FINAL

PHASE II ENVIRONMENTAL SITE ASSESSMENT FOR FOUR SITES ON THE PIPSUEL, JOEYASKA, AND NICOLA MAMEET RESRVES

MERRITT, BC

Project No. 14-0493

Prepared for

Lower Nicola Indian Band
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&

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Submitted by

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March 31, 2014

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ENVIRONMENTAL

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Lower Nicola Indian Band
181 Nawishaskin Lane,
Merritt, BC. V1K 0A7

Attention: Mr. John Keating, LNIB Lands and Leasing Office

Subject: Phase II Environmental Site Assessment (ESA), for Four Sites on the Pipseul, Joeyaska and Nicola Mameet Reserves, Merritt, BC.

We trust that this report meets your needs. Two hard copies of the report and three CD-ROMs including the source files and an Adobe PDF version have been provided. Please do not hesitate to call if you have any questions or comments, or if you require anything further.

Yours truly,

Columbia Environmental Consulting Ltd.

Per: Graham Martens, R.P.Bio
Project Manager

Attch.

EXECUTIVE SUMMARY

Based on the findings of historical environmental investigations, the Lower Nicola Indian Band (LNIB) and Aboriginal Affairs and Northern Development Canada (AANDC) created a list of priority sites requiring further investigation which included the Pipsuel IR#3 Concrete Plant, Nicola Mameet IR#1 Asphalt Plant and former Mojos Gas Station, and salt contamination on the Joeyaska IR# 2 related to the off-site adjacent Godey Gravel Pit all near Merritt, BC.

Columbia Environmental Consulting Ltd. (Columbia) was retained by the LNIB, on behalf of AANDC, to conduct a Phase II Environmental Site Assessment (ESA) for the priority list of four Areas of Potential Environmental Concern (APECs) located on three (3) reserves.

Pipsuel IR#3 Concrete Plant

The Pipsuel IR#3 Concrete Plant was reported to have been an LNIB owned batch concrete plant and gravel pit in operation over 35 years ago. All that remains of the concrete plant are some concrete foundations, occasional treated wood waste, and scrap metal. Based on the former Site use and scattered wastes, the Site was retained as a potential concern with APECs including a treated wood waste pile, metal debris pile, poured concrete waste, hydrocarbon containers, former silo, and former building footprint. Currently, the LNIB are in the process of obtaining permitting to re-open the Site as a gravel pit, and require confirmation of the presence or absence of Contaminants of Potential Concern (COPC) at concentrations of concern at the Site.

An intrusive investigation was undertaken including test pit and borehole investigation, installation of a groundwater monitoring well, and sampling of both surface and subsurface soil and water media. A limited volume of waste materials generally consisting of metal debris and wood waste were identified at the former concrete plant. The presence of PAH contaminated soil was confirmed at the treated wood waste (APEC 1). Delineation of the PAH contaminated soils was not achieved; however, is anticipated to be limited to shallow soils underlying the treated wood debris. The treated wood waste area is retained as AEC 1. Contaminated soils were not encountered at the remaining APECs. Based on the absence of contaminated soil, APECs 2 through 5 were dismissed.

It should be noted that detectable concentrations of aluminum, naphthalene and toluene were reported in the initial round of groundwater monitoring. A second round of follow-up monitoring did not detect measureable concentrations of these parameters. It is standard industry practice to complete two (2) compliant sampling events to definitively dismiss these COPC detections; however, as the LNIB is not seeking specific approvals and the high probability that the initial detections were a drilling artifact, no further investigation is recommended at this time.

Nicola Mameet IR#1 Peter Bros Asphalt Plant and Mojos Gas Station

The Peter Brothers Asphalt Plant and former Mojos Gas Station were identified as APECs during the Phase I ESA of the Nicola Mameet IR#1. The two (2) Sites are located within the band operated gravel pit. Various debris, fuel handling and storage, production of asphalt, and spotty soil staining were identified as potential concerns throughout the property. Additionally, at the time of the Phase I ESA it was unknown if the former gas station USTs had been removed.

Further investigation was recommended for the Site to update the property to current Federal guidance and protocols with respect to contaminated sites assessments.

An intrusive investigation was conducted throughout the property at the current asphalt plant location, former asphalt plant location, recycled asphalt pile, former service station, former maintenance/warehouse building, and at the current Above Ground Storage Tank (AST). A total of eight (8) boreholes were installed throughout the property, with two (2) completed as groundwater monitoring wells.

Based on the findings it is concluded that the small volumes of waste materials including miscellaneous metals, concrete wastes, machinery and spotty surficial staining located throughout the gravel pit property are typical of commercial operations. These materials do no present a significant environmental risk, rather are a general housekeeping issue. Contaminated soil was not identified by this investigation. Based on the absence of soil contamination, APECs 2 through 6 are dismissed.

Concentrations of silver and toluene greater than guidelines were identified in groundwater at MW14-1 located down gradient of the asphalt plant area (APEC 1). Naphthalene and xylenes concentrations were also detected at concentrations less than applicable guidelines. It was suspected that the trace concentrations of toluene and naphthalene could be artifacts from the ODEX drilling process[1] given the significant depth to groundwater and absence of soil contamination identified. A second round of groundwater sampling did not detect measurable concentrations of silver, naphthalene, toluene or xylenes. As such, the indicated detections from March 2014 were concluded to be an artifact of drilling and have been shown by the May 2014 sampling to have attenuated. It is standard industry practice to complete two (2) compliant sampling events to definitively dismiss these COPC detections; however, as the LNIB is not seeking specific approvals and the high probability that the previous detections were a drilling artifact, no further investigation is recommended at this time and APEC 1 is dismissed. No further investigation is recommended at this time.

<u>Joeyaska IR#3 Godey Gravel Pit</u>

The Godey Pit is a Ministry of Transportation (MoT) gravel pit with a containment facility for mixed salt and winter abrasives, located off-site but adjacent to the Joeyaska IR#2. The presence of salt impacted groundwater has been identified both at and down gradient of the Pit, including the Joeyaska Reserve. Investigation and risk assessment of the salt- impacted groundwater by MoT is on-going, with an application submitted to the BC Ministry of Environment (MoE) for an approval in principal of a remedial plan consisting of monitored natural attenuation in conjunction with source removal over time. A third party review of environmental studies provided by the LNIB and a round of independent monitoring was recommended to provide an update to the LNIB regarding the risks and liability posed to the Joeyaska IR#2 by the salt contamination.

[1] ODEX requires the use of compressed air to drive the down-hole air rotary bit and is susceptible to cross contamination from any leaks or contamination within the compressor unit.

Ten (10) monitoring wells have been installed by MoT on the Joeyaska Reserve to investigate the off-site migration of salt contaminated groundwater from the Godey Pit. Eight (8) of the ten (10) wells were located, monitored and sampled. Overall the general trend of sodium and chloride concentrations in groundwater were consistent with the previous investigations completed by MoT. Concentrations of dissolved metals were found to meet the applicable criteria in all wells sampled. This supports MoT's position that the dissolved metals impacts identified in the previous MoT investigations are not related to the salt contamination originating from the Godey Pit.

The Godey Pit is retained as an AEC. This contaminated site is under active investigation by MoT following the BC Ministry of Environment (MoE) procedures with respect to the Provincial Contaminated Sites Regulation and Environmental Management Act. MoT has submitted a remediation plan supporting an application for an Approval in Principal (AIP) and Wide Area Contaminated Site designation. The remediation plan calls for monitored natural attenuation with gradual source removal and administrative controls to mitigate unacceptable risks. Estimates for monitored natural attention by MoT are up to 25 and 41 years, respectively, for sodium and chloride concentrations in groundwater to drop to acceptable levels. Theoretically these attenuation periods may be reduced if a more aggressive remedial strategy were undertaken such as complete source removal on a quicker timeline. It is our understanding that an AIP has not been issued to date and consultation by MoT with the MoE affected landowners is ongoing.

The Joeyaksa Reserve is under Federal jurisdiction; therefore, the BC MoE process and Wide Area Contaminated Site designation would not apply to the contamination on the reserve. There is no parallel Federal prescriptive process. A unique legal agreement between AANDC/LNIB and MoT outlining expectations with milestones and remediation endpoints, responsibilities, and consideration is required to address AANDC and the LNIB's liabilities associated with the contamination. Legal council should be sought on this issue. The environmental due diligence completed by MoT to support the Wide Area Contaminated Site designation is anticipated to meet the technical requirements for any AANDC approval, assuming the remediation plan is acceptable to LNIB stakeholders.

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AANDC	Aboriginal Affairs and Northern Development Canada
AERA	Agricultural and Ecological Risk Assessment
APEC	Areas of Potential Environmental Concern
AIP	Approval in Principle
CCME	Canadian Council of Ministers of the Environment
CEQG	Canadian Environmental Quality Guidelines
COPC	Contaminants of Potential Concern
CSA	Canadian Standards Association
CSQG	Canadian Soil Quality Guidelines
CSR	Contaminated Sites Regulation (BC)
ESA	Environmental Site Assessment
FIGWQ	Federal Interim Groundwater Quality
HASP	Health and Safety Plan
IACR	Index of Additive Cancer Risk
LEPH/HEPH	Light/Heavy Extractable Petroleum Hydrocarbon
LNIB	Lower Nicola Indian Band
MDL	Method Detection Limit
MoE	BC Ministry of Environment
MoT	BC Ministry of Transportation
NCSCS	National Classification System for Contaminated Sites
PAH	Polycyclic Aromatic Hydrocarbon
PHC	Petroleum Hydrocarbon
RAP	Remedial Action Plan
TPE	Total Potency Equivalent
UST/AST	Underground/Aboveground Storage Tank
VOC	Volatile Organic Compound
WAS	Wide Area Site

1.0 INTRODUCTION

Columbia Environmental Consulting Ltd. (Columbia) was retained by the Lower Nicola Indian Band (LNIB), on behalf of Aboriginal Affairs and Northern Development Canada (AANDC), to conduct a Phase II Environmental Site Assessment (ESA) for a priority list of four Areas of Potential Environmental Concern (APECs) located on three (3) reserves: Pipseul IR #3, Mameet IR #1, and Joeyaska IR #2, herein referred to as the "Sites" or "Site". The three reserves are located northwest, west, and east of Merritt, B.C., respectively. This report details the results of the Phase II ESA and follows the procedures outlined in the Canadian Standards Association (CSA) document Z769-00 Phase II ESA, March 2000.

1.1 OBJECTIVE

The objective of this assessment was to determine the current environmental and physical conditions at the Sites and to develop appropriate remediation strategies and costs if required. This includes the identification of contaminated media (soil, soil vapour, surface water, and groundwater), and delineation of contaminated media where possible.

1.2 BACKGROUND

A Phase I ESA of ten (10) LNIB Reserves was conducted in 2010 (Columbia 2011). Nineteen (19) Areas of Potential Environmental Concern (APEC) were identified associated with residential Aboveground Storage Tanks (ASTs), dumps and waste sites, sawmills, gas stations, a concrete plant, shooting area, and known contaminated soils associated with a residential heating oil underground storage tank (UST). Potentially affected media identified included soil, groundwater, surface water, and soil vapour.

Based on the findings of the Phase I ESA, the LNIB and AANDC created a list of priority sites for further investigation which included:

- Pipseul IR #3
  - APEC 1 Concrete Plant
- Mameet IR #1
  - APEC 12a Mojo Gas Station
  - APEC 12b Peter Bros Asphalt Plant
- Joeyaska IR #2
  - APEC 5 Godey Gravel Pit (Off-site)

The Pipsuel IR#3 Concrete Plant was reported to have been an LNIB owned batch concrete plant and gravel pit in operation over 35 years ago. All that remains of the concrete plant are some concrete foundations, occasional treated wood waste, and scrap metal. Based on the former Site use and scattered wastes, the Site was retained as an APEC. Currently, the LNIB are in the process of obtaining permitting to re-open the Site as a gravel pit, and require confirmation of the

presence or absence of Contaminants of Potential Concern (COPC) at concentrations of concern at the Site.

The Peter Brothers Asphalt Plant and former Mojos Gas Station were identified as APECs during the Phase I ESA of the Nicola Mameet IR#1. The two Sites are located within the band operated gravel pit. Various debris, fuel handling and storage, production of asphalt, and spotty soil staining were identified as potential concerns throughout the property. Additionally, at the time of the phase I ESA it was unknown if the former gas station USTs had been removed. Further investigation was recommended for the Site to update the property to current Federal guidance and protocols with respect to contaminated sites assessments.

The Godey Pit is a Ministry of Transportation (MoT) gravel pit with a containment facility for mixed salt and winter abrasives, located adjacent to the Joeyaska IR#2. The presence of salt impacted groundwater has been identified both at and down gradient of the Pit, including the Joeyaska Reserve. Investigation and risk assessment of the salt- impacted groundwater by MoT is on-going, with an application submitted to the BC Ministry of Environment (MoE) for an approval in principal of a remedial plan consisting of monitored natural attenuation in conjunction with source removal over time. A third party review of environmental studies and a round of independent monitoring was recommended to provide an update to the LNIB regarding the risks and liability posed to the Joeyaska IR#2 by the salt contamination.

1.3 SCOPE OF WORK

The Phase II ESA consisted of the following tasks:

- Review Background Information and prepare a Detailed Work Plan;
- Prepare a Site-specific Health and Safety Plan (HASP);
- Conduct Ground Penetrating Radar (GPR) and Locate surveys at the Sites;
- Characterize environmental media at the APECs with respect to the applicable criteria;
- Delineate contaminated media where possible;
- Review of five technical reports completed by SNC Lavalin Environment (SNC) and Azimuth Consulting Group completed in 2011, and any addenda to the 2011 technical reports in order to summarize the noted reports' assessment of liability and risks from the salt contamination originating from the Godey Pit. Review, analysis and consideration of other available information, assessments, reports and compliance investigations, in relation to the contamination at Godey Pit, were not conducted;
- Update Sites according to CCME National Classification System for Contaminated Sites (NCSCS); and
- Preparation of this written report.

2.0 SITE DESCRIPTION

The LNIB is comprised of ten (10) reserves that total 17,500 acres. Nine (9) reserves are located within the Merritt area, BC. The Pipseul IR #3 is located along Hwy 97C near Logan Lake, approximately 40 km northwest of Merritt. The Nicola Mameet IR#1 is located along Highway 8 and 97C, approximately 8 km west of Merritt. The Joeyaska IR#2 is located approximately 5 km east of Merritt. Detailed descriptions of the individual Sites are presented below, and site features are presented on figures included in Appendix A. Representative photographs are provided in Appendix B.

2.1 PIPSEUL IR#3 FORMER CONCRETE PLANT

Pipseul IR#3 is square in shape and 220 acres in size. Coordinates for the Site are zone 10 654938E, 5592863N on topographic NTS map sheet 092P07. The Former Concrete Plant is located on the northern portion of the Reserve, with the remaining surrounding reserve lands consisting of cattle pasture and undeveloped lands. The Mamit Lake Road (Highway 97C) right of way and a gas pipeline right of way go through the northeast corner of the Reserve.

The former concrete plant is located on a sand and gravel terrace above the Guichon Creek floodplain, at an elevation of approximately 1000 m above sea level. The Site is relatively flat, with a moderate embankment bordering the Site and sloping to the east toward Guichon Creek. Overall topography slopes to the south, with Guichon Creek flowing south. The property is fenced and gated, and accessible by gravel road. One overhead electrical power pole was noted on the eastern portion of the Site, but has been deactivated. The Site is not reported to be serviced by any other utilities or water wells. The BC MoE Water well database[2] was searched for all water wells within a 500 m radius of the Site on February 14th, 2014. No wells were identified within the boundary of the property, or within 500 m of the Site.

The former concrete plant consists of two structures (silo, and pedestal), a former sump, several concrete pads, and limited scattered debris throughout the area. Debris generally consists of miscellaneous metals from old conveyor and support systems, with a limited amount of empty hydrocarbon containers and treated wood noted on the northern portions of the Site. Concrete foundations are located along the top of the embankment to Guichon Creek floodplain, with occasional metals and concrete pieces pushed over the bank. The silo and majority of the metal debris is located in the center of the Site. Cut slopes from historical sand and gravel extraction are visible on the southern portion of the Site.

[2] Ministry of Environment. 2013. Water Resource Atlas Web Mapping Application http://www.env.gov.bc.ca/wsd/data_searches/wrbc/index.html

2.2 NICOLA MAMEET IR#1 FORMER SERVICE STATION AND ASPHALT PLANT

Nicola Mameet IR #1 is the largest of the ten (10) LNIB reserves at 11,350 acres in size. The former Mojos service station and Peter Bros. asphalt plant are located on Lot 265, on the southern portion of the Reserve along Hwy 97, also referred to as 9886 Mamit Lake road. Coordinates for the Site are zone 10 654367E 5556900 on topographic NTS map sheet 092I02. The majority of land use in the area is residential and agricultural with two (2) industrial areas along Mamit Lake Road, including the former Mojos Service Station and Peter Bros. Asphalt Plant.

The former service station and asphalt plant are located in a gravel pit that spans two lots: Lot 265 and Lot 117. The service station and plant are located in Lot 265 making up the eastern portion of the gravel pit. Lot 117 is adjacent, and contains the aggregate source and stockpile area. Lot 265 is approximately 3.7 acres in size, is relatively flat with a gentle slope to the south and consists of the former station building and shop, a weigh scale, and a former workshop that is currently used as a warehouse. Prior to being a service station it is reported that Mojos was a concrete batch plant, with a concrete support for the former loading area located at the back of the abandoned station building. A newer double walled 3,000 L Diesel AST is located at the northern end of the former service station on a concrete pad.

Peter Bros. asphalt plant was historically located on the northern portion of Lot 265, on an upper terrace northwest of the former workshop/warehouse. Currently, the asphalt plant is located due west and on grade with the former service station building, southwest of the warehouse. The portable asphalt plant consists of four trailers with different components, including a liquid asphalt cement tank, drum mixer and blower, ASTs, and a generator. The plant also contains a conveyor and loading silo, aggregate feed bins, and two metal lined in ground sumps, not on trailers.

A recycled asphalt stockpile was noted in the gravel pit on Lot 117 to the west. Storage of miscellaneous metals and equipment was noted throughout the property, generally concentrated around the existing buildings. The property is not paved, and contains graded gravel road base in the main traffic areas. There are concrete pads in front of the former service station and warehouse, and abandoned concrete structures located south of the service station. Three (3) groundwater monitoring wells are located in the former tank nest, within the concrete pad on the east side of the former service station building.

Nicola River is located 1.7 km to the south, Guichon Creek is located 3 km to the east, and both are down gradient. The gravel pit property is fenced, and accessible by Highway 97. The Site is serviced by overhead electrical, and forced main water from a pump station located to the south of the property. A total of two (2) groundwater wells were identified on the BC water resource atlas within 500 m of the Site. Both wells are owned by the LNIB. Well number 302678 is a water supply well located 340 m to the southeast. Lithology consists of 104 feet of sand and gravel, over a clay and rock layer to a depth of 105 feet. Well number 25702 is of unknown use and located 500 m from the center of the gravel pit. Lithology indicates a water bearing gravel unit at 85 feet, with alternating sandy gravel and till layers to surface.

2.3 JOEYASKA IR#2 GODEY PIT SALT CONTAMINATION

The Joeyaska IR#2 is roughly rectangular in shape and is 320 acres in size, located east of Merritt, BC on topographic NTS map sheet 092I02. The majority of land use in the area is residential with agricultural sections. Godey Creek runs through the north portion of the reserve, which is a tributary of the Coldwater River located west of the Site. Right of ways for Highway 97C and an oil pipeline cross the northern portion of the Reserve.

The MoT Godey Pit borders the southeast edge of Joeyaska Reserve, and is up gradient of rural agricultural property. The Pit is moderately sloped to the northwest, and is used for storage of salt, winter abrasive, as an aggregate source, and for storage miscellaneous road maintenance materials. Former salt storage operations have resulted in off-site migration onto the adjacent Joeyaska Reserve with sodium and chloride impacts identified in groundwater wells across the southwestern portion of the Joeyaska Reserve. Topography in this portion of the Site is sloped gently to the northwest, towards the Coldwater River located approximately 1.5 km to the west. There are nine (9) groundwater monitoring wells, and one drinking water well located within the impacted portion of the Site.

3.0 PREVIOUS ENVIRONMENTAL REPORTS

This section summarizes previous environmental reports reviewed in development of the detailed work plan. Report information is provided below by APEC.

3.1 PIPSEUL IR#3 FORMER CONCRETE PLANT

Phase I Environmental Site Assessment, Pipseul IR#3, Lower Nicola Indian Band, Merritt, BC, 2011, Columbia Environmental Consulting Ltd.

In 2010/2011, Columbia conducted a reserve-wide Phase I ESA for the Pipseul IR#3, which consisted of the compilation of known and potential environmental issues based on historical reviews, interviews, and site inspections. Two (2) APECs were identified for the Site, including the Former Concrete Plant, and Off-site Gas Pipeline Right of Way (R/W).

Waste materials observed at the former concrete plant included empty hydrocarbon containers, scrap metals, occasional solid wastes, treated wood, and waste concrete. An open concrete lined sump was observed on the property. Though the debris was observed to limited in nature and likely more of a general housekeeping issue, a Phase II ESA was recommended based on former Site use with respect to fuel and solid wastes handling and storage, and to confirm the presence or absence of COPCs.

3.2 MAMEET LAKE IR#1 FORMER GAS STATION AND ASPHALT PLANT

Stage 2 Preliminary Site Investigation, 9886 Mameet Lake Road, Merritt, BC, Lower Nicola Indian Band, 2003, Levelton Engineering Ltd.

Levelton Engineering Ltd (Levelton) completed a Phase II ESA for the 9886 Mamit Lake Road related to the Peter Bros Asphalt Plant and Mojos Enterprises Ltd service station (Mojos). At the time of the investigation the asphalt plant was located on the northwest portion of the Site, was not in operation, and consisted of portable equipment including conveyor systems, mixing tanks, generator, and several ASTs for diesel and propane. Several containers of various chemical were also noted to be stored between the asphalt plant and an abandoned warehouse, and were considered to be an APEC (APEC 4). The ASTs were not observed to have secondary containment, and were also considered an APEC (APEC 5).

The southern half of the Site was occupied by Mojos Enterprises, consisting of an office building, maintenance building, weigh scale, and a dismantled former ready mix concrete plant. Four USTs associated with the service station had formerly been present on-site. In 1999 Golder Associates completed a Phase I ESA for the station, and recommended a Phase II ESA. A second Phase I ESA was completed at a later date for the Site by Levelton. These reports were not available for review, but were summarized in the Levelton Phase II ESA.

Historical review indicates the service station was operational between 1987 and 1999. The USTs were removed in 1999, but no soil or groundwater investigation was undertaken at the time of removal. The former tank nest was considered an APEC. Since 1971 auto repair and maintenance works were conducted at the maintenance building, (also referred to as the warehouse), with storage of waste oil in an adjacent AST. The maintenance building and AST were considered APECs.

A total of nine (9) boreholes were advanced at the Site, with four (4) completed as groundwater monitoring wells to address the former UST nest, asphalt plant, maintenance building, chemical storage, and used oil AST. The three (3) deeper boreholes in the vicinity of the UST nest were completed as monitoring wells. All groundwater samples collected were found to meet applicable guidelines with all extractable petroleum hydrocarbon (LEPH, HEPH), Polycyclic Aromatic Hydrocarbon (PAH) and Volatile Organic Compounds (VOC) reported below laboratory method detection limits. Soil results from the borehole investigation indicated concentrations of EPH above the applicable guidelines in a layer of surficial soil staining down gradient of the asphalt plant, requiring further investigation. Soil samples collected from the chemical storage area, waste oil storage area, outside the maintenance building, and from the former UST nest were found to meet applicable guidelines, and no further investigation was considered warranted for these APECs.

Confirmatory Environmental Site Investigation for 9886 Mameet Lake Road, Lot 265, Plan Lower Nicola Indian Reserve No.1, 2005, UMA Engineering Ltd.

Minor surficial petroleum hydrocarbon contamination related to the Peter Bros. asphalt plant was identified on the northwest portion of the Site in a Phase II ESA completed by Levelton (2003). Reportedly, Peter Bros. cleaned up the hydrocarbon staining associated with the asphalt operation; however, no environmental professional was present to confirm the condition of the Site following the remedial activities. The objective of the UMA investigation was to confirm the environmental status of the property. It was noted that since 2003 Peter bros had moved the asphalt plant from its previous location northwest of the maintenance building to an area east of the former service station. The asphalt plant remains at this new location to date.

A test pit was advanced in the location of the hydrocarbon staining at the former asphalt plant, and existing on-site groundwater monitoring wells in the vicinity of the former Mojos service station were re-sampled. No hydrocarbon soil contamination identified, and groundwater monitoring results were found to be consistent with the Phase II ESA. Soil samples collected from the former asphalt plant location, current asphalt plant location, and a diesel AST were found to contain LEPH impacts above applicable guidelines.

It was concluded that there were no environmental impacts at the former service station (Mojos). Environmental concerns at the property were limited to the release of diesel fuel in association with both past and on-going asphalt plant operations, and an additional new Band-owned AST for diesel re-fuelling with the potential for a source of release to the subsurface. Removal of waste oil containers and chemicals was recommended, in addition to secondary containment for the new diesel AST.

Based on a conversation with Joe Cuzecrea of Peter Bros (UMA, 2005), it was understood that the area of soil staining at the former asphalt plant had been remediated, by excavation of visually impacted soils, crushing and processing of the hydrocarbon stained soils through the asphalt plant, and backfilling of the impacted area. Soil samples collected from this area by UMA indicated residual impacts remaining in a clay layer approximately 0.8 m deep requiring delineation and additional remedial works.

3.3 JOEYASKA IR#2 GODEY PIT SALT CONTAMINATION

Third Party Review of Environmental Studies Pertaining to Salt Contamination Originating on the Godey Pit, Located Near Merritt, BC, Columbia Environmental Consulting Ltd. 2012.

A peer review of technical reports completed by SNC-Lavalin Environment (SNC) and Azimuth Consulting Group completed in 2011 was conducted, specific to salt contamination. A total of five (5) reports were reviewed including a preliminary and detailed site investigation, Human Health Risk Assessment, Agricultural and Ecological Risk Assessment (AERA), Remedial Action Plan (RAP), and a DCAD Erratum for the Ecological Risk Assessment.

During the review it was noted that marginally elevated concentrations of metals were identified in groundwater on the Joeyaska reserve. These metals were not investigated in surface water, nor specifically investigated or considered in the risk assessment. It was concluded that further investigation or justification is required to confirm the absence of risk or liability posed by these metals.

While the risk assessment found risks with regard to human exposures to the contaminants on LNIB lands negligible, the potential for risks were identified for wildlife, amphibians and aquatic invertebrates, and plants. The risk of using contaminated groundwater for irrigation purposes was not assessed; however the AERA indicated that it is likely unsuitable for irrigation. Potential risks posed by consumption of food grown on the reserve was not assessed, nor was potential risks from use or development of a shallow groundwater drinking well. Additional assessment of these ecological and agricultural risks and on-going monitoring of the existing drinking water wells was recommended.

Response to LNIB Re: Godey Pit Contamination on the Joeyaska Reserve and Columbia Environmental Consulting Ltd third Party Review Report, SNC, April 22, 2013.

At the request of MoT, SNC and Azimuth prepared a memorandum in response to the Columbia third party review, which addresses the following:

An addendum to the AERA was completed March of 2012, which replaces the DCAD Erratum, and former AERA. Items address in the addendum included investigation of co-located soil and vegetation samples to facilitate re-evaluation of risks to wildlife and livestock, with no appreciable differences identified.

The report provided clarification that surface water on the Joeyaska Reserve was not investigated for metals as there is no surface water present on the Reserve. The location of Diamond vale Brook shown on historical mapping has been corrected on current mapping. Concentrations of metals observed in groundwater and surface water on adjacent properties were not considered a contaminant of concern with respect to the salt contamination issue, as the appearance of these constituents was not consistent and could not be definitively attributed to the Godey Pit or any other source. At the time of this report SNC is awaiting feedback from the Ministry of Environment (MoE) on this matter.

Potential ecological receptors were noted to be indicative of the adjacent Coldwater Road property, and not the Joeyaska Reserve, as surface water is not present. The agricultural risks with respect to water access and soil fertility impacts due to salt content were revised to "no risk". Further works were completed with regard to identifying a reference site for a review of impacts to traditionally used plants and amphibians, but no reference site meeting the criteria could be identified.

As recommended, continued mining of salt impacted soils from the Godey Pit for use as winter abrasive has continued, with an estimated 28,890 m^3 having been removed. Annual groundwater and surface water monitoring to evaluate natural attenuation of sodium and chloride in both on and off-site areas has been carried out.

Concerns regarding shallow drinking water and potential impacts from salt contamination were addressed. Firstly, the existing groundwater well on the Joeyaska reserve is in a deeper aquifer, with salt impacts in the upper shallower aquifer. It is considered unlikely that salt will impact this deeper aquifer due to the presence of fine grained impermeable soils. Secondly, additional groundwater monitoring of shallow wells on the Joeyaksa reserve have indicated either steady state, or decreasing salt concentrations.

A review of SNC's responses to the Columbia's review was conducted with the following outstanding concerns identified:

- Dismissal of the dissolved metals elevated in groundwater above the CSR Standards as not being related to the activities at the Godey Pit may require further justification. MoE provided a similar critique in their review.

- Clarification is required with respect to impacts to soil fertility on the southwest portion of the Joeyaska Reserve.

Columbia's complete review is included in Appendix G.

MoT Email Response regarding the Godey Pit and Concerns Raised by the LNIB, MoT, 2013

MoT issued a letter response with regard to concerns/points brought forth by the LNIB regarding the salt contamination associated with the Godey Pit. In general terms, the letter response is

supported by the above summarized report, with respect to the applicable framework and the need for further assessment, and revision of remediation plans to address concerns for present and future drinking water.

> *Memorandum: MoT Godey Pit: Detailed Responses to MoE DSI Comments, SNC, 2014.*

An application for an Approval in Principal (AIP) and Wide Area Site (WAS) designation was submitted by SNC on behalf of MoT to MoE in June of 2011.

Several concerns were raised by MoE, including the requirement for:

- delineation of the salt contamination plume,
- further investigation of potential to impacts to deeper aquifers,
- correlation of elevated concentrations of metals to salt impacted areas,
- delineation of the metals impacts and potential additional impacts from stormwater run-off from the Coquihalla Hwy,
- further statistical analysis to demonstrate plume is stable and/or shrinking, and
- further evidence of salt wicking to prove it is a regional phenomenon, and not a side effect of the salt contamination.

MoE also raised concerns regarding attenuation times for lower permeability soils.

In response to the comments, further statistical analyses and investigation were conducted. Statistical review of the relationship between water soluble and saturated paste results found strong correlation. This correlation was used to estimate saturated paste levels, and it was concluded that delineation of sodium and chloride is not complete, with further investigation required.

Additional background soil samples were collected to more accurately define the zone of impact and further augment the argument for background concentrations. Potentiometric methods were used to better define extent of the salt swale based on known observation points, site photographs and historical observations. Soil samples were collected from outside of the swale in areas observed to have salt wicking, to show that local background locations are up to two times higher than those measured within the contaminated area.

Preliminary modeling to predict groundwater concentrations at a receptor was undertaken and indicate that chloride concentrations would not exceed standards at the edge of the Merritt Aquifer, and down gradient day-lighting of groundwater has been sampled as surface water, with no exceedances of chloride identified. As such, the groundwater plume is considered ; additional groundwater sampling at the leading edge of the plume is proposed to determine plume stability and refine modeling. Furthermore, it was noted that groundwater samples from wells adjacent to roadways were observed to be geochemically different from salt impacted water known to be related to the Godey Pit, and may be related to alternate sources of salt impact. A review of deeper well log information was undertaken, and found to indicate an aquitard-like condition

(hard pan clay or silty clay) from 8 to 13 m, protecting the underlying water bearing zones from salt impacts.

Additional data collected in 2013 was reviewed with respect to metals impacts and found to show that concentrations of magnesium, the metal of concern, have decreased in many locations, particularly where salt contamination is the greatest. Concentrations of barium and cadmium were found to meet the applicable guidelines in the recent monitoring events, and as such sodium and chloride are currently the only parameters that exceed the CSR standards. A review of additional monitoring data and results for samples collected up gradient indicate other common inorganics exceeding the BCWQG are isolated, and unrelated to the Godey Pit Operations.

A latent source of salt present at the Godey Pit renders potential additional impacts from stormwater run-off negligible. An up gradient surface sample representing stormwater run-off from the Coquihalla was collected and found to confirm this assumption.

The flushing of sodium and chloride was estimated for the RAP using a mass balance approach. There are now several years of monitoring data available to provide an alternate basis for prediction of natural attenuation rates. Additional plots and trends applied to this data indicate that sodium and chloride concentrations have been decreasing, and that continued risk management and natural attenuation may reduce the groundwater conditions below applicable guidelines within the next 5 to 15 years in the alluvial fan sands, and within 7 to 21 years within the higher permeability soils.

4.0 AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

Based on the historical reports reviewed, several areas of potential environmental concern were identified which are detailed in the following sections, and summarized in Tables A and B below, by reserve.

4.1 PIPSEUL IR#3 FORMER CONCRETE PLANT

The Site contains a former concrete batch plant, with small amounts of debris and metal wastes. Though materials appear limited in nature and are likely a general housekeeping issue, former Site use is likely to have included the storage and handling of hazardous materials including fuels, form oils, and other chemicals. Guichon Creek is located directly adjacent to and down gradient of the Site. Additionally, the presence of an open concrete sump represents a physical hazard.

Potentially affected media at the Site includes surface and subsurface soils, groundwater, and surface water, with potential contaminants of concern including metals, PAH, Petroleum hydrocarbons (PHC) and VOC.

Table A: APECs – Pipseul IR#3 Former Concrete Plant

AEC/APEC	COPCs	Current Conditions / Description	Potentially Affected Media
APEC 1 – Treated Wood Waste	• Metals, PAH, PHC, VOC	•5m diameter pile of treated wood waste between two large concrete pedestals.	Soil, Surface Water, Groundwater
APEC 2 – Metal Debris Pile	• Metals, PAH, PHC, VOC	•8m x 3m area containing 4 metal conveyors, large iron plate, metal gasket, oil filter, ladder, and 1 empty 205L drum	Soil, Surface Water, Groundwater
APEC 3 – Poured Concrete Waste	• Metals, PAH, PHC, VOC	•6m diameter area of poured waste concrete •Occasional scattered metals to the south including conveyors.	Soil, Surface Water, Groundwater
APEC 4 – Hydrocarbon Containers	• Metals, PAH, PHC, VOC	•5m diameter pile of dimensional wood waste with nails, 2 large rubber tires, occasional aerosol cans, electrical conduit, and tarred roofing material. •2m diameter area of empty petroleum hydrocarbon and paint containers (20L and 1L containers and 1 empty 205L drum)	Soil, Surface Water, Groundwater
APEC 5 – Former Silo	• Metals	• Collapsed 3.5m x 6m metal silo with concrete pedestal and filter	Soil, Surface Water, Groundwater

AEC/APEC	COPCs	Current Conditions / Description	Potentially Affected Media
APEC 6 – Former Building Footprint	• Metals, PAH, PHC, VOC	•Three concrete pad/foundations (120 m^2) along eastern boundary of Site with occasional metals debris. •3m x 1.5m concrete lined sump •5 m diameter area of broken concrete pushed down bank •Groundwater has not been characterized, however impacts are anticipated to be minor and localized.	Soil, Surface Water, Groundwater

PAH = Polycyclic Aromatic Hydrocarbons
VOC = Volatile Organic Compounds including Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)
PHC = Petroleum Hydrocarbons including F1, F2, F3 and F4 fractions

4.2 MAMEET LAKE IR#1 FORMER GAS STATION AND ASPHALT PLANT

The property contains an asphalt plant that has been moved from its original location. Spotty surface soil impacts have been identified in both the former plant location, and in the current plant location, relating to the storage and handling of fuels. Personal communication with Joe Cuzecrea of Peter Bros. in February of 2014 indicated that the residual hydrocarbon impacted soils at the former plant location had been excavated by rubber tire backhoe under the supervision of an environmental consultant, and recycled through the asphalt plant following the 2005 UMA Phase II investigation.

The 2012 Phase I ESA identified the storage of various chemical and fuels in drums throughout the Site, in addition to discolored/yellowing soils adjacent to the asphalt plant, and spotty soil impacts below the ASTs of the current asphalt plant.

The property formerly contained Mojos service station. Historical reports indicated that the USTs associated with the retail fuel operation had been removed, with subsequent environmental investigations confirming no impacts to soils or groundwater. Groundwater monitoring is recommended to confirm the previous investigation results with respect to current regulations.

The former service station included a maintenance building to the north, where vehicle and machine repair and maintenance was undertaken. Storage of waste oil and hydrocarbon containers were reported. Shallow borehole investigation of the former waste oil AST did not identify gross contamination at depth in this area. Continued maintenance activities within the workshop have the potential to have negatively impacted the Site since the last intrusive investigation. Given the ongoing use, an update of Site status is required at this APEC.

The 2012 Phase I ESA identified a large stockpile of recycled asphalt located within the gravel pit to the east of the asphalt plant. Potential for impacts from leaching asphalt has not been investigated.

The LNIB maintains a 3000 L diesel AST located between the former service station and maintenance building. The tank is double walled over concrete, with locked handles. Spotty surface soil stains were observed adjacent to the concrete pad.

Table B: APECs – Mojos Service Station and Peter Bros Asphalt Plant

AEC/APEC	COPCs	Current Conditions / Description	Potentially Affected Media
APEC 1 – Current Asphalt Plant	• Metals, PAH, PHC, VOC	•Mobile asphalt plant contains ASTs, storage of hydrocarbons, and spotty soils stains throughout area. •In-ground lined sump	Soil, Groundwater
APEC 2 – Former Asphalt Plant	• Metals, PAH, PHC, VOC	•Former soil contamination has been remediated. Storage of metals noted in recent Phase I ESA •Confirm no new APECs in area	Soil, Groundwater
APEC 3 – Recycled Asphalt Pile	• Metals, PAH	•100m long recycled asphalt pile with potential to leach into surrounding sand and gravel soils	Soil, Groundwater
APEC 4 – Former Service Station (Mojo's)	• Metals, PAH, PHC, VOC	•Additional environmental reports indicate USTs have been removed. •Phase II update to current regulations required.	Soil, Groundwater
APEC 5 – Former Maintenance Building / Warehouse	• Metals, PAH, PHC, VOC	• Former used oil AST did not indicate presence of contamination at the time of investigation – requires update to current regulations • Building was not historically accessible to review for in ground floor drains • Continued use as a maintenance building and storage of fuels/oils • Scattered machinery and equipment parts	Soil, Groundwater
APEC 6 – 3000L Diesel AST	• Metals, PAH, PHC, VOC	• 3000 L diesel AST over concrete has soil staining on adjacent gravel.	Soil, Groundwater

PAH = Polycyclic Aromatic Hydrocarbons
VOC = Volatile Organic Compounds including Benzene, Toluene, Ethylbenzene and Xylenes (BTEX)
PHC = Petroleum Hydrocarbons including F1, F2, F3 and F4 fractions

4.3 JOEYASKA IR#2 GODEY PIT SALT CONTAMINATION

The Godey Pit has historically been used for storage of mixed salt and winter abrasives, resulting in off-site salt contamination of soil, surface water, and groundwater. The salt contamination issue has undergone continuous investigation and monitoring from 2010 to present. An Approval in Principal (AIP) has been submitted to the BC MoE for MoT's remediation plan. The plan is seeking a Wide Area Contaminated Site (WAS) designation under the Contaminated Site Regulation (CSR) for the salt contamination plume with remediation by a combination of monitored natural attenuation, administrative controls pertaining to groundwater use, and on-

going source removal. Annual groundwater monitoring will also be conducted. The salt contamination plume originating from the MoT Godey Pit is an Area of Environmental Concern (AEC).

Outstanding concerns identified include:

- Dismissal of the dissolved metals elevated in groundwater above the CSR Standards as not being related to the activities at the Godey Pit may require further justification. MoE provided a similar critique in their review.

- Clarification is required with respect to impacts to soil fertility on the southwest portion of the Joeyaska Reserve.

- Administrative controls are recommended to reduce the risk to groundwater users for future groundwater wells installed on the Joeyaska Reserve.

- Internal stakeholder meetings with band members, particularly the affected parties of the Joeyaska Reserve to gather input into this process and confirm the land use assumptions applied to the risk assessments is valid. Traditional knowledge should be sought with respect to species potentially extirpated from the reserve due to salt impacts, particularly amphibians.

- The LNIB should remain engaged in the remediation process between MoT and MoE. Given Band lands are Federal Jurisdiction, it is assumed that the MoE is not responsible for administration of contaminated site approvals for the portion of the salt contamination plume on the Joeyeska Reserve. AANDC and/or the LNIB is recommended to remain an active stakeholder for this issue as it pertains to the Band.

Columbia conducted independent sampling of groundwater monitoring wells targeting the salt plume located on the Joeyaska Reserve. Results are detailed in Section 7.

5.0 METHODOLOGY

The Phase II ESA was conducted by Summer Zawacky, B.Sc., EP from Columbia and Alec Jimmie from the LNIB, between March 3rd and March 8th, 2014. A round of follow-up monitoring was conducted on May 26th, 2014, for select wells.

The former concrete plant, asphalt plant, and service station on IR#1 and #3 are commercial operations with some incidental surficial soil stains and debris anticipated. Therefore, the scope of the Phase II ESA in these locations focused on identifying gross contamination, if present, with characterization of media with anticipated exposure pathways to human and ecological receptors. Sampling was biased towards characterization soils below spotty surficial impacts, subsurface soils, adjacent surface water bodies, and potential groundwater migrating from the Sites.

The Godey Pit salt contamination plume issue has undergone several levels of assessment by MoT since 2010. In 2012 an independent review of the assessment reports to date was completed to provide the LNIB with recommendations moving forward. Continued monitoring and assessment has been completed, requiring additional review to provide an updated status review to the LNIB. For this Site the scope of work was focused on this literature review, with a round of independent groundwater monitoring to confirm site status.

5.1 HEALTH AND SAFETY PLAN

Prior to intrusive investigation activities, Columbia prepared a Site-specific HASP addressing health and safety concerns potentially encountered during the field program. A BC-One Call was completed, with no records of interfering services at the Sites. A utility locate was undertaken at each of the Sites to ensure no interfering utilities in subsurface investigation locations. There were no incidents or near misses during the field program.

5.2 SURFACE SOIL INVESTIGATION

Surface soil sampling was generally conducted following the *BC MoE Technical Guidance 1: Site Characterization and Confirmation Testing*. Surface soil samples were collected manually from test pit and borehole locations generally from 0.3-0.6 m bgs targeting anticipated highest contaminant concentrations based on field evidence. As spotty soil impacts were observed with impacts limited to surface cover, the underlying anticipated non-contaminated soils were targeted for vertical delineation purposes. Subsurface soils were also collected from the groundwater interface where applicable, to characterize soil conditions.

5.3 TEST PIT INVESTIGATION

Eight (8) test pits were advanced at the Pipseul IR#3 former concrete plant, to a maximum depth of 1.4 m bgs using a rubber tire backhoe. Subsurface soil samples were collected by scraping

laboratory supplied receptacles vertically along the excavation walls, or as a grab sample from the bucket of the excavator. Test pit locations were based on surface debris, evidence of disturbance, and overall site coverage.

During test pitting a field log was recorded including soil descriptions, visual and olfactory observations, and soil vapour headspace measurements. All soil samples were field screened for soil vapours headspace using an RKI Eagle™ combustible gas indicator (CGI) calibrated to hexane. The test pit locations are presented on Figures 4 and 5 in Appendix A, and test pit logs are provided in Appendix C.

5.4 BOREHOLE INVESTIGATION

Blue Max Drilling Inc. mobilized a Truck-mounted ODEX rig to the Site. One (1) borehole was advanced at the Pipseul former concrete plant, and eight (8) boreholes were advanced at the Nicola Mameet former service station and asphalt plant, to a maximum depth of 28 m bgs. The borehole locations were selected targeting groundwater conditions down gradient that would be leaving the Sites. Subsurface soils were logged directly from solid stem augers, or were ODEX was used soils were logged from drill cuttings expelled through the cyclone.

A field log was recorded including soil descriptions, visual and olfactory observations and soil vapour headspace measurements. The borehole locations are presented on figures 2 through 5 included in Appendix A, and detailed logs are provided in Appendix C.

5.5 GROUNDWATER CHARACTERIZATION

Three (3) of the boreholes were completed as groundwater monitoring wells, down gradient of the asphalt plant, former service station tank nest, and former concrete plant.

The groundwater monitoring wells were constructed with a 25 mm diameter PVC pipe and 0.25 mm slotted PVC screen. The annulus of the monitoring well was packed with silica sand to a minimum level of 0.3 m above the top of the screen. A seal of controlled-swelling bentonite chips was placed above the sand pack to hydraulically isolate the screened interval of the well and prevent surface water infiltration. Refer to the borehole logs in Appendix C for monitoring well construction details. Upon installation, monitoring wells were developed by vigorously purging pore-water from each well until steady water chemistry was achieved using dedicated Waterra tubing equipped with foot valves.

Groundwater monitoring wells at the Pipseul concrete plant, former service station and asphalt plant on IR#1, and Joeyaska Reserve (specific to the Godey Pit salt contamination) were monitored for vapour headspace, groundwater elevation, purged, and sampled for dissolved metals, PAHs, PHC fractions F1-F4, VOC, and/or anions. Purging involved the removal of three (3) pore water volumes from each well and/or until stable pH, temperature, and conductivity readings were achieved. Representative groundwater samples for organic parameters were collected using dedicated, weighted bailers lowered at a rate of 1 cm/sec within the water column

to minimize the disturbance and consequent entrainment of any sediments that could negatively affect the analytical results. Samples collected for metals analysis were filtered in the field using a Waterra in-line high capacity filter and were preserved with nitric acid (HNO_3). Samples collected for organics were preserved in the field with sodium bisulfate ($NaHS0_4$). Samples collected for general chemistry including anions were not preserved.

An elevation survey of the monitoring wells at the former service station and asphalt plant was completed in the field using a rod and level.

During the groundwater investigation a borehole was advanced just outside of the former workshop/warehouse. The borehole was advanced to the maximum extent of the rig, 28 m, with no saturated zone identified. A groundwater monitoring well was not installed within this borehole.

5.6 SURFACE WATER CHARACTERIZATION

Three (3) surface water samples were collected from Guichon Creek, flowing adjacent to the Pipseul Site. Surface water samples were collected directly from the targeted watercourse using laboratory supplied containers. The downstream sample locations were collected first so as not to disturb any other locations prior to sampling. Samples for total metals analysis were preserved in the field with nitric acid. Sample locations are shown on the figures included in Appendix A.

5.7 SAMPLE PREPARATION AND LABORATORY ANALYSIS

All samples were collected in laboratory supplied containers following BC MoE and industry protocols. Samples were stored in coolers chilled with ice packs and couriered to the laboratory under chain of custody. Laboratory analysis of submitted site media was requested based on the project objectives, COPCs identified, spatial coverage, and the allocated project budget. Blind split-duplicate samples were collected and submitted to the laboratory on a 1 in 10 basis. Laboratory analysis was conducted by CARO Analytics Inc. of Richmond, BC, a CALA accredited laboratory.

5.8 UPDATE NATIONAL CLASSIFICATION SYSTEM FOR CONTAMINATED SITES (NCSCS) SCORING

The Canadian Council of Ministers of the Environment (CCME) National Classification System for Contaminated Sites (NCSCS 2010) is a method for evaluating contaminated sites according to their current or potential adverse impact on human health and the environment. The NCSCS allows the classification and prioritization of contaminated sites by using an additive numerical method that assigns scores to a number of site characteristics.

6.0 REGULATORY FRAMEWORK

Federal and Provincial screening criteria are land use based. Currently, the Sites are zoned for a mixture of agricultural, residential, commercial, and industrial land use. Federal screening criteria for Residential/Parkland (RL/PL), Commercial (CL), and Industrial (IL) land uses applied were applied for screening purposes. Agricultural (AL) uses were applied with respect to groundwater on the Joeyaska Reserve.

6.1 FEDERAL GUIDELINES

Soil, water, and sediment quality guidelines applicable to land under Federal jurisdiction are provided in the Canadian Ministers of the Environment Canadian Environmental Quality Guidelines (CEQG), the CCME Canada Wide Standards (CWS) for PHC in soil, Federal Interim Groundwater Quality Guidelines (FIGWQ), and Drinking Water Guidelines published by Health Canada.

Soil
Soil analytical results were compared to CCME Canadian Soil Quality Guidelines (CSQGs) for RL, CL, and IL Land Use and CCME CWS for PHC in soil. The CWS for PHC provide risk based standards based on land use, soil depth, and soil grain size. Given the gravel pit settings, coarse grain standards were applied at the Sites, with analytical tables are included in Appendix D.

In 2010 the CCME CEQG for PAHs were updated to improve the understanding of how to implement the PAH soil quality guidelines. Soil contamination by PAH is widespread in Canada due to the ubiquitous nature of its major sources, and are almost always found in complex mixtures. As such, the consideration of the risks when the entire suite of PAH are present is evaluated using the Total Potency Equivalents (TPE), which is the sum of estimated cancer potency relative to the concentration of Benzo(a)pyrene, and the Index of Additive Cancer Risk (IACR), which accounts for potential threats to potable groundwater from leaching of carcinogenic PAH mixtures. TPE and IACR are calculated measures used in the protection of human health, whereas the individual PAH guidelines are provided to compare numerical soil data for the protection of environmental health. Formulas for the calculations of TPE and IACR have been included in Table 2, in Appendix D.

Surface Water
Surface water analytical results for samples collected from Guichon Creek were compared directly to CCME FW guidelines applicable to surface water as they are representative of aquatic environments.

Groundwater Water
Groundwater at the Pipsuel Site was compared to CCME FIGWQ and FW, due to proximity of Guichon Creek. Groundwater at the IR#1 Sites resides in a deeper aquifer, which is used for irrigation, so FIGWQ and guidelines for the protection of irrigation water were applied. There

are two (2) aquifers on the Joeyaska Reserve, with groundwater daylighting to surface water, and being used for irrigation. Groundwater quality on the Joeyaska Reserve was compared to the FIGWQ, FW, and the protection of irrigation water.

6.2 PROVINCIAL STANDARDS

6.2.1 Provincial Background Soil Quality

The MoE CSR provides a "release" at a contaminated site when the concentrations of substances at a site do not exceed local background levels. When assessing, remediating, or relocating contaminated soil, on site substance concentrations may be evaluated against background. Regional background concentrations for inorganic parameters are published by the MoE in Protocol: 4 Determining Background Soil Quality – Region 3 Southern Interior. When greater than the CCME CEQG screening criteria, the regional background concentrations were adopted as the baseline objective. Regional background concentrations are greater than the CCME CEQG for Arsenic, Chromium, Copper, Nickel, Selenium, and Vanadium.

7.0 PHASE II ESA FINDINGS

The results of the intrusive investigation are reported for each APEC in the following sections. All supporting data has been included in the Appendices, with test pit and borehole logs included in Appendix C, analytical data included in Appendix D, and copies of the laboratory certificates of analysis are included in Appendix E. NCSCS Scoring sheets are located in Appendix F.

7.1 PIPSEUL IR#3 FORMER CONCRETE PLANT

7.1.1 Surface Conditions

The Pipseul former concrete plant was snow covered at the time of the site visit. Features identified in the 2010 Phase II ESA were located in the field, including three (3) concrete pads, creosote treated wood waste, a pile of scrap metal consisting mostly of metals frames and conveyors, a small area of petroleum hydrocarbon products and miscellaneous waste storage, and a collapsed metal silo. Historical reports identified a concrete lined sump on the northern portion of the property, which was not identified in the snow covered conditions.

The Site appears to have been recently disturbed, with two small soil fill piles noted along the eastern portion of the Site at the top of bank, and a recent cut slopes visible in the adjacent gravel pit. Occasional debris including metals, hydrocarbon containers, and concrete were noted to have been pushed over the bank. Test pit locations were selected at the Pipseul former concrete plant below these waste materials to ensure no buried wastes or gross contamination from the limited waste materials. Soils observed within the test pits consisted mostly of sand and gravel, with cobbles at depth and trace silts near surface. One borehole was advanced next to the concrete foundations and in an overall down gradient location from the Site. No staining, odours, stressed vegetation or evidence of impacts were noted below the waste materials, or test pits.

7.1.2 Hydrogeology

The former plant is located on a sand and gravel terrace approximately 8 m above the Guichon Creek floodplain, at an elevation of approximately 1000 m above sea level. The Site is relatively flat, with a moderate embankment bordering the Site and sloping to the east toward Guichon creek. One borehole, BH14-9 was advanced down gradient of the waste materials, to a depth of 10 m bsg, with groundwater encountered at 8.3 m bsg. BH14-9 was completed as a monitoring well (MW14-3).

7.1.3 Waste Material

Currently no solid waste is generated on the Site. Details of the debris areas and wastes remaining at the former concrete plant are shown on Figure 2, and summarized in the table below. Representative photographs have been included in Appendix B.

Table C. Pipseul Concrete Plant Summary of Solid Waste

Area Details	Content Description
• Hydrocarbon Containers	•0.5 m^3 of empty petroleum hydrocarbon and paint containers over a 2 m diameter area
• Dimensional Wood Waste	•5 m diameter pile of dimensional wood waste with occasional miscellaneous waste. 5 m^3 waste materials.
• Poured Waste Concrete	•6 m diameter area of poured waste concrete (8 m^3)
• Metal Debris	• 12 m^3 metal wastes including metal conveyors, large iron plates, metal gasket, ladder, and 1 empty 205L drum over an 8m x 3m area.
• Occasional Scattered Metals	•Occasional scattered metals were noted throughout the Site estimated at 2 m^3 in volume. Collapsed silo measures 6 m by 3 m and is in addition to the scattered metal wastes.

7.1.4 Soil Vapor Screening

Soil samples collected from within and below waste materials were screened for soil vapor headspace using an RKI Eagle™ combustible gas indicator (CGI). All vapour headspace measurements were between 0 and 45 ppm, therefore; soil vapour headspace concentrations did not suggest the presence of PHCs and/or VOCs.

7.1.5 Laboratory Analysis

A total of nine (9) soil samples including one (1) duplicate, three (3) surface water samples, and one (1) groundwater sample, were collected and analyzed for COPCs. The analytical results were screened against the applicable criteria detailed in Section 7. Media with analytical results indicating concentrations greater than the applicable criteria are presented on Figure 3.

<u>Soil</u>

The pH of the samples collected from the former concrete plant property ranged from 7.6 to 9.1, with an average pH of 8.4 indicating slightly alkaline soils.

Concentrations of copper were greater than the applicable criteria in the subsurface soil sample collected from BH14-9 (BH9-1). Concentrations of copper were not found to be greater than commercial land use guidelines, and were only marginally greater than the local background concentrations. Concentrations of all other metals were found to meet the applicable guidelines. The indicated elevated copper concentration at BH9-1 is anticipated to be within the natural variability present at the Site and therefore is not retained as a COPC for the concrete plant.

Concentrations of the PAHs constituents Phenthanrene and Benzo(b&j)fluoranthene were found to exceed the applicable guidelines for industrial land use in soils beneath the treated wood waste pile (TP1-1). Concentrations of PAH in all other samples were below the applicable guidelines, and/or laboratory detection limits. PAH is retained as a Contaminant of Concern (COC) for surface soils in the treated wood waste area.

PHC fractions and VOCs were reported to be below applicable guidelines and laboratory MDL in all soils analyzed for these parameters, and are dismissed as COPCs.

Surface Water

Three (3) surface water samples collected from Guichon Creek up gradient, adjacent, and down gradient of the Site were analyzed for total metals, PAH, PHC, and VOC. Concentrations of all COPC were reported below the applicable guidelines, with all organic COPCs reported less than the laboratory Method Detection Limits (MDLs). Surface water is not retained as a media of concern at the former concrete plant.

Groundwater

One (1) borehole (BH9) was completed as a monitoring well (MW14-3) and sampled for dissolved metals, PAH, PHC, and VOC. Concentrations of aluminum were greater than the FIGWQ guidelines for commercial and industrial land use in the initial groundwater sample. Follow-up groundwater sampling did not identify concentrations of any dissolved metals of concern.

Concentrations of all other analytes were below the applicable guidelines; however, there were detectable concentrations of naphthalene and toluene in the March 2014 groundwater sample. Follow-up May 2014 sampling results reported concentrations less than the MDL for these analytes.

7.1.6 Summary and Discussion

A limited volume of waste materials generally consisting of metal debris and wood waste were identified at the former concrete plant. The presence of PAH contaminated soil was confirmed at the treated wood waste (APEC 1). Delineation of the PAH contaminated soils was not achieved; however, is anticipated to be limited to shallow soils underlying the treated wood debris. The treated wood waste area is retained as AEC 1. Contaminated soils were not encountered at the remaining APECs. Based on the absence of contaminated soil, APECs 2 through 5 were dismissed.

Detectable concentrations of naphthalene and toluene were reported in groundwater at MW14-3 located down gradient of the former concrete plant building area (APEC 6) in the March 2014 groundwater sampling event. Dissolved aluminum was also reported at a concentration greater than the FIGWQ. It was suspected that the trace concentrations of toluene and naphthalene could be artifacts from the ODEX drilling process[3] given the significant depth to groundwater and absence of soil contamination identified. A second round of groundwater sampling was conducted in May 2014 to confirm the initial results. The follow-up groundwater sampling did not detect measurable concentrations of aluminum, naphthalene or toluene. As such, the indicated detections from March 2014 were concluded to be an artifact of drilling and have been shown by the May 2014 sampling to have attenuated. It is standard industry practice to complete two (2) compliant sampling events to definitively dismiss these COPC detections; however, as the LNIB is not seeking specific approvals and the high probability that the previous detections were a drilling artifact, no further investigation is recommended at this time and APEC 6 is dismissed.

[3] ODEX requires the use of compressed air to drive the down-hole air rotary bit and is susceptible to cross contamination from any leaks or contamination within the compressor unit.

7.2 MAMEET LAKE IR#1 FORMER SERVICE STATION AND ASPHALT PLANT

The area of the gravel pit operation on Lot 265 encompasses the former Mojos service station on the southeast portion, the former workshop (in current use as a warehouse) on the northeastern portion, the asphalt plant due east of the service station, a diesel AST between the service station and warehouse, and gravel pit on the western portion of the property. The location of the former asphalt plant did not appear in use, and was located on the northern portion of the property, west of the warehouse. Details of the subject property are provided on figures 4 and 5, in Appendix A.

7.2.1 Structures

The blue former service station building is deteriorated and no longer in use, and measures approximately 20 m by 7 m. The building is generally empty with few fixtures remaining. The building is of wood frame construction on concrete foundation, with wood paneling, vinyl tiles, ceiling tiles, fluorescent lighting, and electric thermostats. A series of in-ground pipes were noted in the front office, from the former mixing station from the read-mix plant. The southern portion of the building water observed to contain a concrete lined workshop. Heat was provided by electric baseboard, and the building is insulated with fiberglass batting. The septic field for the building is reported to be located off the southwest portion of the building. The building was serviced by municipal water main, with a hydrant and pump located on the southeast corner of the building.

The warehouse measures approximately 32 m by 12 m and is serviced by overhead electrical. The building is of wood frame and slab on grade construction, and contains four bays accessible from the south and west. The two (2) west bays are used and maintained by the LNIB public works department, and contained a variety of materials such as steel pipe, tires, timbers, lights, rubber hose, etc. The east bays are privately leased, and were observed to be empty at the time of the Site visit. It is reported that the easternmost bay was used to repair logging trucks previously to being emptied. No hazardous materials storage or generation of wastes was observed. Building materials for the warehouse consisted generally of unfinished drywall, fluorescent lighting, fiberglass batt insulation, over concrete floor. No floor drains were observed.

A 3000 L double walled diesel AST is located to the north of the service station. The tank is registered (EC-00012460) and is in good condition over an 8 m by 8 m concrete pad. Tank and support structures were free of rust weeps, and dents, the contents and hazards clearly labeled, fill and vent lines clear of obstruction, with handles locked and automatic shut-offs. The tank is generally compliant with regulation, with the exception that there are no vehicular impact measures in place.

The portable asphalt plant consists of four (4) trailers with different components, including a liquid asphalt cement tank, drum mixer and blower, ASTs, and a generator. The plant also contains a conveyor and loading silo, aggregate feed bins, and two metal-lined in ground tanks, not on trailers. Each component is transportable and on its own trailer or flat deck, and spread over an approximate 400 m^2 area.

