained material (consisting primarily of silt) and 41% medium to fine sand. The soil is described as a silty-sand and, based on the Hazen approximation, is considered to have a hydraulic conductivity (k) of approximately 1×10^{-5} cm/s. The Hazen approximation estimates k values as a function the effective diameter (d_{10}) of the soil matrix. This hydraulic conductivity is similar to the results from response testing completed at monitoring wells on the Site screened in the overburden soils.

4.5 Hydrogeological Conditions

4.5.1 Principal Aquifer

It is inferred that groundwater at the Site occurs in a shallow unconfined aquifer composed primarily of unconsolidated sand with silt, gravel and cobbles.

4.5.2 Groundwater Elevations and Flow Directions

Groundwater elevations were measured at monitoring wells installed at the landfill on September 27, 2014 as shown in Table 1, above. The depth to groundwater ranged between 5.1 and 14.5 m bgs and, based on survey information provided by Teck, is inferred to be located approximately 3 m below the base of the landfill cells. The groundwater flow direction was inferred to be to the east and the water table gradient was 0.07 m/m.

4.5.3 Estimated Average Linear Groundwater Velocity

Using the hydraulic conductivity of the shallow aquifer of approximately 1×10^{-5} m/s obtained from the grain size analysis, and the horizontal hydraulic gradient across the Site of 0.07 m/m to the east; the average linear groundwater velocity can be calculated using the following equation:

$$V = (Ki)/n$$

Where: V: is the groundwater velocity in metres per second (m/s).

K: is the hydraulic conductivity in m/s as determined by slug testing

i: is the horizontal hydraulic gradient (m/m)

n: is the porosity which is estimated to be approximately 0.35 (Fetter, 1994) in well sorted gravel and sand mixtures.

The resulting groundwater velocity is estimated to be approximately 2×10^{-6} m/s or approximately sixty (60) metres per year. Groundwater at the Site may travel faster, or slower, than this estimate due to inaccuracies or seasonal variations in these parameters.

4.6 Results of QA/QC Analyses

4.6.1 Golder QA/QC Program

Seven groundwater and eight surface water samples were submitted for laboratory analyses. The representation of duplicate samples by parameter is provided in Table 4, below.

Table 4: Duplicate Samples Analysis

Sample Medium	Analytical Parameter	Total Samples Analyzed	Duplicate Samples Analyzed	% Duplicates
Groundwater	Dissolved Metals	7	1	14.3
	Petroleum Hydrocarbons	7	1	14.3
	Volatile Organic Compounds	7	1	14.3
Surface Water	Total Metals	8	1	12.5
	Dissolved Metals	8	1	12.5
	Petroleum Hydrocarbons	3	-	-

Results of the field duplicate analyses are presented in Table 5 at the end of this letter report. The RPD and DF values that were calculated as part of the QA/QC program met the DQOs outlined for this ESA, with the following exceptions:

- The DF for zinc for the Golder groundwater duplicate pair collected at MW14-02 (COC numbers 22807-05 and 22807-06) was 4.1. The associated analytical results were an order of magnitude less than the applicable standard, and thus considered reliable.
- The RPDs for total dissolved solids, ammonia, iron and lead (total metals) for the SRK surface water duplicate pair collected at MH12 (COC numbers KS6050 and KS6051) were 25%, 33%, 21%, and 23% respectively. The associated analytical results were an order of magnitude less than the applicable standard, and thus considered reliable.

4.6.2 Laboratory QA/QC Program

A review of the Maxxam laboratory reports identified the following soil QA/QC items for surface water and groundwater samples:

- The PAH surrogate terphenyl-D14 recovery was outside Maxxam DQOs for Golder groundwater samples COC numbers 22807-03 and 22807-07, and Golder surface water sample COC number 20769-01. The laboratory reported the overall quality control for this analysis meets acceptable criteria, therefore the associated samples are considered unaffected;
- The RPD for 1, 2-dichlorethane was raised due to sample matrix interference for Golder groundwater sample COC number 22807-03. However, the associated result was non-detect by the laboratory and below applicable standards;
- The RPD for dichloromethane was raised due to sample matrix interference for Golder groundwater samples COC numbers 22807-06 and 22807-07. However, the associated results were non-detect by the laboratory and below applicable standards;
- The RPD for internal laboratory analysis of 1, 2-dibromomethane was outside Maxxam DQOs in one QC batch. The associated Golder groundwater analytical results were reviewed and are considered reliable, as results were either below the laboratory reporting limits or below applicable standards;
- The spiked blank recovery for internal laboratory analysis of trichlorofluoromethane was outside Maxxam DQOs in one QC batch. The associated Golder groundwater analytical results were reviewed and are considered reliable, as results were either below the laboratory reporting limits or below applicable standards;
- The matrix spike recoveries for internal laboratory analyses of nitrite and dibenz(a,h)anthracene were outside Maxxam DQOs in one QC batch. The associated Golder groundwater analytical results were reviewed and are considered reliable, as results were either below the laboratory reporting limits or below applicable standards; and
- The laboratory recommended hold times for turbidity and nitrate plus nitrite analyses were exceeded by one day with the second round of surface water samples collected by SRK (COC numbers KW1287, KW1288, KW1289, KS6050, KS6051). Similarly, Golder groundwater samples were received past the recommended laboratory hold times for nitrate plus nitrite analyses (COC numbers 22807-01 to 07). The associated analytical results in both cases were an order of magnitude less than applicable standards and guidelines, and thus considered reliable.

5.0 DISCUSSION

This Phase II ESA investigated the potential impact of waste materials at the landfill to local groundwater and surface water receptors, as shown by a general Key Plan presented as Figure 1 at the end of this letter report.

To evaluate groundwater quality, four new groundwater monitoring wells were installed and subsequently sampled, in addition to sampling two pre-existing wells on site down-gradient of the landfill. Surface water quality was assessed by samples taken from North Creek, including one background sample collected up-gradient of the landfill and the two remaining samples collected down-gradient of the landfill.

Although concentrations of hydrocarbon-based parameters and volatile organic compounds were less than the applicable CSR standards and/or less than laboratory detection limits, certain metals parameters, in both groundwater and surface water, were reported at concentrations above the applicable standards and/or guidelines. The northwest monitoring well, MW14-03, had a cadmium concentration approximately 4 times greater than the applicable CSR standard; however, cadmium concentrations at remaining monitoring wells, including down-gradient locations, were less than the applicable standards. The cadmium result is considered an isolated anomaly.

Hydrocarbon-based parameters in surface water were less than the applicable CSR standards, while concentrations of aluminum, cadmium, iron and lead were above the CSR standards and/or CCME Guidelines at sampling location SW14-03 furthest down-gradient of the landfill. However, analytical results for subsequent sampling events at SW14-03 and further down-gradient at MH12 were less than applicable standards and guidelines. The elevated metals results are considered isolated and may be due to locally elevated turbidity in the water, as concentrations at both up-gradient and down-gradient locations were less than the applicable standards and guidelines. The elevated fluoride concentration at SW14-01 (above the applicable CCME guideline) is also considered isolated, and may be indicative of naturally elevated concentrations in surface water.

In order to develop a hydrogeological model for the landfill area, Golder completed grain size analysis and groundwater flow calculations to determine the potential impacts to aquatic receiving bodies. Based on the hydrogeological information that was collected, groundwater flow is inferred to be towards the east, at a velocity of approximately 60 metres per year. Based on the distance from the eastern limit of the landfill to the intersection with North Creek (inferred to be in the vicinity of historical well locations TH91-09 and TH91-10), it is estimated that groundwater would discharge to the creek after a period of approximately 2 to 3 years.

6.0 CONCLUSION AND RECOMMENDATIONS

Golder has completed a Phase II ESA of the landfill facility at the Sä Dena Hes mine, located approximately 70 km from Watson Lake, Yukon. The Phase II ESA was requested by Teck as part of maintaining a constructed, on-Site landfill and as part of their environmental due diligence in support of the closure of Sä Dena Hes Mine.

The objectives of this Phase II ESA were to determine whether the constructed landfill may have impacted groundwater and/or surface water quality at the Site.

Based on the groundwater and surface water results of the Phase II ESA, these objectives have been met. Although exceedances of fluoride, aluminum, cadmium, iron and lead were observed in surface water, the concentrations are not considered to be due to the construction of the landfill. The surface water quality may be due to naturally-elevated concentrations or entrainment of sediments and fine-grained particles during the sampling event. The elevated concentration of cadmium in groundwater is also not considered to be related to the landfilled material and may be related to entrainment of sediment in the groundwater sample.

It is recommended that an additional monitoring round be completed at the landfill in the spring of 2015 at the 6 monitoring wells and down-gradient surface water locations. This second monitoring event will establish baseline water quality data for both low-flow and high-flow seasons. Additional, longer-term groundwater monitoring is recommended at MW14-04, in accordance with the proposed long-term groundwater monitoring plan for the overall mine property. It is also recommended that historical monitoring well locations TH09-91 and TH10-91 be maintained in good condition such that future monitoring can be conducted, if necessary.

If, based on the future collected data, it appears that the landfill materials are impacting local groundwater quality, the proposed monitoring plan should be revised and updated.

7.0 STUDY LIMITATIONS

This report was prepared for the exclusive use of Teck Resources Ltd. The report, which specifically includes all tables, figures and attachments, is based on data and information collected during the assessment conducted by Golder Associates Ltd., and is based solely on the conditions of the property at the time of the field investigation, supplemented by historical information and data obtained by Golder Associates Ltd., as described in this report.

The assessment of environmental conditions and possible hazards at this site has been made using the results of chemical analyses of discrete surface water and groundwater samples from a limited number of locations. The site conditions between sampling locations have been inferred based on conditions observed at monitoring well locations and surface water monitoring points. Additional study, including further subsurface investigation, can reduce inherent uncertainties associated with this type of study. However, it is never possible, even with exhaustive sampling and testing, to dismiss the possibility that part of a site may be contaminated and remains undetected.

The services performed as described in this report were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practicing under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such third parties. Golder Associates Ltd. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions taken based on this report.

The content of this report is based on information collected during our investigation, our present understanding of the site conditions, and our professional judgement in light of such information available at the time of this report. This report provides a professional opinion, and therefore no warranty is either expressed, implied or made as to the conclusions, advice and recommendations offered in this report. This report does not provide a legal opinion regarding compliance with applicable laws. With respect to regulatory compliance issues, it should be noted that regulatory statutes and the interpretation of regulatory statutes are subject to change.

The findings and conclusions of this report are valid only as of the date of this report. If new information is discovered in future work, including excavations, borings, or other studies, Golder Associates Ltd. should be requested to re-evaluate the conclusions of this report, and to provide amendments, as required.

8.0 CLOSURE

We trust that the contents of this letter report are sufficient for your current review purposes. Should you have any questions or concerns, please do not hesitate to contact the undersigned at 604-296-4200.

Yours very truly,

GOLDER ASSOCIATES LTD.



Andrew Bruemmer, P.Eng.
Project Manager



Gary Hamilton, P.Geo.
Project Director

AB/GJH/ch

Attachments: Figure 1 – Sample Location Plan
Tables 2A, 2B, 2C – Results of Groundwater Analyses
Table 3A, 3B, 3C – Results of Surface Water Analyses
Table 5 – Results of QA/QC Analyses
Attachment 1 – Borehole and Monitoring Well Logs
Attachment 2 – Groundwater Development and Sampling Forms
Attachment 3 – Grain Size Distribution Curve
Attachment 4 – Laboratory Analytical Results and Chains of Custody

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LEGEND

LANDFILL SITE AND DEPOSITION ZONES

- 2013 CAMP AND OFFICE DEPOSITION CELL
- HISTORICAL DEBRIS DEPOSITION ZONE
- JDS MILL DEMOLITION DEBRIS CELL
- MISCELLANEOUS SITE DEBRIS DEPOSITION CELL
- SURFACE WATER DRAINAGE CHANNEL
- SURFACE WATER SAMPLING LOCATION
- 2014 MONITORING WELL LOCATION
- HISTORICAL MONITORING WELL LOCATION

— CONTOUR - ft

— WATERCOURSE

REFERENCE

CONTOURS OBTAINED FROM CANVEC © DEPARTMENT OF NATURAL RESOURCES CANADA. ALL RIGHTS RESERVED. LANDFILL SITE AND DEPOSITION ZONES FROM AMEC FIGURE SDH05_FIG_03_R0. ORTHOPHOTO OBTAINED FROM THE CLIENT. DATUM: NAD83 PROJECTION: UTM ZONE 9



PROJECT		TECK METALS LTD. ESA - SITE LANDFILL SÅ DENA HES MINE, YT			
TITLE		SAMPLE LOCATION PLAN			
	PROJECT NO. 12-1021-0006		PHASE No. 11000		
	DESIGN	AB	26 Nov. 2014	SCALE AS SHOWN	REV. 0
	GIS	RH	16 Dec. 2014		
	CHECK	AB	16 Dec. 2014		
	REVIEW	GJH	16 Dec. 2014	FIGURE: 1	

TABLE 2A
Results of Groundwater Analysis - Inorganics
Teck - Landfill ESA
Sä Dena Hes Mine, Yukon

Location		TH10-91	TH09-91	MW14-04	MW14-03	MW14-02	MW14-02	MW14-01
Sample Control Number	Aquatic Life	22807-01	22807-02	22807-03	22807-04	22807-05	22807-06	22807-07
Date Sampled	CSR-AW	27-Sep-14	27-Sep-14	27-Sep-14	27-Sep-14	27-Sep-14	27-Sep-14	27-Sep-14
QA/QC	(freshwater)					FDA	FD	
Physical Tests								
pH (field, pH units)		7.60	7.59	7.58	7.33	7.84	7.84	7.32
Hardness (as CaCO ₃)		80700	95400	176000	200000	205000	207000	227000
Anions and Nutrients								
Chloride (Cl)		710	550	620	1200	970	870	1000
Fluoride (F)	2,000-3,000	63	88	220	69	46	44	140
Nitrate (as N)	400,000	<20	<20	262	182	131	123	187
Nitrite (as N)	200-2,000	23.7	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Nitrate and nitrite (as N)	400,000	39	<20	262	182	131	123	187
Sulfate (SO ₄)	1,000,000	<500	500	20200	19400	1050	1050	21700
Dissolved Metals								
Aluminum		<3.0	7.2	8.9	5.0	11	9.8	23.6
Antimony	200	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	50	<0.1	<0.1	0.33	0.31	0.42	0.42	0.28
Barium	10,000	19.2	24.0	57.1	44.6	317	312	86.6
Beryllium	53	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bismuth		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	
Boron	50,000	<50	<50	<50	<50	<50	<50	<50
Cadmium	0.1 - 0.6	0.014	0.011	0.09	2.65	0.039	0.036	0.168
Calcium		24600	30300	58600	69400	65100	66200	73300
Chromium	10 ^{VI} /90 ^{III}	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	9	<0.5	<0.5	0.75	0.58	<0.5	<0.5	0.67
Copper	20-90	0.84	0.31	0.56	5.34	0.32	0.22	0.59
Iron		2630	320	9.0	<5.0	8.3	8.1	39.7
Lead	40-160	<0.20	<0.20	<0.20	0.58	<0.20	<0.20	0.49
Lithium		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Magnesium		4700	4750	7130	6520	10300	10100	10600
Manganese		135	67.3	216	54.4	10.2	10.4	283
Mercury	1	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Molybdenum	10,000	<1.0	<1.0	1.9	1.9	<1.0	<1.0	2.2
Nickel	250-1500	<1.0	<1.0	3.1	1.8	<1.0	<1.0	3.1
Potassium		631	371	1140	915	675	641	1130
Selenium	10	<0.10	0.12	0.27	0.26	<0.10	<0.10	1.01
Silicon		560	920	3560	3130	3790	3830	3500
Silver	0.5-15	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Sodium		1140	954	3420	3080	1100	1050	3190
Strontium		102	130	206	259	225	222	204
Sulphur		<3000	<3000	6700	6300	<3000	<3000	7900
Thallium	3	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tin		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Titanium	1,000	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Uranium	3,000	<0.10	0.21	0.98	1.2	0.73	0.75	0.5
Vanadium		<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Zinc	75 - 2400	6.6	<5.0	<5.0	22.8	33.0	12.5	<5.0
Zirconium		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Notes:

Results are expressed in micrograms per litre (µg/L), unless otherwise indicated.

Standards shown are from the Yukon Contaminated Sites Regulation Schedule 3 (updated to September 30, 2002).

AW = standards for the protection of freshwater aquatic life

MCS: most conservative standard based on applicable site-specific standards

QA/QC = Quality Assurance/ Quality Control

H = Hardness-dependant; V = Valence-dependant guideline; Cl = Chloride concentration-dependant guideline

FDA/FD = field duplicate available/field duplicate

TABLE 2B
Results of Groundwater Analysis - Petroleum Hydrocarbons
Teck - Landfill ESA
Sä Dena Hes Mine, Yukon

Location Sample Control Number Date Sampled QA/QC	Aquatic Life CSR-AW (freshwater)	MCS	TH10-91 22807-01 27-Sep-14	TH09-91 22807-02 27-Sep-14	MW14-04 22807-03 27-Sep-14	MW14-03 22807-04 27-Sep-14	MW14-02 22807-05 27-Sep-14 FDA	MW14-02 22807-06 27-Sep-14 FD	MW14-01 22807-07 27-Sep-14
<i>Volatile Organic Compounds</i>									
Benzene	4,000		<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Ethylbenzene	2,000		<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Methyl t-butyl ether (MTBE)			<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
Styrene	720		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Toluene	390		0.59	<0.40	<0.40	0.42	<0.40	<0.40	<0.40
ortho-Xylene			<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
meta- & para-Xylene			<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
Xylenes, total			<0.40	<0.40	<0.40	<0.40	<0.40	<0.40	<0.40
<i>Hydrocarbons</i>									
EPHw10-19	5,000		<200	<200	<200	<200	<200	<200	<200
EPHw19-32			<200	<200	<200	<200	<200	<200	<200
LEPHw	500		<200	<200	<200	<200	<200	<200	<200
HEPHw			<200	<200	<200	<200	<200	<200	<200
Volatile Hydrocarbons (VH6-10)	15,000		370	<300	<300	<300	<300	<300	<300
VPW (C6-C10)	1,500		370	<300	<300	<300	<300	<300	<300
<i>Polycyclic Aromatic Hydrocarbons</i>									
2-Methylnaphthalene			<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Acenaphthene	60		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acridine	0.5		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene	1		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benz(a)anthracene	1		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.1		<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090
Benzo(b,j)fluoranthene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene	2		<0.020	<0.020	<0.020	0.021	<0.020	<0.020	<0.020
Fluorene	120		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Naphthalene	10		<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phenanthrene	3		<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	0.2		<0.020	<0.020	0.023	0.026	<0.020	<0.020	<0.020
Quinoline	34		<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
High Molecular Weight PAH's			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Low Molecular Weight PAH's			<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24
Total PAH			<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24

Notes:

Results are expressed in micrograms per litre (µg/L), unless otherwise indicated.

Standards shown are from the Yukon Contaminated Sites Regulation Schedule 3 (updated to September 30, 2002).

AW = standards for the protection of freshwater aquatic life

MCS: most conservative standard based on applicable site-specific standards

QA/QC = Quality Assurance/ Quality Control

italics denotes detection limits that are greater than applicable standards

FDA/FD = field duplicate available/field duplicate

Results of Groundwater Analysis - Volatile Organic Compounds

Teck - Landfill ESA

Sä Dena Hes Mine, Yukon

Location Sample Control Number Date Sampled QA/QC	Aquatic Life CSR-AW (freshwater)	MCS	TH10-91 22807-01 27-Sep-14	TH09-91 22807-02 27-Sep-14	MW14-04 22807-03 27-Sep-14	MW14-03 22807-04 27-Sep-14	MW14-02 22807-05 27-Sep-14 FDA	MW14-02 22807-06 27-Sep-14 FD	MW14-01 22807-07 27-Sep-14
Volatiles									
Bromodichloromethane			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromoform			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromomethane			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Carbon tetrachloride	130		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chlorodibromomethane			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloromethane			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chlorobenzene	13	F	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chloroethane			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Chloroform	20	F	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,2-dibromoethane			<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,2-dichlorobenzene			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,3-dichlorobenzene	1500		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,4-dichlorobenzene	260		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1-dichloroethane			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,2-dichloroethane	1,000		<0.50	<0.50	<0.87	<0.50	<0.50	<0.50	<0.50
1,1-dichloroethene			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,2-dichloroethene			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,2-dichloroethene			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Dichloromethane	980		<6.2	<2.0	<6.1	<6.6	<2.0	<4.1	<4.5
1,2-dichloropropane			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
cis-1,3-dichloropropene			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
trans-1,3-dichloropropene			<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
1,1,1-trichloroethane			<0.50	<0.50	<0.50	1.9	<0.50	<0.50	<0.50
1,1,2-trichloroethane			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichloroethene	200		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Trichlorofluoromethane			<4.0	<4.0	<4.0	<4.0	<4.0	<4.0	<4.0
1,1,1,2-tetrachloroethane			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
1,1,2,2-tetrachloroethane			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Tetrachloroethene	1100		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Vinyl chloride			<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Notes:

Results are expressed in micrograms per litre (µg/L), unless otherwise indicated.

Standards shown are from the Yukon Contaminated Sites Regulation (updated to September 30, 2002).

SCN = sample control number

AW = standards for the protection of freshwater aquatic life

MCS: most conservative standard based on applicable site-specific standards

QA/QC = Quality Assurance/ Quality Control

FDA/FD = field duplicate available/field duplicate

F = freshwater dependant

TABLE 3A
Results of Surface Water Analysis - Total Metals
Teck - Landfill ESA
Sä Dena Hes Mine, Yukon

Location	Sample Control Number			SW14-01	SW14-01	SW14-02	SW14-02	SW14-03	SW14-03	MH12	MH12	
Date Sampled	Aquatic Life	MCS	Aquatic Life	20769-01	KW1287	20769-02	KW1288	20769-03	KW1289	KS6050	KS6051	
QA/QC	CSR ¹ -AW (freshwater)		CCME ² -AW (freshwater)	8-Sep-14	11-Oct-14	8-Sep-14	11-Oct-14	8-Sep-14	11-Oct-14	26-Sep-14 FDA	26-Sep-14 FD	
Physical Tests												
pH (field, pH units)	6.5-9.0			7.07	7.98	7.62	8.11	7.74	8.09	8.18	8.16	
Hardness (Total as CaCO ₃)				151000	150000	179000	165000	175000	166000	175000	179000	
Anions and Nutrients												
Ammonia (as N)(total)	131 - 1,840	pH	0.021-231	pH,T	-	15	-	5.3	-	10	23	32
Chloride (dissolved Cl)			120,000		<500	1300	<500	<500	<500	740	<500	640
Fluoride (F)	200 - 300	H	120		130	120	110	100	110	110	-	-
Nitrate (as N)	40,000		13,000		32	51	47	62	40	56	22	22
Nitrite (as N)	20 - 200	Cl	60	NO ₂ -N	<5	<5	<5	<5	<5	<5	<5	<5
Nitrate and nitrite (as N)	40,000				32	51	47	62	40	56	22	22
Sulfate (dissolved SO ₄)	100,000				6160	5950	11300	10500	10700	10400	9800	9600
Total Metals												
Aluminum			5-100	pH	8.2	28.1	9	15.2	236	33.5	60.4	56.1
Antimony	20				<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	5		5		1.12	1.11	1.07	0.88	1.24	0.82	0.90	0.87
Barium	1,000				62.5	62.9	75.6	70.1	81.9	74.3	80.6	80.2
Beryllium	5.3				<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth					<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Boron			1,500		<50	<50	<50	<50	<50	<50	<50	<50
Cadmium	0.01 - 0.06	H	0.09		0.034	0.043	0.056	0.050	0.13	0.044	0.057	0.047
Calcium					51700	50800	60900	56100	59500	56300	59700	61000
Chromium	1.0 ^{VI} /9.0 ^{III}	V	1.0 ^{VI} /8.9 ^{II}	V	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	0.9				<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Copper	2 - 9	H	2 - 4	H	<0.50	<0.50	<0.50	<0.50	0.69	<0.50	<0.50	<0.50
Iron			300		34	67	20	36	374	57	90	73
Lead	4 - 16	H	1 - 7	H	0.47	0.84	1.6	0.61	6.23	1.13	2.21	1.76
Lithium					<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Magnesium					5410	5520	6600	6020	6350	6100	6240	6430
Manganese					27.6	32.2	11.9	11.5	27.1	6.2	5.1	3.4
Mercury	0.1		0.026		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.050
Molybdenum	1,000		73		1.3	1.3	1.3	1.3	1.3	1.3	1.2	1.2
Nickel	25 - 150	H	25 - 150	H	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Potassium					379	312	602	418	726	408	430	436
Selenium	1.0		1		0.49	0.54	0.64	0.62	0.56	0.59	0.54	0.53
Silicon					4230	4160	3990	3950	4390	3810	4130	4210
Silver	0.05 - 1.5	H	0.1		<0.020	<0.020	<0.020	<0.020	0.021	<0.020	<0.020	<0.020
Sodium					941	843	1250	984	1060	975	1100	1090
Strontium					174	183	213	214	234	213	222	227
Sulphur					<3000	<3000	3300	<3000	8600	<3000	<3000	<3000
Thallium	0.3				<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Tin					<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Titanium	100				<5.0	<5.0	<5.0	<5.0	6.9	<5.0	<5.0	<5.0
Uranium	300		15		0.61	0.65	0.91	0.89	0.89	0.88	0.93	0.95
Vanadium					<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Zinc	7.5 - 240	H	30		<5.0	<5.0	6	<5.0	11.3	<5.0	5.9	<5.0
Zirconium					<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Notes:

Results are expressed in micrograms per litre (µg/L), unless otherwise indicated.
Standards shown are from the Yukon Contaminated Sites Regulation Schedule 3 (updated to September 30, 2002), divided by a factor of 10 for assumed dilution of groundwater concentrations into surface water receptors.
2. Standards shown are from the Canadian Council of Ministers Canadian Environmental Quality Guidelines of the Environment, updated from time to time.
AW = standards for the protection of freshwater aquatic life
QA/QC = Quality Assurance/ Quality Control
pH = pH-dependant; H = Hardness-dependant; V = Valence-dependant; Cl = Chloride concentration-dependant guidelines
italics denotes detection limits that are greater than applicable standards
(-) = Not analyzed

TABLE 3B
Results of Surface Water Analysis - Dissolved Metals
Teck - Landfill ESA
Sā Dena Hes Mine, Yukon

Location Sample Control Number Date Sampled QA/QC	Aquatic Life CSR ¹ -AW (freshwater)	MCS	Aquatic Life CCME ² -AW (freshwater)	MCS	MH12 KS6050 26-Sep-14 FDA	MH12 KS6051 26-Sep-14 FD	SW14-01 KW1287 11-Oct-14	SW14-02 KW1288 11-Oct-14	SW14-03 KW1289 11-Oct-14
Physical Properties									
Hardness (Dissolved as CaCO ₃)					174000	170000	144000	161000	169000
Total Suspended Solids					1600	2100	<4000	<4000	<4000
Total Dissolved Solids					178000	229000	144000	170000	180000
Turbidity (NTU units)			2 - 8 avg max increase		-	-	0.57	0.31	1.17
Miscellaneous Inorganics									
Alkalinity (as CaCO ₃)					161000	161000	140000	156000	155000
Bicarbonate (HCO ₃)					196000	196000	171000	190000	189000
Carbonate (CO ₃)					<500	<500	<500	<500	<500
Hydroxide (OH)					<500	<500	<500	<500	<500
Dissolved Metals									
Aluminum			5-100	pH	<3.0	3.5	4.2	3.6	<3.0
Antimony	20				<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic	5		5		0.75	0.76	1.08	0.79	0.75
Barium	1,000				74.1	75.9	57.3	66.6	70.0
Beryllium	5.3				<0.10	<0.10	<0.10	<0.10	<0.10
Bismuth					<1.0	<1.0	<1.0	<1.0	<1.0
Boron	5,000		1,500		<50	<50	<50	<50	<50
Cadmium	0.01 - 0.06	H	0.09		0.038	0.041	0.034	0.044	0.037
Calcium					59700	58100	48800	54400	57200
Chromium	1.0 ^{VI} /9.0 ^{III}	V	1.0 ^{VI} /8.9 ^{III}		<1.0	<1.0	<1.0	<1.0	<1.0
Cobalt	0.9				<0.50	<0.50	<0.50	<0.50	<0.50
Copper	2 - 9	H	2 - 4	H	0.25	0.24	0.24	0.27	0.22
Iron			300		<5.0	<5.0	22.9	7.6	<5.0
Lead	4 - 16	H	1 - 7	H	0.21	0.21	<0.20	<0.20	<0.20
Lithium					<5.0	<5.0	<5.0	<5.0	<5.0
Magnesium					6010	5990	5490	6090	6230
Manganese					1.4	1.3	28.7	8.6	3.0
Mercury	0.1		0.026		<0.050	<0.050	<0.010	<0.010	<0.010
Molybdenum	1,000		73		1.3	1.3	1.3	1.3	1.2
Nickel	25 - 150	H	25 - 150	H	<1.0	<1.0	<1.0	<1.0	<1.0
Potassium					481	476	358	439	461
Selenium	1.0		1.0		0.58	0.61	0.45	0.60	0.61
Silicon					4270	4050	4100	3780	4010
Silver	0.05 - 1.5	H	0.1		<0.020	<0.020	<0.020	<0.020	<0.020
Sodium					1100	1100	909	1070	1050
Strontium					222	222	177	213	216
Sulphur					3600	4100	<3000	3500	3700
Thallium	0.3		0.8		<0.050	<0.050	<0.050	<0.050	<0.050
Tin					<5.0	<5.0	<5.0	<5.0	<5.0
Titanium	100				<5.0	<5.0	<5.0	<5.0	<5.0
Uranium	300		15		0.91	0.93	0.65	0.93	0.89
Vanadium					<5.0	<5.0	<5.0	<5.0	<5.0
Zinc	7.5 - 240	H	30		<5.0	<5.0	<5.0	<5.0	<5.0
Zirconium					<0.50	<0.50	<0.50	<0.50	<0.50

Notes:

Results are expressed in micrograms per litre (µg/L), unless otherwise indicated.

Standards shown are from the Yukon Contaminated Sites Regulation Schedule 3 (updated to September 30, 2002), divided by a factor of 10 for assumed dilution of groundwater concentrations into surface water receptors.

2. Standards shown are from the Canadian Council of Ministers Canadian Environmental Quality Guidelines of the Environment, updated from time to time.

AW = standards for the protection of freshwater aquatic life

QA/QC = Quality Assurance/ Quality Control

pH = pH-dependant; H = Hardness-dependant; V = Valence-dependant; Cl = Chloride concentration-dependant guidelines

italics denotes detection limits that are greater than applicable standards

(-) = Not analyzed

TABLE 3C
Results of Surface Water Analysis - Petroleum Hydrocarbons
Teck - Landfill ESA
Sä Dena Hes Mine, Yukon

Location Sample Control Number Date Sampled QA/QC	Aquatic Life CSR ¹ -AW (freshwater)	Aquatic Life CCME ² -AW (freshwater)	SW14-01 20769-01 8-Sep-14	SW14-02 20769-02 8-Sep-14	SW14-03 20769-03 8-Sep-14
Volatile Organic Compounds					
Benzene	400	370	<0.40	<0.40	<0.40
Ethylbenzene	200	90	<0.40	<0.40	<0.40
Methyl t-butyl ether (MTBE)		10000	<4.0	<4.0	<4.0
Styrene	72	72	<0.40	<0.40	<0.40
Toluene	39	2	<0.40	<0.40	<0.40
ortho-Xylene			<0.40	<0.40	<0.40
meta- & para-Xylene			<0.40	<0.40	<0.40
Xylenes, total			<0.40	<0.40	<0.40
Hydrocarbons					
EPHw10-19	500		<200	<200	<200
EPHw19-32			<200	<200	<200
LEPHw	50		<200	<200	<200
HEPHw			<200	<200	<200
Volatile Hydrocarbons (VH6-10)	1,500		<300	<300	<300
VPHw (C6-C10)	150		<300	<300	<300
Polycyclic Aromatic Hydrocarbons					
2-Methylnaphthalene			<0.10	<0.10	<0.10
Acenaphthene	6.0	5.8	<0.050	<0.050	<0.050
Acenaphthylene			<0.050	<0.050	<0.050
Acridine	0.05	4.4	<0.050	<0.050	<0.050
Anthracene	0.1	0.012	<0.010	<0.010	<0.010
Benz(a)anthracene	0.1	0.018	<0.010	<0.010	<0.010
Benzo(a)pyrene	0.01	0.015	<0.0090	<0.0090	<0.0090
Benzo(b,j)fluoranthene			<0.050	<0.050	<0.050
Benzo(g,h,i)perylene			<0.050	<0.050	<0.050
Benzo(k)fluoranthene			<0.050	<0.050	<0.050
Chrysene			<0.050	<0.050	<0.050
Dibenz(a,h)anthracene			<0.050	<0.050	<0.050
Fluoranthene	0.2	0.04	<0.020	<0.020	<0.020
Fluorene	12	3	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene			<0.050	<0.050	<0.050
Naphthalene	1	1.1	<0.10	<0.10	<0.10
Phenanthrene	0.3	0.4	<0.050	<0.050	<0.050
Pyrene	0.02	0.025	<0.020	<0.020	<0.020
Quinoline	3.4	3.4	<0.24	<0.24	<0.24

Notes:

Results are expressed in micrograms per litre (µg/L), unless otherwise indicated.

1. Standards shown are from the Yukon Contaminated Sites Regulation Schedule 3 (updated to September 30, 2002), divided by an dilution factor of 10 for assumed groundwater concentrations in receiving surface water samples.

2. Standards shown are from the Canadian Council of Ministers Canadian Environmental Quality Guidelines of the Environment, updated from time to time.