7.2.2 Surface Conditions

The former Mojos Service Station site was generally snow covered during the morning, but was partially melted by afternoon, allowing for visual confirmation of surface conditions in most areas.

APEC 1: Asphalt Plant

Spotty soil stains, storage of fuels and oils, and miscellaneous debris were noted at various locations throughout the plant footprint in small quantities. Spotty soil stains were noted beneath the storage silo (40 m^2), trailers with ASTs (24 m^2) and along the west side of the liquid asphalt cement tank and drum mixer (60 m^2). Additional spotty stains (<0.5 m^2) were noted throughout the plant footprint (~400 m^2). Soils consisted of sand and gravel with cobbles at depth. Boreholes located within the plant area (BH4, BH6 and BH7) did not exhibit olfactory evidence of impacts to soil.

APEC 2: Former Asphalt Plant

The former asphalt plant location was reviewed in the field, and did not appear in use. Occasional storage of miscellaneous metals including empty ASTs were observed near the boundaries of the area, totaling < 10 m^3 of metal waste. No staining or olfactory evidence of impact were noted in this area. Given the historical remediation of the area (Pers. Comm. Joe Cuzecrea) and inactive status, the former asphalt plant was dismissed as an APEC.

APEC 3: Recycled Asphalt Pile

A large pile of recycled asphalt was noted in the gravel pit to the west of the asphalt plant and service station measuring 80 m in length, 2 m in height, and approximately 10 m in width. The asphalt was located over bare sands and gravels.

APEC 4: Former Service Station (Mojo's)

The front (east) side of the service station consists of a treated wood and steel frame weigh scale that is still in operation. To the east of the scale is a concrete pad over the former underground tank nest. A compacted gravel drive surrounds the station on all other sides, with sand and gravel soils observed between the drive and building. On the south and west side of the building small amounts of debris were noted and consist generally of the remnants of the former ready-mix concrete plant, including the loading area, two (2) concrete foundations, pre-cast concrete pieces (storm sewer collars) and rubber hoses. A piping system was noted on the support of the former ready-mix plant, leading into the service station building to the mixing station. GPR survey of this and the surrounding area did not identify the presence of additional subsurface features. There are approximately 25 m^3 of concrete waste, and 2 m^3 of miscellaneous metals and rubber debris. No areas of soil staining or olfactory evidence of impacts were observed.

APEC 5: Former Maintenance Building / Warehouse

The warehouse consists of four (4) garage bays, accessible through doors on the south and west side of the building. A concrete apron is located adjacent to the southern portion of the building. Storage of fuels, oils, and miscellaneous vehicle and machinery parts were observed on the southwest and southeast corners of the building with spotty stains spread over an approximate 20 m^2 area on concrete. Storage of machinery and timber was noted in the cleared gravel area to the

north of the warehouse. A borehole installed down gradient of the warehouse did not have olfactory evidence of impacts to subsurface soils.

APEC 6: Diesel AST

The 3000 L diesel AST is located on a concrete pad that drains to the north. Spotty soil stains were noted on sands and gravels adjacent to the northeast corner of the pad. These soil stains did not appear to be from diesel spills, rather incidental leaks from individual vehicles, spread over a 5 m^2 area. The borehole advanced down gradient (BH8) did not exhibit evidence of impacts past 0.1 m.

7.2.3 Hydrogeology

In 2002/2003 nine (9) boreholes were installed at the property, with four (4) completed as groundwater monitoring wells. Two (2) of the monitoring wells, MW2 and MW4 were found to be dry. Depth to groundwater was 19.5 m (MW1) and 15.48 m (MW3) bsg in 2003. All wells were dry at the time of this investigation.

A total of eight (8) boreholes were advanced on the former service station and asphalt plant property, up to depths of 28 m bsg. Two (2) of the boreholes (BH1 and BH3) were completed as monitoring wells. Groundwater was encountered at depths of 21.3 m bsg in BH1 (MW14-1), and 22 m bsg in BH3 (MW14-2). Soil stratigraphy in these locations consisted of sand and gravel, with cobbles at depth. Borehole BH2, down gradient of the warehouse was advanced to 28.3 m bsg, with no groundwater encountered. Soils in this location were observed to consist of alternating layers of silts and gravelly sands, over inferred bedrock encountered at 21 m bsg, and were not consistent with soil types observed on the southern portion of the Site.

A level survey was completed for the groundwater wells at the Site. As the historical wells were observed to be dry, there were only two (2) points of reference for contour mapping of the water table. Based on groundwater elevations and general topography of the Site groundwater is anticipated to be flowing south toward lower elevation and the Nicola River.

7.2.4 Soil Vapor Screening

Soil samples collected from within and below waste materials were screened for soil vapor headspace using an RKI Eagle™ combustible gas indicator (CGI). All vapour headspace measurements were between 0 and 35 ppm, therefore; soil vapour headspace concentrations did not suggest the presence of PHCs and/or VOCs.

7.2.5 Laboratory Analysis

Total of nine (9) soil samples, including one (1) duplicate; and three (3) groundwater samples, including one (1) duplicate, were collected from the property. Samples were analyzed for CPOCs including metals, PAH, PHC, and/or VOC. Analytical results are detailed by APEC below and presented on Figure 5.

APEC 1: Asphalt Plant

Three (3) boreholes were advanced within spotty soil stains at the asphalt silo (BH7), AST (BH6 and Drum Storage (BH4). Samples were collected from below surficial impacts between 0.3 to 0.9 m bsg and were found to meet applicable criteria for all COPC.

One (1) groundwater sample (MW14-1) was collected down gradient of the asphalt plant in March 2014. Analytical results indicate concentrations of dissolved silver and toluene, greater than applicable FIGWQ guidelines. Concentrations of naphthalene and xylene were also detected in the sample. A duplicate sample collected from MW14 indicated consistent COPC concentrations. All other organic COPCs were found to be below the MDL and applicable guidelines.

Follow-up monitoring was completed in May 2014 at MW14-1 for metals, BTEX and naphthalene. In the second round of monitoring concentrations of dissolved silver, PAH and BTEX were reported below the MDL and applicable guidelines.

APEC 3: Recycled Asphalt Pile

One (1) borehole (BH5) was advanced at the toe of the gravel pit to investigate the potential for leachate from the recycled asphalt pile. A sample of the asphalt itself was also collected and submitted to a synthetic leachate procedure (SPLP) for PAHs to determine potential leachability. Concentrations of metals and PAH in the soil sample were found to meet applicable guidelines. The asphalt SPLP results indicated leachable PAH constituents concentrations less than MDLs.

APEC 4: Former Service Station (MoJo's)

One (1) borehole, BH3 was advanced in the area of the former tank nest at the service station. Sample BH3-3 was collected from a depth of 2.7 – 3.5 m bsg, consistent with the anticipated grade of the former tank nest. Concentrations of all COPCs were reported below applicable guidelines with organic constituents reported less than MDLs.

One (1) groundwater sample, MW14-2, was collected and analyzed for PHC, PAH, BTEX and dissolved metals. All COPCs were reported at concentrations less than the applicable guidelines, and also found to meet applicable guidelines.

APEC 5: Former Maintenance Building / Warehouse

One (1) borehole (BH2) was advanced down gradient of the warehouse, and samples BH2-1 and its duplicate BHDUP3, from 0.7 to 1.5 m bsg was submitted for analysis of all COPCs. Concentrations of copper were found to marginally exceed residential land use guideline and local background in both samples, but met the guideline for commercial land use. The indicated elevated copper concentration at BH2-1 is anticipated to be within the natural variability of soil conditions present at the Site and therefore is not retained as a COPC.

APEC 6: Diesel AST

One (1) borehole, BH8, was advanced down gradient of the diesel AST to a depth of 1.5 m bsg in an area of petroleum hydrocarbon staining. Sample BH8-1 collected from 0.3 to 0.6 m bsg was submitted for analysis, and found to meet all applicable guidelines.

7.2.6 Summary and Discussion

Small volumes of waste materials including miscellaneous metals, concrete wastes, machinery and spotty surficial staining are located throughout the gravel pit property, and are typical of commercial operations. These materials do no present a significant environmental risk, rather are a general housekeeping issue.

Contaminated soil was not identified by this investigation. Based on the absence of soil contamination, APECs 2 through 6 are dismissed.

Concentrations of silver and toluene greater than the FIGWQ guidelines were identified in groundwater at MW14-1 located down gradient of the asphalt plant area (APEC 1). Naphthalene and xylenes concentrations were also detected at concentrations less than applicable guidelines. It was suspected that the trace concentrations of toluene and naphthalene could be artifacts from the ODEX drilling process[4] given the significant depth to groundwater and absence of soil contamination identified. A second round of groundwater sampling was conducted in May 2014 to confirm the initial results. The follow-up groundwater sampling did not detect measurable concentrations of silver, naphthalene, toluene or xylenes. As such, the indicated detections from March 2014 were concluded to be an artifact of drilling and have been shown by the May 2014 sampling to have attenuated. It is standard industry practice to complete two (2) compliant sampling events to definitively dismiss these COPC detections; however, as the LNIB is not seeking specific approvals and the high probability that the previous detections were a drilling artifact, no further investigation is recommended at this time and APEC 1 is dismissed.

7.3 JOEYASKA IR#2 GODEY PIT SALT CONTAMINATION

7.3.1 Groundwater Monitoring

Ten (10) monitoring wells have been installed by MoT on the Joeyaska Reserve to investigate the off-site migration of salt contaminated groundwater from the Godey Pit. Eight (8) of the ten (10) wells were located and monitored and sampled. Monitoring results are presented in the table below:

Table D. Groundwater Monitoring Results – Joeyaksa IR#2

	Depth to Water (m)	Depth to Bottom (m)	pH (pH Units)	Conductivity (uS/cm)	Temperature (°C)
MW05-12	16.47	18.67	8.65	1.88	9.7
MW07-28S	2.04	5.03	8.25	2.620	7.4
MW07-28D	1.56	11.27	8.77	0.510	7.9
MW07-29D	0.00	7.16	8.91	0.419	8.2
MW07-32S	12.67	13.85	8.35	0.827	7.6
MW07-32D	12.65	16.35	8.33	0.930	8.1

[4] ODEX requires the use of compressed air to drive the down-hole air rotary bit and is susceptible to cross contamination from any leaks or contamination within the compressor unit.

	Depth to Water (m)	Depth to Bottom (m)	pH (pH Units)	Conductivity (uS/cm)	Temperature (°C)
MW08-42	12.53	17.16	9.05	0.796	2.6
MW08-43	20.49	21.9	8.57	1.130	8.2
MW08-44	Well not located				
MW08-45	Well not located				

7.3.2 Hydrogeology

Measured depths to groundwater across the Site ranged from at or just below surface grade on the southeastern portion of the Joeyasksa Reserve, and up to 21.9 m bsg adjacent to the Godey Pit. Based on the recent monitoring event, potentiometric groundwater elevations in the Joeyaska monitoring wells range from approximately 676 m (background well at MW08-42) to 650 m (down gradient wells at MW07-28), indicating a southwestern groundwater flow.

It was noted that the potentiometric elevations in the deeper monitoring wells (MW07-28D and MW07-32D) were higher than the adjacent wells installed in the shallow aquifer, suggesting an upward hydraulic gradient in the lower aquifer. In the case of MW07-29D, installed in the deeper aquifer, the potentiometric surface was at grade with the surface.

7.3.3 Laboratory Analysis

A total of nine (9) samples including one (1) duplicate, were collected and analyzed for dissolved metals and anions. The analytical results were screened against the applicable criteria (detailed in Section 7) and are summarized in Tables 6 and 9 included in Appendix D, with analytical results indicating concentrations greater than the applicable criteria are presented on Figure 7.

<u>Groundwater</u>

Concentrations of sodium in groundwater were greater than the applicable criteria in two (2) wells, MW05-12 within the Godey Pit, and MW07-28S the most down-gradient well on the Site. Concentrations of sodium were greater in the down gradient well than those identified in the Pit, and ranged from 308 mg/L to 18.9 mg/L. Concentrations of sodium in the deeper aquifer met the applicable guideline of 200 mg/L .

Chloride concentrations were found to exceed the applicable guidelines of 100 mg/L (Irrigation), 120 mg/L (Freshwater) and 230 mg/L (FIGWQ) in both the shallow and deep aquifers across the Site, with concentrations greatest in MW05-12 (387 mg/L) and MW07-28S (609 mg/L). Concentrations of chloride were generally higher than those of sodium. Fluoride was also noted to exceed guidelines in wells MW05-12, MW07-28S/D, MW07-29D, and up gradient wells MW08-42 and MW08-43.

Concentrations of dissolved metals were found to meet the applicable criteria in all wells sampled.

7.3.4 Surface Water

SNC's response letter to LNIB's third party review (pg. 8) provided clarification that *"surface water on the Joeyaska Reserve was not investigated for metals as there is no surface water present on the Reserve. The location of Diamond vale Brook shown on historical mapping has been corrected on current mapping"*. Columbia undertook a brief field review to verify the location of Diamond vale Brook on reserve while looking for monitoring wells associated with the Godey Pit and was unable to locate the brook on the reserve as no evidence of surface water or vegetation suggestive of ephemeral water inundated soils was found at the time of the assessment.

7.3.5 Summary and Discussion

Overall the general trend of sodium and chloride concentrations in groundwater were consistent with the previous investigations completed by MoT. Concentrations of dissolved metals were found to meet the applicable criteria in all wells sampled. This supports MoT's position that the dissolved metals impacts identified in the previous MoT investigations are not related to the salt contamination originating from the Godey Pit.

The Godey Pit is retained as an AEC. This contaminated site is under active investigation by MoT following the BC Ministry of Environment (MoE) procedures with respect to the Provincial Contaminated Sites Regulation and Environmental Management Act. MoT has submitted a remediation plan supporting an application for an Approval in Principal (AIP) and Wide Area Contaminated Site designation. The remediation plan calls for monitored natural attenuation with gradual source removal and administrative controls to mitigate unacceptable risks. Estimates for monitored natural attention by MoT are up to 25 and 41 years, respectively, for sodium and chloride concentrations in groundwater to drop to acceptable levels. Theoretically these attenuation periods may be reduced if a more aggressive remedial strategy were undertaken such as complete source removal on a quicker timeline. It is our understanding that an AIP has not been issued to date and consultation by MoT with the MoE affected landowners is ongoing.

The Joeyaksa Reserve is under Federal jurisdiction; therefore, the BC MoE process and Wide Area Contaminated Site designation would not apply to the contamination on the reserve. There is no parallel prescriptive Federal process. A unique legal agreement between AANDC/LNIB and MoT outlining expectations with milestones and remediation endpoints, responsibilities, and consideration is required to address AANDC and the LNIB's liabilities associated with the contamination. Legal council should be sought on this issue. The environmental due diligence completed by MoT to support the Wide Area Contaminated Site designation is anticipated to meet the technical requirements for any AANDC approval, assuming the remediation plan is acceptable to LNIB stakeholders.

7.4 DATA REDUCTION AND VALIDATION

7.4.1 Field Quality Assurance/ Quality Control

Precision

The relative percent difference (RPD) of analytical results for duplicate samples X_1 and X_2 is defined as:

$$RPD = \left| (X_1 - X_2) / \text{mean}(X_1, X_2) \right| * 100\%$$

Where field duplicates were collected, RPD calculations were completed. The results of the RPD calculations for soil are included as Tables 9 and 10. In cases where the concentration of a parameter was less than five (5) times the method detection limit, the RPD was not calculated since these low concentrations are not typically accurate. The recommended RPD data quality objectives (DQOs) were obtained from the BC Environmental Laboratory Manual (BCELM), and are specific to samples analyzed in BC under specific BC analytical methods. Samples were analyzed by CARO Analytics of Richmond, BC. Recommended RPD values are as follows:

- Soil Metals – 30%
- High Variability Metals in Soil (Ag, Al, Ba, Hg, K, Mo, Na, Pb, Sn, Sr, Ti) – 40%
- PAH in Soil – 50%
- EPH/VOC in Soil – 40%
- Metals in Water – 20%
- Organics in Water – 30%

The average, median, maximum, and minimum relative percent differences (RPDs) of the blind field duplicates are presented in the table below.

Table E. Relative Percent Differences (RPDs) of Duplicate Analyses

Sample Type	# of Duplicates	Average RPD (%)	Median RPD (%)	Maximum RPD (%)	Minimum RPD (%)
Soils					
Inorganic (Metals)	2	7	4	33	0
Organic (PAH, F2-4, VOC)	2	-	-	-	-
Water					

Sample Type	# of Duplicates	Average RPD (%)	Median RPD (%)	Maximum RPD (%)	Minimum RPD (%)
Inorganic (Metals)	2	2	1	7	0
Organic (PAH, F2-4, VOC)	2	11	6	23	2

The following discussion summarizes the results of the QA/QC program:

Soil Results:
As shown in Table 10a in Appendix D, RPDs observed in the two (2) duplicate data sets collected were calculated at an average of 7%, which is below the stated metals in soil DQO of 30%. The RPDs ranged from 0% to 33%, exceeding the metals DQO of 30% in one instance. RPDs were not calculated for Organics in soils, as all organic results reported were below the MDL.

Water Results
RPDs for the two (2) duplicate analyses in water are provided in Table 10b. RPDs reported for inorganics in water ranged from 0% to 7%, and did not exceed the DQO of 20%. RPDS calculated for Organics in water ranged from 2% to 23%, with an average of 11%, and did not exceed the DQO of 30% in any instance.

7.4.2 Lab Quality Assurance/ Quality Control

A QA/QC review of the laboratory data was undertaken. The laboratory QA/QC program included evaluating laboratory analytical method blanks, analysis of reference materials, laboratory replicate samples and laboratory analytical spikes for soil analysis. The results of the internal laboratory QA testing are provided on the laboratory reports are included in Appendix E.

Split blank and lab duplicates for PAH returned naphthalene surrogate recovery outside of control limits, with RPD values for duplicate analysis outside the acceptable range for soils. Napthalene recovery in the reference material for the same QC batch was also found to be outside the control limits. Data was considered acceptable based on recovery of other surrogates. It should be noted that this could lead to a potentially high bias in naphthalene results in soil; however, as naphthalene was reported below the MDL in all cases, the data is considered acceptable.

The method blanks, reference materials, spikes, and RPDs for analyses in water were all within the acceptable range of variance.

It is concluded that, based on the laboratory data generated and the laboratory's outlined QA/QC program, the laboratory soil and water analytical data can be relied upon for the purposes of this

Site investigation. The RPDs of the lab replicates indicate inherent uncertainty in soil characterization due to heterogeneity in contaminant distribution on the sample volume scale.

8.0 NCSCS CLASSIFICATION UPDATE

The CCME NCSCS evaluates contaminated sites according to their current or potential adverse impact on human health and the environment allowing for prioritization of contaminated sites by using an additive numerical method that assigns scores to a number of site characteristics.

The Godey Pit Salt Contamination is an AEC being actively managed by MoT, and as such is not retained for management under the Federal contaminated sites system. NCSCS for this site is not required.

Contaminated soil was identified on the Pipseul IR#3 associated with treated wood waste. This AEC was scored according to the NCSCS as summarized below. Complete NCSCS worksheets are included in Appendix F.

Site Letter Grade	D
Certainty Percentage	81%
% Responses that are "Do Not Know"	10%
Total NCSCS Score for site	40.4
Site Classification Category	3

The Treated wood waste area on the Pipseul IR#3 was classified as Class 3 - Low Priority for Action (Total NCS Score 37 - 49.9).

Class 1 - High Priority for Action (Total NCS Score >70)
Class 2 - Medium Priority for Action (Total NCS Score 50 - 69.9)
Class 3 - Low Priority for Action (Total NCS Score 37 - 49.9)
Class N - Not a Priority for Action (Total NCS Score <37)
Class INS - Insufficient Information (>15% of responses are "Do Not Know")

No AECs were identified at Mojos Gas Station on the Nicola Mameet IR#1 Reserve and therefore no NCS Score was required for this location.

9.0 CONCLUSION & RECOMMENDATIONS

The following table summarizes the Areas of Potential Environmental Concern, whether they were retained as an APEC or Area of Environmental Concern, based on sampling results, and provides comments and recommendations for further action if required.

Table F: Summary of APECs and AECs

APEC	Retained as APEC of AEC	Comment/Recommendation
Pipseul IR#3		
APEC 1 – Treated Wood Waste	Yes – AEC 1	Off-site disposal of treated wood waste and PAH impacted soil. In-situ delineation of contaminated soil recommended at time of waste removal, followed by contaminated soil excavation and off-site disposal with confirmation sampling.
APEC 2 – Metal Debris Pile	No	No further investigation recommended at this time.
APEC 3 – Poured Concrete Waste	No	No further investigation recommended at this time.
APEC 4 – Hydrocarbon Containers	No	No further investigation recommended at this time.
APEC 5 – Former Silo	No	No further investigation recommended at this time.
APEC 6 – Former Building Footprint	No	No further investigation recommended at this time.
NICOLA MAMEET LAKE IR#1		
APEC 1 – Current Asphalt Plant	No	No further investigation recommended at this time.
APEC 2 – Former Asphalt Plant	No	No further investigation recommended at this time.
APEC 3 – Recycled Asphalt Pile	No	No further investigation recommended at this time.
APEC 4 – Former Service Station (Mojo's)	No	No further investigation recommended at this time.
APEC 5 – Former Maintenance Building / Warehouse	No	No further investigation recommended at this time.
APEC 6 – 3000L Diesel AST	No	No further investigation recommended at this time.

APEC	Retained as APEC of AEC	Comment/Recommendation
JOEYASKA IR#2		
APEC 1 – Godey Pit Salt Contamination (Off-site)	Yes – AEC 2	Conduct internal stakeholder meetings with band members, particularly the affected parties of the Joeyaska Reserve to gather input into this process and confirm the land use assumptions applied to the risk assessments are valid. Traditional knowledge should be sought with respect to species potentially extirpated from the reserve due to salt impacts, particularly amphibians. Continue engagement with MoT until a remediation plan is approved by MoE with respect to MoT's application for a Wide Area Contaminated Site Designation. Seek a legal agreement outlining MoT's responsibility to LNIB/AANDC for the contamination.

In addition to the recommendations above, application of environmental best management practices (BMPs) with respect to the storage and handling of hazardous materials and solid wastes is recommended to reduce the potential for future contaminated site liabilities. Furthermore, third party land leases of reserve lands should be reviewed and updated to include sufficient legal clauses as to protect the LNIB from environmental liabilities incurred by lessees.

10.0 REPORT USE & LIMITATIONS

This Phase II ESA Report has been prepared for the exclusive use of the Lower Nicola Indian Band (LNIB) and Aboriginal Affairs and Northern Development Canada (AANDC) and it is intended to provide the LNIB and AANDC with an understanding of the potential and actual environmental contamination by hazardous materials at the property assessed. The scope of services performed in execution of this investigation may not be appropriate to satisfy the needs of other users, and any use or re-use of this document or the findings, conclusions, or recommendations presented herein is at the sole risk of said user. The findings and recommendations in this report are based upon data and information obtained during Site visits by Columbia personnel to the Site identified herein and the condition of the Site on the dates of such visits, supplemented by information and data obtained by Columbia described herein.

The findings and recommendations contained in this report are based on the expertise and experience of Columbia in conducting similar site assessments. In assessing the Site, Columbia has also relied upon representations and information furnished by individuals noted in the report with respect to existing operations and property conditions and the historical uses of the properties to the extent that the information obtained has not been contradicted by data obtained from other sources. Accordingly, Columbia accepts no responsibility for any deficiency, misstatements or inaccuracy contained in this report as a result of misstatements, omissions, misrepresentations or fraudulent information provided by others.

It should be recognized that this study was not intended to be a definitive investigation of contamination at the site. Given that the limited scope of services for this assessment as stated in the proposal for the Phase II ESA, it is possible that currently unrecognized contamination may exist at the Site and, if present, that the levels of contamination may vary across the Site. Opinions and recommendations presented herein apply to site conditions existing at the time of our assessment and those reasonably foreseeable. Should environmentally significant changes to the Site or additional information become available, Columbia should be provided the opportunity to review this information/data and amend our opinions, as appropriate. Fungi, mycotoxins, bioaerosols and other indoor air quality issues were not included in the scope of work.

Columbia's objective is to perform our work with care, exercising the customary thoroughness and competence of earth science, environmental, and engineering consulting professionals, in accordance with the standard for professional services at the time and location those services are rendered. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liability on a particular site. Therefore, Columbia cannot act as insurers and cannot "certify" or "underwrite" that a site is free of environmental contamination, and no expressed or implied representation or warranty is included or intended in our reports, except that our work was performed, within the limits prescribed by our client, with the customary thoroughness and competence of our profession.

11.0 PROFESSIONAL STATEMENT

The information compiled for this document has been prepared in accordance with the requirements of the *Environmental Management Act* and its Regulations.

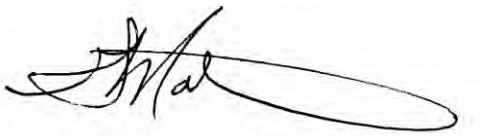
Columbia states that the persons signing this document have demonstrable experience in the assessment of similar sites. The work has been performed by Columbia staff under the guidance and supervision of the signatories below.

If you require any additional information or have any questions, please do not hesitate to contact the undersigned.

Report prepared by:

Columbia Environmental Consulting Ltd.

Summer Zawacky, B.Sc.
Field Assessor



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Project Manager

for

Dave Diplock, P.Eng.
Senior Environmental Engineer

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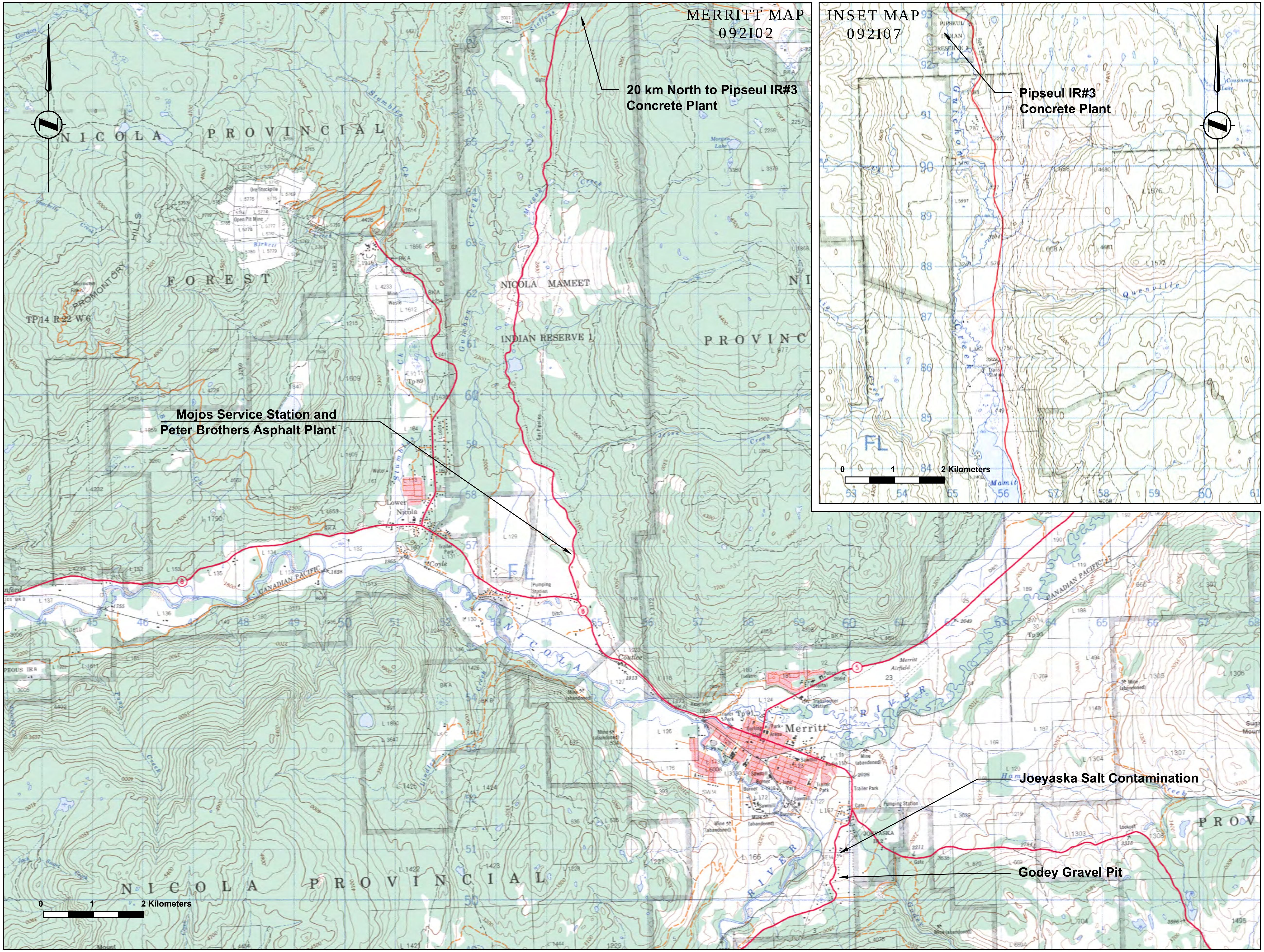
APPENDIX A

FIGURES



LEGEND

NOTES:
1: 50 000 NTS Mapsheets
092I02 Merritt
092I07 Mamit Lake

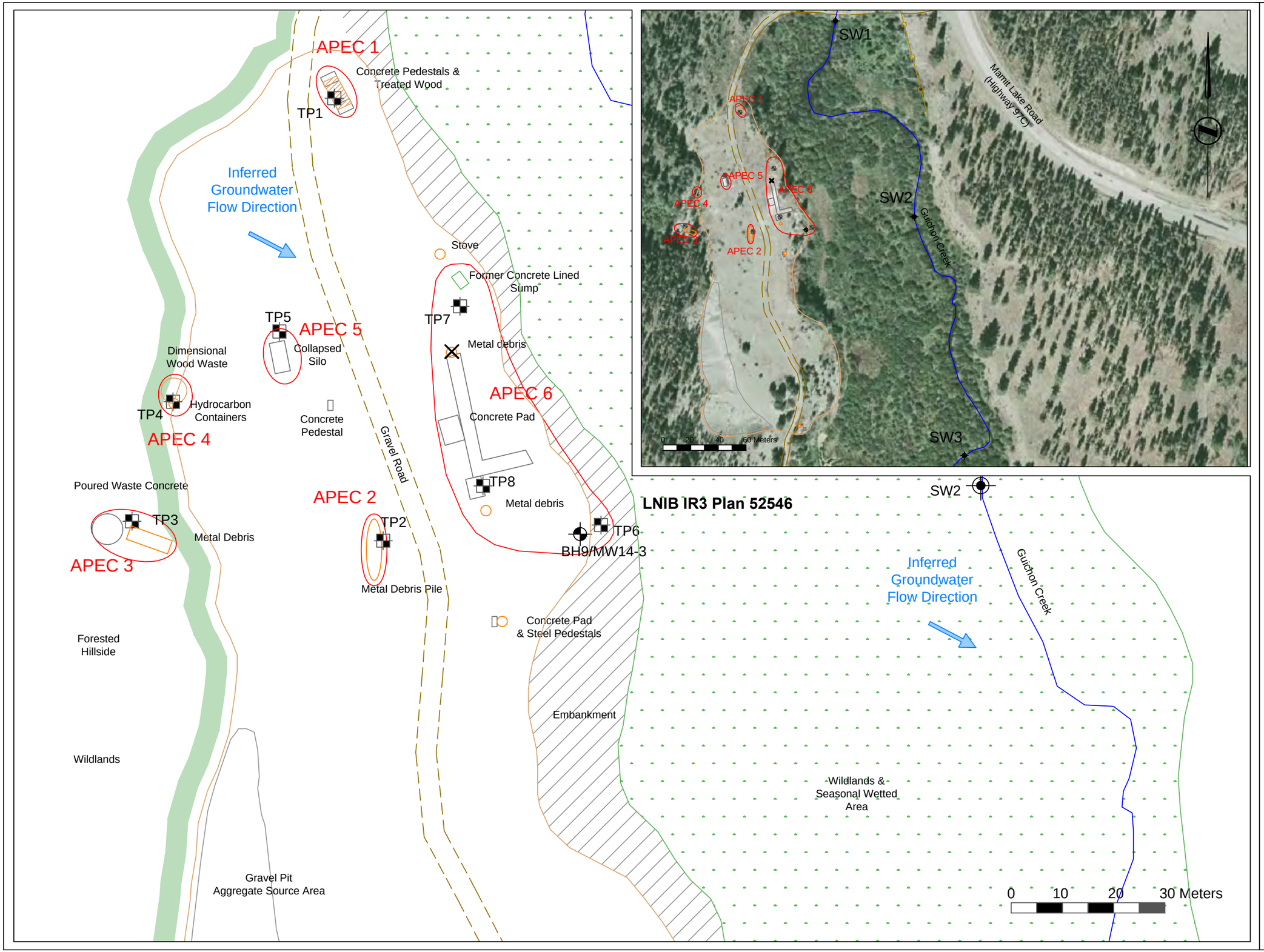
No.	Revision/Issue	Date

COLUMBIA ENVIRONMENTAL

Figure 1
Site Locations

Phase II
Environmental Site Assessment
Nicola Mameet IR #1, Pipseul IR#3, & Joeyaska IR#2

Project	Sheet
13-0493	1
Date: March 2014	
Drawn By: SZ / Checked By: GM/ DD	



LEGEND

- SURFACE DEBRIS
- SUMP
- SURFACE WATER
- CONCRETE FOUNDATIONS
- WOOD WASTE
- FENCE
- GRAVEL ROAD
- RESERVE BOUNDARY
- WETLAND
- HILLSLOPE
- FORESTED HILLSLOPE
- AREA OF POTENTIAL ENVIRONMENTAL CONCERN
- AREA OF ENVIRONMENTAL CONCERN
- SURFACE / GROUNDWATER FLOW DIRECTION
- SURFACE WATER SAMPLE
- TEST PIT
- BOREHOLE

NOTES:

All elevations in metres (m)

Locations of site features were taken from:
1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

No.	Revision/Issue	Date

COLUMBIA ENVIRONMENTAL

Figure 2
Site Plan - Former Pipseul Concrete Plant

LNIB / AANDC
Phase II
Environmental Site Assessment
Pipseul IR #3

Project	14-0493	Sheet
Date	March, 2014	2
Drawn By: SZ	Checked By: DD	

TP1-1	0.3–0.6m bsg
Phenanthrene	0.095
Benzo(b&j)fluroanthene	0.236
IACR	2.527

APEC 1/AEC1

Concrete Pedestals & Treated Wood

TP1

Inferred Groundwater Flow Direction

Stove

Former Concrete Lined Sump

TP7

TP5

APEC 5

Collapsed Silo

Metal debris

Dimensional Wood Waste

TP4

Hydrocarbon Containers

APEC 4

Concrete Pedestal

APEC 6

Concrete Pad

Gravel Road

TP8

Metal debris

Poured Waste Concrete

APEC 2

TP3

Metal Debris

TP2

TP6

BH9/MW14-3

APEC 3

Metal Debris Pile

Concrete Pad & Steel Pedestals

Forested Hillside

Embankment

Wildlands

Wildlands & Seasonal Wetted Area

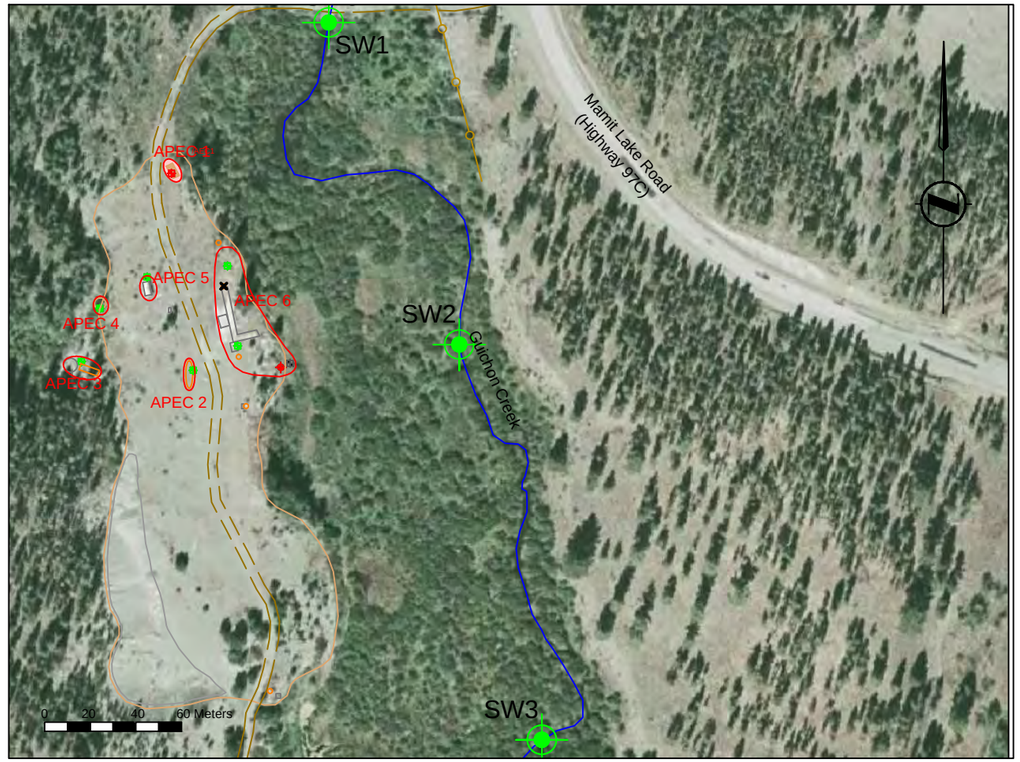
Gravel Pit Aggregate Source Area

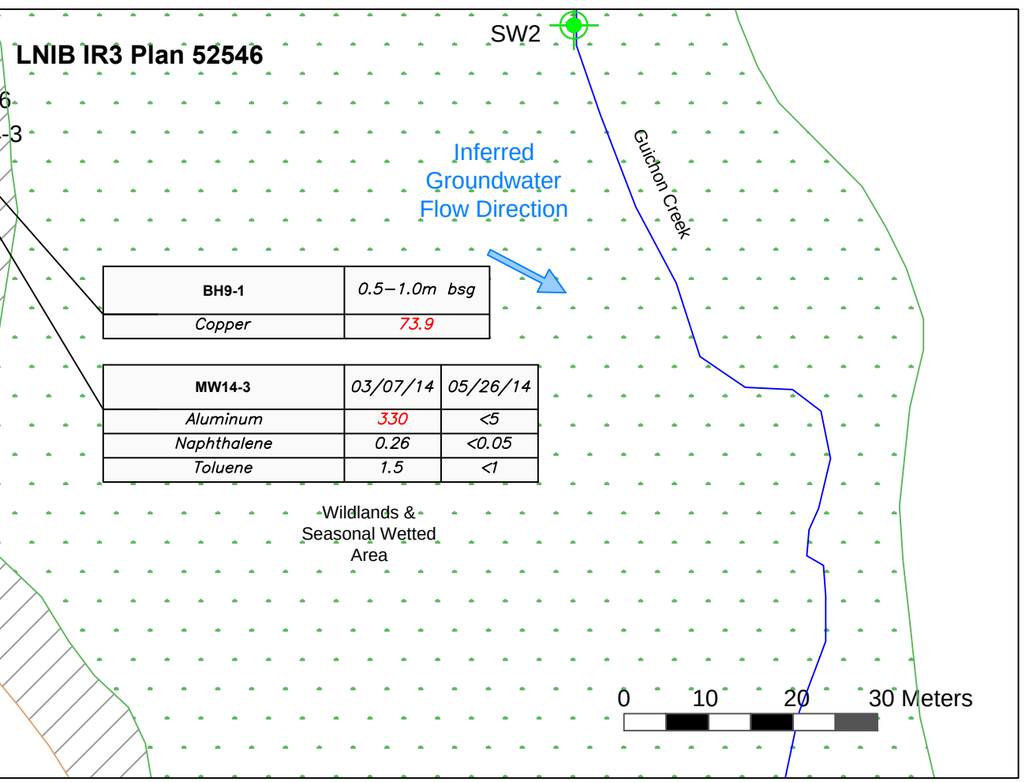
LNIB IR3 Plan 52546

BH9-1	0.5–1.0m bsg
Copper	73.9

MW14-3	03/07/14	05/26/14
Aluminum	330	<5
Naphthalene	0.26	<0.05
Toluene	1.5	<1

0 10 20 30 Meters





LEGEND

- SURFACE DEBRIS
- SUMP
- SURFACE WATER
- CONCRETE FOUNDATIONS
- WOOD WASTE
- FENCE
- GRAVEL ROAD
- RESERVE BOUNDARY
- WETLAND
- HILLSLOPE
- FORESTED HILLSLOPE
- AREA OF POTENTIAL ENVIRONMENTAL CONCERN
- AREA OF ENVIRONMENTAL CONCERN
- SURFACE / GROUNDWATER FLOW DIRECTION
- SURFACE WATER SAMPLE
- TEST PIT
- BOREHOLE
- SURFACE WATER < CCME
- SURFACE WATER > CCME
- TEST PIT SAMPLE < CCME
- TEST PIT SAMPLE > CCME
- BOREHOLE SAMPLE > CCME
- BOREHOLE SAMPLE < CCME

Location ID / Sample Depth (mbsg)

TP1-1	0.05–0.2
Phenanthrene	0.20

Parameter / Concentration(mg/kg) > CCME RL

NOTES:
All elevations in metres (m)

Locations of site features were taken from:
1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

No.	Revision/Issue	Date

COLUMBIA ENVIRONMENTAL

Figure 3
Sample Results - Former Pipseul Concrete Plant

LNIB / AANDC
Phase II
Environmental Site Assessment
Pipseul IR #3

Project	14-0493	Sheet
Date	March, 2014	3
Drawn By: SZ	Checked By: DD	

LEGEND

- SURFACE DEBRIS
- SOIL STAINIING
- AST
- HILL TOE / CREST
- FENCE
- GRAVEL ROAD
- OVERHEAD POWERLINE
- RESERVE LOT BOUNDARY
- SURFACE / GROUNDWATER FLOW DIRECTION
- HISTORICAL BOREHOLE
- HYDRANT
- 2014 MONITORING WELL / BOREHOLE
- SURFACE SOIL
- AREA OF POTENTIAL ENVIRONMENTAL CONCERN
- AREA OF ENVIRONMENTAL CONCERN

NOTES:

All elevations in metres (m)

Locations of site features were taken from:
1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

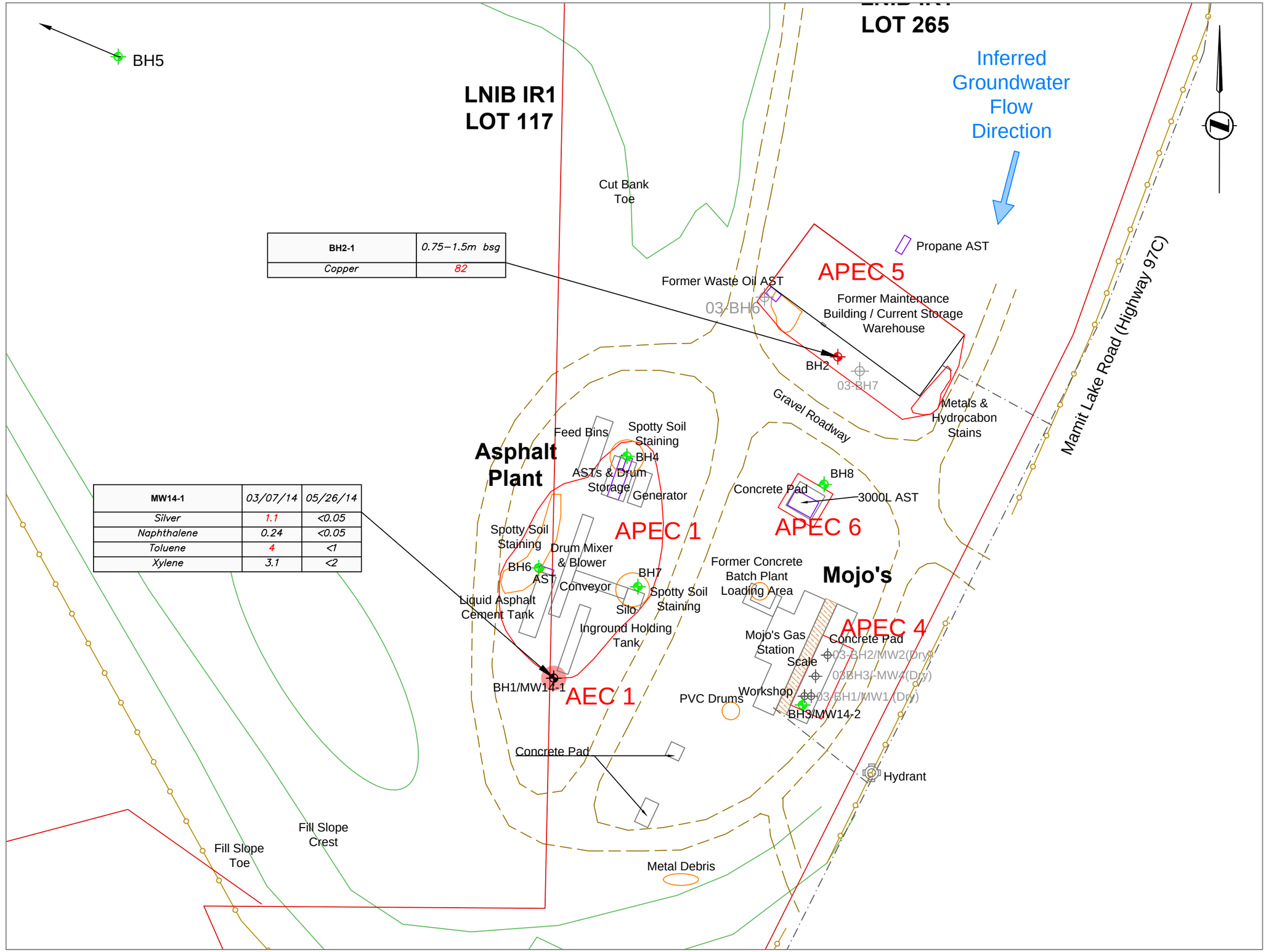
No.	Revision/Issue	Date

COLUMBIA ENVIRONMENTAL

Figure 4
Site Plan - Lot 265
Mojos Station and Peter Brothers Asphalt Plant

LNIB / AANDC
Phase II
Environmental Site Assessment
Nicola Mameet IR #1

Project	14-0493	Sheet
Date	March, 2014	4
Drawn By: SZ	Checked By: DD	



LEGEND

- SURFACE DEBRIS
- SOIL STAINIING
- AST
- HILL TOE / CREST
- FENCE
- GRAVEL ROAD
- OVERHEAD POWERLINE
- RESERVE LOT BOUNDARY
- SURFACE / GROUNDWATER FLOW DIRECTION
- SURFACE WATER < CCME
- SURFACE WATER > CCME
- TEST PIT SAMPLE < CCME
- TEST PIT SAMPLE > CCME
- BOREHOLE SAMPLE > CCME
- BOREHOLE SAMPLE < CCME
- BOREHOLE (HISTORICAL)
- HYDRANT
- AREA OF POTENTIAL ENVIRONMENTAL CONCERN
- AREA OF ENVIRONMENTAL CONCERN

Location ID	Sample Depth (mbsg)
TP1-1	0.05–0.2
Phenanthrene	0.20

Parameter; Concentration(mg/kg) > CCME RL

NOTES:

All elevations in metres (m)

Locations of site features were taken from:
1. Aerial photographs
2. GPS data points, and
3. Visual observations / adjustments of GPS waypoints and site features

No.	Revision/Issue	Date

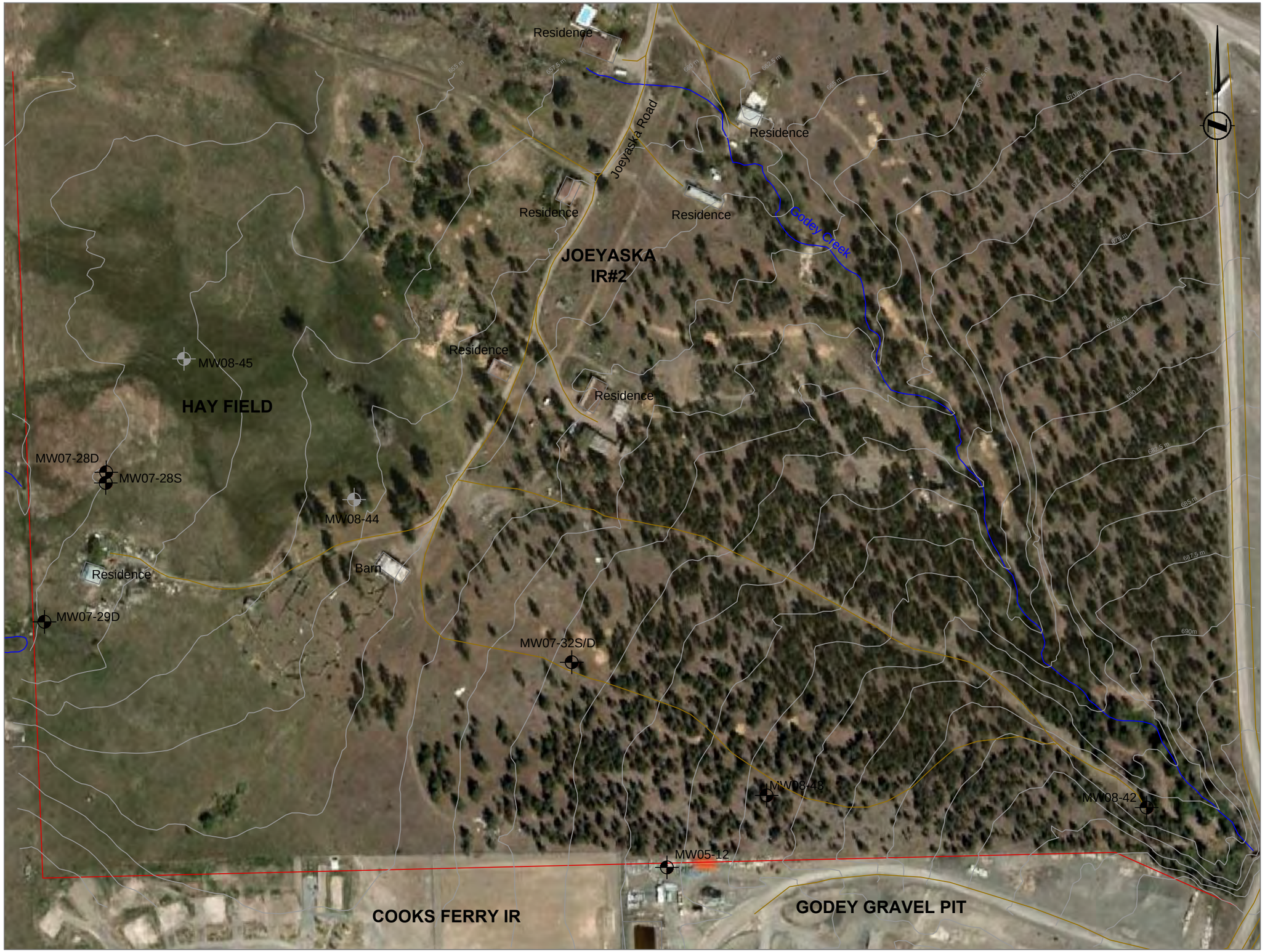
COLUMBIA ENVIRONMENTAL

Figure 5

Sampling Results- Lot 265 Mojos Station and Peter Brothers Asphalt Plant

LNIB / AANDC
Phase II
Environmental Site Assessment
Nicola Mameet IR #1

Project	Sheet
14-0493	5
Date: February, 2014	
Drawn By: SZ	Checked By: DD



LEGEND

- ROAD
- RESERVE BOUNDARY
- CONTOUR (2.5 m)
- SURFACE WATER
- SURFACE/GROUNDWATER FLOW DIRECTION
- MONITORING WELL

NOTES:

All elevations in metres (m)

Locations of site features were taken from:
1. Aerial photographs
2. GPS data points,
3. SNC Elevation Survey, 2013; and
4. Visual observations / adjustments of GPS waypoints and site features

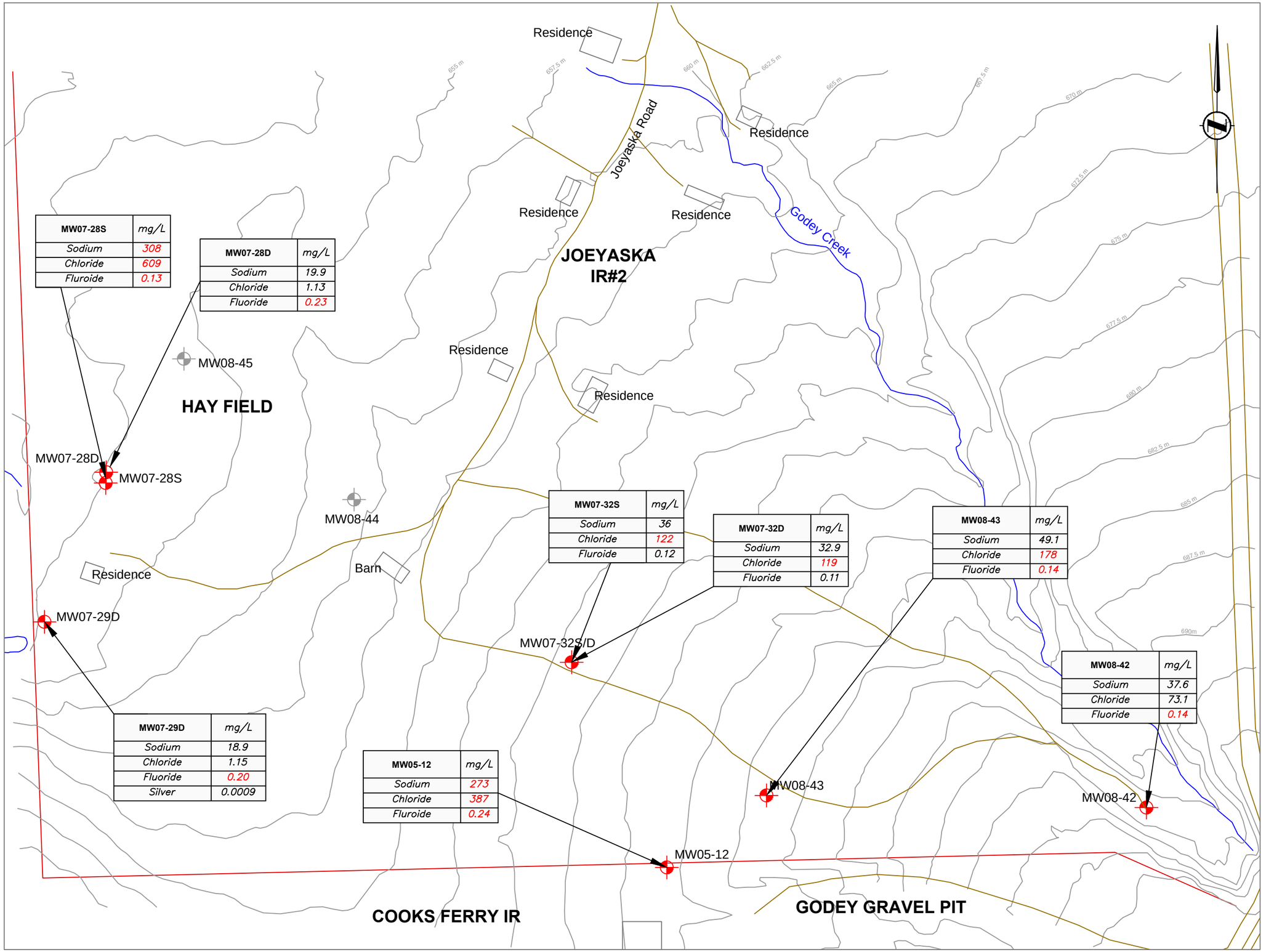
No.	Revision/Issue	Date

COLUMBIA ENVIRONMENTAL

Figure 6
Site Plan -
Joeyaska IR#2 Salt Contamination

LNIB / AANDC
Phase II
Environmental Site Assessment
Joeyaska IR #2

Project	Sheet
14-0493	6
Date: February, 2014	
Drawn By: SZ / Checked By: DD	



LEGEND

- ROAD
- RESERVE BOUNDARY
- CONTOUR (2.5 m)
- SURFACE WATER
- SURFACE/GROUNDWATER FLOW DIRECTION
- MONITORING WELL
- MONITORING WELL SAMPLE > APPLICABLE GUIDELINES
- MONITORING WELL NOT LOCATED

Location ID / Units

MW07-32D	mg/L
Phenanthrene	0.20

Parameter / Concentration(mg/kg) > CCME RL

NOTES:

All elevations in metres (m)

Locations of site features were taken from:
1. Aerial photographs
2. GPS data points,
3. SNC Elevation Survey, 2013; and
4. Visual observations / adjustments of GPS waypoints and site features

No.	Revision/Issue	Date

COLUMBIA ENVIRONMENTAL

Figure 7
Sample Results > CCME
Joeyaska IR#2 Salt Contamination

LNIB / AANDC
Phase II
Environmental Site Assessment
Joeyaska IR #2

Project	14-0493	Sheet
Date	February, 2014	7
Drawn By: SZ	Checked By: DD	

Residence
Residence
Residence
Residence
Residence
Residence
Joeyaska Road
Godey Creek
JOEYASKA
IR#2
HAY FIELD
COOKS FERRY IR
GODEY GRAVEL PIT
Barn
MW08-45
MW07-28D
650.94 m
MW07-28S
650.46 m
MW08-44
MW07-29D
652.50 m
MW07-32S/D
658.34 m
MW08-43
660.51 m
MW08-42
676.47 m
MW05-12
659.53 m
655 m
657.5 m
660 m
662.5 m
665 m
667.5 m
670 m
672.5 m
675 m
677.5 m
680 m
682.5 m
685 m
687.5 m
690m

LEGEND

- ROAD
- RESERVE BOUNDARY
- CONTOUR (2.5 m)
- SURFACE WATER
- SURFACE/GROUNDWATER FLOW DIRECTION
- MONITORING WELL

NOTES:

All elevations in metres (m)

Locations of site features were taken from:
1. Aerial photographs
2. GPS data points,
3. SNC Elevation Survey, 2013; and
4. Visual observations / adjustments of GPS waypoints and site features

No.	Revision/Issue	Date

COLUMBIA ENVIRONMENTAL

Figure 8
Piezometric Surface
Joeyaska IR#2 Salt Contamination

LNIB / AANDC
Phase II
Environmental Site Assessment
Joeyaska IR #2

Project	14-0493	Sheet
Date	February, 2014	8
Drawn By: SZ	Checked By: DD	

APPENDIX B

PHOTOGRAPHIC DOCUMENTATION

PIPSEUL IR #3 – Former Concrete Plant

Photo 1. Overview of the Pipseul IR#3 Former Concrete Plant facing south. Note the collapsed silo (APEC 5).

Photo 2. View of the Treated Wood and concrete pedestals (APEC 1) facing north.

Photo 3. View of the Metal Debris Pile (APEC 2) and TP2 facing south.

Photo 4. View of the poured Concrete Waste and metal debris (APEC 3) and TP3 facing south.

Photo 5. View of the hydrocarbon container pile (APEC 4) and adjacent wood waste facing southeast.

Photo 6. View of the concrete pads in the former building footprint (APEC 6) facing northwest.

NICOLA MAMEET IR#1 – Mojos Station and Peter Bros Asphalt Plant

Photo 1. Overview of the Peter Bros Asphalt Plant (APEC 1) facing north.

Photo 2. View of typical hydrocarbon storage withint eh footprint of the portable asphalt plant (APEC 1) facing northwest.

Photo 3. View of typical spotty soil staining in the vicinity of the various ASTs throughout the asphalt plant footprint (APEC 1), facing south.

Photo 4. View the in-ground lined sumps at the asphalt plant (APEC 1) showing the location BH1 and MW14-1, facing south.

Photo 5. View of the former Peter Bros Asphalt Plant location (APEC 2) facing west.

Photo 6. View of the recycled asphalt stockpile (APEC 3) facing west.

Photo 7. View of the former Mojos Service Station (APEC 4) facing north. Note the snow-covered weigh scale and concrete pad out front.

Photo 8. View of the dismantled former batch concrete plant at the back (west) side of the former Mojos service station (APEC 4), facing south.

Photo 9. View of the former Mojo's Maintenance Building / Current Warehouse (APEC 5) facing north.

Photo 10. View of the broken concrete apron, minor soil staining on the south side of the warehouse (APEC 5) and BH2 facing west.

Photo 11. View of the 3000L Diesel AST (APEC 6) facing southwest.

APPENDIX C

TEST PIT AND BOREHOLE LOGS

COLUMBIA ENVIRONMENTAL

TEST PIT LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **TP1**

		DATE	3-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5593291
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**EASTING**	654710
TEST PIT LOCATION	Within concrete pedestals and trated wood pile	**GROUND ELEVATION (m)**	-
TEST PIT METHOD	Rubber tire backhoe	**TOP OF PIPE ELEVATION (m)**	NA
TEST PIT CONTRACTOR	LNB Excavating Ltd	**WATER LEVEL**	NA
TEST PIT DIMENSIONS	1 m by 2 m	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE				WELL DETAILS
				TYPE	% RECOVERY	SAMPLE ID	HEADSPACE (ppmv)	
	Soil Surface							
	SAND AND COBBLES							
	Brown damp silty sand and gravel, with cobbles.							
	Occasional wood waste and debris stirred into soils							
				Grab	100	TP1-1	15	
	SAND AND GRAVEL							
	Brown damp coarse to medium grain sand and gravel, with occasional boulders							
				Grab	100	TP1-2	5	
1.0								
	END OF TEST PIT AT 1.3 m							
2.0								
3.0								
4.0								
5.0								
6.0								

TEST PIT LOG

COLUMBIA ENVIRONMENTAL

		LOCATION ID	**TP2**
		DATE	3-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5593204
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**EASTING**	654722
TEST PIT LOCATION	Beneath occasional scattered metal debris located to the south	**GROUND ELEVATION (m)**	-
TEST PIT METHOD	Rubber tire backhoe	**TOP OF PIPE ELEVATION (m)**	NA
TEST PIT CONTRACTOR	LNB Excavating Ltd	**WATER LEVEL**	NA
TEST PIT DIMENSIONS	1 m by 2 m	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND GRAVEL Brown damp silty sand and gravel, with cobbles.			Grab	100	TP2-1	5	
1.0	END OF TEST PIT AT 0.9 m							
2.0								
3.0								
4.0								
5.0								
6.0								

TEST PIT LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **TP3**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	3-Mar-14
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**NORTHING**	5593208
TEST PIT LOCATION	Metal debris and waste concrete area	**EASTING**	654676
TEST PIT METHOD	Rubber tire backhoe	**GROUND ELEVATION (m)**	-
TEST PIT CONTRACTOR	LNB Excavating Ltd	**TOP OF PIPE ELEVATION (m)**	NA
TEST PIT DIMENSIONS	1 m by 2 m	**WATER LEVEL**	NA
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND COBBLES Brown damp coarse sand and gravel, with cobbles.			Grab	100	TP3-1	25	
1.0	END OF TEST PIT AT 1.0 m							
2.0								
3.0								
4.0								
5.0								
6.0								

TEST PIT LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **TP4**

		DATE	3-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5593238
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**EASTING**	654674
TEST PIT LOCATION	Hydrocarbon container and misc wood waste area	**GROUND ELEVATION (m)**	-
TEST PIT METHOD	Rubber tire backhoe	**TOP OF PIPE ELEVATION (m)**	NA
TEST PIT CONTRACTOR	LNB Excavating Ltd	**WATER LEVEL**	NA
TEST PIT DIMENSIONS	1 m by 2 m	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE				WELL DETAILS
				TYPE	% RECOVERY	SAMPLE ID	HEADSPACE (ppmv)	
	Soil Surface							
	SILTY SAND Brown damp silty sand and wood waste, with a small amount of empty hydrocarbon containers,drums, and miscellaneous wastes at surface.							
				Grab	100	TP4-1	45	
	SAND AND GRAVEL Brown damp coarse sand and gravel, with cobbles.							
1.0	***SAND*** Medium grain brown sands							
	END OF TEST PIT AT 1.4 m							
2.0								
3.0								
4.0								
5.0								
6.0								

TEST PIT LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **TP5**

		DATE	3-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5593244
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**EASTING**	654692
TEST PIT LOCATION	South end of overturned silo in topographical low	**GROUND ELEVATION (m)**	-
TEST PIT METHOD	Rubber tire backhoe	**TOP OF PIPE ELEVATION (m)**	NA
TEST PIT CONTRACTOR	LNB Excavating Ltd	**WATER LEVEL**	NA
TEST PIT DIMENSIONS	1 m by 2 m	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND GRAVEL Brown damp silty sand and gravel, with cobbles.							
				Grab	100	TP5-1	5	
1.0	END OF TEST PIT AT 0.9 m							
2.0								
3.0								
4.0								
5.0								
6.0								

TEST PIT LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **TP6**

		DATE	3-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5593218
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**EASTING**	654746
TEST PIT LOCATION	Scattered concrete debris down and at top of bank	**GROUND ELEVATION (m)**	-
TEST PIT METHOD	Rubber tire backhoe	**TOP OF PIPE ELEVATION (m)**	NA
TEST PIT CONTRACTOR	LNB Excavating Ltd	**WATER LEVEL**	NA
TEST PIT DIMENSIONS	1 m by 2 m	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND COBBLES Brown damp silty sand and gravel, with cobbles.			Grab	100	TP6-1	5	
1.0	END OF TEST PIT AT 0.9 m							
2.0								
3.0								
4.0								
5.0								
6.0								

TEST PIT LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **TP7**

		DATE	3-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5593243
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**EASTING**	654730
TEST PIT LOCATION	Adjacent and down gradient of largest former concrete pad	**GROUND ELEVATION (m)**	-
TEST PIT METHOD	Rubber tire backhoe	**TOP OF PIPE ELEVATION (m)**	NA
TEST PIT CONTRACTOR	LNB Excavating Ltd	**WATER LEVEL**	NA
TEST PIT DIMENSIONS	1 m by 2 m	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND GRAVEL Brown damp coarse sand and gravel, with cobbles.			Grab	100	TP7-1	5	
1.0	END OF TEST PIT AT 1.0 m							
2.0								
3.0								
4.0								
5.0								
6.0								

TEST PIT LOG

COLUMBIA ENVIRONMENTAL

		LOCATION ID	**TP8**
		DATE	3-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5593253
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**EASTING**	654730
TEST PIT LOCATION	Down gradient of former in ground concrete sump	**GROUND ELEVATION (m)**	-
TEST PIT METHOD	Rubber tire backhoe	**TOP OF PIPE ELEVATION (m)**	NA
TEST PIT CONTRACTOR	LNB Excavating Ltd	**WATER LEVEL**	NA
TEST PIT DIMENSIONS	1 m by 2 m	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND GRAVEL Brown damp silty sand and gravel, with some cobbles.			Grab	100	TP8-1	15	
	END OF TEST PIT AT 0.8 m							
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

BOREHOLE LOG

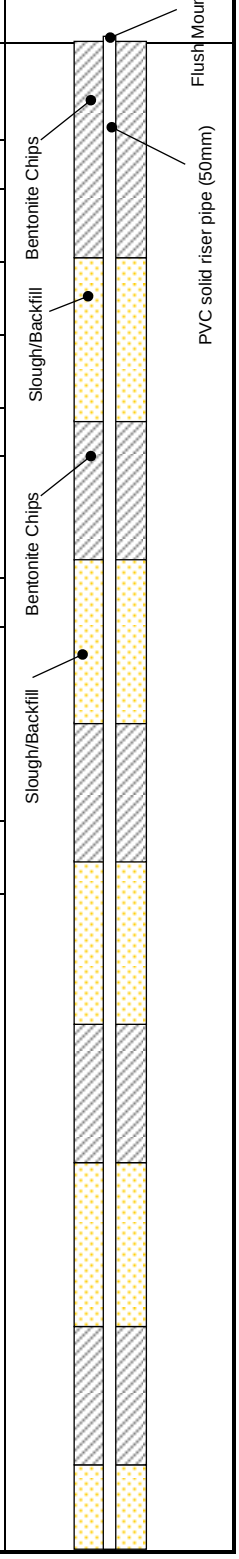
COLUMBIA ENVIRONMENTAL

LOCATION ID **MW14-1**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	4-Mar-14
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**NORTHING**	5556862
BOREHOLE LOCATION	Down gradient of Peter Bros. Asphalt Plant	**EASTING**	654327
DRILL METHOD	Truck Mounted Solid Stem Auger/Air Rotary	**GROUND ELEVATION (masl)**	606.425 (Approx)
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**TOP OF PIPE ELEVATION (masl)**	606.425 (Approx)
BOREHOLE DIAMETER	102 mm (4")	**WATER LEVEL, March 7, 2014 (mbsg)**	586.25
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)
	Soil Surface						
	CRUSHED GRAVEL (ROAD BASE) - Angular crushed gravels and sands				<10	None	
	SAND AND GRAVEL						
	Medium grained sands and gravels. Well graded with some cobbles and trace silts						
1.0				Grab	100	BH1-1	25
2.0							
3.0				Grab	80	BH1-2	15
4.0				Grab	100	BH1-3	10
5.0	***COBBLES***				<10	None	
	Cobbles with some medium to coarse sands						
6.0	***SAND AND GRAVEL***			Grab	100	BH1-4	15
	Medium grained sands and gravels. Well graded with some cobbles and trace silts						
7.0							
8.0				Grab	100	BH1-5	10
9.0	***COBBLES***						
	Cobbles and gravels with little to no sands or silts				<10	None	
10.0							
11.0							
12.0							
13.0							
14.0							
15.0							
	SAND						

WELL DETAILS



BOREHOLE LOG

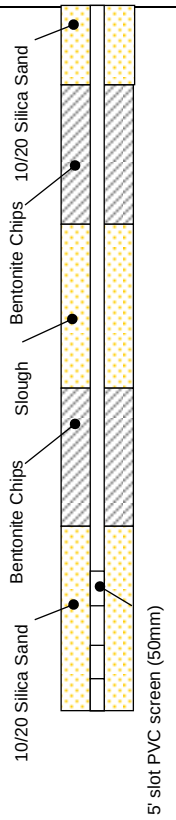
COLUMBIA ENVIRONMENTAL

LOCATION ID **MW14-1 Cont…**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	4-Mar-14
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**NORTHING**	5556862
BOREHOLE LOCATION	Down gradient of Peter Bros. Asphalt Plant	**EASTING**	654327
DRILL METHOD	Truck Mounted Solid Stem Auger/Air Rotary	**GROUND ELEVATION (masl)**	606.425 (Approx)
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**TOP OF PIPE ELEVATION (masl)**	606.425 (Approx)
BOREHOLE DIAMETER	102 mm (4")	**WATER LEVEL, March 7, 2014 (mbsg)**	586.25
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)
	Soil Surface						
	SAND Medium to fine grain sand						
				Grab	100	BH1-6	5
16.0	***COBBLES*** Cobbles and gravels						
					<10	None	
17.0							
18.0							
19.0							
20.0	***SAND*** - Medium to fine grain sand	▼ 20.17m (Measured March 7, 2014)		Grab	100	BH1-7	15
21.0	***SAND AND GRAVEL*** Medium grained sands and gravels. Well graded with some cobbles and trace silts Wet at 21.3m						
22.0	END BOREHOLE AT 22.25m						
23.0							
24.0							
25.0							
26.0							
27.0							
28.0							
29.0							
30.0							

WELL DETAILS



BOREHOLE LOG

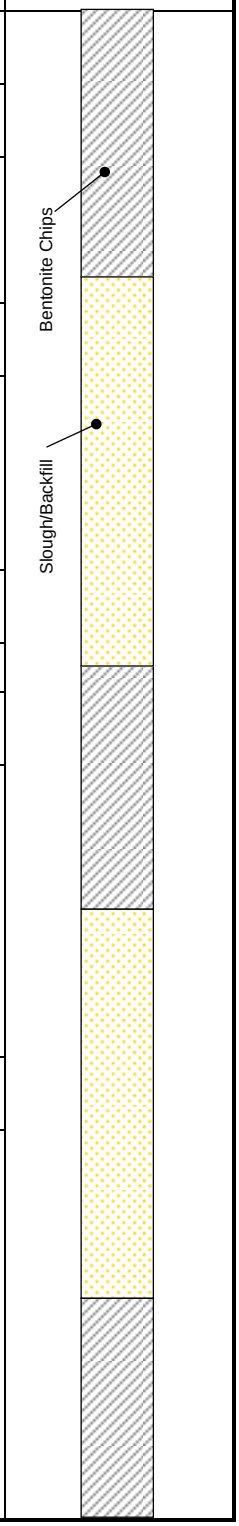
COLUMBIA ENVIRONMENTAL

LOCATION ID **BH2**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	5-Mar-14
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**NORTHING**	5556918
BOREHOLE LOCATION	Down gradient of Warehouse and Former Garage	**EASTING**	654371
DRILL METHOD	Truck Mounted Solid Stem Auger/Air Rotary	**GROUND ELEVATION (masl)**	610 (Approx)
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**TOP OF PIPE ELEVATION (masl)**	610 (Approx)
BOREHOLE DIAMETER	102 mm (4")	**WATER LEVEL, March 7, 2014 (mbsg)**	N/A
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)
	Soil Surface						
	SAND AND GRAVEL Medium grained sands and gravels. Well graded with some cobbles and trace silts						
1.0	***SANDY SILT*** Brown moist silts and fine sands			Grab	100	BH2-1	10
2.0							
3.0							
	SAND Brown moist uniform fine sands.			Grab	100	BH2-2	25
4.0							
5.0							
6.0	***SAND AND GRAVEL*** Medium grained sands and gravels. Trace silts			Grab	100	BH2-3	35
7.0							
	SILTY SAND Brown moist fine sands and silt.			Grab	100	BH2-4	15
8.0							
9.0							
10.0							
11.0				Grab	100	BH2-5	0
12.0							
13.0							
14.0							
15.0							

WELL DETAILS



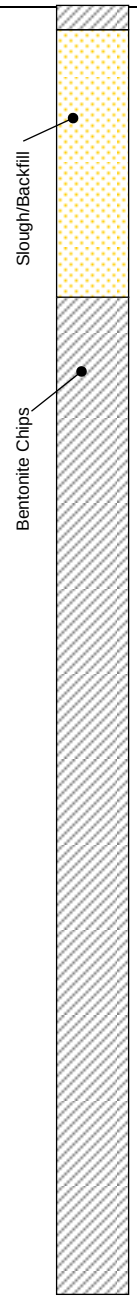
BOREHOLE LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **BH2 Cont…**

		DATE	4-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5556918
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**EASTING**	654371
BOREHOLE LOCATION	Down gradient of Warehouse and Former Garage	**GROUND ELEVATION (masl)**	610 (Approx)
DRILL METHOD	Truck Mounted Solid Stem Auger/Air Rotary	**TOP OF PIPE ELEVATION (masl)**	610 (Approx)
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**WATER LEVEL, March 7, 2014 (mbsg)**	586.25
BOREHOLE DIAMETER	102 mm (4")	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
16.0	***SAND*** Brown damp uniform medium grain sands.			Grab	100	BH2-6	15	
17.0								
18.0								
19.0	***SANDY SILT*** Brown moist silts with some fine sands			Grab	100	BH2-7	5	
20.0								
21.0								
22.0	***BEDROCK*** Uniform rock chips expelled from cyclone and continuity of unit suggest bedrock as oppoed to cobbles. No water encountered in borehole. Not completed as a monitoring well.							
23.0								
24.0								
25.0								
26.0								
27.0								
28.0								
29.0	END BOREHOLE AT 28.3m							
30.0								



BOREHOLE LOG

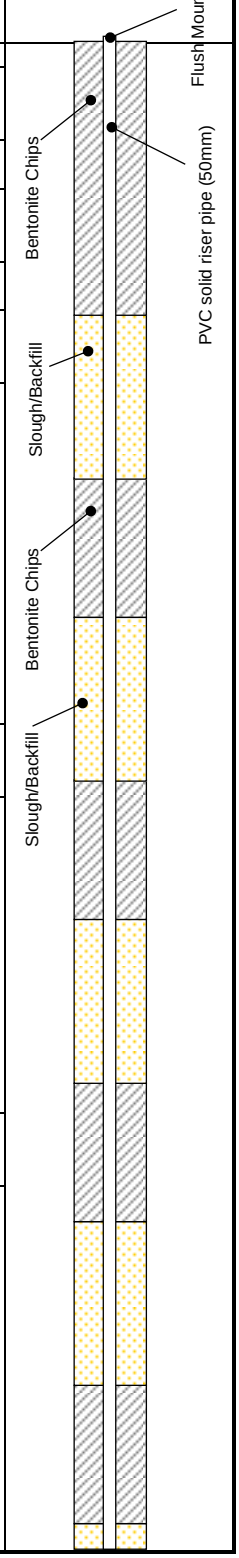
COLUMBIA ENVIRONMENTAL

LOCATION ID **BH3/MW14-2**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	6-Mar-14
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**NORTHING**	5556862
BOREHOLE LOCATION	Down gradient of Former Tank Nest at Mojos Gas Station	**EASTING**	654367
DRILL METHOD	Truck Mounted Solid Stem Auger/Air Rotary	**GROUND ELEVATION (masl)**	607.03 (Approx)
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**TOP OF PIPE ELEVATION (masl)**	607.03 (Approx)
BOREHOLE DIAMETER	102 mm (4")	**WATER LEVEL, March 7, 2014 (mbsg)**	586.34
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)
	Soil Surface						
	CRUSHED GRAVEL & ASPHALT - Angular crushed gravels and sands						
	SAND AND GRAVEL						
	Fine grainsands and gravels. Well graded with some cobbles and trace silts			Grab	100	BH3-1	35
1.0							
	SANDY SILT						
2.0	Brown moist silt with fine sands			Grab	100	BH3-2	15
3.0	***SAND, GRAVEL & COBBLES***						
	Gravel and cobbles with some coarse sands			Grab	100	BH3-3	5
	Increasing sand content with depth.						
4.0							
5.0							
6.0							
7.0							
				Grab	100	BH3-4	15
8.0							
9.0							
	COBBLES				<10	N/A	
	Cobbles and gravels						
10.0							
11.0							
	GRAVELS & SANDS						
	Uniform small gravels with some fine sands and occasional cobbles			Grab	100	BH3-5	10
12.0							
13.0							
	COBBLES				<10	N/A	
	No sample return						
14.0							
15.0							
	SAND						

WELL DETAILS



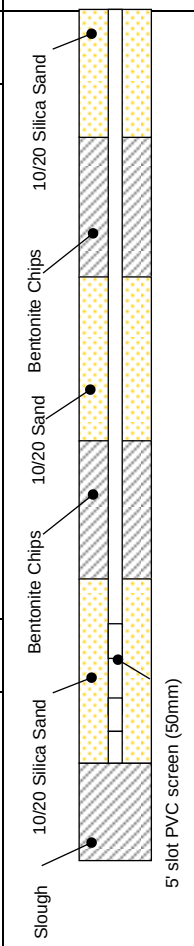
BOREHOLE LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **BH-3/MW14-2**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	6-Mar-14
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**NORTHING**	5556862
BOREHOLE LOCATION	Down gradient of Former Tank Nest at Mojos Gas Station	**EASTING**	654367
DRILL METHOD	Truck Mounted Solid Stem Auger/Air Rotary	**GROUND ELEVATION (masl)**	607.03 (Approx)
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**TOP OF PIPE ELEVATION (masl)**	607.03 (Approx)
BOREHOLE DIAMETER	102 mm (4")	**WATER LEVEL, March 7, 2014 (mbsg)**	586.34
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND Medium to fine grain sand			Grab	100	BH3-6	5	
16.0	***SAND AND GRAVEL*** Medium grained sands and gravels. Well graded with many cobbles.							
17.0								
18.0								
19.0								
20.0								
21.0		20.69m (Measured March 7, 2014)						
22.0	Wet at 22m			Grab	70	BH3-7	0	
23.0								
24.0	END BOREHOLE AT 23.75m							
25.0								
26.0								
27.0								
28.0								
29.0								
30.0								



BOREHOLE LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **BH4**

		DATE	4-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5556910
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**EASTING**	654338
BOREHOLE LOCATION	Surface staining down gradient of asphalt plant barrel storage and	**GROUND ELEVATION (masl)**	-
DRILL METHOD	Truck Mounted Solid Stem Auger	**TOP OF PIPE ELEVATION (masl)**	-
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**WATER LEVEL, March 7, 2014 (mbsg)**	N/A
BOREHOLE DIAMETER	102 mm (4")	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND GRAVEL							
	Medium grained sands and gravels. Well graded with some cobbles and trace silts							
	Staining and odourous to 30 cm							
				Grab	100	BH4-1	25	
1.0								
	END BOREHOLE AT 1.5 m							
2.0								
3.0								
4.0								
5.0								
6.0								

BOREHOLE LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **BH5**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	4-Mar-14
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**NORTHING**	5556989
BOREHOLE LOCATION	Base of recycled asphalt pile	**EASTING**	654252
DRILL METHOD	Truck Mounted Solid Stem Auger	**GROUND ELEVATION (masl)**	-
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**TOP OF PIPE ELEVATION (masl)**	-
BOREHOLE DIAMETER	102 mm (4")	**WATER LEVEL, March 7, 2014 (mbsg)**	N/A
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND GRAVEL Medium grained sands and gravels. Well graded with some cobbles and trace silts							
				Grab	100	BH5-1	15	
1.0								
	END BOREHOLE AT 1.5 m							
2.0								
3.0								
4.0								
5.0								
6.0								

BOREHOLE LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **BH6**

		DATE	4-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5556888
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**EASTING**	654321
BOREHOLE LOCATION	Beneath soil staining of AST at southwestern portion of asphalt pla	**GROUND ELEVATION (masl)**	-
DRILL METHOD	Truck Mounted Solid Stem Auger	**TOP OF PIPE ELEVATION (masl)**	-
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**WATER LEVEL, March 7, 2014 (mbsg)**	N/A
BOREHOLE DIAMETER	102 mm (4")	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE				WELL DETAILS
				TYPE	% RECOVERY	SAMPLE ID	HEADSPACE (ppmv)	
	Soil Surface							
	SAND AND GRAVEL							
	Medium grained sands and gravels. Well graded with some cobbles and trace silts							
	Staining and odourous to 20 cm							
				Grab	100	BH6-1	10	
1.0								
	END BOREHOLE AT 1.5 m							
2.0								
3.0								
4.0								
5.0								
6.0								

BOREHOLE LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **BH7**

		DATE	4-Mar-14
CLIENT	Lower Nicola Indian Band / AANDC	**NORTHING**	5556883
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**EASTING**	654339
BOREHOLE LOCATION	North side of silo in staining below loading area of asphalt plant	**GROUND ELEVATION (masl)**	-
DRILL METHOD	Truck Mounted Solid Stem Auger	**TOP OF PIPE ELEVATION (masl)**	-
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**WATER LEVEL, March 7, 2014 (mbsg)**	N/A
BOREHOLE DIAMETER	102 mm (4")	**LOGGER**	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND GRAVEL							
	Medium grained sands and gravels. Well graded with some cobbles and trace silts							
	Staining and odourous to 30 cm							
				Grab	100	BH7-1	35	
1.0								
	END BOREHOLE AT 1.5 m							
2.0								
3.0								
4.0								
5.0								
6.0								

BOREHOLE LOG

COLUMBIA ENVIRONMENTAL

LOCATION ID **BH8**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	4-Mar-14
PROJECT LOCATION	Nicola Mameet Reserve No. 1- Lot 265	**NORTHING**	5556900
BOREHOLE LOCATION	Down gradient side (north) of concrete pad at large AST	**EASTING**	654367
DRILL METHOD	Truck Mounted Solid Stem Auger	**GROUND ELEVATION (masl)**	-
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**TOP OF PIPE ELEVATION (masl)**	-
BOREHOLE DIAMETER	102 mm (4")	**WATER LEVEL, March 7, 2014 (mbsg)**	N/A
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)	WELL DETAILS
	Soil Surface							
	SAND AND GRAVEL Medium grained sands and gravels. Well graded with some cobbles and trace silts Staining and odourous to 10 cm			Grab	100	BH8-1	25	
1.0								
	END BOREHOLE AT 1.5 m							
2.0								
3.0								
4.0								
5.0								
6.0								

BOREHOLE LOG

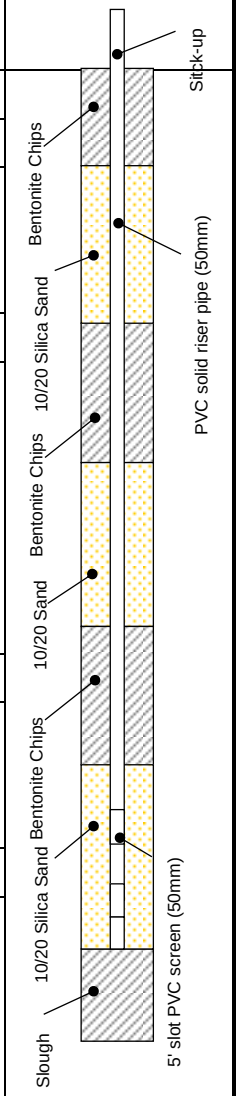
COLUMBIA ENVIRONMENTAL

LOCATION ID **BH9/MW14-3**

CLIENT	Lower Nicola Indian Band / AANDC	**DATE**	7-Mar-14
PROJECT LOCATION	Pipsuel IR No. 3 Former Concrete Plant	**NORTHING**	5553218
BOREHOLE LOCATION	Down gradient of Former Tank Nest at Mojos Gas Station	**EASTING**	654746
DRILL METHOD	Truck Mounted Solid Stem Auger/Air Rotary	**GROUND ELEVATION (masl)**	-
DRILLING CONTRACTOR	Blue Max Environmental Drilling Inc.	**TOP OF PIPE ELEVATION (masl)**	-
BOREHOLE DIAMETER	102 mm (4")	**WATER LEVEL, March 7, 2014 (mbsg)**	-
		LOGGER	SZ

DEPTH BELOW SURFACE (m)	SAMPLE DESCRIPTION	WATER LEVEL (MEASURED)	USCS SYMBOL	SAMPLE TYPE	SAMPLE % RECOVERY	SAMPLE ID	SAMPLE HEADSPACE (ppmv)
	Soil Surface						
	SAND AND GRAVEL Brown damp silty sand and gravel, with cobbles.						
1.0				Grab	80	BH9-1	10
2.0							
	SAND AND COBBLES			Grab	100	BH9-2	5
3.0	Medium grain brown sand and cobbles						
4.0							
5.0							
6.0							
				Grab	100	BH9-3	15
7.0							
	FINE SAND AND GRAVEL						
8.0	Fine grain brown sandand gravel with cobbles						
	Wet at 8.3 m	▼ 8.26m (Measured March 8, 2014)		Grab	100	BH9-4	5
9.0							
10.0							
	END BOREHOLE AT 10.0 m						
11.0							
12.0							
13.0							
14.0							
15.0							

WELL DETAILS



APPENDIX D

ANALYTICAL TABLES

Table 1: Metals Concentrations in soil

Sample ID							TP1-1	TP2-1	TP3-1	TP4-1	TP5-1	TP7-1	TP8-1	BH1-1	BH2-1	BHDUP3	BH3-3
Sample Date							03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	04-Mar-14	05-Mar-14	05-Mar-14	06-Mar-14
Sample Type							Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Duplicate of BH2-1	Discrete
Sample Depth (m)							0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	1.0-1.5	0.7-1.5		2.7-3.5
Field Grainsize							Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse
Physical Properties	**MDL**	**Background [a]**	**CCME RL**	**CCME CL**	**CCME IL**	**Units**											
Moisture	0.3		nc	nc	nc	%	13.1	4.9	5.2	5.2	-	3.4	9.4	4.3	18.1	18.8	3.6
pH	0.01		6 to 8	6 to 8	6 to 8	pH Units	8.3	8.4	8.6	8.2	7.6	8.1	9.1	9.3	8.7	8.7	8.9
Total Metals by ICPMS																	
Antimony (Sb)	0.1	4	20	40	40	mg/kg	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.3	0.5	0.4	0.3
Arsenic (As)	0.4	**25**	12	12	12	mg/kg	3.1	3.5	2.9	2.9	3.5	2.8	2.7	3.1	3.6	3.5	3.2
Barium (Ba)	1	350	500	2000	2000	mg/kg	93	110	85	96	112	163	73	78	152	151	74
Beryllium (Be)	0.1	2	4	8	8	mg/kg	0.4	0.5	0.5	0.5	0.5	0.5	0.4	0.4	0.6	0.5	0.4
Cadmium (Cd)	0.04	0.55	10	22	22	mg/kg	0.13	0.14	0.12	0.12	0.14	0.14	0.12	0.08	0.16	0.14	0.07
Chromium (Cr)	1	**150**	64	87	87	mg/kg	24.3	33.8	28.2	28.5	33.8	27.8	23.4	33.6	31	30.7	25.1
Cobalt (Co)	0.1	30	50	300	300	mg/kg	11.9	13.3	12.3	12.8	12.9	11.3	12.2	10.4	12.4	12.2	11.3
Copper (Cu)	0.2	**75**	63	91	91	mg/kg	59.8	60.7	46.6	47	53.3	48	52	37.9	**82**	**81.9**	41.7
Iron (Fe)	20	nc	nc	nc	nc	mg/kg	31200	37400	34000	34500	35600	32100	30100	28900	32900	31900	32200
Lead (Pb)	0.2	15	140	260	600	mg/kg	4.7	3.7	2.9	2.7	3.2	3.8	2.7	2.7	4.6	4.3	2.6
Mercury (Hg)	0.05	0.25	6.6	24	50	mg/kg	<0.05	<0.05	<0.05	0.07	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum (Mo)	0.1	1	10	40	40	mg/kg	0.6	0.8	0.5	0.6	0.6	0.9	0.5	0.9	0.9	0.9	1.1
Nickel (Ni)	0.4	**75**	50	50	50	mg/kg	24.7	28.1	29.6	28.4	26.1	23.9	21.9	18.3	23.7	23.2	21
Selenium (Se)	0.5	4	1	2.9	2.9	mg/kg	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	0.5	<0.5
Silver (Ag)	0.2	1	20	40	40	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium (Tl)	0.1	nc	1	1	1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	0.2	4	50	300	300	mg/kg	0.4	0.5	0.4	0.4	0.4	0.4	0.4	0.4	0.6	0.6	0.5
Uranium (U)	0.1	nc	23	33	300	mg/kg	0.5	0.6	0.4	0.4	0.6	0.6	0.5	0.4	0.9	0.9	0.3
Vanadium (V)	0.4	**150**	130	130	130	mg/kg	84.7	107	93.2	98.6	89.3	83.9	80.1	70.3	91.3	88	80.2
Zinc (Zn)	2	100	200	360	360	mg/kg	55	66	54	52	70	78	58	49	56	54	53
Aluminum (Al)	20	nc	nc	nc	nc	mg/kg	13000	15400	13400	12700	15700	16100	13300	12600	16300	15900	13600
Bismuth (Bi)	0.1	nc	nc	nc	nc	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron (B)	2	nc	nc	nc	nc	mg/kg	6	3	4	4	3	3	3	2	4	4	3
Calcium (Ca)	100	nc	nc	nc	nc	mg/kg	10400	8500	9420	8910	8210	7710	13200	13300	33300	32100	8650
Lithium (Li)	0.1	nc	nc	nc	nc	mg/kg	7.9	9.4	8.7	7.7	8.4	8.6	8.6	8	9.3	9	8
Magnesium (Mg)	10	nc	nc	nc	nc	mg/kg	8270	8220	8740	8180	8450	6430	8840	9190	9020	8660	9570
Manganese (Mn)	0.4	nc	nc	nc	nc	mg/kg	477	539	502	533	530	567	532	509	615	595	551
Phospohorus (P)	10	nc	nc	nc	nc	mg/kg	827	781	882	883	890	744	937	700	847	808	689
Potassium (K)	10	nc	nc	nc	nc	mg/kg	758	883	784	711	865	1020	580	641	1000	1010	827
Silicon (Si)	3000	nc	nc	nc	nc	mg/kg	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000	<3000
Sodium (Na)	40	nc	nc	nc	nc	mg/kg	268	394	397	359	220	402	355	437	588	547	449
Strontium (Sr)	0.2	nc	nc	nc	nc	mg/kg	50	43.7	43.8	47.7	46.3	38.5	46	63.8	98.7	99.4	49.3
Sulfur (S)	1000	nc	nc	nc	nc	mg/kg	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Tellurium (Te)	0.1	nc	nc	nc	nc	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Thorium (Th)	0.5	nc	nc	nc	nc	mg/kg	1.7	2	1.5	1.5	1.5	1.8	1.4	1.2	3.4	3.4	1.3
Titanium (Ti)	2	nc	nc	nc	nc	mg/kg	957	1290	1290	1060	988	1290	856	1170	1310	1270	1300
Zirconium (Zr)	2	nc	nc	nc	nc	mg/kg	6	9	8	7	8	11	6	7	8	8	7

Notes: all units are expressed in mg/kg unless otherwise stated

a Based on MoE Protocol 4: Determining Background Soil Quality - Region 3 Southern Interior

nc No Applicable Guideline

RL Residential / Parkland Land Use

CL Commercial Land Use

IL Industrial Land Use

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

Light Shaded	> CCME RL Guidelines
Medium Shaded	> CCME CL Guidelines
Dark Shaded	> CCME IL Guidelines

Table 1: Metals Concentrations in soil

Sample ID							BH4-1	BH5-1	BH6-1	BH7-1	BH8-1	BH9-1	BHDUP4
Sample Date							04-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	07-Mar-14	07-Mar-14
Sample Type							Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Duplicate of BH9-1
Sample Depth (m)							0.5-0.8	0.3-0.6	0.3-0.6	0.6-0.9	0.3-0.6	0.5-1.0	
Field Grainsize							Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse
Physical Properties	**MDL**	**Background [a]**	**CCME RL**	**CCME CL**	**CCME IL**	**Units**							
Moisture	0.3		nc	nc	nc	%	5.1	4.6	3.6	4.7	14.3	16.7	6.2
pH	0.01		6 to 8	6 to 8	6 to 8	pH Units	9	9.1	9.3	9.2	8	8.5	8.6
Total Metals by ICPMS													
Antimony (Sb)	0.1	4	20	40	40	mg/kg	0.3	0.3	0.3	0.3	0.4	0.3	0.3
Arsenic (As)	0.4	**25**	12	12	12	mg/kg	3.2	4	4.5	3.2	4	3.1	3.1
Barium (Ba)	1	350	500	2000	2000	mg/kg	98	90	63	63	152	143	112
Beryllium (Be)	0.1	2	4	8	8	mg/kg	0.3	0.4	0.3	0.3	0.6	0.4	0.5
Cadmium (Cd)	0.04	0.55	10	22	22	mg/kg	0.1	0.1	0.07	0.08	0.18	0.15	0.13
Chromium (Cr)	1	**150**	64	87	87	mg/kg	28.2	26.6	26.2	27.4	46.8	26.1	25.2
Cobalt (Co)	0.1	30	50	300	300	mg/kg	10.5	11.6	10.8	10.8	14.7	13	12.4
Copper (Cu)	0.2	**75**	63	91	91	mg/kg	37.9	39.5	35.6	40.4	53.2	**73.9**	**84**
Iron (Fe)	20	nc	nc	nc	nc	mg/kg	29100	31900	30800	30800	35100	32600	30600
Lead (Pb)	0.2	15	140	260	600	mg/kg	4	3.1	12.5	3.3	4.9	3.7	3.1
Mercury (Hg)	0.05	0.25	6.6	24	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Molybdenum (Mo)	0.1	1	10	40	40	mg/kg	1.6	1.8	2.1	0.8	2.4	0.8	0.7
Nickel (Ni)	0.4	**75**	50	50	50	mg/kg	19.8	25.2	25.9	18.4	35.3	26.9	26.7
Selenium (Se)	0.5	4	1	2.9	2.9	mg/kg	<0.5	<0.5	<0.5	<0.5	0.6	<0.5	<0.5
Silver (Ag)	0.2	1	20	40	40	mg/kg	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium (Tl)	0.1	nc	1	1	1	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Tin (Sn)	0.2	4	50	300	300	mg/kg	0.5	0.5	0.5	0.4	0.6	0.5	0.4
Uranium (U)	0.1	nc	23	33	300	mg/kg	0.4	0.4	0.4	0.4	0.6	0.7	0.5
Vanadium (V)	0.4	**150**	130	130	130	mg/kg	70.2	74.9	70.3	74.8	80	85.9	82.5
Zinc (Zn)	2	100	200	360	360	mg/kg	52	53	52	47	68	66	56
Aluminum (Al)	20	nc	nc	nc	nc	mg/kg	13500	14500	13400	12500	18800	14700	12800
Bismuth (Bi)	0.1	nc	nc	nc	nc	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Boron (B)	2	nc	nc	nc	nc	mg/kg	3	3	2	2	4	4	3
Calcium (Ca)	100	nc	nc	nc	nc	mg/kg	13700	16200	13200	12800	13900	9980	9220
Lithium (Li)	0.1	nc	nc	nc	nc	mg/kg	8.6	8.9	9.5	7.9	10.5	8.9	8.2
Magnesium (Mg)	10	nc	nc	nc	nc	mg/kg	9170	10100	10500	9470	10200	8080	8320
Manganese (Mn)	0.4	nc	nc	nc	nc	mg/kg	532	583	536	481	787	562	545
Phospohorus (P)	10	nc	nc	nc	nc	mg/kg	659	691	741	706	701	675	856
Potassium (K)	10	nc	nc	nc	nc	mg/kg	793	825	662	652	1840	909	740
Silicon (Si)	3000	nc	nc	nc	nc	mg/kg	<3000	<3000	<3000	<3000	<3000	<3000	<3000
Sodium (Na)	40	nc	nc	nc	nc	mg/kg	458	588	519	439	455	530	684
Strontium (Sr)	0.2	nc	nc	nc	nc	mg/kg	91.2	80.2	62.2	59.1	77.5	52.8	50.6
Sulfur (S)	1000	nc	nc	nc	nc	mg/kg	<1000	<1000	<1000	<1000	<1000	<1000	<1000
Tellurium (Te)	0.1	nc	nc	nc	nc	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Thorium (Th)	0.5	nc	nc	nc	nc	mg/kg	1.4	1.9	1.1	1.1	2.2	1.8	1.9
Titanium (Ti)	2	nc	nc	nc	nc	mg/kg	1230	1310	1210	1180	1220	1080	987
Zirconium (Zr)	2	nc	nc	nc	nc	mg/kg	7	8	7	7	10	8	7

Notes: all units are expressed in mg/kg unless otherwise stated

a No Applicable Guideline

nc Residential / Parkland Land Use

RL Commercial Land Use

CL Industrial Land Use

IL Method Detection Limit

MDL Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

CCME

Light Shaded	> CCME RL Guidelines
Medium Shaded	> CCME CL Guidelines
Dark Shaded	> CCME IL Guidelines

Table 2: PAH Concentrations in Soil

Sample ID						TP1-1	TP2-1	TP3-1	TP4-1	TP7-1	TP8-1	BH1-1	BH2-1
Sample Date						03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	04-Mar-14	05-Mar-14
Sample Type						Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete
Sample Depth (m)						0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	1.0-1.5	0.7-1.5
Physical Properties	**MDL**	**CCME RL**	**CCME CL**	**CCME IL**	**Units**								
Moisture	0.3	nc	nc	nc	%	13.1	4.9	5.2	5.2	3.4	9.4	4.3	18.1
pH	0.01	6 to 8	6 to 8	6 to 8	pH Units	8.3	8.4	8.6	8.2	8.1	9.1	9.3	8.7
Polycyclic Aromatics													
Naphthalene	0.01	0.013a	0.013a	0.013a	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2-Methylnaphthalene	0.01	nc	nc	nc	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	0.005	0.28a or 21.5b	0.28a	0.28a	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acenaphthylene	0.005	320a	320a	320a	mg/kg	0.034	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluorene	0.01	0.25a or 15.4b	0.25a	0.25a	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02	0.046a	0.046a	0.046a	mg/kg	**0.095**	<0.02	0.037	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	0.01	2.5c	32c	32c	mg/kg	0.048	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	0.01	0.33d or 6.2b	0.33d	0.33d	mg/kg	0.076	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	0.01	15.4b or 50c	180b	180b	mg/kg	0.198	<0.01	0.018	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	0.02	10	nc	nc	mg/kg	0.124	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene	0.01	2.1d or 6.2b	2.1d	2.1d	mg/kg	0.151	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b&j)fluoranthene	0.01	0.16d or 6.2b	0.16d	0.16d	mg/kg	**0.236**	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	0.01	0.16d or 6.2b	0.16d	0.16d	mg/kg	0.077	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	0.01	0.37d or 20c	72c	72c	mg/kg	0.063	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
B[a]P TPE 10^{-6} ILCR (e)	-	*0.6*	-	-	-	*0.125*	<	<	<	<	<	<	<
Indeno(1,2,3-cd)pyrene	0.02	2.7d	2.7d	2.7d	mg/kg	0.061	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenz(a,h)anthracene	0.005	0.23d	0.23d	0.23d	mg/kg	0.015	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(g,h,i)perylene	0.02	6.8d	6.8d	6.8d	mg/kg	0.068	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
IACR	-	*1*	-	-	-	*2.527*	<	<	<	<	<	<	<

Light Shaded	> CCME RL Guidelines
Medium Shaded	> CCME CL Guidelines
Dark Shaded	> CCME IL Guidelines

Notes: all units are expressed in mg/kg unless otherwise stated

a protection of feshwater life guideline

b soil and food ingestion guideline (provisional)

c soil contact guideline

d Protection of potable water guideline

nc No Applicable Criteria

RL Residential Land Use

CL Commercial Land Use

IL Industrial Land Use

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

B[a]P TPE 10^{-6} ILCR calculated benzo[a]pyrene total potency factor based on an incrimental lifetime cancer risk of 1 in 1,000,000 (10^{-6})

IACR Index of Additive Cancer Risk to protect groundwter calculated as the sum of hazard indices (soil concentration divided by soil qulaity guideline for protection of potable water) for each PAH.

Table 2: PAH Concentrations in Soil

Sample ID						BHDUP3	BH3-3	BH4-1	BH5-1	BH6-1	BH7-1	BH8-1	BH9-1	BHDUP4
Sample Date						05-Mar-14	06-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	07-Mar-14	07-Mar-14
Sample Type						Duplicate of BH2-1	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Duplicate of BH9-1
Sample Depth (m)							2.7-3.5	0.5-0.8	0.3-0.6	0.3-0.6	0.6-0.9	0.3-0.6	0.5-1.0	
Physical Properties	**MDL**	**CCME RL**	**CCME CL**	**CCME IL**	**Units**									
Moisture	0.3	nc	nc	nc	%	18.8	3.6	5.1	4.6	3.6	4.7	14.3	16.7	6.2
pH	0.01	6 to 8	6 to 8	6 to 8	pH Units	8.7	8.9	9	9.1	9.3	9.2	8	8.5	8.6
Polycyclic Aromatics														
Naphthalene	0.01	0.013a	0.013a	0.013a	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2-Methylnaphthalene	0.01	nc	nc	nc	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Acenaphthene	0.005	0.28a or 21.5b	0.28a	0.28a	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Acenaphthylene	0.005	320a	320a	320a	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Fluorene	0.01	0.25a or 15.4b	0.25a	0.25a	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Phenanthrene	0.02	0.046a	0.046a	0.046a	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Anthracene	0.01	2.5c	32c	32c	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)anthracene	0.01	0.33d or 6.2b	0.33d	0.33d	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Fluoranthene	0.01	15.4b or 50c	180b	180b	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Pyrene	0.02	10	nc	nc	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Chrysene	0.01	2.1d or 6.2b	2.1d	2.1d	mg/kg	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(b&j)fluoranthene	0.01	0.16d or 6.2b	0.16d	0.16d	mg/kg	<0.01	<0.01	0.013	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(k)fluoranthene	0.01	0.16d or 6.2b	0.16d	0.16d	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Benzo(a)pyrene	0.01	0.37d or 20c	72c	72c	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
B[a]P TPE 10^{-6} ILCR (e)	-	*0.6*	-	-	-	<	<	*0.001*	<	<	<	<	<	<
Indeno(1,2,3-cd)pyrene	0.02	2.7d	2.7d	2.7d	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Dibenz(a,h)anthracene	0.005	0.23d	0.23d	0.23d	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Benzo(g,h,i)perylene	0.02	6.8d	6.8d	6.8d	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
IACR	-	*1*	-	-	-	<	<	*0.087*	<	<	<	<	<	<

Light Shaded	> CCME RL Guidelines
Medium Shaded	> CCME CL Guidelines
Dark Shaded	> CCME IL Guidelines

Notes: all units are expressed in mg/kg unless otherwise stated

a protection of feshwater life guideline

b soil and food ingestion guideline (provisional)

c soil contact guideline

d Protection of potable water guideline

nc No Applicable Criteria

RL Residential Land Use

CL Commercial Land Use

IL Industrial Land Use

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

B[a]P TPE 10^{-6} ILCR calculated benzo[a]pyrene total potency factor based on an incrimental lifetime cancer risk of 1 in 1,000,000 (10^{-6})

IACR Index of Additive Cancer Risk to protect groundwter calculated as the sum of hazard indices (soil concentration divided by soil qulaity guideline for protection of potable water) for each PAH.

Table 3. Petroleum Hydrocarbon Fraction Concentrations in Soil

Sample ID						**TP1-1**	**TP2-1**	**TP4-1**	**TP7-1**	**TP8-1**	**BH1-1**	**BH2-1**
Sample Date						03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	04-Mar-14	05-Mar-14
Sample Type						Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete
Sample Depth (m)						0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	1.0-1.5	0.7-1.5
Field Grain Size						Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse
Physical Properties	**MDL**	**CCME CWS RL**	**CCME CWS CL**	**CCME CWS IL**	**Units**							
Moisture	0.3	nc	nc	nc	%	13.1	4.9	5.2	3.4	9.4	4.3	18.1
pH	0.01	6 to 8	6 to 8	6 to 8	pH Units	8.3	8.4	8.2	8.1	9.1	9.3	8.7
Ext. Pet. Hydrocarbon												
VPHs	20	nc	nc	nc	mg/kg	<20	<20	<20	<20	<20	<20	<20
VHs (6-10)	20	nc	nc	nc	mg/kg	<20	<20	<20	<20	<20	<20	<20
F1 (C6-C10) - BTEX	20	30a	320a or 240b	320a or 240b	mg/kg	<20	<20	<20	<20	<20	<20	<20
F2 (C10-C16 Hydrocarbons)	100	150a	260a	260a	mg/kg	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34 Hydrocarbons)	200	300a	1700a	1700a	mg/kg	<200	<200	<200	<200	<200	<200	<200
F4 (C34-C50 Hydrocarbons)	200	2800a	3300a	3300a	mg/kg	<200	<200	<200	<200	<200	<200	<200

Light Shaded	> CCME RL Guidelines
Medium Shaded	> CCME CL Guidelines
Dark Shaded	> CCME IL Guidelines
Blue Italics	MDL > CCME Guidline

Notes: all values are in mg/kg unless otherwise stated

a Coarse grain Canada Wide Standard

b For protection of potable groundwater

nc No Applicable Criteria

RL Residential Land Use

CL Commercial Land Use

IL Industrial Land Use

MDL Method Detection Limit

CWS Canada Wide Standards for Petroleum Hydrocarbon Fractions. Endorsed by CCME

CCME Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

Table 3. Petroleum Hydrocarbon Fraction Concentrations in Soil

Sample ID						**BHDUP3**	**BH3-3**	**BH4-1**	**BH6-1**	**BH7-1**	**BH8-1**	**BH9-1**	**BHDUP4**
Sample Date						05-Mar-14	06-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	07-Mar-14	07-Mar-14
Sample Type						Duplicate of BH2-1	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Duplicate of BH9-1
Sample Depth (m)							2.7-3.5	0.5-0.8	0.3-0.6	0.6-0.9	0.3-0.6	0.5-1.0	
Field Grain Size						Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse
Physical Properties	**MDL**	**CCME CWS RL**	**CCME CWS CL**	**CCME CWS IL**	**Units**								
Moisture	0.3	nc	nc	nc	%	18.8	3.6	5.1	3.6	4.7	14.3	16.7	6.2
pH	0.01	6 to 8	6 to 8	6 to 8	pH Units	8.7	8.9	9	9.3	9.2	8	8.5	8.6
Ext. Pet. Hydrocarbon													
VPHs	20	nc	nc	nc	mg/kg	<20	<20	<20	<20	<20	<20	<20	<20
VHs (6-10)	20	nc	nc	nc	mg/kg	<20	<20	<20	<20	<20	<20	<20	<20
F1 (C6-C10) - BTEX	20	30a	320a or 240b	320a or 240b	mg/kg	<20	<20	<20	<20	<20	<20	<20	<20
F2 (C10-C16 Hydrocarbons)	100	150a	260a	260a	mg/kg	<100	<100	<100	<100	<100	<100	<100	<100
F3 (C16-C34 Hydrocarbons)	200	300a	1700a	1700a	mg/kg	<200	<200	<200	<200	<200	<200	<200	<200
F4 (C34-C50 Hydrocarbons)	200	2800a	3300a	3300a	mg/kg	<200	<200	<200	<200	<200	<200	<200	<200

Light Shaded	> CCME RL Guidelines
Medium Shaded	> CCME CL Guidelines
Dark Shaded	> CCME IL Guidelines
Blue Italics	MDL > CCME Guidline

Notes: all values are in mg/kg unless otherwise stated

a Coarse grain Canada Wide Standard

b For protection of potable groundwater

nc No Applicable Criteria

RL Residential Land Use

CL Commercial Land Use

IL Industrial Land Use

MDL Method Detection Limit

CWS Canada Wide Standards for Petroleum Hydrocarbon Fractions. Endorsed by CCME

CCME Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

Table 4: VOC Concentrations in Soil

Sample ID						TP1-1	TP2-1	TP4-1	TP7-1	TP8-1	BH1-1	BH2-1	BHDUP3
Sample Date						03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	03-Mar-14	04-Mar-14	05-Mar-14	05-Mar-14
Sample Type						Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Duplicate of BH2-1
Sample Depth (m)						0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	0.3-0.6	1.0-1.5	0.7-1.5	
Field Grain Size						Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse
Physical Properties	**MDL**	**CCME RL**	**CCME CL**	**CCME IL**	**Units**								
Moisture	0.3	nc	nc	nc	%	13.1	4.9	5.2	3.4	9.4	4.3	18.1	18.8
pH	0.01	6 to 8	6 to 8	6 to 8	pH Units	8.3	8.4	8.2	8.1	9.1	9.3	8.7	8.7
Volatile Organics													
Benzene	0.02	0.03a	0.03a	0.03a	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.1	nc	nc	nc	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromoform	0.1	nc	nc	nc	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Carbon tetrachloride	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chlorobenzene	0.05	1	10	10	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Chloroform	0.07	5	50	50	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Dibromochloromethane	0.1	nc	nc	nc	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dibromoethane	0.1	nc	nc	nc	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Dibromomethane	0.1	nc	nc	nc	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
1,2-Dichlorobenzene	0.05	1	10	10	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	0.05	1	10	10	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	0.05	1	10	10	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloroethane	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1-Dichloroethene	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,2-Dichloroethene	0.1	5	50	50	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
trans-1,2-Dichloroethene	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,2-Dichloropropane	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
cis-1,3-Dichloropropene	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
trans-1,3-Dichloropropene	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	0.05	0.082b	0.082b	0.082b	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl ether	0.04	nc	nc	nc	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methylene chloride	0.5	5	50	50	mg/kg	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Styrene	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Tetrachloroethene (PCE)	0.05	0.2	0.5	0.6	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Toluene	0.2	0.37b	0.37b	0.37b	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2-Trichloroethane	0.07	5	50	50	mg/kg	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07	<0.07
Trichloroethene (TCE)	0.01	0.01	0.01	0.01	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Trichlorofluoromethane	0.1	nc	nc	nc	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Vinyl chloride	0.1	nc	nc	nc	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Xylenes (total)	0.1	11b	11b	11b	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Light Shaded	> CCME RL Guidelines
Medium Shaded	> CCME CL Guidelines
Dark Shaded	> CCME IL Guidelines
Blue Italics	MDL > CCME Guidline

Notes: all units are expressed in mg/kg unless otherwise stated

a Guideline is for incrimental lifetime cancer risk of 1 in 100,000 (10-5), coarse grain, and surface soils (≤1.5m)

b Guideline is for coarse grain, and surface soils (≤1.5m)

nc No Applicable Criteria

RL Residential Land Use

CL Commercial Land Use

IL Industrial Land Use

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

Table 4: VOC Concentrations in Soil

Sample ID						BH3-3	BH4-1	BH6-1	BH7-1	BH8-1	BH9-1	BHDUP4
Sample Date						06-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	04-Mar-14	07-Mar-14	07-Mar-14
Sample Type						Discrete	Discrete	Discrete	Discrete	Discrete	Discrete	Duplicate of BH9-1
Sample Depth (m)						2.7-3.5	0.5-0.8	0.3-0.6	0.6-0.9	0.3-0.6	0.5-1.0	
Field Grain Size						Coarse	Coarse	Coarse	Coarse	Coarse	Coarse	Coarse
Physical Properties	**MDL**	**CCME RL**	**CCME CL**	**CCME IL**	**Units**							
Moisture	0.3	nc	nc	nc	%	3.6	5.1	3.6	4.7	14.3	16.7	6.2
pH	0.01	6 to 8	6 to 8	6 to 8	pH Units	8.9	9	9.3	9.2	8	8.5	8.6
Volatile Organics												
Benzene	0.02	0.03a	0.03a	0.03a	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Bromodichloromethane	0.1	nc	nc	nc	mg/kg	-	<0.10	<0.10	-	-	<0.10	<0.10
Bromoform	0.1	nc	nc	nc	mg/kg	-	<0.10	<0.10	-	-	<0.10	<0.10
Carbon tetrachloride	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
Chlorobenzene	0.05	1	10	10	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
Chloroform	0.07	5	50	50	mg/kg	-	<0.07	<0.07	-	-	<0.07	<0.07
Dibromochloromethane	0.1	nc	nc	nc	mg/kg	-	<0.10	<0.10	-	-	<0.10	<0.10
1,2-Dibromoethane	0.1	nc	nc	nc	mg/kg	-	<0.10	<0.10	-	-	<0.10	<0.10
Dibromomethane	0.1	nc	nc	nc	mg/kg	-	<0.10	<0.10	-	-	<0.10	<0.10
1,2-Dichlorobenzene	0.05	1	10	10	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
1,3-Dichlorobenzene	0.05	1	10	10	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
1,4-Dichlorobenzene	0.05	1	10	10	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
1,1-Dichloroethane	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
1,2-Dichloroethane	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
1,1-Dichloroethene	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
cis-1,2-Dichloroethene	0.1	5	50	50	mg/kg	-	<0.10	<0.10	-	-	<0.10	<0.10
trans-1,2-Dichloroethene	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
1,2-Dichloropropane	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
cis-1,3-Dichloropropene	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
trans-1,3-Dichloropropene	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
Ethylbenzene	0.05	0.082b	0.082b	0.082b	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Methyl tert-butyl ether	0.04	nc	nc	nc	mg/kg	<0.04	<0.05	<0.05	<0.04	<0.04	<0.05	<0.05
Methylene chloride	0.5	5	50	50	mg/kg	-	<0.50	<0.50	-	-	<0.50	<0.50
Styrene	0.05	5	50	50	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
Tetrachloroethene (PCE)	0.05	0.2	0.5	0.6	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
Toluene	0.2	0.37b	0.37b	0.37b	mg/kg	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
1,1,1-Trichloroethane	0.05	5	50	50	mg/kg	-	<0.05	<0.05	-	-	<0.05	<0.05
1,1,2-Trichloroethane	0.07	5	50	50	mg/kg	-	<0.07	<0.07	-	-	<0.07	<0.07
Trichloroethene (TCE)	0.01	0.01	0.01	0.01	mg/kg	-	<0.01	<0.01	-	-	<0.01	<0.01
Trichlorofluoromethane	0.1	nc	nc	nc	mg/kg	-	<0.10	<0.10	-	-	<0.10	<0.10
Vinyl chloride	0.1	nc	nc	nc	mg/kg	-	<0.10	<0.10	-	-	<0.10	<0.10
Xylenes (total)	0.1	11b	11b	11b	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10

Light Shaded	> CCME RL Guidelines
Medium Shaded	> CCME CL Guidelines
Dark Shaded	> CCME IL Guidelines
Blue Italics	MDL > CCME Guidline

Notes: all units are expressed in mg/kg unless otherwise stated

a Guideline is for incrimental lifetime cancer risk of 1 in 100,000 (10-5), coarse grain, and surface soils (≤1.5m)

b Guideline is for coarse grain, and surface soils (≤1.5m)

nc No Applicable Criteria

RL Residential Land Use

CL Commercial Land Use

IL Industrial Land Use

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

Table 5: SPLP PAH in Recycled Asphalt

Sample ID					**ASP-1**
Sample Date					04-Mar-14
Sample Type					Solid
Sample Depth (m)					N/A
Synthetic Preciptation Leachate Procedure (SPLP) - PAH	**MDL**	**CCME DW**	**CCME FIGWQ PL**	**Units**	
Acenaphthene	0.001	nc	0.0058	mg/L	<0.001
Acenaphthylene	0.001	nc	0.046	mg/L	<0.001
Acridine	0.001	nc	0.00005	mg/L	*<0.001*
Anthracene	0.001	nc	0.000012	mg/L	*<0.001*
Benzo (a) anthracene	0.001	nc	0.000018	mg/L	*<0.001*
Benzo (a) pyrene	0.001	0.01	0.00001	mg/L	*<0.001*
Benzo (b) fluoranthene	0.001	nc	0.00048	mg/L	*<0.001*
Benzo (g,h,i) perylene	0.001	nc	0.00017	mg/L	*<0.001*
Benzo (k) fluoranthene	0.001	nc	0.00048	mg/L	*<0.001*
Chrysene	0.001	nc	0.0001	mg/L	*<0.001*
Dibenz (a,h) anthracene	0.001	nc	0.00026	mg/L	*<0.001*
Fluoranthene	0.001	nc	0.00004	mg/L	*<0.001*
Fluorene	0.001	nc	0.003	mg/L	<0.001
Indeno (1,2,3-cd) pyrene	0.001	nc	0.00021	mg/L	*<0.001*
Naphthalene	0.001	nc	0.0011	mg/L	<0.001
Phenanthrene	0.001	nc	0.0004	mg/L	*<0.001*
Pyrene	0.001	nc	0.000025	mg/L	*<0.001*
Quinoline	0.001	nc	0.0034	mg/L	<0.001

Light Shaded	> CCME DW Guidelines
Medium Shaded	> CCME FIGWQ
Blue Italics	MDL > CCME Guidline

Notes: all units are expressed in mg/L unless otherwise stated

nc No Applicable Guideline

RL Residential Land Use

CL Commercial Land Use

IL Industrial Land Use

DW Drinking Water Quality Guideline (CCME Criteria from Health Canada)

FIGWQ Federal Interim Groundwater Quality Guidelines for the Federal Contaminated Sites Action Plan (FCSAP)