AW = standards for the protection of freshwater aquatic life

MCS: most conservative standard based on applicable site-specific standards

QA/QC = Quality Assurance/ Quality Control

italics denotes detection limits that are greater than applicable standards

(-) = Not analyzed

TABLE 5A
QA/QC Results of Groundwater Analysis - Dissolved Metals
Teck - Landfill ESA
Sä Dena Hes Mine, Yukon

Location Sample Control Number Date Sampled Quality Assurance	Method Detection Limit	MW14-02 22807-05 27-Sep-14 FDA	MW14-02 22807-06 27-Sep-14 FD	Mean	Relative Percent Difference	Difference Factor (DF)
Physical Tests						
Hardness (as CaCO ₃)	500	205000	207000	206000	1%	NA
Anions and Nutrients						
Chloride (Cl)	500	970	870	920	NA	0.20
Fluoride (F)	10	46	44	45	NA	0.20
Nitrate (as N)	20	131	123	127	6%	NA
Nitrite (as N)	5.0	<5	<5	NC	NC	NA
Nitrate and nitrite (as N)	20	131	123	127	6%	NA
Sulfate (SO ₄)	500	1050	1050	1050	NA	0.00
Dissolved Metals						
Aluminum	3.0	11	9.8	10.4	NA	0.40
Antimony	0.50	<0.50	<0.50	NC	NC	NA
Arsenic	0.10	0.42	0.42	0.4	NA	0.00
Barium	1.0	317	312	314.5	2%	NA
Beryllium	0.10	<0.1	<0.1	NC	NC	NA
Bismuth	1.0	<1.0	<1.0	NC	NC	NA
Boron	50	<50	<50	NC	NC	NA
Cadmium	0.010	0.039	0.036	0.0	NA	0.30
Calcium	50	65100	66200	65650	2%	NA
Chromium	1.0	<1.0	<1.0	NC	NC	NA
Cobalt	0.50	<0.5	<0.5	NC	NC	NA
Copper	0.20	0.32	0.22	0.3	NA	0.50
Iron	5.0	8.3	8.1	8.2	NA	0.04
Lead	0.2	<0.20	<0.20	NC	NC	NA
Lithium	5	<5.0	<5.0	NC	NC	NA
Magnesium	50	10300	10100	10200	2%	NA
Manganese	1.0	10.2	10.4	10.3	2%	NA
Mercury	0.010	<0.010	<0.010	NC	NC	NA
Molybdenum	1.0	<1.0	<1.0	NC	NC	NA
Nickel	1.0	<1.0	<1.0	NC	NC	NA
Potassium	50	675	641	658	5%	NA
Selenium	0.10	<0.10	<0.10	NC	NC	NA
Silicon	100	3790	3830	3810	1%	NA
Silver	0.020	<0.020	<0.020	NC	NC	NA
Sodium	50	1100	1050	1075	5%	NA
Strontium	1.0	225	222	223.5	1%	NA
Sulphur	3000	<3000	<3000	NC	NC	NA
Thallium	0.05	<0.050	<0.050	NC	NC	NA
Tin	5.0	<5.0	<5.0	NC	NC	NA
Titanium	5.0	<5.0	<5.0	NC	NC	NA
Uranium	0.10	0.73	0.75	0.74	3%	NA
Vanadium	5.0	<5.0	<5.0	NC	NC	NA
Zinc	5.0	33.0	12.5	22.75	NA	4.10
Zirconium	0.50	<0.50	<0.50	NC	NC	NA

Notes:

Results are expressed in microgram per litre (µg/L), unless otherwise indicated.

Mean = average of two values.

Relative percent difference = the difference between two values divided by the mean of the two values.

Difference factor = absolute difference between two values divided by the method detection limit.

Difference factor is calculated when the concentration is within five times the detection limit.

Bold text indicates that the RPD or DF exceeds Golder's internal QA/QC guidelines.

FDA = Field Duplicate Available; FD = Field Duplicate; NC = Not Calculated; NA = Not Applicable

TABLE 5B
QA/QC Results of Groundwater Analysis - Petroleum Hydrocarbons
Teck - Landfill ESA
Sä Dena Hes Mine, Yukon

Location Sample Control Number Date Sampled Quality Assurance	Method Detection Limit	MW14-02 22807-05 27-Sep-14 FDA	MW14-02 22807-06 27-Sep-14 FD	Mean	Relative Percent Difference	Difference Factor (DF)
Volatile Organic Compounds						
Benzene	0.40	<0.40	<0.40	NC	NC	NA
Ethylbenzene	0.40	<0.40	<0.40	NC	NC	NA
Methyl t-butyl ether (MTBE)	4.0	<4.0	<4.0	NC	NC	NA
Styrene	0.50	<0.50	<0.50	NC	NC	NA
Toluene	0.40	<0.40	<0.40	NC	NC	NA
ortho-Xylene	0.40	<0.40	<0.40	NC	NC	NA
meta- & para-Xylene	0.40	<0.40	<0.40	NC	NC	NA
Xylenes, total	0.40	<0.40	<0.40	NC	NC	NA
Hydrocarbons						
EPH10-19	200	<200	<200	NC	NC	NA
EPH19-32	200	<200	<200	NC	NC	NA
LEPH	200	<200	<200	NC	NC	NA
HEPH	200	<200	<200	NC	NC	NA
Volatile Hydrocarbons (VH6-10)	300	<300	<300	NC	NC	NA
VPH (C6-C10)	300	<300	<300	NC	NC	NA
Polycyclic Aromatic Hydrocarbons						
2-Methylnaphthalene	0.10	<0.10	<0.10	NC	NC	NA
Acenaphthene	0.050	<0.050	<0.050	NC	NC	NA
Acenaphthylene	0.050	<0.050	<0.050	NC	NC	NA
Acridine	0.050	<0.050	<0.050	NC	NC	NA
Anthracene	0.010	<0.010	<0.010	NC	NC	NA
Benz(a)anthracene	0.010	<0.010	<0.010	NC	NC	NA
Benzo(a)pyrene	0.0090	<0.0090	<0.0090	NC	NC	NA
Benzo(b,j)fluoranthene	0.050	<0.050	<0.050	NC	NC	NA
Benzo(g,h,i)perylene	0.050	<0.050	<0.050	NC	NC	NA
Benzo(k)fluoranthene	0.050	<0.050	<0.050	NC	NC	NA
Chrysene	0.050	<0.050	<0.050	NC	NC	NA
Dibenz(a,h)anthracene	0.050	<0.050	<0.050	NC	NC	NA
Fluoranthene	0.020	<0.020	<0.020	NC	NC	NA
Fluorene	0.050	<0.050	<0.050	NC	NC	NA
Indeno(1,2,3-c,d)pyrene	0.050	<0.050	<0.050	NC	NC	NA
Naphthalene	0.10	<0.10	<0.10	NC	NC	NA
Phenanthrene	0.050	<0.050	<0.050	NC	NC	NA
Pyrene	0.020	<0.020	<0.020	NC	NC	NA
Quinoline	0.24	<0.24	<0.24	NC	NC	NA
Low Molecular Weight PAH's	0.050	<0.050	<0.050	NC	NC	NA
High Molecular Weight PAH's	0.24	<0.24	<0.24	NC	NC	NA
Total PAH	0.24	<0.24	<0.24	NC	NC	NA

Notes:

Results are expressed in micrograms per litre (µg/L), unless otherwise indicated.

Mean = average of two values.

Relative percent difference = the difference between two values divided by the mean of the two values.

Difference factor = absolute difference between two values divided by the method detection limit.

Difference factor is calculated when the concentration is within five times the detection limit.

Bold text indicates that the RPD or DF exceeds Golder's internal QA/QC guidelines.

FDA = Field Duplicate Available; FD = Field Duplicate; NC = Not Calculated; NA = Not Applicable

TABLE 5C
QAQC Results of Groundwater Analysis - Volatile Organic Compounds
Teck - Landfill ESA
Sä Dena Hes Mine, Yukon

Location Sample Control Number Date Sampled Quality Assurance	Method Detection Limit	MW14-02 22807-05 27-Sep-14 FDA	MW14-02 22807-06 27-Sep-14 FD	Mean	Relative Percent Difference	Difference Factor (DF)
Volatiles						
Bromodichloromethane	1.0	<1.0	<1.0	NC	NC	NA
Bromoform	1.0	<1.0	<1.0	NC	NC	NA
Bromomethane	1.0	<1.0	<1.0	NC	NC	NA
Carbon tetrachloride	0.50	<0.50	<0.50	NC	NC	NA
Chlorodibromomethane	1.0	<1.0	<1.0	NC	NC	NA
Chloromethane	1.0	<1.0	<1.0	NC	NC	NA
Chlorobenzene	0.50	<0.50	<0.50	NC	NC	NA
Chloroethane	1.0	<1.0	<1.0	NC	NC	NA
Chloroform	1.0	<1.0	<1.0	NC	NC	NA
1,2-dibromoethane	0.20	<0.20	<0.20	NC	NC	NA
1,2-dichlorobenzene	0.50	<0.50	<0.50	NC	NC	NA
1,3-dichlorobenzene	0.50	<0.50	<0.50	NC	NC	NA
1,4-dichlorobenzene	0.50	<0.50	<0.50	NC	NC	NA
1,1-dichloroethane	0.50	<0.50	<0.50	NC	NC	NA
1,2-dichloroethane	0.50	<0.50	<0.50	NC	NC	NA
1,1-dichloroethene	0.50	<0.50	<0.50	NC	NC	NA
cis-1,2-dichloroethene	1.0	<1.0	<1.0	NC	NC	NA
trans-1,2-dichloroethene	1.0	<1.0	<1.0	NC	NC	NA
Dichloromethane	2.8	<2.0	<4.1	NC	NC	NA
1,2-dichloropropane	0.50	<0.50	<0.50	NC	NC	NA
cis-1,3-dichloropropene	1.0	<1.0	<1.0	NC	NC	NA
trans-1,3-dichloropropene	1.0	<1.0	<1.0	NC	NC	NA
1,1,1-trichloroethane	0.50	<0.50	<0.50	NC	NC	NA
1,1,2-trichloroethane	0.50	<0.50	<0.50	NC	NC	NA
Trichloroethene	0.50	<0.50	<0.50	NC	NC	NA
Trichlorofluoromethane	4.0	<4.0	<4.0	NC	NC	NA
1,1,1,2-tetrachloroethane	0.50	<0.50	<0.50	NC	NC	NA
1,1,2,2-tetrachloroethane	0.50	<0.50	<0.50	NC	NC	NA
Tetrachloroethene	0.50	<0.50	<0.50	NC	NC	NA
Vinyl chloride	0.50	<0.50	<0.50	NC	NC	NA

Notes:

Results are expressed in microgram per litre (µg/L), unless otherwise indicated.

Mean = average of two values.

Relative percent difference = the difference between two values divided by the mean of the two values.

Difference factor = absolute difference between two values divided by the method detection limit.

Difference factor is calculated when the concentration is within five times the detection limit.

Bold text indicates that the RPD or DF exceeds Golder's internal QA/QC guidelines.

FDA = Field Duplicate Available; FD = Field Duplicate; NC = Not Calculated; NA = Not Applicable

ATTACHMENT 1

Monitoring Well Logs

PROJECT No.: 12-1021-0006 / 11000

RECORD OF MONITORING WELL: MW14-01

SHEET 1 OF 2

CLIENT: Teck Resources Ltd.
 PROJECT: Sa Dena Hes Mine Closure
 LOCATION: Landfill
 N: 6712303.22 E: 507861.35

DRILLING DATE: September 10, 2014
 DRILLING CONTRACTOR: Impact Drilling

DATUM: NAD 83

DEPTH SCALE METRES	DRILLING RIG DRILLING METHOD	SOIL PROFILE			SAMPLES				PID ppm		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION			
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	⊕				⚡					
										5101520				20406080					
										PID ppm				WATER CONTENT PERCENT Wp — W — Wi					
0		Ground Surface		1039.87														Stick-up	
	Foremost DR12 Air Rotary	FILL - (SW) SAND, fine sand, trace to some silt; brown-grey; non-cohesive, dry. -no odour or staining		0.00														Concrete	
1																		Bentonite Chips	
2																		Soil Cuttings	
3																		Bentonite Chips	
		(SW) SAND, fine sand, some silt; grey; non-cohesive, dry. -no odour or staining		1036.82 3.05	SA1														Soil Cuttings
4																			
5																			Bentonite Chips
6																			
	(SW/GW) SAND and GRAVEL, coarse to fine sand and gravel; brown-grey, non-cohesive, dry to moist. -no odour or staining		1033.77 6.10	SA2														Soil Cuttings	
7																			
8																		Slough	
9																			
	(SW) SAND, fine sand; light brown, sub-angular cobbles; non-cohesive, dry. -no odour or staining		1030.73 9.14	SA3														Bentonite Chips	
10																			
		CONTINUED NEXT PAGE																	

DEPTH SCALE

1 : 50



SOIL CLASSIFICATION SYSTEM: GACS

LOGGED: LC

CHECKED: AB

PROJECT No.: 12-1021-0006 / 11000

RECORD OF MONITORING WELL: MW14-01

SHEET 2 OF 2

CLIENT: Teck Resources Ltd.
 PROJECT: Sa Dena Hes Mine Closure
 LOCATION: Landfill
 N: 6712303.22 E: 507861.35

DRILLING DATE: September 10, 2014
 DRILLING CONTRACTOR: Impact Drilling

DATUM: NAD 83

DEPTH SCALE METRES	DRILLING RIG DRILLING METHOD	SOIL PROFILE		SAMPLES					PID ppm		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
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10	Foremost DR12 Air Rotary	(SW) SAND, fine sand; light brown, sub-angular cobbles; non-cohesive, dry. -no odour or staining (continued)		1027.68 12.19	SA4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

Bentonite Chips

Silica Sand

Water level
observed in
open hole
during drilling

Slotted PVC pipe

Soil Cuttings

DEPTH SCALE

1 : 50



SOIL CLASSIFICATION SYSTEM: GACS

LOGGED: LC

CHECKED: AB

DRILLING DATE: September 9, 2014
DRILLING CONTRACTOR: Impact Drilling

DATUM: NAD 83

DEPTH SCALE METRES	DRILLING RIG DRILLING METHOD	SOIL PROFILE			SAMPLES					PID ppm		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION			
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	⊕										
										PID ppm				□						
										WATER CONTENT PERCENT										
									Wp — W — WI											
									50 100 150 200				10 20 30 40							
0	Foremost DR12 Air Rotary	Ground Surface		1033.32												Stick-up				
		FILL - (SW) SAND, coarse to fine sand, some coarse to fine gravel; light brown, sub-angular cobbles; non-cohesive, dry. -no odour or staining		0.00													Concrete			
1																	Bentonite Chips			
2																				
3		-increased sand and moisture content from 3m to 6m depth.			SA1															
4																	Bentonite Chips			
5																	Soil Cuttings			
6																				
7		(SW) SAND, fine sand, trace to some silt; light brown; non-cohesive, dry to moist, loose. -no odour or staining		1027.22 6.10	SA2												Bentonite Chips			
8																				
9																				
10		-decreased silt and moisture content from 9.1m to 12.1m depth.		SA3												Soil Cuttings				
		CONTINUED NEXT PAGE																		

DEPTH SCALE

1 : 50

SOIL CLASSIFICATION SYSTEM: GACS							

LOGGED: LC

CHECKED: AB

[illegible]

DEPTH SCALE

1 : 50

SOIL CLASSIFICATION SYSTEM: GACS							

LOGGED: LC

CHECKED: AB

PROJECT No.: 12-1021-0006 / 11000

RECORD OF MONITORING WELL: MW14-03

SHEET 1 OF 1

CLIENT: Teck Resources Ltd.
 PROJECT: Sa Dena Hes Mine Closure
 LOCATION: Landfill
 N: 6712442.82 E: 507922.23

DRILLING DATE: September 12, 2014
 DRILLING CONTRACTOR: Impact Drilling

DATUM: NAD 83

DEPTH SCALE METRES	DRILLING RIG DRILLING METHOD	SOIL PROFILE		SAMPLES				PID				DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m				ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION			
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	PID				WATER CONTENT PERCENT						
										5	10	15	20	20	40			60	80	
										PID ppm					Wp	W	Wi			
										50	100	150	200		10	20	30	40		
0		Ground Surface		1030.14															Stick-up	
	Foremost DR12 Air Rotary	FILL - (SW/GW) SAND and GRAVEL, coarse to fine sand and gravel; brown; non-cohesive, dry to moist. -no odour or staining		0.00															Concrete	
		(SW) SAND, coarse to medium sand, some silt; brown; non-cohesive, moist to wet. -no odour or staining		1029.53 0.61																Bentonite Chips
1																			Soil Cuttings	
																			Slough	
2																			Bentonite Chips	
3																			Silica Sand	
4						SA1														Slotted PVC pipe
			-wet at 4.5m depth.																	
5																			Water level observed in open hole during drilling	
6																				
7																				
																			Slough	
8		End of Monitoring Well.		1022.22 7.92																
9																				
10																				

DEPTH SCALE

1 : 50



SOIL CLASSIFICATION SYSTEM: GACS

LOGGED: LC

CHECKED: AB

PROJECT No.: 12-1021-0006 / 11000

RECORD OF MONITORING WELL: MW14-04

SHEET 1 OF 2

CLIENT: Teck Resources Ltd.
 PROJECT: Sa Dena Hes Mine Closure
 LOCATION: Landfill
 N: 6712365.23 E: 508005.45

DRILLING DATE: September 11, 2014
 DRILLING CONTRACTOR: Impact Drilling

DATUM: NAD 83

DEPTH SCALE METRES	DRILLING RIG DRILLING METHOD	SOIL PROFILE		SAMPLES				PID ppm		DYNAMIC PENETRATION RESISTANCE, BLOWS/0.3m		ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE OR THERMISTOR INSTALLATION
		DESCRIPTION	STRATA PLOT	ELEV. DEPTH (m)	NUMBER	TYPE	BLOWS/0.3m	CORE No.	CORE RECOVERY %	WATER CONTENT PERCENT			
										Wp	Wi		
0	Foremost DR12 Air Rotary	Ground Surface		1028.82									Stick-up
		FILL - (SW/GW) SAND and GRAVEL, coarse to fine sand and gravel; brown; non-cohesive, dry to moist. -no odour or staining		0.00									Concrete
1													Bentonite Chips
2													Soil Cuttings
3		(SW) SAND, medium to fine sand, some coarse to fine gravel, some silt; brown; non-cohesive, dry to moist. -no odour or staining		1025.77 3.05	SA1								Bentonite Chips
4													
5													Soil Cuttings
6					SA2								Bentonite Chips
7													Slough
8													Bentonite Chips
9	(SM) SILTY SAND, coarse to fine; brown; non-cohesive, wet.		1019.68 9.14	SA3								Silica Sand	
10												Water level observed in	
		CONTINUED NEXT PAGE											

DEPTH SCALE

1 : 50



SOIL CLASSIFICATION SYSTEM: GACS

LOGGED: LC

CHECKED: AB

DATUM: NAD 83

[illegible]

DEPTH SCALE

1 : 50

SOIL CLASSIFICATION SYSTEM: GACS							

LOGGED: LC

CHECKED: AB

ATTACHMENT 2

Groundwater Development and Sampling Forms

GROUNDWATER DEVELOPMENT AND SAMPLING DATA

☐ Development

☒ Purging/Sampling

Well No.: FW14-01

Project Name: Sa Dana Hcs

Project No.: 12-1021-0006/1000 /

Location: Landfill

Date: Sept. 27 / 14

Weather: Cloudy Temperature: ~6°C

Completed By: LC

GPS Coordinates: _____

Reviewed By: _____

MONITORING WELL INFORMATION

Time of Measurement: _____ Tidally Influenced: ☐ Yes ☒ No
 Depth to Product: _____ m Product Thickness: _____ m Pressurized: ☐ Yes ☒ No
 Depth to Water (A): 14.120 m below ☒ TOP Well Headspace: _____ ppm
 Depth to Bottom of Well (B): 15.845 m below ☒ TOP One Well Volume: _____
 Diameter of Standpipe: 51 mm (B-A)*2.0 = 3.4 Litres - for a 51 mm (2.0 inch) diameter well
 Well Condition: good (B-A)*1.1 = _____ Litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

Pump ☒ Waterra Multimeter Model: YSI 556 MPS ☒ Rental Equipment: YSI HydroLift
☒ Hydrolift pH/Temp Meter Model: _____
☒ Bailer (Type: _____) Conductivity Meter Model: _____ ☐ Field Bump
☐ Peristaltic Dissolved Oxygen Meter Model: _____ ☐ pH4 _____ ☐ pH7 _____
☐ Submersible ORP (Redox) Meter Model: _____ ☐ pH10 _____
☐ Bladder Organic Vapour Meter Model: _____ ☐ 1413 us/cm _____
 Pump Details: _____ ☐ D.O. Ampoule ☐ Field Calibration _____

WELL DEVELOPMENT/PURGING

Purge Volume: Well Vol. X 3 3.4 = 10 litres Start: _____ Finish: _____
 Avg. Flow Rate: _____ L/min. Sample intake depth: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. $\mu\text{S/cm}$ or mS/cm (circle one)	Redox (mV)	Diss. O ₂ * (mg/L)	Water Level (m)	Remarks
16:58	2	3.0	8.00	209.3	130.2	8.44		mulg brown, no odour
17:00	4	2.7	7.61	409.0	124.0	8.27		wang Redox
17:06	6	2.7	7.32	386.3	124.0	8.41	14.485 @ 5L	
17:10	8	2.7	7.33	388.0	122.1	8.16		
17:14	10	2.4	7.32	374.1	124.0	8.49	14.520 @ 10L	

* Record DO in Mg/L, not percentage

Comments:

Odour: ☐ Yes ☐ No If yes _____
 Sheen: ☐ Yes ☐ No If yes _____ ☐ Hydrocarbon-like OR ☐ Metallic-like
 Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size							Filtered	Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L		
LEPH/HEPH	☐ Plastic ☒ Glass			2					☐ Yes ☒ No	soot bis
BTEX/VPH	☐ Plastic ☒ Glass	3							☐ Yes ☒ No	soot bis
Dis. Metals	☒ Plastic ☐ Glass								☒ Yes ☐ No	nitric acid
Dis. Hg	☐ Plastic ☒ Glass	1							☒ Yes ☐ No	HCl
Anions	☒ Plastic ☐ Glass					1			☐ Yes ☒ No	---
	☐ Plastic ☐ Glass								☐ Yes ☐ No	
	☐ Plastic ☐ Glass								☐ Yes ☐ No	

SCN No. 22807-07 Consumables: ☐ Waterra Tubing ☐ HDPE/Teflon Tubing ☒ Groundwater Filter
 Field Dup. _____ ☒ Silicon Tubing 5cm ☐ D.O. Ampoules _____ ☐ Footvalve

GROUNDWATER DEVELOPMENT AND SAMPLING DATA

☐ Development

☒ Purging/Sampling

Well No.: HW14-02

Project Name:

Sa Dena Hcs

Project No.:

12-1021-0006/1000/

Location:

Landfill

Date:

Sept. 27 / 14

Weather:

Cloudy

Temperature:

~6°C

Completed By:

LC

GPS Coordinates:

Reviewed By:

MONITORING WELL INFORMATION

Time of Measurement:

Tidally Influenced: ☐ Yes ☒ No

Depth to Product:

--- m

Product Thickness:

--- m

Pressurized:

☐ Yes ☒ No

Depth to Water (A):

14.400 m below

☒ TOP

Well Headspace:

--- ppm

Depth to Bottom of Well (B):

16.160 m below

☒ TOP

One Well Volume:

Diameter of Standpipe:

51 mm

(B-A)*2.0 = 3.36

Litres - for a 51 mm (2.0 inch) diameter well

Well Condition:

good

(B-A)*1.1 = ---

Litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

Pump ☒ Waterra

Multimeter

Model: YSI 556MPS

☒ Rental Equipment: YSI ; Hydrolift

☒ Hydrolift

pH/Temp Meter

Model: ---

☒ Bailer (Type: 1 Lt.)

Conductivity Meter

Model: ---

☐ Field Bump

☐ Peristaltic

Dissolved Oxygen Meter

Model: ---

☐ pH4

☐ pH7

☐ Submersible

ORP (Redox) Meter

Model: ---

☐ pH10

☐ Bladder

Organic Vapour Meter

Model: ---

☐ 1413 us/cm

Pump Details:

☐ D.O. Ampoule

☐ Field Calibration

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 3 3.36 = 10.08 litres

Start: ---

Finish: ---

Avg. Flow Rate:

--- L/min.

Sample intake depth: ---

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. µS/cm or mS/cm (circle one)	Redox (mV)	Diss. O ₂ * (mg/L)	Water Level (m)	Remarks
15:43	2	4.9	7.81	989	85.6	-48.7		Forget to make DO (very spot)
15:47	4	4.4	7.76	365.3	67.9	-48.7		mkly brown, some silt, no odor
15:55	6	4.9	7.77	360.9	76.3	10.05	14.740 ESL	
16:07	8	4.7	7.80	353.2	79.2	9.45		
16:11	10	4.7	7.84	357.4	84.9	8.54	14.735	

* Record DO in Mg/L, not percentage

Comments:

Odour: ☐ Yes ☒ No If yes ---

Sheen: ☐ Yes ☒ No If yes ☐ Hydrocarbon-like OR ☐ Metallic-like

Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size							Filtered		Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L			
LEPH/HEP14	☐ Plastic ☒ Glass			2					☐ Yes ☒ No		soot bis
BTEX/UPH	☐ Plastic ☒ Glass	3							☐ Yes ☒ No		soot bis
Dis. Metals	☒ Plastic ☐ Glass								☒ Yes ☐ No		nitric acid
Dis. Hg	☐ Plastic ☒ Glass	1							☒ Yes ☐ No		HCl
Anions	☒ Plastic ☐ Glass					1			☐ Yes ☒ No		---
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		

SCN No. 22807-05

Consumables: ☐ Waterra Tubing

☐ HDPE/Teflon Tubing

☒ Groundwater Filter

Field Dup. 22801-06

☒ Silicon Tubing 5cm

☐ D.O. Ampoules

☐ Footvalve

Well No.: MW14 - 03

Project No.: 12-1021-0006/11000 /
Date: Sept. 27 / 14
Completed By: LC
Reviewed By:

Time of Measurement: 14:20

Depth to Product: — m Product Thickness: — m

Depth to Water (A): 5.140 m below ☒ TOP

Depth to Bottom of Well (B): 7.20 m below ☒ TOP

Diameter of Standpipe: 51 mm

Well Condition: good

Tidally Influenced: ☐ Yes ☒ No

Pressurized: ☐ Yes ☒ No

Well Headspace: — ppm

One Well Volume:

(B-A)*2.0 = 4.12 Litres - for a 51 mm (2.0 inch) diameter well

(B-A)*1.1 = — Litres - for a 38 mm (1.5 inch) diameter well

Pump	☒ Waterra	Multimeter	Model: <u>YSI 556 MPS</u>	☒ Rental Equipment: <u>YSI ; Hydrolift</u>
	☒ Hydrolift	pH/Temp Meter	Model: _____	
	☒ Bailer (Type: <u>16lt</u>)	Conductivity Meter	Model: _____	☐ Field Bump
	☐ Peristaltic	Dissolved Oxygen Meter	Model: _____	☐ pH4 _____ ☐ pH7 _____
	☐ Submersible	ORP (Redex) Meter	Model: _____	☐ pH10 _____
	☐ Bladder	Organic Vapour Meter	Model: _____	☐ 1413 us/cm _____
Pump Details:		☐ D.O. Ampoule		☐ Field Calibration

Purge Volume: Well. Vol. X 3 4 = 12. litres
Avg. Flow Rate: L/min. Start: Finish:
Sample intake depth:

[illegible]

* Record DO in Mg/L, not percentage

Odour: ☐ Yes ☐ No If yes _____

Sheen: ☐ Yes ☐ No If yes ☐ Hydrocarbon-like OR ☐ Metallic-like

Turbidity: Clear | Very Silty

Analysis	Type		Container Size							Filtered		Preservatives
			40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L			
LEPH/HEPIT	☐ Plastic	☒ Glass			2					☐ Yes	☒ No	sool. bis
BTEX/UPH	☐ Plastic	☒ Glass	3							☐ Yes	☒ No	sool. bis.
Dis. Metals	☒ Plastic	☐ Glass								☒ Yes	☐ No	nitric acid
Dis. Hg	☐ Plastic	☒ Glass	1							☒ Yes	☐ No	HCl
Anions	☒ Plastic	☐ Glass					1			☐ Yes	☒ No	—
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. 22807-04 Consumables: ☐ Waterra Tubing _____ ☐ HDPE/Teflon Tubing _____ ☒ Groundwater Filter _____
Field Dup. _____ ☒ Silicon Tubing 5cm ☐ D.O. Ampoules _____ ☐ Footvalve _____

GROUNDWATER DEVELOPMENT AND SAMPLING DATA

☐ Development

☒ Purging/Sampling

Well No.: MW14-04

Project Name: Sa Dena Hes

Project No.: 12-1021-0006/11000/

Location: Landfill

Date: Sept. 27 / 14

Weather: Cloudy Temperature: -6°C

Completed By: LC

GPS Coordinates: _____

Reviewed By: _____

MONITORING WELL INFORMATION

Time of Measurement: 12:18
 Depth to Product: — m Product Thickness: — m Tidally Influenced: ☐ Yes ☒ No
 Depth to Water (A): 10.13 m below ☒ TOP Pressurized: ☐ Yes ☒ No
 Depth to Bottom of Well (B): 13.87 m below ☒ TOP Well Headspace: — ppm
 Diameter of Standpipe: 51 mm One Well Volume: (B-A)*2.0 = 7.49 Litres - for a 51 mm (2.0 inch) diameter well
 Well Condition: good - new install (B-A)*1.1 = — Litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

Pump ☒ Waterra } purge
☒ Hydrolift }
 Sample ☒ Bailer (Type: 16 wt.)
☐ Peristaltic
☐ Submersible
☐ Bladder
 Pump Details: _____
 Multimeter Model: YSI 556 MPS ☒ Rental Equipment: YSI ; Hydrolift
 pH/Temp Meter Model: _____
 Conductivity Meter Model: _____
 Dissolved Oxygen Meter Model: _____
 ORP (Redox) Meter Model: _____
 Organic Vapour Meter Model: _____
☐ Field Bump
☐ pH4 _____
☐ pH10 _____
☐ 1413 us/cm
☐ Field Calibration

WELL DEVELOPMENT/PURGING

Purge Volume: Well Vol. X 3 7.5 = ~22.5 litres Start: _____ Finish: _____
 Avg. Flow Rate: _____ L/min. Sample intake depth: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. µS/cm or mS/cm (circle one)	Redox (mV)	Diss. O ₂ * (mg/L)	Water Level (m)	Remarks
10:36	3	4.4	7.88	608.7	-85.2	7.10		mulky, very silty, brown no color
1:38	6	4.4	7.51	341.8	-92.9	7.02		
4:3	9	4.4	7.41	322.5	-119.8	6.60		
4:9	12	4.4	7.49	326.3	-143.2	6.58	10.81	
5:4	15	4.4	7.54	320.1	-162.7	6.53		
11:01	18	4.4	7.56	315.2	-173.3	6.85	10.60	
13:11	25	4.5	7.58	314.2	-174.9	7.10		↓ product stable

* Record DO in Mg/L, not percentage

Comments:

Odour: ☐ Yes ☐ No If yes _____
 Sheen: ☐ Yes ☐ No If yes ☐ Hydrocarbon-like OR ☐ Metallic-like
 Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size							Filtered		Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L	☐ Yes	☒ No	
LEPH/HEPIT	☐ Plastic ☒ Glass			2					☐ Yes	☒ No	soak bis
BTEX/UPH	☐ Plastic ☒ Glass	3							☐ Yes	☒ No	soak bis
Dis. Metals	☒ Plastic ☐ Glass								☒ Yes	☐ No	nitric acid
Dis. Hg	☐ Plastic ☒ Glass	1							☒ Yes	☐ No	HCl
Anions	☒ Plastic ☐ Glass					1			☐ Yes	☒ No	—
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	

SCN No. 22807-03 Consumables: ☐ Waterra Tubing ☐ HDPE/Teflon Tubing ☒ Groundwater Filter
 Field Dup. 5cm ☒ Silicon Tubing ☐ D.O. Ampoules ☐ Footvalve

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April 26, 2013



TH09-91
~~TH91-9~~

12-1021-0006/11000 /

Sept. 27/14

LC / AB

Reviewed By:

(B-A)*1.1 = Litres - for a 38 mm (1.5 inch) diameter well

☐ Field Calibration

Sample intake depth:

* Record DO in Mg/L, not percentage

Turbidity: Clear  Very Silty



**Golder
Associates**

Well No.: ~~1144-1~~

Project Name: San Dena Hes
Location: Gravel Pit by Landfill
Weather: Cloudy Temperature: 6 °C
GPS Coordinates: _____

Project No.: 12-1021-0006/11000/
Date: Sept. 27/14
Completed By: LC
Reviewed By:

MONITORING WELL INFORMATION

Time of Measurement: 9:30

Depth to Product: — m Product Thickness: — m

Depth to Water (A): 11.345 m below ☒ TOP

Depth to Bottom of Well (B): 18.910 m below ☒ TOP

Diameter of Standpipe: 51.4 mm inch

Well Condition: good - pre-existing w/ water

Tidally Influenced: ☐ Yes ☒ No

Pressurized: ☐ Yes ☒ No

Well Headspace: — ppm

One Well Volume: = 61.78 (4 inch. diameter well.)

(B-A)*2.0 = — Litres - for a 51 mm (2.0 inch) diameter well

(B-A)*1.1 = — Litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

Pump	☒ Waterra	Multimeter	Model: <u>YSI 556 MPS</u>	☒ Rental Equipment: <u>YSI Hydrolift</u>
	☒ Hydrolift	pH/Temp Meter	Model: _____	
	☒ Bailer (Type: <u>1 L w/ t.</u>)	Conductivity Meter	Model: _____	☐ Field Bump
	☐ Peristaltic	Dissolved Oxygen Meter	Model: _____	☐ pH4 _____ ☐ pH7 _____
	☐ Submersible	ORP (Redex) Meter	Model: _____	☐ pH10 _____
	☐ Bladder	Organic Vapour Meter	Model: _____	☐ 1413 us/cm _____
Pump Details:		☐ D.O. Ampoule		☐ Field Calibration

WELL DEVELOPMENT/PURGING

Purge Volume: Well, Vol. X 3 62 = 185 litres Start: _____ Finish: _____
Avg. Flow Rate: _____ L/min. Sample intake depth: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	☐ Cond. ☐ Specific Cond. μS/cm or mS/cm (circle one)	Redox (mV)	Diss. O ₂ * (mg/L)	Water Level (m)	Remarks
9:57	10	2.9	7.6	960	-154.5	3.96		clear but detectable, no odor
10:02	20	2.7	7.37	258.4	-98.0	4.10		murky, no odor
10:07	30	2.7	7.38	258.8	-76.7	4.80		
10:13	40	2.7	7.44	266.2	-71.2	5.92		
10:19	50	2.7	7.52	265.8	-65.7	5.94		
10:25	60	2.8	7.52	272.9	-61.5	5.66		
10:30	70	2.7	7.58	271.6	-63.0	6.31		
10:35	80	2.5	7.60	272.8	-98.7	5.70	11.365	sterile, began to smell

* Record DO in Mg/L, not percentage

Comments:

Odour: ☐ Yes ☒ No If yes _____

Sheen: ☐ Yes ☒ No If yes ☐ Hydrocarbon-like OR ☐ Metallic-like

Turbidity: Clear [|||||] Very Silty

Analysis	Type		Container Size							Filtered		Preservatives
			40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L			
LEPH/HEPIT	☐ Plastic	☒ Glass			2					☐ Yes	☒ No	soal bis
BTEX/UPH	☐ Plastic	☒ Glass	3							☐ Yes	☒ No	soal bis.
Dis. Metals	☒ Plastic	☐ Glass								☒ Yes	☐ No	nitric acid
Dis. Hg	☐ Plastic	☒ Glass	1							☒ Yes	☐ No	HCl
Anions	☒ Plastic	☐ Glass					1			☐ Yes	☒ No	---
	☐ Plastic	☐ Glass								☐ Yes	☐ No	
	☐ Plastic	☐ Glass								☐ Yes	☐ No	

SCN No. 22807-01 Consumables: ☐ Waterra Tubing _____ ☐ HDPE/Teflon Tubing _____ ☒ Groundwater Filter _____
Field Dup. ☒ Silicon Tubing 5cm ☐ D.O. Ampoules _____ ☐ Footvalve _____

GROUNDWATER DEVELOPMENT AND SAMPLING DATA

☒ Development
☐ Purging/Sampling

Well No.: MW14-01

Project Name: 2014 Landfill ESA
Location: So Denar His Landfill, YT
Weather: Cloudy Temperature: 5°C
GPS Coordinates: way bt. 105 from gnd.