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Soil Quality Guidelines

Table 6a: Total Metals Concentrations in Surface Water

Sample ID					SW1	SW2	SW3
Sample Date					03-Mar-14	03-Mar-14	03-Mar-14
Sample Type					Surface Water	Surface Water	Surface Water
Field Parameters							
pH				pH Units	8.2	8.18	7.85
Conductivity				uS/cm	0.334	0.338	0.501
Temperature				°C	1.1	1.1	1.9
Physical Parameters	**MDL**	**CCME FW**	**HC DW**	**Units**			
Hardness (Total)_CaCo3	0.5	nc	nc	mg/L	177	183	249
Total Metals							
Aluminum_Al	0.05	0.005 or 0.1a	0.2	mg/L	0.08	0.09	0.09
Antimony_Sb	0.001	nc	0.006	mg/L	<0.001	<0.001	<0.001
Arsenic_As	0.005	0.005	0.01	mg/L	<0.005	<0.005	<0.005
Barium_Ba	0.05	nc	1	mg/L	<0.05	<0.05	<0.05
Beryllium_Be	0.001	nc	nc	mg/L	<0.001	<0.001	<0.001
Boron _B	0.04	1.5	5	mg/L	<0.04	<0.04	<0.04
Cadmium_Cd	0.0001	calculated	0.005	mg/L	<0.0001	<0.0001	<0.0001
Calculated Cadmium Guideline	-	*b*	-	-	*0.25*	*2.62*	*3.38*
Chromium_Cr	0.005	0.001c	0.05	mg/L	<0.005	<0.005	<0.005
Cobalt_Co	0.0005	nc	nc	mg/L	<0.0005	<0.0005	<0.0005
Copper_Cu	0.002	calculated	≤1 g	mg/L	0.002	0.002	0.003
Calculated Copper Guideline	-	*d*	-	-	*3.85*	*3.96*	*5.16*
Iron_fe	0.1	0.3	≤0.3 g	mg/L	0.27	0.29	<0.10
Lead_Pb	0.001	calculated	0.01	mg/L	<0.001	<0.001	<0.001
Calculated Lead Guideline	-	*e*	-	-	*6.58*	*6.87*	*10.16*
Manganese_Mn	0.002	nc	≤0.05	mg/L	0.005	0.006	<0.002
Mercury_Hg	0.0002	0.000026	0.001	mg/L	*<0.0002*	*<0.0002*	*<0.0002*
Molybdenum_Mo	0.001	0.073	nc	mg/L	0.003	0.004	0.006
Nickel_Ni	0.002	0.025 to 0.150a	nc	mg/L	<0.002	<0.002	<0.002
Calculated Nickel Guideline	-	*f*	-	-	*147.51*	*151.29*	*191.19*
Selenium_Se	0.005	0.001	0.01	mg/L	<0.005	<0.005	<0.005
Silver_Ag	0.0005	0.0001	nc	mg/L	*<0.0005*	*<0.0005*	*<0.0005*
Sodium_Na	0.2	nc	≤200 g	mg/L	12.5	13.2	15.3
Thallium_Tl	0.0002	0.0008	nc	mg/L	<0.0002	<0.0002	<0.0002
Uranium_U	0.0002	0.015	0.02	mg/L	0.001	0.0011	0.001
Zinc_Zn	0.04	0.03	≤5g	mg/L	<0.04	<0.04	<0.04
Bismuth_Bi	0.001	nc	nc	mg/L	<0.001	<0.001	<0.001
Calcium_Ca	2	nc	nc	mg/L	46.2	46.8	69.1
Lithium_Li	0.001	nc	nc	mg/L	0.002	0.002	0.001
Magnesium_Mg	0.1	nc	nc	mg/L	15	16.2	18.5
Phosphorus_P	0.2	nc	nc	mg/L	<0.2	<0.2	<0.2
Potassium_K	0.2	nc	nc	mg/L	2.6	2.8	2.1
Silicon_Si	5	nc	nc	mg/L	14	15	10
Strontium_Sr	0.01	nc	nc	mg/L	0.19	0.2	0.26
Total Sulphur_S	10	nc	nc	mg/L	<10	<10	<10
Tellerium_Te	0.002	nc	nc	mg/L	<0.002	<0.002	<0.002
Thorium_Th	0.001	nc	nc	mg/L	<0.001	<0.001	<0.001
Tin_Sn	0.002	nc	nc	mg/L	<0.002	<0.002	<0.002
Titanium_Ti	0.05	nc	nc	mg/L	<0.05	<0.05	<0.05
Vanadium_V	0.01	nc	nc	mg/L	<0.01	<0.01	<0.01
Zirconium_Zr	0.001	nc	nc	mg/L	<0.001	<0.001	<0.001

Shaded	> CCME FW
Outlined	> HC DW
Grey Italics	Calculated Criteria
Blue Italics	MDL > CCME Guidline

Notes: All values in mg/L unless otherwise stated

a Criteria varies with pH

b Criteria = 10^(0.86[log(hardness)]-3.2)

c Standard is for Chromium VI

d Criteria = e^(0.8545[ln(hardness)]-1.465)*0.2

e Criteria = e^(1.273[ln(hardness)]-4.705)

f Criteria = e^(0.76[ln(hardness)]+1.06)

g Aesthetic guideline to protect against taste and odor concerns

nc No criteria

CCME FW Canadian Council of Ministers of the Environment guidelines applicable to protection of freshwater aquatic life

HC DW Health Canada Drinking Water Guidelines

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 6b: Dissolved Metals Concentrations in Groundwater

Sample ID					MW14-1	MWDUP2	MW14-1	MW14-2	MW14-3	MW14-3	MW05-12	MW07-28S	MW07-28D	MW07-29D	MWDUP	MW07-32S	MW07-32D	MW08-42	MW08-43
Sample Date					07-Mar-14	07-Mar-14	26-May-14	07-Mar-14	08-Mar-14	26-May-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14
Sample Type					Groundwater	Duplicate of MW14-1	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Groundwater	Duplicate of MW07-29D	Groundwater	Groundwater	Groundwater	Groundwater
Field Parameters																			
pH				pH Units	8.34	-	8.53	8.39	8.46	8.75	8.65	8.25	8.77	8.91	-	8.35	8.33	9.05	8.57
Conductivity				uS/cm	0.459	-	0.486	0.517	0.596	0.471	1.88	2.62	0.51	0.419	-	0.827	0.93	0.796	1.13
Temperature				°C	10.9	-	12.8	11	7.7	9.3	9.7	7.4	7.9	8.2	-	7.6	8.1	2.6	8.2
Physical Parameters	**MDL**	**FIGWQ**	**HC DW**	**Units**															
Hardness (Total)_CaCo3	0.5	nc	nc	mg/L	251	248	281	284	240	260	287	605	281	215	209	394	368	395	438
Dissolved Metals																			
Aluminum_Al	0.05	0.005 or 0.1a	0.2	mg/L	<0.05	<0.05	<0.005	<0.05	**0.33**	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Antimony_Sb	0.001	1.6	0.006	mg/L	<0.001	<0.001	0.0002	<0.001	<0.001	0.0002	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.001
Arsenic_As	0.005	0.005	0.01	mg/L	<0.005	<0.005	0.001	<0.005	<0.005	0.0009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Barium_Ba	0.05	0.5	1	mg/L	<0.05	<0.05	0.021	<0.05	0.05	0.047	0.16	0.22	<0.05	<0.05	<0.05	0.09	0.09	0.08	0.09
Beryllium_Be	0.001	0.0053	nc	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Boron_B	0.04	-	5	mg/L	0.05	0.04	0.037	0.05	<0.04	0.018	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Cadmium_Cd	0.0001	0.000017	0.005	mg/L	<0.0001	<0.0001	0.00001	<0.0001	<0.0001	<0.00001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001
Calculated Cadmium Guideline	-	*b*	-	-	*0.34*	*0.34*	*0.37*	*0.38*	*0.33*	*0.35*	*0.38*	*0.71*	*0.37*	*0.30*	*0.29*	*0.49*	*0.47*	*0.50*	*0.54*
Chromium_Cr	0.005	0.0089	0.05	mg/L	<0.005	<0.005	0.0033	<0.005	<0.005	0.0007	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cobalt_Co	0.0005	nc	nc	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Copper_Cu	0.002	calculated	≤1 g	mg/L	<0.002	<0.002	0.0031	0.003	0.015	0.0023	<0.002	<0.002	<0.002	<0.002	<0.002	0.002	<0.002	<0.002	<0.002
Calculated Copper Guideline	-	*d*	-	-	*5.19*	*5.14*	*5.72*	*5.77*	*5.00*	*5.35*	*5.82*	*11.01*	*5.72*	*4.55*	*4.44*	*7.63*	*7.20*	*7.65*	*8.35*
Iron_fe	0.1	0.3	≤0.3 g	mg/L	<0.10	<0.10	0.015	<0.10	<0.10	<0.010	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Lead_Pb	0.001	calculated	0.01	mg/L	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.0001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Calculated Lead Guideline	-	*e*	-	-	*10.27*	*10.11*	*11.85*	*12.01*	*9.70*	*10.74*	*12.18*	*31.46*	*11.85*	*8.43*	*8.13*	*18.23*	*16.71*	*18.29*	*20.86*
Manganese_Mn	0.002	nc	≤0.05	mg/L	0.012	0.012	0.0017	<0.002	0.01	0.001	<0.002	0.032	0.042	0.029	0.028	<0.002	<0.002	<0.002	<0.002
Mercury_Hg	0.0002	0.000026	0.001	mg/L	*<0.0002*	*<0.0002*	<0.00002	*<0.0002*	*<0.0002*	<0.00002	*<0.0002*	*<0.0002*	*<0.0002*	*<0.0002*	*<0.0002*	*<0.0002*	*<0.0002*	*<0.0002*	*<0.0002*
Molybdenum_Mo	0.001	0.073	nc	mg/L	0.008	0.008	-	0.008	0.01	-	0.004	0.001	0.004	0.003	0.003	<0.001	0.001	0.001	0.002
Nickel_Ni	0.002	calculated	nc	mg/L	<0.002	<0.002	0.0013	<0.002	<0.002	<0.0002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Calculated Nickel Guideline	-	*f*	-	-	*192.36*	*190.61*	*209.59*	*211.29*	*185.91*	*197.57*	*212.98*	*375.39*	*209.59*	*171.00*	*167.36*	*270.98*	*257.27*	*271.50*	*293.68*
Selenium_Se	0.005	0.001	0.01	mg/L	<0.005	<0.005	<0.0005	<0.005	<0.005	<0.0005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Silver_Ag	0.0005	0.0001	nc	mg/L	**0.0011**	**0.0011**	<0.00005	<0.0005	<0.0005	<0.00005	<0.0005	<0.0005	<0.0005	**0.0009**	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Sodium_Na	0.2	nc	≤200 g	mg/L	17.4	16.9	-	19.8	20.2	-	**273**	**308**	19.9	18.9	18.8	36	32.9	37.6	49.1
Thallium_Tl	0.0002	0.0008	nc	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Uranium_U	0.0002	0.3	0.02	mg/L	0.0026	0.0026	0.00313	0.0034	0.0012	0.00117	0.0009	0.0013	0.0025	0.0009	0.0008	0.0007	0.0007	0.0007	0.0008
Zinc_Zn	0.04	0.01	≤5g	mg/L	<0.04	<0.04	0.004	<0.04	0.08	<0.004	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04
Bismuth_Bi	0.001	nc	nc	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Calcium_Ca	2	nc	nc	mg/L	59.9	59.9	68.1	65.4	61.8	66.9	74.1	156	50.9	37.1	34.9	101	95.2	88.1	113
Lithium_Li	0.001	nc	nc	mg/L	0.004	0.004	-	0.004	0.002	-	0.004	0.004	0.001	0.001	0.001	0.003	0.003	0.002	0.004
Magnesium_Mg	0.1	nc	nc	mg/L	24.7	24	26.8	29.4	20.8	22.7	24.7	52.4	37.5	29.7	29.5	34.3	31.8	42.5	37.7
Phosphorus_P	0.2	nc	nc	mg/L	<0.2	<0.2	-	<0.2	<0.2	-	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Potassium_K	0.2	nc	nc	mg/L	3.1	2.9	-	2.9	3.2	-	4	5.3	3.9	2.1	2.1	2.9	2.9	2	3.1
Silicon_Si	5	nc	nc	mg/L	10	10	-	10	11	-	8	8	12	11	11	8	7	6	8
Strontium_Sr	0.01	nc	nc	mg/L	0.33	0.32	-	0.39	0.28	-	0.4	0.85	0.4	0.49	0.49	0.57	0.54	0.69	0.68
Total Sulphur_S	10	nc	nc	mg/L	<10	<10	-	<10	<10	-	<10	<10	<10	<10	<10	<10	<10	<10	<10
Tellerium_Te	0.002	nc	nc	mg/L	<0.002	<0.002	-	<0.002	<0.002	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Thorium_Th	0.001	nc	nc	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Tin_Sn	0.002	nc	nc	mg/L	<0.002	<0.002	-	<0.002	0.015	-	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Titanium_Ti	0.05	0.1	nc	mg/L	<0.05	<0.05	-	<0.05	<0.05	-	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Vanadium_V	0.01	nc	nc	mg/L	<0.01	<0.01	-	<0.01	<0.01	-	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Zirconium_Zr	0.001	nc	nc	mg/L	<0.001	<0.001	-	<0.001	<0.001	-	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001

Red Text	> CCME FIGWQ
Outlined	> HC DW
Grey Italics	Calculated Criteria
Blue Italics	MDL > CCME Guidline

Notes: All values in mg/L unless otherwise stated

a Criteria varies with pH. Guideline for the protection of freshwater aquatic life used as per guidance

b Criteria = 10^(0.86[log(hardness)]-3.2)

c Standard is for Chromium VI

d Criteria = e^(0.8545[ln(hardness)]-1.465)*0.2

e Criteria = e^(1.273[ln(hardness)]-4.705)

f Criteria = e^(0.76[ln(hardness)]+1.06)

g Aesthetic guideline to protect against taste and odor concerns

nc No criteria

CCME FIGWQ Canadian Council of Ministers of the Environment Federal Interim Groundwater Quality Guidelines for Residential, Commercial, and Industrial Land Use

HC DW Health Canada Drinking Water Guidelines

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 7: PAH Concentrations in Water

Sample ID						SW1	SW2	SW3	MW14-1	MWDUP2	MW14-1	MW14-2	MW14-3	MW14-3
Sample Date						03-Mar-14	03-Mar-14	03-Mar-14	07-Mar-14	07-Mar-14	26-May-14	07-Mar-14	08-Mar-14	26-May-14
Sample Type						Surface Water	Surface Water	Surface Water	Groundwater	Duplicate of MW14-1	Groundwater	Groundwater	Groundwater	Groundwater
Field Parameters														
pH					pH Units	8.2	8.18	7.85	8.34	-	8.53	8.39	8.46	8.75
Conductivity					uS/cm	0.334	0.338	0.501	0.459	-	0.486	0.517	0.596	0.471
Temperature					°C	1.1	1.1	1.9	10.9	-	12.8	11	7.7	9.3
Physical Parameters	**MDL**	**FIGWQ**	**CCME FW**	**HC DW**	**Units**									
Hardness _CaCo3	0.5	nc	nc	nc	mg/L	177	183	249	251	248	281	284	240	260
Polycyclic Aromatics														
Naphthalene	0.05	1.1	1.1	nc	ug/L	<0.05	<0.05	<0.05	0.19	0.24	<1.0	<0.05	0.26	<1.0
Quinoline	0.05	nc	3.4	nc	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Acenaphthylene	0.02	46	nc	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Acenaphthene	0.02	5.8	5.8	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Fluorene	0.02	3	3	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Phenanthrene	0.05	0.4	0.4	nc	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Anthracene	0.01	0.012	0.012	nc	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	-
Acridine	0.05	nc	4.4	nc	ug/L	<0.05	<0.05	<0.05	<0.05	<0.05	-	<0.05	<0.05	-
Fluoranthene	0.02	0.04	0.04	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Pyrene	0.02	0.025	0.025	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Benzo (a) anthracene	0.01	0.018	0.018	nc	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	-
Chrysene	0.02	0.1	nc	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Benzo (b) fluoranthene	0.02	0.48	nc	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Benzo (k) fluoranthene	0.02	0.48	nc	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Benzo (a) pyrene	0.01	0.01	0.015	0.01	ug/L	<0.01	<0.01	<0.01	<0.01	<0.01	-	<0.01	<0.01	-
Indeno (1,2,3-cd) pyrene	0.02	0.23	nc	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Dibenz (a,h) anthracene	0.02	0.28	nc	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-
Benzo (g,h,i) perylene	0.02	0.21	nc	nc	ug/L	<0.02	<0.02	<0.02	<0.02	<0.02	-	<0.02	<0.02	-

Shaded	> CCME FW
Outlined	> HC DW
Red Text	> CCME FIGWQ
Grey Italics	Calculated Criteria
Blue Italics	MDL > CCME Guidline

Notes: All values in ug/L unless otherwise stated

nc No criteria

CCME FW Canadian Council of Ministers of the Environment guidelines applicable to protection of freshwater aquatic life

CCME FIGWQ Canadian Council of Ministers of the Environment Federal Interim Groundwater Quality Guidelines

HC DW Health Canada Drinking Water Guidelines

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 8: Petroleum Hydrocarbon Concentrations including BTEX in Water

Sample ID						**SW1**	**SW2**	**SW3**	**MW14-1**	**MWDUP2**	**MW14-1**	**MW14-2**	**MW14-3**	**MW14-3**
Sample Date						03-Mar-14	03-Mar-14	03-Mar-14	07-Mar-14	07-Mar-14	26-May-14	07-Mar-14	08-Mar-14	26-May-14
Sample Type						Surface Water	Surface Water	Surface Water	Groundwater	Duplicate of MW14-1	Groundwater	Groundwater	Groundwater	Groundwater
Field Parameters														
pH					pH Units	8.2	8.18	7.85	8.34	-	8.53	8.39	8.46	8.75
Conductivity					uS/cm	0.334	0.338	0.501	0.459	-	0.486	0.517	0.596	0.471
Temperature					°C	1.1	1.1	1.9	10.9	-	12.8	11	7.7	9.3
Physical Parameters	**MDL**	**FIGWQ**	**CCME FW**	**HC DW**	**Units**									
Hardness _CaCo3	0.5	nc	nc	nc	mg/L	177	183	249	251	248	281	284	240	260
Extractable Petroleum Hydrocarbons														
CCME PHC F1 (C6-C10)	100	810	nc	nc	ug/L	<100	<100	<100	<100	<100	-	<100	<100	-
CCME PHC F2 (C10-C16)	100	1300	nc	nc	ug/L	<100	<100	<100	<100	<100	-	<100	<100	-
CCME PHC F3 (C16-C34)	100	nc	nc	nc	ug/L	<100	<100	<100	<100	<100	-	<100	<100	-
CCME PHC F4 (C34-C50)	100	nc	nc	nc	ug/L	<100	<100	<100	<100	<100	-	<100	<100	-
Volatile Organic Compounds including BTEX														
VHw (6-10)	100	nc	nc	nc	ug/L	<100	<100	<100	<100	<100	<100	<100	<100	<100
VPHw	100	nc	nc	nc	ug/L	<100	<100	<100	<100	<100	<100	<100	<100	<100
Benzene	0.5	140	370	5	ug/L	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	1	11000	90	2.4a	ug/L	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	1	83	2	2.4a	ug/L	<1.0	<1.0	<1.0	**4**	**3.6**	<1.0	<1.0	1.5	<1.0
Xylenes (total)	2	3900	nc	300	ug/L	<2.0	<2.0	<2.0	3.1	2.7	<2.0	<2.0	<2.0	<2.0

Shaded	> CCME FW
Outlined	> HC DW
Red Text	> CCME FIGWQ
Grey Italics	Calculated Criteria
Blue Italics	MDL > CCME Guidline

Notes: All values in ug/L unless otherwise stated

nc No criteria

CCME FW Canadian Council of Ministers of the Environment guidelines applicable to protection of freshwater aquatic life

CCME FIGWQ Canadian Council of Ministers of the Environment Federal Interim Groundwater Quality Guidelines

HC DW Health Canada Drinking Water Guidelines

MDL Method Detection Limit

CCME Canadian Council of Ministers of the Environment Recommended Canadian Water Quality Guidelines for the Protection of Aquatic Life

Table 9: Anion Concentrations in Groundwater

Sample ID							**MW05-12**	**MW07-28S**	**MW07-28D**	**MW07-29D**	**MWDUP**	**MW07-32S**	**MW07-32D**	**MW08-42**	**MW08-43**
Sample Date							07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14	07-Mar-14
Sample Type							Groundwater	Groundwater	Groundwater	Groundwater	Duplicate of MW07-29D	Groundwater	Groundwater	Groundwater	Groundwater
Field Parameters															
pH						pH Units	8.65	8.25	8.77	8.91	-	8.35	8.33	9.05	8.57
Conductivity						uS/cm	1.88	2.62	0.51	0.419	-	0.827	0.93	0.796	1.13
Temperature						°C	9.7	7.4	7.9	8.2	-	7.6	8.1	2.6	8.2
Physical Parameters	**MDL**	**FIGWQ**	**CCME FW**	**CCME IW**	**HC DW**	**Units**									
Hardness _CaCo3	0.5	nc	nc		nc	mg/L	287	605	281	215	209	394	368	395	438
General Chemistry															
Chloride	0.1	230	120a	100-710c	nc	mg/L	**387**	**609**	1.13	1.15	1.22	**122**	**119**	73.1	**178**
Fluoride	0.1	0.12	120a	1d	1.5	mg/L	**0.24**	**0.13**	**0.23**	**0.2**	**0.22**	0.12	0.11	**0.14**	**0.14**
Nitrogen, Nitrate as N	0.01	13	13a	nc	45	mg/L	1.1	0.917	<0.010	0.012	0.014	0.407	0.37	0.161	0.56
Nitrogen, Nitrite as N	0.01	0.06	60a	32.8	3.2	mg/L	<0.010	<0.010	<0.010	0.012	0.014	<0.010	<0.010	<0.010	<0.010
Phosphate, Ortho as P	0.01	nc	nc	nc	nc	mg/L	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Sulfate	1	100	nc	1000	500b	mg/L	35.3	38.4	50.9	50.8	49.6	29.2	28.4	32.1	28.8

Underlined	> CCME IW
Shaded	> CCME FW
Outlined	> HC DW
Red Text	> CCME FIGWQ
Grey Italics	Calculated Criteria
Blue Italics	MDL > CCME Guidline

Notes: All values in mg/L unless otherwise stated

a Guideline is for long term

b Aesthetic Objective

c Guideline varies with crop type

d Guideline is for the protection of irrigation water

nc No criteria

CCME FW Canadian Council of Ministers of the Environment guidelines applicable to protection of freshwater aquatic life

CCME IW Canadian Council of Ministers of the Environment guidelines applicable to protection of irrigation water and livestock

CCME FIGWQ Canadian Council of Ministers of the Environment Federal Interim Groundwater Quality Guidelines

HC DW Health Canada Drinking Water Guidelines

Table 10a: Relative Percent Difference (RPD) of Duplicate Aanlayses in Soil

INORGANICS

Sample ID			**BH2-1**	**BHDUP3**	**RPD**	**BH9-1**	**BHDUP4**	**RPD**
Sample Date			05-Mar-14	05-Mar-14		07-Mar-14	07-Mar-14	
Sample Type			Discrete	Duplicate of BH2-1		Discrete	Duplicate of BH9-1	
Sample Depth (m)			0.7-1.5			0.5-1.0		
Total Metals by ICPMS	**MDL**	**Units**			%			%
Antimony (Sb)	0.1	mg/kg	0.5	0.4	-	0.3	0.3	-
Arsenic (As)	0.4	mg/kg	3.6	3.5	3	3.1	3.1	0
Barium (Ba)	1	mg/kg	152	151	1	143	112	24
Beryllium (Be)	0.1	mg/kg	0.6	0.5	18	0.4	0.5	-
Cadmium (Cd)	0.04	mg/kg	0.16	0.14	-	0.15	0.13	-
Chromium (Cr)	1	mg/kg	31	30.7	1	26.1	25.2	4
Cobalt (Co)	0.1	mg/kg	12.4	12.2	2	13	12.4	5
Copper (Cu)	0.2	mg/kg	82	81.9	0	73.9	84	13
Iron (Fe)	20	mg/kg	32900	31900	3	32600	30600	6
Lead (Pb)	0.2	mg/kg	4.6	4.3	7	3.7	3.1	18
Mercury (Hg)	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
Molybdenum (Mo)	0.1	mg/kg	0.9	0.9	0	0.8	0.7	13
Nickel (Ni)	0.4	mg/kg	23.7	23.2	2	26.9	26.7	1
Selenium (Se)	0.5	mg/kg	0.5	0.5	-	<0.5	<0.5	-
Silver (Ag)	0.2	mg/kg	<0.2	<0.2	-	<0.2	<0.2	-
Thallium (Tl)	0.1	mg/kg	<0.1	<0.1	-	<0.1	<0.1	-
Tin (Sn)	0.2	mg/kg	0.6	0.6	-	0.5	0.4	-
Uranium (U)	0.1	mg/kg	0.9	0.9	0	0.7	0.5	**33**
Vanadium (V)	0.4	mg/kg	91.3	88	4	85.9	82.5	4
Zinc (Zn)	2	mg/kg	56	54	4	66	56	16
Aluminum (Al)	20	mg/kg	16300	15900	2	14700	12800	14
Bismuth (Bi)	0.1	mg/kg	<0.1	<0.1	-	<0.1	<0.1	-
Boron (B)	2	mg/kg	4	4	-	4	3	-
Calcium (Ca)	100	mg/kg	33300	32100	4	9980	9220	8
Lithium (Li)	0.1	mg/kg	9.3	9	-	8.9	8.2	8
Magnesium (Mg)	10	mg/kg	9020	8660	4	8080	8320	3
Manganese (Mn)	0.4	mg/kg	615	595	3	562	545	3
Phospohorus (P)	10	mg/kg	847	808	5	675	856	24
Potassium (K)	10	mg/kg	1000	1010	1	909	740	20
Silicon (Si)	3000	mg/kg	<3000	<3000	-	<3000	<3000	-
Sodium (Na)	40	mg/kg	588	547	7	530	684	25
Strontium (Sr)	0.2	mg/kg	98.7	99.4	1	52.8	50.6	4
Sulfur (S)	1000	mg/kg	<1000	<1000	-	<1000	<1000	-
Tellurium (Te)	0.1	mg/kg	<0.1	<0.1	-	<0.1	<0.1	-
Thorium (Th)	0.5	mg/kg	3.4	3.4	0	1.8	1.9	-
Titanium (Ti)	2	mg/kg	1310	1270	3	1080	987	9
Zirconium (Zr)	2	mg/kg	8	8	-	8	7	-

Average	7
Median	4
Maximum	33
Minimum	0

Notes: all units are expressed in mg/kg unless otherwise stated

\- RPD was not calculated if concentration was < 5 times the MDL

MDL Method Detection Limit

RDP Relative Percent Difference

BOLD RPD > 30% (inorganics) were noted in Bold

Table 10a: Relative Percent Difference (RPD) of Duplicate Aanlayses in Soil

ORGANICS

Sample ID			BH2-1	BHDUP3	RPD	BH9-1	BHDUP4	RPD
Sample Date			05-Mar-14	05-Mar-14		07-Mar-14	07-Mar-14	
Sample Type			Discrete	Duplicate of BH2-1		Discrete	Duplicate of BH9-1	
Sample Depth (m)			0.7-1.5			0.5-1.0		
Polycyclic Aromatics	**MDL**	**Units**			%			%
Naphthalene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
2-Methylnaphthalene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Acenaphthene	0.005	mg/kg	<0.005	<0.005	-	<0.005	<0.005	-
Acenaphthylene	0.005	mg/kg	<0.005	<0.005	-	<0.005	<0.005	-
Fluorene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Phenanthrene	0.02	mg/kg	<0.02	<0.02	-	<0.02	<0.02	-
Anthracene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Benzo(a)anthracene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Fluoranthene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Pyrene	0.02	mg/kg	<0.02	<0.02	-	<0.02	<0.02	-
Chrysene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Benzo(b&j)fluoranthene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Benzo(k)fluoranthene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Benzo(a)pyrene	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Indeno(1,2,3-cd)pyrene	0.02	mg/kg	<0.02	<0.02	-	<0.02	<0.02	-
Dibenz(a,h)anthracene	0.005	mg/kg	<0.005	<0.005	-	<0.005	<0.005	-
Benzo(g,h,i)perylene	0.02	mg/kg	<0.02	<0.02	-	<0.02	<0.02	-
Volatile Organics								
Benzene	0.02	mg/kg	<0.02	<0.02	-	<0.02	<0.02	-
Bromodichloromethane	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-
Bromoform	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-
Carbon tetrachloride	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
Chlorobenzene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
Chloroform	0.07	mg/kg	<0.07	<0.07	-	<0.07	<0.07	-
Dibromochloromethane	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-
1,2-Dibromoethane	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-
Dibromomethane	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-
1,2-Dichlorobenzene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
1,3-Dichlorobenzene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
1,4-Dichlorobenzene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
1,1-Dichloroethane	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
1,2-Dichloroethane	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
1,1-Dichloroethene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
cis-1,2-Dichloroethene	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-
trans-1,2-Dichloroethene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
1,2-Dichloropropane	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
cis-1,3-Dichloropropene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
trans-1,3-Dichloropropene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
Ethylbenzene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
Methyl tert-butyl ether	0.04	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
Methylene chloride	0.5	mg/kg	<0.50	<0.50	-	<0.50	<0.50	-
Styrene	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
1,1,2,2-Tetrachloroethane	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
Tetrachloroethene (PCE)	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
Toluene	0.2	mg/kg	<0.20	<0.20	-	<0.20	<0.20	-
1,1,1-Trichloroethane	0.05	mg/kg	<0.05	<0.05	-	<0.05	<0.05	-
1,1,2-Trichloroethane	0.07	mg/kg	<0.07	<0.07	-	<0.07	<0.07	-
Trichloroethene (TCE)	0.01	mg/kg	<0.01	<0.01	-	<0.01	<0.01	-
Trichlorofluoromethane	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-
Vinyl chloride	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-
Xylenes (total)	0.1	mg/kg	<0.10	<0.10	-	<0.10	<0.10	-

Average	-
Median	-
Maximum	-
Minimum	-

Notes: all units are expressed in mg/kg unless otherwise stated

\- RPD was not calculated if concentration was < 5 times the MDL

MDL Method Detection Limit

RDP Relative Percent Difference

BOLD RPD > 40% (organics) were noted in Bold

Table 10b: Relative Percent Difference (RPD) for Duplicate Analyses in Water

INORGANICS

Sample ID			MW14-1	MWDUP2	RPD	MW07-29D	MWDUP	RPD
Sample Date			07-Mar-14	07-Mar-14		07-Mar-14	07-Mar-14	
Sample Type			Groundwater	Duplicate of MW14-1		Groundwater	Duplicate of MW07-29D	
Dissolved Metals	**MDL**	**Units**			%			%
Aluminum_Al	0.05	mg/L	<0.05	<0.05	-	<0.05	<0.05	-
Antimony_Sb	0.001	mg/L	<0.001	<0.001	-	<0.001	<0.001	-
Arsenic_As	0.005	mg/L	<0.005	<0.005	-	<0.005	<0.005	-
Barium_Ba	0.05	mg/L	<0.05	<0.05	-	<0.05	<0.05	-
Beryllium_Be	0.001	mg/L	<0.001	<0.001	-	<0.001	<0.001	-
Boron _B	0.04	mg/L	0.05	0.04	-	<0.04	<0.04	-
Cadmium_Cd	0.0001	mg/L	<0.0001	<0.0001	-	<0.0001	<0.0001	-
Chromium_Cr	0.005	mg/L	<0.005	<0.005	-	<0.005	<0.005	-
Cobalt_Co	0.0005	mg/L	<0.0005	<0.0005	-	<0.0005	<0.0005	-
Copper_Cu	0.002	mg/L	<0.002	<0.002	-	<0.002	<0.002	-
Iron_fe	0.1	mg/L	<0.10	<0.10	-	<0.10	<0.10	-
Lead_Pb	0.001	mg/L	<0.001	<0.001	-	<0.001	<0.001	-
Manganese_Mn	0.002	mg/L	0.012	0.012	-	0.029	0.028	4
Mercury_Hg	0.0002	mg/L	*<0.0002*	*<0.0002*	-	*<0.0002*	*<0.0002*	-
Molybdenum_Mo	0.001	mg/L	0.008	0.008	0	0.003	0.003	-
Nickel_Ni	0.002	mg/L	<0.002	<0.002	-	<0.002	<0.002	-
Selenium_Se	0.005	mg/L	<0.005	<0.005	-	<0.005	<0.005	-
Silver_Ag	0.0005	mg/L	**0.0011**	**0.0011**	-	0.0009	<0.0005	-
Sodium_Na	0.2	mg/L	17.4	16.9	3	18.9	18.8	1
Thallium_Tl	0.0002	mg/L	<0.0002	<0.0002	-	<0.0002	<0.0002	-
Uranium_U	0.0002	mg/L	0.0026	0.0026	0	0.0009	0.0008	-
Zinc_Zn	0.04	mg/L	<0.04	<0.04	-	<0.04	<0.04	-
Bismuth_Bi	0.001	mg/L	<0.001	<0.001	-	<0.001	<0.001	-
Calcium_Ca	2	mg/L	59.9	59.9	0	37.1	34.9	6
Lithium_Li	0.001	mg/L	0.004	0.004	-	0.001	0.001	-
Magnesium_Mg	0.1	mg/L	24.7	24	3	29.7	29.5	1
Phosphorus_P	0.2	mg/L	<0.2	<0.2	-	<0.2	<0.2	-
Potassium_K	0.2	mg/L	3.1	2.9	7	2.1	2.1	0
Silicon_Si	5	mg/L	10	10	-	11	11	-
Strontium_Sr	0.01	mg/L	0.33	0.32	3	0.49	0.49	0
Total Sulphur_S	10	mg/L	<10	<10	-	<10	<10	-
Tellerium_Te	0.002	mg/L	<0.002	<0.002	-	<0.002	<0.002	-
Thorium_Th	0.001	mg/L	<0.001	<0.001	-	<0.001	<0.001	-
Tin_Sn	0.002	mg/L	<0.002	<0.002	-	<0.002	<0.002	-
Titanium_Ti	0.05	mg/L	<0.05	<0.05	-	<0.05	<0.05	-
Vanadium_V	0.01	mg/L	<0.01	<0.01	-	<0.01	<0.01	-
Zirconium_Zr	0.001	mg/L	<0.001	<0.001	-	<0.001	<0.001	-

Average	2
Median	1
Maximum	7
Minimum	0

Notes: all units are expressed in mg/kg unless otherwise stated

\- RPD was not calculated if concentration was < 5 times the MDL

MDL Method Detection Limit

RDP Relative Percent Difference

BOLD RPD > 20% (inorganics in water) were noted in Bold

Table 10b: Relative Percent Difference (RPD) for Duplicate Analyses in Water

ORGANICS

Sample ID			MW14-1	MWDUP2	RPD	MW07-29D	MWDUP	RPD
Sample Date			07-Mar-14	07-Mar-14		07-Mar-14	07-Mar-14	
Sample Type			Groundwater	Duplicate of MW14-1		Groundwater	Duplicate of MW07-29D	
Polycyclic Aromatics	**MDL**	**Units**			%			%
Naphthalene	0.05	ug/L	0.19	0.24	23	-	-	-
Quinoline	0.05	ug/L	<0.05	<0.05	-	-	-	-
Acenaphthylene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Acenaphthene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Fluorene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Phenanthrene	0.05	ug/L	<0.05	<0.05	-	-	-	-
Anthracene	0.01	ug/L	<0.01	<0.01	-	-	-	-
Acridine	0.05	ug/L	<0.05	<0.05	-	-	-	-
Fluoranthene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Pyrene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Benzo (a) anthracene	0.01	ug/L	<0.01	<0.01	-	-	-	-
Chrysene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Benzo (b) fluoranthene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Benzo (k) fluoranthene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Benzo (a) pyrene	0.01	ug/L	<0.01	<0.01	-	-	-	-
Indeno (1,2,3-cd) pyrene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Dibenz (a,h) anthracene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Benzo (g,h,i) perylene	0.02	ug/L	<0.02	<0.02	-	-	-	-
Extractable Petroleum Hydrocarbons								
CCME PHC F1 (C6-C10)	100	ug/L	<100	<100	-	-	-	-
CCME PHC F2 (C10-C16)	100	ug/L	<100	<100	-	-	-	-
CCME PHC F3 (C16-C34)	100	ug/L	<100	<100	-	-	-	-
CCME PHC F4 (C34-C50)	100	ug/L	<100	<100	-	-	-	-
Volatile Organic Compounds including BTEX								
VHw (6-10)	100	ug/L	<100	<100	-	-	-	-
VPHw	100	ug/L	<100	<100	-	-	-	-
Benzene	0.5	ug/L	<0.5	<0.5	-	-	-	-
Ethylbenzene	1	ug/L	<1.0	<1.0	-	-	-	-
Toluene	1	ug/L	4	3.6	-	-	-	-
Xylenes (total)	2	ug/L	3.1	2.7	-	-	-	-
General Chemistry								
Chloride	0.1	mg/L	-	-	-	1.15	1.22	6
Fluoride	0.1	mg/L	-	-	-	0.2	0.22	-
Nitrogen, Nitrate as N	0.01	mg/L	-	-	-	0.012	0.014	-
Nitrogen, Nitrite as N	0.01	mg/L	-	-	-	0.012	0.014	-
Phosphate, Ortho as P	0.01	mg/L	-	-	-	<0.01	<0.01	-
Sulfate	1	mg/L	-	-	-	50.8	49.6	2

Average	11
Median	6
Maximum	23
Minimum	2

Notes: all units are expressed in mg/kg unless otherwise stated

\- RPD was not calculated if concentration was < 5 times the MDL

MDL Method Detection Limit

RDP Relative Percent Difference

BOLD RPD > 30% (organics in water) were noted in Bold

APPENDIX E

LABORATORY CERTIFICATES OF ANALYSIS

CERTIFICATE OF ANALYSIS

REPORTED TO	Columbia Environmental Consulting Ltd RR #2, Site 55, Compartment 10 Penticton, BC V2A 6J7	**TEL** **FAX**	(778) 476-5656 (778) 476-5655
ATTENTION	Summer Zawacky		

WORK ORDER	4051659		
PO NUMBER		**RECEIVED / TEMP**	May-27-14 10:30 / 9°C
PROJECT	14-0493	**REPORTED**	Jun-11-14
PROJECT INFO	LNIB PII ESA	**COC NUMBER**	B07252

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Work Order Comments:

June 11/14- This is an amended report from the original issued June 3/14. The RDL for Naphthalene has been lowered, as per client's request.

Issued By:

DRAFT REPORT
DATA SUBJECT TO CHANGE

Please contact CARO if more information is needed or to provide feedback on our services.

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ANALYSIS INFORMATION

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-11-14

Analysis Description	Method Reference (* = modified from) Preparation	Analysis	Location
Dissolved Metals	APHA 3030 B	APHA 3125 B	Richmond
Hardness as CaCO3 (CALC)	N/A	APHA 2340 B	Richmond
PAH in Water (low)	EPA 3510C	EPA 8270D (2007)	Richmond
VH in Water	EPA 5030B / 5021A	BCMOE	Richmond
VOC in Water	EPA 5030B / 5021A	EPA 8260B (1996)	Richmond
VOC/VH/VPH in Water Pkg	N/A	BCMOE	Richmond

Note: The numbers in brackets represent the year that the method was published/approved

Method Reference Descriptions:

BCMOE	British Columbia Environmental Laboratory Manual, 2009, British Columbia Ministry of Environment
APHA	Standard Methods for the Examination of Water and Wastewater, American Public Health Association
EPA	United States Environmental Protection Agency Test Methods

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
ug/L	Micrograms per litre

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-11-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
DRAFT: Calculated Parameters						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**281**	0.50	mg/L	N/A	N/A	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**260**	0.50	mg/L	N/A	N/A	
DRAFT: Dissolved Metals						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
Aluminum, dissolved	< 0.005	0.005	mg/L	N/A	May-30-14	
Antimony, dissolved	**0.0002**	0.0001	mg/L	N/A	May-30-14	
Arsenic, dissolved	**0.0010**	0.0005	mg/L	N/A	May-30-14	
Barium, dissolved	**0.021**	0.005	mg/L	N/A	May-30-14	
Boron, dissolved	**0.037**	0.004	mg/L	N/A	May-30-14	
Cadmium, dissolved	**0.00001**	0.00001	mg/L	N/A	May-30-14	
Calcium, dissolved	**68.1**	0.2	mg/L	N/A	May-30-14	
Chromium, dissolved	**0.0033**	0.0005	mg/L	N/A	May-30-14	
Copper, dissolved	**0.0031**	0.0002	mg/L	N/A	May-30-14	
Iron, dissolved	**0.015**	0.010	mg/L	N/A	May-30-14	
Lead, dissolved	< 0.0001	0.0001	mg/L	N/A	May-30-14	
Magnesium, dissolved	**26.8**	0.01	mg/L	N/A	May-30-14	
Manganese, dissolved	**0.0017**	0.0002	mg/L	N/A	May-30-14	
Mercury, dissolved	< 0.00002	0.0002	mg/L	N/A	May-30-14	
Nickel, dissolved	**0.0013**	0.0002	mg/L	N/A	May-30-14	
Selenium, dissolved	< 0.0005	0.0005	mg/L	N/A	May-30-14	
Silver, dissolved	< 0.00005	0.00005	mg/L	N/A	May-30-14	
Uranium, dissolved	**0.00313**	0.00002	mg/L	N/A	May-30-14	
Zinc, dissolved	**0.004**	0.004	mg/L	N/A	May-30-14	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
Aluminum, dissolved	< 0.005	0.005	mg/L	N/A	May-30-14	
Antimony, dissolved	**0.0002**	0.0001	mg/L	N/A	May-30-14	
Arsenic, dissolved	**0.0009**	0.0005	mg/L	N/A	May-30-14	
Barium, dissolved	**0.047**	0.005	mg/L	N/A	May-30-14	
Boron, dissolved	**0.018**	0.004	mg/L	N/A	May-30-14	
Cadmium, dissolved	< 0.00001	0.00001	mg/L	N/A	May-30-14	
Calcium, dissolved	**66.9**	0.2	mg/L	N/A	May-30-14	
Chromium, dissolved	**0.0007**	0.0005	mg/L	N/A	May-30-14	
Copper, dissolved	**0.0023**	0.0002	mg/L	N/A	May-30-14	
Iron, dissolved	< 0.010	0.010	mg/L	N/A	May-30-14	
Lead, dissolved	< 0.0001	0.0001	mg/L	N/A	May-30-14	
Magnesium, dissolved	**22.7**	0.01	mg/L	N/A	May-30-14	
Manganese, dissolved	**0.0010**	0.0002	mg/L	N/A	May-30-14	
Mercury, dissolved	< 0.00002	0.0002	mg/L	N/A	May-30-14	
Nickel, dissolved	< 0.0002	0.0002	mg/L	N/A	May-30-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-11-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
DRAFT: Dissolved Metals, Continued						
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30, Continued						
Selenium, dissolved	< 0.0005	0.0005	mg/L	N/A	May-30-14	
Silver, dissolved	< 0.00005	0.00005	mg/L	N/A	May-30-14	
Uranium, dissolved	**0.00117**	0.00002	mg/L	N/A	May-30-14	
Zinc, dissolved	< 0.004	0.004	mg/L	N/A	May-30-14	
DRAFT: Aggregate Organic Parameters						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
VHw (6-10)	< 100	100	ug/L	N/A	Jun-02-14	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
VHw (6-10)	< 100	100	ug/L	N/A	Jun-02-14	
DRAFT: Volatile Organic Compounds (VOC)						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
Benzene	< 0.5	0.5	ug/L	N/A	Jun-02-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Naphthalene	< 1.0	5.0	ug/L	N/A	Jun-02-14	A-01
Toluene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Jun-02-14	
Surrogate: Toluene-d8	*89 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 4-Bromofluorobenzene	*85 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*78 %*	*70-130*		*N/A*	*Jun-02-14*	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
Benzene	< 0.5	0.5	ug/L	N/A	Jun-02-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Naphthalene	< 1.0	5.0	ug/L	N/A	Jun-02-14	A-01
Toluene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Jun-02-14	
Surrogate: Toluene-d8	*100 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 4-Bromofluorobenzene	*95 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*86 %*	*70-130*		*N/A*	*Jun-02-14*	

Sample / Analysis Qualifiers:

A-01 Reported Detection Limit for this analyte lowered as per client request.

QUALITY CONTROL DATA

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4051659
PROJECT	14-0493	**REPORTED**	Jun-11-14

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in “batches” and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method’s precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method’s accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
DRAFT: Aggregate Organic Parameters, Batch B4E1240										
Blank (B4E1240-BLK1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
VHw (6-10)	< 100	100	ug/L							
LCS (B4E1240-BS2)				Prepared: Jun-02-14, Analyzed: Jun-02-14						
VHw (6-10)	2320	100	ug/L	2770		84	57-107			
DRAFT: Dissolved Metals, Batch B4E1130										
Blank (B4E1130-BLK1)				Prepared: May-30-14, Analyzed: May-30-14						
Aluminum, dissolved	< 0.005	0.005	mg/L							
Antimony, dissolved	< 0.0001	0.0001	mg/L							
Arsenic, dissolved	< 0.0005	0.0005	mg/L							
Barium, dissolved	< 0.005	0.005	mg/L							
Boron, dissolved	< 0.004	0.004	mg/L							
Cadmium, dissolved	< 0.00001	0.00001	mg/L							
Calcium, dissolved	< 0.2	0.2	mg/L							
Chromium, dissolved	< 0.0005	0.0005	mg/L							
Copper, dissolved	< 0.0002	0.0002	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.0001	0.0001	mg/L							
Magnesium, dissolved	< 0.01	0.01	mg/L							
Manganese, dissolved	< 0.0002	0.0002	mg/L							
Mercury, dissolved	< 0.00002	0.0002	mg/L							
Nickel, dissolved	< 0.0002	0.0002	mg/L							
Selenium, dissolved	< 0.0005	0.0005	mg/L							
Silver, dissolved	< 0.00005	0.00005	mg/L							
Uranium, dissolved	< 0.00002	0.00002	mg/L							
Zinc, dissolved	< 0.004	0.004	mg/L							
Reference (B4E1130-SRM1)				Prepared: May-30-14, Analyzed: May-30-14						
Aluminum, dissolved	0.232	0.005	mg/L	0.233		99	81-129			
Antimony, dissolved	0.0477	0.0001	mg/L	0.0430		111	75-125			
Arsenic, dissolved	0.426	0.0005	mg/L	0.438		97	88-114			
Barium, dissolved	3.41	0.005	mg/L	3.35		102	72-104			
Boron, dissolved	1.93	0.004	mg/L	1.74		111	74-117			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-11-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
DRAFT: Dissolved Metals, Batch B4E1130, Continued										
Reference (B4E1130-SRM1), Continued				Prepared: May-30-14, Analyzed: May-30-14						
Cadmium, dissolved	0.220	0.00001	mg/L	0.224		98	89-111			
Calcium, dissolved	8.3	0.2	mg/L	7.69		108	86-121			
Chromium, dissolved	0.447	0.0005	mg/L	0.437		102	89-114			
Copper, dissolved	0.876	0.0002	mg/L	0.844		104	91-115			
Iron, dissolved	1.32	0.010	mg/L	1.29		102	77-124			
Lead, dissolved	0.113	0.0001	mg/L	0.112		101	92-113			
Magnesium, dissolved	7.14	0.01	mg/L	6.92		103	78-120			
Manganese, dissolved	0.342	0.0002	mg/L	0.345		99	90-114			
Nickel, dissolved	0.859	0.0002	mg/L	0.840		102	90-111			
Selenium, dissolved	0.0328	0.0005	mg/L	0.0331		99	85-115			
Uranium, dissolved	0.270	0.00002	mg/L	0.266		102	85-120			
Zinc, dissolved	0.866	0.004	mg/L	0.881		98	85-111			
DRAFT: Volatile Organic Compounds (VOC), Batch B4E1240										
Blank (B4E1240-BLK1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
Benzene	< 0.5	0.5	ug/L							
Ethylbenzene	< 1.0	1.0	ug/L							
Naphthalene	< 5.0	5.0	ug/L							
Toluene	< 1.0	1.0	ug/L							
Xylenes (total)	< 2.0	2.0	ug/L							
Surrogate: Toluene-d8	*27.6*		*ug/L*	*25.0*		*110*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*28.2*		*ug/L*	*25.0*		*113*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*26.9*		*ug/L*	*26.2*		*103*	*70-130*			
LCS (B4E1240-BS1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
Benzene	21.0	0.5	ug/L	20.0		105	70-130			
Ethylbenzene	20.4	1.0	ug/L	20.0		102	70-130			
Naphthalene	18.4	5.0	ug/L	20.0		92	70-130			
Toluene	21.5	1.0	ug/L	20.0		108	70-130			
Xylenes (total)	60.3	2.0	ug/L	60.0		101	70-130			
Surrogate: Toluene-d8	*29.4*		*ug/L*	*25.0*		*118*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*30.0*		*ug/L*	*25.0*		*120*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*30.5*		*ug/L*	*26.2*		*116*	*70-130*			

CERTIFICATE OF ANALYSIS

REPORTED TO	Columbia Environmental Consulting Ltd RR #2, Site 55, Compartment 10 Penticton, BC V2A 6J7	**TEL** **FAX**	(778) 476-5656 (778) 476-5655
ATTENTION	Summer Zawacky	**WORK ORDER**	4051659
PO NUMBER		**RECEIVED / TEMP**	May-27-14 10:30 / 9°C
PROJECT	14-0493	**REPORTED**	Jun-03-14
PROJECT INFO	LNIB PII ESA	**COC NUMBER**	B07252

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Issued By: **Jennifer Shanko, AScT For Brent Coates, BSc**
Business Manager, Richmond

Please contact CARO if more information is needed or to provide feedback on our services.

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www.caro.ca

ANALYSIS INFORMATION

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-03-14

Analysis Description	Method Reference (* = modified from) Preparation	Analysis	Location
BTEX/VH/VPH in Water Pkg	N/A	BCMOE	Richmond
Dissolved Metals	APHA 3030 B	APHA 3125 B	Richmond
Hardness as CaCO3 (CALC)	N/A	APHA 2340 B	Richmond
VH in Water	EPA 5030B / 5021A	BCMOE	Richmond
VOC in Water	EPA 5030B / 5021A	EPA 8260B (1996)	Richmond
VOC/VH/VPH in Water Pkg	N/A	BCMOE	Richmond

Note: The numbers in brackets represent the year that the method was published/approved

Method Reference Descriptions:

BCMOE	British Columbia Environmental Laboratory Manual, 2009, British Columbia Ministry of Environment
APHA	Standard Methods for the Examination of Water and Wastewater, American Public Health Association
EPA	United States Environmental Protection Agency Test Methods

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
ug/L	Micrograms per litre

SAMPLE ANALYTICAL DATA

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-03-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Calculated Parameters						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**281**	0.50	mg/L	N/A	N/A	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**260**	0.50	mg/L	N/A	N/A	
Dissolved Metals						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
Aluminum, dissolved	< 0.005	0.005	mg/L	N/A	May-30-14	
Antimony, dissolved	**0.0002**	0.0001	mg/L	N/A	May-30-14	
Arsenic, dissolved	**0.0010**	0.0005	mg/L	N/A	May-30-14	
Barium, dissolved	**0.021**	0.005	mg/L	N/A	May-30-14	
Boron, dissolved	**0.037**	0.004	mg/L	N/A	May-30-14	
Cadmium, dissolved	**0.00001**	0.00001	mg/L	N/A	May-30-14	
Calcium, dissolved	**68.1**	0.2	mg/L	N/A	May-30-14	
Chromium, dissolved	**0.0033**	0.0005	mg/L	N/A	May-30-14	
Copper, dissolved	**0.0031**	0.0002	mg/L	N/A	May-30-14	
Iron, dissolved	**0.015**	0.010	mg/L	N/A	May-30-14	
Lead, dissolved	< 0.0001	0.0001	mg/L	N/A	May-30-14	
Magnesium, dissolved	**26.8**	0.01	mg/L	N/A	May-30-14	
Manganese, dissolved	**0.0017**	0.0002	mg/L	N/A	May-30-14	
Mercury, dissolved	< 0.00002	0.0002	mg/L	N/A	May-30-14	
Nickel, dissolved	**0.0013**	0.0002	mg/L	N/A	May-30-14	
Selenium, dissolved	< 0.0005	0.0005	mg/L	N/A	May-30-14	
Silver, dissolved	< 0.00005	0.00005	mg/L	N/A	May-30-14	
Uranium, dissolved	**0.00313**	0.00002	mg/L	N/A	May-30-14	
Zinc, dissolved	**0.004**	0.004	mg/L	N/A	May-30-14	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
Aluminum, dissolved	< 0.005	0.005	mg/L	N/A	May-30-14	
Antimony, dissolved	**0.0002**	0.0001	mg/L	N/A	May-30-14	
Arsenic, dissolved	**0.0009**	0.0005	mg/L	N/A	May-30-14	
Barium, dissolved	**0.047**	0.005	mg/L	N/A	May-30-14	
Boron, dissolved	**0.018**	0.004	mg/L	N/A	May-30-14	
Cadmium, dissolved	< 0.00001	0.00001	mg/L	N/A	May-30-14	
Calcium, dissolved	**66.9**	0.2	mg/L	N/A	May-30-14	
Chromium, dissolved	**0.0007**	0.0005	mg/L	N/A	May-30-14	
Copper, dissolved	**0.0023**	0.0002	mg/L	N/A	May-30-14	
Iron, dissolved	< 0.010	0.010	mg/L	N/A	May-30-14	
Lead, dissolved	< 0.0001	0.0001	mg/L	N/A	May-30-14	
Magnesium, dissolved	**22.7**	0.01	mg/L	N/A	May-30-14	
Manganese, dissolved	**0.0010**	0.0002	mg/L	N/A	May-30-14	
Mercury, dissolved	< 0.00002	0.0002	mg/L	N/A	May-30-14	
Nickel, dissolved	< 0.0002	0.0002	mg/L	N/A	May-30-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-03-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30, Continued						
Selenium, dissolved	< 0.0005	0.0005	mg/L	N/A	May-30-14	
Silver, dissolved	< 0.00005	0.00005	mg/L	N/A	May-30-14	
Uranium, dissolved	**0.00117**	0.00002	mg/L	N/A	May-30-14	
Zinc, dissolved	< 0.004	0.004	mg/L	N/A	May-30-14	
Aggregate Organic Parameters						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
VHw (6-10)	< 100	100	ug/L	N/A	Jun-02-14	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
VHw (6-10)	< 100	100	ug/L	N/A	Jun-02-14	
Volatile Organic Compounds (VOC)						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
Benzene	< 0.5	0.5	ug/L	N/A	Jun-02-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Naphthalene	< 5.0	5.0	ug/L	N/A	Jun-02-14	
Toluene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Jun-02-14	
Surrogate: Toluene-d8	*89 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 4-Bromofluorobenzene	*85 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*78 %*	*70-130*		*N/A*	*Jun-02-14*	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
Benzene	< 0.5	0.5	ug/L	N/A	Jun-02-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Naphthalene	< 5.0	5.0	ug/L	N/A	Jun-02-14	
Toluene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Jun-02-14	
Surrogate: Toluene-d8	*100 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 4-Bromofluorobenzene	*95 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*86 %*	*70-130*		*N/A*	*Jun-02-14*	

QUALITY CONTROL DATA

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4051659
PROJECT	14-0493	**REPORTED**	Jun-03-14

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in “batches” and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method’s precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method’s accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Aggregate Organic Parameters, Batch B4E1240										
Blank (B4E1240-BLK1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
VHw (6-10)	< 100	100	ug/L							
LCS (B4E1240-BS2)				Prepared: Jun-02-14, Analyzed: Jun-02-14						
VHw (6-10)	2320	100	ug/L	2770		84	57-107			
Dissolved Metals, Batch B4E1130										
Blank (B4E1130-BLK1)				Prepared: May-30-14, Analyzed: May-30-14						
Aluminum, dissolved	< 0.005	0.005	mg/L							
Antimony, dissolved	< 0.0001	0.0001	mg/L							
Arsenic, dissolved	< 0.0005	0.0005	mg/L							
Barium, dissolved	< 0.005	0.005	mg/L							
Boron, dissolved	< 0.004	0.004	mg/L							
Cadmium, dissolved	< 0.00001	0.00001	mg/L							
Calcium, dissolved	< 0.2	0.2	mg/L							
Chromium, dissolved	< 0.0005	0.0005	mg/L							
Copper, dissolved	< 0.0002	0.0002	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.0001	0.0001	mg/L							
Magnesium, dissolved	< 0.01	0.01	mg/L							
Manganese, dissolved	< 0.0002	0.0002	mg/L							
Mercury, dissolved	< 0.00002	0.0002	mg/L							
Nickel, dissolved	< 0.0002	0.0002	mg/L							
Selenium, dissolved	< 0.0005	0.0005	mg/L							
Silver, dissolved	< 0.00005	0.00005	mg/L							
Uranium, dissolved	< 0.00002	0.00002	mg/L							
Zinc, dissolved	< 0.004	0.004	mg/L							
Reference (B4E1130-SRM1)				Prepared: May-30-14, Analyzed: May-30-14						
Aluminum, dissolved	0.232	0.005	mg/L	0.233		99	81-129			
Antimony, dissolved	0.0477	0.0001	mg/L	0.0430		111	75-125			
Arsenic, dissolved	0.426	0.0005	mg/L	0.438		97	88-114			
Barium, dissolved	3.41	0.005	mg/L	3.35		102	72-104			
Boron, dissolved	1.93	0.004	mg/L	1.74		111	74-117			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-03-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4E1130, Continued										
Reference (B4E1130-SRM1), Continued				Prepared: May-30-14, Analyzed: May-30-14						
Cadmium, dissolved	0.220	0.00001	mg/L	0.224		98	89-111			
Calcium, dissolved	8.3	0.2	mg/L	7.69		108	86-121			
Chromium, dissolved	0.447	0.0005	mg/L	0.437		102	89-114			
Copper, dissolved	0.876	0.0002	mg/L	0.844		104	91-115			
Iron, dissolved	1.32	0.010	mg/L	1.29		102	77-124			
Lead, dissolved	0.113	0.0001	mg/L	0.112		101	92-113			
Magnesium, dissolved	7.14	0.01	mg/L	6.92		103	78-120			
Manganese, dissolved	0.342	0.0002	mg/L	0.345		99	90-114			
Nickel, dissolved	0.859	0.0002	mg/L	0.840		102	90-111			
Selenium, dissolved	0.0328	0.0005	mg/L	0.0331		99	85-115			
Uranium, dissolved	0.270	0.00002	mg/L	0.266		102	85-120			
Zinc, dissolved	0.866	0.004	mg/L	0.881		98	85-111			
Volatile Organic Compounds (VOC), Batch B4E1240										
Blank (B4E1240-BLK1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
Benzene	< 0.5	0.5	ug/L							
Ethylbenzene	< 1.0	1.0	ug/L							
Naphthalene	< 5.0	5.0	ug/L							
Toluene	< 1.0	1.0	ug/L							
Xylenes (total)	< 2.0	2.0	ug/L							
Surrogate: Toluene-d8	*27.6*		*ug/L*	*25.0*		*110*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*28.2*		*ug/L*	*25.0*		*113*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*26.9*		*ug/L*	*26.2*		*103*	*70-130*			
LCS (B4E1240-BS1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
Benzene	21.0	0.5	ug/L	20.0		105	70-130			
Ethylbenzene	20.4	1.0	ug/L	20.0		102	70-130			
Naphthalene	18.4	5.0	ug/L	20.0		92	70-130			
Toluene	21.5	1.0	ug/L	20.0		108	70-130			
Xylenes (total)	60.3	2.0	ug/L	60.0		101	70-130			
Surrogate: Toluene-d8	*29.4*		*ug/L*	*25.0*		*118*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*30.0*		*ug/L*	*25.0*		*120*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*30.5*		*ug/L*	*26.2*		*116*	*70-130*			

CERTIFICATE OF ANALYSIS

REPORTED TO	Columbia Environmental Consulting Ltd RR #2, Site 55, Compartment 10 Penticton, BC V2A 6J7	**TEL** **FAX**	(778) 476-5656 (778) 476-5655
ATTENTION	Summer Zawacky	**WORK ORDER**	4030418
PO NUMBER		**RECEIVED / TEMP**	Mar-10-14 13:12 / 8°C
PROJECT	14-0493	**REPORTED**	Mar-19-14
PROJECT INFO	LNIB PII ESA	**COC NUMBER**	B08808, B08809

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Issued By: **Jennifer Shanko, AScT For Brent Coates, BSc**
Business Manager, Richmond

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www.caro.ca

ANALYSIS INFORMATION

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analysis Description	Method Reference (* = modified from) Preparation	Analysis	Location
BTEX in Water	EPA 5030B / 5021A	EPA 8260B (1996)	Richmond
BTEX/VH/VPH in Water Pkg	N/A	BCMOE	Richmond
CCME PHC F1 in Water	EPA 5030B / 5021A	CCME CWS PHC (2001) *	Richmond
CCME PHC F2-F4 in Water	EPA 3510C	CCME CWS PHC (2001) *	Richmond
Chloride in Water by IC	N/A	APHA 4110 B	Kelowna
Dissolved Metals	APHA 3030 B	APHA 3125 B	Richmond
Fluoride in Water by IC	N/A	APHA 4110 B	Kelowna
Hardness as CaCO3 (CALC)	N/A	APHA 2340 B	Richmond
Nitrate-N in Water by IC	N/A	APHA 4110 B	Kelowna
Nitrite-N in Water by IC	N/A	APHA 4110 B	Kelowna
Orthophosphate as P by IC	N/A	APHA 4110 B	Kelowna
PAH in Water (low)	EPA 3510C	EPA 8270D (2007)	Richmond
Sulfate in Water by IC	N/A	APHA 4110 B	Kelowna
Total Recoverable Metals	APHA 3030E *	APHA 3125 B	Richmond
VH in Water	EPA 5030B / 5021A	BCMOE	Richmond

Note: The numbers in brackets represent the year that the method was published/approved

Method Reference Descriptions:

BCMOE	British Columbia Environmental Laboratory Manual, 2009, British Columbia Ministry of Environment
CCME	Canadian Council of Ministers of the Environment, Canada-wide Standard Reference Methods
APHA	Standard Methods for the Examination of Water and Wastewater, American Public Health Association
EPA	United States Environmental Protection Agency Test Methods

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
AO	Aesthetic objective
mg/L	Milligrams per litre
ug/L	Micrograms per litre

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Anions						
Sample ID: MW05-12 (4030418-08) [Water] Sampled: Mar-07-14 12:00						
Chloride	**387**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.24**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**1.10**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**35.3**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW07-28S (4030418-09) [Water] Sampled: Mar-07-14 12:00						
Chloride	**609**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.13**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.917**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**38.4**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW07-28D (4030418-10) [Water] Sampled: Mar-07-14 12:00						
Chloride	**1.13**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.23**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**50.9**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW07-29D (4030418-11) [Water] Sampled: Mar-07-14 12:00						
Chloride	**1.15**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.20**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.012**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	**0.012**	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**50.8**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MWDUP (4030418-12) [Water] Sampled: Mar-07-14 12:00						
Chloride	**1.22**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.22**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.014**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	**0.014**	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**49.6**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW07-32S (4030418-13) [Water] Sampled: Mar-07-14 12:00						
Chloride	**122**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.12**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.407**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**29.2**	1.0	mg/L	N/A	Mar-11-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Anions, Continued						
Sample ID: MW07-32D (4030418-14) [Water] Sampled: Mar-07-14 12:00						
Chloride	**119**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.11**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.370**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**28.4**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW08-42 (4030418-15) [Water] Sampled: Mar-07-14 12:00						
Chloride	**73.1**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.14**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.161**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**32.1**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW08-43 (4030418-16) [Water] Sampled: Mar-07-14 12:00						
Chloride	**178**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.14**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.560**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**28.8**	1.0	mg/L	N/A	Mar-11-14	
Calculated Parameters						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Total as CaCO3)	**177**	5.0	mg/L	N/A	N/A	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Total as CaCO3)	**183**	5.0	mg/L	N/A	N/A	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Total as CaCO3)	**249**	5.0	mg/L	N/A	N/A	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**251**	5.0	mg/L	N/A	N/A	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**248**	5.0	mg/L	N/A	N/A	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
VPHw	< 100	100	ug/L	N/A	N/A	

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Calculated Parameters, Continued						
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00, Continued						
Hardness, Total (Diss. as CaCO3)	**284**	5.0	mg/L	N/A	N/A	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**240**	5.0	mg/L	N/A	N/A	
Sample ID: MW05-12 (4030418-08) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**287**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-28S (4030418-09) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**605**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-28D (4030418-10) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**281**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-29D (4030418-11) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**215**	5.0	mg/L	N/A	N/A	
Sample ID: MWDUP (4030418-12) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**209**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-32S (4030418-13) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**394**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-32D (4030418-14) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**368**	5.0	mg/L	N/A	N/A	
Sample ID: MW08-42 (4030418-15) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**395**	5.0	mg/L	N/A	N/A	
Sample ID: MW08-43 (4030418-16) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**438**	5.0	mg/L	N/A	N/A	
Dissolved Metals						
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	**0.05**	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**59.9**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00, Continued						
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**24.7**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.012**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.008**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**3.1**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**10**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	**0.0011**	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**17.4**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.33**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0026**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	**0.04**	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**59.9**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**24.0**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.012**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00, Continued						
Molybdenum, dissolved	**0.008**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.9**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**10**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	**0.0011**	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**16.9**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.32**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0026**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	**0.05**	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**65.4**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	**0.003**	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**29.4**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.008**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.9**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**10**	5	mg/L	N/A	Mar-12-14	

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030418
PROJECT	14-0493	**REPORTED**	Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00, Continued						
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**19.8**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.39**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0034**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
Aluminum, dissolved	**0.33**	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.05**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**61.8**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	**0.015**	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.002**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**20.8**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.010**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.010**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**3.2**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**11**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**20.2**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.28**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00, Continued						
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	**0.015**	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0012**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	**0.08**	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW05-12 (4030418-08) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.16**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**74.1**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**24.7**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**4.0**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**8**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**273**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.40**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0009**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW05-12 (4030418-08) [Water] Sampled: Mar-07-14 12:00, Continued						
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-28S (4030418-09) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.22**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**156**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**52.4**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.032**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**5.3**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**8**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**308**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.85**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0013**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-28D (4030418-10) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW07-28D (4030418-10) [Water] Sampled: Mar-07-14 12:00, Continued						
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**50.9**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**37.5**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.042**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**3.9**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**12**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**19.9**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.40**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0025**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-29D (4030418-11) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**37.1**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW07-29D (4030418-11) [Water] Sampled: Mar-07-14 12:00, Continued						
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**29.7**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.029**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.003**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.1**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**11**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	**0.0009**	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**18.9**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.49**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0009**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MWDUP (4030418-12) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**34.9**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**29.5**	0.1	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MWDUP (4030418-12) [Water] Sampled: Mar-07-14 12:00, Continued						
Manganese, dissolved	**0.028**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.003**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.1**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**11**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**18.8**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.49**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0008**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-32S (4030418-13) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.09**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**101**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	**0.002**	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.003**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**34.3**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.9**	0.2	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW07-32S (4030418-13) [Water] Sampled: Mar-07-14 12:00, Continued						
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**8**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**36.0**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.57**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0007**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-32D (4030418-14) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.09**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**95.2**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.003**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**31.8**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.9**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**7**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**32.9**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.54**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW07-32D (4030418-14) [Water] Sampled: Mar-07-14 12:00, Continued						
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0007**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW08-42 (4030418-15) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.08**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**88.1**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.002**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**42.5**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.0**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**6**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**37.6**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.69**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0007**	0.0002	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW08-42 (4030418-15) [Water] Sampled: Mar-07-14 12:00, Continued						
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW08-43 (4030418-16) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.09**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**113**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**37.7**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.002**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**3.1**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**8**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**49.1**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.68**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0008**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Total Recoverable Metals						

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Total Recoverable Metals, Continued						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
Aluminum, total	**0.08**	0.05	mg/L	Mar-11-14	Mar-13-14	
Antimony, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Arsenic, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Barium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Beryllium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Bismuth, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Boron, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Cadmium, total	< 0.0001	0.0001	mg/L	Mar-11-14	Mar-13-14	
Calcium, total	**46.2**	2.0	mg/L	Mar-11-14	Mar-13-14	
Chromium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Cobalt, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Copper, total	**0.002**	0.002	mg/L	Mar-11-14	Mar-13-14	
Iron, total	**0.27**	0.10	mg/L	Mar-11-14	Mar-13-14	
Lead, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Lithium, total	**0.002**	0.001	mg/L	Mar-11-14	Mar-13-14	
Magnesium, total	**15.0**	0.1	mg/L	Mar-11-14	Mar-13-14	
Manganese, total	**0.005**	0.002	mg/L	Mar-11-14	Mar-13-14	
Mercury, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Molybdenum, total	**0.003**	0.001	mg/L	Mar-11-14	Mar-13-14	
Nickel, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Phosphorus, total	< 0.2	0.2	mg/L	Mar-11-14	Mar-13-14	
Potassium, total	**2.6**	0.2	mg/L	Mar-11-14	Mar-13-14	
Selenium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Silicon, total	**14**	5	mg/L	Mar-11-14	Mar-13-14	
Silver, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Sodium, total	**12.5**	0.2	mg/L	Mar-11-14	Mar-13-14	
Strontium, total	**0.19**	0.01	mg/L	Mar-11-14	Mar-13-14	
Sulfur, total	< 10	10	mg/L	Mar-11-14	Mar-13-14	
Tellurium, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Thallium, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Thorium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Tin, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Titanium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Uranium, total	**0.0010**	0.0002	mg/L	Mar-11-14	Mar-13-14	
Vanadium, total	< 0.01	0.01	mg/L	Mar-11-14	Mar-13-14	
Zinc, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Zirconium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
Aluminum, total	**0.09**	0.05	mg/L	Mar-11-14	Mar-13-14	
Antimony, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Arsenic, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Barium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Beryllium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Bismuth, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Total Recoverable Metals, Continued						
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00, Continued						
Boron, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Cadmium, total	< 0.0001	0.0001	mg/L	Mar-11-14	Mar-13-14	
Calcium, total	**46.8**	2.0	mg/L	Mar-11-14	Mar-13-14	
Chromium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Cobalt, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Copper, total	**0.002**	0.002	mg/L	Mar-11-14	Mar-13-14	
Iron, total	**0.29**	0.10	mg/L	Mar-11-14	Mar-13-14	
Lead, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Lithium, total	**0.002**	0.001	mg/L	Mar-11-14	Mar-13-14	
Magnesium, total	**16.2**	0.1	mg/L	Mar-11-14	Mar-13-14	
Manganese, total	**0.006**	0.002	mg/L	Mar-11-14	Mar-13-14	
Mercury, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Molybdenum, total	**0.004**	0.001	mg/L	Mar-11-14	Mar-13-14	
Nickel, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Phosphorus, total	< 0.2	0.2	mg/L	Mar-11-14	Mar-13-14	
Potassium, total	**2.8**	0.2	mg/L	Mar-11-14	Mar-13-14	
Selenium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Silicon, total	**15**	5	mg/L	Mar-11-14	Mar-13-14	
Silver, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Sodium, total	**13.2**	0.2	mg/L	Mar-11-14	Mar-13-14	
Strontium, total	**0.20**	0.01	mg/L	Mar-11-14	Mar-13-14	
Sulfur, total	< 10	10	mg/L	Mar-11-14	Mar-13-14	
Tellurium, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Thallium, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Thorium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Tin, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Titanium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Uranium, total	**0.0011**	0.0002	mg/L	Mar-11-14	Mar-13-14	
Vanadium, total	< 0.01	0.01	mg/L	Mar-11-14	Mar-13-14	
Zinc, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Zirconium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
Aluminum, total	**0.09**	0.05	mg/L	Mar-11-14	Mar-13-14	
Antimony, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Arsenic, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Barium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Beryllium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Bismuth, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Boron, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Cadmium, total	< 0.0001	0.0001	mg/L	Mar-11-14	Mar-13-14	
Calcium, total	**69.1**	2.0	mg/L	Mar-11-14	Mar-13-14	
Chromium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Cobalt, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Copper, total	**0.003**	0.002	mg/L	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Total Recoverable Metals, Continued						
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00, Continued						
Iron, total	< 0.10	0.10	mg/L	Mar-11-14	Mar-13-14	
Lead, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Lithium, total	**0.001**	0.001	mg/L	Mar-11-14	Mar-13-14	
Magnesium, total	**18.5**	0.1	mg/L	Mar-11-14	Mar-13-14	
Manganese, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Mercury, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Molybdenum, total	**0.006**	0.001	mg/L	Mar-11-14	Mar-13-14	
Nickel, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Phosphorus, total	< 0.2	0.2	mg/L	Mar-11-14	Mar-13-14	
Potassium, total	**2.1**	0.2	mg/L	Mar-11-14	Mar-13-14	
Selenium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Silicon, total	**10**	5	mg/L	Mar-11-14	Mar-13-14	
Silver, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Sodium, total	**15.3**	0.2	mg/L	Mar-11-14	Mar-13-14	
Strontium, total	**0.26**	0.01	mg/L	Mar-11-14	Mar-13-14	
Sulfur, total	< 10	10	mg/L	Mar-11-14	Mar-13-14	
Tellurium, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Thallium, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Thorium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Tin, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Titanium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Uranium, total	**0.0010**	0.0002	mg/L	Mar-11-14	Mar-13-14	
Vanadium, total	< 0.01	0.01	mg/L	Mar-11-14	Mar-13-14	
Zinc, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Zirconium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Aggregate Organic Parameters						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-13-14	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-13-14	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-13-14	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-14-14	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-14-14	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-14-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Aggregate Organic Parameters, Continued						
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME CWS Petroleum Hydrocarbons						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-13-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-13-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-13-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 100	100	ug/L	Mar-11-14	Mar-14-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH)						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*55 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*58 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*65 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*73 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*69 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*61 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*62 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00, Continued						
Surrogate: Phenanthrene-d10	*67 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*72 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*68 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*62 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*64 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*70 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*74 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*70 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	**0.19**	0.05	ug/L	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00, Continued						
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*61 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*62 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*68 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*72 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*73 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	**0.24**	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*78 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*77 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*81 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*84 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*81 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00, Continued						
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*67 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*68 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*72 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*77 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*76 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	**0.26**	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*69 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*72 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*76 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*80 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*77 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Volatile Organic Compounds (VOC)						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-13-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Toluene	< 1.0	1.0	ug/L	N/A	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00, Continued						
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-13-14	
Surrogate: Toluene-d8	*89 %*	*70-130*		*N/A*	*Mar-13-14*	
Surrogate: 4-Bromofluorobenzene	*87 %*	*70-130*		*N/A*	*Mar-13-14*	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-13-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Toluene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-13-14	
Surrogate: Toluene-d8	*93 %*	*70-130*		*N/A*	*Mar-13-14*	
Surrogate: 4-Bromofluorobenzene	*92 %*	*70-130*		*N/A*	*Mar-13-14*	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-13-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Toluene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-13-14	
Surrogate: Toluene-d8	*94 %*	*70-130*		*N/A*	*Mar-13-14*	
Surrogate: 4-Bromofluorobenzene	*94 %*	*70-130*		*N/A*	*Mar-13-14*	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-14-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Toluene	**4.0**	1.0	ug/L	N/A	Mar-14-14	
Xylenes (total)	**3.1**	2.0	ug/L	N/A	Mar-14-14	
Surrogate: Toluene-d8	*96 %*	*70-130*		*N/A*	*Mar-14-14*	
Surrogate: 4-Bromofluorobenzene	*99 %*	*70-130*		*N/A*	*Mar-14-14*	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-14-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Toluene	**3.6**	1.0	ug/L	N/A	Mar-14-14	
Xylenes (total)	**2.7**	2.0	ug/L	N/A	Mar-14-14	
Surrogate: Toluene-d8	*89 %*	*70-130*		*N/A*	*Mar-14-14*	
Surrogate: 4-Bromofluorobenzene	*91 %*	*70-130*		*N/A*	*Mar-14-14*	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-14-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Toluene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-14-14	
Surrogate: Toluene-d8	*94 %*	*70-130*		*N/A*	*Mar-14-14*	
Surrogate: 4-Bromofluorobenzene	*92 %*	*70-130*		*N/A*	*Mar-14-14*	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-14-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00, Continued						
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Toluene	**1.5**	1.0	ug/L	N/A	Mar-14-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-14-14	
Surrogate: Toluene-d8	*92 %*	*70-130*		*N/A*	*Mar-14-14*	
Surrogate: 4-Bromofluorobenzene	*91 %*	*70-130*		*N/A*	*Mar-14-14*	

Sample / Analysis Qualifiers:

HT The sample was prepared / analyzed past the recommended holding time.

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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Aggregate Organic Parameters, Batch B4C0511										
Blank (B4C0511-BLK1)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
VHw (6-10)	< 100	100	ug/L							
LCS (B4C0511-BS2)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
VHw (6-10)	2340	100	ug/L	2930		80	57-107			
Duplicate (B4C0511-DUP1)		**Source: 4030418-03**		Prepared: Mar-13-14, Analyzed: Mar-13-14						
VHw (6-10)	< 100	100	ug/L		< 100				27	
Anions, Batch B4C0397										
Blank (B4C0397-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrogen, Nitrate as N	< 0.010	0.010	mg/L							
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L							
Phosphate, Ortho as P	< 0.01	0.01	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B4C0397-BLK2)				Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrogen, Nitrate as N	< 0.010	0.010	mg/L							
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L							
Phosphate, Ortho as P	< 0.01	0.01	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B4C0397-BLK3)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrogen, Nitrate as N	< 0.010	0.010	mg/L							
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L							
Phosphate, Ortho as P	< 0.01	0.01	mg/L							
Sulfate	< 1.0	1.0	mg/L							

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Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Anions, Batch B4C0397, Continued										
LCS (B4C0397-BS1)				Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	15.8	0.10	mg/L	16.0		99	85-115			
Fluoride	3.97	0.10	mg/L	4.00		99	85-115			
Nitrogen, Nitrate as N	4.09	0.010	mg/L	4.00		102	85-115			
Nitrogen, Nitrite as N	1.94	0.010	mg/L	2.00		97	85-115			
Phosphate, Ortho as P	1.98	0.01	mg/L	2.00		99	85-115			
Sulfate	15.6	1.0	mg/L	16.0		98	85-115			
LCS (B4C0397-BS2)				Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	15.7	0.10	mg/L	16.0		98	85-115			
Fluoride	3.85	0.10	mg/L	4.00		96	85-115			
Nitrogen, Nitrate as N	4.09	0.010	mg/L	4.00		102	85-115			
Nitrogen, Nitrite as N	1.91	0.010	mg/L	2.00		95	85-115			
Phosphate, Ortho as P	1.89	0.01	mg/L	2.00		94	85-115			
Sulfate	15.5	1.0	mg/L	16.0		97	85-115			
LCS (B4C0397-BS3)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Chloride	15.9	0.10	mg/L	16.0		99	85-115			
Fluoride	3.95	0.10	mg/L	4.00		99	85-115			
Nitrogen, Nitrate as N	4.10	0.010	mg/L	4.00		103	85-115			
Nitrogen, Nitrite as N	1.92	0.010	mg/L	2.00		96	85-115			
Phosphate, Ortho as P	1.85	0.01	mg/L	2.00		93	85-115			
Sulfate	15.6	1.0	mg/L	16.0		97	85-115			
Duplicate (B4C0397-DUP2)		**Source: 4030418-14**		Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	120	0.10	mg/L		119			< 1	10	
Fluoride	0.11	0.10	mg/L		0.11				10	
Nitrogen, Nitrate as N	0.382	0.010	mg/L		0.370			3	10	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L		< 0.010				10	
Phosphate, Ortho as P	< 0.01	0.01	mg/L		< 0.01				20	
Sulfate	29.2	1.0	mg/L		28.4			3	10	
CCME CWS Petroleum Hydrocarbons, Batch B4C0359										
Blank (B4C0359-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-14-14						
CCME PHC F2 (C10-C16)	< 100	100	ug/L							
CCME PHC F3 (C16-C34)	< 100	100	ug/L							
CCME PHC F4 (C34-C50)	< 100	100	ug/L							
LCS (B4C0359-BS2)				Prepared: Mar-11-14, Analyzed: Mar-14-14						
CCME PHC F2 (C10-C16)	1090	100	ug/L	2050		53	41-112			
CCME PHC F3 (C16-C34)	3910	100	ug/L	7450		53	45-100			
CCME PHC F4 (C34-C50)	276	100	ug/L	500		55	44-122			
CCME CWS Petroleum Hydrocarbons, Batch B4C0511										
Blank (B4C0511-BLK1)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
CCME PHC F1 (C6-C10)	< 100	100	ug/L							
LCS (B4C0511-BS2)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
CCME PHC F1 (C6-C10)	2370	100	ug/L	2930		81	60-99			
Duplicate (B4C0511-DUP1)		**Source: 4030418-03**		Prepared: Mar-13-14, Analyzed: Mar-13-14						
CCME PHC F1 (C6-C10)	< 100	100	ug/L		< 100				20	
Dissolved Metals, Batch B4C0352										

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Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Blank (B4C0352-BLK1)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	< 0.05	0.05	mg/L							
Antimony, dissolved	< 0.001	0.001	mg/L							
Arsenic, dissolved	< 0.005	0.005	mg/L							
Barium, dissolved	< 0.05	0.05	mg/L							
Beryllium, dissolved	< 0.001	0.001	mg/L							
Bismuth, dissolved	< 0.001	0.001	mg/L							
Boron, dissolved	< 0.04	0.04	mg/L							
Cadmium, dissolved	< 0.0001	0.0001	mg/L							
Calcium, dissolved	< 2.0	2.0	mg/L							
Chromium, dissolved	< 0.005	0.005	mg/L							
Cobalt, dissolved	< 0.0005	0.0005	mg/L							
Copper, dissolved	< 0.002	0.002	mg/L							
Iron, dissolved	< 0.10	0.10	mg/L							
Lead, dissolved	< 0.001	0.001	mg/L							
Lithium, dissolved	< 0.001	0.001	mg/L							
Magnesium, dissolved	< 0.1	0.1	mg/L							
Manganese, dissolved	< 0.002	0.002	mg/L							
Mercury, dissolved	< 0.0002	0.0002	mg/L							
Molybdenum, dissolved	< 0.001	0.001	mg/L							
Nickel, dissolved	< 0.002	0.002	mg/L							
Phosphorus, dissolved	< 0.2	0.2	mg/L							
Potassium, dissolved	< 0.2	0.2	mg/L							
Selenium, dissolved	< 0.005	0.005	mg/L							
Silicon, dissolved	< 5	5	mg/L							
Silver, dissolved	< 0.0005	0.0005	mg/L							
Sodium, dissolved	< 0.2	0.2	mg/L							
Strontium, dissolved	< 0.01	0.01	mg/L							
Sulfur, dissolved	< 10	10	mg/L							
Tellurium, dissolved	< 0.002	0.002	mg/L							
Thallium, dissolved	< 0.0002	0.0002	mg/L							
Thorium, dissolved	< 0.001	0.001	mg/L							
Tin, dissolved	< 0.002	0.002	mg/L							
Titanium, dissolved	< 0.05	0.05	mg/L							
Uranium, dissolved	< 0.0002	0.0002	mg/L							
Vanadium, dissolved	< 0.01	0.01	mg/L							
Zinc, dissolved	< 0.04	0.04	mg/L							
Zirconium, dissolved	< 0.001	0.001	mg/L							
Blank (B4C0352-BLK2)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	< 0.05	0.05	mg/L							
Antimony, dissolved	< 0.001	0.001	mg/L							
Arsenic, dissolved	< 0.005	0.005	mg/L							
Barium, dissolved	< 0.05	0.05	mg/L							
Beryllium, dissolved	< 0.001	0.001	mg/L							
Bismuth, dissolved	< 0.001	0.001	mg/L							
Boron, dissolved	< 0.04	0.04	mg/L							
Cadmium, dissolved	< 0.0001	0.0001	mg/L							
Calcium, dissolved	< 2.0	2.0	mg/L							
Chromium, dissolved	< 0.005	0.005	mg/L							
Cobalt, dissolved	< 0.0005	0.0005	mg/L							
Copper, dissolved	< 0.002	0.002	mg/L							
Iron, dissolved	< 0.10	0.10	mg/L							
Lead, dissolved	< 0.001	0.001	mg/L							
Lithium, dissolved	< 0.001	0.001	mg/L							
Magnesium, dissolved	< 0.1	0.1	mg/L							
Manganese, dissolved	< 0.002	0.002	mg/L							
Mercury, dissolved	< 0.0002	0.0002	mg/L							

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Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Blank (B4C0352-BLK2), Continued				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Molybdenum, dissolved	< 0.001	0.001	mg/L							
Nickel, dissolved	< 0.002	0.002	mg/L							
Phosphorus, dissolved	< 0.2	0.2	mg/L							
Potassium, dissolved	< 0.2	0.2	mg/L							
Selenium, dissolved	< 0.005	0.005	mg/L							
Silicon, dissolved	< 5	5	mg/L							
Silver, dissolved	< 0.0005	0.0005	mg/L							
Sodium, dissolved	< 0.2	0.2	mg/L							
Strontium, dissolved	< 0.01	0.01	mg/L							
Sulfur, dissolved	< 10	10	mg/L							
Tellurium, dissolved	< 0.002	0.002	mg/L							
Thallium, dissolved	< 0.0002	0.0002	mg/L							
Thorium, dissolved	< 0.001	0.001	mg/L							
Tin, dissolved	< 0.002	0.002	mg/L							
Titanium, dissolved	< 0.05	0.05	mg/L							
Uranium, dissolved	< 0.0002	0.0002	mg/L							
Vanadium, dissolved	< 0.01	0.01	mg/L							
Zinc, dissolved	< 0.04	0.04	mg/L							
Zirconium, dissolved	< 0.001	0.001	mg/L							
Duplicate (B4C0352-DUP1)		**Source: 4030418-05**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	< 0.05	0.05	mg/L		< 0.05				16	
Antimony, dissolved	< 0.001	0.001	mg/L		0.001				21	
Arsenic, dissolved	< 0.005	0.005	mg/L		< 0.005				10	
Barium, dissolved	< 0.05	0.05	mg/L		< 0.05				6	
Beryllium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Bismuth, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Boron, dissolved	0.06	0.04	mg/L		0.04				13	
Cadmium, dissolved	< 0.0001	0.0001	mg/L		< 0.0001				24	
Calcium, dissolved	61.1	2.0	mg/L		59.9			2	10	
Chromium, dissolved	< 0.005	0.005	mg/L		< 0.005				7	
Cobalt, dissolved	< 0.0005	0.0005	mg/L		< 0.0005				12	
Copper, dissolved	0.002	0.002	mg/L		0.002				20	
Iron, dissolved	< 0.10	0.10	mg/L		< 0.10				10	
Lead, dissolved	< 0.001	0.001	mg/L		< 0.001				14	
Lithium, dissolved	0.004	0.001	mg/L		0.004				15	
Magnesium, dissolved	24.1	0.1	mg/L		24.0			< 1	9	
Manganese, dissolved	0.012	0.002	mg/L		0.012			< 1	10	
Mercury, dissolved	0.0003	0.0002	mg/L		< 0.0002				20	
Molybdenum, dissolved	0.008	0.001	mg/L		0.008			4	16	
Nickel, dissolved	< 0.002	0.002	mg/L		< 0.002				14	
Phosphorus, dissolved	< 0.2	0.2	mg/L		< 0.2				23	
Potassium, dissolved	2.9	0.2	mg/L		2.9			2	17	
Selenium, dissolved	< 0.005	0.005	mg/L		< 0.005				23	
Silicon, dissolved	10	5	mg/L		10				10	
Silver, dissolved	0.0006	0.0005	mg/L		0.0011				20	
Sodium, dissolved	17.0	0.2	mg/L		16.9			< 1	9	
Strontium, dissolved	0.32	0.01	mg/L		0.32			< 1	9	
Sulfur, dissolved	< 10	10	mg/L		< 10				27	
Tellurium, dissolved	< 0.002	0.002	mg/L		< 0.002				20	
Thallium, dissolved	< 0.0002	0.0002	mg/L		< 0.0002				12	
Thorium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Tin, dissolved	< 0.002	0.002	mg/L		< 0.002				20	
Titanium, dissolved	< 0.05	0.05	mg/L		< 0.05				20	
Uranium, dissolved	0.0028	0.0002	mg/L		0.0026			5	11	
Vanadium, dissolved	< 0.01	0.01	mg/L		< 0.01				14	
Zinc, dissolved	< 0.04	0.04	mg/L		< 0.04				11	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Duplicate (B4C0352-DUP1), Continued		**Source: 4030418-05**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Zirconium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Duplicate (B4C0352-DUP2)		**Source: 4030418-15**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	< 0.05	0.05	mg/L		< 0.05				16	
Antimony, dissolved	< 0.001	0.001	mg/L		< 0.001				21	
Arsenic, dissolved	< 0.005	0.005	mg/L		< 0.005				10	
Barium, dissolved	0.08	0.05	mg/L		0.08				6	
Beryllium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Bismuth, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Boron, dissolved	< 0.04	0.04	mg/L		< 0.04				13	
Cadmium, dissolved	< 0.0001	0.0001	mg/L		< 0.0001				24	
Calcium, dissolved	91.7	2.0	mg/L		88.1			4	10	
Chromium, dissolved	< 0.005	0.005	mg/L		< 0.005				7	
Cobalt, dissolved	< 0.0005	0.0005	mg/L		< 0.0005				12	
Copper, dissolved	0.002	0.002	mg/L		0.002				20	
Iron, dissolved	< 0.10	0.10	mg/L		< 0.10				10	
Lead, dissolved	< 0.001	0.001	mg/L		< 0.001				14	
Lithium, dissolved	0.002	0.001	mg/L		0.002				15	
Magnesium, dissolved	44.7	0.1	mg/L		42.5			5	9	
Manganese, dissolved	< 0.002	0.002	mg/L		< 0.002				10	
Mercury, dissolved	< 0.0002	0.0002	mg/L		< 0.0002				20	
Molybdenum, dissolved	0.002	0.001	mg/L		0.001				16	
Nickel, dissolved	< 0.002	0.002	mg/L		< 0.002				14	
Phosphorus, dissolved	< 0.2	0.2	mg/L		< 0.2				23	
Potassium, dissolved	2.1	0.2	mg/L		2.0			4	17	
Selenium, dissolved	< 0.005	0.005	mg/L		< 0.005				23	
Silicon, dissolved	7	5	mg/L		6				10	
Silver, dissolved	< 0.0005	0.0005	mg/L		< 0.0005				20	
Sodium, dissolved	39.0	0.2	mg/L		37.6			4	9	
Strontium, dissolved	0.72	0.01	mg/L		0.69			4	9	
Sulfur, dissolved	< 10	10	mg/L		< 10				27	
Tellurium, dissolved	< 0.002	0.002	mg/L		< 0.002				20	
Thallium, dissolved	< 0.0002	0.0002	mg/L		< 0.0002				12	
Thorium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Tin, dissolved	< 0.002	0.002	mg/L		< 0.002				20	
Titanium, dissolved	< 0.05	0.05	mg/L		< 0.05				20	
Uranium, dissolved	0.0007	0.0002	mg/L		0.0007				11	
Vanadium, dissolved	< 0.01	0.01	mg/L		< 0.01				14	
Zinc, dissolved	< 0.04	0.04	mg/L		< 0.04				11	
Zirconium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Matrix Spike (B4C0352-MS1)		**Source: 4030418-06**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Antimony, dissolved	0.378	0.001	mg/L	0.400	< 0.001	94	71-112			
Arsenic, dissolved	0.187	0.005	mg/L	0.200	< 0.005	93	82-112			
Barium, dissolved	0.95	0.05	mg/L	1.00	< 0.05	93	80-109			
Beryllium, dissolved	0.094	0.001	mg/L	0.100	< 0.001	94	75-111			
Cadmium, dissolved	0.0927	0.0001	mg/L	0.100	< 0.0001	93	84-109			
Chromium, dissolved	0.386	0.005	mg/L	0.400	< 0.005	96	87-115			
Cobalt, dissolved	0.385	0.0005	mg/L	0.400	< 0.0005	96	85-118			
Copper, dissolved	0.388	0.002	mg/L	0.400	0.003	96	84-121			
Iron, dissolved	1.90	0.10	mg/L	2.00	< 0.10	95	71-129			
Lead, dissolved	0.182	0.001	mg/L	0.200	< 0.001	91	81-111			
Manganese, dissolved	0.383	0.002	mg/L	0.400	0.002	95	66-125			
Nickel, dissolved	0.374	0.002	mg/L	0.400	< 0.002	94	85-115			
Selenium, dissolved	0.087	0.005	mg/L	0.100	< 0.005	87	77-113			
Silver, dissolved	0.0868	0.0005	mg/L	0.100	< 0.0005	87	52-131			
Thallium, dissolved	0.0923	0.0002	mg/L	0.100	< 0.0002	92	82-111			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Matrix Spike (B4C0352-MS1), Continued		**Source: 4030418-06**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Vanadium, dissolved	0.38	0.01	mg/L	0.400	< 0.01	95	85-111			
Zinc, dissolved	0.96	0.04	mg/L	1.00	< 0.04	96	85-115			
Matrix Spike (B4C0352-MS2)		**Source: 4030418-16**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Antimony, dissolved	0.369	0.001	mg/L	0.400	0.001	92	71-112			
Arsenic, dissolved	0.182	0.005	mg/L	0.200	< 0.005	91	82-112			
Barium, dissolved	1.00	0.05	mg/L	1.00	0.09	91	80-109			
Beryllium, dissolved	0.090	0.001	mg/L	0.100	< 0.001	90	75-111			
Cadmium, dissolved	0.0913	0.0001	mg/L	0.100	< 0.0001	91	84-109			
Chromium, dissolved	0.375	0.005	mg/L	0.400	< 0.005	93	87-115			
Cobalt, dissolved	0.376	0.0005	mg/L	0.400	< 0.0005	94	85-118			
Copper, dissolved	0.379	0.002	mg/L	0.400	< 0.002	94	84-121			
Iron, dissolved	1.86	0.10	mg/L	2.00	< 0.10	93	71-129			
Lead, dissolved	0.176	0.001	mg/L	0.200	< 0.001	88	81-111			
Manganese, dissolved	0.360	0.002	mg/L	0.400	< 0.002	90	66-125			
Nickel, dissolved	0.366	0.002	mg/L	0.400	< 0.002	91	85-115			
Selenium, dissolved	0.087	0.005	mg/L	0.100	< 0.005	87	77-113			
Silver, dissolved	0.0846	0.0005	mg/L	0.100	< 0.0005	84	52-131			
Thallium, dissolved	0.0880	0.0002	mg/L	0.100	< 0.0002	88	82-111			
Vanadium, dissolved	0.38	0.01	mg/L	0.400	< 0.01	94	85-111			
Zinc, dissolved	0.93	0.04	mg/L	1.00	< 0.04	93	85-115			
Reference (B4C0352-SRM1)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	0.24	0.05	mg/L	0.233		105	58-142			
Antimony, dissolved	0.050	0.001	mg/L	0.0430		116	75-125			
Arsenic, dissolved	0.413	0.005	mg/L	0.438		94	81-119			
Barium, dissolved	3.18	0.05	mg/L	3.35		95	83-117			
Beryllium, dissolved	0.200	0.001	mg/L	0.213		94	80-120			
Boron, dissolved	1.81	0.04	mg/L	1.74		104	74-117			
Cadmium, dissolved	0.210	0.0001	mg/L	0.224		94	83-117			
Calcium, dissolved	7.1	2.0	mg/L	7.69		93	76-124			
Chromium, dissolved	0.421	0.005	mg/L	0.437		96	81-119			
Cobalt, dissolved	0.126	0.0005	mg/L	0.128		98	76-124			
Copper, dissolved	0.841	0.002	mg/L	0.844		100	84-116			
Iron, dissolved	1.18	0.10	mg/L	1.29		91	74-126			
Lead, dissolved	0.102	0.001	mg/L	0.112		91	72-128			
Lithium, dissolved	0.103	0.001	mg/L	0.104		99	60-140			
Magnesium, dissolved	6.8	0.1	mg/L	6.92		98	81-119			
Manganese, dissolved	0.321	0.002	mg/L	0.345		93	84-116			
Molybdenum, dissolved	0.403	0.001	mg/L	0.426		95	83-117			
Nickel, dissolved	0.808	0.002	mg/L	0.840		96	74-126			
Phosphorus, dissolved	0.6	0.2	mg/L	0.495		120	68-132			
Potassium, dissolved	2.8	0.2	mg/L	3.19		87	74-126			
Selenium, dissolved	0.027	0.005	mg/L	0.0331		82	70-130			
Sodium, dissolved	19.0	0.2	mg/L	19.1		99	72-128			
Strontium, dissolved	0.87	0.01	mg/L	0.916		95	84-113			
Thallium, dissolved	0.0354	0.0002	mg/L	0.0393		90	57-143			
Uranium, dissolved	0.236	0.0002	mg/L	0.266		89	85-115			
Vanadium, dissolved	0.82	0.01	mg/L	0.869		95	87-113			
Zinc, dissolved	0.83	0.04	mg/L	0.881		94	72-128			
Reference (B4C0352-SRM2)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	0.24	0.05	mg/L	0.233		101	58-142			
Antimony, dissolved	0.049	0.001	mg/L	0.0430		114	75-125			
Arsenic, dissolved	0.411	0.005	mg/L	0.438		94	81-119			
Barium, dissolved	3.15	0.05	mg/L	3.35		94	83-117			
Beryllium, dissolved	0.205	0.001	mg/L	0.213		96	80-120			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Reference (B4C0352-SRM2), Continued				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Boron, dissolved	1.86	0.04	mg/L	1.74		107	74-117			
Cadmium, dissolved	0.207	0.0001	mg/L	0.224		92	83-117			
Calcium, dissolved	7.3	2.0	mg/L	7.69		94	76-124			
Chromium, dissolved	0.419	0.005	mg/L	0.437		96	81-119			
Cobalt, dissolved	0.126	0.0005	mg/L	0.128		98	76-124			
Copper, dissolved	0.839	0.002	mg/L	0.844		99	84-116			
Iron, dissolved	1.18	0.10	mg/L	1.29		92	74-126			
Lead, dissolved	0.103	0.001	mg/L	0.112		92	72-128			
Lithium, dissolved	0.105	0.001	mg/L	0.104		101	60-140			
Magnesium, dissolved	6.7	0.1	mg/L	6.92		97	81-119			
Manganese, dissolved	0.322	0.002	mg/L	0.345		93	84-116			
Molybdenum, dissolved	0.400	0.001	mg/L	0.426		94	83-117			
Nickel, dissolved	0.800	0.002	mg/L	0.840		95	74-126			
Phosphorus, dissolved	0.6	0.2	mg/L	0.495		124	68-132			
Potassium, dissolved	2.8	0.2	mg/L	3.19		89	74-126			
Selenium, dissolved	0.030	0.005	mg/L	0.0331		89	70-130			
Sodium, dissolved	18.9	0.2	mg/L	19.1		99	72-128			
Strontium, dissolved	0.85	0.01	mg/L	0.916		93	84-113			
Thallium, dissolved	0.0356	0.0002	mg/L	0.0393		91	57-143			
Uranium, dissolved	0.236	0.0002	mg/L	0.266		89	85-115			
Vanadium, dissolved	0.82	0.01	mg/L	0.869		94	87-113			
Zinc, dissolved	0.83	0.04	mg/L	0.881		94	72-128			
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4C0359										
Blank (B4C0359-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Acenaphthene	< 0.02	0.02	ug/L							
Acenaphthylene	< 0.02	0.02	ug/L							
Acridine	< 0.05	0.05	ug/L							
Anthracene	< 0.01	0.01	ug/L							
Benzo (a) anthracene	< 0.01	0.01	ug/L							
Benzo (a) pyrene	< 0.01	0.01	ug/L							
Benzo (b) fluoranthene	< 0.02	0.02	ug/L							
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L							
Benzo (k) fluoranthene	< 0.02	0.02	ug/L							
Chrysene	< 0.02	0.02	ug/L							
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L							
Fluoranthene	< 0.02	0.02	ug/L							
Fluorene	< 0.02	0.02	ug/L							
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L							
Naphthalene	< 0.05	0.05	ug/L							
Phenanthrene	< 0.05	0.05	ug/L							
Pyrene	< 0.02	0.02	ug/L							
Quinoline	< 0.05	0.05	ug/L							
Surrogate: Naphthalene-d8	*0.722*		*ug/L*	*1.02*		*71*	*40-96*			
Surrogate: Acenaphthene-d10	*0.726*		*ug/L*	*0.995*		*73*	*45-92*			
Surrogate: Phenanthrene-d10	*0.734*		*ug/L*	*0.970*		*76*	*48-90*			
Surrogate: Chrysene-d12	*0.839*		*ug/L*	*0.950*		*88*	*41-96*			
Surrogate: Perylene-d12	*0.858*		*ug/L*	*0.990*		*87*	*47-104*			
LCS (B4C0359-BS1)				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Acenaphthene	0.68	0.02	ug/L	1.00		68	54-92			
Acenaphthylene	0.75	0.02	ug/L	1.00		75	54-95			
Acridine	0.61	0.05	ug/L	1.00		61	49-87			
Anthracene	0.71	0.01	ug/L	1.00		71	53-94			
Benzo (a) anthracene	0.74	0.01	ug/L	1.00		74	52-95			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4C0359, Continued										
LCS (B4C0359-BS1), Continued				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Benzo (a) pyrene	0.75	0.01	ug/L	1.00		75	52-103			
Benzo (b) fluoranthene	0.72	0.02	ug/L	1.00		72	49-94			
Benzo (g,h,i) perylene	0.73	0.02	ug/L	1.00		73	51-98			
Benzo (k) fluoranthene	0.76	0.02	ug/L	1.00		76	49-105			
Chrysene	0.80	0.02	ug/L	1.00		80	50-104			
Dibenz (a,h) anthracene	0.72	0.02	ug/L	1.00		72	49-96			
Fluoranthene	0.75	0.02	ug/L	1.00		75	53-102			
Fluorene	0.71	0.02	ug/L	1.00		71	54-91			
Indeno (1,2,3-cd) pyrene	0.72	0.02	ug/L	1.00		72	51-99			
Naphthalene	0.68	0.05	ug/L	1.00		68	51-91			
Phenanthrene	0.70	0.05	ug/L	1.00		70	56-96			
Pyrene	0.72	0.02	ug/L	1.00		72	51-105			
Quinoline	0.62	0.05	ug/L	1.00		62	48-126			
Surrogate: Naphthalene-d8	*0.742*		*ug/L*	*1.02*		*73*	*40-96*			
Surrogate: Acenaphthene-d10	*0.713*		*ug/L*	*0.995*		*72*	*45-92*			
Surrogate: Phenanthrene-d10	*0.753*		*ug/L*	*0.970*		*78*	*48-90*			
Surrogate: Chrysene-d12	*0.832*		*ug/L*	*0.950*		*88*	*41-96*			
Surrogate: Perylene-d12	*0.771*		*ug/L*	*0.990*		*78*	*47-104*			
LCS Dup (B4C0359-BSD1)				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Acenaphthene	0.58	0.02	ug/L	1.00		58	54-92	16	20	
Acenaphthylene	0.64	0.02	ug/L	1.00		64	54-95	17	20	
Acridine	0.54	0.05	ug/L	1.00		54	49-87	13	20	
Anthracene	0.59	0.01	ug/L	1.00		59	53-94	18	20	
Benzo (a) anthracene	0.64	0.01	ug/L	1.00		64	52-95	14	20	
Benzo (a) pyrene	0.65	0.01	ug/L	1.00		65	52-103	13	20	
Benzo (b) fluoranthene	0.61	0.02	ug/L	1.00		61	49-94	17	20	
Benzo (g,h,i) perylene	0.62	0.02	ug/L	1.00		62	51-98	16	20	
Benzo (k) fluoranthene	0.66	0.02	ug/L	1.00		66	49-105	13	20	
Chrysene	0.70	0.02	ug/L	1.00		70	50-104	13	20	
Dibenz (a,h) anthracene	0.62	0.02	ug/L	1.00		62	49-96	14	20	
Fluoranthene	0.62	0.02	ug/L	1.00		62	53-102	18	20	
Fluorene	0.60	0.02	ug/L	1.00		60	54-91	16	20	
Indeno (1,2,3-cd) pyrene	0.66	0.02	ug/L	1.00		66	51-99	9	20	
Naphthalene	0.58	0.05	ug/L	1.00		58	51-91	16	20	
Phenanthrene	0.58	0.05	ug/L	1.00		58	56-96	18	20	
Pyrene	0.60	0.02	ug/L	1.00		60	51-105	18	20	
Quinoline	0.55	0.05	ug/L	1.00		55	48-126	11	20	
Surrogate: Naphthalene-d8	*0.603*		*ug/L*	*1.02*		*59*	*40-96*			
Surrogate: Acenaphthene-d10	*0.584*		*ug/L*	*0.995*		*59*	*45-92*			
Surrogate: Phenanthrene-d10	*0.609*		*ug/L*	*0.970*		*63*	*48-90*			
Surrogate: Chrysene-d12	*0.712*		*ug/L*	*0.950*		*75*	*41-96*			
Surrogate: Perylene-d12	*0.672*		*ug/L*	*0.990*		*68*	*47-104*			
Total Recoverable Metals, Batch B4C0354										
Blank (B4C0354-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-12-14						
Aluminum, total	< 0.05	0.05	mg/L							
Antimony, total	< 0.001	0.001	mg/L							
Arsenic, total	< 0.005	0.005	mg/L							
Barium, total	< 0.05	0.05	mg/L							
Beryllium, total	< 0.001	0.001	mg/L							
Bismuth, total	< 0.001	0.001	mg/L							
Boron, total	< 0.04	0.04	mg/L							
Cadmium, total	< 0.0001	0.0001	mg/L							
Calcium, total	< 2.0	2.0	mg/L							

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Total Recoverable Metals, Batch B4C0354, Continued										
Blank (B4C0354-BLK1), Continued				Prepared: Mar-11-14, Analyzed: Mar-12-14						
Chromium, total	< 0.005	0.005	mg/L							
Cobalt, total	< 0.0005	0.0005	mg/L							
Copper, total	< 0.002	0.002	mg/L							
Iron, total	< 0.10	0.10	mg/L							
Lead, total	< 0.001	0.001	mg/L							
Lithium, total	< 0.001	0.001	mg/L							
Magnesium, total	< 0.1	0.1	mg/L							
Manganese, total	< 0.002	0.002	mg/L							
Mercury, total	< 0.0002	0.0002	mg/L							
Molybdenum, total	< 0.001	0.001	mg/L							
Nickel, total	< 0.002	0.002	mg/L							
Phosphorus, total	< 0.2	0.2	mg/L							
Potassium, total	< 0.2	0.2	mg/L							
Selenium, total	< 0.005	0.005	mg/L							
Silicon, total	< 5	5	mg/L							
Silver, total	< 0.0005	0.0005	mg/L							
Sodium, total	< 0.2	0.2	mg/L							
Strontium, total	< 0.01	0.01	mg/L							
Sulfur, total	< 10	10	mg/L							
Tellurium, total	< 0.002	0.002	mg/L							
Thallium, total	< 0.0002	0.0002	mg/L							
Thorium, total	< 0.001	0.001	mg/L							
Tin, total	< 0.002	0.002	mg/L							
Titanium, total	< 0.05	0.05	mg/L							
Uranium, total	< 0.0002	0.0002	mg/L							
Vanadium, total	< 0.01	0.01	mg/L							
Zinc, total	< 0.04	0.04	mg/L							
Zirconium, total	< 0.001	0.001	mg/L							
Duplicate (B4C0354-DUP1)		**Source: 4030418-01**		Prepared: Mar-11-14, Analyzed: Mar-13-14						
Aluminum, total	0.07	0.05	mg/L		0.08				27	
Antimony, total	< 0.001	0.001	mg/L		< 0.001				24	
Arsenic, total	< 0.005	0.005	mg/L		< 0.005				14	
Barium, total	< 0.05	0.05	mg/L		< 0.05				16	
Beryllium, total	< 0.001	0.001	mg/L		< 0.001				20	
Bismuth, total	< 0.001	0.001	mg/L		< 0.001				20	
Boron, total	< 0.04	0.04	mg/L		< 0.04				15	
Cadmium, total	< 0.0001	0.0001	mg/L		< 0.0001				40	
Calcium, total	43.8	2.0	mg/L		46.2			5	14	
Chromium, total	< 0.005	0.005	mg/L		< 0.005				17	
Cobalt, total	< 0.0005	0.0005	mg/L		< 0.0005				17	
Copper, total	0.002	0.002	mg/L		0.002				30	
Iron, total	0.25	0.10	mg/L		0.27				28	
Lead, total	< 0.001	0.001	mg/L		< 0.001				19	
Lithium, total	0.002	0.001	mg/L		0.002				18	
Magnesium, total	15.4	0.1	mg/L		15.0			2	13	
Manganese, total	0.004	0.002	mg/L		0.005				19	
Mercury, total	< 0.0002	0.0002	mg/L		< 0.0002				40	
Molybdenum, total	0.003	0.001	mg/L		0.003				24	
Nickel, total	< 0.002	0.002	mg/L		< 0.002				33	
Phosphorus, total	< 0.2	0.2	mg/L		< 0.2				24	
Potassium, total	2.8	0.2	mg/L		2.6			5	22	
Selenium, total	< 0.005	0.005	mg/L		< 0.005				21	
Silicon, total	14	5	mg/L		14				25	
Silver, total	< 0.0005	0.0005	mg/L		< 0.0005				23	
Sodium, total	12.8	0.2	mg/L		12.5			3	17	
Strontium, total	0.20	0.01	mg/L		0.19			2	11	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Total Recoverable Metals, Batch B4C0354, Continued										
Duplicate (B4C0354-DUP1), Continued		**Source: 4030418-01**		Prepared: Mar-11-14, Analyzed: Mar-13-14						
Sulfur, total	< 10	10	mg/L		< 10				41	
Tellurium, total	< 0.002	0.002	mg/L		< 0.002				31	
Thallium, total	< 0.0002	0.0002	mg/L		< 0.0002				21	
Thorium, total	< 0.001	0.001	mg/L		< 0.001				46	
Tin, total	< 0.002	0.002	mg/L		< 0.002				30	
Titanium, total	< 0.05	0.05	mg/L		< 0.05				60	
Uranium, total	0.0010	0.0002	mg/L		0.0010			< 1	17	
Vanadium, total	< 0.01	0.01	mg/L		< 0.01				27	
Zinc, total	< 0.04	0.04	mg/L		< 0.04				26	
Zirconium, total	< 0.001	0.001	mg/L		< 0.001				60	
Matrix Spike (B4C0354-MS1)		**Source: 4030418-02**		Prepared: Mar-11-14, Analyzed: Mar-13-14						
Antimony, total	0.383	0.001	mg/L	0.400	< 0.001	96	81-122			
Arsenic, total	0.177	0.005	mg/L	0.200	< 0.005	88	81-119			
Barium, total	0.95	0.05	mg/L	1.00	< 0.05	91	84-113			
Beryllium, total	0.091	0.001	mg/L	0.100	< 0.001	91	77-117			
Cadmium, total	0.0906	0.0001	mg/L	0.100	< 0.0001	91	87-112			
Chromium, total	0.374	0.005	mg/L	0.400	< 0.005	94	88-119			
Cobalt, total	0.377	0.0005	mg/L	0.400	< 0.0005	94	88-118			
Copper, total	0.381	0.002	mg/L	0.400	0.002	95	86-126			
Iron, total	2.17	0.10	mg/L	2.00	0.29	94	70-138			
Lead, total	0.192	0.001	mg/L	0.200	< 0.001	96	82-119			
Manganese, total	0.414	0.002	mg/L	0.400	0.006	102	81-125			
Nickel, total	0.364	0.002	mg/L	0.400	< 0.002	91	85-121			
Selenium, total	0.089	0.005	mg/L	0.100	< 0.005	89	73-121			
Silver, total	0.0856	0.0005	mg/L	0.100	< 0.0005	86	83-118			
Thallium, total	0.0966	0.0002	mg/L	0.100	< 0.0002	97	85-115			
Vanadium, total	0.37	0.01	mg/L	0.400	< 0.01	92	86-116			
Zinc, total	0.93	0.04	mg/L	1.00	< 0.04	93	83-123			
Reference (B4C0354-SRM1)				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Aluminum, total	0.31	0.05	mg/L	0.296		106	81-129			
Antimony, total	0.050	0.001	mg/L	0.0505		99	88-114			
Arsenic, total	0.121	0.005	mg/L	0.122		99	88-114			
Barium, total	0.74	0.05	mg/L	0.777		96	72-104			
Beryllium, total	0.044	0.001	mg/L	0.0488		90	76-131			
Boron, total	3.33	0.04	mg/L	3.40		98	75-121			
Cadmium, total	0.0471	0.0001	mg/L	0.0490		96	89-111			
Calcium, total	9.6	2.0	mg/L	10.2		95	86-121			
Chromium, total	0.244	0.005	mg/L	0.242		101	89-114			
Cobalt, total	0.0381	0.0005	mg/L	0.0366		104	91-113			
Copper, total	0.504	0.002	mg/L	0.487		104	91-115			
Iron, total	0.43	0.10	mg/L	0.469		92	77-124			
Lead, total	0.187	0.001	mg/L	0.193		97	92-113			
Lithium, total	0.364	0.001	mg/L	0.390		93	85-115			
Magnesium, total	3.5	0.1	mg/L	3.31		105	78-120			
Manganese, total	0.107	0.002	mg/L	0.109		98	90-114			
Mercury, total	0.0042	0.0002	mg/L	0.00456		92	50-150			
Molybdenum, total	0.194	0.001	mg/L	0.197		99	90-111			
Nickel, total	0.238	0.002	mg/L	0.242		98	90-111			
Phosphorus, total	0.2	0.2	mg/L	0.233		85	85-115			
Potassium, total	6.3	0.2	mg/L	5.93		106	84-113			
Selenium, total	0.107	0.005	mg/L	0.115		93	85-115			
Sodium, total	8.1	0.2	mg/L	7.64		106	82-123			
Strontium, total	0.37	0.01	mg/L	0.363		102	88-112			
Thallium, total	0.0760	0.0002	mg/L	0.0794		96	91-114			
Uranium, total	0.0163	0.0002	mg/L	0.0192		85	85-120			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Total Recoverable Metals, Batch B4C0354, Continued										
Reference (B4C0354-SRM1), Continued				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Vanadium, total	0.37	0.01	mg/L	0.376		99	86-111			
Zinc, total	2.39	0.04	mg/L	2.42		99	85-111			
Volatile Organic Compounds (VOC), Batch B4C0511										
Blank (B4C0511-BLK1)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
Benzene	< 0.5	0.5	ug/L							
Ethylbenzene	< 1.0	1.0	ug/L							
Toluene	< 1.0	1.0	ug/L							
Xylenes (total)	< 2.0	2.0	ug/L							
Surrogate: Toluene-d8	*22.1*		*ug/L*	*25.0*		*88*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*21.7*		*ug/L*	*25.0*		*87*	*70-130*			
LCS (B4C0511-BS1)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
Benzene	17.2	0.5	ug/L	20.0		86	70-130			
Ethylbenzene	16.3	1.0	ug/L	20.0		82	70-130			
Toluene	17.0	1.0	ug/L	20.0		85	70-130			
Xylenes (total)	52.2	2.0	ug/L	60.0		87	70-130			
Surrogate: Toluene-d8	*27.7*		*ug/L*	*25.0*		*111*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*28.3*		*ug/L*	*25.0*		*113*	*70-130*			
Duplicate (B4C0511-DUP1)		**Source: 4030418-03**		Prepared: Mar-13-14, Analyzed: Mar-13-14						
Benzene	< 0.5	0.5	ug/L		< 0.5				20	
Ethylbenzene	< 1.0	1.0	ug/L		< 1.0				20	
Toluene	< 1.0	1.0	ug/L		< 1.0				20	
Xylenes (total)	< 2.0	2.0	ug/L		< 2.0				20	
Surrogate: Toluene-d8	*23.4*		*ug/L*	*25.0*		*94*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*23.0*		*ug/L*	*25.0*		*92*	*70-130*			

CERTIFICATE OF ANALYSIS

REPORTED TO	Columbia Environmental Consulting Ltd RR #2, Site 55, Compartment 10 Penticton, BC V2A 6J7	**TEL** **FAX**	(778) 476-5656 (778) 476-5655
ATTENTION	Summer Zawacky	**WORK ORDER**	4030418
PO NUMBER		**RECEIVED / TEMP**	Mar-10-14 13:12 / 8°C
PROJECT	14-0493	**REPORTED**	Mar-17-14
PROJECT INFO	LNIB PII ESA	**COC NUMBER**	B08808, B08809

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Issued By: **Jennifer Shanko, AScT For Brent Coates, BSc**
Business Manager, Richmond

Please contact CARO if more information is needed or to provide feedback on our services.