Project No.: 12-1021-0006/11000
Date: Sept 17/14
Completed By: LC
Reviewed By: HB

MONITORING WELL INFORMATION

Time of Measurement: 9:30
Depth to Product: NA m Product Thickness: NA m
Depth to Water (A): 12.690 m below ☒ TOP w/ 60cm S.U.
Depth to Bottom of Well (B): 15.140 m below ☒ TOP
Diameter of Standpipe: 51 mm
Well Condition: good - new install
Tidally Influenced: ☐ Yes ☒ No
Pressurized: ☐ Yes ☒ No
Well Headspace: NA ppm
One Well Volume:
(B-A)*2.0 = 4.9 Litres - for a 51 mm (2.0 inch) diameter well
(B-A)*1.1 = - Litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

Pump ☒ Waterra (manual) ☐ Hydrolift ☐ Bailer (Type: _____) ☐ Peristaltic ☐ Submersible ☐ Bladder
Multimeter Model: _____
pH/Temp Meter Model: _____
Conductivity Meter Model: _____
Dissolved Oxygen Meter Model: _____
ORP (Redox) Meter Model: _____
Organic Vapour Meter Model: _____
Rental Equipment: ☐ Field Bump ☐ pH4 ☐ pH7 ☐ 1413 us/cm ☐ Field Calibration
Pump Details: _____ ☐ D.O. Ampoule

WELL DEVELOPMENT/PURGING

Purge Volume: Well Vol. X 6 = 39.4 litres
Avg. Flow Rate: _____ L/min. ~ 30 L purge
Start: _____ Finish: _____
Sample intake depth: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. (US/cm or mS/cm (circle one))	Redox (mV)	Diss. O ₂ * (mg/L)	Water Level (m)	Remarks
9:44	5	3.59	6.63	2148	-15.7	5.02		DO jumpy, goes better
1:46	10	3.43	6.72	1952	-20.5	4.88		very murky
1:48	15	3.25	6.71	1976	-20.0	5.64		breakin, silty
1:50	20	2.98	6.74	1789	-21.4	6.04		very opaque
1:54	25	3.22	6.70	1654	-19.7	6.16		no odour
1:56	30	3.16	6.82	1456	-26.3	7.54		

* Record DO in Mg/L, not percentage

Comments:

Odour: ☐ Yes ☒ No If yes _____
Sheen: ☐ Yes ☒ No If yes _____ ☐ Hydrocarbon-like OR ☐ Metallic-like
Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size							Filtered	Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L		
	☐ Plastic ☐ Glass								☐ Yes ☐ No	
	☐ Plastic ☐ Glass								☐ Yes ☐ No	
	☐ Plastic ☐ Glass								☐ Yes ☐ No	
	☐ Plastic ☐ Glass								☐ Yes ☐ No	
	☐ Plastic ☐ Glass								☐ Yes ☐ No	
	☐ Plastic ☐ Glass								☐ Yes ☐ No	
	☐ Plastic ☐ Glass								☐ Yes ☐ No	

SCN No. _____ Consumables: ☒ Waterra Tubing 16m ☐ HDPE/Teflon Tubing _____ ☐ Groundwater Filter
Field Dup. _____ ☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☒ Footvalve

GROUNDWATER DEVELOPMENT AND SAMPLING DATA

☒ Development

☐ Purging/Sampling

Well No.: MW14-02

Project Name: 2014 Landfill ESA
Location: Sa Dena Hes Landfill, YT
Weather: Cloudy Temperature: 5°C
GPS Coordinates: way pt. 106 from road

Project No.: 12-1021-0006/11000
Date: Sept. 10/14
Completed By: LC
Reviewed By: AB

MONITORING WELL INFORMATION

Time of Measurement: 13:00
Depth to Product: NA m Product Thickness: NA m
Depth to Water (A): 14.010 m below ☒ TOP
Depth to Bottom of Well (B): 16.155 m below ☒ TOP
Diameter of Standpipe: 51 mm
Well Condition: good - new install
Tidally Influenced: ☐ Yes ☒ No
Pressurized: ☐ Yes ☒ No
Well Headspace: NA ppm
One Well Volume: (B-A)*2.0 = 4.29 Litres - for a 51 mm (2.0 inch) diameter well
(B-A)*1.1 = - Litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

Pump ☒ Waterra (manual) Multimeter Model: YSI MPS 356 ☐ Rental Equipment:
☐ Hydrolift pH/Temp Meter Model: _____
☐ Bailer (Type: _____) Conductivity Meter Model: _____ ☐ Field Bump
☐ Peristaltic Dissolved Oxygen Meter Model: _____ ☐ pH4 _____ ☐ pH7 _____
☐ Submersible ORP (Redex) Meter Model: _____ ☐ pH10 _____
☐ Bladder Organic Vapour Meter Model: _____ ☐ 1413 us/cm
Pump Details: _____ ☐ D.O. Ampoule ☐ Field Calibration _____

WELL DEVELOPMENT/PURGING

Purge Volume: Well Vol. X 6 = 25.74 litres Start: _____ Finish: _____
Avg. Flow Rate: _____ L/min. ~26 L purge Sample intake depth: _____

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. (µS/cm or mS/cm) (circle one)	Redox (mV)	Diss. O ₂ * (mg/L)	Water Level (m)	Remarks
13:06	4	4.61	6.52	1801	-9.5	9.02		
1:13	8	4.77	6.66	1809	-17.7	8.24		
1:17	12	4.92	6.70	1657	-19.5	7.74		
1:20	16	4.24	6.74	1638	-21.6	8.36		murky brown, silty
1:22	20	4.68	6.90	1367	-30.6	8.48		not clear
1:24	24	5.34	6.92	1389	-31.5	9.93		no odor
1:27	28	5.37	6.98	1483	-34.9	9.40		

* Record DO in Mg/L, not percentage

Comments:

Odour: ☐ Yes ☒ No If yes _____
Sheen: ☐ Yes ☒ No If yes _____ ☐ Hydrocarbon-like OR ☐ Metallic-like
Turbidity: Clear ||||| Very Silty

Analysis	Type	Container Size							Filtered		Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L	☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	

SCN No. _____ Consumables: ☒ Waterra Tubing 17m ☐ HDPE/Teflon Tubing _____ ☐ Groundwater Filter
Field Dup. _____ ☐ Silicon Tubing _____ ☐ D.O. Ampoules _____ ☒ Footvalve

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April 26, 2013



GROUNDWATER DEVELOPMENT AND SAMPLING DATA

☒ Development
☐ Purging/Sampling

Well No.: MW14-03

Project Name: 2014 Landfill ESA
Location: Sa Dena Hts Landfill, YT
Weather: Cloudy Temperature: 50
GPS Coordinates: way pt. 108

Project No.: 12-1021-0006/11000
Date: Sept. 11/14
Completed By: UC
Reviewed By: AR

MONITORING WELL INFORMATION

Time of Measurement: 14:40
Depth to Product: NA m Product Thickness: NA m
Depth to Water (A): 3.890 m below ☒ TOP w/ 1.140 SU
Depth to Bottom of Well (B): 6.045 m below ☒ TOP
Diameter of Standpipe: 51 mm ☒ taken from gravel (PVC broke off)
Well Condition: good - new install
Tidally Influenced: ☐ Yes ☒ No
Pressurized: ☐ Yes ☒ No
Well Headspace: NA ppm
One Well Volume: (B-A)*2.0 = 4.31 Litres - for a 51 mm (2.0 inch) diameter well
(B-A)*1.1 = - Litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

Pump ☒ Waterra (manual) Multimeter Model: 4514PS556 ☐ Rental Equipment:
☐ Hydrolift pH/Temp Meter Model:
☐ Bailer (Type:) Conductivity Meter Model: ☐ Field Bump
☐ Peristaltic Dissolved Oxygen Meter Model: ☐ pH4 ☐ pH7
☐ Submersible ORP (Redex) Meter Model: ☐ pH10
☐ Bladder Organic Vapour Meter Model: ☐ 1413 us/cm
Pump Details: ☐ D.O. Ampoule ☐ Field Calibration

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X 6 = 25.86 litres Start: Finish:
Avg. Flow Rate: L/min. ~25L purge. Sample intake depth:

Time	Volume Removed (L)	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. µS/cm or mS/cm (circle one)	Redox (mV)	Diss. O ₂ * (mg/L)	Water Level (m)	Remarks
14:49	5	8.69	6.64	2694	-15.9	8.61		
1:51	10	8.60	6.44	2630	-4.8	7.90		murky brown,
1:53	15	8.63	6.50	2244	-7.4	7.49		very sandy!
1:55	20	8.62	6.59	1993	-13.2	7.20		silty
1:57	25	8.69	6.89	1541	-17.9	6.82		not clear,
								no odour

* Record DO in Mg/L, not percentage

Comments:

Odour: ☐ Yes ☒ No If yes
Sheen: ☐ Yes ☒ No If yes ☐ Hydrocarbon-like OR ☐ Metallic-like
Turbidity: Clear ☒ Very Silty

Analysis	Type	Container Size							Filtered		Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L			
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		

SCN No. Consumables: ☐ Waterra Tubing ☐ HDPE/Teflon Tubing ☐ Groundwater Filter
Field Dup. ☐ Silicon Tubing ☐ D.O. Ampoules ☒ Footvalve

GROUNDWATER DEVELOPMENT AND SAMPLING DATA

☒ Development
☐ Purging/Sampling

Well No.: MW14-04

Project Name:

2014 Landfill EIA

Project No.:

12-1021-0006/11000

Location:

Sar Deni Res Landfill

Date:

Sept. 12/14

Weather:

Cloudy

Temperature:

50

Completed By:

UC

GPS Coordinates:

way pt. 107 from gnd.

Reviewed By:

AB

MONITORING WELL INFORMATION

Time of Measurement:

13:30

Tidally Influenced: ☐ Yes ☒ No

Depth to Product:

NA

m

Product Thickness:

NA

m

Pressurized: ☐ Yes ☒ No

Depth to Water (A):

9.985

m below

☒ TOP

Well Headspace: NA ppm

Depth to Bottom of Well (B):

13.700

m below

☒ TOP

wt 1.40m S.O

One Well Volume:

Diameter of Standpipe:

51

mm

(B-A)*2.0 = 7.43 Litres - for a 51 mm (2.0 inch) diameter well

Well Condition:

good - new install

(B-A)*1.1 = 7.43 Litres - for a 38 mm (1.5 inch) diameter well

EQUIPMENT LIST

Pump

☒ Waterra (manual)

Multimeter

Model: ISI MP556

☐ Rental Equipment:

☐ Hydrolift

pH/Temp Meter

Model:

☐ Bailer (Type:)

Conductivity Meter

Model:

☐ Field Bump

☐ Peristaltic

Dissolved Oxygen Meter

Model:

☐ pH4

☐ pH7

☐ Submersible

ORP (Redox) Meter

Model:

☐ pH10

☐ Bladder

Organic Vapour Meter

Model:

☐ 1413 us/cm

Pump Details:

☐ D.O. Ampoule

☐ Field Calibration

WELL DEVELOPMENT/PURGING

Purge Volume: Well. Vol. X

6

= 44.58 litres

Start:

Finish:

Avg. Flow Rate:

L/min.

~45 L

Sample intake depth:

Time	Volume Removed (L)	Temp (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. $\mu\text{S/cm}$ or mS/cm (circle one)	Redox (mV)	Diss. O ₂ * (mg/L)	Water Level (m)	Remarks
13:45	5	5.89	7.25	1169	-50.1	4.88		Do jump, goes better
	10	5.34	7.21	1254	-47.7	4.33		
	15	5.04	7.10	1809	-41.4	4.35		milky brown
	20	5.24	7.05	1621	-39.0	4.24		no color
13:50	25	4.99	7.11	1824	-41.9	4.72		
	30	5.11	7.11	1824	-42.4	4.62		
	35	5.38	7.12	1423	-42.8	4.61		
	40	5.11	7.11	1369	-42.2	3.86		

Record DO in Mg/L not percentage

Comments:

Odour:

☐ Yes

☒ No

If yes

Sheen:

☐ Yes

☒ No

If yes

☐ Hydrocarbon-like

OR

☐ Metallic-like

Turbidity:

Clear

|||||

Very Silty

Analysis	Type	Container Size							Filtered		Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L	☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	
	☐ Plastic ☐ Glass								☐ Yes	☐ No	

SCN No.

Consumables:

☒ Waterra Tubing

15m.

☐ HDPE/Teflon Tubing

☐ Groundwater Filter

Field Dup.

☐ Silicon Tubing

☐ D.O. Ampoules

☒ Footvalve



SURFACE WATER SAMPLING DATA

SAMPLE NO.: SW14-01

Project Name: Sa Dena Hes Project No.: 12-1021-0006/11000
Location: Creek by Powder Mill Date: Sept. 8/14 Time: 13:15
Weather: Partly Cloudy Temperature: 0°C Completed By: LC
GPS Coordinates: way pt. 082 Reviewed By: AB

EQUIPMENT LIST

Multimeter Model: VSI MP5 556 ☒ Rental Equipment: _____
pH/Temp Meter Model: _____
Conductivity Meter Model: _____ ☐ Field Bump _____
Dissolved Oxygen Meter Model: _____ ☐ pH4 _____ ☐ pH7 _____
ORP (Redox) Meter Model: _____ ☐ pH10 _____
Organic Vapour Meter Model: _____ ☐ 1413 us/cm _____
☐ D.O. Ampoule ☒ Field Calibration Calibrated in site trailer in am

STATION INFORMATION

Aquatic Environment: ☒ Fresh ☐ Marine ☐ Estuarine Photograph No.(s): ☒
Co-Located Sample(s): Type (sediment): _____ ID: SW14-01

SURFACE WATER SAMPLING

Method of Sample Collection: ☒ Grab ☐ Pump ☐ Other: _____

Flow

Method: ☐ Flow Meter Model: _____
☐ Velocity Head Rod (ruler): _____ free flowing creek.
☐ Velocity _____ m/s Water Depth _____ cm

Time	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. µS/cm or mS/cm (circle one)	TDS (g/L)	Redox (ORP)	Diss. O ₂ (mg/L) or (%)	Sal (ppt)	Remarks
13:15	3.28	7.07	498	NA	-40.5	9.68	NA	clear, no odour, swarming moss veg trees

Comments:

Odour: ☐ Yes ☒ No If yes _____
Sheen: ☐ Yes ☒ No If yes ☐ Hydrocarbon-like OR ☐ Metallic-like
Turbidity: Clear ☒ (1) _____ Very Silty

Analysis	Type	Container Size							Filtered		Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L			
UPH/HEPH	☐ Plastic ☒ Glass				2				☐ Yes ☒ No		Sod bis
BTX/UPH	☐ Plastic ☒ Glass	3							☐ Yes ☒ No		Sod bis
Tot Metals	☒ Plastic ☐ Glass		1						☐ Yes ☒ No		nitric acid
Tot H ₂	☐ Plastic ☒ Glass	1							☐ Yes ☒ No		HCl
Anions	☒ Plastic ☐ Glass					1			☐ Yes ☒ No		-
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		

SCN No. 20769-01 Consumables: ☐ Syringes / Filters ☐ Other _____
Field Dup. _____

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SURFACE WATER SAMPLING DATA

SAMPLE NO.: SW14-02Project Name: San Dana HrsProject No.: 12-1021-0006 / 11000Location: Creek by landfillDate: Sept 8/14 Time: 17:00Weather: Partly Cloudy Temperature: 0°CCompleted By: LCGPS Coordinates: Way pt. 101Reviewed By: AB

EQUIPMENT LIST

Multimeter	Model: <u>YSI MPS 556</u>	☐ Rental Equipment:
pH/Temp Meter	Model: _____	
Conductivity Meter	Model: _____	☐ Field Bump
Dissolved Oxygen Meter	Model: _____	☐ pH4 ☐ pH7
ORP (Redox) Meter	Model: _____	☐ pH10
Organic Vapour Meter	Model: _____	☐ 1413 us/cm
☐ D.O. Ampoule		☐ Field Calibration

STATION INFORMATION

Aquatic Environment: ☒ Fresh ☐ Marine ☐ Estuarine Photograph No.(s): ✓
Co-Located Sample(s): Type (sediment): ID: SW14-02

SURFACE WATER SAMPLING

Method of Sample Collection: ☒ Grab ☐ Pump ☐ Other: _____

Flow

Method: ☐ Flow Meter Model: _____
☐ Velocity Head Rod (ruler): _____ free flowing creek.
☐ Velocity _____ m/s Water Depth _____ cm

Time	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. µS/cm or mS/cm (circle one)	TDS (g/L)	Redox (ORP)	Diss. O ₂ (mg/L) or (%)	Sal (ppt)	Remarks
17:30	3.13	7.62	335	NA	-70.5	12.49	NA	clear, no odor.

Comments:

Odour: ☐ Yes ☒ No If yes _____
Sheen: ☐ Yes ☒ No If yes ☐ Hydrocarbon-like OR ☐ Metallic-like
Turbidity: Clear 1 Very Silty

Analysis	Type	Container Size							Filtered		Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L			
LEPH/HEPH	☐ Plastic ☒ Glass				2				☐ Yes ☒ No		Soil bis
BTEX/PH	☒ Plastic ☒ Glass	3							☐ Yes ☒ No		Soil bis
Tot. Metals	☒ Plastic ☐ Glass		1						☐ Yes ☒ No		nitric acid
Tot Hg	☐ Plastic ☒ Glass	1							☐ Yes ☒ No		HCl
Ames	☒ Plastic ☐ Glass					1			☐ Yes ☒ No		-
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		

SCN No. 20769-02 Consumables: ☐ Syringes / Filters ☐ Other _____
Field Dup. _____

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SURFACE WATER SAMPLING DATA

SAMPLE NO.: SL14-03

Project Name: Sa Dena Hes Project No.: 12-1021-0006/11000
Location: Creek by Landfill / gravel pit Date: Sept 8/14 Time: 17:30
Weather: Partly Cloudy Temperature: 0°C Completed By: CC
GPS Coordinates: way pt. 102 Reviewed By: AB

EQUIPMENT LIST

Multimeter Model: _____ ☐ Rental Equipment: _____
pH/Temp Meter Model: _____
Conductivity Meter Model: _____ ☐ Field Bump _____
Dissolved Oxygen Meter Model: _____ ☐ pH4 _____ ☐ pH7 _____
ORP (Redox) Meter Model: _____ ☐ pH10 _____
Organic Vapour Meter Model: _____ ☐ 1413 us/cm _____
☐ D.O. Ampoule ☐ Field Calibration _____

STATION INFORMATION

Aquatic Environment: ☐ Fresh ☐ Marine ☐ Estuarine Photograph No.(s): ✓
Co-Located Sample(s): Type (sediment): ID: SL14-03

SURFACE WATER SAMPLING

Method of Sample Collection: ☒ Grab ☐ Pump ☐ Other: _____

Flow

Method: ☐ Flow Meter Model: _____
☐ Velocity Head Rod (ruler): _____
☐ Velocity _____ m/s Water Depth _____ cm

free flowing creek.

Time	Temp. (°C)	pH (Units)	☐ Cond. ☒ Specific Cond. µS/cm or mS/cm (circle one)	TDS (g/L)	Redox (ORP)	Diss. O ₂ (mg/L) or (%)	Sal (ppt)	Remarks
17:30	3.58	7.74	598	NA	-71.2	9.09	NA	clear, no color.

Comments:

Odour: ☐ Yes ☒ No If yes _____
Sheen: ☐ Yes ☒ No If yes ☐ Hydrocarbon-like OR ☐ Metallic-like
Turbidity: Clear 11 Very Silty

Analysis	Type	Container Size							Filtered		Preservatives
		40 mL	120 mL	250 mL	500 mL	1 L	2 L	4 L			
CEPH/HEPH	☐ Plastic ☒ Glass				2				☐ Yes ☒ No		sed. bis
BTEX/PH	☐ Plastic ☒ Glass	3							☐ Yes ☒ No		sed. bis
Tot Metals	☒ Plastic ☐ Glass		1						☐ Yes ☒ No		nitric acid
Tot Hg	☐ Plastic ☒ Glass	1							☐ Yes ☒ No		HCl
Ammonia	☒ Plastic ☐ Glass					1			☐ Yes ☒ No		-
	☐ Plastic ☐ Glass								☐ Yes ☐ No		
	☐ Plastic ☐ Glass								☐ Yes ☐ No		

SCN No. 20769-03 Consumables: ☐ Syringes / Filters _____ ☐ Other _____
Field Dup. _____

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Attachment 2 - Surface Water Sampling Information (provided by SRK for the October 11, 2014 sampling event)

Table 1: GPS Coordinates of North Creek monitoring sites

Sample Location	Provided by Golder		Oct. 11, 2014	
	Easting	Northing	Easting	Northing
SW14-01	507863	6712232	507863	6712231
SW14-02	508098	671280	508173	6712484
SW14-03	508478.37	6712748.05	508473	6712751

Grab water samples were collected at each of the above sampling locations, using methods that are consistent with standard methods. Water was visibly clear and some snow melt / run-off was underway at the time of sample collection. Field measurements, shown in the table below, were made using a calibrated Oakton PCTestr35 (pH, temperature, conductivity) and a calibrated Lamotte 2020we Turbidimeter. Flow rate was measured at SW14-02 and SW14-03, using a Swoffer 2100 current velocity meter (calibrated, and using the current velocity averaging function), the measurements are in the range of visual estimates of flow (also shown in table below).

The landfill area showed no ponding nor surface flow on October 11, 2014. The surface soils were slightly moist, with the odd puddle, due to snowmelt. There was some surface flow, (likely run-off, but the flow was not walked to its source) flowing into North Creek just upstream of SW14-02, from the south bank of the creek.

Table 2: North Creek Water Quality – Field Measurements on October 11, 2014

Site	Date	Time	Turbidity	Temperature	pH	EC	Flow Rate		
			(NTU)	(°C)		(µS/cm)	(L/s)	(L/min)	Method
SW14-01	10/11/2014	11:03	0.59	1.8	8.0	280			
SW14-02	10/11/2014	12:15	0.24	2.2	8.4	316	9	540	Area / Velocity (Swoffer)
SW14-03	10/11/2014	13:39	1.18	2.2	8.5	319	13	780	Area / Velocity (Swoffer)

Water samples were kept cool and shipped to Maxxam Analytics for analysis. Parameters tested include those that are required under the site's existing Water Licence (Yukon Water Licence QZ99-045) for sites that are tested during a period of temporary closure.

ATTACHMENT 3

Grain Size Distribution Curve



ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES
Environmental Division

819-58th Street, Saskatoon, SK S7K 6X5

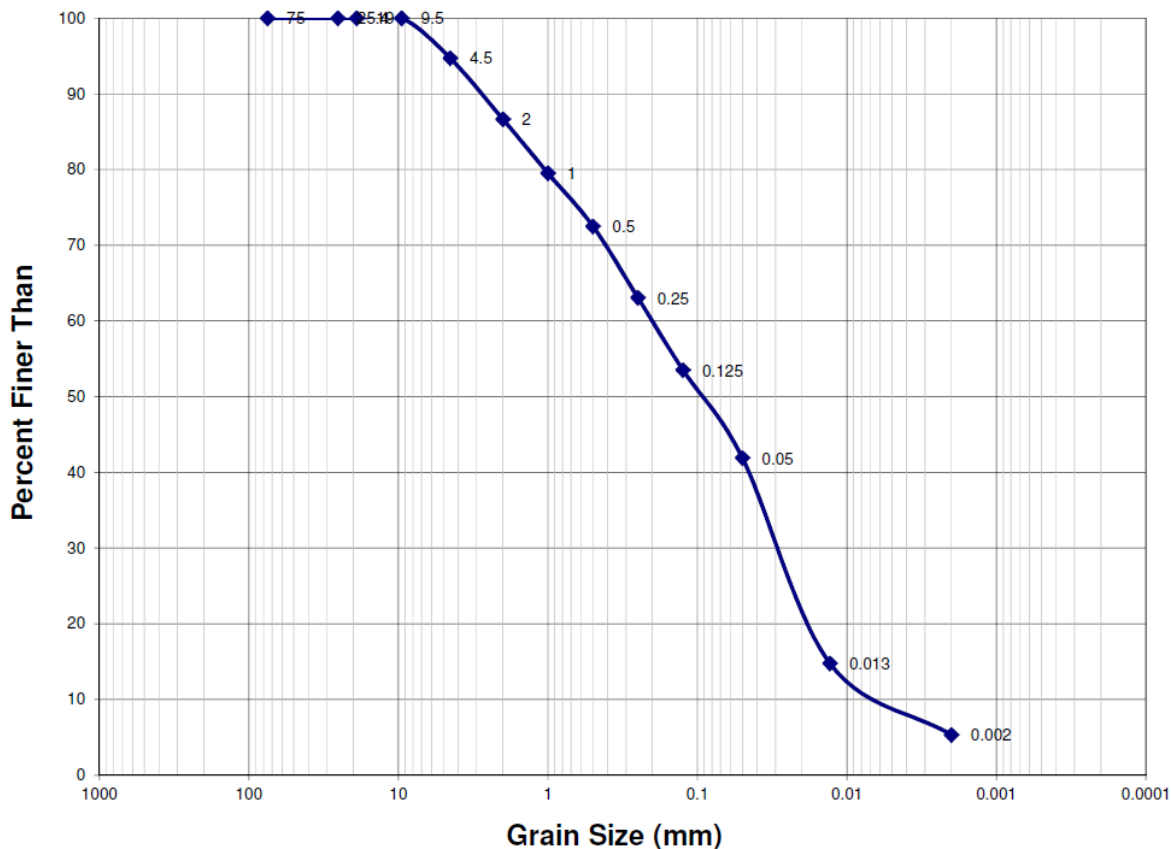
Client Name: **GOLDER ASSOCIATES LTD**

Project:

Sample ID: 6408-02

Lab ID: L1517876-14

Particle Size Distribution Curve



Summary of Results

Unified Soil Classification System (USCS)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	4.75mm - 3"	5
Coarse Sand	2.0mm - 4.75mm	8
Medium Sand	0.425mm - 2.0mm	14
Fine Sand	0.075mm - 0.425mm	27
Fines	< 0.075mm	46

Canadian Soil Survey Committee (CSSC)

Size Class	Size Range	Wt. (%)
Cobbles	> 3"	0
Gravel	2mm - 3"	13
Sand	0.05mm - 2mm	45
Silt	0.002mm - 0.05mm	37
Clay	< 0.002mm	5

Texture: Sandy loam

Method Reference: Can. Soc. Soil Sci. (1993) Method 47.2

ATTACHMENT 4

Laboratory Analytical Results and Chains of Custody

Your Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Your C.O.C. #: 20769

Attention: Andrew Bruemmer

GOLDER ASSOCIATES LTD
4260 STILL CREEK DRIVE
Suite 500
BURNABY, BC
Canada V5C 6C6

Report Date: 2014/09/18
Report #: R1645444
Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B480183

Received: 2014/09/10, 16:30

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH, VH, F1 SIM/MS	3	2014/09/11	2014/09/12	BBY8-SOP-00010	EPA 8260c R3
Chloride by Automated Colourimetry	3	N/A	2014/09/11	BBY6SOP-00011	SM 22 4500-Cl- G m
Fluoride	3	N/A	2014/09/12	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO ₃)	1	N/A	2014/09/11	BBY7SOP-00002	EPA 6020a R1 m
Hardness Total (calculated as CaCO ₃)	2	N/A	2014/09/15	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Total) by CVAf	3	2014/09/17	2014/09/17	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Extrac. Pet HC when LEPH/HEPH required	1	2014/09/13	2014/09/18	BBY8SOP-00029	BCMOE EPH w 07/99
Extrac. Pet HC when LEPH/HEPH required	2	2014/09/15	2014/09/16	BBY8SOP-00029	BCMOE EPH w 07/99
Na, K, Ca, Mg, S by CRC ICPMS (total)	1	2014/09/10	2014/09/11	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	2	2014/09/10	2014/09/15	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (total)	1	2014/09/11	2014/09/11	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (total)	2	2014/09/11	2014/09/12	BBY7SOP-00002	EPA 6020A R1 m
Nitrate + Nitrite (N)	3	N/A	2014/09/11	BBY6SOP-00010	SM 22 4500-NO ₃ - I m
Nitrite (N) by CFA	3	N/A	2014/09/11	BBY6SOP-00010	SM 22 4500-NO ₃ - I m
Nitrogen - Nitrate (as N)	3	N/A	2014/09/12	BBY6SOP-00010	SM 22 4500-NO ₃ I m
PAH in Water by GC/MS (SIM)	1	2014/09/13	2014/09/13	BBY8SOP-00021	EPA 8270d R4 m
PAH in Water by GC/MS (SIM)	2	2014/09/15	2014/09/15	BBY8SOP-00021	EPA 8270d R4 m
Total LMW, HMW, Total PAH Calc	1	N/A	2014/09/15	BBY WI-00033	Auto Calc
Total LMW, HMW, Total PAH Calc	2	N/A	2014/09/16	BBY WI-00033	Auto Calc
Sulphate by Automated Colourimetry	3	N/A	2014/09/12	BBY6SOP-00017	SM 22 4500-SO ₄ 2- E m
EPH less PAH in Water by GC/FID	1	N/A	2014/09/16	BBY WI-00033	Auto Calc
EPH less PAH in Water by GC/FID	1	N/A	2014/09/17	BBY WI-00033	Auto Calc
EPH less PAH in Water by GC/FID	1	N/A	2014/09/18	BBY WI-00033	Auto Calc
Volatile HC-BTEX	3	N/A	2014/09/12	BBY WI-00033	Auto Calc

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Your Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Your C.O.C. #: 20769

Attention: Andrew Bruemmer

GOLDER ASSOCIATES LTD
4260 STILL CREEK DRIVE
Suite 500
BURNABY, BC
Canada V5C 6C6

Report Date: 2014/09/18
Report #: R1645444
Version: 1

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B480183
Received: 2014/09/10, 16:30

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Namita Sahni, Burnaby Project Manager
Email: NSahni@maxxam.ca
Phone# (604)639-2614

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Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		KO3585		KO3586		KO3587		
Sampling Date		2014/09/08		2014/09/08		2014/09/08		
COC Number		20769		20769		20769		
	Units	20769-01	QC Batch	20769-02	QC Batch	20769-03	RDL	QC Batch
Misc. Inorganics								
Fluoride (F)	mg/L	0.130	7636245	0.110	7636245	0.110	0.010	7636245
Anions								
Dissolved Sulphate (SO4)	mg/L	6.16	7636331	11.3	7636323	10.7	0.50	7636323
Dissolved Chloride (Cl)	mg/L	<0.50	7634828	<0.50	7634826	<0.50	0.50	7634828
RDL = Reportable Detection Limit								

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

BCCSR BTEX/VPH IN WATER (WATER)

Maxxam ID		KO3585	KO3586	KO3587		
Sampling Date		2014/09/08	2014/09/08	2014/09/08		
COC Number		20769	20769	20769		
	Units	20769-01	20769-02	20769-03	RDL	QC Batch
Volatiles						
VPH (VHW6 to 10 - BTEX)	ug/L	<300	<300	<300	300	7632162
Methyl-tert-butylether (MTBE)	ug/L	<4.0	<4.0	<4.0	4.0	7634016
Benzene	ug/L	<0.40	<0.40	<0.40	0.40	7634016
Toluene	ug/L	<0.40	<0.40	<0.40	0.40	7634016
Ethylbenzene	ug/L	<0.40	<0.40	<0.40	0.40	7634016
m & p-Xylene	ug/L	<0.40	<0.40	<0.40	0.40	7634016
o-Xylene	ug/L	<0.40	<0.40	<0.40	0.40	7634016
Styrene	ug/L	<0.40	<0.40	<0.40	0.40	7634016
Xylenes (Total)	ug/L	<0.40	<0.40	<0.40	0.40	7634016
VH C6-C10	ug/L	<300	<300	<300	300	7634016
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	101	100	101		7634016
4-Bromofluorobenzene (sur.)	%	104	106	104		7634016
D4-1,2-Dichloroethane (sur.)	%	98	98	98		7634016
RDL = Reportable Detection Limit						

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		KO3585	KO3586		KO3587		
Sampling Date		2014/09/08	2014/09/08		2014/09/08		
COC Number		20769	20769		20769		
	Units	20769-01	20769-02	QC Batch	20769-03	RDL	QC Batch
Polycyclic Aromatics							
Low Molecular Weight PAH's	ug/L	<0.24	<0.24	7632129	<0.24	0.24	7632129
High Molecular Weight PAH's	ug/L	<0.050	<0.050	7632129	<0.050	0.050	7632129
Total PAH	ug/L	<0.24	<0.24	7632129	<0.24	0.24	7632129
Naphthalene	ug/L	<0.10	<0.10	7638144	<0.10	0.10	7636573
2-Methylnaphthalene	ug/L	<0.10	<0.10	7638144	<0.10	0.10	7636573
Quinoline	ug/L	<0.24	<0.24	7638144	<0.24	0.24	7636573
Acenaphthylene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Acenaphthene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Fluorene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Phenanthrene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Anthracene	ug/L	<0.010	<0.010	7638144	<0.010	0.010	7636573
Acridine	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Fluoranthene	ug/L	<0.020	<0.020	7638144	<0.020	0.020	7636573
Pyrene	ug/L	<0.020	<0.020	7638144	<0.020	0.020	7636573
Benzo(a)anthracene	ug/L	<0.010	<0.010	7638144	<0.010	0.010	7636573
Chrysene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Benzo(b&j)fluoranthene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Benzo(a)pyrene	ug/L	<0.0090	<0.0090	7638144	<0.0090	0.0090	7636573
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Dibenz(a,h)anthracene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	7638144	<0.050	0.050	7636573
Calculated Parameters							
LEPH (C10-C19 less PAH)	mg/L	<0.20	<0.20	7632131	<0.20	0.20	7632131
HEPH (C19-C32 less PAH)	mg/L	<0.20	<0.20	7632131	<0.20	0.20	7632131
Ext. Pet. Hydrocarbon							
EPH (C10-C19)	mg/L	<0.20	<0.20	7638152	<0.20	0.20	7636575
EPH (C19-C32)	mg/L	<0.20	<0.20	7638152	<0.20	0.20	7636575
Surrogate Recovery (%)							
O-TERPHENYL (sur.)	%	104	104	7638152	103		7636575
D10-ANTHRACENE (sur.)	%	107	109	7638144	123		7636573
D8-ACENAPHTHYLENE (sur.)	%	83	92	7638144	94		7636573
D8-NAPHTHALENE (sur.)	%	74	87	7638144	88		7636573
D9-Acridine	%	84	86	7638144	87		7636573
RDL = Reportable Detection Limit							

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		KO3585	KO3586		KO3587		
Sampling Date		2014/09/08	2014/09/08		2014/09/08		
COC Number		20769	20769		20769		
	Units	20769-01	20769-02	QC Batch	20769-03	RDL	QC Batch
TERPHENYL-D14 (sur.)	%	57 (1)	83	7638144	86		7636573
RDL = Reportable Detection Limit							
(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.							