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ANALYSIS INFORMATION

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analysis Description	Method Reference (* = modified from) Preparation	Analysis	Location
BTEX in Water	EPA 5030B / 5021A	EPA 8260B (1996)	Richmond
BTEX/VH/VPH in Water Pkg	N/A	BCMOE	Richmond
CCME PHC F1 in Water	EPA 5030B / 5021A	CCME CWS PHC (2001) *	Richmond
CCME PHC F2 in Water	EPA 3510C	CCME CWS PHC (2001) *	Richmond
Chloride in Water by IC	N/A	APHA 4110 B	Kelowna
Dissolved Metals	APHA 3030 B	APHA 3125 B	Richmond
Fluoride in Water by IC	N/A	APHA 4110 B	Kelowna
Hardness as CaCO3 (CALC)	N/A	APHA 2340 B	Richmond
Nitrate-N in Water by IC	N/A	APHA 4110 B	Kelowna
Nitrite-N in Water by IC	N/A	APHA 4110 B	Kelowna
Orthophosphate as P by IC	N/A	APHA 4110 B	Kelowna
PAH in Water (low)	EPA 3510C	EPA 8270D (2007)	Richmond
Sulfate in Water by IC	N/A	APHA 4110 B	Kelowna
Total Recoverable Metals	APHA 3030E *	APHA 3125 B	Richmond
VH in Water	EPA 5030B / 5021A	BCMOE	Richmond

Note: The numbers in brackets represent the year that the method was published/approved

Method Reference Descriptions:

BCMOE	British Columbia Environmental Laboratory Manual, 2009, British Columbia Ministry of Environment
CCME	Canadian Council of Ministers of the Environment, Canada-wide Standard Reference Methods
APHA	Standard Methods for the Examination of Water and Wastewater, American Public Health Association
EPA	United States Environmental Protection Agency Test Methods

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
ug/L	Micrograms per litre

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Anions						
Sample ID: MW05-12 (4030418-08) [Water] Sampled: Mar-07-14 12:00						
Chloride	**387**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.24**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**1.10**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**35.3**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW07-28S (4030418-09) [Water] Sampled: Mar-07-14 12:00						
Chloride	**609**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.13**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.917**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**38.4**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW07-28D (4030418-10) [Water] Sampled: Mar-07-14 12:00						
Chloride	**1.13**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.23**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**50.9**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW07-29D (4030418-11) [Water] Sampled: Mar-07-14 12:00						
Chloride	**1.15**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.20**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.012**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	**0.012**	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**50.8**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MWDUP (4030418-12) [Water] Sampled: Mar-07-14 12:00						
Chloride	**1.22**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.22**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.014**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	**0.014**	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**49.6**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW07-32S (4030418-13) [Water] Sampled: Mar-07-14 12:00						
Chloride	**122**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.12**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.407**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**29.2**	1.0	mg/L	N/A	Mar-11-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Anions, Continued						
Sample ID: MW07-32D (4030418-14) [Water] Sampled: Mar-07-14 12:00						
Chloride	**119**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.11**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.370**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**28.4**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW08-42 (4030418-15) [Water] Sampled: Mar-07-14 12:00						
Chloride	**73.1**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.14**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.161**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**32.1**	1.0	mg/L	N/A	Mar-11-14	
Sample ID: MW08-43 (4030418-16) [Water] Sampled: Mar-07-14 12:00						
Chloride	**178**	0.10	mg/L	N/A	Mar-11-14	
Fluoride	**0.14**	0.10	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrate as N	**0.560**	0.010	mg/L	N/A	Mar-11-14	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L	N/A	Mar-11-14	
Phosphate, Ortho as P	< 0.01	0.01	mg/L	N/A	Mar-11-14	
Sulfate	**28.8**	1.0	mg/L	N/A	Mar-11-14	
Calculated Parameters						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Total as CaCO3)	**177**	5.0	mg/L	N/A	N/A	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Total as CaCO3)	**183**	5.0	mg/L	N/A	N/A	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Total as CaCO3)	**249**	5.0	mg/L	N/A	N/A	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**251**	5.0	mg/L	N/A	N/A	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**248**	5.0	mg/L	N/A	N/A	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
VPHw	< 100	100	ug/L	N/A	N/A	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Calculated Parameters, Continued						
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00, Continued						
Hardness, Total (Diss. as CaCO3)	**284**	5.0	mg/L	N/A	N/A	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**240**	5.0	mg/L	N/A	N/A	
Sample ID: MW05-12 (4030418-08) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**287**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-28S (4030418-09) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**605**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-28D (4030418-10) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**281**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-29D (4030418-11) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**215**	5.0	mg/L	N/A	N/A	
Sample ID: MWDUP (4030418-12) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**209**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-32S (4030418-13) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**394**	5.0	mg/L	N/A	N/A	
Sample ID: MW07-32D (4030418-14) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**368**	5.0	mg/L	N/A	N/A	
Sample ID: MW08-42 (4030418-15) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**395**	5.0	mg/L	N/A	N/A	
Sample ID: MW08-43 (4030418-16) [Water] Sampled: Mar-07-14 12:00						
Hardness, Total (Diss. as CaCO3)	**438**	5.0	mg/L	N/A	N/A	
Dissolved Metals						
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	**0.05**	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**59.9**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00, Continued						
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**24.7**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.012**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.008**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**3.1**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**10**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	**0.0011**	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**17.4**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.33**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0026**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	**0.04**	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**59.9**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**24.0**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.012**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00, Continued						
Molybdenum, dissolved	**0.008**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.9**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**10**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	**0.0011**	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**16.9**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.32**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0026**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	**0.05**	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**65.4**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	**0.003**	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**29.4**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.008**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.9**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**10**	5	mg/L	N/A	Mar-12-14	

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030418
PROJECT	14-0493	**REPORTED**	Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00, Continued						
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**19.8**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.39**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0034**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
Aluminum, dissolved	**0.33**	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.05**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**61.8**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	**0.015**	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.002**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**20.8**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.010**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.010**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**3.2**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**11**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**20.2**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.28**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00, Continued						
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	**0.015**	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0012**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	**0.08**	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW05-12 (4030418-08) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.16**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**74.1**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**24.7**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**4.0**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**8**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**273**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.40**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0009**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW05-12 (4030418-08) [Water] Sampled: Mar-07-14 12:00, Continued						
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-28S (4030418-09) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.22**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**156**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**52.4**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.032**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**5.3**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**8**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**308**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.85**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0013**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-28D (4030418-10) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW07-28D (4030418-10) [Water] Sampled: Mar-07-14 12:00, Continued						
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**50.9**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**37.5**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.042**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**3.9**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**12**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**19.9**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.40**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0025**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-29D (4030418-11) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**37.1**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW07-29D (4030418-11) [Water] Sampled: Mar-07-14 12:00, Continued						
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**29.7**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	**0.029**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.003**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.1**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**11**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	**0.0009**	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**18.9**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.49**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0009**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MWDUP (4030418-12) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**34.9**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**29.5**	0.1	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MWDUP (4030418-12) [Water] Sampled: Mar-07-14 12:00, Continued						
Manganese, dissolved	**0.028**	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.003**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.1**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**11**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**18.8**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.49**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0008**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-32S (4030418-13) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.09**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**101**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	**0.002**	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.003**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**34.3**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.9**	0.2	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW07-32S (4030418-13) [Water] Sampled: Mar-07-14 12:00, Continued						
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**8**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**36.0**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.57**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0007**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW07-32D (4030418-14) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.09**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**95.2**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.003**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**31.8**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.9**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**7**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**32.9**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.54**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW07-32D (4030418-14) [Water] Sampled: Mar-07-14 12:00, Continued						
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0007**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW08-42 (4030418-15) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.08**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**88.1**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.002**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**42.5**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**2.0**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**6**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**37.6**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.69**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0007**	0.0002	mg/L	N/A	Mar-12-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW08-42 (4030418-15) [Water] Sampled: Mar-07-14 12:00, Continued						
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Sample ID: MW08-43 (4030418-16) [Water] Sampled: Mar-07-14 12:00						
Aluminum, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Antimony, dissolved	**0.001**	0.001	mg/L	N/A	Mar-12-14	
Arsenic, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Barium, dissolved	**0.09**	0.05	mg/L	N/A	Mar-12-14	
Beryllium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Bismuth, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Boron, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Cadmium, dissolved	< 0.0001	0.0001	mg/L	N/A	Mar-12-14	
Calcium, dissolved	**113**	2.0	mg/L	N/A	Mar-12-14	
Chromium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Cobalt, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Copper, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Iron, dissolved	< 0.10	0.10	mg/L	N/A	Mar-12-14	
Lead, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Lithium, dissolved	**0.004**	0.001	mg/L	N/A	Mar-12-14	
Magnesium, dissolved	**37.7**	0.1	mg/L	N/A	Mar-12-14	
Manganese, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Mercury, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Molybdenum, dissolved	**0.002**	0.001	mg/L	N/A	Mar-12-14	
Nickel, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Phosphorus, dissolved	< 0.2	0.2	mg/L	N/A	Mar-12-14	
Potassium, dissolved	**3.1**	0.2	mg/L	N/A	Mar-12-14	
Selenium, dissolved	< 0.005	0.005	mg/L	N/A	Mar-12-14	
Silicon, dissolved	**8**	5	mg/L	N/A	Mar-12-14	
Silver, dissolved	< 0.0005	0.0005	mg/L	N/A	Mar-12-14	
Sodium, dissolved	**49.1**	0.2	mg/L	N/A	Mar-12-14	
Strontium, dissolved	**0.68**	0.01	mg/L	N/A	Mar-12-14	
Sulfur, dissolved	< 10	10	mg/L	N/A	Mar-12-14	
Tellurium, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Thallium, dissolved	< 0.0002	0.0002	mg/L	N/A	Mar-12-14	
Thorium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Tin, dissolved	< 0.002	0.002	mg/L	N/A	Mar-12-14	
Titanium, dissolved	< 0.05	0.05	mg/L	N/A	Mar-12-14	
Uranium, dissolved	**0.0008**	0.0002	mg/L	N/A	Mar-12-14	
Vanadium, dissolved	< 0.01	0.01	mg/L	N/A	Mar-12-14	
Zinc, dissolved	< 0.04	0.04	mg/L	N/A	Mar-12-14	
Zirconium, dissolved	< 0.001	0.001	mg/L	N/A	Mar-12-14	
Total Recoverable Metals						

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Total Recoverable Metals, Continued						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
Aluminum, total	**0.08**	0.05	mg/L	Mar-11-14	Mar-13-14	
Antimony, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Arsenic, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Barium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Beryllium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Bismuth, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Boron, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Cadmium, total	< 0.0001	0.0001	mg/L	Mar-11-14	Mar-13-14	
Calcium, total	**46.2**	2.0	mg/L	Mar-11-14	Mar-13-14	
Chromium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Cobalt, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Copper, total	**0.002**	0.002	mg/L	Mar-11-14	Mar-13-14	
Iron, total	**0.27**	0.10	mg/L	Mar-11-14	Mar-13-14	
Lead, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Lithium, total	**0.002**	0.001	mg/L	Mar-11-14	Mar-13-14	
Magnesium, total	**15.0**	0.1	mg/L	Mar-11-14	Mar-13-14	
Manganese, total	**0.005**	0.002	mg/L	Mar-11-14	Mar-13-14	
Mercury, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Molybdenum, total	**0.003**	0.001	mg/L	Mar-11-14	Mar-13-14	
Nickel, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Phosphorus, total	< 0.2	0.2	mg/L	Mar-11-14	Mar-13-14	
Potassium, total	**2.6**	0.2	mg/L	Mar-11-14	Mar-13-14	
Selenium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Silicon, total	**14**	5	mg/L	Mar-11-14	Mar-13-14	
Silver, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Sodium, total	**12.5**	0.2	mg/L	Mar-11-14	Mar-13-14	
Strontium, total	**0.19**	0.01	mg/L	Mar-11-14	Mar-13-14	
Sulfur, total	< 10	10	mg/L	Mar-11-14	Mar-13-14	
Tellurium, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Thallium, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Thorium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Tin, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Titanium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Uranium, total	**0.0010**	0.0002	mg/L	Mar-11-14	Mar-13-14	
Vanadium, total	< 0.01	0.01	mg/L	Mar-11-14	Mar-13-14	
Zinc, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Zirconium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
Aluminum, total	**0.09**	0.05	mg/L	Mar-11-14	Mar-13-14	
Antimony, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Arsenic, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Barium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Beryllium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Bismuth, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	

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Total Recoverable Metals, Continued						
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00, Continued						
Boron, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Cadmium, total	< 0.0001	0.0001	mg/L	Mar-11-14	Mar-13-14	
Calcium, total	**46.8**	2.0	mg/L	Mar-11-14	Mar-13-14	
Chromium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Cobalt, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Copper, total	**0.002**	0.002	mg/L	Mar-11-14	Mar-13-14	
Iron, total	**0.29**	0.10	mg/L	Mar-11-14	Mar-13-14	
Lead, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Lithium, total	**0.002**	0.001	mg/L	Mar-11-14	Mar-13-14	
Magnesium, total	**16.2**	0.1	mg/L	Mar-11-14	Mar-13-14	
Manganese, total	**0.006**	0.002	mg/L	Mar-11-14	Mar-13-14	
Mercury, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Molybdenum, total	**0.004**	0.001	mg/L	Mar-11-14	Mar-13-14	
Nickel, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Phosphorus, total	< 0.2	0.2	mg/L	Mar-11-14	Mar-13-14	
Potassium, total	**2.8**	0.2	mg/L	Mar-11-14	Mar-13-14	
Selenium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Silicon, total	**15**	5	mg/L	Mar-11-14	Mar-13-14	
Silver, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Sodium, total	**13.2**	0.2	mg/L	Mar-11-14	Mar-13-14	
Strontium, total	**0.20**	0.01	mg/L	Mar-11-14	Mar-13-14	
Sulfur, total	< 10	10	mg/L	Mar-11-14	Mar-13-14	
Tellurium, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Thallium, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Thorium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Tin, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Titanium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Uranium, total	**0.0011**	0.0002	mg/L	Mar-11-14	Mar-13-14	
Vanadium, total	< 0.01	0.01	mg/L	Mar-11-14	Mar-13-14	
Zinc, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Zirconium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
Aluminum, total	**0.09**	0.05	mg/L	Mar-11-14	Mar-13-14	
Antimony, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Arsenic, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Barium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Beryllium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Bismuth, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Boron, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Cadmium, total	< 0.0001	0.0001	mg/L	Mar-11-14	Mar-13-14	
Calcium, total	**69.1**	2.0	mg/L	Mar-11-14	Mar-13-14	
Chromium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Cobalt, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Copper, total	**0.003**	0.002	mg/L	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Total Recoverable Metals, Continued						
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00, Continued						
Iron, total	< 0.10	0.10	mg/L	Mar-11-14	Mar-13-14	
Lead, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Lithium, total	**0.001**	0.001	mg/L	Mar-11-14	Mar-13-14	
Magnesium, total	**18.5**	0.1	mg/L	Mar-11-14	Mar-13-14	
Manganese, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Mercury, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Molybdenum, total	**0.006**	0.001	mg/L	Mar-11-14	Mar-13-14	
Nickel, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Phosphorus, total	< 0.2	0.2	mg/L	Mar-11-14	Mar-13-14	
Potassium, total	**2.1**	0.2	mg/L	Mar-11-14	Mar-13-14	
Selenium, total	< 0.005	0.005	mg/L	Mar-11-14	Mar-13-14	
Silicon, total	**10**	5	mg/L	Mar-11-14	Mar-13-14	
Silver, total	< 0.0005	0.0005	mg/L	Mar-11-14	Mar-13-14	
Sodium, total	**15.3**	0.2	mg/L	Mar-11-14	Mar-13-14	
Strontium, total	**0.26**	0.01	mg/L	Mar-11-14	Mar-13-14	
Sulfur, total	< 10	10	mg/L	Mar-11-14	Mar-13-14	
Tellurium, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Thallium, total	< 0.0002	0.0002	mg/L	Mar-11-14	Mar-13-14	
Thorium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Tin, total	< 0.002	0.002	mg/L	Mar-11-14	Mar-13-14	
Titanium, total	< 0.05	0.05	mg/L	Mar-11-14	Mar-13-14	
Uranium, total	**0.0010**	0.0002	mg/L	Mar-11-14	Mar-13-14	
Vanadium, total	< 0.01	0.01	mg/L	Mar-11-14	Mar-13-14	
Zinc, total	< 0.04	0.04	mg/L	Mar-11-14	Mar-13-14	
Zirconium, total	< 0.001	0.001	mg/L	Mar-11-14	Mar-13-14	
Aggregate Organic Parameters						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-13-14	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-13-14	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-13-14	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-14-14	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-14-14	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-14-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Aggregate Organic Parameters, Continued						
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
VHw (6-10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME CWS Petroleum Hydrocarbons						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-13-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-13-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-13-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
CCME PHC F1 (C6-C10)	< 100	100	ug/L	N/A	Mar-14-14	
CCME PHC F2 (C10-C16)	< 100	100	ug/L	Mar-11-14	Mar-14-14	
Polycyclic Aromatic Hydrocarbons (PAH)						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00, Continued						
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*55 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*58 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*65 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*73 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*69 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*61 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*62 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*67 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*72 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*68 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00, Continued						
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*62 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*64 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*70 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*74 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*70 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	**0.19**	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*61 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*62 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*68 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*72 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*73 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00, Continued						
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	**0.24**	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*78 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*77 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*81 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*84 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*81 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*67 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*68 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*72 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*77 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00, Continued						
Surrogate: Perylene-d12	*76 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
Acenaphthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acenaphthylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Acridine	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 0.01	0.01	ug/L	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Chrysene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluoranthene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Fluorene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Naphthalene	**0.26**	0.05	ug/L	Mar-11-14	Mar-13-14	
Phenanthrene	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Pyrene	< 0.02	0.02	ug/L	Mar-11-14	Mar-13-14	
Quinoline	< 0.05	0.05	ug/L	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*69 %*	*40-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*72 %*	*45-92*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*76 %*	*48-90*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*80 %*	*41-96*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*77 %*	*47-104*		*Mar-11-14*	*Mar-13-14*	
Volatile Organic Compounds (VOC)						
Sample ID: SW1 (4030418-01) [Water] Sampled: Mar-03-14 16:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-13-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Toluene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-13-14	
Surrogate: Toluene-d8	*89 %*	*70-130*		*N/A*	*Mar-13-14*	
Surrogate: 4-Bromofluorobenzene	*87 %*	*70-130*		*N/A*	*Mar-13-14*	
Sample ID: SW2 (4030418-02) [Water] Sampled: Mar-03-14 16:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-13-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Toluene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-13-14	
Surrogate: Toluene-d8	*93 %*	*70-130*		*N/A*	*Mar-13-14*	
Surrogate: 4-Bromofluorobenzene	*92 %*	*70-130*		*N/A*	*Mar-13-14*	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: SW3 (4030418-03) [Water] Sampled: Mar-03-14 16:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-13-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Toluene	< 1.0	1.0	ug/L	N/A	Mar-13-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-13-14	
Surrogate: Toluene-d8	*94 %*	*70-130*		*N/A*	*Mar-13-14*	
Surrogate: 4-Bromofluorobenzene	*94 %*	*70-130*		*N/A*	*Mar-13-14*	
Sample ID: MW14-1 (4030418-04) [Water] Sampled: Mar-07-14 17:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-14-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Toluene	**4.0**	1.0	ug/L	N/A	Mar-14-14	
Xylenes (total)	**3.1**	2.0	ug/L	N/A	Mar-14-14	
Surrogate: Toluene-d8	*96 %*	*70-130*		*N/A*	*Mar-14-14*	
Surrogate: 4-Bromofluorobenzene	*99 %*	*70-130*		*N/A*	*Mar-14-14*	
Sample ID: MWDUP2 (4030418-05) [Water] Sampled: Mar-07-14 17:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-14-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Toluene	**3.6**	1.0	ug/L	N/A	Mar-14-14	
Xylenes (total)	**2.7**	2.0	ug/L	N/A	Mar-14-14	
Surrogate: Toluene-d8	*89 %*	*70-130*		*N/A*	*Mar-14-14*	
Surrogate: 4-Bromofluorobenzene	*91 %*	*70-130*		*N/A*	*Mar-14-14*	
Sample ID: MW14-2 (4030418-06) [Water] Sampled: Mar-07-14 17:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-14-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Toluene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-14-14	
Surrogate: Toluene-d8	*94 %*	*70-130*		*N/A*	*Mar-14-14*	
Surrogate: 4-Bromofluorobenzene	*92 %*	*70-130*		*N/A*	*Mar-14-14*	
Sample ID: MW14-3 (4030418-07) [Water] Sampled: Mar-08-14 09:00						
Benzene	< 0.5	0.5	ug/L	N/A	Mar-14-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Mar-14-14	
Toluene	**1.5**	1.0	ug/L	N/A	Mar-14-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Mar-14-14	
Surrogate: Toluene-d8	*92 %*	*70-130*		*N/A*	*Mar-14-14*	
Surrogate: 4-Bromofluorobenzene	*91 %*	*70-130*		*N/A*	*Mar-14-14*	

Sample / Analysis Qualifiers:

HT The sample was prepared / analyzed past the recommended holding time.

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The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Aggregate Organic Parameters, Batch B4C0511										
Blank (B4C0511-BLK1)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
VHw (6-10)	< 100	100	ug/L							
LCS (B4C0511-BS2)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
VHw (6-10)	2340	100	ug/L	2930		80	57-107			
Duplicate (B4C0511-DUP1)		**Source: 4030418-03**		Prepared: Mar-13-14, Analyzed: Mar-13-14						
VHw (6-10)	< 100	100	ug/L		< 100				27	
Anions, Batch B4C0397										
Blank (B4C0397-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrogen, Nitrate as N	< 0.010	0.010	mg/L							
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L							
Phosphate, Ortho as P	< 0.01	0.01	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B4C0397-BLK2)				Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrogen, Nitrate as N	< 0.010	0.010	mg/L							
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L							
Phosphate, Ortho as P	< 0.01	0.01	mg/L							
Sulfate	< 1.0	1.0	mg/L							
Blank (B4C0397-BLK3)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Chloride	< 0.10	0.10	mg/L							
Fluoride	< 0.10	0.10	mg/L							
Nitrogen, Nitrate as N	< 0.010	0.010	mg/L							
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L							
Phosphate, Ortho as P	< 0.01	0.01	mg/L							
Sulfate	< 1.0	1.0	mg/L							

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Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Anions, Batch B4C0397, Continued										
LCS (B4C0397-BS1)				Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	15.8	0.10	mg/L	16.0		99	85-115			
Fluoride	3.97	0.10	mg/L	4.00		99	85-115			
Nitrogen, Nitrate as N	4.09	0.010	mg/L	4.00		102	85-115			
Nitrogen, Nitrite as N	1.94	0.010	mg/L	2.00		97	85-115			
Phosphate, Ortho as P	1.98	0.01	mg/L	2.00		99	85-115			
Sulfate	15.6	1.0	mg/L	16.0		98	85-115			
LCS (B4C0397-BS2)				Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	15.7	0.10	mg/L	16.0		98	85-115			
Fluoride	3.85	0.10	mg/L	4.00		96	85-115			
Nitrogen, Nitrate as N	4.09	0.010	mg/L	4.00		102	85-115			
Nitrogen, Nitrite as N	1.91	0.010	mg/L	2.00		95	85-115			
Phosphate, Ortho as P	1.89	0.01	mg/L	2.00		94	85-115			
Sulfate	15.5	1.0	mg/L	16.0		97	85-115			
LCS (B4C0397-BS3)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Chloride	15.9	0.10	mg/L	16.0		99	85-115			
Fluoride	3.95	0.10	mg/L	4.00		99	85-115			
Nitrogen, Nitrate as N	4.10	0.010	mg/L	4.00		103	85-115			
Nitrogen, Nitrite as N	1.92	0.010	mg/L	2.00		96	85-115			
Phosphate, Ortho as P	1.85	0.01	mg/L	2.00		93	85-115			
Sulfate	15.6	1.0	mg/L	16.0		97	85-115			
Duplicate (B4C0397-DUP2)			**Source: 4030418-14**	Prepared: Mar-11-14, Analyzed: Mar-11-14						
Chloride	120	0.10	mg/L		119			< 1	10	
Fluoride	0.11	0.10	mg/L		0.11				10	
Nitrogen, Nitrate as N	0.382	0.010	mg/L		0.370			3	10	
Nitrogen, Nitrite as N	< 0.010	0.010	mg/L		< 0.010				10	
Phosphate, Ortho as P	< 0.01	0.01	mg/L		< 0.01				20	
Sulfate	29.2	1.0	mg/L		28.4			3	10	
CCME CWS Petroleum Hydrocarbons, Batch B4C0359										
Blank (B4C0359-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-14-14						
CCME PHC F2 (C10-C16)	< 100	100	ug/L							
LCS (B4C0359-BS2)				Prepared: Mar-11-14, Analyzed: Mar-14-14						
CCME PHC F2 (C10-C16)	1090	100	ug/L	2050		53	41-112			
CCME CWS Petroleum Hydrocarbons, Batch B4C0511										
Blank (B4C0511-BLK1)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
CCME PHC F1 (C6-C10)	< 100	100	ug/L							
LCS (B4C0511-BS2)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
CCME PHC F1 (C6-C10)	2370	100	ug/L	2930		81	60-99			
Duplicate (B4C0511-DUP1)			**Source: 4030418-03**	Prepared: Mar-13-14, Analyzed: Mar-13-14						
CCME PHC F1 (C6-C10)	< 100	100	ug/L		< 100				20	
Dissolved Metals, Batch B4C0352										
Blank (B4C0352-BLK1)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	< 0.05	0.05	mg/L							
Antimony, dissolved	< 0.001	0.001	mg/L							
Arsenic, dissolved	< 0.005	0.005	mg/L							
Barium, dissolved	< 0.05	0.05	mg/L							

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Blank (B4C0352-BLK1), Continued				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Beryllium, dissolved	< 0.001	0.001	mg/L							
Bismuth, dissolved	< 0.001	0.001	mg/L							
Boron, dissolved	< 0.04	0.04	mg/L							
Cadmium, dissolved	< 0.0001	0.0001	mg/L							
Calcium, dissolved	< 2.0	2.0	mg/L							
Chromium, dissolved	< 0.005	0.005	mg/L							
Cobalt, dissolved	< 0.0005	0.0005	mg/L							
Copper, dissolved	< 0.002	0.002	mg/L							
Iron, dissolved	< 0.10	0.10	mg/L							
Lead, dissolved	< 0.001	0.001	mg/L							
Lithium, dissolved	< 0.001	0.001	mg/L							
Magnesium, dissolved	< 0.1	0.1	mg/L							
Manganese, dissolved	< 0.002	0.002	mg/L							
Mercury, dissolved	< 0.0002	0.0002	mg/L							
Molybdenum, dissolved	< 0.001	0.001	mg/L							
Nickel, dissolved	< 0.002	0.002	mg/L							
Phosphorus, dissolved	< 0.2	0.2	mg/L							
Potassium, dissolved	< 0.2	0.2	mg/L							
Selenium, dissolved	< 0.005	0.005	mg/L							
Silicon, dissolved	< 5	5	mg/L							
Silver, dissolved	< 0.0005	0.0005	mg/L							
Sodium, dissolved	< 0.2	0.2	mg/L							
Strontium, dissolved	< 0.01	0.01	mg/L							
Sulfur, dissolved	< 10	10	mg/L							
Tellurium, dissolved	< 0.002	0.002	mg/L							
Thallium, dissolved	< 0.0002	0.0002	mg/L							
Thorium, dissolved	< 0.001	0.001	mg/L							
Tin, dissolved	< 0.002	0.002	mg/L							
Titanium, dissolved	< 0.05	0.05	mg/L							
Uranium, dissolved	< 0.0002	0.0002	mg/L							
Vanadium, dissolved	< 0.01	0.01	mg/L							
Zinc, dissolved	< 0.04	0.04	mg/L							
Zirconium, dissolved	< 0.001	0.001	mg/L							
Blank (B4C0352-BLK2)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	< 0.05	0.05	mg/L							
Antimony, dissolved	< 0.001	0.001	mg/L							
Arsenic, dissolved	< 0.005	0.005	mg/L							
Barium, dissolved	< 0.05	0.05	mg/L							
Beryllium, dissolved	< 0.001	0.001	mg/L							
Bismuth, dissolved	< 0.001	0.001	mg/L							
Boron, dissolved	< 0.04	0.04	mg/L							
Cadmium, dissolved	< 0.0001	0.0001	mg/L							
Calcium, dissolved	< 2.0	2.0	mg/L							
Chromium, dissolved	< 0.005	0.005	mg/L							
Cobalt, dissolved	< 0.0005	0.0005	mg/L							
Copper, dissolved	< 0.002	0.002	mg/L							
Iron, dissolved	< 0.10	0.10	mg/L							
Lead, dissolved	< 0.001	0.001	mg/L							
Lithium, dissolved	< 0.001	0.001	mg/L							
Magnesium, dissolved	< 0.1	0.1	mg/L							
Manganese, dissolved	< 0.002	0.002	mg/L							
Mercury, dissolved	< 0.0002	0.0002	mg/L							
Molybdenum, dissolved	< 0.001	0.001	mg/L							
Nickel, dissolved	< 0.002	0.002	mg/L							
Phosphorus, dissolved	< 0.2	0.2	mg/L							
Potassium, dissolved	< 0.2	0.2	mg/L							

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Blank (B4C0352-BLK2), Continued				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Selenium, dissolved	< 0.005	0.005	mg/L							
Silicon, dissolved	< 5	5	mg/L							
Silver, dissolved	< 0.0005	0.0005	mg/L							
Sodium, dissolved	< 0.2	0.2	mg/L							
Strontium, dissolved	< 0.01	0.01	mg/L							
Sulfur, dissolved	< 10	10	mg/L							
Tellurium, dissolved	< 0.002	0.002	mg/L							
Thallium, dissolved	< 0.0002	0.0002	mg/L							
Thorium, dissolved	< 0.001	0.001	mg/L							
Tin, dissolved	< 0.002	0.002	mg/L							
Titanium, dissolved	< 0.05	0.05	mg/L							
Uranium, dissolved	< 0.0002	0.0002	mg/L							
Vanadium, dissolved	< 0.01	0.01	mg/L							
Zinc, dissolved	< 0.04	0.04	mg/L							
Zirconium, dissolved	< 0.001	0.001	mg/L							
Duplicate (B4C0352-DUP1)				**Source: 4030418-05**	Prepared: Mar-12-14, Analyzed: Mar-12-14					
Aluminum, dissolved	< 0.05	0.05	mg/L		< 0.05				16	
Antimony, dissolved	< 0.001	0.001	mg/L		0.001				21	
Arsenic, dissolved	< 0.005	0.005	mg/L		< 0.005				10	
Barium, dissolved	< 0.05	0.05	mg/L		< 0.05				6	
Beryllium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Bismuth, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Boron, dissolved	0.06	0.04	mg/L		0.04				13	
Cadmium, dissolved	< 0.0001	0.0001	mg/L		< 0.0001				24	
Calcium, dissolved	61.1	2.0	mg/L		59.9			2	10	
Chromium, dissolved	< 0.005	0.005	mg/L		< 0.005				7	
Cobalt, dissolved	< 0.0005	0.0005	mg/L		< 0.0005				12	
Copper, dissolved	0.002	0.002	mg/L		0.002				20	
Iron, dissolved	< 0.10	0.10	mg/L		< 0.10				10	
Lead, dissolved	< 0.001	0.001	mg/L		< 0.001				14	
Lithium, dissolved	0.004	0.001	mg/L		0.004				15	
Magnesium, dissolved	24.1	0.1	mg/L		24.0			< 1	9	
Manganese, dissolved	0.012	0.002	mg/L		0.012			< 1	10	
Mercury, dissolved	0.0003	0.0002	mg/L		< 0.0002				20	
Molybdenum, dissolved	0.008	0.001	mg/L		0.008			4	16	
Nickel, dissolved	< 0.002	0.002	mg/L		< 0.002				14	
Phosphorus, dissolved	< 0.2	0.2	mg/L		< 0.2				23	
Potassium, dissolved	2.9	0.2	mg/L		2.9			2	17	
Selenium, dissolved	< 0.005	0.005	mg/L		< 0.005				23	
Silicon, dissolved	10	5	mg/L		10				10	
Silver, dissolved	0.0006	0.0005	mg/L		0.0011				20	
Sodium, dissolved	17.0	0.2	mg/L		16.9			< 1	9	
Strontium, dissolved	0.32	0.01	mg/L		0.32			< 1	9	
Sulfur, dissolved	< 10	10	mg/L		< 10				27	
Tellurium, dissolved	< 0.002	0.002	mg/L		< 0.002				20	
Thallium, dissolved	< 0.0002	0.0002	mg/L		< 0.0002				12	
Thorium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Tin, dissolved	< 0.002	0.002	mg/L		< 0.002				20	
Titanium, dissolved	< 0.05	0.05	mg/L		< 0.05				20	
Uranium, dissolved	0.0028	0.0002	mg/L		0.0026			5	11	
Vanadium, dissolved	< 0.01	0.01	mg/L		< 0.01				14	
Zinc, dissolved	< 0.04	0.04	mg/L		< 0.04				11	
Zirconium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Duplicate (B4C0352-DUP2)				**Source: 4030418-15**	Prepared: Mar-12-14, Analyzed: Mar-12-14					
Aluminum, dissolved	< 0.05	0.05	mg/L		< 0.05				16	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Duplicate (B4C0352-DUP2), Continued		**Source: 4030418-15**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Antimony, dissolved	< 0.001	0.001	mg/L		< 0.001				21	
Arsenic, dissolved	< 0.005	0.005	mg/L		< 0.005				10	
Barium, dissolved	0.08	0.05	mg/L		0.08				6	
Beryllium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Bismuth, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Boron, dissolved	< 0.04	0.04	mg/L		< 0.04				13	
Cadmium, dissolved	< 0.0001	0.0001	mg/L		< 0.0001				24	
Calcium, dissolved	91.7	2.0	mg/L		88.1			4	10	
Chromium, dissolved	< 0.005	0.005	mg/L		< 0.005				7	
Cobalt, dissolved	< 0.0005	0.0005	mg/L		< 0.0005				12	
Copper, dissolved	0.002	0.002	mg/L		0.002				20	
Iron, dissolved	< 0.10	0.10	mg/L		< 0.10				10	
Lead, dissolved	< 0.001	0.001	mg/L		< 0.001				14	
Lithium, dissolved	0.002	0.001	mg/L		0.002				15	
Magnesium, dissolved	44.7	0.1	mg/L		42.5			5	9	
Manganese, dissolved	< 0.002	0.002	mg/L		< 0.002				10	
Mercury, dissolved	< 0.0002	0.0002	mg/L		< 0.0002				20	
Molybdenum, dissolved	0.002	0.001	mg/L		0.001				16	
Nickel, dissolved	< 0.002	0.002	mg/L		< 0.002				14	
Phosphorus, dissolved	< 0.2	0.2	mg/L		< 0.2				23	
Potassium, dissolved	2.1	0.2	mg/L		2.0			4	17	
Selenium, dissolved	< 0.005	0.005	mg/L		< 0.005				23	
Silicon, dissolved	7	5	mg/L		6				10	
Silver, dissolved	< 0.0005	0.0005	mg/L		< 0.0005				20	
Sodium, dissolved	39.0	0.2	mg/L		37.6			4	9	
Strontium, dissolved	0.72	0.01	mg/L		0.69			4	9	
Sulfur, dissolved	< 10	10	mg/L		< 10				27	
Tellurium, dissolved	< 0.002	0.002	mg/L		< 0.002				20	
Thallium, dissolved	< 0.0002	0.0002	mg/L		< 0.0002				12	
Thorium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Tin, dissolved	< 0.002	0.002	mg/L		< 0.002				20	
Titanium, dissolved	< 0.05	0.05	mg/L		< 0.05				20	
Uranium, dissolved	0.0007	0.0002	mg/L		0.0007				11	
Vanadium, dissolved	< 0.01	0.01	mg/L		< 0.01				14	
Zinc, dissolved	< 0.04	0.04	mg/L		< 0.04				11	
Zirconium, dissolved	< 0.001	0.001	mg/L		< 0.001				20	
Matrix Spike (B4C0352-MS1)		**Source: 4030418-06**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Antimony, dissolved	0.378	0.001	mg/L	0.400	< 0.001	94	71-112			
Arsenic, dissolved	0.187	0.005	mg/L	0.200	< 0.005	93	82-112			
Barium, dissolved	0.95	0.05	mg/L	1.00	< 0.05	93	80-109			
Beryllium, dissolved	0.094	0.001	mg/L	0.100	< 0.001	94	75-111			
Cadmium, dissolved	0.0927	0.0001	mg/L	0.100	< 0.0001	93	84-109			
Chromium, dissolved	0.386	0.005	mg/L	0.400	< 0.005	96	87-115			
Cobalt, dissolved	0.385	0.0005	mg/L	0.400	< 0.0005	96	85-118			
Copper, dissolved	0.388	0.002	mg/L	0.400	0.003	96	84-121			
Iron, dissolved	1.90	0.10	mg/L	2.00	< 0.10	95	71-129			
Lead, dissolved	0.182	0.001	mg/L	0.200	< 0.001	91	81-111			
Manganese, dissolved	0.383	0.002	mg/L	0.400	0.002	95	66-125			
Nickel, dissolved	0.374	0.002	mg/L	0.400	< 0.002	94	85-115			
Selenium, dissolved	0.087	0.005	mg/L	0.100	< 0.005	87	77-113			
Silver, dissolved	0.0868	0.0005	mg/L	0.100	< 0.0005	87	52-131			
Thallium, dissolved	0.0923	0.0002	mg/L	0.100	< 0.0002	92	82-111			
Vanadium, dissolved	0.38	0.01	mg/L	0.400	< 0.01	95	85-111			
Zinc, dissolved	0.96	0.04	mg/L	1.00	< 0.04	96	85-115			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Matrix Spike (B4C0352-MS2)	**Source: 4030418-16**			Prepared: Mar-12-14, Analyzed: Mar-12-14						
Antimony, dissolved	0.369	0.001	mg/L	0.400	0.001	92	71-112			
Arsenic, dissolved	0.182	0.005	mg/L	0.200	< 0.005	91	82-112			
Barium, dissolved	1.00	0.05	mg/L	1.00	0.09	91	80-109			
Beryllium, dissolved	0.090	0.001	mg/L	0.100	< 0.001	90	75-111			
Cadmium, dissolved	0.0913	0.0001	mg/L	0.100	< 0.0001	91	84-109			
Chromium, dissolved	0.375	0.005	mg/L	0.400	< 0.005	93	87-115			
Cobalt, dissolved	0.376	0.0005	mg/L	0.400	< 0.0005	94	85-118			
Copper, dissolved	0.379	0.002	mg/L	0.400	< 0.002	94	84-121			
Iron, dissolved	1.86	0.10	mg/L	2.00	< 0.10	93	71-129			
Lead, dissolved	0.176	0.001	mg/L	0.200	< 0.001	88	81-111			
Manganese, dissolved	0.360	0.002	mg/L	0.400	< 0.002	90	66-125			
Nickel, dissolved	0.366	0.002	mg/L	0.400	< 0.002	91	85-115			
Selenium, dissolved	0.087	0.005	mg/L	0.100	< 0.005	87	77-113			
Silver, dissolved	0.0846	0.0005	mg/L	0.100	< 0.0005	84	52-131			
Thallium, dissolved	0.0880	0.0002	mg/L	0.100	< 0.0002	88	82-111			
Vanadium, dissolved	0.38	0.01	mg/L	0.400	< 0.01	94	85-111			
Zinc, dissolved	0.93	0.04	mg/L	1.00	< 0.04	93	85-115			
Reference (B4C0352-SRM1)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	0.24	0.05	mg/L	0.233		105	58-142			
Antimony, dissolved	0.050	0.001	mg/L	0.0430		116	75-125			
Arsenic, dissolved	0.413	0.005	mg/L	0.438		94	81-119			
Barium, dissolved	3.18	0.05	mg/L	3.35		95	83-117			
Beryllium, dissolved	0.200	0.001	mg/L	0.213		94	80-120			
Boron, dissolved	1.81	0.04	mg/L	1.74		104	74-117			
Cadmium, dissolved	0.210	0.0001	mg/L	0.224		94	83-117			
Calcium, dissolved	7.1	2.0	mg/L	7.69		93	76-124			
Chromium, dissolved	0.421	0.005	mg/L	0.437		96	81-119			
Cobalt, dissolved	0.126	0.0005	mg/L	0.128		98	76-124			
Copper, dissolved	0.841	0.002	mg/L	0.844		100	84-116			
Iron, dissolved	1.18	0.10	mg/L	1.29		91	74-126			
Lead, dissolved	0.102	0.001	mg/L	0.112		91	72-128			
Lithium, dissolved	0.103	0.001	mg/L	0.104		99	60-140			
Magnesium, dissolved	6.8	0.1	mg/L	6.92		98	81-119			
Manganese, dissolved	0.321	0.002	mg/L	0.345		93	84-116			
Molybdenum, dissolved	0.403	0.001	mg/L	0.426		95	83-117			
Nickel, dissolved	0.808	0.002	mg/L	0.840		96	74-126			
Phosphorus, dissolved	0.6	0.2	mg/L	0.495		120	68-132			
Potassium, dissolved	2.8	0.2	mg/L	3.19		87	74-126			
Selenium, dissolved	0.027	0.005	mg/L	0.0331		82	70-130			
Sodium, dissolved	19.0	0.2	mg/L	19.1		99	72-128			
Strontium, dissolved	0.87	0.01	mg/L	0.916		95	84-113			
Thallium, dissolved	0.0354	0.0002	mg/L	0.0393		90	57-143			
Uranium, dissolved	0.236	0.0002	mg/L	0.266		89	85-115			
Vanadium, dissolved	0.82	0.01	mg/L	0.869		95	87-113			
Zinc, dissolved	0.83	0.04	mg/L	0.881		94	72-128			
Reference (B4C0352-SRM2)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Aluminum, dissolved	0.24	0.05	mg/L	0.233		101	58-142			
Antimony, dissolved	0.049	0.001	mg/L	0.0430		114	75-125			
Arsenic, dissolved	0.411	0.005	mg/L	0.438		94	81-119			
Barium, dissolved	3.15	0.05	mg/L	3.35		94	83-117			
Beryllium, dissolved	0.205	0.001	mg/L	0.213		96	80-120			
Boron, dissolved	1.86	0.04	mg/L	1.74		107	74-117			
Cadmium, dissolved	0.207	0.0001	mg/L	0.224		92	83-117			
Calcium, dissolved	7.3	2.0	mg/L	7.69		94	76-124			
Chromium, dissolved	0.419	0.005	mg/L	0.437		96	81-119			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4C0352, Continued										
Reference (B4C0352-SRM2), Continued				Prepared: Mar-12-14, Analyzed: Mar-12-14						
Cobalt, dissolved	0.126	0.0005	mg/L	0.128		98	76-124			
Copper, dissolved	0.839	0.002	mg/L	0.844		99	84-116			
Iron, dissolved	1.18	0.10	mg/L	1.29		92	74-126			
Lead, dissolved	0.103	0.001	mg/L	0.112		92	72-128			
Lithium, dissolved	0.105	0.001	mg/L	0.104		101	60-140			
Magnesium, dissolved	6.7	0.1	mg/L	6.92		97	81-119			
Manganese, dissolved	0.322	0.002	mg/L	0.345		93	84-116			
Molybdenum, dissolved	0.400	0.001	mg/L	0.426		94	83-117			
Nickel, dissolved	0.800	0.002	mg/L	0.840		95	74-126			
Phosphorus, dissolved	0.6	0.2	mg/L	0.495		124	68-132			
Potassium, dissolved	2.8	0.2	mg/L	3.19		89	74-126			
Selenium, dissolved	0.030	0.005	mg/L	0.0331		89	70-130			
Sodium, dissolved	18.9	0.2	mg/L	19.1		99	72-128			
Strontium, dissolved	0.85	0.01	mg/L	0.916		93	84-113			
Thallium, dissolved	0.0356	0.0002	mg/L	0.0393		91	57-143			
Uranium, dissolved	0.236	0.0002	mg/L	0.266		89	85-115			
Vanadium, dissolved	0.82	0.01	mg/L	0.869		94	87-113			
Zinc, dissolved	0.83	0.04	mg/L	0.881		94	72-128			
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4C0359										
Blank (B4C0359-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Acenaphthene	< 0.02	0.02	ug/L							
Acenaphthylene	< 0.02	0.02	ug/L							
Acridine	< 0.05	0.05	ug/L							
Anthracene	< 0.01	0.01	ug/L							
Benzo (a) anthracene	< 0.01	0.01	ug/L							
Benzo (a) pyrene	< 0.01	0.01	ug/L							
Benzo (b) fluoranthene	< 0.02	0.02	ug/L							
Benzo (g,h,i) perylene	< 0.02	0.02	ug/L							
Benzo (k) fluoranthene	< 0.02	0.02	ug/L							
Chrysene	< 0.02	0.02	ug/L							
Dibenz (a,h) anthracene	< 0.02	0.02	ug/L							
Fluoranthene	< 0.02	0.02	ug/L							
Fluorene	< 0.02	0.02	ug/L							
Indeno (1,2,3-cd) pyrene	< 0.02	0.02	ug/L							
Naphthalene	< 0.05	0.05	ug/L							
Phenanthrene	< 0.05	0.05	ug/L							
Pyrene	< 0.02	0.02	ug/L							
Quinoline	< 0.05	0.05	ug/L							
Surrogate: Naphthalene-d8	*0.722*		*ug/L*	*1.02*		*71*	*40-96*			
Surrogate: Acenaphthene-d10	*0.726*		*ug/L*	*0.995*		*73*	*45-92*			
Surrogate: Phenanthrene-d10	*0.734*		*ug/L*	*0.970*		*76*	*48-90*			
Surrogate: Chrysene-d12	*0.839*		*ug/L*	*0.950*		*88*	*41-96*			
Surrogate: Perylene-d12	*0.858*		*ug/L*	*0.990*		*87*	*47-104*			
LCS (B4C0359-BS1)				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Acenaphthene	0.68	0.02	ug/L	1.00		68	54-92			
Acenaphthylene	0.75	0.02	ug/L	1.00		75	54-95			
Acridine	0.61	0.05	ug/L	1.00		61	49-87			
Anthracene	0.71	0.01	ug/L	1.00		71	53-94			
Benzo (a) anthracene	0.74	0.01	ug/L	1.00		74	52-95			
Benzo (a) pyrene	0.75	0.01	ug/L	1.00		75	52-103			
Benzo (b) fluoranthene	0.72	0.02	ug/L	1.00		72	49-94			
Benzo (g,h,i) perylene	0.73	0.02	ug/L	1.00		73	51-98			
Benzo (k) fluoranthene	0.76	0.02	ug/L	1.00		76	49-105			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4C0359, Continued										
LCS (B4C0359-BS1), Continued				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Chrysene	0.80	0.02	ug/L	1.00		80	50-104			
Dibenz (a,h) anthracene	0.72	0.02	ug/L	1.00		72	49-96			
Fluoranthene	0.75	0.02	ug/L	1.00		75	53-102			
Fluorene	0.71	0.02	ug/L	1.00		71	54-91			
Indeno (1,2,3-cd) pyrene	0.72	0.02	ug/L	1.00		72	51-99			
Naphthalene	0.68	0.05	ug/L	1.00		68	51-91			
Phenanthrene	0.70	0.05	ug/L	1.00		70	56-96			
Pyrene	0.72	0.02	ug/L	1.00		72	51-105			
Quinoline	0.62	0.05	ug/L	1.00		62	48-126			
Surrogate: Naphthalene-d8	*0.742*		*ug/L*	*1.02*		*73*	*40-96*			
Surrogate: Acenaphthene-d10	*0.713*		*ug/L*	*0.995*		*72*	*45-92*			
Surrogate: Phenanthrene-d10	*0.753*		*ug/L*	*0.970*		*78*	*48-90*			
Surrogate: Chrysene-d12	*0.832*		*ug/L*	*0.950*		*88*	*41-96*			
Surrogate: Perylene-d12	*0.771*		*ug/L*	*0.990*		*78*	*47-104*			
LCS Dup (B4C0359-BSD1)				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Acenaphthene	0.58	0.02	ug/L	1.00		58	54-92	16	20	
Acenaphthylene	0.64	0.02	ug/L	1.00		64	54-95	17	20	
Acridine	0.54	0.05	ug/L	1.00		54	49-87	13	20	
Anthracene	0.59	0.01	ug/L	1.00		59	53-94	18	20	
Benzo (a) anthracene	0.64	0.01	ug/L	1.00		64	52-95	14	20	
Benzo (a) pyrene	0.65	0.01	ug/L	1.00		65	52-103	13	20	
Benzo (b) fluoranthene	0.61	0.02	ug/L	1.00		61	49-94	17	20	
Benzo (g,h,i) perylene	0.62	0.02	ug/L	1.00		62	51-98	16	20	
Benzo (k) fluoranthene	0.66	0.02	ug/L	1.00		66	49-105	13	20	
Chrysene	0.70	0.02	ug/L	1.00		70	50-104	13	20	
Dibenz (a,h) anthracene	0.62	0.02	ug/L	1.00		62	49-96	14	20	
Fluoranthene	0.62	0.02	ug/L	1.00		62	53-102	18	20	
Fluorene	0.60	0.02	ug/L	1.00		60	54-91	16	20	
Indeno (1,2,3-cd) pyrene	0.66	0.02	ug/L	1.00		66	51-99	9	20	
Naphthalene	0.58	0.05	ug/L	1.00		58	51-91	16	20	
Phenanthrene	0.58	0.05	ug/L	1.00		58	56-96	18	20	
Pyrene	0.60	0.02	ug/L	1.00		60	51-105	18	20	
Quinoline	0.55	0.05	ug/L	1.00		55	48-126	11	20	
Surrogate: Naphthalene-d8	*0.603*		*ug/L*	*1.02*		*59*	*40-96*			
Surrogate: Acenaphthene-d10	*0.584*		*ug/L*	*0.995*		*59*	*45-92*			
Surrogate: Phenanthrene-d10	*0.609*		*ug/L*	*0.970*		*63*	*48-90*			
Surrogate: Chrysene-d12	*0.712*		*ug/L*	*0.950*		*75*	*41-96*			
Surrogate: Perylene-d12	*0.672*		*ug/L*	*0.990*		*68*	*47-104*			
Total Recoverable Metals, Batch B4C0354										
Blank (B4C0354-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-12-14						
Aluminum, total	< 0.05	0.05	mg/L							
Antimony, total	< 0.001	0.001	mg/L							
Arsenic, total	< 0.005	0.005	mg/L							
Barium, total	< 0.05	0.05	mg/L							
Beryllium, total	< 0.001	0.001	mg/L							
Bismuth, total	< 0.001	0.001	mg/L							
Boron, total	< 0.04	0.04	mg/L							
Cadmium, total	< 0.0001	0.0001	mg/L							
Calcium, total	< 2.0	2.0	mg/L							
Chromium, total	< 0.005	0.005	mg/L							
Cobalt, total	< 0.0005	0.0005	mg/L							
Copper, total	< 0.002	0.002	mg/L							
Iron, total	< 0.10	0.10	mg/L							

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Total Recoverable Metals, Batch B4C0354, Continued										
Blank (B4C0354-BLK1), Continued				Prepared: Mar-11-14, Analyzed: Mar-12-14						
Lead, total	< 0.001	0.001	mg/L							
Lithium, total	< 0.001	0.001	mg/L							
Magnesium, total	< 0.1	0.1	mg/L							
Manganese, total	< 0.002	0.002	mg/L							
Mercury, total	< 0.0002	0.0002	mg/L							
Molybdenum, total	< 0.001	0.001	mg/L							
Nickel, total	< 0.002	0.002	mg/L							
Phosphorus, total	< 0.2	0.2	mg/L							
Potassium, total	< 0.2	0.2	mg/L							
Selenium, total	< 0.005	0.005	mg/L							
Silicon, total	< 5	5	mg/L							
Silver, total	< 0.0005	0.0005	mg/L							
Sodium, total	< 0.2	0.2	mg/L							
Strontium, total	< 0.01	0.01	mg/L							
Sulfur, total	< 10	10	mg/L							
Tellurium, total	< 0.002	0.002	mg/L							
Thallium, total	< 0.0002	0.0002	mg/L							
Thorium, total	< 0.001	0.001	mg/L							
Tin, total	< 0.002	0.002	mg/L							
Titanium, total	< 0.05	0.05	mg/L							
Uranium, total	< 0.0002	0.0002	mg/L							
Vanadium, total	< 0.01	0.01	mg/L							
Zinc, total	< 0.04	0.04	mg/L							
Zirconium, total	< 0.001	0.001	mg/L							
Duplicate (B4C0354-DUP1)		**Source: 4030418-01**		Prepared: Mar-11-14, Analyzed: Mar-13-14						
Aluminum, total	0.07	0.05	mg/L		0.08				27	
Antimony, total	< 0.001	0.001	mg/L		< 0.001				24	
Arsenic, total	< 0.005	0.005	mg/L		< 0.005				14	
Barium, total	< 0.05	0.05	mg/L		< 0.05				16	
Beryllium, total	< 0.001	0.001	mg/L		< 0.001				20	
Bismuth, total	< 0.001	0.001	mg/L		< 0.001				20	
Boron, total	< 0.04	0.04	mg/L		< 0.04				15	
Cadmium, total	< 0.0001	0.0001	mg/L		< 0.0001				40	
Calcium, total	43.8	2.0	mg/L		46.2			5	14	
Chromium, total	< 0.005	0.005	mg/L		< 0.005				17	
Cobalt, total	< 0.0005	0.0005	mg/L		< 0.0005				17	
Copper, total	0.002	0.002	mg/L		0.002				30	
Iron, total	0.25	0.10	mg/L		0.27				28	
Lead, total	< 0.001	0.001	mg/L		< 0.001				19	
Lithium, total	0.002	0.001	mg/L		0.002				18	
Magnesium, total	15.4	0.1	mg/L		15.0			2	13	
Manganese, total	0.004	0.002	mg/L		0.005				19	
Mercury, total	< 0.0002	0.0002	mg/L		< 0.0002				40	
Molybdenum, total	0.003	0.001	mg/L		0.003				24	
Nickel, total	< 0.002	0.002	mg/L		< 0.002				33	
Phosphorus, total	< 0.2	0.2	mg/L		< 0.2				24	
Potassium, total	2.8	0.2	mg/L		2.6			5	22	
Selenium, total	< 0.005	0.005	mg/L		< 0.005				21	
Silicon, total	14	5	mg/L		14				25	
Silver, total	< 0.0005	0.0005	mg/L		< 0.0005				23	
Sodium, total	12.8	0.2	mg/L		12.5			3	17	
Strontium, total	0.20	0.01	mg/L		0.19			2	11	
Sulfur, total	< 10	10	mg/L		< 10				41	
Tellurium, total	< 0.002	0.002	mg/L		< 0.002				31	
Thallium, total	< 0.0002	0.0002	mg/L		< 0.0002				21	
Thorium, total	< 0.001	0.001	mg/L		< 0.001				46	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Total Recoverable Metals, Batch B4C0354, Continued										
Duplicate (B4C0354-DUP1), Continued		**Source: 4030418-01**		Prepared: Mar-11-14, Analyzed: Mar-13-14						
Tin, total	< 0.002	0.002	mg/L		< 0.002				30	
Titanium, total	< 0.05	0.05	mg/L		< 0.05				60	
Uranium, total	0.0010	0.0002	mg/L		0.0010			< 1	17	
Vanadium, total	< 0.01	0.01	mg/L		< 0.01				27	
Zinc, total	< 0.04	0.04	mg/L		< 0.04				26	
Zirconium, total	< 0.001	0.001	mg/L		< 0.001				60	
Matrix Spike (B4C0354-MS1)		**Source: 4030418-02**		Prepared: Mar-11-14, Analyzed: Mar-13-14						
Antimony, total	0.383	0.001	mg/L	0.400	< 0.001	96	81-122			
Arsenic, total	0.177	0.005	mg/L	0.200	< 0.005	88	81-119			
Barium, total	0.95	0.05	mg/L	1.00	< 0.05	91	84-113			
Beryllium, total	0.091	0.001	mg/L	0.100	< 0.001	91	77-117			
Cadmium, total	0.0906	0.0001	mg/L	0.100	< 0.0001	91	87-112			
Chromium, total	0.374	0.005	mg/L	0.400	< 0.005	94	88-119			
Cobalt, total	0.377	0.0005	mg/L	0.400	< 0.0005	94	88-118			
Copper, total	0.381	0.002	mg/L	0.400	0.002	95	86-126			
Iron, total	2.17	0.10	mg/L	2.00	0.29	94	70-138			
Lead, total	0.192	0.001	mg/L	0.200	< 0.001	96	82-119			
Manganese, total	0.414	0.002	mg/L	0.400	0.006	102	81-125			
Nickel, total	0.364	0.002	mg/L	0.400	< 0.002	91	85-121			
Selenium, total	0.089	0.005	mg/L	0.100	< 0.005	89	73-121			
Silver, total	0.0856	0.0005	mg/L	0.100	< 0.0005	86	83-118			
Thallium, total	0.0966	0.0002	mg/L	0.100	< 0.0002	97	85-115			
Vanadium, total	0.37	0.01	mg/L	0.400	< 0.01	92	86-116			
Zinc, total	0.93	0.04	mg/L	1.00	< 0.04	93	83-123			
Reference (B4C0354-SRM1)				Prepared: Mar-11-14, Analyzed: Mar-13-14						
Aluminum, total	0.31	0.05	mg/L	0.296		106	81-129			
Antimony, total	0.050	0.001	mg/L	0.0505		99	88-114			
Arsenic, total	0.121	0.005	mg/L	0.122		99	88-114			
Barium, total	0.74	0.05	mg/L	0.777		96	72-104			
Beryllium, total	0.044	0.001	mg/L	0.0488		90	76-131			
Boron, total	3.33	0.04	mg/L	3.40		98	75-121			
Cadmium, total	0.0471	0.0001	mg/L	0.0490		96	89-111			
Calcium, total	9.6	2.0	mg/L	10.2		95	86-121			
Chromium, total	0.244	0.005	mg/L	0.242		101	89-114			
Cobalt, total	0.0381	0.0005	mg/L	0.0366		104	91-113			
Copper, total	0.504	0.002	mg/L	0.487		104	91-115			
Iron, total	0.43	0.10	mg/L	0.469		92	77-124			
Lead, total	0.187	0.001	mg/L	0.193		97	92-113			
Lithium, total	0.364	0.001	mg/L	0.390		93	85-115			
Magnesium, total	3.5	0.1	mg/L	3.31		105	78-120			
Manganese, total	0.107	0.002	mg/L	0.109		98	90-114			
Mercury, total	0.0042	0.0002	mg/L	0.00456		92	50-150			
Molybdenum, total	0.194	0.001	mg/L	0.197		99	90-111			
Nickel, total	0.238	0.002	mg/L	0.242		98	90-111			
Phosphorus, total	0.2	0.2	mg/L	0.233		85	85-115			
Potassium, total	6.3	0.2	mg/L	5.93		106	84-113			
Selenium, total	0.107	0.005	mg/L	0.115		93	85-115			
Sodium, total	8.1	0.2	mg/L	7.64		106	82-123			
Strontium, total	0.37	0.01	mg/L	0.363		102	88-112			
Thallium, total	0.0760	0.0002	mg/L	0.0794		96	91-114			
Uranium, total	0.0163	0.0002	mg/L	0.0192		85	85-120			
Vanadium, total	0.37	0.01	mg/L	0.376		99	86-111			
Zinc, total	2.39	0.04	mg/L	2.42		99	85-111			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030418
REPORTED Mar-17-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Volatile Organic Compounds (VOC), Batch B4C0511										
Blank (B4C0511-BLK1)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
Benzene	< 0.5	0.5	ug/L							
Ethylbenzene	< 1.0	1.0	ug/L							
Toluene	< 1.0	1.0	ug/L							
Xylenes (total)	< 2.0	2.0	ug/L							
Surrogate: Toluene-d8	*22.1*		*ug/L*	*25.0*		*88*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*21.7*		*ug/L*	*25.0*		*87*	*70-130*			
LCS (B4C0511-BS1)				Prepared: Mar-13-14, Analyzed: Mar-13-14						
Benzene	17.2	0.5	ug/L	20.0		86	70-130			
Ethylbenzene	16.3	1.0	ug/L	20.0		82	70-130			
Toluene	17.0	1.0	ug/L	20.0		85	70-130			
Xylenes (total)	52.2	2.0	ug/L	60.0		87	70-130			
Surrogate: Toluene-d8	*27.7*		*ug/L*	*25.0*		*111*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*28.3*		*ug/L*	*25.0*		*113*	*70-130*			
Duplicate (B4C0511-DUP1)	**Source: 4030418-03**			Prepared: Mar-13-14, Analyzed: Mar-13-14						
Benzene	< 0.5	0.5	ug/L		< 0.5				20	
Ethylbenzene	< 1.0	1.0	ug/L		< 1.0				20	
Toluene	< 1.0	1.0	ug/L		< 1.0				20	
Xylenes (total)	< 2.0	2.0	ug/L		< 2.0				20	
Surrogate: Toluene-d8	*23.4*		*ug/L*	*25.0*		*94*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*23.0*		*ug/L*	*25.0*		*92*	*70-130*			

CERTIFICATE OF ANALYSIS

REPORTED TO	Columbia Environmental Consulting Ltd RR #2, Site 55, Compartment 10 Penticton, BC V2A 6J7	**TEL** **FAX**	(778) 476-5656 (778) 476-5655
ATTENTION	Summer Zawacky	**WORK ORDER**	4030403
PO NUMBER		**RECEIVED / TEMP**	Mar-10-14 08:34 / 17°C
PROJECT	14-0493	**REPORTED**	Mar-19-14
PROJECT INFO	LNIB PII ESA	**COC NUMBER**	B08810, B08811, B08812, B08813

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

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Issued By: **Jennifer Shanko, AScT For Brent Coates, BSc**
Business Manager, Richmond

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ANALYSIS INFORMATION

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analysis Description	Method Reference (* = modified from) Preparation	Analysis	Location
BTEX in Soil	EPA 5035	EPA 8260B (1996)	Richmond
BTEX/VH/VPH in Soil Pkg	N/A	BCMOE	Richmond
CCME PHC F1 in Soil	EPA 5035	CCME CWS PHC (2001)	Richmond
CCME PHC F2-F4 in Soil	EPA 3570 *	CCME CWS PHC (2001)	Richmond
Moisture	N/A	ASTM D2216 (2010)	Richmond
PAH in Soil (Low level)	EPA 3570 *	EPA 8270D (2007)	Richmond
PAH in SPLP Extract	EPA 3510C	EPA 8270D (2007)	Richmond
pH in Soil (1:2 Soil/Water)	Carter 16.2	APHA 4500-H+ B	Richmond
Sample Dry (60C) and Sieve (2mm)	Carter	N/A	Richmond
SPLP Extraction (Non-Volatiles)	EPA 1312	N/A	Richmond
Strong Acid Leachable Metals	BCMOE SALM V.2	EPA 6020A (2007)	Richmond
VH in Soil	EPA 5035	BCMOE	Richmond
VOC in Soil	EPA 5035	EPA 8260B (1996)	Richmond
VOC/VH/VPH in Soil Pkg	N/A	BCMOE	Richmond

Note: The numbers in brackets represent the year that the method was published/approved

Method Reference Descriptions:

ASTM	ASTM International Test Methods
BCMOE	British Columbia Environmental Laboratory Manual, 2009, British Columbia Ministry of Environment
CCME	Canadian Council of Ministers of the Environment, Canada-wide Standard Reference Methods
Carter	Soil Sampling and Methods of Analysis, Carter/Gregorich
EPA	United States Environmental Protection Agency Test Methods
APHA	Standard Methods for the Examination of Water and Wastewater, American Public Health Association
Carter	Soil Sampling and Methods of Analysis, Carter/Gregorich
EPA	United States Environmental Protection Agency Test Methods
BCMOE	British Columbia Environmental Laboratory Manual, 2009, British Columbia Ministry of Environment

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
% wet	Percent, reported on an as-received basis
mg/kg dry	Milligrams per kilogram (ppm), reported on a dry weight basis
mg/L	Milligrams per litre
pH units	pH < 7 = acidic, ph > 7 = basic
ug/kg dry	No Description