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

CSR TOTAL METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KO3585	KO3586		KO3587		
Sampling Date		2014/09/08	2014/09/08		2014/09/08		
COC Number		20769	20769		20769		
	Units	20769-01	20769-02	QC Batch	20769-03	RDL	QC Batch
Calculated Parameters							
Total Hardness (CaCO ₃)	mg/L	151	179	7633277	175	0.50	7633277
Elements							
Total Mercury (Hg)	ug/L	<0.010	<0.010	7641493	<0.010	0.010	7641493
Total Metals by ICPMS							
Total Aluminum (Al)	mg/L	0.0082	0.0090	7634646	0.236	0.0030	7634091
Total Antimony (Sb)	mg/L	<0.00050	<0.00050	7634646	<0.00050	0.00050	7634091
Total Arsenic (As)	mg/L	0.00112	0.00107	7634646	0.00124	0.00010	7634091
Total Barium (Ba)	mg/L	0.0625	0.0756	7634646	0.0819	0.0010	7634091
Total Beryllium (Be)	mg/L	<0.00010	<0.00010	7634646	<0.00010	0.00010	7634091
Total Bismuth (Bi)	mg/L	<0.0010	<0.0010	7634646	<0.0010	0.0010	7634091
Total Boron (B)	mg/L	<0.050	<0.050	7634646	<0.050	0.050	7634091
Total Cadmium (Cd)	mg/L	0.000034	0.000056	7634646	0.000130	0.000010	7634091
Total Chromium (Cr)	mg/L	<0.0010	<0.0010	7634646	<0.0010	0.0010	7634091
Total Cobalt (Co)	mg/L	<0.00050	<0.00050	7634646	<0.00050	0.00050	7634091
Total Copper (Cu)	mg/L	<0.00050	<0.00050	7634646	0.00069	0.00050	7634091
Total Iron (Fe)	mg/L	0.034	0.020	7634646	0.374	0.010	7634091
Total Lead (Pb)	mg/L	0.00047	0.00160	7634646	0.00623	0.00020	7634091
Total Lithium (Li)	mg/L	<0.0050	<0.0050	7634646	<0.0050	0.0050	7634091
Total Manganese (Mn)	mg/L	0.0276	0.0119	7634646	0.0271	0.0010	7634091
Total Molybdenum (Mo)	mg/L	0.0013	0.0013	7634646	0.0013	0.0010	7634091
Total Nickel (Ni)	mg/L	<0.0010	<0.0010	7634646	<0.0010	0.0010	7634091
Total Selenium (Se)	mg/L	0.00049	0.00064	7634646	0.00056	0.00010	7634091
Total Silicon (Si)	mg/L	4.23	3.99	7634646	4.39	0.10	7634091
Total Silver (Ag)	mg/L	<0.000020	<0.000020	7634646	0.000021	0.000020	7634091
Total Strontium (Sr)	mg/L	0.174	0.213	7634646	0.234	0.0010	7634091
Total Thallium (Tl)	mg/L	<0.000050	<0.000050	7634646	<0.000050	0.000050	7634091
Total Tin (Sn)	mg/L	<0.0050	<0.0050	7634646	<0.0050	0.0050	7634091
Total Titanium (Ti)	mg/L	<0.0050	<0.0050	7634646	0.0069	0.0050	7634091
Total Uranium (U)	mg/L	0.00061	0.00091	7634646	0.00089	0.00010	7634091
Total Vanadium (V)	mg/L	<0.0050	<0.0050	7634646	<0.0050	0.0050	7634091
Total Zinc (Zn)	mg/L	<0.0050	0.0060	7634646	0.0113	0.0050	7634091
Total Zirconium (Zr)	mg/L	<0.00050	<0.00050	7634646	<0.00050	0.00050	7634091
Total Calcium (Ca)	mg/L	51.7	60.9	7632517	59.5	0.050	7632517
Total Magnesium (Mg)	mg/L	5.41	6.60	7632517	6.35	0.050	7632517
Total Potassium (K)	mg/L	0.379	0.602	7632517	0.726	0.050	7632517
RDL = Reportable Detection Limit							

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

CSR TOTAL METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KO3585	KO3586		KO3587		
Sampling Date		2014/09/08	2014/09/08		2014/09/08		
COC Number		20769	20769		20769		
	Units	20769-01	20769-02	QC Batch	20769-03	RDL	QC Batch
Total Sodium (Na)	mg/L	0.941	1.25	7632517	1.06	0.050	7632517
Total Sulphur (S)	mg/L	<3.0	3.3	7632517	8.6	3.0	7632517
RDL = Reportable Detection Limit							

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

NITRITE & NITRATE IN WATER (WATER)

Maxxam ID		KO3585		KO3586	KO3587		
Sampling Date		2014/09/08		2014/09/08	2014/09/08		
COC Number		20769		20769	20769		
	Units	20769-01	QC Batch	20769-02	20769-03	RDL	QC Batch
ANIONS							
Nitrite (N)	mg/L	<0.0050	7634716	<0.0050	<0.0050	0.0050	7634713
Calculated Parameters							
Nitrate (N)	mg/L	0.032	7632229	0.047	0.040	0.020	7632229
Nutrients							
Nitrate plus Nitrite (N)	mg/L	0.032	7634715	0.047	0.040	0.020	7634712
RDL = Reportable Detection Limit							

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B480183
Report Date: 2014/09/18

QUALITY ASSURANCE REPORT

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7634016	1,4-Difluorobenzene (sur.)	2014/09/11	97	70 - 130	98	70 - 130	102	%		
7634016	4-Bromofluorobenzene (sur.)	2014/09/11	108	70 - 130	104	70 - 130	102	%		
7634016	D4-1,2-Dichloroethane (sur.)	2014/09/11	95	70 - 130	95	70 - 130	104	%		
7636573	D10-ANTHRACENE (sur.)	2014/09/13	111	60 - 130	119	60 - 130	106	%		
7636573	D8-ACENAPHTHYLENE (sur.)	2014/09/13	96	50 - 130	94	50 - 130	88	%		
7636573	D8-NAPHTHALENE (sur.)	2014/09/13	89	50 - 130	89	50 - 130	83	%		
7636573	D9-Acridine	2014/09/13	89	50 - 130	90	50 - 130	78	%		
7636573	TERPHENYL-D14 (sur.)	2014/09/13	84	60 - 130	105	60 - 130	89	%		
7636575	O-TERPHENYL (sur.)	2014/09/15	114	50 - 130	112	50 - 130	113	%		
7638144	D10-ANTHRACENE (sur.)	2014/09/15	111	60 - 130	119	60 - 130	108	%		
7638144	D8-ACENAPHTHYLENE (sur.)	2014/09/15	107	50 - 130	104	50 - 130	92	%		
7638144	D8-NAPHTHALENE (sur.)	2014/09/15	105	50 - 130	99	50 - 130	89	%		
7638144	D9-Acridine	2014/09/15	89	50 - 130	90	50 - 130	79	%		
7638144	TERPHENYL-D14 (sur.)	2014/09/15	92	60 - 130	103	60 - 130	93	%		
7638152	O-TERPHENYL (sur.)	2014/09/16	106	50 - 130	106	50 - 130	109	%		
7634016	Benzene	2014/09/11	89	70 - 130	90	70 - 130	<0.40	ug/L	NC	30
7634016	Ethylbenzene	2014/09/11	90	70 - 130	90	70 - 130	<0.40	ug/L	NC	30
7634016	m & p-Xylene	2014/09/11	83	70 - 130	83	70 - 130	<0.40	ug/L	NC	30
7634016	Methyl-tert-butylether (MTBE)	2014/09/11	88	70 - 130	90	70 - 130	<4.0	ug/L	NC	30
7634016	o-Xylene	2014/09/11	86	70 - 130	86	70 - 130	<0.40	ug/L	NC	30
7634016	Styrene	2014/09/11	97	70 - 130	101	70 - 130	<0.40	ug/L		
7634016	Toluene	2014/09/11	85	70 - 130	85	70 - 130	<0.40	ug/L	NC	30
7634016	VH C6-C10	2014/09/11			87	70 - 130	<300	ug/L	NC	30
7634016	Xylenes (Total)	2014/09/11					<0.40	ug/L	NC	30
7634091	Total Aluminum (Al)	2014/09/11	NC	80 - 120	112	80 - 120	<0.0030	mg/L	18	20
7634091	Total Antimony (Sb)	2014/09/11	107	80 - 120	97	80 - 120	<0.00050	mg/L	NC	20
7634091	Total Arsenic (As)	2014/09/11	103	80 - 120	100	80 - 120	<0.00010	mg/L	4.4	20
7634091	Total Barium (Ba)	2014/09/11	NC	80 - 120	100	80 - 120	<0.0010	mg/L	0.77	20
7634091	Total Beryllium (Be)	2014/09/11	108	80 - 120	103	80 - 120	<0.00010	mg/L	NC	20
7634091	Total Bismuth (Bi)	2014/09/11	105	80 - 120	97	80 - 120	<0.0010	mg/L	NC	20
7634091	Total Boron (B)	2014/09/11					<0.050	mg/L	NC	20
7634091	Total Cadmium (Cd)	2014/09/11	103	80 - 120	102	80 - 120	<0.000010	mg/L	1.6	20

Maxxam Job #: B480183
Report Date: 2014/09/18

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7634091	Total Chromium (Cr)	2014/09/11	100	80 - 120	96	80 - 120	<0.0010	mg/L	NC	20
7634091	Total Cobalt (Co)	2014/09/11	97	80 - 120	93	80 - 120	<0.00050	mg/L	NC	20
7634091	Total Copper (Cu)	2014/09/11	95	80 - 120	91	80 - 120	<0.00050	mg/L	NC	20
7634091	Total Iron (Fe)	2014/09/11	NC	80 - 120	105	80 - 120	<0.010	mg/L	12	20
7634091	Total Lead (Pb)	2014/09/11	NC	80 - 120	99	80 - 120	<0.00020	mg/L	0.53	20
7634091	Total Lithium (Li)	2014/09/11	109	80 - 120	110	80 - 120	<0.0050	mg/L	NC	20
7634091	Total Manganese (Mn)	2014/09/11	NC	80 - 120	100	80 - 120	<0.0010	mg/L	2.1	20
7634091	Total Molybdenum (Mo)	2014/09/11	NC	80 - 120	107	80 - 120	<0.0010	mg/L	NC	20
7634091	Total Nickel (Ni)	2014/09/11	89	80 - 120	97	80 - 120	<0.0010	mg/L	NC	20
7634091	Total Selenium (Se)	2014/09/11	103	80 - 120	97	80 - 120	<0.00010	mg/L	8.4	20
7634091	Total Silicon (Si)	2014/09/11					<0.10	mg/L	1.2	20
7634091	Total Silver (Ag)	2014/09/11	115	80 - 120	101	80 - 120	<0.000020	mg/L	NC	20
7634091	Total Strontium (Sr)	2014/09/11	NC	80 - 120	109	80 - 120	<0.0010	mg/L	2.4	20
7634091	Total Thallium (Tl)	2014/09/11	100	80 - 120	85	80 - 120	<0.000050	mg/L	NC	20
7634091	Total Tin (Sn)	2014/09/11	106	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20
7634091	Total Titanium (Ti)	2014/09/11	NC	80 - 120	103	80 - 120	<0.0050	mg/L	NC	20
7634091	Total Uranium (U)	2014/09/11	99	80 - 120	97	80 - 120	<0.00010	mg/L	1.0	20
7634091	Total Vanadium (V)	2014/09/11	109	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
7634091	Total Zinc (Zn)	2014/09/11	NC	80 - 120	93	80 - 120	<0.0050	mg/L	NC	20
7634091	Total Zirconium (Zr)	2014/09/11					<0.00050	mg/L	NC	20
7634646	Total Aluminum (Al)	2014/09/12	101	80 - 120	106	80 - 120	<0.0030	mg/L	NC	20
7634646	Total Antimony (Sb)	2014/09/12	102	80 - 120	108	80 - 120	<0.00050	mg/L	NC	20
7634646	Total Arsenic (As)	2014/09/12	111	80 - 120	107	80 - 120	<0.00010	mg/L	11	20
7634646	Total Barium (Ba)	2014/09/12	NC	80 - 120	103	80 - 120	<0.0010	mg/L	1.9	20
7634646	Total Beryllium (Be)	2014/09/12	98	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
7634646	Total Bismuth (Bi)	2014/09/12	94	80 - 120	103	80 - 120	<0.0010	mg/L	NC	20
7634646	Total Boron (B)	2014/09/12					<0.050	mg/L	NC	20
7634646	Total Cadmium (Cd)	2014/09/12	99	80 - 120	102	80 - 120	<0.000010	mg/L	NC	20
7634646	Total Chromium (Cr)	2014/09/12	103	80 - 120	105	80 - 120	<0.0010	mg/L	NC	20
7634646	Total Cobalt (Co)	2014/09/12	100	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
7634646	Total Copper (Cu)	2014/09/12	98	80 - 120	106	80 - 120	<0.00050	mg/L	NC	20
7634646	Total Iron (Fe)	2014/09/12	103	80 - 120	106	80 - 120	<0.010	mg/L	NC	20

Maxxam Job #: B480183
Report Date: 2014/09/18

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7634646	Total Lead (Pb)	2014/09/12	99	80 - 120	103	80 - 120	<0.00020	mg/L	NC	20
7634646	Total Lithium (Li)	2014/09/12	98	80 - 120	97	80 - 120	<0.0050	mg/L	NC	20
7634646	Total Manganese (Mn)	2014/09/12	NC	80 - 120	103	80 - 120	<0.0010	mg/L	0.31	20
7634646	Total Molybdenum (Mo)	2014/09/12	NC	80 - 120	96	80 - 120	<0.0010	mg/L	NC	20
7634646	Total Nickel (Ni)	2014/09/12	99	80 - 120	102	80 - 120	<0.0010	mg/L	NC	20
7634646	Total Selenium (Se)	2014/09/12	101	80 - 120	100	80 - 120	<0.00010	mg/L	NC	20
7634646	Total Silicon (Si)	2014/09/12					<0.10	mg/L	2.9	20
7634646	Total Silver (Ag)	2014/09/12	92	80 - 120	95	80 - 120	<0.000020	mg/L	NC	20
7634646	Total Strontium (Sr)	2014/09/12	NC	80 - 120	99	80 - 120	<0.0010	mg/L	4.6	20
7634646	Total Thallium (Tl)	2014/09/12	93	80 - 120	98	80 - 120	<0.000050	mg/L	NC	20
7634646	Total Tin (Sn)	2014/09/12	99	80 - 120	104	80 - 120	<0.0050	mg/L	NC	20
7634646	Total Titanium (Ti)	2014/09/12	95	80 - 120	107	80 - 120	<0.0050	mg/L	NC	20
7634646	Total Uranium (U)	2014/09/12	95	80 - 120	97	80 - 120	<0.00010	mg/L	3.3	20
7634646	Total Vanadium (V)	2014/09/12	103	80 - 120	107	80 - 120	<0.0050	mg/L	NC	20
7634646	Total Zinc (Zn)	2014/09/12	107	80 - 120	107	80 - 120	<0.0050	mg/L	NC	20
7634646	Total Zirconium (Zr)	2014/09/12					<0.00050	mg/L	NC	20
7634712	Nitrate plus Nitrite (N)	2014/09/11	109	80 - 120	107	80 - 120	<0.020	mg/L	NC	25
7634713	Nitrite (N)	2014/09/11	103	80 - 120	103	80 - 120	<0.0050	mg/L	NC	20
7634715	Nitrate plus Nitrite (N)	2014/09/11	NC	80 - 120	106	80 - 120	<0.020	mg/L	0.44	25
7634716	Nitrite (N)	2014/09/11	78 (1)	80 - 120	102	80 - 120	<0.0050	mg/L	NC	20
7634826	Dissolved Chloride (Cl)	2014/09/11	98	80 - 120	98	80 - 120	<0.50	mg/L	NC	20
7634828	Dissolved Chloride (Cl)	2014/09/11	NC	80 - 120	102	80 - 120	<0.50	mg/L	0.54	20
7636245	Fluoride (F)	2014/09/12	90	80 - 120	96	80 - 120	<0.010	mg/L	4.0	20
7636323	Dissolved Sulphate (SO4)	2014/09/12	NC	80 - 120	97	80 - 120	<0.50	mg/L	4.8	20
7636331	Dissolved Sulphate (SO4)	2014/09/12	NC	80 - 120	101	80 - 120	<0.50	mg/L	2.6	20
7636573	2-Methylnaphthalene	2014/09/13	81	50 - 130	70	50 - 130	<0.10	ug/L	NC	40
7636573	Acenaphthene	2014/09/13	92	50 - 130	81	50 - 130	<0.050	ug/L	0	40
7636573	Acenaphthylene	2014/09/13	94	50 - 130	84	50 - 130	<0.050	ug/L	NC	40
7636573	Acridine	2014/09/13	87	50 - 130	82	50 - 130	<0.050	ug/L	NC	40
7636573	Anthracene	2014/09/13	108	60 - 130	106	60 - 130	<0.010	ug/L	3.2	40
7636573	Benzo(a)anthracene	2014/09/13	99	60 - 130	102	60 - 130	<0.010	ug/L	NC	40
7636573	Benzo(a)pyrene	2014/09/13	94	60 - 130	103	60 - 130	<0.0090	ug/L	NC	40

Maxxam Job #: B480183
Report Date: 2014/09/18

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7636573	Benzo(b&j)fluoranthene	2014/09/13	94	60 - 130	104	60 - 130	<0.050	ug/L	NC	40
7636573	Benzo(g,h,i)perylene	2014/09/13	92	60 - 130	108	60 - 130	<0.050	ug/L	NC	40
7636573	Benzo(k)fluoranthene	2014/09/13	95	60 - 130	112	60 - 130	<0.050	ug/L	NC	40
7636573	Chrysene	2014/09/13	95	60 - 130	100	60 - 130	<0.050	ug/L	NC	40
7636573	Dibenz(a,h)anthracene	2014/09/13	79	60 - 130	93	60 - 130	<0.050	ug/L	NC	40
7636573	Fluoranthene	2014/09/13	105	60 - 130	101	60 - 130	<0.020	ug/L	1.0	40
7636573	Fluorene	2014/09/13	102	50 - 130	94	50 - 130	<0.050	ug/L	0.95	40
7636573	Indeno(1,2,3-cd)pyrene	2014/09/13	84	60 - 130	98	60 - 130	<0.050	ug/L	NC	40
7636573	Naphthalene	2014/09/13	72	50 - 130	69	50 - 130	<0.10	ug/L	1.6	40
7636573	Phenanthrene	2014/09/13	91	60 - 130	90	60 - 130	<0.050	ug/L	NC	40
7636573	Pyrene	2014/09/13	102	60 - 130	99	60 - 130	<0.020	ug/L	0.91	40
7636573	Quinoline	2014/09/13	105	50 - 130	101	50 - 130	<0.24	ug/L	NC	40
7636575	EPH (C10-C19)	2014/09/15	108	50 - 130	101	50 - 130	<0.20	mg/L	NC	30
7636575	EPH (C19-C32)	2014/09/15	117	50 - 130	109	50 - 130	<0.20	mg/L	NC	30
7638144	2-Methylnaphthalene	2014/09/15	53	50 - 130	54	50 - 130	<0.10	ug/L	NC	40
7638144	Acenaphthene	2014/09/15	70	50 - 130	65	50 - 130	<0.050	ug/L	NC	40
7638144	Acenaphthylene	2014/09/15	71	50 - 130	69	50 - 130	<0.050	ug/L	NC	40
7638144	Acridine	2014/09/15	67	50 - 130	72	50 - 130	<0.050	ug/L	NC	40
7638144	Anthracene	2014/09/15	84	60 - 130	84	60 - 130	<0.010	ug/L	NC	40
7638144	Benzo(a)anthracene	2014/09/15	74	60 - 130	86	60 - 130	<0.010	ug/L	NC	40
7638144	Benzo(a)pyrene	2014/09/15	70	60 - 130	84	60 - 130	<0.0090	ug/L	NC	40
7638144	Benzo(b&j)fluoranthene	2014/09/15	76	60 - 130	77	60 - 130	<0.050	ug/L	NC	40
7638144	Benzo(g,h,i)perylene	2014/09/15	66	60 - 130	83	60 - 130	<0.050	ug/L	NC	40
7638144	Benzo(k)fluoranthene	2014/09/15	77	60 - 130	83	60 - 130	<0.050	ug/L	NC	40
7638144	Chrysene	2014/09/15	71	60 - 130	86	60 - 130	<0.050	ug/L	NC	40
7638144	Dibenz(a,h)anthracene	2014/09/15	55 (1)	60 - 130	82	60 - 130	<0.050	ug/L	NC	40
7638144	Fluoranthene	2014/09/15	79	60 - 130	85	60 - 130	<0.020	ug/L	NC	40
7638144	Fluorene	2014/09/15	82	50 - 130	75	50 - 130	<0.050	ug/L	NC	40
7638144	Indeno(1,2,3-cd)pyrene	2014/09/15	60	60 - 130	83	60 - 130	<0.050	ug/L	NC	40
7638144	Naphthalene	2014/09/15	50	50 - 130	64	50 - 130	<0.10	ug/L	NC	40
7638144	Phenanthrene	2014/09/15	75	60 - 130	83	60 - 130	<0.050	ug/L	NC	40
7638144	Pyrene	2014/09/15	77	60 - 130	86	60 - 130	<0.020	ug/L	NC	40

Maxxam Job #: B480183
Report Date: 2014/09/18

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7638144	Quinoline	2014/09/15	87	50 - 130	98	50 - 130	<0.24	ug/L	NC	40
7638152	EPH (C10-C19)	2014/09/16	79	50 - 130	71	50 - 130	<0.20	mg/L	NC	30
7638152	EPH (C19-C32)	2014/09/16	86	50 - 130	79	50 - 130	<0.20	mg/L	NC	30
7641493	Total Mercury (Hg)	2014/09/17	98	80 - 120	89	80 - 120	<0.010	ug/L	NC	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B480183
Report Date: 2014/09/18

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE# 9000/1104
Sampler Initials: LC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

B480183



500-4260 Still Creek Drive
Burnaby, British Columbia, Canada V5C 6C6
Telephone: 604-298-6623 Fax: 604-298-5253

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

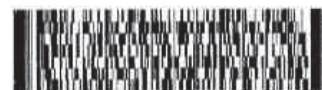
No 20769 page 1 of 1

Project Number: 12-1021-0006 / 9000 / 1104		Laboratory Name: Maxxam	
		Address: 4606 Canada Way, Burnaby BC	
Golder Contact: Andrew Bruegger	Golder E-mail Address: Andrew.Bruegger@golder.com	Tel/Fax: 604 639 2614	Contact: Namita Sahni

Office the final reports should be sent to:

- ☒ 500-4260 Still Creek Drive
Burnaby, BC V5C 6C6
Tel: 604-298-6623
Fax: 604-298-5253
- ☐ 202-2790 Gladwin Road
Abbotsford, BC V2T 4S8
Tel: 604-850-8786
Fax: 604-850-8756
- ☐ 2640 Douglas Street
Victoria, BC V8T 4M1
Tel: 250-881-7372
Fax: 250-881-7470

Sample Control Number (SCN)		Sample Matrix (over)	Date Sampled (D/M/Y)	Analyses Required							RUSH	Remarks (over)
20769	-01	Surface Water	8/9/14	Number of Containers *	CEPH/HEPH (in PAH)	BTEX/UPH	Total Metals	Total Mercury	Arsenic			
	-02			8	X	X	X	X	X			K03585
	-03			↓	↓	↓	↓	↓	↓			K03586
	-04											K03587
	-05											
	-06											
	-07											
	-08											
	-09											
	-10											
	-11											
	-12											



B480183

Sampler's Signature: <i>Andy Carlson</i>	Relinquished by: Signature	Company: Golder	Date: Sept. 9/14	Time	Received by: Signature	Company
Sample Storage (C): on ice	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Comments:	Method of Shipment: Air North	Waybill No.:	Received for Lab by: Daria Ivanova	Date: 2014/09/10	Time: 16:30	
	Shipped by:	Shipment Condition:	Temp (°C): 1.1, 1.2, 1.3	Cooler opened by:	Date:	Time:
		Seal Intact:				

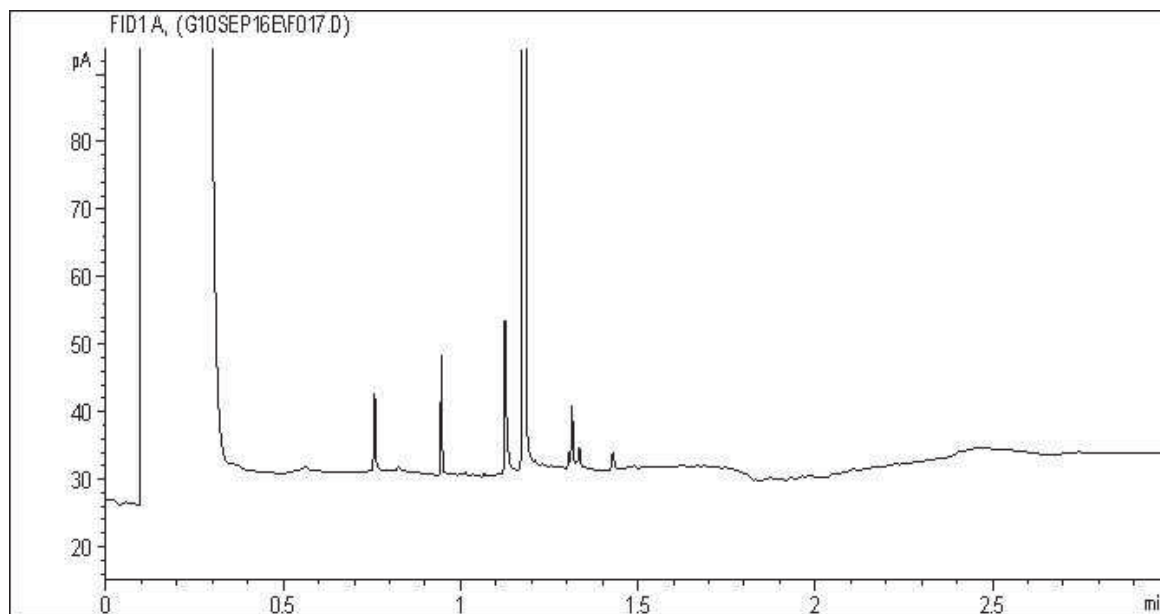
WHITE: Golder copy

YELLOW: Lab copy

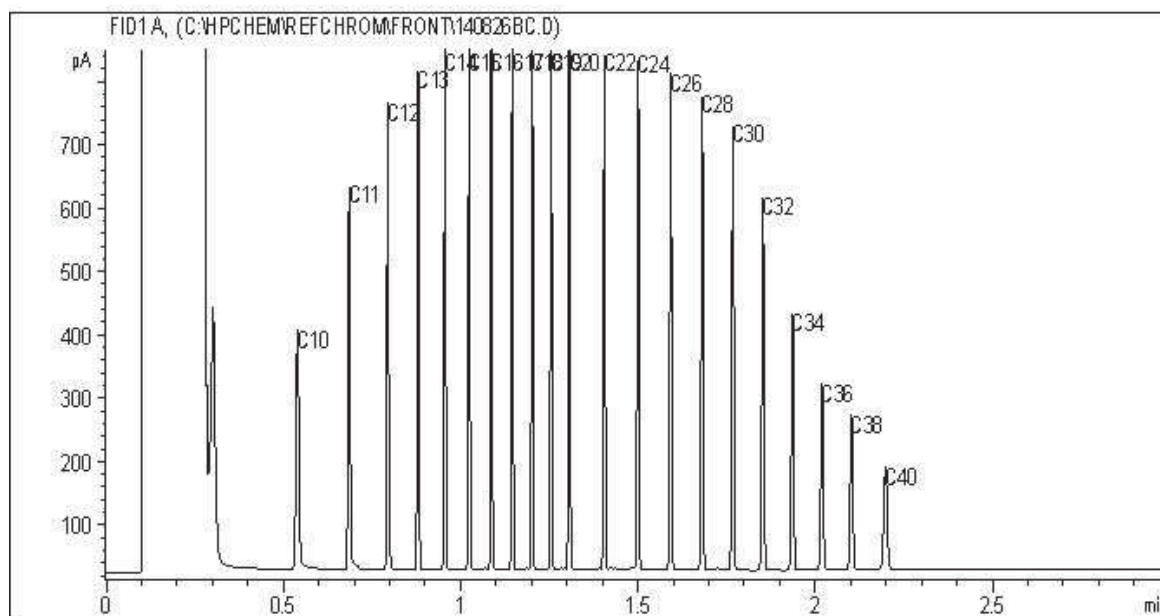
PINK: Lab returns with Final Report

C.B.-ND

Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram

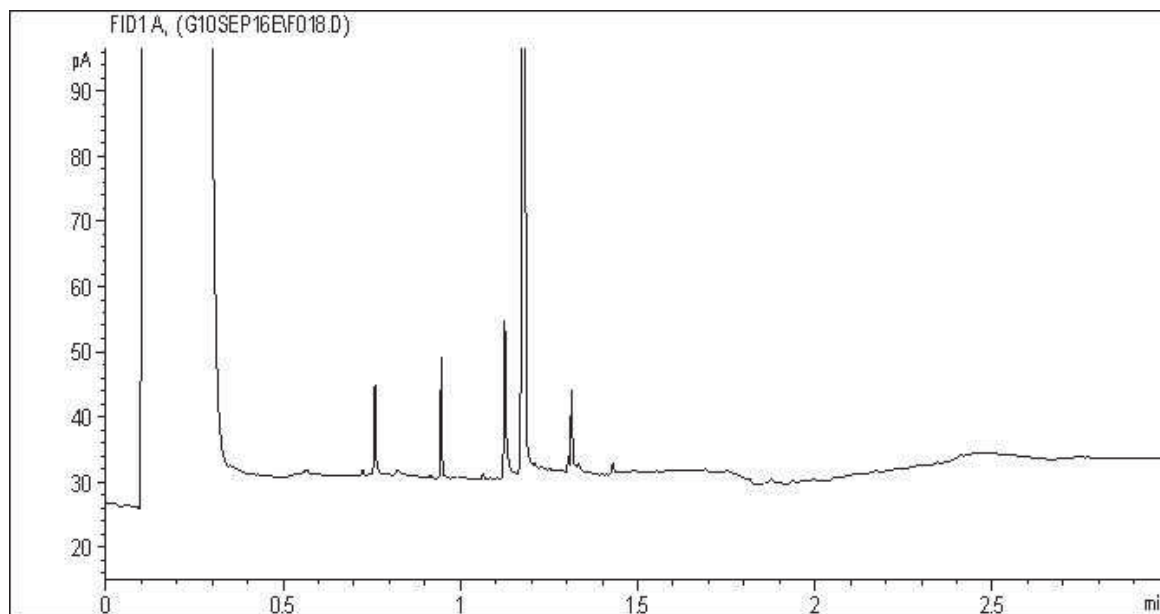


TYPICAL PRODUCT CARBON NUMBER RANGES

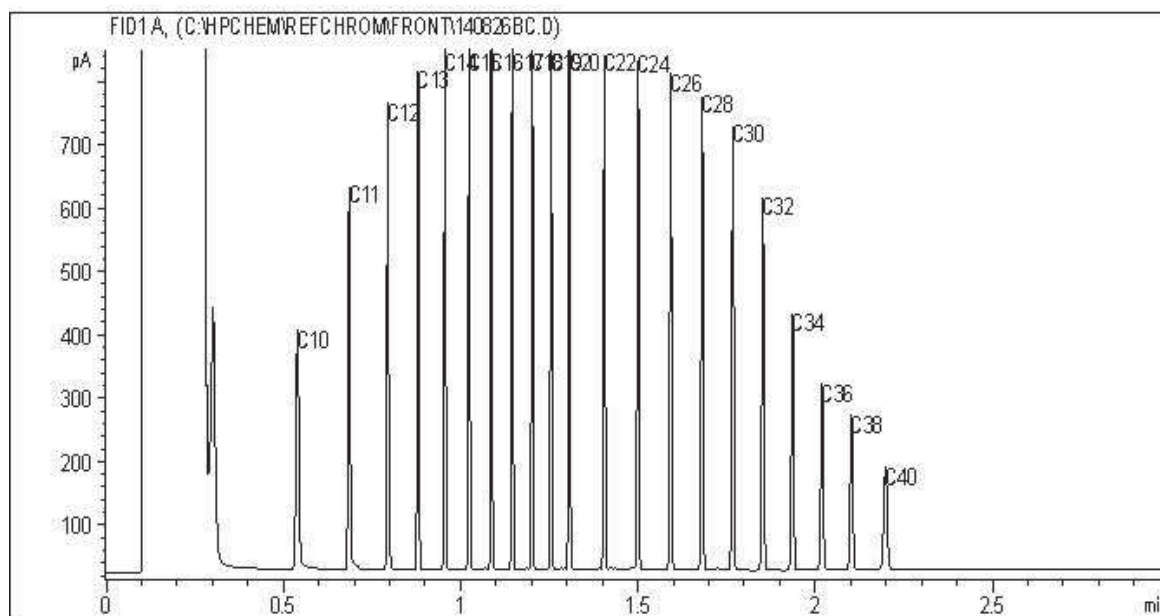
Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram

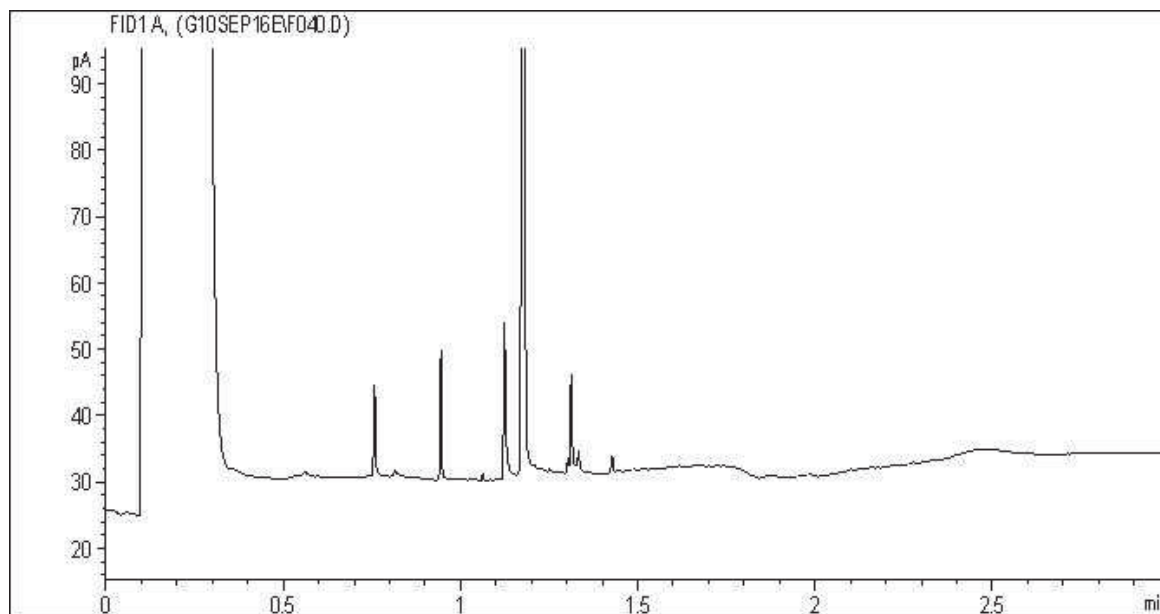


TYPICAL PRODUCT CARBON NUMBER RANGES

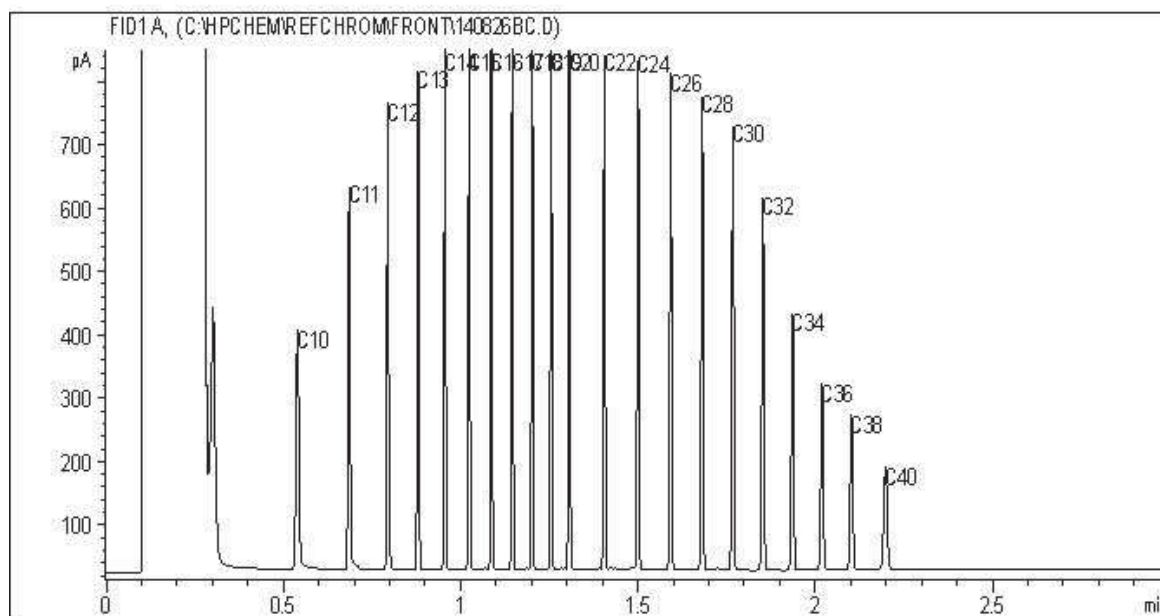
Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40

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Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram

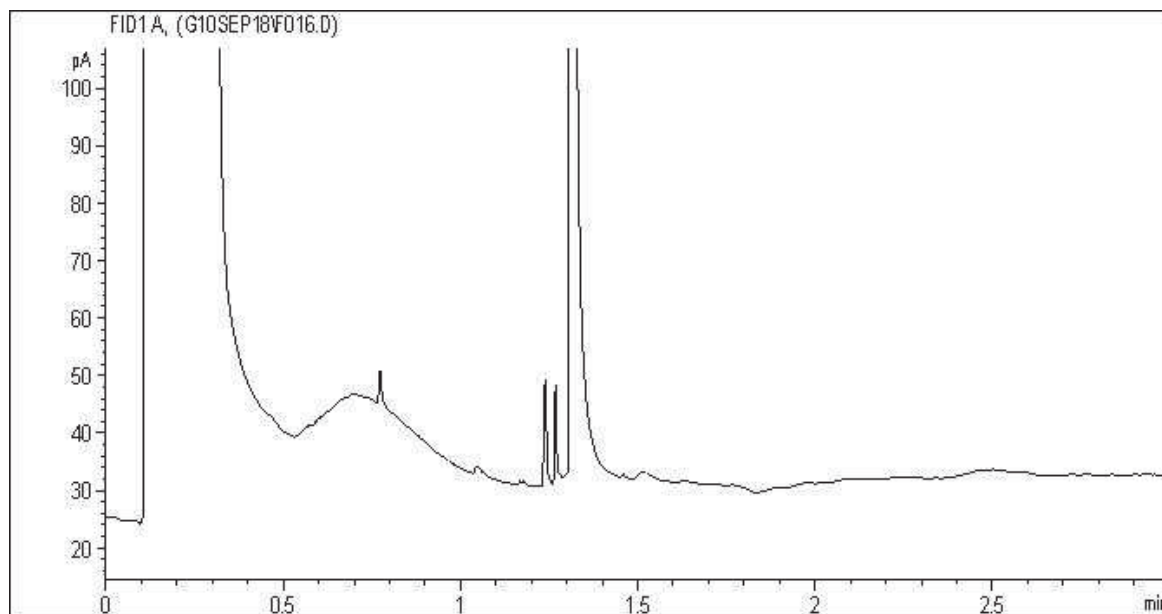


TYPICAL PRODUCT CARBON NUMBER RANGES

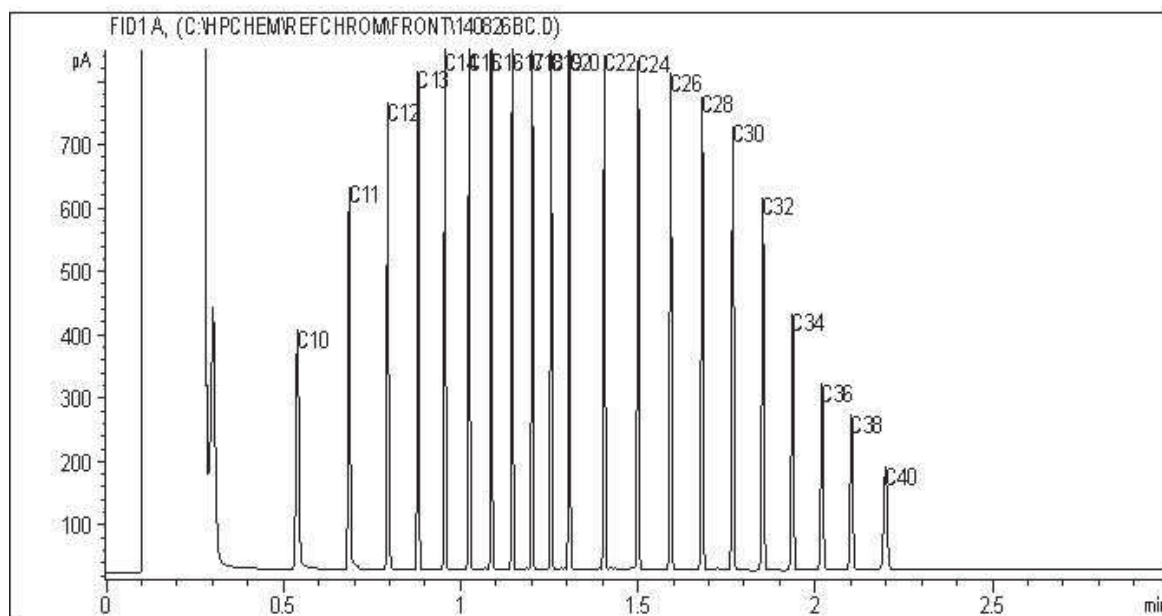
Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Your P.O. #: 8470
Your Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON
LAKE, YUKON
Your C.O.C. #: 08397233, 08397232

Attention: L. Barazzuol

SRK CONSULTING
SRKCONS-U-VAN
SUITE 2200
1066 W. HASTINGS ST.
VANCOUVER, BC
Canada V6E 3X2

Report Date: 2014/10/17
Report #: R1665289
Version: 3R

CERTIFICATE OF ANALYSIS – REVISED REPORT

MAXXAM JOB #: B487137

Received: 2014/09/29, 14:20

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Water	2	2014/09/30	2014/09/30	BBY6SOP-00026	SM 22 2320 B m
Alkalinity - Water	2	2014/09/30	2014/10/01	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	4	N/A	2014/09/30	BBY6SOP-00011	SM 22 4500-Cl- G m
Cyanide SAD (strong acid dissociable)	4	N/A	2014/10/03	BBY6SOP-00004	SM 22 4500-CN O m
Colour (True)	4	N/A	2014/10/01	BBY6SOP-00021	SM 22 2120 B m
Carbon (DOC) - field filtered/preserved (1)	2	N/A	2014/10/01	BBY6SOP-00003	SM 22 5310 C m
Carbon (DOC) - field filtered/preserved (1)	2	N/A	2014/10/02	BBY6SOP-00003	SM 22 5310 C m
Conductance - water	2	N/A	2014/09/30	BBY6SOP-00026	SM 22 2510 B m
Conductance - water	2	N/A	2014/10/01	BBY6SOP-00026	SM 22 2510 B m
Hardness Total (calculated as CaCO ₃)	4	N/A	2014/10/02	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO ₃)	3	N/A	2014/10/03	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO ₃)	1	N/A	2014/10/07	BBY7SOP-00002	EPA 6020a R1 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	4	N/A	2014/10/03	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (dissolved)	4	N/A	2014/10/02	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	4	2014/09/30	2014/10/02	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (total)	2	2014/09/30	2014/10/01	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (total)	2	2014/09/30	2014/10/02	BBY7SOP-00002	EPA 6020A R1 m
Ammonia-N (Preserved)	2	N/A	2014/10/01	BBY6SOP-00009	SM 22 4500-NH ₃ - G m
Ammonia-N (Preserved)	2	N/A	2014/10/02	BBY6SOP-00009	SM 22 4500-NH ₃ - G m
Nitrate + Nitrite (N)	4	N/A	2014/09/30	BBY6SOP-00010	SM 22 4500-NO ₃ - I m
Nitrite (N) by CFA	4	N/A	2014/09/30	BBY6SOP-00010	SM 22 4500-NO ₃ - I m
Nitrogen - Nitrate (as N)	4	N/A	2014/10/01	BBY6SOP-00010	SM 22 4500-NO ₃ I m
Filter and HNO ₃ Preserve for Metals	4	N/A	2014/09/30	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (2)	2	N/A	2014/09/30	BBY6SOP-00026	SM 22 4500-H+ B m
pH Water (2)	2	N/A	2014/10/01	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	4	N/A	2014/09/30	BBY6SOP-00017	SM 22 4500-SO ₄ 2- E m
Total Dissolved Solids (Filt. Residue)	3	2014/10/01	2014/10/02	BBY6SOP-00033	SM 22 2540 C m
Total Dissolved Solids (Filt. Residue)	1	2014/10/02	2014/10/03	BBY6SOP-00033	SM 22 2540 C m
Carbon (Total Organic) (3)	2	N/A	2014/10/01	BBY6SOP-00003	SM 22 5310 C m
Carbon (Total Organic) (3)	2	N/A	2014/10/02	BBY6SOP-00003	SM 22 5310 C m
Total Suspended Solids-Low Level	4	2014/09/30	2014/10/01	BBY6SOP-00034	SM 22 2540 D
Turbidity	2	N/A	2014/09/30	BBY6SOP-00027	SM 22 2130 B m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

- (1) DOC present in the sample should be considered as non-purgeable DOC.
- (2) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.
- (3) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ken Pomeroy, Project Manager
Email: KPomeroy@maxxam.ca
Phone# (604) 638-5020

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Total cover pages: 1

Maxxam Job #: B487137
Report Date: 2014/10/17

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE,
YUKON
Your P.O. #: 8470
Sampler Initials: JC

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		KS6046	KS6048		KS6050		
Sampling Date		2014/09/26 15:55	2014/09/26 10:55		2014/09/26 12:50		
COC Number		08397233	08397233		08397232		
	UNITS	MH-30	MH-15	QC Batch	MH-12	RDL	QC Batch

Calculated Parameters							
Filter and HNO3 Preservation	N/A	FIELD	FIELD	ONSITE	FIELD	N/A	ONSITE
Misc. Inorganics							
Strong Acid Dissoc. Cyanide (CN)	mg/L	0.00058	0.00057	7665656	0.00053	0.00050	7665656
Dissolved Organic Carbon (C)	mg/L	3.31	1.93	7661729	1.97	0.50	7663719
Alkalinity (Total as CaCO3)	mg/L	164	201	7659512	161	0.50	7659972
Total Organic Carbon (C)	mg/L	3.65	3.88	7661733	1.55	0.50	7663724
Alkalinity (PP as CaCO3)	mg/L	0.70	3.52	7659512	<0.50	0.50	7659972
Bicarbonate (HCO3)	mg/L	199	236	7659512	196	0.50	7659972
Carbonate (CO3)	mg/L	0.84	4.22	7659512	<0.50	0.50	7659972
Hydroxide (OH)	mg/L	<0.50	<0.50	7659512	<0.50	0.50	7659972
Anions							
Dissolved Sulphate (SO4)	mg/L	3.88	2.50	7660147	9.80	0.50	7660150
Dissolved Chloride (Cl)	mg/L	<0.50	0.66	7660146	<0.50	0.50	7660148
MISCELLANEOUS							
True Colour	Col. Unit	10.0 (1)	5.0 (1)	7659726	<5.0 (1)	5.0	7659726
Nutrients							
Total Ammonia (N)	mg/L	0.0078	0.0068	7662233	0.023	0.0050	7663981
Physical Properties							
Conductivity	uS/cm	302	360	7659514	323	1.0	7660003
pH	pH	8.30	8.39	7659515	8.18		7660002
Physical Properties							
Total Suspended Solids	mg/L	<1.0	1.1	7658912	1.6	1.0	7658912
Total Dissolved Solids	mg/L	166	194	7660880	178	10	7660880
Turbidity	NTU	1.18 (1)	0.86 (1)	7659427		0.10	

RDL = Reportable Detection Limit

(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B487137
Report Date: 2014/10/17

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE,
YUKON
Your P.O. #: 8470
Sampler Initials: JC

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		KS6051		
Sampling Date		2014/09/26 13:15		
COC Number		08397232		
	UNITS	MH-12D	RDL	QC Batch

Calculated Parameters				
Filter and HNO3 Preservation	N/A	FIELD	N/A	ONSITE
Misc. Inorganics				
Strong Acid Dissoc. Cyanide (CN)	mg/L	0.00054	0.00050	7665656
Dissolved Organic Carbon (C)	mg/L	2.09	0.50	7663719
Alkalinity (Total as CaCO3)	mg/L	161	0.50	7659972
Total Organic Carbon (C)	mg/L	1.96	0.50	7663723
Alkalinity (PP as CaCO3)	mg/L	<0.50	0.50	7659972
Bicarbonate (HCO3)	mg/L	196	0.50	7659972
Carbonate (CO3)	mg/L	<0.50	0.50	7659972
Hydroxide (OH)	mg/L	<0.50	0.50	7659972
Anions				
Dissolved Sulphate (SO4)	mg/L	9.60	0.50	7660150
Dissolved Chloride (Cl)	mg/L	0.64	0.50	7660148
MISCELLANEOUS				
True Colour	Col. Unit	<5.0 (1)	5.0	7659726
Nutrients				
Total Ammonia (N)	mg/L	0.032	0.0050	7663980
Physical Properties				
Conductivity	uS/cm	324	1.0	7660003
pH	pH	8.16		7660002
Physical Properties				
Total Suspended Solids	mg/L	2.1	1.0	7658912
Total Dissolved Solids	mg/L	229	10	7662751

RDL = Reportable Detection Limit
(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B487137
Report Date: 2014/10/17

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE,
YUKON
Your P.O. #: 8470
Sampler Initials: JC

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		KS6046		KS6048	KS6050	KS6051		
Sampling Date		2014/09/26 15:55		2014/09/26 10:55	2014/09/26 12:50	2014/09/26 13:15		
COC Number		08397233		08397233	08397232	08397232		
	UNITS	MH-30	QC Batch	MH-15	MH-12	MH-12D	RDL	QC Batch

Misc. Inorganics								
Dissolved Hardness (CaCO ₃)	mg/L	160	7667444	196	174	170	0.50	7658767
Dissolved Metals by ICPMS								
Dissolved Aluminum (Al)	ug/L	4.7	7662499	3.7	<3.0	3.5	3.0	7662499
Dissolved Antimony (Sb)	ug/L	<0.50	7662499	<0.50	<0.50	<0.50	0.50	7662499
Dissolved Arsenic (As)	ug/L	0.19	7662499	0.33	0.75	0.76	0.10	7662499
Dissolved Barium (Ba)	ug/L	195	7662499	159	74.1	75.9	1.0	7662499
Dissolved Beryllium (Be)	ug/L	<0.10	7662499	<0.10	<0.10	<0.10	0.10	7662499
Dissolved Bismuth (Bi)	ug/L	<1.0	7662499	<1.0	<1.0	<1.0	1.0	7662499
Dissolved Boron (B)	ug/L	<50	7662499	<50	<50	<50	50	7662499
Dissolved Cadmium (Cd)	ug/L	0.019	7662499	<0.010	0.038	0.041	0.010	7662499
Dissolved Chromium (Cr)	ug/L	<1.0	7662499	<1.0	<1.0	<1.0	1.0	7662499
Dissolved Cobalt (Co)	ug/L	<0.50	7662499	<0.50	<0.50	<0.50	0.50	7662499
Dissolved Copper (Cu)	ug/L	0.28	7662499	0.24	0.25	0.24	0.20	7662499
Dissolved Iron (Fe)	ug/L	210	7662499	108	<5.0	<5.0	5.0	7662499
Dissolved Lead (Pb)	ug/L	<0.20	7662499	<0.20	0.21	0.21	0.20	7662499
Dissolved Lithium (Li)	ug/L	<5.0	7662499	<5.0	<5.0	<5.0	5.0	7662499
Dissolved Manganese (Mn)	ug/L	13.2	7662499	10.7	1.4	1.3	1.0	7662499
Dissolved Mercury (Hg)	ug/L	<0.050	7662499	<0.050	<0.050	<0.050	0.050	7662499
Dissolved Molybdenum (Mo)	ug/L	1.3	7662499	1.5	1.3	1.3	1.0	7662499
Dissolved Nickel (Ni)	ug/L	<1.0	7662499	<1.0	<1.0	<1.0	1.0	7662499
Dissolved Selenium (Se)	ug/L	0.47	7662499	0.29	0.58	0.61	0.10	7662499
Dissolved Silicon (Si)	ug/L	2960	7662499	3960	4270	4050	100	7662499
Dissolved Silver (Ag)	ug/L	<0.020	7662499	<0.020	<0.020	<0.020	0.020	7662499
Dissolved Strontium (Sr)	ug/L	116	7662499	182	222	222	1.0	7662499
Dissolved Thallium (Tl)	ug/L	<0.050	7662499	<0.050	<0.050	<0.050	0.050	7662499
Dissolved Tin (Sn)	ug/L	<5.0	7662499	<5.0	<5.0	<5.0	5.0	7662499
Dissolved Titanium (Ti)	ug/L	<5.0	7662499	<5.0	<5.0	<5.0	5.0	7662499
Dissolved Uranium (U)	ug/L	1.36	7662499	0.72	0.91	0.93	0.10	7662499
Dissolved Vanadium (V)	ug/L	<5.0	7662499	<5.0	<5.0	<5.0	5.0	7662499
Dissolved Zinc (Zn)	ug/L	<5.0	7662499	<5.0	<5.0	<5.0	5.0	7662499
Dissolved Zirconium (Zr)	ug/L	<0.50	7662499	<0.50	<0.50	<0.50	0.50	7662499

RDL = Reportable Detection Limit

Maxxam Job #: B487137
Report Date: 2014/10/17

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE,
YUKON
Your P.O. #: 8470
Sampler Initials: JC

CSR DISSOLVED METALS IN WATER (WATER)

Maxxam ID		KS6046		KS6048	KS6050	KS6051		
Sampling Date		2014/09/26 15:55		2014/09/26 10:55	2014/09/26 12:50	2014/09/26 13:15		
COC Number		08397233		08397233	08397232	08397232		
	UNITS	MH-30	QC Batch	MH-15	MH-12	MH-12D	RDL	QC Batch

Dissolved Calcium (Ca)	mg/L	40.9	7667446	57.2	59.7	58.1	0.050	7658769
Dissolved Magnesium (Mg)	mg/L	14.1	7667446	13.0	6.01	5.99	0.050	7658769
Dissolved Potassium (K)	mg/L	0.314 (1)	7658769	0.406	0.481	0.476	0.050	7658769
Dissolved Sodium (Na)	mg/L	0.741	7658769	0.992	1.10	1.10	0.050	7658769
Dissolved Sulphur (S)	mg/L	<3.0	7667446	<3.0	3.6	4.1	3.0	7658769

RDL = Reportable Detection Limit

(1) Dissolved greater than total. Reanalysis yields similar results.

Maxxam Job #: B487137
Report Date: 2014/10/17

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE,
YUKON
Your P.O. #: 8470
Sampler Initials: JC

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		KS6046	KS6048	KS6050	KS6051		
Sampling Date		2014/09/26 15:55	2014/09/26 10:55	2014/09/26 12:50	2014/09/26 13:15		
COC Number		08397233	08397233	08397232	08397232		
	UNITS	MH-30	MH-15	MH-12	MH-12D	RDL	QC Batch

Calculated Parameters							
Total Hardness (CaCO ₃)	mg/L	164	194	175	179	0.50	7658766
Total Metals by ICPMS							
Total Aluminum (Al)	ug/L	7.2	18.2	60.4	56.1	3.0	7659655
Total Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	7659655
Total Arsenic (As)	ug/L	0.24	0.41	0.90	0.87	0.10	7659655
Total Barium (Ba)	ug/L	194	158	80.6	80.2	1.0	7659655
Total Beryllium (Be)	ug/L	<0.10	<0.10	<0.10	<0.10	0.10	7659655
Total Bismuth (Bi)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7659655
Total Boron (B)	ug/L	<50	<50	<50	<50	50	7659655
Total Cadmium (Cd)	ug/L	0.020	0.014	0.057	0.047	0.010	7659655
Total Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7659655
Total Cobalt (Co)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	7659655
Total Copper (Cu)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	7659655
Total Iron (Fe)	ug/L	394	220	90	73	10	7659655
Total Lead (Pb)	ug/L	<0.20	<0.20	2.21	1.76	0.20	7659655
Total Lithium (Li)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	7659655
Total Manganese (Mn)	ug/L	12.9	11.1	5.1	3.4	1.0	7659655
Total Mercury (Hg)	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7659655
Total Molybdenum (Mo)	ug/L	1.3	1.6	1.2	1.2	1.0	7659655
Total Nickel (Ni)	ug/L	<1.0	<1.0	<1.0	<1.0	1.0	7659655
Total Selenium (Se)	ug/L	0.42	0.32	0.54	0.53	0.10	7659655
Total Silicon (Si)	ug/L	2590	3500	4130	4210	100	7659655
Total Silver (Ag)	ug/L	<0.020	<0.020	<0.020	<0.020	0.020	7659655
Total Strontium (Sr)	ug/L	116	186	222	227	1.0	7659655
Total Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	<0.050	0.050	7659655
Total Tin (Sn)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	7659655
Total Titanium (Ti)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	7659655
Total Uranium (U)	ug/L	1.37	0.72	0.93	0.95	0.10	7659655
Total Vanadium (V)	ug/L	<5.0	<5.0	<5.0	<5.0	5.0	7659655
Total Zinc (Zn)	ug/L	<5.0	<5.0	5.9	<5.0	5.0	7659655
Total Zirconium (Zr)	ug/L	<0.50	<0.50	<0.50	<0.50	0.50	7659655

RDL = Reportable Detection Limit

Maxxam Job #: B487137
Report Date: 2014/10/17

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE,
YUKON
Your P.O. #: 8470
Sampler Initials: JC

CSR TOTAL METALS IN WATER (WATER)

Maxxam ID		KS6046	KS6048	KS6050	KS6051		
Sampling Date		2014/09/26 15:55	2014/09/26 10:55	2014/09/26 12:50	2014/09/26 13:15		
COC Number		08397233	08397233	08397232	08397232		
	UNITS	MH-30	MH-15	MH-12	MH-12D	RDL	QC Batch
Total Calcium (Ca)	mg/L	41.1	55.5	59.7	61.0	0.050	7658770
Total Magnesium (Mg)	mg/L	14.8	13.5	6.24	6.43	0.050	7658770
Total Potassium (K)	mg/L	0.244	0.373	0.430	0.436	0.050	7658770
Total Sodium (Na)	mg/L	0.701	1.03	1.10	1.09	0.050	7658770
Total Sulphur (S)	mg/L	3.9	<3.0	<3.0	<3.0	3.0	7658770
RDL = Reportable Detection Limit							

Maxxam Job #: B487137
Report Date: 2014/10/17

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE,
YUKON
Your P.O. #: 8470
Sampler Initials: JC

NITRITE & NITRATE IN WATER (WATER)

Maxxam ID		KS6046	KS6048	KS6050	KS6051		
Sampling Date		2014/09/26 15:55	2014/09/26 10:55	2014/09/26 12:50	2014/09/26 13:15		
COC Number		08397233	08397233	08397232	08397232		
	UNITS	MH-30	MH-15	MH-12	MH-12D	RDL	QC Batch

ANIONS							
Nitrite (N)	mg/L	<0.0050 (1)	<0.0050 (1)	<0.0050 (1)	<0.0050 (1)	0.0050	7659771
Calculated Parameters							
Nitrate (N)	mg/L	<0.020	<0.020	0.022	0.022	0.020	7658771
Nutrients							
Nitrate plus Nitrite (N)	mg/L	<0.020 (1)	<0.020 (1)	0.022 (1)	0.022 (1)	0.020	7659763

RDL = Reportable Detection Limit

(1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.

Maxxam Job #: B487137
Report Date: 2014/10/17

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE,
YUKON
Your P.O. #: 8470
Sampler Initials: JC

General Comments

Revised Report (Version: 2,3,4): Results have been split onto separate reports as per client request.

Sample KS6046, Na, K, Ca, Mg, S by CRC ICPMS (diss.): Test repeated.

Results relate only to the items tested.

SRK CONSULTING
Attention: L. Barazzuol
Client Project #: SRK 1CT008.043 / LFN
P.O. #: 8470
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON
LAKE, YUKON

Quality Assurance Report

Maxxam Job Number: VB487137

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7658912 JSQ	Spiked Blank	Total Suspended Solids	2014/10/01		103	%	80 - 120
	Method Blank	Total Suspended Solids	2014/10/01	<1.0		mg/L	
7659427 NS6	Spiked Blank	Turbidity	2014/09/30		100	%	80 - 120
	Method Blank	Turbidity	2014/09/30	<0.10		NTU	
	RPD	Turbidity	2014/09/30	NC		%	20
7659512 MM3	Matrix Spike	Alkalinity (Total as CaCO ₃)	2014/10/01		NC	%	80 - 120
	Spiked Blank	Alkalinity (Total as CaCO ₃)	2014/10/01		99	%	80 - 120
	Method Blank	Alkalinity (Total as CaCO ₃)	2014/10/01	0.82, RDL=0.50		mg/L	
		Alkalinity (PP as CaCO ₃)	2014/10/01	<0.50		mg/L	
		Bicarbonate (HCO ₃)	2014/10/01	1.00, RDL=0.50		mg/L	
		Carbonate (CO ₃)	2014/10/01	<0.50		mg/L	
		Hydroxide (OH)	2014/10/01	<0.50		mg/L	
	RPD	Alkalinity (Total as CaCO ₃)	2014/10/01	0.9		%	20
		Alkalinity (PP as CaCO ₃)	2014/10/01	NC		%	20
		Bicarbonate (HCO ₃)	2014/10/01	0.9		%	20
		Carbonate (CO ₃)	2014/10/01	NC		%	20
		Hydroxide (OH)	2014/10/01	NC		%	20
7659514 MM3	Spiked Blank	Conductivity	2014/10/01		99	%	80 - 120
	Method Blank	Conductivity	2014/10/01	<1.0		uS/cm	
	RPD	Conductivity	2014/10/01	0.2		%	20
7659515 MM3	Spiked Blank	pH	2014/10/01		101	%	97 - 103
	RPD	pH	2014/10/01	0		%	N/A
7659655 AD5	Matrix Spike						
	[KS6038-04]	Total Aluminum (Al)	2014/10/01		105	%	80 - 120
		Total Antimony (Sb)	2014/10/01		NC	%	80 - 120
		Total Arsenic (As)	2014/10/01		105	%	80 - 120
		Total Barium (Ba)	2014/10/01		NC	%	80 - 120
		Total Beryllium (Be)	2014/10/01		99	%	80 - 120
		Total Bismuth (Bi)	2014/10/01		102	%	80 - 120
		Total Cadmium (Cd)	2014/10/01		99	%	80 - 120
		Total Chromium (Cr)	2014/10/01		104	%	80 - 120
		Total Cobalt (Co)	2014/10/01		103	%	80 - 120
		Total Copper (Cu)	2014/10/01		103	%	80 - 120
		Total Iron (Fe)	2014/10/01		120	%	80 - 120
		Total Lead (Pb)	2014/10/01		104	%	80 - 120
		Total Lithium (Li)	2014/10/01		NC	%	80 - 120
		Total Manganese (Mn)	2014/10/01		104	%	80 - 120
		Total Mercury (Hg)	2014/10/01		106	%	80 - 120
		Total Molybdenum (Mo)	2014/10/01		NC	%	80 - 120
		Total Nickel (Ni)	2014/10/01		103	%	80 - 120
		Total Selenium (Se)	2014/10/01		NC	%	80 - 120
		Total Silver (Ag)	2014/10/01		90	%	80 - 120
		Total Strontium (Sr)	2014/10/01		NC	%	80 - 120
		Total Thallium (Tl)	2014/10/01		103	%	80 - 120
		Total Tin (Sn)	2014/10/01		106	%	80 - 120
		Total Titanium (Ti)	2014/10/01		108	%	80 - 120
		Total Uranium (U)	2014/10/01		104	%	80 - 120
		Total Vanadium (V)	2014/10/01		105	%	80 - 120
		Total Zinc (Zn)	2014/10/01		NC	%	80 - 120
	Spiked Blank	Total Aluminum (Al)	2014/10/01		106	%	80 - 120
		Total Antimony (Sb)	2014/10/01		105	%	80 - 120
		Total Arsenic (As)	2014/10/01		101	%	80 - 120
		Total Barium (Ba)	2014/10/01		102	%	80 - 120
		Total Beryllium (Be)	2014/10/01		98	%	80 - 120

SRK CONSULTING
Attention: L. Barazzuol
Client Project #: SRK 1CT008.043 / LFN
P.O. #: 8470
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE, YUKON

Quality Assurance Report (Continued)

Maxxam Job Number: VB487137

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7659655 AD5	Spiked Blank	Total Bismuth (Bi)	2014/10/01		100	%	80 - 120
		Total Cadmium (Cd)	2014/10/01		100	%	80 - 120
		Total Chromium (Cr)	2014/10/01		101	%	80 - 120
		Total Cobalt (Co)	2014/10/01		102	%	80 - 120
		Total Copper (Cu)	2014/10/01		104	%	80 - 120
		Total Iron (Fe)	2014/10/01		103	%	80 - 120
		Total Lead (Pb)	2014/10/01		100	%	80 - 120
		Total Lithium (Li)	2014/10/01		98	%	80 - 120
		Total Manganese (Mn)	2014/10/01		100	%	80 - 120
		Total Mercury (Hg)	2014/10/01		105	%	80 - 120
		Total Molybdenum (Mo)	2014/10/01		108	%	80 - 120
		Total Nickel (Ni)	2014/10/01		102	%	80 - 120
		Total Selenium (Se)	2014/10/01		99	%	80 - 120
		Total Silver (Ag)	2014/10/01		105	%	80 - 120
		Total Strontium (Sr)	2014/10/01		102	%	80 - 120
		Total Thallium (Tl)	2014/10/01		100	%	80 - 120
		Total Tin (Sn)	2014/10/01		104	%	80 - 120
		Total Titanium (Ti)	2014/10/01		107	%	80 - 120
		Total Uranium (U)	2014/10/01		101	%	80 - 120
		Total Vanadium (V)	2014/10/01		96	%	80 - 120
		Total Zinc (Zn)	2014/10/01		99	%	80 - 120
	Method Blank	Total Aluminum (Al)	2014/10/01	<3.0		ug/L	
		Total Antimony (Sb)	2014/10/01	<0.50		ug/L	
		Total Arsenic (As)	2014/10/01	<0.10		ug/L	
		Total Barium (Ba)	2014/10/01	<1.0		ug/L	
		Total Beryllium (Be)	2014/10/01	<0.10		ug/L	
		Total Bismuth (Bi)	2014/10/01	<1.0		ug/L	
		Total Boron (B)	2014/10/01	<50		ug/L	
		Total Cadmium (Cd)	2014/10/01	<0.010		ug/L	
		Total Chromium (Cr)	2014/10/01	<1.0		ug/L	
		Total Cobalt (Co)	2014/10/01	<0.50		ug/L	
		Total Copper (Cu)	2014/10/01	<0.50		ug/L	
		Total Iron (Fe)	2014/10/01	<10		ug/L	
		Total Lead (Pb)	2014/10/01	<0.20		ug/L	
		Total Lithium (Li)	2014/10/01	<5.0		ug/L	
		Total Manganese (Mn)	2014/10/01	<1.0		ug/L	
		Total Mercury (Hg)	2014/10/01	<0.050		ug/L	
		Total Molybdenum (Mo)	2014/10/01	<1.0		ug/L	
		Total Nickel (Ni)	2014/10/01	<1.0		ug/L	
		Total Selenium (Se)	2014/10/01	<0.10		ug/L	
		Total Silicon (Si)	2014/10/01	<100		ug/L	
		Total Silver (Ag)	2014/10/01	0.024, RDL=0.020		ug/L	
		Total Strontium (Sr)	2014/10/01	<1.0		ug/L	
		Total Thallium (Tl)	2014/10/01	<0.050		ug/L	
		Total Tin (Sn)	2014/10/01	<5.0		ug/L	
		Total Titanium (Ti)	2014/10/01	<5.0		ug/L	
		Total Uranium (U)	2014/10/01	<0.10		ug/L	
		Total Vanadium (V)	2014/10/01	<5.0		ug/L	
		Total Zinc (Zn)	2014/10/01	<5.0		ug/L	
		Total Zirconium (Zr)	2014/10/01	<0.50		ug/L	
7659726 EPE	Method Blank	True Colour	2014/10/01	<5.0		Col. Unit	
	RPD	True Colour	2014/10/01	NC (1)		%	20
7659763 SF1	Matrix Spike [KS6049-02]	Nitrate plus Nitrite (N)	2014/09/30		99	%	80 - 120

SRK CONSULTING
Attention: L. Barazzuol
Client Project #: SRK 1CT008.043 / LFN
P.O. #: 8470
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON LAKE, YUKON