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
General Parameters						
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00						
Moisture	**13.1**	0.1	% wet	N/A	Mar-12-14	
pH	**8.3**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00						
Moisture	**4.9**	0.1	% wet	N/A	Mar-12-14	
pH	**8.4**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: TP3-1 (4030403-04) [Soil] Sampled: Mar-03-14 14:00						
Moisture	**5.2**	0.1	% wet	N/A	Mar-12-14	
pH	**8.6**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00						
Moisture	**5.2**	0.1	% wet	N/A	Mar-12-14	
pH	**8.2**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: TP5-1 (4030403-06) [Soil] Sampled: Mar-03-14 14:00						
pH	**7.6**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00						
Moisture	**3.4**	0.1	% wet	N/A	Mar-12-14	
pH	**8.1**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00						
Moisture	**9.4**	0.1	% wet	N/A	Mar-12-14	
pH	**9.1**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BH1-1 (4030403-10) [Soil] Sampled: Mar-04-14 09:00						
Moisture	**4.3**	0.1	% wet	N/A	Mar-12-14	
pH	**9.3**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00						
Moisture	**4.7**	0.1	% wet	N/A	Mar-12-14	
pH	**9.2**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BH8-1 (4030403-19) [Soil] Sampled: Mar-04-14 13:00						
Moisture	**14.3**	0.1	% wet	N/A	Mar-12-14	
pH	**8.0**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BH4-1 (4030403-20) [Soil] Sampled: Mar-04-14 13:00						
Moisture	**5.1**	0.1	% wet	N/A	Mar-12-14	
pH	**9.0**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BH5-1 (4030403-21) [Soil] Sampled: Mar-04-14 13:00						
Moisture	**4.6**	0.1	% wet	N/A	Mar-12-14	
pH	**9.1**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00						
Moisture	**3.6**	0.1	% wet	N/A	Mar-12-14	
pH	**9.3**	0.1	pH units	Mar-12-14	Mar-12-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
General Parameters, Continued						
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00						
Moisture	**18.1**	0.1	% wet	N/A	Mar-12-14	
pH	**8.7**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BHDUP3 (4030403-24) [Soil] Sampled: Mar-05-14 09:00						
Moisture	**18.8**	0.1	% wet	N/A	Mar-12-14	
pH	**8.7**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00						
Moisture	**3.6**	0.1	% wet	N/A	Mar-12-14	
pH	**8.9**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BH9-1 (4030403-40) [Soil] Sampled: Mar-07-14 09:00						
Moisture	**16.7**	0.1	% wet	N/A	Mar-12-14	
pH	**8.5**	0.1	pH units	Mar-12-14	Mar-12-14	
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00						
Moisture	**6.2**	0.1	% wet	N/A	Mar-12-14	
pH	**8.6**	0.1	pH units	Mar-12-14	Mar-12-14	
Calculated Parameters						
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BH1-1 (4030403-10) [Soil] Sampled: Mar-04-14 09:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BH8-1 (4030403-19) [Soil] Sampled: Mar-04-14 13:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BH4-1 (4030403-20) [Soil] Sampled: Mar-04-14 13:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Calculated Parameters, Continued						
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BHDUP3 (4030403-24) [Soil] Sampled: Mar-05-14 09:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BH9-1 (4030403-40) [Soil] Sampled: Mar-07-14 09:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00						
VPHs	< 20	20	mg/kg dry	N/A	N/A	
Strong Acid Leachable Metals						
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00						
Aluminum	**13000**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.1**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**93**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**6**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.13**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**10400**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**24.3**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**11.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**59.8**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**31200**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**4.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**7.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8270**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**477**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**24.7**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**827**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**758**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**268**	40	mg/kg dry	Mar-12-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00, Continued						
Strontium	**50.0**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.7**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**957**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**84.7**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**55**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**6**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00						
Aluminum	**15400**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.5**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**110**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**3**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.14**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**8500**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**33.8**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**13.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**60.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**37400**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**3.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**9.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8220**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**539**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.8**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**28.1**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**781**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**883**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**394**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**43.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**2.0**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00, Continued						
Titanium	**1290**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**107**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**66**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**9**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: TP3-1 (4030403-04) [Soil] Sampled: Mar-03-14 14:00						
Aluminum	**13400**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**2.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**85**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**4**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.12**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**9420**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**28.2**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**12.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**46.6**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**34000**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**2.9**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.7**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8740**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**502**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**29.6**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**882**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**784**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**397**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**43.8**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.5**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1290**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**93.2**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**54**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**8**	2	mg/kg dry	Mar-12-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00						
Aluminum	**12700**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**2.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**96**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**4**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.12**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**8910**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**28.5**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**12.8**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**47.0**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**34500**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**2.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**7.7**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8180**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**533**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	**0.07**	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**28.4**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**883**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**711**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**359**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**47.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.5**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1060**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**98.6**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**52**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**7**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: TP5-1 (4030403-06) [Soil] Sampled: Mar-03-14 14:00						
Aluminum	**15700**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.5**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**112**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: TP5-1 (4030403-06) [Soil] Sampled: Mar-03-14 14:00, Continued						
Boron	**3**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.14**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**8210**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**33.8**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**12.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**53.3**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**35600**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**3.2**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8450**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**530**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**26.1**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**890**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**865**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**220**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**46.3**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.5**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**988**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**89.3**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**70**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**8**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00						
Aluminum	**16100**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**2.8**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**163**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**3**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.14**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**7710**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**27.8**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**11.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**48.0**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030403
PROJECT	14-0493	**REPORTED**	Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00, Continued						
Iron	**32100**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**3.8**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**6430**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**567**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**23.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**744**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**1020**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**402**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**38.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.8**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1290**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**83.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**78**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**11**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00						
Aluminum	**13300**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**2.7**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**73**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**3**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.12**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**13200**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**23.4**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**12.2**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**52.0**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**30100**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**2.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8840**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**532**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030403
PROJECT	14-0493	**REPORTED**	Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00, Continued						
Molybdenum	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**21.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**937**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**580**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**355**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**46.0**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.4**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**856**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**80.1**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**58**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**6**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH1-1 (4030403-10) [Soil] Sampled: Mar-04-14 09:00						
Aluminum	**12600**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.1**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**78**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**2**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.08**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**13300**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**33.6**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**10.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**37.9**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**28900**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**2.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.0**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**9190**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**509**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**18.3**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**700**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**641**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030403
PROJECT	14-0493	**REPORTED**	Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BH1-1 (4030403-10) [Soil] Sampled: Mar-04-14 09:00, Continued						
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**437**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**63.8**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.2**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1170**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**70.3**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**49**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**7**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00						
Aluminum	**12500**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.2**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**63**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**2**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.08**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**12800**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**27.4**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**10.8**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**40.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**30800**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**3.3**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**7.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**9470**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**481**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.8**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**18.4**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**706**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**652**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**439**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**59.1**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00, Continued						
Thorium	**1.1**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1180**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**74.8**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**47**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**7**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH8-1 (4030403-19) [Soil] Sampled: Mar-04-14 13:00						
Aluminum	**18800**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**4.0**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**152**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**4**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.18**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**13900**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**46.8**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**14.7**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**53.2**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**35100**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**4.9**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**10.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**10200**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**787**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**2.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**35.3**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**701**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**1840**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	**0.6**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**455**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**77.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**2.2**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.6**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1220**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**80.0**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**68**	2	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BH8-1 (4030403-19) [Soil] Sampled: Mar-04-14 13:00, Continued						
Zirconium	**10**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH4-1 (4030403-20) [Soil] Sampled: Mar-04-14 13:00						
Aluminum	**13500**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.2**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**98**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**3**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.10**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**13700**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**28.2**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**10.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**37.9**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**29100**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**4.0**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**9170**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**532**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**1.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**19.8**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**659**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**793**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**458**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**91.2**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.4**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1230**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**70.2**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**52**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**7**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH5-1 (4030403-21) [Soil] Sampled: Mar-04-14 13:00						
Aluminum	**14500**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**4.0**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**90**	1	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030403
PROJECT	14-0493	**REPORTED**	Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BH5-1 (4030403-21) [Soil] Sampled: Mar-04-14 13:00, Continued						
Beryllium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**3**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.10**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**16200**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**26.6**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**11.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**39.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**31900**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**3.1**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**10100**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**583**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**1.8**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**25.2**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**691**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**825**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**588**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**80.2**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.9**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1310**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**74.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**53**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**8**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00						
Aluminum	**13400**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**4.5**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**63**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**2**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.07**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**13200**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**26.2**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00, Continued						
Cobalt	**10.8**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**35.6**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**30800**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**12.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**9.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**10500**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**536**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**2.1**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**25.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**741**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**662**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**519**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**62.2**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.1**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1210**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**70.3**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**52**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**7**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00						
Aluminum	**16300**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.6**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**152**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.6**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**4**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.16**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**33300**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**31.0**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**12.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**82.0**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**32900**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**4.6**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**9.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**9020**	10	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030403
PROJECT	14-0493	**REPORTED**	Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00, Continued						
Manganese	**615**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**23.7**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**847**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**1000**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	**0.5**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**588**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**98.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**3.4**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.6**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1310**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**91.3**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**56**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**8**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BHDUP3 (4030403-24) [Soil] Sampled: Mar-05-14 09:00						
Aluminum	**15900**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.5**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**151**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**4**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.14**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**32100**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**30.7**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**12.2**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**81.9**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**31900**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**4.3**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**9.0**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8660**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**595**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**23.2**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**808**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**1010**	10	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BHDUP3 (4030403-24) [Soil] Sampled: Mar-05-14 09:00, Continued						
Selenium	**0.5**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**547**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**99.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**3.4**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.6**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1270**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**88.0**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**54**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**8**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00						
Aluminum	**13600**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.2**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**74**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**3**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.07**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**8650**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**25.1**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**11.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**41.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**32200**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**2.6**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.0**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**9570**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**551**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**1.1**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**21.0**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**689**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**827**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**449**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**49.3**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00, Continued						
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.3**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1300**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**80.2**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**53**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**7**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BH9-1 (4030403-40) [Soil] Sampled: Mar-07-14 09:00						
Aluminum	**14700**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.1**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**143**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**4**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.15**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**9980**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**26.1**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**13.0**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**73.9**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**32600**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**3.7**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.9**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8080**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**562**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.8**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**26.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**675**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**909**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**530**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**52.8**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.8**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.5**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**1080**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.7**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Strong Acid Leachable Metals, Continued						
Sample ID: BH9-1 (4030403-40) [Soil] Sampled: Mar-07-14 09:00, Continued						
Vanadium	**85.9**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**66**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**8**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00						
Aluminum	**12800**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Antimony	**0.3**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Arsenic	**3.1**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Barium	**112**	1	mg/kg dry	Mar-12-14	Mar-13-14	
Beryllium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Bismuth	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Boron	**3**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Cadmium	**0.13**	0.04	mg/kg dry	Mar-12-14	Mar-13-14	
Calcium	**9220**	100	mg/kg dry	Mar-12-14	Mar-13-14	
Chromium	**25.2**	1.0	mg/kg dry	Mar-12-14	Mar-13-14	
Cobalt	**12.4**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Copper	**84.0**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Iron	**30600**	20	mg/kg dry	Mar-12-14	Mar-13-14	
Lead	**3.1**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Lithium	**8.2**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Magnesium	**8320**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Manganese	**545**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Mercury	< 0.05	0.05	mg/kg dry	Mar-12-14	Mar-13-14	
Molybdenum	**0.7**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Nickel	**26.7**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Phosphorus	**856**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Potassium	**740**	10	mg/kg dry	Mar-12-14	Mar-13-14	
Selenium	< 0.5	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Silicon	< 3000	3000	mg/kg dry	Mar-12-14	Mar-13-14	
Silver	< 0.2	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sodium	**684**	40	mg/kg dry	Mar-12-14	Mar-13-14	
Strontium	**50.6**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Sulfur	< 1000	1000	mg/kg dry	Mar-12-14	Mar-13-14	
Tellurium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thallium	< 0.1	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Thorium	**1.9**	0.5	mg/kg dry	Mar-12-14	Mar-13-14	
Tin	**0.4**	0.2	mg/kg dry	Mar-12-14	Mar-13-14	
Titanium	**987**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Uranium	**0.5**	0.1	mg/kg dry	Mar-12-14	Mar-13-14	
Vanadium	**82.5**	0.4	mg/kg dry	Mar-12-14	Mar-13-14	
Zinc	**56**	2	mg/kg dry	Mar-12-14	Mar-13-14	
Zirconium	**7**	2	mg/kg dry	Mar-12-14	Mar-13-14	

Aggregate Organic Parameters CT2, HT

REPORTED TO Columbia Environmental Consulting Ltd
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REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Aggregate Organic Parameters, Continued						CT2, HT
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BH1-1 (4030403-10) [Soil] Sampled: Mar-04-14 09:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BH8-1 (4030403-19) [Soil] Sampled: Mar-04-14 13:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BH4-1 (4030403-20) [Soil] Sampled: Mar-04-14 13:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BHDUP3 (4030403-24) [Soil] Sampled: Mar-05-14 09:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BH9-1 (4030403-40) [Soil] Sampled: Mar-07-14 09:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00						
VHs (6-10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME CWS Petroleum Hydrocarbons						CT2, HT
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4030403
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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
CCME CWS Petroleum Hydrocarbons, Continued						
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00, Continued						
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: BH1-1 (4030403-10) [Soil] Sampled: Mar-04-14 09:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	

REPORTED TO Columbia Environmental Consulting Ltd
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REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
CCME CWS Petroleum Hydrocarbons, Continued						
Sample ID: BH8-1 (4030403-19) [Soil] Sampled: Mar-04-14 13:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: BH4-1 (4030403-20) [Soil] Sampled: Mar-04-14 13:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: BHDUP3 (4030403-24) [Soil] Sampled: Mar-05-14 09:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Sample ID: BH9-1 (4030403-40) [Soil] Sampled: Mar-07-14 09:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	

REPORTED TO Columbia Environmental Consulting Ltd
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REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
CCME CWS Petroleum Hydrocarbons, Continued						
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry	Mar-11-14	Mar-17-14	
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry	Mar-11-14	Mar-14-14	
Signal returned to baseline at nC50	**YES**			Mar-11-14	Mar-14-14	
Polycyclic Aromatic Hydrocarbons (PAH)						
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-14-14	
Acenaphthylene	**34**	5	ug/kg dry	Mar-11-14	Mar-14-14	
Anthracene	**48**	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (a) anthracene	**76**	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (a) pyrene	**63**	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (b) fluoranthene	**236**	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (g,h,i) perylene	**68**	20	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (k) fluoranthene	**77**	10	ug/kg dry	Mar-11-14	Mar-14-14	
Chrysene	**151**	10	ug/kg dry	Mar-11-14	Mar-14-14	
Dibenz (a,h) anthracene	**15**	5	ug/kg dry	Mar-11-14	Mar-14-14	
Fluoranthene	**198**	10	ug/kg dry	Mar-11-14	Mar-14-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Indeno (1,2,3-cd) pyrene	**61**	20	ug/kg dry	Mar-11-14	Mar-14-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Phenanthrene	**95**	20	ug/kg dry	Mar-11-14	Mar-14-14	
Pyrene	**124**	20	ug/kg dry	Mar-11-14	Mar-14-14	
Surrogate: Naphthalene-d8	*117 %*	*72-117*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Acenaphthene-d10	*106 %*	*74-111*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Phenanthrene-d10	*89 %*	*66-106*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Chrysene-d12	*99 %*	*60-109*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Perylene-d12	*93 %*	*60-121*		*Mar-11-14*	*Mar-14-14*	
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-14-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-14-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-14-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00, Continued						
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-14-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-14-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-14-14	
Surrogate: Naphthalene-d8	*115 %*	*72-117*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Acenaphthene-d10	*114 %*	*74-111*		*Mar-11-14*	*Mar-14-14*	*S02*
Surrogate: Phenanthrene-d10	*93 %*	*66-106*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Chrysene-d12	*108 %*	*60-109*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Perylene-d12	*101 %*	*60-121*		*Mar-11-14*	*Mar-14-14*	
Sample ID: TP3-1 (4030403-04) [Soil] Sampled: Mar-03-14 14:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Acenaphthene	**6**	5	ug/kg dry	Mar-11-14	Mar-14-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-14-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-14-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-14-14	
Fluoranthene	**18**	10	ug/kg dry	Mar-11-14	Mar-14-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-14-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-14-14	
Phenanthrene	**37**	20	ug/kg dry	Mar-11-14	Mar-14-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-14-14	
Surrogate: Naphthalene-d8	*109 %*	*72-117*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Acenaphthene-d10	*107 %*	*74-111*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Phenanthrene-d10	*92 %*	*66-106*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Chrysene-d12	*105 %*	*60-109*		*Mar-11-14*	*Mar-14-14*	
Surrogate: Perylene-d12	*100 %*	*60-121*		*Mar-11-14*	*Mar-14-14*	
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00, Continued						
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*114 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*106 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*88 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*109 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*104 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*121 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Acenaphthene-d10	*111 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*92 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*108 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*103 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00, Continued						
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*126 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Acenaphthene-d10	*115 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Phenanthrene-d10	*94 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*111 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Perylene-d12	*108 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BH1-1 (4030403-10) [Soil] Sampled: Mar-04-14 09:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*117 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*109 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*90 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*100 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*98 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00, Continued						
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*108 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*104 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*90 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*93 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*95 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BH8-1 (4030403-19) [Soil] Sampled: Mar-04-14 13:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*123 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Acenaphthene-d10	*111 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*94 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*102 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*101 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: BH4-1 (4030403-20) [Soil] Sampled: Mar-04-14 13:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	**13**	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	**13**	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*116 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*109 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*93 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*91 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*95 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BH5-1 (4030403-21) [Soil] Sampled: Mar-04-14 13:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*125 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Acenaphthene-d10	*114 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Phenanthrene-d10	*95 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*105 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	

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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: BH5-1 (4030403-21) [Soil] Sampled: Mar-04-14 13:00, Continued						
Surrogate: Perylene-d12	*105 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*118 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Acenaphthene-d10	*110 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*91 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*107 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*102 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*133 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00, Continued						
Surrogate: Acenaphthene-d10	*120 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Phenanthrene-d10	*101 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*109 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*111 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BHDUP3 (4030403-24) [Soil] Sampled: Mar-05-14 09:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*119 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Acenaphthene-d10	*111 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*95 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*101 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*102 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	

REPORTED TO Columbia Environmental Consulting Ltd
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REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00, Continued						
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*110 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Acenaphthene-d10	*101 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*88 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*92 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*92 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BH9-1 (4030403-40) [Soil] Sampled: Mar-07-14 09:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*124 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Acenaphthene-d10	*114 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Phenanthrene-d10	*97 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*105 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*103 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00						
2-Methylnaphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Acenaphthylene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) anthracene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (a) pyrene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (b) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Benzo (k) fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Chrysene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry	Mar-11-14	Mar-13-14	
Fluoranthene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	

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REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Continued						
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00, Continued						
Fluorene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Naphthalene	< 10	10	ug/kg dry	Mar-11-14	Mar-13-14	
Phenanthrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Pyrene	< 20	20	ug/kg dry	Mar-11-14	Mar-13-14	
Surrogate: Naphthalene-d8	*118 %*	*72-117*		*Mar-11-14*	*Mar-13-14*	*S02*
Surrogate: Acenaphthene-d10	*111 %*	*74-111*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Phenanthrene-d10	*94 %*	*66-106*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Chrysene-d12	*102 %*	*60-109*		*Mar-11-14*	*Mar-13-14*	
Surrogate: Perylene-d12	*97 %*	*60-121*		*Mar-11-14*	*Mar-13-14*	
SPLP Semivolatiles						
Sample ID: ASP-1 (4030403-31) [Soil] Sampled: Mar-04-14 13:00						
Acenaphthene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Acenaphthylene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Acridine	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Anthracene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Benzo (a) anthracene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Benzo (a) pyrene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Benzo (b) fluoranthene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Benzo (g,h,i) perylene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Benzo (k) fluoranthene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Chrysene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Dibenz (a,h) anthracene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Fluoranthene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Fluorene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Indeno (1,2,3-cd) pyrene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Naphthalene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Phenanthrene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Pyrene	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Quinoline	< 0.001	0.001	mg/L	Mar-17-14	Mar-18-14	
Surrogate: Naphthalene-d8	*70 %*	*40-96*		*Mar-17-14*	*Mar-18-14*	
Surrogate: Acenaphthene-d10	*70 %*	*45-92*		*Mar-17-14*	*Mar-18-14*	
Surrogate: Phenanthrene-d10	*71 %*	*48-90*		*Mar-17-14*	*Mar-18-14*	
Surrogate: Chrysene-d12	*62 %*	*41-96*		*Mar-17-14*	*Mar-18-14*	
Surrogate: Perylene-d12	*63 %*	*47-104*		*Mar-17-14*	*Mar-18-14*	
Volatile Organic Compounds (VOC)						CT2, HT
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						CT2, HT
Sample ID: TP1-1 (4030403-01) [Soil] Sampled: Mar-03-14 14:00, Continued						
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*91 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*91 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*92 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	

REPORTED TO Columbia Environmental Consulting Ltd
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REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						HT
Sample ID: TP2-1 (4030403-03) [Soil] Sampled: Mar-03-14 14:00, Continued						
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*97 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*98 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*99 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						HT
Sample ID: TP4-1 (4030403-05) [Soil] Sampled: Mar-03-14 14:00, Continued						
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*95 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*96 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*98 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						HT
Sample ID: TP7-1 (4030403-08) [Soil] Sampled: Mar-03-14 14:00, Continued						
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*97 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*98 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*99 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						CT2, HT
Sample ID: TP8-1 (4030403-09) [Soil] Sampled: Mar-03-14 14:00, Continued						
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*98 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*98 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*99 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: BH1-1 (4030403-10) [Soil] Sampled: Mar-04-14 09:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*95 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*95 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*96 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: BH7-1 (4030403-18) [Soil] Sampled: Mar-04-14 13:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.04	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*84 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*88 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*93 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: BH8-1 (4030403-19) [Soil] Sampled: Mar-04-14 13:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.04	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*99 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*99 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*101 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: BH4-1 (4030403-20) [Soil] Sampled: Mar-04-14 13:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: BH4-1 (4030403-20) [Soil] Sampled: Mar-04-14 13:00, Continued						
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*100 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*100 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*101 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: BH6-1 (4030403-22) [Soil] Sampled: Mar-04-14 13:00, Continued						
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*96 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*98 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*99 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: BH2-1 (4030403-23) [Soil] Sampled: Mar-05-14 09:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*114 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*116 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	*S02*
Surrogate: 1,4-Dichlorobenzene-d4	*117 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	*S02*

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: BHDUP3 (4030403-24) [Soil] Sampled: Mar-05-14 09:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*105 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*109 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	*S02*
Surrogate: 1,4-Dichlorobenzene-d4	*111 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	*S02*
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.04	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*102 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: BH3-3 (4030403-35) [Soil] Sampled: Mar-06-14 09:00, Continued						
Surrogate: 4-Bromofluorobenzene	*101 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*101 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: BH9-1 (4030403-40) [Soil] Sampled: Mar-07-14 09:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*89 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*102 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*104 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00						
Benzene	< 0.02	0.02	mg/kg dry	Mar-11-14	Mar-17-14	
Bromodichloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Bromoform	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030403
PROJECT	14-0493	**REPORTED**	Mar-19-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: BHDUP4 (4030403-42) [Soil] Sampled: Mar-07-14 09:00, Continued						
Carbon tetrachloride	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Chloroform	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromochloromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Dibromomethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Ethylbenzene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Methyl tert-butyl ether	< 0.05	0.04	mg/kg dry	Mar-11-14	Mar-17-14	
Methylene chloride	< 0.50	0.50	mg/kg dry	Mar-11-14	Mar-17-14	
Styrene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Tetrachloroethene	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
Toluene	< 0.20	0.20	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry	Mar-11-14	Mar-17-14	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry	Mar-11-14	Mar-17-14	
Trichloroethene	< 0.01	0.01	mg/kg dry	Mar-11-14	Mar-17-14	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Vinyl chloride	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Xylenes (total)	< 0.10	0.10	mg/kg dry	Mar-11-14	Mar-17-14	
Surrogate: Toluene-d8	*106 %*	*63-121*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 4-Bromofluorobenzene	*104 %*	*49-108*		*Mar-11-14*	*Mar-17-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*104 %*	*50-107*		*Mar-11-14*	*Mar-17-14*	

Sample / Analysis Qualifiers:

CT2	Excessive headspace in sample container - VOC results may be compromised.
HT	The sample was prepared / analyzed past the recommended holding time.
S02	Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030403
PROJECT	14-0493	**REPORTED**	Mar-19-14

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Aggregate Organic Parameters, Batch B4C0349										
Blank (B4C0349-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-17-14						
VHs (6-10)	< 20	20	mg/kg wet							
LCS (B4C0349-BS2)				Prepared: Mar-11-14, Analyzed: Mar-17-14						
VHs (6-10)	210	20	mg/kg wet	305		70	54-112			
Duplicate (B4C0349-DUP1)		**Source: 4030403-20**		Prepared: Mar-11-14, Analyzed: Mar-17-14						
VHs (6-10)	< 20	20	mg/kg dry		< 20				31	
CCME CWS Petroleum Hydrocarbons, Batch B4C0349										
Blank (B4C0349-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-17-14						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg wet							
LCS (B4C0349-BS2)				Prepared: Mar-11-14, Analyzed: Mar-17-14						
CCME PHC F1 (C6-C10)	220	20	mg/kg wet	305		74	54-101			
Duplicate (B4C0349-DUP1)		**Source: 4030403-20**		Prepared: Mar-11-14, Analyzed: Mar-17-14						
CCME PHC F1 (C6-C10)	< 20	20	mg/kg dry		< 20				30	
CCME CWS Petroleum Hydrocarbons, Batch B4C0351										
Blank (B4C0351-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-14-14						
CCME PHC F2 (C10-C16)	< 100	100	mg/kg wet							
CCME PHC F3 (C16-C34)	< 200	200	mg/kg wet							
CCME PHC F4 (C34-C50)	< 200	200	mg/kg wet							
Signal returned to baseline at nC50	YES		mg/kg wet							
LCS (B4C0351-BS1)				Prepared: Mar-11-14, Analyzed: Mar-14-14						
CCME PHC F2 (C10-C16)	301	100	mg/kg wet	342		88	48-128			
CCME PHC F3 (C16-C34)	994	200	mg/kg wet	1240		80	45-116			
CCME PHC F4 (C34-C50)	< 200	200	mg/kg wet	83.3		84	61-126			
Duplicate (B4C0351-DUP1)		**Source: 4030403-08**		Prepared: Mar-11-14, Analyzed: Mar-14-14						
CCME PHC F2 (C10-C16)	< 100	100	mg/kg dry		< 100				40	
CCME PHC F3 (C16-C34)	< 200	200	mg/kg dry		< 200				40	

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Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
CCME CWS Petroleum Hydrocarbons, Batch B4C0351, Continued										
Duplicate (B4C0351-DUP1), Continued		**Source: 4030403-08**		Prepared: Mar-11-14, Analyzed: Mar-14-14						
CCME PHC F4 (C34-C50)	< 200	200	mg/kg dry		< 200				40	
General Parameters, Batch B4C0404										
Duplicate (B4C0404-DUP1)		**Source: 4030403-21**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
Moisture	4.6	0.1	% wet		4.6			0.0	40	
General Parameters, Batch B4C0415										
Duplicate (B4C0415-DUP1)		**Source: 4030403-06**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
pH	7.6	0.1	pH units		7.6			< 1	4	
Duplicate (B4C0415-DUP2)		**Source: 4030403-21**		Prepared: Mar-12-14, Analyzed: Mar-12-14						
pH	9.1	0.1	pH units		9.1			< 1	4	
Reference (B4C0415-SRM1)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
pH	7.9	0.1	pH units	7.58		104	90-115			
Reference (B4C0415-SRM2)				Prepared: Mar-12-14, Analyzed: Mar-12-14						
pH	7.9	0.1	pH units	7.58		104	90-115			
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4C0350										
Blank (B4C0350-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-14-14						
2-Methylnaphthalene	< 10	10	ug/kg wet							
Acenaphthene	< 5	5	ug/kg wet							
Acenaphthylene	< 5	5	ug/kg wet							
Anthracene	< 10	10	ug/kg wet							
Benzo (a) anthracene	< 10	10	ug/kg wet							
Benzo (a) pyrene	< 10	10	ug/kg wet							
Benzo (b) fluoranthene	< 10	10	ug/kg wet							
Benzo (g,h,i) perylene	< 20	20	ug/kg wet							
Benzo (k) fluoranthene	< 10	10	ug/kg wet							
Chrysene	< 10	10	ug/kg wet							
Dibenz (a,h) anthracene	< 5	5	ug/kg wet							
Fluoranthene	< 10	10	ug/kg wet							
Fluorene	< 10	10	ug/kg wet							
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg wet							
Naphthalene	< 10	10	ug/kg wet							
Phenanthrene	< 20	20	ug/kg wet							
Pyrene	< 20	20	ug/kg wet							
Surrogate: Naphthalene-d8	*2040*		*ug/kg wet*	*1700*		*120*	*72-117*			*S02*
Surrogate: Acenaphthene-d10	*1850*		*ug/kg wet*	*1660*		*111*	*74-111*			
Surrogate: Phenanthrene-d10	*1520*		*ug/kg wet*	*1620*		*94*	*66-106*			
Surrogate: Chrysene-d12	*1670*		*ug/kg wet*	*1580*		*106*	*60-109*			
Surrogate: Perylene-d12	*1710*		*ug/kg wet*	*1650*		*104*	*60-121*			
LCS (B4C0350-BS1)				Prepared: Mar-11-14, Analyzed: Mar-12-14						
2-Methylnaphthalene	1710	10	ug/kg wet	1670		103	75-115			
Acenaphthene	1810	5	ug/kg wet	1670		109	77-115			
Acenaphthylene	1830	5	ug/kg wet	1670		110	73-114			
Anthracene	1380	10	ug/kg wet	1670		83	74-110			
Benzo (a) anthracene	1630	10	ug/kg wet	1670		98	66-114			
Benzo (a) pyrene	1560	10	ug/kg wet	1670		94	62-122			
Benzo (b) fluoranthene	1550	10	ug/kg wet	1670		93	54-121			
Benzo (g,h,i) perylene	1430	20	ug/kg wet	1670		86	64-117			

REPORTED TO Columbia Environmental Consulting Ltd
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REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4C0350, Continued										
LCS (B4C0350-BS1), Continued				Prepared: Mar-11-14, Analyzed: Mar-12-14						
Benzo (k) fluoranthene	1670	10	ug/kg wet	1670		100	69-119			
Chrysene	1700	10	ug/kg wet	1670		102	67-120			
Dibenz (a,h) anthracene	1280	5	ug/kg wet	1670		77	63-115			
Fluoranthene	1400	10	ug/kg wet	1670		84	72-112			
Fluorene	1470	10	ug/kg wet	1670		88	75-108			
Indeno (1,2,3-cd) pyrene	1420	20	ug/kg wet	1670		85	65-118			
Naphthalene	1760	10	ug/kg wet	1670		106	70-115			
Phenanthrene	1470	20	ug/kg wet	1670		88	75-111			
Pyrene	1420	20	ug/kg wet	1670		85	73-112			
Surrogate: Naphthalene-d8	*1880*		*ug/kg wet*	*1700*		*110*	*72-117*			
Surrogate: Acenaphthene-d10	*1830*		*ug/kg wet*	*1660*		*110*	*74-111*			
Surrogate: Phenanthrene-d10	*1500*		*ug/kg wet*	*1620*		*93*	*66-106*			
Surrogate: Chrysene-d12	*1690*		*ug/kg wet*	*1580*		*107*	*60-109*			
Surrogate: Perylene-d12	*1630*		*ug/kg wet*	*1650*		*99*	*60-121*			
Duplicate (B4C0350-DUP1)		**Source: 4030403-08**		Prepared: Mar-11-14, Analyzed: Mar-13-14						
2-Methylnaphthalene	< 10	10	ug/kg dry		< 10				50	
Acenaphthene	< 5	5	ug/kg dry		< 5				50	
Acenaphthylene	< 5	5	ug/kg dry		< 5				50	
Anthracene	< 10	10	ug/kg dry		< 10				50	
Benzo (a) anthracene	< 10	10	ug/kg dry		< 10				50	
Benzo (a) pyrene	< 10	10	ug/kg dry		< 10				50	
Benzo (b) fluoranthene	< 10	10	ug/kg dry		< 10				50	
Benzo (g,h,i) perylene	< 20	20	ug/kg dry		< 20				50	
Benzo (k) fluoranthene	< 10	10	ug/kg dry		< 10				50	
Chrysene	< 10	10	ug/kg dry		< 10				50	
Dibenz (a,h) anthracene	< 5	5	ug/kg dry		< 5				50	
Fluoranthene	< 10	10	ug/kg dry		< 10				50	
Fluorene	< 10	10	ug/kg dry		< 10				50	
Indeno (1,2,3-cd) pyrene	< 20	20	ug/kg dry		< 20				50	
Naphthalene	< 10	10	ug/kg dry		< 10				50	
Phenanthrene	< 20	20	ug/kg dry		< 20				50	
Pyrene	< 20	20	ug/kg dry		< 20				50	
Surrogate: Naphthalene-d8	*2030*		*ug/kg dry*	*1700*		*119*	*72-117*			*S02*
Surrogate: Acenaphthene-d10	*1760*		*ug/kg dry*	*1660*		*106*	*74-111*			
Surrogate: Phenanthrene-d10	*1480*		*ug/kg dry*	*1620*		*91*	*66-106*			
Surrogate: Chrysene-d12	*1660*		*ug/kg dry*	*1590*		*105*	*60-109*			
Surrogate: Perylene-d12	*1750*		*ug/kg dry*	*1650*		*106*	*60-121*			
Reference (B4C0350-SRM1)				Prepared: Mar-11-14, Analyzed: Mar-12-14						
2-Methylnaphthalene	1700	10	ug/kg wet	1380		123	70-130			
Acenaphthene	132	5	ug/kg wet	130		101	60-140			
Anthracene	269	10	ug/kg wet	310		87	70-130			
Benzo (a) anthracene	3420	10	ug/kg wet	3510		97	70-130			
Benzo (a) pyrene	220	10	ug/kg wet	291		76	70-130			
Benzo (b) fluoranthene	1600	10	ug/kg wet	1400		114	70-130			
Benzo (g,h,i) perylene	5040	20	ug/kg wet	4990		101	70-130			
Benzo (k) fluoranthene	4230	10	ug/kg wet	3680		115	70-130			
Chrysene	8630	10	ug/kg wet	7620		113	70-130			
Dibenz (a,h) anthracene	4940	5	ug/kg wet	4800		103	70-130			
Fluoranthene	4060	10	ug/kg wet	3870		105	70-130			
Fluorene	5510	10	ug/kg wet	5670		97	70-130			
Indeno (1,2,3-cd) pyrene	2690	20	ug/kg wet	2220		121	70-130			
Naphthalene	1720	10	ug/kg wet	1200		143	60-140			SRM
Phenanthrene	2440	20	ug/kg wet	1900		129	70-130			
Pyrene	514	20	ug/kg wet	670		77	70-130			
Surrogate: Naphthalene-d8	*2460*		*ug/kg wet*	*2260*		*109*	*72-117*			

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4C0350, Continued										
Reference (B4C0350-SRM1), Continued				Prepared: Mar-11-14, Analyzed: Mar-12-14						
Surrogate: Acenaphthene-d10	*2230*		*ug/kg wet*	*2210*		*101*	*74-111*			
Surrogate: Phenanthrene-d10	*2000*		*ug/kg wet*	*2150*		*93*	*66-106*			
Surrogate: Chrysene-d12	*2280*		*ug/kg wet*	*2110*		*108*	*60-109*			
Surrogate: Perylene-d12	*2040*		*ug/kg wet*	*2200*		*93*	*60-121*			
SPLP Semivolatiles, Batch B4C0654										
Blank (B4C0654-BLK1)				Prepared: Mar-17-14, Analyzed: Mar-18-14						
Acenaphthene	< 0.001	0.001	mg/L							
Acenaphthylene	< 0.001	0.001	mg/L							
Acridine	< 0.001	0.001	mg/L							
Anthracene	< 0.001	0.001	mg/L							
Benzo (a) anthracene	< 0.001	0.001	mg/L							
Benzo (a) pyrene	< 0.001	0.001	mg/L							
Benzo (b) fluoranthene	< 0.001	0.001	mg/L							
Benzo (g,h,i) perylene	< 0.001	0.001	mg/L							
Benzo (k) fluoranthene	< 0.001	0.001	mg/L							
Chrysene	< 0.001	0.001	mg/L							
Dibenz (a,h) anthracene	< 0.001	0.001	mg/L							
Fluoranthene	< 0.001	0.001	mg/L							
Fluorene	< 0.001	0.001	mg/L							
Indeno (1,2,3-cd) pyrene	< 0.001	0.001	mg/L							
Naphthalene	< 0.001	0.001	mg/L							
Phenanthrene	< 0.001	0.001	mg/L							
Pyrene	< 0.001	0.001	mg/L							
Quinoline	< 0.001	0.001	mg/L							
Surrogate: Naphthalene-d8	*0.00158*		*mg/L*	*0.00204*		*78*	*40-96*			
Surrogate: Acenaphthene-d10	*0.00162*		*mg/L*	*0.00199*		*82*	*45-92*			
Surrogate: Phenanthrene-d10	*0.00166*		*mg/L*	*0.00194*		*85*	*48-90*			
Surrogate: Chrysene-d12	*0.00148*		*mg/L*	*0.00190*		*78*	*41-96*			
Surrogate: Perylene-d12	*0.00158*		*mg/L*	*0.00198*		*80*	*47-104*			
LCS (B4C0654-BS1)				Prepared: Mar-17-14, Analyzed: Mar-18-14						
Acenaphthene	< 0.001	0.001	mg/L	0.00100		65	54-92			
Acenaphthylene	< 0.001	0.001	mg/L	0.00100		72	54-95			
Acridine	< 0.001	0.001	mg/L	0.00100		71	49-87			
Anthracene	< 0.001	0.001	mg/L	0.00100		69	53-94			
Benzo (a) anthracene	< 0.001	0.001	mg/L	0.00100		63	52-95			
Benzo (a) pyrene	< 0.001	0.001	mg/L	0.00100		69	52-103			
Benzo (b) fluoranthene	< 0.001	0.001	mg/L	0.00100		61	49-94			
Benzo (g,h,i) perylene	< 0.001	0.001	mg/L	0.00100		77	51-98			
Benzo (k) fluoranthene	< 0.001	0.001	mg/L	0.00100		62	49-105			
Chrysene	< 0.001	0.001	mg/L	0.00100		62	50-104			
Dibenz (a,h) anthracene	< 0.001	0.001	mg/L	0.00100		77	49-96			
Fluoranthene	< 0.001	0.001	mg/L	0.00100		71	53-102			
Fluorene	< 0.001	0.001	mg/L	0.00100		69	54-91			
Indeno (1,2,3-cd) pyrene	< 0.001	0.001	mg/L	0.00100		73	51-99			
Naphthalene	< 0.001	0.001	mg/L	0.00100		62	51-91			
Phenanthrene	< 0.001	0.001	mg/L	0.00100		67	56-96			
Pyrene	< 0.001	0.001	mg/L	0.00100		68	51-105			
Quinoline	< 0.001	0.001	mg/L	0.00100		62	48-126			
Surrogate: Naphthalene-d8	*0.000654*		*mg/L*	*0.00102*		*64*	*40-96*			
Surrogate: Acenaphthene-d10	*0.000673*		*mg/L*	*0.000995*		*68*	*45-92*			
Surrogate: Phenanthrene-d10	*0.000708*		*mg/L*	*0.000970*		*73*	*48-90*			
Surrogate: Chrysene-d12	*0.000642*		*mg/L*	*0.000950*		*68*	*41-96*			
Surrogate: Perylene-d12	*0.000697*		*mg/L*	*0.000990*		*70*	*47-104*			

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
SPLP Semivolatiles, Batch B4C0654, Continued										
Duplicate (B4C0654-DUP1)		**Source: 4030403-31**		Prepared: Mar-17-14, Analyzed: Mar-18-14						**A-01**
Acenaphthene	< 0.001	0.001	mg/L		< 0.001				25	
Acenaphthylene	< 0.001	0.001	mg/L		< 0.001				25	
Acridine	< 0.001	0.001	mg/L		< 0.001				25	
Anthracene	< 0.001	0.001	mg/L		< 0.001				25	
Benzo (a) anthracene	< 0.001	0.001	mg/L		< 0.001				25	
Benzo (a) pyrene	< 0.001	0.001	mg/L		< 0.001				25	
Benzo (b) fluoranthene	< 0.001	0.001	mg/L		< 0.001				25	
Benzo (g,h,i) perylene	< 0.001	0.001	mg/L		< 0.001				25	
Benzo (k) fluoranthene	< 0.001	0.001	mg/L		< 0.001				25	
Chrysene	< 0.001	0.001	mg/L		< 0.001				25	
Dibenz (a,h) anthracene	< 0.001	0.001	mg/L		< 0.001				25	
Fluoranthene	< 0.001	0.001	mg/L		< 0.001				25	
Fluorene	< 0.001	0.001	mg/L		< 0.001				25	
Indeno (1,2,3-cd) pyrene	< 0.001	0.001	mg/L		< 0.001				25	
Naphthalene	< 0.001	0.001	mg/L		< 0.001				25	
Phenanthrene	< 0.001	0.001	mg/L		< 0.001				25	
Pyrene	< 0.001	0.001	mg/L		< 0.001				25	
Quinoline	< 0.001	0.001	mg/L		< 0.001				25	
Surrogate: Naphthalene-d8	*0.000401*		*mg/L*	*0.00200*		*20*	*40-96*			
Surrogate: Acenaphthene-d10	*0.000410*		*mg/L*	*0.00195*		*21*	*45-92*			
Surrogate: Phenanthrene-d10	*0.000418*		*mg/L*	*0.00190*		*22*	*48-90*			
Surrogate: Chrysene-d12	*0.000306*		*mg/L*	*0.00186*		*16*	*41-96*			
Surrogate: Perylene-d12	*0.000478*		*mg/L*	*0.00194*		*25*	*47-104*			
Strong Acid Leachable Metals, Batch B4C0407										
Blank (B4C0407-BLK1)				Prepared: Mar-12-14, Analyzed: Mar-13-14						
Aluminum	< 20	20	mg/kg dry							
Antimony	< 0.1	0.1	mg/kg dry							
Arsenic	< 0.4	0.4	mg/kg dry							
Barium	< 1	1	mg/kg dry							
Beryllium	< 0.1	0.1	mg/kg dry							
Bismuth	< 0.1	0.1	mg/kg dry							
Boron	< 2	2	mg/kg dry							
Cadmium	< 0.04	0.04	mg/kg dry							
Calcium	< 100	100	mg/kg dry							
Chromium	< 1.0	1.0	mg/kg dry							
Cobalt	< 0.1	0.1	mg/kg dry							
Copper	< 0.2	0.2	mg/kg dry							
Iron	< 20	20	mg/kg dry							
Lead	< 0.2	0.2	mg/kg dry							
Lithium	< 0.1	0.1	mg/kg dry							
Magnesium	< 10	10	mg/kg dry							
Manganese	< 0.4	0.4	mg/kg dry							
Mercury	< 0.05	0.05	mg/kg dry							
Molybdenum	< 0.1	0.1	mg/kg dry							
Nickel	< 0.4	0.4	mg/kg dry							
Phosphorus	< 10	10	mg/kg dry							
Potassium	< 10	10	mg/kg dry							
Selenium	< 0.5	0.5	mg/kg dry							
Silicon	< 3000	3000	mg/kg dry							
Silver	< 0.2	0.2	mg/kg dry							
Sodium	< 40	40	mg/kg dry							
Strontium	< 0.2	0.2	mg/kg dry							
Sulfur	< 1000	1000	mg/kg dry							
Tellurium	< 0.1	0.1	mg/kg dry							

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Strong Acid Leachable Metals, Batch B4C0407, Continued										
Blank (B4C0407-BLK1), Continued				Prepared: Mar-12-14, Analyzed: Mar-13-14						
Thallium	< 0.1	0.1	mg/kg dry							
Thorium	< 0.5	0.5	mg/kg dry							
Tin	< 0.2	0.2	mg/kg dry							
Titanium	< 2	2	mg/kg dry							
Uranium	< 0.1	0.1	mg/kg dry							
Vanadium	< 0.4	0.4	mg/kg dry							
Zinc	< 2	2	mg/kg dry							
Zirconium	< 2	2	mg/kg dry							
Blank (B4C0407-BLK2)				Prepared: Mar-12-14, Analyzed: Mar-13-14						
Aluminum	< 20	20	mg/kg dry							
Antimony	< 0.1	0.1	mg/kg dry							
Arsenic	< 0.4	0.4	mg/kg dry							
Barium	< 1	1	mg/kg dry							
Beryllium	< 0.1	0.1	mg/kg dry							
Bismuth	< 0.1	0.1	mg/kg dry							
Boron	< 2	2	mg/kg dry							
Cadmium	< 0.04	0.04	mg/kg dry							
Calcium	< 100	100	mg/kg dry							
Chromium	< 1.0	1.0	mg/kg dry							
Cobalt	< 0.1	0.1	mg/kg dry							
Copper	< 0.2	0.2	mg/kg dry							
Iron	< 20	20	mg/kg dry							
Lead	< 0.2	0.2	mg/kg dry							
Lithium	< 0.1	0.1	mg/kg dry							
Magnesium	< 10	10	mg/kg dry							
Manganese	< 0.4	0.4	mg/kg dry							
Mercury	< 0.05	0.05	mg/kg dry							
Molybdenum	< 0.1	0.1	mg/kg dry							
Nickel	< 0.4	0.4	mg/kg dry							
Phosphorus	< 10	10	mg/kg dry							
Potassium	< 10	10	mg/kg dry							
Selenium	< 0.5	0.5	mg/kg dry							
Silicon	< 3000	3000	mg/kg dry							
Silver	< 0.2	0.2	mg/kg dry							
Sodium	< 40	40	mg/kg dry							
Strontium	< 0.2	0.2	mg/kg dry							
Sulfur	< 1000	1000	mg/kg dry							
Tellurium	< 0.1	0.1	mg/kg dry							
Thallium	< 0.1	0.1	mg/kg dry							
Thorium	< 0.5	0.5	mg/kg dry							
Tin	< 0.2	0.2	mg/kg dry							
Titanium	< 2	2	mg/kg dry							
Uranium	< 0.1	0.1	mg/kg dry							
Vanadium	< 0.4	0.4	mg/kg dry							
Zinc	< 2	2	mg/kg dry							
Zirconium	< 2	2	mg/kg dry							
Duplicate (B4C0407-DUP1)		**Source: 4030403-06**		Prepared: Mar-12-14, Analyzed: Mar-13-14						
Aluminum	15500	20	mg/kg dry		15700			2	24	
Antimony	0.4	0.1	mg/kg dry		0.3				60	
Arsenic	3.0	0.4	mg/kg dry		3.5			17	42	
Barium	106	1	mg/kg dry		112			5	38	
Beryllium	0.5	0.1	mg/kg dry		0.5			3	37	
Bismuth	< 0.1	0.1	mg/kg dry		< 0.1				33	
Boron	3	2	mg/kg dry		3				29	
Cadmium	0.13	0.04	mg/kg dry		0.14				32	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Strong Acid Leachable Metals, Batch B4C0407, Continued										
Duplicate (B4C0407-DUP1), Continued		**Source: 4030403-06**		Prepared: Mar-12-14, Analyzed: Mar-13-14						
Calcium	7780	100	mg/kg dry		8210			5	33	
Chromium	35.2	1.0	mg/kg dry		33.8			4	32	
Cobalt	13.4	0.1	mg/kg dry		12.9			4	26	
Copper	54.4	0.2	mg/kg dry		53.3			2	38	
Iron	36300	20	mg/kg dry		35600			2	28	
Lead	3.1	0.2	mg/kg dry		3.2			3	46	
Lithium	8.0	0.1	mg/kg dry		8.4			5	28	
Magnesium	8330	10	mg/kg dry		8450			1	23	
Manganese	517	0.4	mg/kg dry		530			3	23	
Mercury	< 0.05	0.05	mg/kg dry		< 0.05				42	
Molybdenum	0.6	0.1	mg/kg dry		0.6			6	52	
Nickel	28.0	0.4	mg/kg dry		26.1			7	29	
Phosphorus	891	10	mg/kg dry		890			< 1	20	
Potassium	892	10	mg/kg dry		865			3	28	
Selenium	< 0.5	0.5	mg/kg dry		< 0.5				19	
Silicon	< 3000	3000	mg/kg dry		< 3000				18	
Silver	< 0.2	0.2	mg/kg dry		< 0.2				35	
Sodium	320	40	mg/kg dry		220			37	23	RPD
Strontium	43.7	0.2	mg/kg dry		46.3			6	25	
Sulfur	< 1000	1000	mg/kg dry		< 1000				26	
Tellurium	< 0.1	0.1	mg/kg dry		< 0.1				38	
Thallium	< 0.1	0.1	mg/kg dry		< 0.1				27	
Thorium	1.7	0.5	mg/kg dry		1.5				39	
Tin	0.4	0.2	mg/kg dry		0.4				85	
Titanium	1270	2	mg/kg dry		988			25	29	
Uranium	0.6	0.1	mg/kg dry		0.6			1	36	
Vanadium	93.8	0.4	mg/kg dry		89.3			5	23	
Zinc	70	2	mg/kg dry		70			< 1	30	
Zirconium	8	2	mg/kg dry		8				32	
Duplicate (B4C0407-DUP2)		**Source: 4030403-21**		Prepared: Mar-12-14, Analyzed: Mar-13-14						
Aluminum	14100	20	mg/kg dry		14500			3	24	
Antimony	0.3	0.1	mg/kg dry		0.3				60	
Arsenic	3.4	0.4	mg/kg dry		4.0			17	42	
Barium	85	1	mg/kg dry		90			5	38	
Beryllium	0.4	0.1	mg/kg dry		0.4				37	
Bismuth	< 0.1	0.1	mg/kg dry		< 0.1				33	
Boron	3	2	mg/kg dry		3				29	
Cadmium	0.10	0.04	mg/kg dry		0.10				32	
Calcium	15100	100	mg/kg dry		16200			7	33	
Chromium	27.4	1.0	mg/kg dry		26.6			3	32	
Cobalt	11.7	0.1	mg/kg dry		11.6			< 1	26	
Copper	39.9	0.2	mg/kg dry		39.5			< 1	38	
Iron	31100	20	mg/kg dry		31900			3	28	
Lead	3.1	0.2	mg/kg dry		3.1			< 1	46	
Lithium	8.9	0.1	mg/kg dry		8.9			< 1	28	
Magnesium	9680	10	mg/kg dry		10100			4	23	
Manganese	549	0.4	mg/kg dry		583			6	23	
Mercury	< 0.05	0.05	mg/kg dry		< 0.05				42	
Molybdenum	1.3	0.1	mg/kg dry		1.8			33	52	
Nickel	22.7	0.4	mg/kg dry		25.2			11	29	
Phosphorus	662	10	mg/kg dry		691			4	20	
Potassium	808	10	mg/kg dry		825			2	28	
Selenium	0.5	0.5	mg/kg dry		< 0.5				19	
Silicon	< 3000	3000	mg/kg dry		< 3000				18	
Silver	< 0.2	0.2	mg/kg dry		< 0.2				35	
Sodium	597	40	mg/kg dry		588			2	23	

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Strong Acid Leachable Metals, Batch B4C0407, Continued										
Duplicate (B4C0407-DUP2), Continued		**Source: 4030403-21**		Prepared: Mar-12-14, Analyzed: Mar-13-14						
Strontium	72.9	0.2	mg/kg dry		80.2			9	25	
Sulfur	< 1000	1000	mg/kg dry		< 1000				26	
Tellurium	< 0.1	0.1	mg/kg dry		< 0.1				38	
Thallium	< 0.1	0.1	mg/kg dry		< 0.1				27	
Thorium	1.7	0.5	mg/kg dry		1.9				39	
Tin	0.5	0.2	mg/kg dry		0.5				85	
Titanium	1380	2	mg/kg dry		1310			5	29	
Uranium	0.6	0.1	mg/kg dry		0.4			24	36	
Vanadium	73.4	0.4	mg/kg dry		74.9			2	23	
Zinc	52	2	mg/kg dry		53			3	30	
Zirconium	7	2	mg/kg dry		8				32	
Reference (B4C0407-SRM2)				Prepared: Mar-12-14, Analyzed: Mar-13-14						
Aluminum	17000	20	mg/kg dry	18200		94	86-118			
Antimony	7.1	0.1	mg/kg dry	6.27		113	73-138			
Arsenic	14.8	0.4	mg/kg dry	15.4		96	87-106			
Barium	88	1	mg/kg dry	80.6		110	72-119			
Beryllium	0.6	0.1	mg/kg dry	0.544		110	73-128			
Bismuth	2.0	0.1	mg/kg dry	2.12		96	78-97			
Boron	3	2	mg/kg dry	2.68		129	58-139			
Cadmium	0.23	0.04	mg/kg dry	0.230		100	88-121			
Calcium	3360	100	mg/kg dry	3320		101	92-113			
Chromium	27.5	1.0	mg/kg dry	27.2		101	91-113			
Cobalt	11.9	0.1	mg/kg dry	12.5		95	90-109			
Copper	44.5	0.2	mg/kg dry	44.9		99	92-112			
Iron	33900	20	mg/kg dry	33300		102	91-112			
Lead	14.6	0.2	mg/kg dry	14.4		101	89-111			
Lithium	11.1	0.1	mg/kg dry	9.26		120	73-124			
Magnesium	5510	10	mg/kg dry	5830		95	89-116			
Manganese	1110	0.4	mg/kg dry	1100		101	93-112			
Mercury	0.09	0.05	mg/kg dry	0.0980		94	74-126			
Molybdenum	0.8	0.1	mg/kg dry	0.738		104	93-120			
Nickel	17.8	0.4	mg/kg dry	17.4		102	93-110			
Phosphorus	684	10	mg/kg dry	796		86	86-111			
Potassium	591	10	mg/kg dry	619		96	83-117			
Sodium	331	40	mg/kg dry	340		97	79-130			
Strontium	12.4	0.2	mg/kg dry	11.6		107	85-116			
Thorium	3.7	0.5	mg/kg dry	4.46		83	78-100			
Tin	1.2	0.2	mg/kg dry	1.10		105	78-120			
Titanium	944	2	mg/kg dry	764		124	72-143			
Uranium	0.9	0.1	mg/kg dry	0.940		94	80-102			
Vanadium	54.0	0.4	mg/kg dry	54.9		98	87-116			
Zinc	69	2	mg/kg dry	67.5		102	91-113			
Volatile Organic Compounds (VOC), Batch B4C0349										
Blank (B4C0349-BLK1)				Prepared: Mar-11-14, Analyzed: Mar-17-14						
Benzene	< 0.02	0.02	mg/kg wet							
Bromodichloromethane	< 0.10	0.10	mg/kg wet							
Bromoform	< 0.10	0.10	mg/kg wet							
Carbon tetrachloride	< 0.05	0.05	mg/kg wet							
Chlorobenzene	< 0.05	0.05	mg/kg wet							
Chloroform	< 0.07	0.07	mg/kg wet							
Dibromochloromethane	< 0.10	0.10	mg/kg wet							
1,2-Dibromoethane	< 0.10	0.10	mg/kg wet							
Dibromomethane	< 0.10	0.10	mg/kg wet							

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Volatile Organic Compounds (VOC), Batch B4C0349, Continued										
Blank (B4C0349-BLK1), Continued				Prepared: Mar-11-14, Analyzed: Mar-17-14						
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg wet							
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg wet							
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg wet							
1,1-Dichloroethane	< 0.05	0.05	mg/kg wet							
1,2-Dichloroethane	< 0.05	0.05	mg/kg wet							
1,1-Dichloroethene	< 0.05	0.05	mg/kg wet							
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg wet							
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg wet							
1,2-Dichloropropane	< 0.05	0.05	mg/kg wet							
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg wet							
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg wet							
Ethylbenzene	< 0.05	0.05	mg/kg wet							
Methyl tert-butyl ether	< 0.04	0.04	mg/kg wet							
Methylene chloride	< 0.50	0.50	mg/kg wet							
Styrene	< 0.05	0.05	mg/kg wet							
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg wet							
Tetrachloroethene	< 0.05	0.05	mg/kg wet							
Toluene	< 0.20	0.20	mg/kg wet							
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg wet							
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg wet							
Trichloroethene	< 0.01	0.01	mg/kg wet							
Trichlorofluoromethane	< 0.10	0.10	mg/kg wet							
Vinyl chloride	< 0.10	0.10	mg/kg wet							
Xylenes (total)	< 0.10	0.10	mg/kg wet							
Surrogate: Toluene-d8	*7.73*		*mg/kg wet*	*8.33*		*93*	*63-121*			
Surrogate: 4-Bromofluorobenzene	*7.78*		*mg/kg wet*	*8.33*		*93*	*49-108*			
Surrogate: 1,4-Dichlorobenzene-d4	*7.96*		*mg/kg wet*	*8.33*		*96*	*50-107*			
LCS (B4C0349-BS1)				Prepared: Mar-11-14, Analyzed: Mar-17-14						
Benzene	1.66	0.02	mg/kg wet	1.67		99	67-133			
Bromodichloromethane	1.42	0.10	mg/kg wet	1.67		85	66-120			
Bromoform	1.21	0.10	mg/kg wet	1.67		73	60-107			
Carbon tetrachloride	1.49	0.05	mg/kg wet	1.67		89	55-127			
Chlorobenzene	1.60	0.05	mg/kg wet	1.67		96	75-121			
Chloroform	1.57	0.07	mg/kg wet	1.67		94	74-127			
Dibromochloromethane	1.26	0.10	mg/kg wet	1.67		75	56-117			
1,2-Dibromoethane	1.50	0.10	mg/kg wet	1.67		90	60-121			
Dibromomethane	1.54	0.10	mg/kg wet	1.67		92	69-130			
1,2-Dichlorobenzene	1.64	0.05	mg/kg wet	1.67		98	71-127			
1,3-Dichlorobenzene	1.59	0.05	mg/kg wet	1.67		95	72-128			
1,4-Dichlorobenzene	1.58	0.05	mg/kg wet	1.67		94	72-128			
1,1-Dichloroethane	1.61	0.05	mg/kg wet	1.67		96	72-131			
1,2-Dichloroethane	1.64	0.05	mg/kg wet	1.67		98	70-132			
1,1-Dichloroethene	1.00	0.05	mg/kg wet	1.67		60	59-138			
cis-1,2-Dichloroethene	1.53	0.10	mg/kg wet	1.67		92	71-126			
trans-1,2-Dichloroethene	1.56	0.05	mg/kg wet	1.67		93	65-137			
1,2-Dichloropropane	1.58	0.05	mg/kg wet	1.67		95	69-126			
cis-1,3-Dichloropropene	1.18	0.05	mg/kg wet	1.67		71	60-109			
trans-1,3-Dichloropropene	1.16	0.05	mg/kg wet	1.67		70	52-113			
Ethylbenzene	1.60	0.05	mg/kg wet	1.67		96	69-123			
Methyl tert-butyl ether	1.60	0.04	mg/kg wet	1.67		96	63-137			
Methylene chloride	1.56	0.50	mg/kg wet	1.67		94	68-144			
Styrene	1.53	0.05	mg/kg wet	1.67		92	65-120			
1,1,2,2-Tetrachloroethane	1.55	0.05	mg/kg wet	1.67		93	55-123			
Tetrachloroethene	2.60	0.05	mg/kg wet	1.67		156	47-173			
Toluene	1.78	0.20	mg/kg wet	1.67		107	71-130			
1,1,1-Trichloroethane	1.58	0.05	mg/kg wet	1.67		95	69-126			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4030403
REPORTED Mar-19-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Volatile Organic Compounds (VOC), Batch B4C0349, Continued										
LCS (B4C0349-BS1), Continued				Prepared: Mar-11-14, Analyzed: Mar-17-14						
1,1,2-Trichloroethane	1.64	0.07	mg/kg wet	1.67		99	65-128			
Trichloroethene	1.82	0.01	mg/kg wet	1.67		110	72-139			
Trichlorofluoromethane	1.56	0.10	mg/kg wet	1.67		94	45-125			
Vinyl chloride	1.20	0.10	mg/kg wet	1.67		72	62-150			
Xylenes (total)	5.06	0.10	mg/kg wet	5.00		101	71-127			
Surrogate: Toluene-d8	*8.02*		*mg/kg wet*	*8.33*		*96*	*63-121*			
Surrogate: 4-Bromofluorobenzene	*7.97*		*mg/kg wet*	*8.33*		*96*	*49-108*			
Surrogate: 1,4-Dichlorobenzene-d4	*8.45*		*mg/kg wet*	*8.33*		*101*	*50-107*			
Duplicate (B4C0349-DUP1)		**Source: 4030403-20**		Prepared: Mar-11-14, Analyzed: Mar-17-14						
Benzene	< 0.02	0.02	mg/kg dry		< 0.02				40	
Bromodichloromethane	< 0.10	0.10	mg/kg dry		< 0.10				40	
Bromoform	< 0.10	0.10	mg/kg dry		< 0.10				40	
Carbon tetrachloride	< 0.05	0.05	mg/kg dry		< 0.05				40	
Chlorobenzene	< 0.05	0.05	mg/kg dry		< 0.05				40	
Chloroform	< 0.07	0.07	mg/kg dry		< 0.07				40	
Dibromochloromethane	< 0.10	0.10	mg/kg dry		< 0.10				40	
1,2-Dibromoethane	< 0.10	0.10	mg/kg dry		< 0.10				40	
Dibromomethane	< 0.10	0.10	mg/kg dry		< 0.10				40	
1,2-Dichlorobenzene	< 0.05	0.05	mg/kg dry		< 0.05				40	
1,3-Dichlorobenzene	< 0.05	0.05	mg/kg dry		< 0.05				40	
1,4-Dichlorobenzene	< 0.05	0.05	mg/kg dry		< 0.05				40	
1,1-Dichloroethane	< 0.05	0.05	mg/kg dry		< 0.05				40	
1,2-Dichloroethane	< 0.05	0.05	mg/kg dry		< 0.05				40	
1,1-Dichloroethene	< 0.05	0.05	mg/kg dry		< 0.05				40	
cis-1,2-Dichloroethene	< 0.10	0.10	mg/kg dry		< 0.10				40	
trans-1,2-Dichloroethene	< 0.05	0.05	mg/kg dry		< 0.05				40	
1,2-Dichloropropane	< 0.05	0.05	mg/kg dry		< 0.05				40	
cis-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry		< 0.05				40	
trans-1,3-Dichloropropene	< 0.05	0.05	mg/kg dry		< 0.05				40	
Ethylbenzene	< 0.05	0.05	mg/kg dry		< 0.05				40	
Methyl tert-butyl ether	< 0.04	0.04	mg/kg dry		< 0.04				40	
Methylene chloride	< 0.50	0.50	mg/kg dry		< 0.50				40	
Styrene	< 0.05	0.05	mg/kg dry		< 0.05				40	
1,1,2,2-Tetrachloroethane	< 0.05	0.05	mg/kg dry		< 0.05				40	
Tetrachloroethene	< 0.05	0.05	mg/kg dry		< 0.05				40	
Toluene	< 0.20	0.20	mg/kg dry		< 0.20				40	
1,1,1-Trichloroethane	< 0.05	0.05	mg/kg dry		< 0.05				40	
1,1,2-Trichloroethane	< 0.07	0.07	mg/kg dry		< 0.07				40	
Trichloroethene	< 0.01	0.01	mg/kg dry		< 0.01				40	
Trichlorofluoromethane	< 0.10	0.10	mg/kg dry		< 0.10				40	
Vinyl chloride	< 0.10	0.10	mg/kg dry		< 0.10				40	
Xylenes (total)	< 0.10	0.10	mg/kg dry		< 0.10				40	
Surrogate: Toluene-d8	*8.58*		*mg/kg dry*	*8.22*		*104*	*63-121*			
Surrogate: 4-Bromofluorobenzene	*8.40*		*mg/kg dry*	*8.22*		*102*	*49-108*			
Surrogate: 1,4-Dichlorobenzene-d4	*8.54*		*mg/kg dry*	*8.22*		*104*	*50-107*			

QUALITY CONTROL DATA

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4030403
PROJECT	14-0493	**REPORTED**	Mar-19-14

QC Qualifiers:

A-01	Surrogate recoveries for duplicate sample outside established control limits due to presence of water in extract and re-filtration.
RPD	Relative percent difference (RPD) of duplicate analysis are outside of control limits for unknown reason(s).
S02	Surrogate recovery outside of control limits. Data accepted based on acceptable recovery of other surrogates.
SRM	Recovery of one or more analytes on Standard Reference Material (SRM) analysis are outside of control limits.