Quality Assurance Report (Continued)

Maxxam Job Number: VB487137

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7659763 SF1	Spiked Blank	Nitrate plus Nitrite (N)	2014/09/30		100	%	80 - 120
	Method Blank	Nitrate plus Nitrite (N)	2014/09/30	<0.020		mg/L	
7659771 SF1	Matrix Spike						
	[KS6049-02]	Nitrite (N)	2014/09/30		97	%	80 - 120
	Spiked Blank	Nitrite (N)	2014/09/30		100	%	80 - 120
	Method Blank	Nitrite (N)	2014/09/30	<0.0050		mg/L	
7659972 WAY	Matrix Spike	Alkalinity (Total as CaCO3)	2014/09/30		NC	%	80 - 120
	Spiked Blank	Alkalinity (Total as CaCO3)	2014/09/30		91	%	80 - 120
	Method Blank	Alkalinity (Total as CaCO3)	2014/09/30	<0.50		mg/L	
		Alkalinity (PP as CaCO3)	2014/09/30	<0.50		mg/L	
		Bicarbonate (HCO3)	2014/09/30	<0.50		mg/L	
		Carbonate (CO3)	2014/09/30	<0.50		mg/L	
		Hydroxide (OH)	2014/09/30	<0.50		mg/L	
	RPD	Alkalinity (Total as CaCO3)	2014/09/30	5.7		%	20
		Alkalinity (PP as CaCO3)	2014/09/30	NC		%	20
		Bicarbonate (HCO3)	2014/09/30	5.7		%	20
		Carbonate (CO3)	2014/09/30	NC		%	20
		Hydroxide (OH)	2014/09/30	NC		%	20
7660002 WAY	Spiked Blank	pH	2014/09/30		101	%	97 - 103
	RPD	pH	2014/09/30	0.5		%	N/A
7660003 WAY	Spiked Blank	Conductivity	2014/09/30		98	%	80 - 120
	Method Blank	Conductivity	2014/09/30	<1.0		uS/cm	
	RPD	Conductivity	2014/09/30	0.6		%	20
7660146 DC6	Matrix Spike						
	[KS6048-02]	Dissolved Chloride (Cl)	2014/09/30		97	%	80 - 120
	Spiked Blank	Dissolved Chloride (Cl)	2014/09/30		99	%	80 - 120
	Method Blank	Dissolved Chloride (Cl)	2014/09/30	<0.50		mg/L	
	RPD [KS6048-02]	Dissolved Chloride (Cl)	2014/09/30	NC		%	20
7660147 DC6	Matrix Spike						
	[KS6048-02]	Dissolved Sulphate (SO4)	2014/09/30		97	%	80 - 120
	Spiked Blank	Dissolved Sulphate (SO4)	2014/09/30		92	%	80 - 120
	Method Blank	Dissolved Sulphate (SO4)	2014/09/30	<0.50		mg/L	
	RPD [KS6048-02]	Dissolved Sulphate (SO4)	2014/09/30	NC		%	20
7660148 DC6	Matrix Spike	Dissolved Chloride (Cl)	2014/09/30		89	%	80 - 120
	Spiked Blank	Dissolved Chloride (Cl)	2014/09/30		100	%	80 - 120
	Method Blank	Dissolved Chloride (Cl)	2014/09/30	<0.50		mg/L	
	RPD [KS6051-02]	Dissolved Chloride (Cl)	2014/09/30	NC		%	20
7660150 DC6	Matrix Spike	Dissolved Sulphate (SO4)	2014/09/30		NC	%	80 - 120
	Spiked Blank	Dissolved Sulphate (SO4)	2014/09/30		89	%	80 - 120
	Method Blank	Dissolved Sulphate (SO4)	2014/09/30	<0.50		mg/L	
	RPD [KS6051-02]	Dissolved Sulphate (SO4)	2014/09/30	6.3		%	20
7660880 PSA	Matrix Spike	Total Dissolved Solids	2014/10/02		NC	%	80 - 120
	Spiked Blank	Total Dissolved Solids	2014/10/02		82	%	80 - 120
	Method Blank	Total Dissolved Solids	2014/10/02	<10		mg/L	
	RPD	Total Dissolved Solids	2014/10/02	5.3		%	20
7661729 VT1	Matrix Spike	Dissolved Organic Carbon (C)	2014/10/01		NC	%	80 - 120
	Spiked Blank	Dissolved Organic Carbon (C)	2014/10/01		109	%	80 - 120
	Method Blank	Dissolved Organic Carbon (C)	2014/10/01	<0.50		mg/L	
	RPD	Dissolved Organic Carbon (C)	2014/10/01	3.2		%	20
7661733 VT1	Matrix Spike	Total Organic Carbon (C)	2014/10/01		103	%	80 - 120
	Spiked Blank	Total Organic Carbon (C)	2014/10/01		104	%	80 - 120
	Method Blank	Total Organic Carbon (C)	2014/10/01	<0.50		mg/L	
	RPD	Total Organic Carbon (C)	2014/10/01	NC		%	20
7662233 IW1	Matrix Spike	Total Ammonia (N)	2014/10/01		NC	%	80 - 120

SRK CONSULTING
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Client Project #: SRK 1CT008.043 / LFN
P.O. #: 8470
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON
LAKE, YUKON

Quality Assurance Report (Continued)

Maxxam Job Number: VB487137

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7662233 IW1	Spiked Blank	Total Ammonia (N)	2014/10/01		97	%	80 - 120
	Method Blank	Total Ammonia (N)	2014/10/01	<0.0050		mg/L	
	RPD	Total Ammonia (N)	2014/10/01	6.5		%	20
7662499 AD5	Matrix Spike [KS6043-05]	Dissolved Aluminum (Al)	2014/10/02		105	%	80 - 120
		Dissolved Antimony (Sb)	2014/10/02		97	%	80 - 120
		Dissolved Arsenic (As)	2014/10/02		106	%	80 - 120
		Dissolved Barium (Ba)	2014/10/02		100	%	80 - 120
		Dissolved Beryllium (Be)	2014/10/02		99	%	80 - 120
		Dissolved Bismuth (Bi)	2014/10/02		101	%	80 - 120
		Dissolved Cadmium (Cd)	2014/10/02		100	%	80 - 120
		Dissolved Chromium (Cr)	2014/10/02		106	%	80 - 120
		Dissolved Cobalt (Co)	2014/10/02		103	%	80 - 120
		Dissolved Copper (Cu)	2014/10/02		103	%	80 - 120
		Dissolved Iron (Fe)	2014/10/02		109	%	80 - 120
		Dissolved Lead (Pb)	2014/10/02		98	%	80 - 120
		Dissolved Lithium (Li)	2014/10/02		97	%	80 - 120
		Dissolved Manganese (Mn)	2014/10/02		104	%	80 - 120
		Dissolved Mercury (Hg)	2014/10/02		97	%	80 - 120
		Dissolved Molybdenum (Mo)	2014/10/02		99	%	80 - 120
		Dissolved Nickel (Ni)	2014/10/02		106	%	80 - 120
		Dissolved Selenium (Se)	2014/10/02		104	%	80 - 120
		Dissolved Silver (Ag)	2014/10/02		103	%	80 - 120
		Dissolved Strontium (Sr)	2014/10/02		100	%	80 - 120
		Dissolved Thallium (Tl)	2014/10/02		101	%	80 - 120
		Dissolved Tin (Sn)	2014/10/02		98	%	80 - 120
		Dissolved Titanium (Ti)	2014/10/02		97	%	80 - 120
		Dissolved Uranium (U)	2014/10/02		99	%	80 - 120
		Dissolved Vanadium (V)	2014/10/02		101	%	80 - 120
		Dissolved Zinc (Zn)	2014/10/02		105	%	80 - 120
	Spiked Blank	Dissolved Aluminum (Al)	2014/10/02		104	%	80 - 120
		Dissolved Antimony (Sb)	2014/10/02		98	%	80 - 120
		Dissolved Arsenic (As)	2014/10/02		102	%	80 - 120
		Dissolved Barium (Ba)	2014/10/02		101	%	80 - 120
		Dissolved Beryllium (Be)	2014/10/02		94	%	80 - 120
		Dissolved Bismuth (Bi)	2014/10/02		99	%	80 - 120
		Dissolved Cadmium (Cd)	2014/10/02		98	%	80 - 120
		Dissolved Chromium (Cr)	2014/10/02		102	%	80 - 120
		Dissolved Cobalt (Co)	2014/10/02		102	%	80 - 120
		Dissolved Copper (Cu)	2014/10/02		101	%	80 - 120
		Dissolved Iron (Fe)	2014/10/02		109	%	80 - 120
		Dissolved Lead (Pb)	2014/10/02		99	%	80 - 120
		Dissolved Lithium (Li)	2014/10/02		93	%	80 - 120
		Dissolved Manganese (Mn)	2014/10/02		97	%	80 - 120
		Dissolved Mercury (Hg)	2014/10/02		101	%	80 - 120
		Dissolved Molybdenum (Mo)	2014/10/02		91	%	80 - 120
		Dissolved Nickel (Ni)	2014/10/02		103	%	80 - 120
		Dissolved Selenium (Se)	2014/10/02		103	%	80 - 120
		Dissolved Silver (Ag)	2014/10/02		95	%	80 - 120
		Dissolved Strontium (Sr)	2014/10/02		97	%	80 - 120
		Dissolved Thallium (Tl)	2014/10/02		101	%	80 - 120
		Dissolved Tin (Sn)	2014/10/02		100	%	80 - 120
		Dissolved Titanium (Ti)	2014/10/02		95	%	80 - 120
		Dissolved Uranium (U)	2014/10/02		99	%	80 - 120

SRK CONSULTING
Attention: L. Barazzuol
Client Project #: SRK 1CT008.043 / LFN
P.O. #: 8470
Site Location: SA DENA HES - MONTHLY MONITORING / WATSON
LAKE, YUKON

Quality Assurance Report (Continued)

Maxxam Job Number: VB487137

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7662499 AD5	Spiked Blank	Dissolved Vanadium (V)	2014/10/02		98	%	80 - 120
		Dissolved Zinc (Zn)	2014/10/02		100	%	80 - 120
	Method Blank	Dissolved Aluminum (Al)	2014/10/02	<3.0		ug/L	
		Dissolved Antimony (Sb)	2014/10/02	<0.50		ug/L	
		Dissolved Arsenic (As)	2014/10/02	<0.10		ug/L	
		Dissolved Barium (Ba)	2014/10/02	<1.0		ug/L	
		Dissolved Beryllium (Be)	2014/10/02	<0.10		ug/L	
		Dissolved Bismuth (Bi)	2014/10/02	<1.0		ug/L	
		Dissolved Boron (B)	2014/10/02	<50		ug/L	
		Dissolved Cadmium (Cd)	2014/10/02	<0.010		ug/L	
		Dissolved Chromium (Cr)	2014/10/02	<1.0		ug/L	
		Dissolved Cobalt (Co)	2014/10/02	<0.50		ug/L	
		Dissolved Copper (Cu)	2014/10/02	<0.20		ug/L	
		Dissolved Iron (Fe)	2014/10/02	<5.0		ug/L	
		Dissolved Lead (Pb)	2014/10/02	<0.20		ug/L	
		Dissolved Lithium (Li)	2014/10/02	<5.0		ug/L	
		Dissolved Manganese (Mn)	2014/10/02	<1.0		ug/L	
		Dissolved Mercury (Hg)	2014/10/02	<0.050		ug/L	
		Dissolved Molybdenum (Mo)	2014/10/02	<1.0		ug/L	
		Dissolved Nickel (Ni)	2014/10/02	<1.0		ug/L	
		Dissolved Selenium (Se)	2014/10/02	<0.10		ug/L	
		Dissolved Silicon (Si)	2014/10/02	<100		ug/L	
		Dissolved Silver (Ag)	2014/10/02	<0.020		ug/L	
		Dissolved Strontium (Sr)	2014/10/02	<1.0		ug/L	
		Dissolved Thallium (Tl)	2014/10/02	<0.050		ug/L	
		Dissolved Tin (Sn)	2014/10/02	<5.0		ug/L	
		Dissolved Titanium (Ti)	2014/10/02	<5.0		ug/L	
		Dissolved Uranium (U)	2014/10/02	<0.10		ug/L	
		Dissolved Vanadium (V)	2014/10/02	<5.0		ug/L	
		Dissolved Zinc (Zn)	2014/10/02	<5.0		ug/L	
		Dissolved Zirconium (Zr)	2014/10/02	<0.50		ug/L	
7662751 PSA	Matrix Spike	Total Dissolved Solids	2014/10/03		98	%	80 - 120
	Spiked Blank	Total Dissolved Solids	2014/10/03		104	%	80 - 120
	Method Blank	Total Dissolved Solids	2014/10/03	<10		mg/L	
	RPD	Total Dissolved Solids	2014/10/03	15.4		%	20
7663719 VT1	Matrix Spike						
	[KS6050-08]	Dissolved Organic Carbon (C)	2014/10/02		108	%	80 - 120
	Spiked Blank	Dissolved Organic Carbon (C)	2014/10/02		110	%	80 - 120
	Method Blank	Dissolved Organic Carbon (C)	2014/10/02	<0.50		mg/L	
	RPD [KS6050-08]	Dissolved Organic Carbon (C)	2014/10/02	NC		%	20
7663723 VT1	Matrix Spike						
	[KS6051-07]	Total Organic Carbon (C)	2014/10/02		106	%	80 - 120
	Spiked Blank	Total Organic Carbon (C)	2014/10/02		108	%	80 - 120
	Method Blank	Total Organic Carbon (C)	2014/10/02	<0.50		mg/L	
	RPD [KS6051-07]	Total Organic Carbon (C)	2014/10/02	NC		%	20
7663724 VT1	Matrix Spike						
	[KS6051-07]	Total Organic Carbon (C)	2014/10/02		NC	%	80 - 120
	Spiked Blank	Total Organic Carbon (C)	2014/10/02		110	%	80 - 120
	Method Blank	Total Organic Carbon (C)	2014/10/02	<0.50		mg/L	
	RPD	Total Organic Carbon (C)	2014/10/02	5.7		%	20
7663980 IW1	Matrix Spike						
	[KS6051-06]	Total Ammonia (N)	2014/10/02		90	%	80 - 120
	Spiked Blank	Total Ammonia (N)	2014/10/02		108	%	80 - 120
	Method Blank	Total Ammonia (N)	2014/10/02	0.0075, RDL=0.0050		mg/L	
	RPD [KS6051-06]	Total Ammonia (N)	2014/10/02	6.8		%	20

SRK CONSULTING
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Quality Assurance Report (Continued)

Maxxam Job Number: VB487137

QA/QC Batch	QC Type	Parameter	Date Analyzed yyyy/mm/dd	Value	Recovery	UNITS	QC Limits
7663981 IW1	Matrix Spike	Total Ammonia (N)	2014/10/02		86	%	80 - 120
	Spiked Blank	Total Ammonia (N)	2014/10/02		99	%	80 - 120
	Method Blank	Total Ammonia (N)	2014/10/02	<0.0050		mg/L	
	RPD	Total Ammonia (N)	2014/10/02	NC		%	20
7665656 TS1	Matrix Spike						
	[KS6051-09]	Strong Acid Dissoc. Cyanide (CN)	2014/10/03		96	%	80 - 120
	Spiked Blank	Strong Acid Dissoc. Cyanide (CN)	2014/10/03		102	%	80 - 120
	Method Blank	Strong Acid Dissoc. Cyanide (CN)	2014/10/03	0.00053, RDL=0.00050		mg/L	
	RPD [KS6051-09]	Strong Acid Dissoc. Cyanide (CN)	2014/10/03	NC		%	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

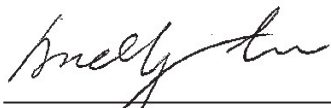
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Sample analysed past recommended hold time.

Validation Signature Page

Maxxam Job #: B487137

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator

=====

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.



08397233

[Click here to get the COC number](#)

Maxxam Job #:

COC #:

Temp #1

Page: 1 of 2

Invoice To: Require Report? Yes ☒ No ☐

Company Name: **Teck Resources Ltd.**

Contact Name: Michelle Unger, Environmental Scientist

Address: _____

PC:

Phone / Fax#: Ph: 250-427-8422 Fax: 250-427-8451

E-mail michelle.unger@teck.com

Report To:

SRK Consulting

Contact Name: Lisa Barrazuol / Jay Cherian

Address: _____

(867) 334-4412 (Jay) PC:

Phone / Fax#: Ph: 604-628-2564 (Lisa) Fax:

jcherian@srk.com; lbarazzuol@srk.com

PO #: Teck PO 8470

Quotation #: B13-142-1-KP

Project #: SRK 1CT008.043 / LFN

Proj. Name: Sa Dena Hes - Monthly Monitoring

Location: Watson Lake, Yukon

Sampled by: J Cherian / T Jimmy / S Caesar

REGULATORY REQUIREMENTS: SERVICE REQUESTED:

☐ CSR
☒ CCME
☐ BC Water Quality
☐ Other _____
☐ DRINKING WATER

☐ Regular Turn Around Time (TAT)
 (5 days for most tests)
☐ **RUSH** (Please contact the lab)
☐ 1 Day ☐ 2 Day ☐ 3 Day

Date Required: _____

SPECIAL INSTRUCTIONS:

Return Cooler	☐	Ship Sample Bottles (please specify)	☒
Include results of MH-01B, MH-04 and DUP from COC EB1035014 in results reporting			

ANALYSIS REQUESTED

CCME ☒ CCME BC Water Quality ☐ Other ☐ DRINKING WATER ☐				Regular (5 days for most tests) RUSH (Please contact the lab) 1 Day ☐ 2 Day ☐ 3 Day ☐ Date Required: _____				BTEX/VPH ☐ MTBE ☐ VOC/VPH ☐ EPH ☐ TEH ☐ PAH ☐ LEPH/HEPH ☐ CCME-PHC (Fractions 1-4 Plus BTEX) ☐ CCME-PHC (Fractions 2-4) ☐ CCME-PHC (Fraction 1 Plus BTEX) ☐ Trout LC50 Bioassay ☐ Phenols by AAAP ☐ Phenols by GCMS ☐ TOG ☐ MOG ☐ SMOG ☐ Dissolved Metals (DM) ☐ Field Filtered? ☐ ☐ ☐ Total Metals ☐ Field Acidified? ☐ ☐ ☐ Nitrate ☐ Nitrite ☐ Ammonia ☐ ☐ ☐ Chloride ☐ Fluoride ☐ Sulphate ☐ ☐ ☐ Total Suspended Solids (TSS) ☐ TDS ☐ pH ☐ Conductivity ☐ Alkalinity ☐ DOC ☐ TOC ☐ Coliform: Total & E.coli ☐ Faecal ☐ Bromide ☐ Mercury (field acidified) ☐ Cyanide - SAD ☐ Colour ☐ Dissolved Mercury (field filtered, acid turbidity) ☐ HOLD ☐ Number of Containers ☐ YES ☐ NO ☐ YES ☐ NO ☐																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
SPECIAL INSTRUCTIONS: Return Cooler ☐ Ship Sample Bottles (please specify) ☒ Include results of MH-01B, MH-04 and DUP from COC EB1035014 in results reporting				Lab Use Only																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							

Print name and sign

Print name and sign

Laboratory Use Only

*Relinquished By:	Date (yy/mm/dd):	Time (24 hr):	Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Temperature on Receipt (°C)	Custody Seal	Yes	No
J Cherian	14/09/29	6:00	PRINCE ARISB SULTAN	2014/09/29	14:20	☒	A) 8 B) 8 C) 9	Present?	☐	☒
						☒	Just sampled & rec'd on ice: ☐	Intact?	☐	☒

8,8,8 / 7,8,9 / 9,8,8
7,6,9 / 9,9,8



Your Project #: 12-1021-0006
Site Location: PHASE 11000
Your C.O.C. #: 22807

Attention: Andrew Bruemmer

GOLDER ASSOCIATES LTD
4260 STILL CREEK DRIVE
Suite 500
BURNABY, BC
Canada V5C 6C6

Report Date: 2014/10/08
Report #: R1659113
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B488182

Received: 2014/10/01, 13:55

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Chloride by Automated Colourimetry	7	N/A	2014/10/02	BBY6SOP-00011	SM 22 4500-Cl- G m
Fluoride	7	N/A	2014/10/06	BBY6SOP-00048	SM 22 4500-F C m
Hardness (calculated as CaCO ₃)	7	N/A	2014/10/07	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved) by CVAf	7	N/A	2014/10/08	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Extrac. Pet HC when LEPH/HEPH required	7	2014/10/06	2014/10/07	BBY8SOP-00029	BCMOE EPH w 07/99
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	7	N/A	2014/10/07	BBY7SOP-00002	EPA 6020A R1 m EPA 6020A R1 m

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		KT2492	KT2493	KT2494	KT2495	KT2496	KT2497	KT2498		
Sampling Date		2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27		
COC Number		22807	22807	22807	22807	22807	22807	22807		
	Units	22807-01	22807-02	22807-03	22807-04	22807-05	22807-06	22807-07	RDL	QC Batch
Misc. Inorganics										
Fluoride (F)	mg/L	0.063	0.088	0.220	0.069	0.046	0.044	0.140	0.010	7668584
Anions										
Dissolved Sulphate (SO ₄)	mg/L	<0.50	0.50	20.2	19.4	1.05	1.05	21.7	0.50	7663854
Dissolved Chloride (Cl)	mg/L	0.71	0.55	0.62	1.2	0.97	0.87	1.0	0.50	7663850
RDL = Reportable Detection Limit										

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		KT2492	KT2493	KT2494	KT2495	KT2496	KT2497		
Sampling Date		2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27		
COC Number		22807	22807	22807	22807	22807	22807		
	Units	22807-01	22807-02	22807-03	22807-04	22807-05	22807-06	RDL	QC Batch
Polycyclic Aromatics									
Low Molecular Weight PAH's	ug/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	0.24	7660618
High Molecular Weight PAH's	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7660618
Total PAH	ug/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	0.24	7660618
Naphthalene	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7668614
2-Methylnaphthalene	ug/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	7668614
Quinoline	ug/L	<0.24	<0.24	<0.24	<0.24	<0.24	<0.24	0.24	7668614
Acenaphthylene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Acenaphthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Fluorene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Phenanthrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7668614
Acridine	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Fluoranthene	ug/L	<0.020	<0.020	<0.020	0.021	<0.020	<0.020	0.020	7668614
Pyrene	ug/L	<0.020	<0.020	0.023	0.026	<0.020	<0.020	0.020	7668614
Benzo(a)anthracene	ug/L	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.010	7668614
Chrysene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Benzo(b&j)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Benzo(k)fluoranthene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Benzo(a)pyrene	ug/L	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	<0.0090	0.0090	7668614
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Dibenz(a,h)anthracene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Benzo(g,h,i)perylene	ug/L	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	0.050	7668614
Calculated Parameters									
LEPH (C10-C19 less PAH)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7661269
HEPH (C19-C32 less PAH)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7661269
Ext. Pet. Hydrocarbon									
EPH (C10-C19)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7668617
EPH (C19-C32)	mg/L	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.20	7668617
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	100	99	99	99	99	99		7668617
D10-ANTHRACENE (sur.)	%	95	119	96	113	119	111		7668614
D8-ACENAPHTHYLENE (sur.)	%	74	105	92	99	101	100		7668614
D8-NAPHTHALENE (sur.)	%	69	98	89	92	96	95		7668614
D9-Acridine	%	77	97	73	83	95	85		7668614
RDL = Reportable Detection Limit									

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		KT2492	KT2493	KT2494	KT2495	KT2496	KT2497		
Sampling Date		2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27		
COC Number		22807	22807	22807	22807	22807	22807		
	Units	22807-01	22807-02	22807-03	22807-04	22807-05	22807-06	RDL	QC Batch
TERPHENYL-D14 (sur.)	%	82	89	56 (1)	77	89	74		7668614

RDL = Reportable Detection Limit

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		KT2498		
Sampling Date		2014/09/27		
COC Number		22807		
	Units	22807-07	RDL	QC Batch
Polycyclic Aromatics				
Low Molecular Weight PAH's	ug/L	<0.24	0.24	7660618
High Molecular Weight PAH's	ug/L	<0.050	0.050	7660618
Total PAH	ug/L	<0.24	0.24	7660618
Naphthalene	ug/L	<0.10	0.10	7668614
2-Methylnaphthalene	ug/L	<0.10	0.10	7668614
Quinoline	ug/L	<0.24	0.24	7668614
Acenaphthylene	ug/L	<0.050	0.050	7668614
Acenaphthene	ug/L	<0.050	0.050	7668614
Fluorene	ug/L	<0.050	0.050	7668614
Phenanthrene	ug/L	<0.050	0.050	7668614
Anthracene	ug/L	<0.010	0.010	7668614
Acridine	ug/L	<0.050	0.050	7668614
Fluoranthene	ug/L	<0.020	0.020	7668614
Pyrene	ug/L	<0.020	0.020	7668614
Benzo(a)anthracene	ug/L	<0.010	0.010	7668614
Chrysene	ug/L	<0.050	0.050	7668614
Benzo(b&j)fluoranthene	ug/L	<0.050	0.050	7668614
Benzo(k)fluoranthene	ug/L	<0.050	0.050	7668614
Benzo(a)pyrene	ug/L	<0.0090	0.0090	7668614
Indeno(1,2,3-cd)pyrene	ug/L	<0.050	0.050	7668614
Dibenz(a,h)anthracene	ug/L	<0.050	0.050	7668614
Benzo(g,h,i)perylene	ug/L	<0.050	0.050	7668614
Calculated Parameters				
LEPH (C10-C19 less PAH)	mg/L	<0.20	0.20	7661269
HEPH (C19-C32 less PAH)	mg/L	<0.20	0.20	7661269
Ext. Pet. Hydrocarbon				
EPH (C10-C19)	mg/L	<0.20	0.20	7668617
EPH (C19-C32)	mg/L	<0.20	0.20	7668617
Surrogate Recovery (%)				
O-TERPHENYL (sur.)	%	99		7668617
D10-ANTHRACENE (sur.)	%	85		7668614
D8-ACENAPHTHYLENE (sur.)	%	90		7668614
D8-NAPHTHALENE (sur.)	%	86		7668614
D9-Acridine	%	60		7668614
RDL = Reportable Detection Limit				

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

LEPH & HEPH WITH CSR/CCME PAH IN WATER (WATER)

Maxxam ID		KT2498		
Sampling Date		2014/09/27		
COC Number		22807		
	Units	22807-07	RDL	QC Batch
TERPHENYL-D14 (sur.)	%	44 (1)		7668614
RDL = Reportable Detection Limit (1) Surrogate recovery exceeds acceptance criteria due to matrix interference.				

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KT2492	KT2493	KT2494	KT2495		
Sampling Date		2014/09/27	2014/09/27	2014/09/27	2014/09/27		
COC Number		22807	22807	22807	22807		
	Units	22807-01	22807-02	22807-03	22807-04	RDL	QC Batch
Misc. Inorganics							
Dissolved Hardness (CaCO ₃)	mg/L	80.7	95.4	176	200	0.50	7662095
Elements							
Dissolved Mercury (Hg)	ug/L	<0.010	<0.010	<0.010	<0.010	0.010	7670828
Dissolved Metals by ICPMS							
Dissolved Aluminum (Al)	mg/L	<0.0030	0.0072	0.0089	0.0050	0.0030	7667768
Dissolved Antimony (Sb)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	7667768
Dissolved Arsenic (As)	mg/L	<0.00010	<0.00010	0.00033	0.00031	0.00010	7667768
Dissolved Barium (Ba)	mg/L	0.0192	0.0240	0.0571	0.0446	0.0010	7667768
Dissolved Beryllium (Be)	mg/L	<0.00010	<0.00010	<0.00010	<0.00010	0.00010	7667768
Dissolved Bismuth (Bi)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7667768
Dissolved Boron (B)	mg/L	<0.050	<0.050	<0.050	<0.050	0.050	7667768
Dissolved Cadmium (Cd)	mg/L	0.000014	0.000011	0.000090	0.00265	0.000010	7667768
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	7667768
Dissolved Cobalt (Co)	mg/L	<0.00050	<0.00050	0.00075	0.00058	0.00050	7667768
Dissolved Copper (Cu)	mg/L	0.00084	0.00031	0.00056	0.00534	0.00020	7667768
Dissolved Iron (Fe)	mg/L	2.63	0.320	0.0090	<0.0050	0.0050	7667768
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	<0.00020	0.00058	0.00020	7667768
Dissolved Lithium (Li)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7667768
Dissolved Manganese (Mn)	mg/L	0.135	0.0673	0.216	0.0544	0.0010	7667768
Dissolved Molybdenum (Mo)	mg/L	<0.0010	<0.0010	0.0019	0.0019	0.0010	7667768
Dissolved Nickel (Ni)	mg/L	<0.0010	<0.0010	0.0031	0.0018	0.0010	7667768
Dissolved Selenium (Se)	mg/L	<0.00010	0.00012	0.00027	0.00026	0.00010	7667768
Dissolved Silicon (Si)	mg/L	0.56	0.92	3.56	3.13	0.10	7667768
Dissolved Silver (Ag)	mg/L	<0.000020	<0.000020	<0.000020	<0.000020	0.000020	7667768
Dissolved Strontium (Sr)	mg/L	0.102	0.130	0.206	0.259	0.0010	7667768
Dissolved Thallium (Tl)	mg/L	<0.000050	<0.000050	<0.000050	<0.000050	0.000050	7667768
Dissolved Tin (Sn)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7667768
Dissolved Titanium (Ti)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7667768
Dissolved Uranium (U)	mg/L	<0.00010	0.00021	0.00098	0.00120	0.00010	7667768
Dissolved Vanadium (V)	mg/L	<0.0050	<0.0050	<0.0050	<0.0050	0.0050	7667768
Dissolved Zinc (Zn)	mg/L	0.0066	<0.0050	<0.0050	0.0228	0.0050	7667768
Dissolved Zirconium (Zr)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	7667768
Dissolved Calcium (Ca)	mg/L	24.6	30.3	58.6	69.4	0.050	7661375
Dissolved Magnesium (Mg)	mg/L	4.70	4.75	7.13	6.52	0.050	7661375
Dissolved Potassium (K)	mg/L	0.631	0.371	1.14	0.915	0.050	7661375
RDL = Reportable Detection Limit							

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KT2492	KT2493	KT2494	KT2495		
Sampling Date		2014/09/27	2014/09/27	2014/09/27	2014/09/27		
COC Number		22807	22807	22807	22807		
	Units	22807-01	22807-02	22807-03	22807-04	RDL	QC Batch
Dissolved Sodium (Na)	mg/L	1.14	0.954	3.42	3.08	0.050	7661375
Dissolved Sulphur (S)	mg/L	<3.0	<3.0	6.7	6.3	3.0	7661375
RDL = Reportable Detection Limit							

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KT2496	KT2497	KT2498		
Sampling Date		2014/09/27	2014/09/27	2014/09/27		
COC Number		22807	22807	22807		
	Units	22807-05	22807-06	22807-07	RDL	QC Batch
Misc. Inorganics						
Dissolved Hardness (CaCO ₃)	mg/L	205	207	227	0.50	7662095
Elements						
Dissolved Mercury (Hg)	ug/L	<0.010	<0.010	<0.010	0.010	7670786
Dissolved Metals by ICPMS						
Dissolved Aluminum (Al)	mg/L	0.0110	0.0098	0.0236	0.0030	7667768
Dissolved Antimony (Sb)	mg/L	<0.00050	<0.00050	<0.00050	0.00050	7667768
Dissolved Arsenic (As)	mg/L	0.00042	0.00042	0.00028	0.00010	7667768
Dissolved Barium (Ba)	mg/L	0.317	0.312	0.0866	0.0010	7667768
Dissolved Beryllium (Be)	mg/L	<0.00010	<0.00010	<0.00010	0.00010	7667768
Dissolved Bismuth (Bi)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7667768
Dissolved Boron (B)	mg/L	<0.050	<0.050	<0.050	0.050	7667768
Dissolved Cadmium (Cd)	mg/L	0.000039	0.000036	0.000168	0.000010	7667768
Dissolved Chromium (Cr)	mg/L	<0.0010	<0.0010	<0.0010	0.0010	7667768
Dissolved Cobalt (Co)	mg/L	<0.00050	<0.00050	0.00067	0.00050	7667768
Dissolved Copper (Cu)	mg/L	0.00032	0.00022	0.00059	0.00020	7667768
Dissolved Iron (Fe)	mg/L	0.0083	0.0081	0.0397	0.0050	7667768
Dissolved Lead (Pb)	mg/L	<0.00020	<0.00020	0.00049	0.00020	7667768
Dissolved Lithium (Li)	mg/L	<0.0050	<0.0050	<0.0050	0.0050	7667768
Dissolved Manganese (Mn)	mg/L	0.0102	0.0104	0.283	0.0010	7667768
Dissolved Molybdenum (Mo)	mg/L	<0.0010	<0.0010	0.0022	0.0010	7667768
Dissolved Nickel (Ni)	mg/L	<0.0010	<0.0010	0.0031	0.0010	7667768
Dissolved Selenium (Se)	mg/L	<0.00010	<0.00010	0.00101	0.00010	7667768
Dissolved Silicon (Si)	mg/L	3.79	3.83	3.50	0.10	7667768
Dissolved Silver (Ag)	mg/L	<0.000020	<0.000020	<0.000020	0.000020	7667768
Dissolved Strontium (Sr)	mg/L	0.225	0.222	0.204	0.0010	7667768
Dissolved Thallium (Tl)	mg/L	<0.000050	<0.000050	<0.000050	0.000050	7667768
Dissolved Tin (Sn)	mg/L	<0.0050	<0.0050	<0.0050	0.0050	7667768
Dissolved Titanium (Ti)	mg/L	<0.0050	<0.0050	<0.0050	0.0050	7667768
Dissolved Uranium (U)	mg/L	0.00073	0.00075	0.00050	0.00010	7667768
Dissolved Vanadium (V)	mg/L	<0.0050	<0.0050	<0.0050	0.0050	7667768
Dissolved Zinc (Zn)	mg/L	0.0330	0.0125	<0.0050	0.0050	7667768
Dissolved Zirconium (Zr)	mg/L	<0.00050	<0.00050	<0.00050	0.00050	7667768
Dissolved Calcium (Ca)	mg/L	65.1	66.2	73.3	0.050	7661375
Dissolved Magnesium (Mg)	mg/L	10.3	10.1	10.6	0.050	7661375
Dissolved Potassium (K)	mg/L	0.675	0.641	1.13	0.050	7661375
RDL = Reportable Detection Limit						

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KT2496	KT2497	KT2498		
Sampling Date		2014/09/27	2014/09/27	2014/09/27		
COC Number		22807	22807	22807		
	Units	22807-05	22807-06	22807-07	RDL	QC Batch
Dissolved Sodium (Na)	mg/L	1.10	1.05	3.19	0.050	7661375
Dissolved Sulphur (S)	mg/L	<3.0	<3.0	7.9	3.0	7661375
RDL = Reportable Detection Limit						

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

NITRITE & NITRATE IN WATER (WATER)

Maxxam ID		KT2492	KT2493	KT2494	KT2495	KT2496	KT2497		
Sampling Date		2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27	2014/09/27		
COC Number		22807	22807	22807	22807	22807	22807		
	Units	22807-01	22807-02	22807-03	22807-04	22807-05	22807-06	RDL	QC Batch
ANIONS									
Nitrite (N)	mg/L	0.0237 (1)	<0.0050 (1)	<0.0050 (1)	<0.0050 (1)	<0.0050 (1)	<0.0050 (1)	0.0050	7663596
Calculated Parameters									
Nitrate (N)	mg/L	<0.020	<0.020	0.262	0.182	0.131	0.123	0.020	7660681
Nutrients									
Nitrate plus Nitrite (N)	mg/L	0.039 (1)	<0.020 (1)	0.262 (1)	0.182 (1)	0.131 (1)	0.123 (1)	0.020	7663592
RDL = Reportable Detection Limit									
(1) Sample arrived to laboratory past recommended hold time.									

Maxxam ID		KT2498		
Sampling Date		2014/09/27		
COC Number		22807		
	Units	22807-07	RDL	QC Batch
ANIONS				
Nitrite (N)	mg/L	<0.0050 (1)	0.0050	7663596
Calculated Parameters				
Nitrate (N)	mg/L	0.187	0.020	7660681
Nutrients				
Nitrate plus Nitrite (N)	mg/L	0.187 (1)	0.020	7663592
RDL = Reportable Detection Limit				
(1) Sample arrived to laboratory past recommended hold time.				

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

CSR VOC + VPH IN WATER (WATER)

Maxxam ID		KT2492			KT2493			KT2494		KT2495		
Sampling Date		2014/09/27			2014/09/27			2014/09/27		2014/09/27		
COC Number		22807			22807			22807		22807		
	Units	22807-01	RDL	QC Batch	22807-02	RDL	QC Batch	22807-03	RDL	22807-04	RDL	QC Batch
Volatiles												
VPH (VHW6 to 10 - BTEX)	ug/L	370	300	7660619	<300	300	7660619	<300	300	<300	300	7660619
Chloromethane	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Vinyl chloride	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Chloroethane	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Trichlorofluoromethane	ug/L	<4.0	4.0	7668785	<4.0	4.0	7665601	<4.0	4.0	<4.0	4.0	7668785
1,1-dichloroethene	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Dichloromethane	ug/L	<6.2 (1)	6.2	7668785	<2.0	2.0	7665601	<6.1 (1)	6.1	<6.6 (1)	6.6	7668785
trans-1,2-dichloroethene	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
1,1-dichloroethane	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
cis-1,2-dichloroethene	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Chloroform	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
1,1,1-trichloroethane	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	1.9	0.50	7668785
1,2-dichloroethane	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.87 (1)	0.87	<0.50	0.50	7668785
Carbon tetrachloride	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Benzene	ug/L	<0.40	0.40	7668785	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
Methyl-tert-butylether (MTBE)	ug/L	<4.0	4.0	7668785	<4.0	4.0	7665601	<4.0	4.0	<4.0	4.0	7668785
1,2-dichloropropane	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
cis-1,3-dichloropropene	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
trans-1,3-dichloropropene	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Bromomethane	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
1,1,2-trichloroethane	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Trichloroethene	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Chlorodibromomethane	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
1,2-dibromoethane	ug/L	<0.20	0.20	7668785	<0.20	0.20	7665601	<0.20	0.20	<0.20	0.20	7668785
Tetrachloroethene	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Bromodichloromethane	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Toluene	ug/L	0.59	0.40	7668785	<0.40	0.40	7665601	<0.40	0.40	0.42	0.40	7668785
Ethylbenzene	ug/L	<0.40	0.40	7668785	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
m & p-Xylene	ug/L	<0.40	0.40	7668785	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
Bromoform	ug/L	<1.0	1.0	7668785	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Styrene	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
o-Xylene	ug/L	<0.40	0.40	7668785	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
Xylenes (Total)	ug/L	<0.40	0.40	7668785	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
1,1,1,2-tetrachloroethane	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
RDL = Reportable Detection Limit												
(1) RDL raised due to sample matrix interference.												

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

CSR VOC + VPH IN WATER (WATER)

Maxxam ID		KT2492			KT2493			KT2494		KT2495		
Sampling Date		2014/09/27			2014/09/27			2014/09/27		2014/09/27		
COC Number		22807			22807			22807		22807		
	Units	22807-01	RDL	QC Batch	22807-02	RDL	QC Batch	22807-03	RDL	22807-04	RDL	QC Batch
1,1,2,2-tetrachloroethane	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
1,2-dichlorobenzene	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
1,3-dichlorobenzene	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
1,4-dichlorobenzene	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Chlorobenzene	ug/L	<0.50	0.50	7668785	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
VH C6-C10	ug/L	370	300	7668785	<300	300	7665601	<300	300	<300	300	7668785
Surrogate Recovery (%)												
1,4-Difluorobenzene (sur.)	%	105		7668785	122		7665601	104		109		7668785
4-Bromofluorobenzene (sur.)	%	98		7668785	106		7665601	100		92		7668785
D4-1,2-Dichloroethane (sur.)	%	110		7668785	106		7665601	109		108		7668785
RDL = Reportable Detection Limit												

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

CSR VOC + VPH IN WATER (WATER)

Maxxam ID		KT2496			KT2497		KT2498		
Sampling Date		2014/09/27			2014/09/27		2014/09/27		
COC Number		22807			22807		22807		
	Units	22807-05	RDL	QC Batch	22807-06	RDL	22807-07	RDL	QC Batch
Volatiles									
VPH (VHW6 to 10 - BTEX)	ug/L	<300	300	7660619	<300	300	<300	300	7660619
Chloromethane	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Vinyl chloride	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Chloroethane	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Trichlorofluoromethane	ug/L	<4.0	4.0	7665601	<4.0	4.0	<4.0	4.0	7668785
1,1-dichloroethene	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Dichloromethane	ug/L	<2.0	2.0	7665601	<4.1 (1)	4.1	<4.5 (1)	4.5	7668785
trans-1,2-dichloroethene	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
1,1-dichloroethane	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
cis-1,2-dichloroethene	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Chloroform	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
1,1,1-trichloroethane	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
1,2-dichloroethane	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Carbon tetrachloride	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Benzene	ug/L	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
Methyl-tert-butylether (MTBE)	ug/L	<4.0	4.0	7665601	<4.0	4.0	<4.0	4.0	7668785
1,2-dichloropropane	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
cis-1,3-dichloropropene	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
trans-1,3-dichloropropene	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Bromomethane	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
1,1,2-trichloroethane	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Trichloroethene	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Chlorodibromomethane	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
1,2-dibromoethane	ug/L	<0.20	0.20	7665601	<0.20	0.20	<0.20	0.20	7668785
Tetrachloroethene	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Bromodichloromethane	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Toluene	ug/L	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
Ethylbenzene	ug/L	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
m & p-Xylene	ug/L	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
Bromoform	ug/L	<1.0	1.0	7665601	<1.0	1.0	<1.0	1.0	7668785
Styrene	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
o-Xylene	ug/L	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
Xylenes (Total)	ug/L	<0.40	0.40	7665601	<0.40	0.40	<0.40	0.40	7668785
1,1,1,2-tetrachloroethane	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
RDL = Reportable Detection Limit									
(1) RDL raised due to sample matrix interference.									

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

CSR VOC + VPH IN WATER (WATER)

Maxxam ID		KT2496			KT2497		KT2498		
Sampling Date		2014/09/27			2014/09/27		2014/09/27		
COC Number		22807			22807		22807		
	Units	22807-05	RDL	QC Batch	22807-06	RDL	22807-07	RDL	QC Batch
1,1,2,2-tetrachloroethane	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
1,2-dichlorobenzene	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
1,3-dichlorobenzene	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
1,4-dichlorobenzene	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
Chlorobenzene	ug/L	<0.50	0.50	7665601	<0.50	0.50	<0.50	0.50	7668785
VH C6-C10	ug/L	<300	300	7665601	<300	300	<300	300	7668785
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	91		7665601	85		85		7668785
4-Bromofluorobenzene (sur.)	%	101		7665601	90		90		7668785
D4-1,2-Dichloroethane (sur.)	%	104		7665601	106		106		7668785
RDL = Reportable Detection Limit									

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B488182
Report Date: 2014/10/08

QUALITY ASSURANCE REPORT

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7665601	1,4-Difluorobenzene (sur.)	2014/10/04	116	70 - 130	115	70 - 130	120	%		
7665601	4-Bromofluorobenzene (sur.)	2014/10/04	105	70 - 130	101	70 - 130	105	%		
7665601	D4-1,2-Dichloroethane (sur.)	2014/10/04	106	70 - 130	99	70 - 130	106	%		
7668614	D10-ANTHRACENE (sur.)	2014/10/07	94	60 - 130	130	60 - 130	111	%		
7668614	D8-ACENAPHTHYLENE (sur.)	2014/10/07	92	50 - 130	103	50 - 130	91	%		
7668614	D8-NAPHTHALENE (sur.)	2014/10/07	87	50 - 130	96	50 - 130	91	%		
7668614	D9-Acridine	2014/10/07	76	50 - 130	100	50 - 130	83	%		
7668614	TERPHENYL-D14 (sur.)	2014/10/07	62	60 - 130	118	60 - 130	100	%		
7668617	O-TERPHENYL (sur.)	2014/10/07	99	50 - 130	100	50 - 130	98	%		
7668785	1,4-Difluorobenzene (sur.)	2014/10/06	111	70 - 130	84	70 - 130	105	%		
7668785	4-Bromofluorobenzene (sur.)	2014/10/06	102	70 - 130	106	70 - 130	101	%		
7668785	D4-1,2-Dichloroethane (sur.)	2014/10/06	114	70 - 130	116	70 - 130	110	%		
7663592	Nitrate plus Nitrite (N)	2014/10/02	101	80 - 120	103	80 - 120	<0.020	mg/L	1.6	25
7663596	Nitrite (N)	2014/10/02	95	80 - 120	101	80 - 120	<0.0050	mg/L	NC	20
7663850	Dissolved Chloride (Cl)	2014/10/02	106	80 - 120	97	80 - 120	<0.50	mg/L	NC	20
7663854	Dissolved Sulphate (SO4)	2014/10/02	105	80 - 120	92	80 - 120	<0.50	mg/L	3.6	20
7665601	1,1,1,2-tetrachloroethane	2014/10/04	107	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
7665601	1,1,1-trichloroethane	2014/10/04	108	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
7665601	1,1,2,2-tetrachloroethane	2014/10/04	111	70 - 130	110	70 - 130	<0.50	ug/L	NC	30
7665601	1,1,2-trichloroethane	2014/10/04	108	70 - 130	92	70 - 130	<0.50	ug/L	NC	30
7665601	1,1-dichloroethane	2014/10/04	104	70 - 130	91	70 - 130	<0.50	ug/L	NC	30
7665601	1,1-dichloroethene	2014/10/04	106	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
7665601	1,2-dibromoethane	2014/10/04	103	70 - 130	89	70 - 130	<0.20	ug/L	NC	30
7665601	1,2-dichlorobenzene	2014/10/04	116	70 - 130	104	70 - 130	<0.50	ug/L	NC	30
7665601	1,2-dichloroethane	2014/10/04	115	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
7665601	1,2-dichloropropane	2014/10/04	105	70 - 130	114	70 - 130	<0.50	ug/L	NC	30
7665601	1,3-dichlorobenzene	2014/10/04	113	70 - 130	99	70 - 130	<0.50	ug/L	NC	30
7665601	1,4-dichlorobenzene	2014/10/04	112	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
7665601	Benzene	2014/10/04	119	70 - 130	103	70 - 130	<0.40	ug/L	NC	30
7665601	Bromodichloromethane	2014/10/04	102	70 - 130	87	70 - 130	<1.0	ug/L	NC	30
7665601	Bromoform	2014/10/04	107	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
7665601	Bromomethane	2014/10/04	119	60 - 140	104	60 - 140	<1.0	ug/L	NC	30

Maxxam Job #: B488182
Report Date: 2014/10/08

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7665601	Carbon tetrachloride	2014/10/04	108	70 - 130	93	70 - 130	<0.50	ug/L	NC	30
7665601	Chlorobenzene	2014/10/04	116	70 - 130	100	70 - 130	<0.50	ug/L	NC	30
7665601	Chlorodibromomethane	2014/10/04	107	70 - 130	93	70 - 130	<1.0	ug/L	NC	30
7665601	Chloroethane	2014/10/04	121	60 - 140	80	60 - 140	<1.0	ug/L	NC	30
7665601	Chloroform	2014/10/04	106	70 - 130	92	70 - 130	<1.0	ug/L	NC	30
7665601	Chloromethane	2014/10/04	132	60 - 140	122	60 - 140	<1.0	ug/L	NC	30
7665601	cis-1,2-dichloroethene	2014/10/04	111	70 - 130	97	70 - 130	<1.0	ug/L	NC	30
7665601	cis-1,3-dichloropropene	2014/10/04	96	70 - 130	85	70 - 130	<1.0	ug/L	NC	30
7665601	Dichloromethane	2014/10/04	120	70 - 130	100	70 - 130	<2.0	ug/L	NC	30
7665601	Ethylbenzene	2014/10/04	112	70 - 130	97	70 - 130	<0.40	ug/L	NC	30
7665601	m & p-Xylene	2014/10/04	112	70 - 130	97	70 - 130	<0.40	ug/L	NC	30
7665601	Methyl-tert-butylether (MTBE)	2014/10/04	115	70 - 130	99	70 - 130	<4.0	ug/L	NC	30
7665601	o-Xylene	2014/10/04	117	70 - 130	93	70 - 130	<0.40	ug/L	NC	30
7665601	Styrene	2014/10/04	123	70 - 130	109	70 - 130	<0.50	ug/L	NC	30
7665601	Tetrachloroethene	2014/10/04	110	70 - 130	96	70 - 130	<0.50	ug/L	NC	30
7665601	Toluene	2014/10/04	109	70 - 130	94	70 - 130	<0.40	ug/L	NC	30
7665601	trans-1,2-dichloroethene	2014/10/04	108	70 - 130	90	70 - 130	<1.0	ug/L	NC	30
7665601	trans-1,3-dichloropropene	2014/10/04	105	70 - 130	92	70 - 130	<1.0	ug/L	NC	30
7665601	Trichloroethene	2014/10/04	108	70 - 130	94	70 - 130	<0.50	ug/L	NC	30
7665601	Trichlorofluoromethane	2014/10/04	147 (1)	60 - 140	133	60 - 140	<4.0	ug/L	NC	30
7665601	VH C6-C10	2014/10/04			87	70 - 130	<300	ug/L	NC	30
7665601	Vinyl chloride	2014/10/04	129	60 - 140	112	60 - 140	<0.50	ug/L	NC	30
7665601	Xylenes (Total)	2014/10/04					<0.40	ug/L	NC	30
7667768	Dissolved Aluminum (Al)	2014/10/07	98	80 - 120	105	80 - 120	<0.0030	mg/L	NC	20
7667768	Dissolved Antimony (Sb)	2014/10/07	101	80 - 120	102	80 - 120	<0.00050	mg/L	NC	20
7667768	Dissolved Arsenic (As)	2014/10/07	106	80 - 120	105	80 - 120	<0.00010	mg/L	NC	20
7667768	Dissolved Barium (Ba)	2014/10/07	NC	80 - 120	103	80 - 120	<0.0010	mg/L	2.9	20
7667768	Dissolved Beryllium (Be)	2014/10/07	99	80 - 120	99	80 - 120	<0.00010	mg/L	NC	20
7667768	Dissolved Bismuth (Bi)	2014/10/07	97	80 - 120	97	80 - 120	<0.0010	mg/L	NC	20
7667768	Dissolved Boron (B)	2014/10/07					<0.050	mg/L	NC	20
7667768	Dissolved Cadmium (Cd)	2014/10/07	100	80 - 120	101	80 - 120	<0.000010	mg/L	NC	20
7667768	Dissolved Chromium (Cr)	2014/10/07	100	80 - 120	104	80 - 120	<0.0010	mg/L	NC	20

Maxxam Job #: B488182
Report Date: 2014/10/08

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7667768	Dissolved Cobalt (Co)	2014/10/07	99	80 - 120	105	80 - 120	<0.00050	mg/L	NC	20
7667768	Dissolved Copper (Cu)	2014/10/07	96	80 - 120	102	80 - 120	<0.00020	mg/L	NC	20
7667768	Dissolved Iron (Fe)	2014/10/07	105	80 - 120	112	80 - 120	<0.0050	mg/L	NC	20
7667768	Dissolved Lead (Pb)	2014/10/07	95	80 - 120	99	80 - 120	<0.00020	mg/L	NC	20
7667768	Dissolved Lithium (Li)	2014/10/07	101	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20
7667768	Dissolved Manganese (Mn)	2014/10/07	NC	80 - 120	105	80 - 120	<0.0010	mg/L	1.6	20
7667768	Dissolved Molybdenum (Mo)	2014/10/07	NC	80 - 120	101	80 - 120	<0.0010	mg/L	NC	20
7667768	Dissolved Nickel (Ni)	2014/10/07	98	80 - 120	106	80 - 120	<0.0010	mg/L	NC	20
7667768	Dissolved Selenium (Se)	2014/10/07	100	80 - 120	102	80 - 120	<0.00010	mg/L	NC	20
7667768	Dissolved Silicon (Si)	2014/10/07					<0.10	mg/L	4.0	20
7667768	Dissolved Silver (Ag)	2014/10/07	101	80 - 120	89	80 - 120	<0.000020	mg/L	NC	20
7667768	Dissolved Strontium (Sr)	2014/10/07	NC	80 - 120	101	80 - 120	<0.0010	mg/L	2.9	20
7667768	Dissolved Thallium (Tl)	2014/10/07	100	80 - 120	99	80 - 120	<0.000050	mg/L	NC	20
7667768	Dissolved Tin (Sn)	2014/10/07	101	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20
7667768	Dissolved Titanium (Ti)	2014/10/07	110	80 - 120	93	80 - 120	<0.0050	mg/L	NC	20
7667768	Dissolved Uranium (U)	2014/10/07	103	80 - 120	100	80 - 120	<0.00010	mg/L	0.60	20
7667768	Dissolved Vanadium (V)	2014/10/07	106	80 - 120	103	80 - 120	<0.0050	mg/L	NC	20
7667768	Dissolved Zinc (Zn)	2014/10/07	NC	80 - 120	105	80 - 120	<0.0050	mg/L	NC	20
7667768	Dissolved Zirconium (Zr)	2014/10/07					<0.00050	mg/L	NC	20
7668584	Fluoride (F)	2014/10/06	NC	80 - 120	100	80 - 120	<0.010	mg/L	0	20
7668614	2-Methylnaphthalene	2014/10/07	67	50 - 130	100	50 - 130	<0.10	ug/L	NC	40
7668614	Acenaphthene	2014/10/07	84	50 - 130	104	50 - 130	<0.050	ug/L	NC	40
7668614	Acenaphthylene	2014/10/07	85	50 - 130	105	50 - 130	<0.050	ug/L	NC	40

Maxxam Job #: B488182
Report Date: 2014/10/08

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7668614	Fluoranthene	2014/10/07	97	60 - 130	108	60 - 130	<0.020	ug/L	NC	40
7668614	Fluorene	2014/10/07	90	50 - 130	105	50 - 130	<0.050	ug/L	NC	40
7668614	Indeno(1,2,3-cd)pyrene	2014/10/07	102	60 - 130	106	60 - 130	<0.050	ug/L	NC	40
7668614	Naphthalene	2014/10/07	76	50 - 130	100	50 - 130	<0.10	ug/L	NC	40
7668614	Phenanthrene	2014/10/07	90	60 - 130	107	60 - 130	<0.050	ug/L	NC	40
7668614	Pyrene	2014/10/07	97	60 - 130	107	60 - 130	<0.020	ug/L	NC	40
7668614	Quinoline	2014/10/07	122	50 - 130	116	50 - 130	<0.24	ug/L	NC	40
7668617	EPH (C10-C19)	2014/10/07	52	50 - 130	83	50 - 130	<0.20	mg/L	NC	30
7668617	EPH (C19-C32)	2014/10/07	77	50 - 130	104	50 - 130	<0.20	mg/L	NC	30
7668785	1,1,1,2-tetrachloroethane	2014/10/06	104	70 - 130	105	70 - 130	<0.50	ug/L		
7668785	1,1,1-trichloroethane	2014/10/06	114	70 - 130	113	70 - 130	<0.50	ug/L		
7668785	1,1,2,2-tetrachloroethane	2014/10/06	91	70 - 130	115	70 - 130	<0.50	ug/L		
7668785	1,1,2-trichloroethane	2014/10/06	112	70 - 130	114	70 - 130	<0.50	ug/L		
7668785	1,1-dichloroethane	2014/10/06	114	70 - 130	111	70 - 130	<0.50	ug/L		
7668785	1,1-dichloroethene	2014/10/06	112	70 - 130	109	70 - 130	<0.50	ug/L		
7668785	1,2-dibromoethane	2014/10/07	107	70 - 130	110	70 - 130	<0.20	ug/L	NC (2)	30
7668785	1,2-dichlorobenzene	2014/10/06	106	70 - 130	115	70 - 130	<0.50	ug/L		
7668785	1,2-dichloroethane	2014/10/07	121	70 - 130	116	70 - 130	<0.50	ug/L	NC	30
7668785	1,2-dichloropropane	2014/10/06	104	70 - 130	101	70 - 130	<0.50	ug/L		
7668785	1,3-dichlorobenzene	2014/10/06	112	70 - 130	114	70 - 130	<0.50	ug/L		
7668785	1,4-dichlorobenzene	2014/10/06	109	70 - 130	113	70 - 130	<0.50	ug/L		
7668785	Benzene	2014/10/06	126	70 - 130	118	70 - 130	<0.40	ug/L		
7668785	Bromodichloromethane	2014/10/06	103	70 - 130	105	70 - 130	<1.0	ug/L		
7668785	Bromoform	2014/10/06	87	70 - 130	97	70 - 130	<1.0	ug/L		
7668785	Bromomethane	2014/10/06	126	60 - 140	103	60 - 140	<1.0	ug/L		
7668785	Carbon tetrachloride	2014/10/06	112	70 - 130	110	70 - 130	<0.50	ug/L		
7668785	Chlorobenzene	2014/10/06	121	70 - 130	120	70 - 130	<0.50	ug/L		
7668785	Chlorodibromomethane	2014/10/06	96	70 - 130	102	70 - 130	<1.0	ug/L		
7668785	Chloroethane	2014/10/06	107	60 - 140	85	60 - 140	<1.0	ug/L		
7668785	Chloroform	2014/10/06	115	70 - 130	112	70 - 130	<1.0	ug/L		
7668785	Chloromethane	2014/10/06			135	60 - 140	<1.0	ug/L		
7668785	cis-1,2-dichloroethene	2014/10/06	117	70 - 130	116	70 - 130	<1.0	ug/L		

Maxxam Job #: B488182
Report Date: 2014/10/08

QUALITY ASSURANCE REPORT(CONT'D)

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7668785	cis-1,3-dichloropropene	2014/10/06	94	70 - 130	103	70 - 130	<1.0	ug/L		
7668785	Dichloromethane	2014/10/06			128	70 - 130	<2.0	ug/L		
7668785	Ethylbenzene	2014/10/06	123	70 - 130	127	70 - 130	<0.40	ug/L		
7668785	m & p-Xylene	2014/10/06	125	70 - 130	123	70 - 130	<0.40	ug/L		
7668785	Methyl-tert-butylether (MTBE)	2014/10/07	116	70 - 130	111	70 - 130	<4.0	ug/L	NC	30
7668785	o-Xylene	2014/10/06	124	70 - 130	122	70 - 130	<0.40	ug/L		
7668785	Styrene	2014/10/06	124	70 - 130	112	70 - 130	<0.50	ug/L		
7668785	Tetrachloroethene	2014/10/06	115	70 - 130	116	70 - 130	<0.50	ug/L		
7668785	Toluene	2014/10/06	119	70 - 130	118	70 - 130	<0.40	ug/L		
7668785	trans-1,2-dichloroethene	2014/10/06	117	70 - 130	110	70 - 130	<1.0	ug/L		
7668785	trans-1,3-dichloropropene	2014/10/06	89	70 - 130	95	70 - 130	<1.0	ug/L		
7668785	Trichloroethene	2014/10/06	116	70 - 130	113	70 - 130	<0.50	ug/L		
7668785	Trichlorofluoromethane	2014/10/06			149 (1)	60 - 140	<4.0	ug/L		
7668785	VH C6-C10	2014/10/06			86	70 - 130	<300	ug/L		
7668785	Vinyl chloride	2014/10/06	140	60 - 140	132	60 - 140	<0.50	ug/L		
7668785	Xylenes (Total)	2014/10/06					<0.40	ug/L		
7670786	Dissolved Mercury (Hg)	2014/10/08	94	80 - 120	90	80 - 120	<0.010	ug/L	NC	20
7670828	Dissolved Mercury (Hg)	2014/10/08	93	80 - 120	93	80 - 120	<0.010	ug/L	NC	20

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

(2) RDL raised due to sample matrix interference.

Maxxam Job #: B488182
Report Date: 2014/10/08

GOLDER ASSOCIATES LTD
Client Project #: 12-1021-0006
Site Location: PHASE 11000
Sampler Initials: AM

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Rob Reinert, Data Validation Coordinator

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

B488182

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

22807 page 1 of 1



500-4260 Still Creek Drive
Burnaby, British Columbia, Canada V5C 6C6
Telephone: 604-298-6623 Fax: 604-298-5253

Project Number: 12-1021-0006/11000		Laboratory Name: Maxxam Analytics	
		Address: 4606 Connaught Way, Burnaby B5	
Golder Contact: Andrew Bruemmer	Golder E-mail Address: Andrew.Bruemmer@golder.com	Tel/Fax: 604 639 2614	Contact: Nikita Schri

Office the final reports should be sent to:

- ☒ 500-4260 Still Creek Drive
Burnaby, BC V5C 6C6
Tel: 604-298-6623
Fax: 604-298-5253
- ☐ 202-2790 Gladwin Road
Abbotsford, BC V2T 4S8
Tel: 604-850-8786
Fax: 604-850-8756
- ☐ 2640 Douglas Street
Victoria, BC V8T 4M1
Tel: 250-881-7372
Fax: 250-881-7470

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Analyses Required							RUSH	Remarks (over)
22807-01	6W	27/9/14	8	CEM/HEP/PAH	BTEX/PAH	Dis. Metals	Dis. Mercury	Asbestos	VOCs			KT2492
22807-02												KT2493
22807-03												KT2494
22807-04												KT2495
22807-05												KT2496
22807-06												KT2497
22807-07												
22807-08												
22807-09												
22807-10												
22807-11												
22807-12												

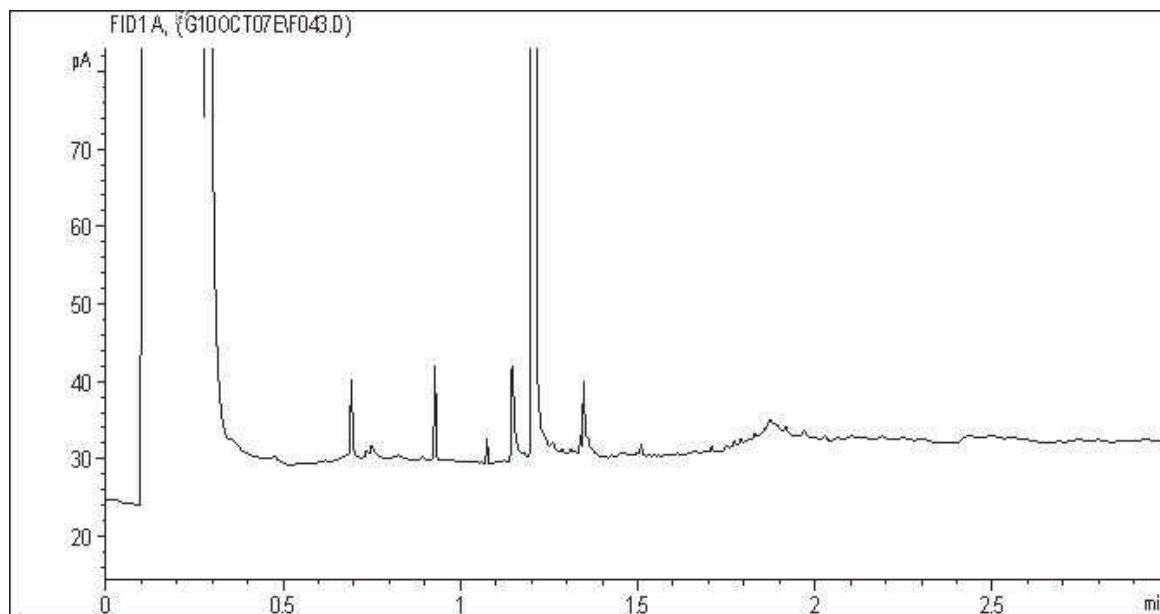
Sampler's Signature: <i>Randy Wilson</i>	Relinquished by: Signature: <i>Andrew Bruemmer</i>	Company: Golder	Date: Sept. 30/14	Time:	Received by: Signature:	Company:
Sample Storage (°C): ON ICE	Relinquished by: Signature:	Company:	Date:	Time:	Received by: Signature:	Company:
Comments: Add Report Delivery	Method of Shipment: Air North (air)	Waybill No.:	(Received for Lab by: <i>Michelle Berthier</i>)		Date: 2014/10/01	Time: 13:55
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C): 34.4	Cooler opened by:	Date:	Time:

WHITE: Golder copy

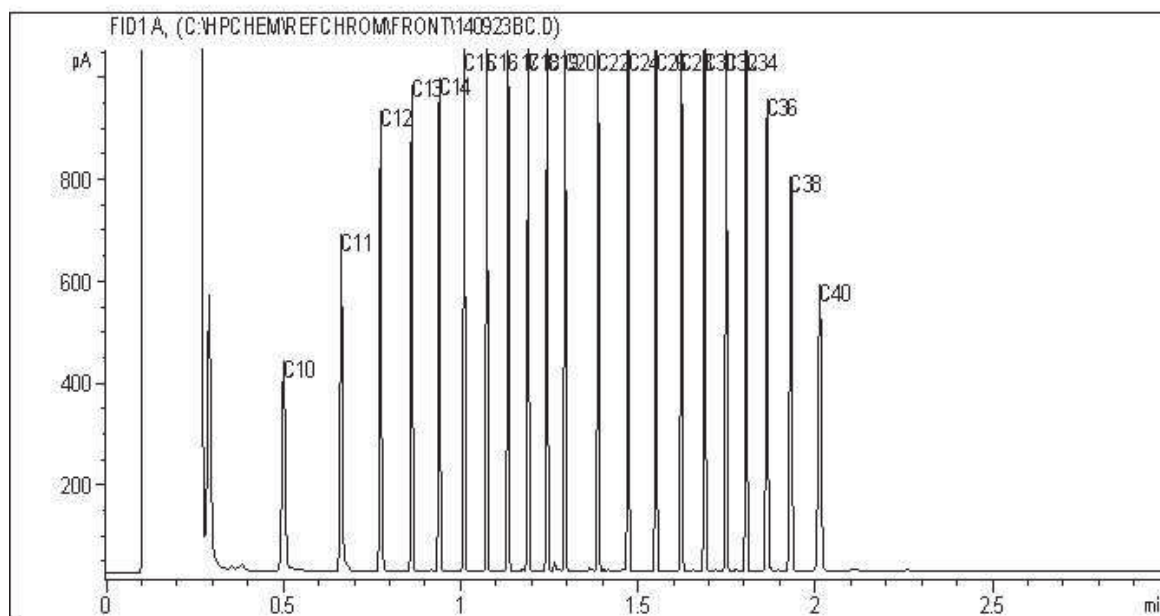
YELLOW: Lab

PINK: Lab returns with Final Report

Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Maxxam Job #: B488182
Report Date: 2014/10/08
Maxxam Sample: KT2492 Lab-Dup

GOLDER ASSOCIATES LTD

Extrac. Pet HC when LEPH/HEPH required Chromatogram

Attention: L. Barazzuol

SRK CONSULTING
SRKCONS-U-VAN
SUITE 2200
1066 W. HASTINGS ST.
VANCOUVER, BC
Canada V6E 3X2

Your P.O. #: 8470
Your Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your C.O.C. #: TEMP#4

Report Date: 2014/10/22
Report #: R1669504
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B492574

Received: 2014/10/14, 14:15

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity - Water	3	2014/10/15	2014/10/15	BBY6SOP-00026	SM 22 2320 B m
Chloride by Automated Colourimetry	3	N/A	2014/10/15	BBY6SOP-00011	SM 22 4500-Cl- G m
Cyanide SAD (strong acid dissociable)	3	N/A	2014/10/16	BBY6SOP-00004	SM 22 4500-CN O m
Colour (True)	3	N/A	2014/10/15	BBY6SOP-00021	SM 22 2120 B m
Conductance - water	3	N/A	2014/10/15	BBY6SOP-00026	SM 22 2510 B m
Fluoride - Mining Clients	1	N/A	2014/10/15	BBY6SOP-00048	SM 22 4500-F C m
Fluoride - Mining Clients	2	N/A	2014/10/17	BBY6SOP-00048	SM 22 4500-F C m
Hardness Total (calculated as CaCO ₃)	3	N/A	2014/10/20	BBY7SOP-00002	EPA 6020a R1 m
Hardness (calculated as CaCO ₃)	3	N/A	2014/10/20	BBY7SOP-00002	EPA 6020a R1 m
Mercury (Dissolved) by CVAf	3	N/A	2014/10/20	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Mercury (Total) by CVAf	3	2014/10/20	2014/10/20	BBY7SOP-00015	BCMOE BCLM Oct2013 m
Na, K, Ca, Mg, S by CRC ICPMS (diss.)	3	N/A	2014/10/20	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (dissolved)	3	N/A	2014/10/17	BBY7SOP-00002	EPA 6020A R1 m
Na, K, Ca, Mg, S by CRC ICPMS (total)	3	2014/10/14	2014/10/20	BBY7SOP-00002	EPA 6020A R1 m
Elements by CRC ICPMS (total)	3	2014/10/16	2014/10/18	BBY7SOP-00002	EPA 6020A R1 m
Ammonia-N (Preserved)	3	N/A	2014/10/15	BBY6SOP-00009	SM 22 4500-NH ₃ - G m
Nitrate + Nitrite (N)	3	N/A	2014/10/15	BBY6SOP-00010	SM 22 4500-NO ₃ - I m
Nitrite (N) by CFA	3	N/A	2014/10/15	BBY6SOP-00010	SM 22 4500-NO ₃ - I m
Nitrogen - Nitrate (as N)	3	N/A	2014/10/15	BBY6SOP-00010	SM 22 4500-NO ₃ I m
Filter and HNO ₃ Preserve for Metals	3	N/A	2014/10/17	BBY7 WI-00004	BCMOE Reqs 08/14
pH Water (1)	3	N/A	2014/10/15	BBY6SOP-00026	SM 22 4500-H+ B m
Sulphate by Automated Colourimetry	3	N/A	2014/10/15	BBY6SOP-00017	SM 22 4500-SO ₄ 2- E m
Total Dissolved Solids (Filt. Residue)	3	2014/10/15	2014/10/16	BBY6SOP-00033	SM 22 2540 C m
Total Suspended Solids	3	N/A	2014/10/16	BBY6SOP-00034	SM 22 2540 D
Turbidity	3	N/A	2014/10/15	BBY6SOP-00027	SM 22 2130 B m

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) The BC-MOE and APHA Standard Method require pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the BC-MOE/APHA Standard Method holding time.

Attention:L. Barazzuol

SRK CONSULTING
SRKCONS-U-VAN
SUITE 2200
1066 W. HASTINGS ST.
VANCOUVER, BC
Canada V6E 3X2

Your P.O. #: 8470
Your Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your C.O.C. #: TEMP#4

Report Date: 2014/10/22
Report #: R1669504
Version: 1 - Final

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B492574
Received: 2014/10/14, 14:15

Encryption Key

Please direct all questions regarding this Certificate of Analysis to your Project Manager.

Ken Pomeroy, Project Manager
Email: KPomeroy@maxxam.ca
Phone# (604)638-5020

=====

This report has been generated and distributed using a secure automated process.

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

Maxxam Job #: B492574
Report Date: 2014/10/22

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your P.O. #: 8470
Sampler Initials: JC

RESULTS OF CHEMICAL ANALYSES OF WATER

Maxxam ID		KW1287		KW1288		KW1289		
Sampling Date		2014/10/11 11:03		2014/10/11 12:15		2014/10/11 13:39		
COC Number		TEMP#4		TEMP#4		TEMP#4		
	Units	SW14-01	QC Batch	SW14-02	QC Batch	SW14-03	RDL	QC Batch
Misc. Inorganics								
Fluoride (F)	mg/L	0.120	7683057	0.100	7683057	0.110	0.010	7679354
Calculated Parameters								
Filter and HNO3 Preservation	N/A	FIELD	ONSITE	FIELD	ONSITE	FIELD	N/A	ONSITE
Misc. Inorganics								
Strong Acid Dissoc. Cyanide (CN)	mg/L	0.00067	7681271	0.00081	7681271	0.00071	0.00050	7681271
Alkalinity (Total as CaCO3)	mg/L	140	7679801	156	7679801	155	0.50	7679801
Alkalinity (PP as CaCO3)	mg/L	<0.50	7679801	<0.50	7679801	<0.50	0.50	7679801
Bicarbonate (HCO3)	mg/L	171	7679801	190	7679801	189	0.50	7679801
Carbonate (CO3)	mg/L	<0.50	7679801	<0.50	7679801	<0.50	0.50	7679801
Hydroxide (OH)	mg/L	<0.50	7679801	<0.50	7679801	<0.50	0.50	7679801
Anions								
Dissolved Sulphate (SO4)	mg/L	5.95	7679830	10.5	7679830	10.4	0.50	7679830
Dissolved Chloride (Cl)	mg/L	1.3	7679826	<0.50	7679826	0.74	0.50	7679826
MISCELLANEOUS								
True Colour	Col. Unit	<5.0 (1)	7679776	<5.0 (1)	7679776	<5.0 (1)	5.0	7679776
Nutrients								
Total Ammonia (N)	mg/L	0.015	7680028	0.0053	7680024	0.010	0.0050	7680024
Physical Properties								
Conductivity	uS/cm	274	7679824	318	7679824	321	1.0	7679824
pH	pH	7.98	7679823	8.11	7679823	8.09	N/A	7679823
Physical Properties								
Total Suspended Solids	mg/L	<4.0	7678857	<4.0	7678874	<4.0	4.0	7678874
Total Dissolved Solids	mg/L	144	7678876	170	7678876	180	10	7678876
Turbidity	NTU	0.57 (1)	7679144	0.31 (1)	7679144	1.17 (1)	0.10	7679144
RDL = Reportable Detection Limit N/A = Not Applicable (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.								

Maxxam Job #: B492574
Report Date: 2014/10/22

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your P.O. #: 8470
Sampler Initials: JC

CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KW1287	KW1288	KW1289		
Sampling Date		2014/10/11 11:03	2014/10/11 12:15	2014/10/11 13:39		
COC Number		TEMP#4	TEMP#4	TEMP#4		
	Units	SW14-01	SW14-02	SW14-03	RDL	QC Batch
Misc. Inorganics						
Dissolved Hardness (CaCO ₃)	mg/L	144	161	169	0.50	7677512
Elements						
Dissolved Mercury (Hg)	ug/L	<0.010	<0.010	<0.010	0.010	7682854
Dissolved Metals by ICPMS						
Dissolved Aluminum (Al)	ug/L	4.2	3.6	<3.0	3.0	7681640
Dissolved Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	0.50	7681640
Dissolved Arsenic (As)	ug/L	1.08	0.79	0.75	0.10	7681640
Dissolved Barium (Ba)	ug/L	57.3	66.6	70.0	1.0	7681640
Dissolved Beryllium (Be)	ug/L	<0.10	<0.10	<0.10	0.10	7681640
Dissolved Bismuth (Bi)	ug/L	<1.0	<1.0	<1.0	1.0	7681640
Dissolved Boron (B)	ug/L	<50	<50	<50	50	7681640
Dissolved Cadmium (Cd)	ug/L	0.034	0.044	0.037	0.010	7681640
Dissolved Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	1.0	7681640
Dissolved Cobalt (Co)	ug/L	<0.50	<0.50	<0.50	0.50	7681640
Dissolved Copper (Cu)	ug/L	0.24	0.27	0.22	0.20	7681640
Dissolved Iron (Fe)	ug/L	22.9	7.6	<5.0	5.0	7681640
Dissolved Lead (Pb)	ug/L	<0.20	<0.20	<0.20	0.20	7681640
Dissolved Lithium (Li)	ug/L	<5.0	<5.0	<5.0	5.0	7681640
Dissolved Manganese (Mn)	ug/L	28.7	8.6	3.0	1.0	7681640
Dissolved Molybdenum (Mo)	ug/L	1.3	1.3	1.2	1.0	7681640
Dissolved Nickel (Ni)	ug/L	<1.0	<1.0	<1.0	1.0	7681640
Dissolved Selenium (Se)	ug/L	0.45	0.60	0.61	0.10	7681640
Dissolved Silicon (Si)	ug/L	4100	3780	4010	100	7681640
Dissolved Silver (Ag)	ug/L	<0.020	<0.020	<0.020	0.020	7681640
Dissolved Strontium (Sr)	ug/L	177	213	216	1.0	7681640
Dissolved Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	0.050	7681640
Dissolved Tin (Sn)	ug/L	<5.0	<5.0	<5.0	5.0	7681640
Dissolved Titanium (Ti)	ug/L	<5.0	<5.0	<5.0	5.0	7681640
Dissolved Uranium (U)	ug/L	0.65	0.93	0.89	0.10	7681640
Dissolved Vanadium (V)	ug/L	<5.0	<5.0	<5.0	5.0	7681640
Dissolved Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	5.0	7681640
Dissolved Zirconium (Zr)	ug/L	<0.50	<0.50	<0.50	0.50	7681640
Dissolved Calcium (Ca)	mg/L	48.8	54.4	57.2	0.050	7677946
RDL = Reportable Detection Limit						

Maxxam Job #: B492574
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SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your P.O. #: 8470
Sampler Initials: JC

CSR DISSOLVED METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KW1287	KW1288	KW1289		
Sampling Date		2014/10/11 11:03	2014/10/11 12:15	2014/10/11 13:39		
COC Number		TEMP#4	TEMP#4	TEMP#4		
	Units	SW14-01	SW14-02	SW14-03	RDL	QC Batch
Dissolved Magnesium (Mg)	mg/L	5.49	6.09	6.23	0.050	7677946
Dissolved Potassium (K)	mg/L	0.358	0.439	0.461	0.050	7677946
Dissolved Sodium (Na)	mg/L	0.909	1.07	1.05	0.050	7677946
Dissolved Sulphur (S)	mg/L	<3.0	3.5	3.7	3.0	7677946
RDL = Reportable Detection Limit						

Maxxam Job #: B492574
Report Date: 2014/10/22

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your P.O. #: 8470
Sampler Initials: JC

CSR TOTAL METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KW1287	KW1288	KW1289		
Sampling Date		2014/10/11 11:03	2014/10/11 12:15	2014/10/11 13:39		
COC Number		TEMP#4	TEMP#4	TEMP#4		
	Units	SW14-01	SW14-02	SW14-03	RDL	QC Batch
Calculated Parameters						
Total Hardness (CaCO ₃)	mg/L	150	165	166	0.50	7677107
Elements						
Total Mercury (Hg)	ug/L	<0.010	<0.010	<0.010	0.010	7685144
Total Metals by ICPMS						
Total Aluminum (Al)	ug/L	28.1	15.2	33.5	3.0	7681235
Total Antimony (Sb)	ug/L	<0.50	<0.50	<0.50	0.50	7681235
Total Arsenic (As)	ug/L	1.14	0.88	0.82	0.10	7681235
Total Barium (Ba)	ug/L	62.9	70.1	74.3	1.0	7681235
Total Beryllium (Be)	ug/L	<0.10	<0.10	<0.10	0.10	7681235
Total Bismuth (Bi)	ug/L	<1.0	<1.0	<1.0	1.0	7681235
Total Boron (B)	ug/L	<50	<50	<50	50	7681235
Total Cadmium (Cd)	ug/L	0.043	0.050	0.044	0.010	7681235
Total Chromium (Cr)	ug/L	<1.0	<1.0	<1.0	1.0	7681235
Total Cobalt (Co)	ug/L	<0.50	<0.50	<0.50	0.50	7681235
Total Copper (Cu)	ug/L	<0.50	<0.50	<0.50	0.50	7681235
Total Iron (Fe)	ug/L	67	36	57	10	7681235
Total Lead (Pb)	ug/L	0.84	0.61	1.13	0.20	7681235
Total Lithium (Li)	ug/L	<5.0	<5.0	<5.0	5.0	7681235
Total Manganese (Mn)	ug/L	32.2	11.5	6.2	1.0	7681235
Total Molybdenum (Mo)	ug/L	1.3	1.3	1.3	1.0	7681235
Total Nickel (Ni)	ug/L	<1.0	<1.0	<1.0	1.0	7681235
Total Selenium (Se)	ug/L	0.54	0.62	0.59	0.10	7681235
Total Silicon (Si)	ug/L	4160	3950	3810	100	7681235
Total Silver (Ag)	ug/L	<0.020	<0.020	<0.020	0.020	7681235
Total Strontium (Sr)	ug/L	183	214	213	1.0	7681235
Total Thallium (Tl)	ug/L	<0.050	<0.050	<0.050	0.050	7681235
Total Tin (Sn)	ug/L	<5.0	<5.0	<5.0	5.0	7681235
Total Titanium (Ti)	ug/L	<5.0	<5.0	<5.0	5.0	7681235
Total Uranium (U)	ug/L	0.65	0.89	0.88	0.10	7681235
Total Vanadium (V)	ug/L	<5.0	<5.0	<5.0	5.0	7681235
Total Zinc (Zn)	ug/L	<5.0	<5.0	<5.0	5.0	7681235
Total Zirconium (Zr)	ug/L	<0.50	<0.50	<0.50	0.50	7681235
Total Calcium (Ca)	mg/L	50.8	56.1	56.3	0.050	7677108
RDL = Reportable Detection Limit						

Maxxam Job #: B492574
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SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your P.O. #: 8470
Sampler Initials: JC

CSR TOTAL METALS IN WATER WITH CV HG (WATER)

Maxxam ID		KW1287	KW1288	KW1289		
Sampling Date		2014/10/11 11:03	2014/10/11 12:15	2014/10/11 13:39		
COC Number		TEMP#4	TEMP#4	TEMP#4		
	Units	SW14-01	SW14-02	SW14-03	RDL	QC Batch
Total Magnesium (Mg)	mg/L	5.52	6.02	6.10	0.050	7677108
Total Potassium (K)	mg/L	0.312	0.418	0.408	0.050	7677108
Total Sodium (Na)	mg/L	0.843	0.984	0.975	0.050	7677108
Total Sulphur (S)	mg/L	<3.0	<3.0	<3.0	3.0	7677108
RDL = Reportable Detection Limit						

Maxxam Job #: B492574
Report Date: 2014/10/22

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your P.O. #: 8470
Sampler Initials: JC

NITRITE & NITRATE IN WATER (WATER)

Maxxam ID		KW1287	KW1288	KW1289		
Sampling Date		2014/10/11 11:03	2014/10/11 12:15	2014/10/11 13:39		
COC Number		TEMP#4	TEMP#4	TEMP#4		
	Units	SW14-01	SW14-02	SW14-03	RDL	QC Batch
ANIONS						
Nitrite (N)	mg/L	<0.0050 (1)	<0.0050 (1)	<0.0050 (1)	0.0050	7679764
Calculated Parameters						
Nitrate (N)	mg/L	0.051	0.062	0.056	0.020	7677848
Nutrients						
Nitrate plus Nitrite (N)	mg/L	0.051 (1)	0.062 (1)	0.056 (1)	0.020	7675483
RDL = Reportable Detection Limit (1) Sample analysed past hold time: sample was received on the hold time expiry date which did not allow sufficient time for preparation and analysis.						

Maxxam Job #: B492574
Report Date: 2014/10/22

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your P.O. #: 8470
Sampler Initials: JC

GENERAL COMMENTS

Results relate only to the items tested.

Maxxam Job #: B492574
Report Date: 2014/10/22

QUALITY ASSURANCE REPORT

SRK CONSULTING

Client Project #: SRK 1CT008.043 / LFN

SA DENA HES - LFN MONITORING PROGRAM,

Site Location: WATSON LAKE, YUKON

Your P.O. #: 8470

Sampler Initials: JC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7675483	Nitrate plus Nitrite (N)	2014/10/15	NC	80 - 120	105	80 - 120	<0.020	mg/L	0.52	25
7678857	Total Suspended Solids	2014/10/16	104	80 - 120	99	80 - 120	<4.0	mg/L	NC	20
7678874	Total Suspended Solids	2014/10/16	107	80 - 120	101	80 - 120	<4.0	mg/L	NC	20
7678876	Total Dissolved Solids	2014/10/16	100	80 - 120	90	80 - 120	<10	mg/L		
7679144	Turbidity	2014/10/15			99	80 - 120	<0.10	NTU	NC	20
7679354	Fluoride (F)	2014/10/15	100	80 - 120	98	80 - 120	<0.010	mg/L		
7679764	Nitrite (N)	2014/10/15	98	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20
7679776	True Colour	2014/10/15					<5.0	Col. Unit	NC (1)	20
7679801	Alkalinity (PP as CaCO ₃)	2014/10/15					<0.50	mg/L	NC	20
7679801	Alkalinity (Total as CaCO ₃)	2014/10/15	NC	80 - 120	95	80 - 120	<0.50	mg/L	6.5	20
7679801	Bicarbonate (HCO ₃)	2014/10/15					<0.50	mg/L	6.4	20
7679801	Carbonate (CO ₃)	2014/10/15					<0.50	mg/L	NC	20
7679801	Hydroxide (OH)	2014/10/15					<0.50	mg/L	NC	20
7679823	pH	2014/10/15			101	97 - 103			0.55	N/A
7679824	Conductivity	2014/10/15			99	80 - 120	<1.0	uS/cm	0.27	20
7679826	Dissolved Chloride (Cl)	2014/10/15	110	80 - 120	106	80 - 120	<0.50	mg/L	NC	20
7679830	Dissolved Sulphate (SO ₄)	2014/10/15	112	80 - 120	98	80 - 120	<0.50	mg/L	0.69	20
7680024	Total Ammonia (N)	2014/10/15	83	80 - 120	100	80 - 120	<0.0050	mg/L	NC	20
7680028	Total Ammonia (N)	2014/10/15	90	80 - 120	102	80 - 120	<0.0050	mg/L	NC	20
7681235	Total Aluminum (Al)	2014/10/21	99	80 - 120	104	80 - 120	<3.0	ug/L	NC	20
7681235	Total Antimony (Sb)	2014/10/21	90	80 - 120	99	80 - 120	<0.50	ug/L	NC	20
7681235	Total Arsenic (As)	2014/10/21	100	80 - 120	97	80 - 120	<0.10	ug/L	14	20
7681235	Total Barium (Ba)	2014/10/21	NC	80 - 120	100	80 - 120	<1.0	ug/L	1.4	20
7681235	Total Beryllium (Be)	2014/10/21	103	80 - 120	100	80 - 120	<0.10	ug/L	NC	20
7681235	Total Bismuth (Bi)	2014/10/21	100	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
7681235	Total Boron (B)	2014/10/21					<50	ug/L	NC	20
7681235	Total Cadmium (Cd)	2014/10/21	100	80 - 120	98	80 - 120	<0.010	ug/L	1.7	20
7681235	Total Chromium (Cr)	2014/10/21	104	80 - 120	100	80 - 120	<1.0	ug/L	NC	20
7681235	Total Cobalt (Co)	2014/10/21	104	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
7681235	Total Copper (Cu)	2014/10/21	101	80 - 120	99	80 - 120	<0.50	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

SRK CONSULTING

Client Project #: SRK 1CT008.043 / LFN

SA DENA HES - LFN MONITORING PROGRAM,

Site Location: WATSON LAKE, YUKON

Your P.O. #: 8470

Sampler Initials: JC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7681235	Total Iron (Fe)	2014/10/21	102	80 - 120	104	80 - 120	<10	ug/L	NC	20
7681235	Total Lead (Pb)	2014/10/21	103	80 - 120	99	80 - 120	<0.20	ug/L	NC	20
7681235	Total Lithium (Li)	2014/10/21	107	80 - 120	107	80 - 120	<5.0	ug/L	NC	20
7681235	Total Manganese (Mn)	2014/10/21	105	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
7681235	Total Molybdenum (Mo)	2014/10/21	NC	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
7681235	Total Nickel (Ni)	2014/10/21	106	80 - 120	105	80 - 120	1.4 ,RDL=1.0	ug/L	NC	20
7681235	Total Selenium (Se)	2014/10/21	98	80 - 120	103	80 - 120	<0.10	ug/L	11	20
7681235	Total Silicon (Si)	2014/10/21					<100	ug/L	2.6	20
7681235	Total Silver (Ag)	2014/10/21	104	80 - 120	103	80 - 120	<0.020	ug/L	NC	20
7681235	Total Strontium (Sr)	2014/10/21	NC	80 - 120	94	80 - 120	<1.0	ug/L	1.5	20
7681235	Total Thallium (Tl)	2014/10/21	104	80 - 120	98	80 - 120	<0.050	ug/L	NC	20
7681235	Total Tin (Sn)	2014/10/21	104	80 - 120	107	80 - 120	<5.0	ug/L	NC	20
7681235	Total Titanium (Ti)	2014/10/21	91	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
7681235	Total Uranium (U)	2014/10/21	103	80 - 120	98	80 - 120	<0.10	ug/L	0.86	20
7681235	Total Vanadium (V)	2014/10/21	98	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
7681235	Total Zinc (Zn)	2014/10/21	NC	80 - 120	102	80 - 120	<5.0	ug/L	NC	20
7681235	Total Zirconium (Zr)	2014/10/21					<0.50	ug/L	NC	20
7681271	Strong Acid Dissoc. Cyanide (CN)	2014/10/16	102	80 - 120	103	80 - 120	0.00052 ,RDL=0.00050	mg/L	NC	20
7681640	Dissolved Aluminum (Al)	2014/10/17	107	80 - 120	103	80 - 120	<3.0	ug/L	NC	20
7681640	Dissolved Antimony (Sb)	2014/10/17	99	80 - 120	101	80 - 120	<0.50	ug/L	NC	20
7681640	Dissolved Arsenic (As)	2014/10/17	104	80 - 120	103	80 - 120	<0.10	ug/L	5.5	20
7681640	Dissolved Barium (Ba)	2014/10/17	NC	80 - 120	98	80 - 120	<1.0	ug/L	2.3	20
7681640	Dissolved Beryllium (Be)	2014/10/17	102	80 - 120	101	80 - 120	<0.10	ug/L	NC	20
7681640	Dissolved Bismuth (Bi)	2014/10/17	96	80 - 120	98	80 - 120	<1.0	ug/L	NC	20
7681640	Dissolved Boron (B)	2014/10/17					<50	ug/L	NC	20
7681640	Dissolved Cadmium (Cd)	2014/10/17	100	80 - 120	98	80 - 120	<0.010	ug/L	NC	20
7681640	Dissolved Chromium (Cr)	2014/10/17	101	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
7681640	Dissolved Cobalt (Co)	2014/10/17	98	80 - 120	100	80 - 120	<0.50	ug/L	NC	20
7681640	Dissolved Copper (Cu)	2014/10/17	95	80 - 120	98	80 - 120	<0.20	ug/L	NC	20

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QUALITY ASSURANCE REPORT(CONT'D)

SRK CONSULTING

Client Project #: SRK 1CT008.043 / LFN

SA DENA HES - LFN MONITORING PROGRAM,

Site Location: WATSON LAKE, YUKON

Your P.O. #: 8470

Sampler Initials: JC

QC Batch	Parameter	Date	Matrix Spike		Spiked Blank		Method Blank		RPD	
			% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits
7681640	Dissolved Iron (Fe)	2014/10/17	102	80 - 120	101	80 - 120	<5.0	ug/L	NC	20
7681640	Dissolved Lead (Pb)	2014/10/17	97	80 - 120	100	80 - 120	<0.20	ug/L	NC	20
7681640	Dissolved Lithium (Li)	2014/10/17	105	80 - 120	104	80 - 120	<5.0	ug/L	NC	20
7681640	Dissolved Manganese (Mn)	2014/10/17	100	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
7681640	Dissolved Molybdenum (Mo)	2014/10/17	NC	80 - 120	96	80 - 120	<1.0	ug/L	NC	20
7681640	Dissolved Nickel (Ni)	2014/10/17	96	80 - 120	99	80 - 120	<1.0	ug/L	NC	20
7681640	Dissolved Selenium (Se)	2014/10/17	96	80 - 120	92	80 - 120	<0.10	ug/L	2.2	20
7681640	Dissolved Silicon (Si)	2014/10/17					<100	ug/L	2.2	20
7681640	Dissolved Silver (Ag)	2014/10/17	98	80 - 120	85	80 - 120	<0.020	ug/L	NC	20
7681640	Dissolved Strontium (Sr)	2014/10/17	NC	80 - 120	102	80 - 120	<1.0	ug/L	0.099	20
7681640	Dissolved Thallium (Tl)	2014/10/17	97	80 - 120	103	80 - 120	<0.050	ug/L	NC	20
7681640	Dissolved Tin (Sn)	2014/10/17	100	80 - 120	99	80 - 120	<5.0	ug/L	NC	20
7681640	Dissolved Titanium (Ti)	2014/10/17	102	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
7681640	Dissolved Uranium (U)	2014/10/17	100	80 - 120	97	80 - 120	<0.10	ug/L	1.4	20
7681640	Dissolved Vanadium (V)	2014/10/17	101	80 - 120	98	80 - 120	<5.0	ug/L	NC	20
7681640	Dissolved Zinc (Zn)	2014/10/17	98	80 - 120	100	80 - 120	<5.0	ug/L	NC	20
7681640	Dissolved Zirconium (Zr)	2014/10/17					<0.50	ug/L	NC	20
7682854	Dissolved Mercury (Hg)	2014/10/20	114	80 - 120	105	80 - 120	<0.010	ug/L	NC	20
7683057	Fluoride (F)	2014/10/17	99	80 - 120	94	80 - 120	<0.010	mg/L	6.1	20
7685144	Total Mercury (Hg)	2014/10/20	84	80 - 120	106	80 - 120	<0.010	ug/L	NC	20

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than 2x that of the native sample concentration).

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (one or both samples < 5x RDL).

(1) Sample arrived to laboratory past recommended hold time.

Maxxam Job #: B492574
Report Date: 2014/10/22

SRK CONSULTING
Client Project #: SRK 1CT008.043 / LFN
Site Location: SA DENA HES - LFN MONITORING PROGRAM,
WATSON LAKE, YUKON
Your P.O. #: 8470
Sampler Initials: JC

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by the following individual(s).



Andy Lu, Data Validation Coordinator

Maxxam has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per section 5.10.2 of ISO/IEC 17025:2005(E), signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

[Click here to get the COC number](#)

Maxxam Job #: 0492574

COC #: Temp #4

Page: 1 of 1

Invoice To: Require Report? Yes ☒ No ☐

Company Name: Teck Resources Ltd.

Contact Name: Michelle Unger, Environmental Scientist

Address: _____

PC

Phone / Fax#: Ph: 250-427-8422 Fax: 250-427-8451

E-mail michelle.unger@teck.com

Report To:

Company Name: SRK Consulting

Contact Name: Lisa Barrazuol / Jay Cherian

Address: _____

(867) 334-4412 (Jay) PC:

PC

Phone / Fax#: Ph: 604-628-2564 (Lisa) Fax:

E-mail jcherian@srk.com; lbarazzuol@srk.com

PO #: Teck PO 8470

Quotation #: B13-142-1-KP

Project #: SRK 1CT008.043 / LFN

Proj. Name: Sa Dena Hes - LFN Monitoring Program

Location: Watson Lake, Yukon

Sampled by: J Cherian / S Caesar

REGULATORY REQUIREMENTS: SERVICE REQUESTED:

☐ CSR
☒ CCME
☐ BC Water Quality
☐ Other _____
☐ DRINKING WATER

☐ Regular Turn Around Time (TAT)
 (5 days for most tests)
☐ RUSH (Please contact the lab)
☐ 1 Day ☐ 2 Day ☐ 3 Day

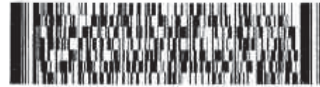
Date Required: _____

SPECIAL INSTRUCTIONS:

Return Cooler ☐	Ship Sample Bottles (please specify) ☒
Include results of MH-02 and MH-02 from COC EB1034914 in results reporting	

ANALYSIS REQUESTED

☐ CSR ☒ CCME ☐ BC Water Quality ☐ Other _____ ☐ DRINKING WATER				☐ Regular Turn Around Time (TAT) (5 days for most tests) ☐ RUSH (Please contact the lab) ☐ 1 Day ☐ 2 Day ☐ 3 Day Date Required: _____				ANALYSIS REQUESTED																																							
SPECIAL INSTRUCTIONS:																																															
Return Cooler ☐ Ship Sample Bottles (please specify) ☒																																															
Include results of MH-02 and MH-02 from COC EB1034914 in results reporting																																															
Lab Use Only																																															
Sample Identification		Lab Identification	Sample Type	Date/Time(24hr) Sampled	BTX/VPH	VOC/VPH	EPH	PAH	CCME-PHC (Fractions 1-4 Plus BTX)	CCME-PHC (Fractions 2-4)	CCME-PHC (Fraction 1 Plus BTX)	Other	Phenols by 4AAP	TOG	MOG	SMOG	Field Filtered?	Dissolved Metals (DM)	Field Acidified?	Total Metals	Field Acidified?	Nitrate	Nitrite	Ammonia	Chloride	Fluoride	Sulphate	TDS	Total Suspended Solids (TSS)	pH	Conductivity	Alkalinity	BOD	COD	Coliform: Total & E.coli	Fecal	Bromide	Mercury (field acidified)	Cyanide - total	Colour	Dissolved Mercury (field filtered, acid turbidity)	HOLD	Number of Containers	YES	NO	YES	NO
1	SW14-01	KW1287	Surface W	14/10/11 11:03													x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	9						
2	SW14-02	KW1288	Surface W	14/10/11 12:15													x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	9						
3	SW14-03	KW1289	Surface W	14/10/11 13:39													x	x	x	x	x	x	x	x	x	x	x	x	x	x					x	x	x	x	x	x	9						
4																																															
5																																															
6																																															
7																																															
8																																															
9																																															
10																																															
11																																															
12																																															


 B492574

Samples are from a Drinking Water Source?

Does source supply multiple households?

Print name and sign			Print name and sign			Laboratory Use Only						
*Relinquished By:	Date (yy/mm/dd):	Time (24 hr):	Received by :	Date (yy/mm/dd):	Time (24 hr):	Time Sensitive	Temperature on Receipt (°C)		Custody Seal	Yes	No/	
J Cherian	14/10/14	6:00	<i>[Signature]</i> BANION	2014/10/14	12/1/15	☒	A) 4	B) 3	C) 6	Present?	☐	☒
							Just sampled & rec'd on ice: ☐		Intact?	☐	N/A	

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORDS. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

7, 8, 8	7, 7, 6
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500-4260 Still Creek Drive
Burnaby, British Columbia, Canada V5C 6C6
Telephone: 604-298-6623 Fax: 604-298-5253

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

No 22807

page 1 of 1

Project Number: 12-1021-0006/11000		Laboratory Name: Maxxam Analytics	
Short Title: Sa Dena Hes		Address: 4606 Concorda Way, Burnaby BC	
Golder Contact: Andrew Bruemmer	Golder E-mail Address: Andrew.Bruemmer@golder.com	Tel/Fax: 604 639 2614	Contact: Namita Sahni

Office the final reports should be sent to:

☒ 500-4260 Still Creek Drive
Burnaby, BC V5C 6C6
Tel: 604-298-6623
Fax: 604-298-5253

☐ 202-2790 Gladwin Road
Abbotsford, BC V2T 4S8
Tel: 604-850-8786
Fax: 604-850-8756

☐ 2640 Douglas Street
Victoria, BC V8T 4M1
Tel: 250-881-7372
Fax: 250-881-7470

Analyses Required

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	LEAD/HKPH (inc. PAH)	BTEX/PH	Dis. Metals	Dis. Mercury	As in S	VOCs	RUSH	Remarks (over)
22807	-01 TH09-91			GW	27/9/14					8	X	X	X	X	X	X		
	-02 TH09-91																	
	-03 MW14-04																	
	-04 MW14-03																	
	-05 MW14-02							FDA	22807-06									
	-06 MW14-02							FD	22807-05									
	-07 MW14-01																	
	-08																	
	-09																	
	-10																	
	-11																	
	-12																	

Sampler's Signature: <i>[Signature]</i>		Relinquished by: Signature: <i>[Signature]</i>		Company: Golder		Date: Sept. 30/14		Time:		Received by: Signature:		Company:	
Sample Storage (°C): ON ICE		Relinquished by: Signature:		Company:		Date:		Time:		Received by: Signature:		Company:	
Comments: FSD Report Delivery		Method of Shipment: Air North (air)		Waybill No.:		Received for Lab by:		Date:		Time:			
		Shipped by:		Shipment Condition: Seal Intact:		Temp (°C):		Cooler opened by:		Date:		Time:	

WHITE: Golder copy

YELLOW: Lab

PINK: Lab returns with Final Report



500-4260 Still Creek Drive
Burnaby, British Columbia, Canada V5C 6C6
Telephone: 604-298-6623 Fax: 604-298-5253

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

Nº 20769

Page 1 of 1

Project Number: 12-1021-0006 / 9000 / 1104		Laboratory Name: Maxxam	
Short Title: Sa Dona Hes		Address: 4606 Canada Way, Burnaby BC	
Golder Contact: Andrew Bruemmer	Golder E-mail Address: Andrew.Bruemmer@golder.com	Tel/Fax: 604 639 2614	Contact: Namita Sahni

Office the final reports should be sent to:

- ☒ 500-4260 Still Creek Drive
Burnaby, BC V5C 6C6
Tel: 604-298-6623
Fax: 604-298-5253
- ☐ 202-2790 Gladwin Road
Abbotsford, BC V2T 4S8
Tel: 604-850-8786
Fax: 604-850-8756
- ☐ 2640 Douglas Street
Victoria, BC V8T 4M1
Tel: 250-881-7372
Fax: 250-881-7470

Fax: 604-298-5253										Fax: 604-850-8756										Fax: 250-881-7470									
Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	CEPH/HEPH	BTEX/UPH	Total Metals	Total Mercury	Anions					RUSH	Remarks (over)								
20769	-01 SW14	01		surface water	8/9/14	13:25				8	X	X	X	X	X														
↓	-02 ↓	02		↓	↓	17:00				↓	↓	↓	↓	↓	↓														
↓	-03 ↓	03		↓	↓	17:30				↓	↓	↓	↓	↓	↓														
	-04																												
	-05																												
	-06																												
	-07																												
	-08																												
	-09																												
	-10																												
	-11																												
	-12																												

Sampler's Signature: <i>Nancy Carlson</i>	Relinquished by: Signature	Company: <i>Golder</i>	Date: <i>Sept. 9/14</i>	Time	Received by: Signature	Company
Sample Storage (SC): <i>on ice</i>	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Comments:	Method of Shipment: <i>Air North</i>	Waybill No.:	Received for Lab by:		Date	Time
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C)	Cooler opened by:	Date	Time

WHITE: Golder copy

YELLOW: Lab copy

PINK: Lab returns with Final Report



CHAIN OF CUSTODY RECORD/ANALYSIS REQUEST

No 6406

page 2 of 4

500-4260 Still Creek Drive
Burnaby, British Columbia, Canada V5C 6C6
Telephone 604-298-6623 Fax 604-298-5253

Project Number: R 1021 0006 9000		Laboratory Name: ALS	
Short Title: Sa Denar HES		Address: Whitehorse / Burnaby	
Golder Contact: Andrew Bruemer	Golder E-mail Address: Andrew.Bruemer@golder.com	Tel/Fax: 604 253 4188	Contact: Amber Springer / Sean Slusoff

Office the final reports should be sent to:

- ☐ 500 - 4260 Still Creek Dr. Burnaby, B.C. V5C 6C6
Tel: 604-298-6623 Fax: 604-298-5253
- ☐ 300 - 2190 West Railway St. Abbotsford, B.C. V2S 2E2
Tel: 604-850-8786 Fax: 604-850-8756
- ☐ 3795 Carey Rd., 2nd floor Victoria, B.C. V8Z 6T8
Tel: 250-881-7372 Fax: 250-881-7470

Analyses Required

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	CSR Metals	GRAIN SIZE	RUSH	Remarks (over)
6408 -01	14R14-08	a	0.2-0.3	Soil	8/9/14	16:10		FD	6417-09	2	X			
↓ -02	TP14-S3	06	2.5	↓	12/9/14	13:00				2	X	X		
-03														
-04														
-05														
-06														
-07														
-08														
-09														
-10														
-11														
-12														

Sampler's Signature: <i>[Signature]</i>	Relinquished by: Signature	Company: Golder	Date: Sep 15/14	Time: 3:15	Received by: Signature <i>[Signature]</i>	Company: ALS
Sample Storage (°C): on ice	Relinquished by: Signature	Company:	Date:	Time:	Received by: Signature	Company:
Comments: ALS Quote Q45197 Request EDD Lab Deliver	Method of Shipment:	Waybill No.:	Received for Lab by:		Date:	Time:
	Shipped by:	Shipment Condition:	Temp (°C): 8.3	Cooler opened by:	Date:	Time:
		Seal Intact:				

WHITE: Golder Copy YELLOW: Lab C PINK: Lab returns with Final Report