CERTIFICATE OF ANALYSIS

REPORTED TO	Columbia Environmental Consulting Ltd RR #2, Site 55, Compartment 10 Penticton, BC V2A 6J7	**TEL** **FAX**	(778) 476-5656 (778) 476-5655
ATTENTION	Summer Zawacky	**WORK ORDER**	4051659
PO NUMBER		**RECEIVED / TEMP**	May-27-14 10:30 / 9°C
PROJECT	14-0493	**REPORTED**	Jun-16-14
PROJECT INFO	LNIB PII ESA	**COC NUMBER**	B07252

General Comments:

CARO Analytical Services employs methods which are conducted according to procedures accepted by appropriate regulatory agencies, and/or are conducted in accordance with recognized professional standards using accepted testing methodologies and quality control efforts, except where otherwise agreed to by the client.

The results in this report apply to the samples analyzed in accordance with the Chain of Custody or Sample Requisition document. This analytical report must be reproduced in its entirety. CARO is not responsible for any loss or damage resulting directly or indirectly from error or omission in the conduct of testing. Liability is limited to the cost of analysis. Samples will be disposed of 30 days after the test report has been issued unless otherwise agreed to in writing.

Work Order Comments:

June 11/14- This is an amended report from the original issued June 3/14. The RDL for Naphthalene has been lowered, as per client's request.

June 16/14- This is an amended report, please note that PAH has been added to both samples.

Issued By: **Jennifer Shanko, AScT For Brent Coates, BSc**
Business Manager, Richmond

Please contact CARO if more information is needed or to provide feedback on our services.

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ANALYSIS INFORMATION

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-16-14

Analysis Description	Method Reference (* = modified from) Preparation	Analysis	Location
Dissolved Metals	APHA 3030 B	APHA 3125 B	Richmond
Hardness as CaCO3 (CALC)	N/A	APHA 2340 B	Richmond
PAH in Water (low)	EPA 3510C	EPA 8270D (2007)	Richmond
VH in Water	EPA 5030B / 5021A	BCMOE	Richmond
VOC in Water	EPA 5030B / 5021A	EPA 8260B (1996)	Richmond
VOC/VH/VPH in Water Pkg	N/A	BCMOE	Richmond

Note: The numbers in brackets represent the year that the method was published/approved

Method Reference Descriptions:

BCMOE	British Columbia Environmental Laboratory Manual, 2009, British Columbia Ministry of Environment
APHA	Standard Methods for the Examination of Water and Wastewater, American Public Health Association
EPA	United States Environmental Protection Agency Test Methods

Glossary of Terms:

MRL	Method Reporting Limit
<	Less than the Reported Detection Limit (RDL) - the RDL may be higher than the MRL due to various factors such as dilutions, limited sample volume, high moisture, or interferences
mg/L	Milligrams per litre
ug/L	Micrograms per litre

SAMPLE ANALYTICAL DATA

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-16-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Calculated Parameters						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**281**	0.50	mg/L	N/A	N/A	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
VPHw	< 100	100	ug/L	N/A	N/A	
Hardness, Total (Diss. as CaCO3)	**260**	0.50	mg/L	N/A	N/A	
Dissolved Metals						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
Aluminum, dissolved	< 0.005	0.005	mg/L	N/A	May-30-14	
Antimony, dissolved	**0.0002**	0.0001	mg/L	N/A	May-30-14	
Arsenic, dissolved	**0.0010**	0.0005	mg/L	N/A	May-30-14	
Barium, dissolved	**0.021**	0.005	mg/L	N/A	May-30-14	
Boron, dissolved	**0.037**	0.004	mg/L	N/A	May-30-14	
Cadmium, dissolved	**0.00001**	0.00001	mg/L	N/A	May-30-14	
Calcium, dissolved	**68.1**	0.2	mg/L	N/A	May-30-14	
Chromium, dissolved	**0.0033**	0.0005	mg/L	N/A	May-30-14	
Copper, dissolved	**0.0031**	0.0002	mg/L	N/A	May-30-14	
Iron, dissolved	**0.015**	0.010	mg/L	N/A	May-30-14	
Lead, dissolved	< 0.0001	0.0001	mg/L	N/A	May-30-14	
Magnesium, dissolved	**26.8**	0.01	mg/L	N/A	May-30-14	
Manganese, dissolved	**0.0017**	0.0002	mg/L	N/A	May-30-14	
Mercury, dissolved	< 0.00002	0.0002	mg/L	N/A	May-30-14	
Nickel, dissolved	**0.0013**	0.0002	mg/L	N/A	May-30-14	
Selenium, dissolved	< 0.0005	0.0005	mg/L	N/A	May-30-14	
Silver, dissolved	< 0.00005	0.00005	mg/L	N/A	May-30-14	
Uranium, dissolved	**0.00313**	0.00002	mg/L	N/A	May-30-14	
Zinc, dissolved	**0.004**	0.004	mg/L	N/A	May-30-14	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
Aluminum, dissolved	< 0.005	0.005	mg/L	N/A	May-30-14	
Antimony, dissolved	**0.0002**	0.0001	mg/L	N/A	May-30-14	
Arsenic, dissolved	**0.0009**	0.0005	mg/L	N/A	May-30-14	
Barium, dissolved	**0.047**	0.005	mg/L	N/A	May-30-14	
Boron, dissolved	**0.018**	0.004	mg/L	N/A	May-30-14	
Cadmium, dissolved	< 0.00001	0.00001	mg/L	N/A	May-30-14	
Calcium, dissolved	**66.9**	0.2	mg/L	N/A	May-30-14	
Chromium, dissolved	**0.0007**	0.0005	mg/L	N/A	May-30-14	
Copper, dissolved	**0.0023**	0.0002	mg/L	N/A	May-30-14	
Iron, dissolved	< 0.010	0.010	mg/L	N/A	May-30-14	
Lead, dissolved	< 0.0001	0.0001	mg/L	N/A	May-30-14	
Magnesium, dissolved	**22.7**	0.01	mg/L	N/A	May-30-14	
Manganese, dissolved	**0.0010**	0.0002	mg/L	N/A	May-30-14	
Mercury, dissolved	< 0.00002	0.0002	mg/L	N/A	May-30-14	
Nickel, dissolved	< 0.0002	0.0002	mg/L	N/A	May-30-14	

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4051659
REPORTED Jun-16-14

Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Dissolved Metals, Continued						
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30, Continued						
Selenium, dissolved	< 0.0005	0.0005	mg/L	N/A	May-30-14	
Silver, dissolved	< 0.00005	0.00005	mg/L	N/A	May-30-14	
Uranium, dissolved	**0.00117**	0.00002	mg/L	N/A	May-30-14	
Zinc, dissolved	< 0.004	0.004	mg/L	N/A	May-30-14	
Aggregate Organic Parameters						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
VHw (6-10)	< 100	100	ug/L	N/A	Jun-02-14	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
VHw (6-10)	< 100	100	ug/L	N/A	Jun-02-14	
Polycyclic Aromatic Hydrocarbons (PAH)						HT
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
Naphthalene	**0.11**	0.05	ug/L	Jun-11-14	Jun-12-14	
Surrogate: Naphthalene-d8	*78 %*	*40-96*		*Jun-11-14*	*Jun-12-14*	
Surrogate: Acenaphthene-d10	*78 %*	*45-92*		*Jun-11-14*	*Jun-12-14*	
Surrogate: Phenanthrene-d10	*71 %*	*48-90*		*Jun-11-14*	*Jun-12-14*	
Surrogate: Chrysene-d12	*79 %*	*41-96*		*Jun-11-14*	*Jun-12-14*	
Surrogate: Perylene-d12	*82 %*	*47-104*		*Jun-11-14*	*Jun-12-14*	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
Naphthalene	**0.09**	0.05	ug/L	Jun-11-14	Jun-12-14	
Surrogate: Naphthalene-d8	*86 %*	*40-96*		*Jun-11-14*	*Jun-12-14*	
Surrogate: Acenaphthene-d10	*72 %*	*45-92*		*Jun-11-14*	*Jun-12-14*	
Surrogate: Phenanthrene-d10	*65 %*	*48-90*		*Jun-11-14*	*Jun-12-14*	
Surrogate: Chrysene-d12	*57 %*	*41-96*		*Jun-11-14*	*Jun-12-14*	
Surrogate: Perylene-d12	*59 %*	*47-104*		*Jun-11-14*	*Jun-12-14*	
Volatile Organic Compounds (VOC)						
Sample ID: MW14-1 (4051659-01) [Water] Sampled: May-26-14 11:30						
Benzene	< 0.5	0.5	ug/L	N/A	Jun-02-14	
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Naphthalene	< 1.0	5.0	ug/L	N/A	Jun-02-14	A-01
Toluene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Jun-02-14	
Surrogate: Toluene-d8	*89 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 4-Bromofluorobenzene	*85 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*78 %*	*70-130*		*N/A*	*Jun-02-14*	
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30						
Benzene	< 0.5	0.5	ug/L	N/A	Jun-02-14	

REPORTED TO Columbia Environmental Consulting Ltd
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WORK ORDER 4051659
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Analyte	Result / *Recovery*	MRL / *Limit*	Units	Prepared	Analyzed	Notes
Volatile Organic Compounds (VOC), Continued						
Sample ID: MW14-3 (4051659-02) [Water] Sampled: May-26-14 13:30, Continued						
Ethylbenzene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Naphthalene	< 1.0	5.0	ug/L	N/A	Jun-02-14	A-01
Toluene	< 1.0	1.0	ug/L	N/A	Jun-02-14	
Xylenes (total)	< 2.0	2.0	ug/L	N/A	Jun-02-14	
Surrogate: Toluene-d8	*100 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 4-Bromofluorobenzene	*95 %*	*70-130*		*N/A*	*Jun-02-14*	
Surrogate: 1,4-Dichlorobenzene-d4	*86 %*	*70-130*		*N/A*	*Jun-02-14*	

Sample / Analysis Qualifiers:

A-01 Reported Detection Limit for this analyte lowered as per client request.
HT The sample was prepared / analyzed past the recommended holding time.

REPORTED TO	Columbia Environmental Consulting Ltd	**WORK ORDER**	4051659
PROJECT	14-0493	**REPORTED**	Jun-16-14

The following section displays the quality control (QC) data that is associated with your sample data. Groups of samples are prepared in "batches" and analyzed in conjunction with QC samples that ensure your data is of the highest quality. Common QC types include:

- **Method Blank (Blk)**: Laboratory reagent water is carried through sample preparation and analysis steps. Method Blanks indicate that results are free from contamination, i.e. not biased high from sources such as the sample container or the laboratory environment
- **Duplicate (Dup)**: Preparation and analysis of a replicate aliquot of a sample. Duplicates provide a measure of the analytical method's precision, i.e. how reproducible a result is. Duplicates are only reported if they are associated with your sample data.
- **Blank Spike (BS)**: A known amount of standard is carried through sample preparation and analysis steps. Blank Spikes, also known as laboratory control samples (LCS), are prepared from a different source of standard than used for the calibration. They ensure that the calibration is acceptable (i.e. not biased high or low) and also provide a measure of the analytical method's accuracy (i.e. closeness of the result to a target value).
- **Standard Reference Material (SRM)**: A material of similar matrix to the samples, externally certified for the parameter(s) listed. Standard Reference Materials ensure that the preparation steps in the method are adequate to achieve acceptable recoveries of the parameter(s) tested.

Each QC type is analyzed at a 5-10% frequency, i.e. one blank/duplicate/spike for every 10 samples. For all types of QC, the specified recovery (% Rec) and relative percent difference (RPD) limits are derived from long-term method performance averages and/or prescribed by the reference method.

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Aggregate Organic Parameters, Batch B4E1240										
Blank (B4E1240-BLK1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
VHw (6-10)	< 100	100	ug/L							
LCS (B4E1240-BS2)				Prepared: Jun-02-14, Analyzed: Jun-02-14						
VHw (6-10)	2320	100	ug/L	2770		84	57-107			
Dissolved Metals, Batch B4E1130										
Blank (B4E1130-BLK1)				Prepared: May-30-14, Analyzed: May-30-14						
Aluminum, dissolved	< 0.005	0.005	mg/L							
Antimony, dissolved	< 0.0001	0.0001	mg/L							
Arsenic, dissolved	< 0.0005	0.0005	mg/L							
Barium, dissolved	< 0.005	0.005	mg/L							
Boron, dissolved	< 0.004	0.004	mg/L							
Cadmium, dissolved	< 0.00001	0.00001	mg/L							
Calcium, dissolved	< 0.2	0.2	mg/L							
Chromium, dissolved	< 0.0005	0.0005	mg/L							
Copper, dissolved	< 0.0002	0.0002	mg/L							
Iron, dissolved	< 0.010	0.010	mg/L							
Lead, dissolved	< 0.0001	0.0001	mg/L							
Magnesium, dissolved	< 0.01	0.01	mg/L							
Manganese, dissolved	< 0.0002	0.0002	mg/L							
Mercury, dissolved	< 0.00002	0.0002	mg/L							
Nickel, dissolved	< 0.0002	0.0002	mg/L							
Selenium, dissolved	< 0.0005	0.0005	mg/L							
Silver, dissolved	< 0.00005	0.00005	mg/L							
Uranium, dissolved	< 0.00002	0.00002	mg/L							
Zinc, dissolved	< 0.004	0.004	mg/L							
Reference (B4E1130-SRM1)				Prepared: May-30-14, Analyzed: May-30-14						
Aluminum, dissolved	0.232	0.005	mg/L	0.233		99	81-129			
Antimony, dissolved	0.0477	0.0001	mg/L	0.0430		111	75-125			
Arsenic, dissolved	0.426	0.0005	mg/L	0.438		97	88-114			
Barium, dissolved	3.41	0.005	mg/L	3.35		102	72-104			
Boron, dissolved	1.93	0.004	mg/L	1.74		111	74-117			

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Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Dissolved Metals, Batch B4E1130, Continued										
Reference (B4E1130-SRM1), Continued				Prepared: May-30-14, Analyzed: May-30-14						
Cadmium, dissolved	0.220	0.00001	mg/L	0.224		98	89-111			
Calcium, dissolved	8.3	0.2	mg/L	7.69		108	86-121			
Chromium, dissolved	0.447	0.0005	mg/L	0.437		102	89-114			
Copper, dissolved	0.876	0.0002	mg/L	0.844		104	91-115			
Iron, dissolved	1.32	0.010	mg/L	1.29		102	77-124			
Lead, dissolved	0.113	0.0001	mg/L	0.112		101	92-113			
Magnesium, dissolved	7.14	0.01	mg/L	6.92		103	78-120			
Manganese, dissolved	0.342	0.0002	mg/L	0.345		99	90-114			
Nickel, dissolved	0.859	0.0002	mg/L	0.840		102	90-111			
Selenium, dissolved	0.0328	0.0005	mg/L	0.0331		99	85-115			
Uranium, dissolved	0.270	0.00002	mg/L	0.266		102	85-120			
Zinc, dissolved	0.866	0.004	mg/L	0.881		98	85-111			
Polycyclic Aromatic Hydrocarbons (PAH), Batch B4F0433										
Blank (B4F0433-BLK1)				Prepared: Jun-11-14, Analyzed: Jun-11-14						
Naphthalene	< 0.05	0.05	ug/L							
Surrogate: Naphthalene-d8	*0.774*		*ug/L*	*1.00*		*77*	*40-96*			
Surrogate: Acenaphthene-d10	*0.816*		*ug/L*	*1.00*		*82*	*45-92*			
Surrogate: Phenanthrene-d10	*0.750*		*ug/L*	*1.00*		*75*	*48-90*			
Surrogate: Chrysene-d12	*0.741*		*ug/L*	*1.00*		*74*	*41-96*			
Surrogate: Perylene-d12	*0.867*		*ug/L*	*1.00*		*87*	*47-104*			
LCS (B4F0433-BS1)				Prepared: Jun-11-14, Analyzed: Jun-11-14						
Naphthalene	0.82	0.05	ug/L	1.00		82	51-91			
Surrogate: Naphthalene-d8	*0.878*		*ug/L*	*1.00*		*88*	*40-96*			
Surrogate: Acenaphthene-d10	*0.798*		*ug/L*	*1.00*		*80*	*45-92*			
Surrogate: Phenanthrene-d10	*0.735*		*ug/L*	*1.00*		*74*	*48-90*			
Surrogate: Chrysene-d12	*0.679*		*ug/L*	*1.00*		*68*	*41-96*			
Surrogate: Perylene-d12	*0.871*		*ug/L*	*1.00*		*87*	*47-104*			
LCS Dup (B4F0433-BSD1)				Prepared: Jun-11-14, Analyzed: Jun-12-14						
Naphthalene	0.72	0.05	ug/L	1.00		72	51-91	12	20	
Surrogate: Naphthalene-d8	*0.754*		*ug/L*	*1.00*		*75*	*40-96*			
Surrogate: Acenaphthene-d10	*0.726*		*ug/L*	*1.00*		*73*	*45-92*			
Surrogate: Phenanthrene-d10	*0.713*		*ug/L*	*1.00*		*71*	*48-90*			
Surrogate: Chrysene-d12	*0.748*		*ug/L*	*1.00*		*75*	*41-96*			
Surrogate: Perylene-d12	*0.794*		*ug/L*	*1.00*		*79*	*47-104*			
Volatile Organic Compounds (VOC), Batch B4E1240										
Blank (B4E1240-BLK1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
Benzene	< 0.5	0.5	ug/L							
Ethylbenzene	< 1.0	1.0	ug/L							
Naphthalene	< 5.0	5.0	ug/L							
Toluene	< 1.0	1.0	ug/L							
Xylenes (total)	< 2.0	2.0	ug/L							
Surrogate: Toluene-d8	*27.6*		*ug/L*	*25.0*		*110*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*28.2*		*ug/L*	*25.0*		*113*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*26.9*		*ug/L*	*26.2*		*103*	*70-130*			
LCS (B4E1240-BS1)				Prepared: Jun-01-14, Analyzed: Jun-01-14						
Benzene	21.0	0.5	ug/L	20.0		105	70-130			
Ethylbenzene	20.4	1.0	ug/L	20.0		102	70-130			
Naphthalene	18.4	5.0	ug/L	20.0		92	70-130			
Toluene	21.5	1.0	ug/L	20.0		108	70-130			

REPORTED TO Columbia Environmental Consulting Ltd
PROJECT 14-0493

WORK ORDER 4051659
REPORTED Jun-16-14

Analyte	Result	MRL	Units	Spike Level	Source Result	% REC	REC Limit	RPD	RPD Limit	Notes
Volatile Organic Compounds (VOC), Batch B4E1240, Continued										
LCS (B4E1240-BS1), Continued				Prepared: Jun-01-14, Analyzed: Jun-01-14						
Xylenes (total)	60.3	2.0	ug/L	60.0		101	70-130			
Surrogate: Toluene-d8	*29.4*		*ug/L*	*25.0*		*118*	*70-130*			
Surrogate: 4-Bromofluorobenzene	*30.0*		*ug/L*	*25.0*		*120*	*70-130*			
Surrogate: 1,4-Dichlorobenzene-d4	*30.5*		*ug/L*	*26.2*		*116*	*70-130*			

APPENDIX F

CCME NCSCS SPREADSHEETS

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
Pre-Screening Checklist

Question	Response (yes / no)	Comment
1. Are **Radioactive material**, **Bacterial contamination** or **Biological hazards** likely to be present at the site?	No	If yes, do not proceed through the NCSCS. Contact applicable regulatory agency immediately.
2. Are there **no contamination exceedances** (known or suspected)? Determination of exceedances may be based on: 1) CCME environmental quality guidelines; 2) equivalent provincial guidelines/standards if no CCME guideline exists for a specific chemical in a relevant medium; or 3) toxicity benchmarks derived from the literature for chemicals not covered by CCME or provincial guidelines/standards.	No	If yes (i.e., there are no exceedances), do not proceed through the NCSCS.
3. Have **partial/incompleted or no environmental site investigations** been conducted for the Site?	No	If yes, do not proceed through the NCSCS.
4. Is there direct and signficant evidence of **impacts to humans** at the site, or off-site due to migration of contaminants from the site?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
5. Is there direct and significant evidence of **impacts to ecological receptors** at the site, or off-site due to migration of contaminants from the site?	No	Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are considered to be severe, the site may be categorized as Class 1, regardless of the numerical total NCSCS score. For the purpose of application of the NCSCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction.
6. Are there indicators of significant **adverse effects in the exposure zone** (i.e., the zone in which receptors may come into contact with contaminants)? Some examples are as follows: -Hydrocarbon sheen or NAPL in the exposure zone -Severely stressed biota or devoid of biota; -Presence of material at ground surface or sediment with suspected high concentration of contaminants such as ore tailings, sandblasting grit, slag, and coal tar.	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, regardless of the total score obtained should one be calculated (e.g., for comparison with other Class 1 sites).
7. Do measured concentrations of volatiles or unexploded ordnances represent an **explosion hazard**?	No	If yes, automatically rate the site as Class 1, a priority for remediation or risk management, and do not continue until the safety risks have been addressed. Consult your jurisdiction's occupational health and safety guidance or legislation on exposive hazards and measurement of lower explosive limits.

If none of the above applies, proceed with the NCSCS scoring.

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
Summary of Site Conditions

Subject Site:	**Test Site**	
Civic Address: *(or other description of location)*	Mamit Lake Road, Pipseul IR#3	
Site Common Name : *(if applicable)*	n/a	
Site Owner or Custodian: *(Organization and Contact Person)*	AANDC	
Legal description *or* metes and bounds:	n/a	
Approximate Site area:	20 m2	
PID(s) : *(or Parcel Identification Numbers [PIN] if untitled Crown land)*	n/a	
Centre of site: *(provide latitude/longitude or UTM coordinates)*	Latitude: Longitude:	__50____ degrees __28____ min __16____ secs ___120___ degrees __49____ min ___11___ secs
	UTM Coordinate:	Northing _____ Easting _____
Site Land Use:	Current:	Vacant IL
	Proposed:	none
Site Plan	**To delineate the bounds of the Site a site plan MUST be attached. The plan must be drawn to scale indicating the boundaries in relation to well-defined reference points and/or legal descriptions. Delineation of the contamination should also be indicated on the site plan.**	
Provide a brief description of the Site:	The site is a former concrete plant with outstanding housekeeping issues comprised of variious minor volumes of solid waste at surface.	

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
Summary of Site Conditions

Affected media and Contaminants of Potential Concern (COPC):	Soil with PAHs (Phenthanrene and Benzo(b&j)fluroanthene) > CCME IL

Please fill in the "letter" that best describes the level of information available for the site being assessed:

Site Letter Grade **D**

If letter grade is F, do not continue, you must have a minimum of a Phase I Environmental Site Assessment or equivalent.

Scoring Completed By:	Dave Diplock, Peng
Date Scoring Completed:	6/16/2014

CCME National Classification System for Contaminated Sites (2008, 2010 v 1.2)
User's Guide - Instructions

1) Please review the following overview of contents. The revised CCME National Classification System for Contaminated Sites (NCSCS) consists of a pre-screening checklist, summary of site conditions, summary score sheet, and three instruction/worksheet pages for the user to fill out: Contaminant Characteristics, Migration Potential and Exposure. For ease of printing, the method of evaluation for scoring each section of the worksheet is provided in a separate Instructions tab. Reference material is also provided to assist with the evaluation. A brief description of each sheet is as follows:

Pre-Screening Checklist - Used to determine if the Site can either be considered a Class 1 site (to be remediated immediately) or more information must be collected before the Site can be ranked, or other hazards exist at the Site that must be addressed first before the Site can be ranked using the revised NCSCS.

Site Description Sheet - Summarizes Site information. It also indicates the level of information available (Site Letter Grade) for the site to conduct the NCSCS scoring evaluation. The known/potential contaminants of concern and affected media will also be summarized here.

Contaminant Characteristics Instructions & Worksheet - Prompts the user for information related to the contaminants of potential concern (COPC) found at the site.

Migration Potential Instructions & Worksheet - Prompts the user for information related to physical transport processes which may move contamination to neighboring sites or re-distribute contamination within a site. Migration potential includes many of the exposure pathways, but is not limited to exposure pathways. Migration potential does not require clearly defined receptors.

Exposure Instructions & Worksheet - Prompts the user for information related to exposure pathways and receptors which may be located on the site.

Summary Score Sheet - Generates a total site score by adding up the scores generated on each of the three worksheets and provides the corresponding Site Classification. It also provides an estimate of certainty in the score provided (Certainty Percentage).

Reference Material - Additional information which may be useful to refer to when conducting the evaluation.
- Contaminant Hazard Ranking
- Examples of Persistent Substances
- Examples of Substances in the Various Chemical Classes
- Chemical-specific Properties
- Range of Values of Hydraulic Conductivity and Permeability

The worksheet titles and sub headings are as follows.

I. Contaminant Characteristics

1. Residency Media
2. Chemical Hazard
3. Contaminant Exceedance Factor
4. Contaminant Quantity
5. Modifying Factors

II. Migration Potential

1. Groundwater Movement
2. Surface water Movement
3. Soil
4. Vapour
5. Sediment Movement
6. Modifying Factors

III. Exposure

1. Human Receptors
   - A. Known Impact
   - B Potential
     - a. Land Use
     - b. Accessibility
     - c. Exposure Route
2. Human Modifying Factors
3. Ecological Receptors
   - A. Known Impact
   - B. Potential
     - a. Terrestrial
     - b. Aquatic
4. Ecological Modifying Factors
   - a. Species at Risk
   - b. Aesthetics
5. Other Receptors
   - a. Permafrost

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2) This is an electronic form which will prompt the user for information. Based on the answers provided, a score is calculated for the contaminated site in question. In most cases, the user will be asked to select amongst two or more choices in a drop down checklist. To access the drop down checklist, move the mouse towards the right side of the "action box". If a drop down is available, an arrow will appear, which must be selected to access the drop down choices. An "action box" requires input from the user. All action boxes have an amber background. action box

3) When assigning scores for each factor, it is highly recommended to give a rationale (a column has been provided for this purpose in Worksheets I, II and III). Information that would be useful in justifying the scores assigned may include: a statement of any assumptions, a description of site-specific information, and references for any data sources (e.g., site visit, personal interview, site assessment reports, or other documents consulted).

4) The Site Letter Grade is related to the level of information available for the Site (as defined by the User) and provides an indication of completeness of information based on the level of investigation and remediation work that has been carried out at the site. More detailed descriptions of the various categories are provided below.

Site Letter Grade:	*Detailed Descriptions:*
F	***Pre Phase I ESA –*** No environmental investigations have been conducted or there are only partial or incomplete Phase I ESA for the Site. It is not recommended to continue through the NCSCS when insufficient data are available. In these cases, it will generally be necessary to conduct a Phase I ESA or other site investigation tasks in order to complete the NCSCS scoring.
E	***Phase I ESA –*** A preliminary desk-top type study has been conducted, involving non-intrusive data collection to determine whether there is a potential for the Site to be contaminated and to provide information to direct any intrusive investigations. Data collected may include a review of available information on current site conditions and history of the property, a site inspection and interviews with personnel familiar with the Site. [Note: This stage is similar to "Phase I: Site Information Assessment" as described in Guidance Document on the Management of Contaminated Sites in Canada (CCME 1997).]
D	***Limited Phase II ESA –*** An initial intrusive investigation and assessment of the property has been conducted, generally focusing on potential sources of contamination, to determine whether there is contamination present above the relevant screening guidelines or criteria, and to broadly define soil and groundwater conditions; samples have been collected and analyzed to identify, characterize and quantify contamination that may be present in air, soil, groundwater, surface water or building materials. [Note: This stage is similar to "Phase II: Reconnaissance Testing Program" as described in Guidance Document on the Management of Contaminated Sites in Canada (CCME 1997).]
C	***Detailed Phase II ESA –*** Further intrusive investigations have been conducted to characterize and delineate the contamination, to obtain detailed information on the soil and groundwater conditions, to identify the contaminant pathways, and to provide other information required to develop a remediation plan. [Note: This stage is similar to "Phase III: Detailed Testing Program" as described in Guidance Document on the Management of Contaminated Sites in Canada (CCME 1997).]
B	***Risk Assessment with or without Remedial Plan or Risk Management Strategy –*** A risk assessment has been completed, and if the risk was found to be unacceptable, a site-specific remedial action plan has been designed to mitigate environmental and health concerns associated with the Site, or a risk management strategy has been developed.
A	***Confirmation Sampling –*** Remedial work, monitoring, and/or compliance testing have been conducted and confirmatory sampling demonstrates whether contamination has been removed or stabilized effectively and whether cleanup or risk management objectives have been attained.

5) A few terms are used throughout which require definition, they are as follows:

Known - refers to scores that are assigned based on documented scientific and/or technical observations

Potential - refers to scores that are assigned when something is not known, though it may be suspected

Allowed Potential - If, in a given category, known and potential scores are provided by the user, the checklist will typically default to the "known" score. If a "known" score is provided, the "allowed potential" score will equal zero. Exceptions can be found within the Modifying Factors categories in each worksheet where there are often several independent questions. Therefore, "known" and "potential" scores are allowed to contribute to the total modifying factor score.

Raw - refers to score totals which have not been adjusted down to the total maximum score for the given category. In most cases the possible total raw score is greater than the maximum allowed

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Note: For some questions in the worksheets, the option selected will determine whether a "known" or "potential" score is assigned. In these cases, if "Do Not Know" is selected, a score will automatically be listed as "potential", whereas all of the other options in the list will provide a "known" score.

6) Certainty Percentage: The ratio of “Known” to “Potential” responses reflects the relative certainty, or confidence, of the resulting final score and the classification. The NCSCS system defines this ratio as the “Certainty Percentage”. The Certainty Percentage is generated from the number of sections assigned scores based on “known” information divided by the total number of sections. A high percentage indicates that more is known about the Site, and therefore there is more confidence in the ranking, whereas a low percentage suggests that the ranking should be treated with caution.

7) Site Classification Categories: Sites should not be ranked relative to one another. Sites must be classifed on their individual characteristics in order to determine the appropriate classification (Class 1, 2, 3, or N) according to their priority for action, or Class INS (Insufficient Information) for sites that require further information before they can be classifed. The classification groupings are as follows:

Class 1 - High Priority for Action (Total NCSCS Score greater than 70)

The available information indicates that action (e.g., futher site characterization, risk management, remediation, etc.) is required to address existing concerns. Typically, Class 1 sites indicate high concern for several factors, and measured or observed impacts have been documented.

Class 2 - Medium Priority for Action (Total NCSCS Score between 50 and 69.9)

The available information indicates that there is high potential for adverse impacts, although the threat to human health and the environment is generally not imminent. There will tend not to be indication of off-site contamination, however, the potential for this was rated high and therefore some action is likely required.

Class 3 - Low Priority for Action (Total NCSCS Score between 37 and 49.9)

The available information indicates that this site is currently not a high concern. However, additional investigation may be carried out to confirm the site classification, and some degree of action may be required.

Class N - Not a Priority for Action (Total NCSCS Score less than 37)

The available information indicates there is probably no significant environmental impact or human health threats. There is likely no need for action unless new information becomes available indicating greater concerns, in which case the site should be re-examined.

Class INS - Insufficient Information (>15% of Responses are "Do Not Know")

There is insufficient information to classify the site. In this event, additional information is required to address data gaps.

8) Additional Complementary Tools to the NCSCS

The CCME Soil Quality Index (SoQI) is a complementary tool that focuses more on evaluating the relative hazard, by comparing contaminant concentrations with their respective soil quality guidelines. The SoQI uses three factors for its calculations, namely: 1) scope (% of contaminants that do not meet their respective guidelines), 2) frequency (% of individual tests of contaminants that do not meet their respective guidelines), and 3) amplitude (the amount by which the contaminants do not meet their respective guidelines). The soil quality index can be used to compare different contaminated sites with similar types of contamination as well as to see if the jurisdictional requirements have been met after remediation of a particular site.

The NCSCS was not developed for and is not readily applicable for the assessment of sites with a significant marine or aquatic component. Environmental conditions at marine and aquatic sites are best measured in the bed sediments as they act as long-term reservoirs of chemicals to the aquatic environment and to organisms living in or having direct contact with sediments. The CCME Sediment Quality Index (SeQI) provides a convenient means of summarizing sediment quality data and can complement the NCSCS. The SeQI provides a mathematical framework for assessing sediment quality conditions by comparing contaminant concentrations with their respective sediment quality guidelines.

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(I) Contaminant Characteristics

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
1. Residency Media (replaces physical state)				
Which of the following residency media are known (or strongly suspected) to have one or more exceedances of the applicable CCME guidelines? **yes** = has an exceedance or strongly suspected to have an exceedance **no** = does not have an exceedance or strongly suspected not to have an exceedance		Phenthanrene and Benzo(b&j)fluroanthene Sample TP1-1 [page 22 Phase 2 ESA, Columbia 2014]	The overall score is calculated by adding the individual scores from each residency media (having one or more exceedance of the most conservative media specific and land-use appropriate CCME guideline). Summary tables of the Canadian Environmental Quality Guidelines for soil, water (aquatic life, non-potable groundwater environments, and agricultural water uses) and sediment are available on the CCME website at http://www.ccme.ca/publications/cegg_rcqe.html?category_id=124. For potable groundwater environments, guidelines for Canadian Drinking Water Quality (for comparison with groundwater monitoring data) are available on the Health Canada website at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html.	An increasing number of residency media containing chemical exceedances often equates to a greater potential risk due to an increase in the number of potential exposure pathways.
A. Soil	Yes			
Yes / No / Do Not Know				
B. Groundwater	No			
Yes / No / Do Not Know				
C. Surface water	No			
Yes / No / Do Not Know				
D. Sediment	Do Not Know			
Yes / No / Do Not Know				
"Known" -score	2			
"Potential" - score	1			
2. Chemical Hazard				
What is the relative degree of chemical hazard of the contaminant in the list of hazard rankings proposed by the Federal Contaminated Sites Action Plan (FCSAP)?	High	Phenthanrene and Benzo(b&j)fluroanthene	The relative degree of chemical hazard should be selected based on the most hazardous contaminant known or suspected to be present at the site. The degree of hazard has been defined by the Federal Contaminated Sites Action Plan (FCSAP) and a list of substances with their associated hazard (Low, Medium and High) has been provided as a separate sheet in this file. *See Attached Reference Material for Contaminant Hazard Rankings.*	Hazard as defined in the revised NCS pertains to the physical properties of a chemical which can cause harm. Properties can include toxic potency, propensity to biomagnify, persistence in the environment, etc. Although there is some overlap between hazard and contaminant exceedance factor below, it will not be possible to derive contaminant exceedance factors for many substances which have a designated chemical hazard designation, but don't have a CCME guideline. The purpose of this category is to avoid missing a measure of toxic potential.
High / Medium / Low / Do Not Know				
"Known" -score	8			
"Potential" - score	---			
3. Contaminant Exceedence Factor				
What is the ratio between the measured contaminant concentration and the applicable CCME guidelines (or other "standards")?	Low (1x to 10x	approximatley 2 x guideline	Ranking of contaminant "exceedance" is determined by comparing contaminant concentrations with the *most conservative media-specific and land-use appropriate CCME* environmental quality guidelines. **Ranking should be based on contaminant with greatest exceedance of CCME guidelines.** Ranking of contaminant hazard as high, medium and low is as follows: High = One or more measured contaminant concentration is greater than 100 X appropriate CCME guidelines Medium = One or more measured contaminant concentration is 10 - 99.99 X appropriate CCME guidelines Low = One or more measured contaminant concentration is 1 - 9.99 X appropriate CCME guidelines Mobile NAPL = Contaminant is a non-aqueous phase liquid (i.e., due to its low solubility, it does not dissolve in water, but remains as a separate liquid) and is present at a sufficiently high saturation (i.e., greater than residual NAPL saturation) such that there is significant potential for mobility either downwards or laterally. Other standards may include local background concentration or published toxicity benchmarks. Results of toxicity testing with site samples can be used as an alternative. This approach is only relevant for contaminants that do not biomagnify in the food web, since toxicity tests would not indicate potential effects at higher trophic levels. High = lethality observed. Medium = no lethality, but sub lethal effects observed. Low = neither lethal nor sub lethal effects observed.	In the event that elevated levels of a material with no associated CCME guidelines are present, check provincial and USEPA environmental criteria. Hazard Quotients (sometimes referred to as a screening quotient in risk assessments) refer to the ratio of measured concentration to the concentration believed to be the threshold for toxicity. A similar calculation is used here to determine the contaminant exceedance factor (CEF). Concentrations greater than one times the applicable CCME guideline (i.e., CEF=>1) indicate that risks are possible. Mobile NAPL has the highest associated score (8) because of its highly concentrated nature and potential for increase in the size of the impacted zone.
Mobile NAPL / High (>100x) / Medium (10x to 100x) / Low (1x to 10x) / Do Not Know				
"Known" -score	2			
"Potential" - score	---			

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(I) Contaminant Characteristics

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
4. Contaminant Quantity (known or strongly suspected)				
What is the known or strongly suspected quantity of all contaminants? >10 hectare (ha) or 5000 m^3 2 to 10 ha or 1000 to 5000 m^3 <2 ha or 1000 m^3 Do Not Know	<2 ha or 1000 m3	Area of impact is approximately 20m2 with limited sufacial impacts highly suspect.	Measure or estimate the area or quantity of total contamination (i.e, all contaminants known or strongly suspected to be present on the site). The "Area of Contamination" is defined as the area or volume of contaminated media (soil, sediment, groundwater, surface water) exceeding appropriate environmental criteria.	A larger quantity of a potentially toxic substance can result in a larger frequency of exposure as well as a greater probability of migration, therefore, larger quantities of these substances earn a higher score.
"Known" -score	2			
"Potential" - score	---			
5. Modifying Factors				
Does the chemical fall in the class of persistent chemicals based on its behavior in the environment? Yes No Do Not Know	No		Persistent chemicals, e.g., PCBs, chlorinated pesticides etc. either do not degrade or take longer to degrade, and therefore may be available to cause effects for a longer period of time. Canadian Environmental Protection Act (CEPA) classifies a chemical as persistent when it has at least one of the following characteristics: (a) in air, (i) its half-life is equal to or greater than 2 days, or (ii) it is subject to atmospheric transport from its source to a remote area; (b) in water, its half-life is equal to or greater than 182 days; (c) in sediments, its half-life is equal to or greater than 365 days; or (d) in soil, its half-life is equal to or greater than 182 days. This list does not include metals or metalloids, which in their elemental form do not degrade. However metals and metalloids form chemical species in the environment, many of which are not readily bioavailable.	*Examples of Persistent Substances are provided in attached Reference Materials*
Are there contaminants present that could cause damage to utilities and infrastructure, either now or in the future, given their location? Yes No Do Not Know	No			Some contaminants may react or absorb into underground utilities and infrastructure. For example, organic solvents may degrade some plastics, and salts could cause corrosion of metal.
How many different contaminant classes have representative CCME guideline exceedances? one two to four five or more Do Not Know	one	PAH	For the purposes of the revised NCS ranking system, the following chemicals represent distinct chemical "classes": inorganic substances (including metals), volatile petroleum hydrocarbons, light extractable petroleum hydrocarbons, heavy extractable petroleum hydrocarbons, PAHs, phenolic substances, chlorinated hydrocarbons, halogenated methanes, phthalate esters, pesticides.	*Refer to the Reference Material sheet for a list of example substances that fall under the various chemical classes.*
"Known" - Score	0			
"Potential" - Score	---			

Contaminant Characteristic Total

Raw Total Scores- "Known"	14
Raw Total Scores- "Potential"	1
Raw Combined Total Scores	15
Total Score (Raw Combined / 40 * 33)	**12.4**

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(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Groundwater Movement				
A. Known COPC exceedances and an operable groundwater pathway within and/or beyond the property boundary.				
i) For **potable groundwater environments**, 1) groundwater concentrations exceed background concentrations and 1X the Guideline for Canadian Drinking Water Quality (GCDWQ) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater contamination. For **non-potable environments** (typically urban environments with municipal services), 1) groundwater concentrations exceed 1X the applicable non potable guidelines or modified generic guidelines (which exclude ingestion of drinking water pathway) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater impacts.	12	Groundwater meets CCME DW [Appendix D, Phase 2 ESA, Columbia 2014]	Review chemical data and evaluate groundwater quality. The evaluation method concentrates on 1) a potable or non-potable groundwater environment; 2) the groundwater flow system and its potential to be an exposure pathway to known or potential receptors An aquifer is defined as a geologic unit that yields groundwater in usable quantities and drinking water quality. The aquifer can currently be used as a potable water supply or could have the potential for use in the future. Non-potable groundwater environments are defined as areas that are serviced with a reliable alternative water supply (most commonly provided in urban areas). The evaluation of a non-potable environment will be based on a site specific basis. Physical evidence includes significant sheens, liquid phase contamination, or contaminant saturated soils. Seeps and springs are considered part of the groundwater pathway. In Arctic environments, the potability and evaluation of the seasonal active layer (above the permafrost) as a groundwater exposure pathway will be considered on a site-specific basis.	The 1992 NCS rationale evaluated the off-site migration as a regulatory issue. The exposure assessment and classification of hazards should be evaluated regardless of the property boundaries. Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a groundwater supply source in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resources such as internet links. Note that for potable groundwater that also daylights into a nearby surface water body, the more stringent guidelines for both drinking water and protection of aquatic life should be considered. **Selected References** Potable Environments Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html Non-Potable Environments Canadian Water Quality Guidelines for Protection of Aquatic Life. CCME. 1999 www.ccme.ca Compilation and Review of Canadian Remediation Guidelines, Standards and Regulations. Science Applications International Corporation (SAIC Canada), report to Environment Canada, January 4, 2002.
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	9			
iii) Meets GCDWQ for **potable environments**, meets non-potable criteria or modified generic criteria (excludes ingestion of drinking water pathway) for **non-potable environments** **or** Absence of groundwater exposure pathway (i.e., there is no aquifer (see definition at right) at the site or there is an adequate isolating layer between the aquifer and the contamination, and within 5 km of the site there are no aquatic receiving environments and the groundwater does not daylight).	0			
	0			
Score	0			
NOTE: If a score is assigned here for Known COPC Exceedances, then you can skip Part B (Potential for groundwater pathway) and go to Section 2 (Surface Water Pathway)				
B. Potential for groundwater pathway.				
a. Relative Mobility High Moderate Low Insignificant Do Not Know			Organics Koc (L/kg) / Metals with higher mobility at acidic conditions / Metals with higher mobility at alkaline conditions Koc < 500 (i.e., log Koc < 2.7) — pH < 5 — pH > 8.5 Koc = 500 to 5000 (i.e., log Koc = 2.7 to 3.7) — pH = 5 to 6 — pH = 7.5 to 8.5 Koc = 5,000 to 100,000 (i.e., log Koc = 3.7 to 5) — pH > 6 — pH < 7.5 Koc > 100,000 (i.e., log Koc > 5)	Reference: US EPA Soil Screening Guidance (Part 5 - Table 39) If a score of zero is assigned for relative mobility, it is still recommended that the following sections on potential for groundwater pathway be evaluated and scored. Although the Koc of an individual contaminant may suggest that it will be relatively immobile, it is possible that, with complex mixtures, there could be enhanced mobility due to co-solvent effects. Therefore, the Koc cannot be relied on solely as a measure of mobility. An evaluation of other factors such as containment, thickness of confining layer, hydraulic conductivities and precipitation infiltration rate are still useful in predicting potential for groundwater migration, even if a contaminant is expected to have insignificant mobility based on its chemistry alone.
	Do Not Know			
Score	2			
b. Presence of engineered sub-surface containment? No containment Partial containment Full containment Do Not Know			Review the existing engineered systems or natural attenuation processes for the site and determine if full or partial containment is achieved. Full containment is defined as an engineered system or natural attenuation processes, monitored as being effective, which provide for full capture and/or treatment of contaminants. All chemicals of concern must be contained for "Full Containment" scoring. Natural attenuation must have sufficient data, and reports cited with monitoring data to support steady state conditions and the attenuation processes. If there is no containment or insufficient natural attenuation process, this category is evaluated as high. If there is less than full containment or if uncertain, then evaluate as medium. In Arctic environments, permafrost will be evaluated, as appropriate, based on detailed evaluations, effectiveness and reliability to contain/control contaminant migration.	Someone experienced must provide a thorough description of the sources researched to determine the containment of the source at the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps, geotechnical reports or natural attenuation studies and other resources such as internet links. **Selected Resources:** United States Environmental Protection Agency (USEPA) 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. EPA/600/R-98/128. Environment Canada – Ontario Region – Natural Attenuation Technical Assistance Bulletins (TABS) Number 19 –21.
	Do Not Know			
Score	1.5			
c. Thickness of confining layer over aquifer of concern or groundwater exposure pathway 3 m or less including no confining layer or discontinuous confining layer 3 to 10 m > 10 m Do Not Know			The term "confining layer" refers to geologic material with little or no permeability or hydraulic conductivity (such as unfractured clay); water does not pass through this layer or the rate of movement is extremely slow. Measure the thickness and extent of materials that will impede the migration of contaminants to the groundwater exposure pathway. The evaluation of this category is based on: 1) The presence and thickness of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as drinking water sources or 2) The presence and thickness of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated zone (e.g., water table aquifer, first hydrostratigraphic unit or other groundwater pathway).	
	Do Not Know			
Score	0.5			
d. Hydraulic conductivity of confining layer >10^{-4} cm/s or no confining layer 10^{-4} to 10^{-6} cm/s <10^{-6} cm/s			Determine the nature of geologic materials and estimate hydraulic conductivity from published material (or use "Range of Values of Hydraulic Conductivity and Permeability" figure in the Reference Material sheet). Unfractured clays should be scored low. Silts should be scored medium. Sand, gravel should be scored high. The evaluation of this category is based on: 1) The presence and hydraulic conductivity (K^{sat}) of saturated subsurface materials that impede	

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Do Not Know			1) The presence and hydraulic conductivity (K) of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as a drinking water source, groundwater exposure pathway or 2) The presence and permeability ("k") of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated water table aquifer, first hydrostratigraphic unit or other groundwater pathway.	
	Do Not Know			
Score	0.5			
B. Potential for groundwater pathway.				
e. Precipitation infiltration rate (Annual precipitation factor x surface soil relative permeability factor) High Moderate Low Very Low None Do Not Know			Precipitation Refer to Environment Canada precipitation records for relevant areas. Divide annual precipitation by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). Permeability For surface soil relative permeability (i.e., infiltration) assume: gravel (1), sand (0.6), loam (0.3) and pavement or clay (0). Multiply the surface soil relative permeability factor with precipitation factor to obtain the score for precipitation infiltration rate.	
	Do Not Know			
Score	0.4			
f. Hydraulic conductivity of aquifer $>10^{-2}$ cm/s 10^{-2} to 10^{-4} cm/s $<10^{-4}$ cm/s Do Not Know			Determine the nature of geologic materials and estimate hydraulic conductivity of all aquifers of concern from published material (refer to "Range of Values of Hydraulic Conductivity and Permeability" in the Reference Material sheet).	
	Do Not Know			
Score	1			
Potential groundwater pathway total	5.9			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Groundwater pathway total	**0**			
2. Surface Water Movement				
A. Demonstrated migration of COPC in surface water above background conditions				
Known concentrations of surface water: i) Concentrations exceed background concentrations and exceed CCME CWQG for protection of aquatic life, irrigation, livestock water, and/or recreation (whichever uses are applicable at the site) by >1 X; or There is known contact of contaminants with surface water based on site observations. or In the absence of CWQG, chemicals have been proven to be toxic based on site specific testing (e.g. toxicity testing; or other indicator testing of exposure).	12	Surface water meets CCME AW [Appendix D, Phase 2 ESA, Columbia 2014]	Collect all available information on quality of surface water near to site. Evaluate available data against Canadian Water Quality Guidelines (select appropriate guidelines based on local water use, e.g., recreation, irrigation, aquatic life, livestock watering, etc.). The evaluation method concentrates on the surface water flow system and its potential to be an exposure pathway. Contamination is present on the surface (above ground) and has the potential to impact surface water bodies. Surface water is defined as a water body that supports one of the following uses: recreation, irrigation, livestock watering, aquatic life.	General Notes: Someone experienced must provide a thorough description of the sources researched to classify the surface water body in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References: CCME. 1999. Canadian Water Quality Guidelines for the Protection of Aquatic Life www.ccme.ca CCME. 1999. Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses (Irrigation and Livestock Water) www.ccme.ca Health and Welfare Canada. 1992. Guidelines for Canadian Recreational Water Quality.
ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.	8			
iii) Meets CWQG or absence of surface water exposure pathway (i.e., Distance to nearest surface water is > 5 km.)	0			
	0			
Score	0			
NOTE: If a score is assigned here for Demonstrated Migration in Surface Water, then you can skip Part B (Potential for migration of COPCs in surface water) and go to Section 3 (Surface Soils)				
B. Potential for migration of COPCs in surface water				
a. Presence of containment No containment Partial containment Full containment Do Not Know			Review the existing engineered systems and relate these structures to site conditions and proximity to surface water and determine if full containment is achieved: score low if there is full containment such as capping, berms, dikes; score medium if there is partial containment such as natural barriers, trees, ditches, sedimentation ponds; score high if there are no intervening barriers between the site and nearby surface water. Full containment must include containment of all chemicals.	
	Do Not Know			
Score	3			
b. Distance to Surface Water 0 to <100 m 100 - 300 m >300 m Do Not Know			Review available mapping and survey data to determine distance to nearest surface water bodies.	
	Do Not Know			
Score	2			

(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
c. Topography Contaminants above ground level and slope is steep Contaminants at or below ground level and slope is steep Contaminants above ground level and slope is intermediate Contaminants at or below ground level and slope is Contaminants above ground level and slope is flat Contaminants at or below ground level and slope is flat Do Not Know	Do Not Know		Review engineering documents on the topography of the site and the slope of surrounding terrain. Steep slope = >50% Intermediate slope = between 5 and 50% Flat slope = < 5% Note: Type of fill placement (e.g., trench, above ground, etc.).	
Score	1			
d. Run-off potential High (rainfall run-off score > 0.6) Moderate (0.4 < rainfall run-off score <0.6) Low (0.2 < rainfall run-off score <0.4) Very Low (0 < rainfall run-off score < 0.2) None (rainfall run-off score = 0) Do Not Know	Do Not Know		Rainfall Refer to Environment Canada precipitation records for relevant areas. Divide rainfall by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). The former definition of "annual rainfall" did not include the precipitation as snow. This minor adjustment has been made. The second modification was the inclusion of permeability of surface materials as an evaluation factor. Permeability For infiltration assume: gravel (0), sand (0.3), loam (0.6) and pavement or clay (1). Multiply the infiltration factor with precipitation factor to obtain rainfall run off score.	Selected Sources: Environment Canada web page link: www.msc.ec.gc.ca Snow to rainfall conversion apply ratio of 15 (snow):1(water)
Score	0.4			
e. Flood potential 1 in 2 years 1 in 10 years 1 in 50 years Not in floodplain Do Not Know	Do Not Know		Review published data such as flood plain mapping or flood potential (e.g., spring or mountain run-off) and Conservation Authority records to evaluate flood potential of nearby water courses both up and down gradient. Rate zero if site not in flood plain.	
Score	0.5			
Potential surface water pathway total	6.9			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Surface water pathway total	**0**			
3. Surface Soils (potential for dust, dermal and ingestion exposure)				
A. Demonstrated concentrations of COPC in surface soils (top 1.5 m)				
		YES [Sample TP1-1, Appendix D, Phase 2 ESA, Columbia 2014]		
COPCs measured in surface soils exceed the CCME soil quality guideline.	12		Collect all available information on quality of surface soils (i.e., top 1.5 metres) at the site. Evaluate available data against Canadian Soil Quality Guidelines. Select appropriate guidelines based on current (or proposed future) land use (i.e, agricultural, residential/parkland, commercial, or industrial), and soil texture if applicable (i.e., coarse or fine).	Selected References: CCME. 1999. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health www.ccme.ca
Strongly suspected that soils exceed guidelines	9			
COPCs in surface soils does not exceed the CCME soil quality guideline or is not present (i.e., bedrock).	0			
	12			
Score	12			
NOTE: If a score is assigned here for Demonstrated Concentrations in Surface Soils, then you can skip Part B (Potential for a surface soils migration pathway) and go to Section 4 (Vapour)				
B. Potential for a surface soils (top 1.5 m) migration pathway				
a. Are the soils in question covered? Exposed Vegetated Landscaped Paved Do Not Know	Do Not Know		Consult engineering or risk assessment reports for the site. Alternatively, review photographs or perform a site visit. Landscaped surface soils must include a minimum of 0.5 m of topsoil.	The possibility of contaminants in blowing snow have not been included in the revised NCS as it is difficult to assess what constitutes an unacceptable concentration and secondly, spills to snow or ice are most efficiently mitigated while freezing conditions remain.
Score	4			
b. For what proportion of the year does the site remain covered by snow? 0 to 10% of the year 10 to 30% of the year More than 30% of the year Do Not Know	Do Not Know		Consult climatic information for the site. The increments represent the full span from soils which are always wet or covered with snow (and therefore less likely to generate dust) to those soils which are predominantly dry and not covered by snow (and therefore are more likely to generate dust).	
Score	3			
Potential surface soil pathway total	7			
Allowed Potential score	---	**Note: If a "known" score is provided, the "potential" score is disallowed.**		
Soil pathway total	**12**			

(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
4. Vapour				
A. Demonstrated COPCs in vapour.				
Vapour has been measured (indoor or outdoor) in concentrations exceeding risk based concentrations.	12	No voaltile COCs [Appendix D, Phase 2 ESA, Columbia 2014]	Consult previous investigations, including human health risk assessments, for reports of vapours detected.	
Strongly suspected (based on observations and/or modelling)	9			
Vapour has not been measured and volatile hydrocarbons have not been found in site soils or groundwater.	0			
Score	0 0			
NOTE: If a score is assigned here for Demonstrated COPCs in Vapour, then you can skip Part B (Potential for COPCs in vapour) and go to Section 5 (Sediment)				
B. Potential for COPCs in vapour				
a. Relative Volatility based on Henry's Law Constant, H' (dimensionless) High (H' > 1.0E-1) Moderate (H' = 1.0E-1 to 1.0E-3) Low (H' < 1.0E-3) Not Volatile Do Not Know			Reference: US EPA Soil Screening Guidance (Part 5 - Table 36) *Provided in Attached Reference Materials*	If the Henry's Law Constant for a substance indicates that it is not volatile, and a score of zero is assigned here for relative volatility, then the other three questions in this section on Potential for COPCs will be automatically assigned scores of zero and you can skip to section 5.
	Do Not Know			
Score	2.5			
b. What is the soil grain size? Fine Coarse Do Not Know			Review soil permeability data in engineering reports. The greater the permeability of soils, the greater the possible movement of vapours. Fine-grained soils are defined as those which contain greater than 50% by mass particles less than 75 µm mean diameter (D50 < 75 µm). Coarse-grained soils are defined as those which contain greater than 50% by mass particles greater than 75 µm mean diameter (D50 > 75 µm).	
	Do Not Know			
Score	3			
c. Is the depth to the source less than 10m? Yes No Do Not Know			Review groundwater depths below grade for the site.	
	Do Not Know			
Score	1			
d. Are there any preferential pathways? Yes No Do Not Know			Visit the site during dry summer conditions and/or review available photographs. Where bedrock is present, fractures would likely act as preferential pathyways.	Preferential pathways refer to areas where vapour migration is more likely to occur because there is lower resistance to flow than in the surrounding materials. For example, underground conduits such as sewer and utility lines, drains, or septic systems may serve as preferential pathways. Features of the building itself that may also be preferential pathways include earthen floors, expansion joints, wall cracks, or foundation perforations for subsurface features such as utility pipes, sumps, and drains.
	Do Not Know			
Score	1			
Potential vapour pathway total	7.5			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Vapour pathway total	**0**			
5. Sediment Movement				
A. Demonstrated migration of sediments containing COPCs				
There is evidence to suggest that sediments originally deposited to the site (exceeding the CCME sediment quality guidelines) have migrated.	12	No groundwater or surface water contamination therefore incomplete exposure pathway to sediment. [Appendix D, Phase 2 ESA, Columbia 2014]	Review sediment assessment reports. Evidence of migration of contaminants in sediments must be reported by someone experienced in this area.	Usually not considered a significant concern in lakes/marine environments, but could be very important in rivers where transport downstream could be significant.
Strongly suspected (based on observations and/or modelling)	9			
Sediments have been contained and there is no indication that sediments will migrate in future. **or** Absence of sediment exposure pathway (i.e., within 5 km of the site there are no aquatic receiving environments, and therefore no sediments).	0			
	0			
Score	0			
NOTE: If a score is assigned here for Demonstrated Migration of Sediments, then you can skip Part B (Potential for Sediment Migration) and go to Section 6 (Modifying Factors)				

CCME National Classification System (2008, 2010 v 1.2)

(II) Migration Potential (Evaluation of contaminant migration pathways)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for sediment migration				
a. Are the sediments having COPC exceedances capped with sediments having no exceedances ("clean sediments")?	Do Not Know		Review existing sediment assessments. If sediment coring has been completed, it may indicate that historically contaminated sediments have been covered over by newer "clean" sediments. This assessment will require that cores collected demonstrate a low concentration near the top and higher concentration with sediment depth.	
Yes				
No				
Do Not Know	2			
b. For lakes and marine habitats, are the contaminated sediments in shallow water and therefore likely to be affected by tidal action, wave action or propeller wash?	Do Not Know		Review existing sediment assessments. If the sediments present at the site are in a river, select "no" for this question.	
Yes				
No				
Do Not Know	2			
c. For rivers, are the contaminated sediments in an area prone to sediment scouring?	Do Not Know		Review existing sediment assessments. It is important that the assessment is made under worst case flows (high yearly flows). Under high yearly flows, areas which are commonly depositional	
Yes				
No				
Do Not Know	2			
Potential sediment pathway total	6			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Sediment pathway total	**0**			
6. Modifying Factors				
Are there subsurface utility conduits in the area affected by contamination?	No		Consult existing engineering reports. Subsurface utilities can act as conduits for contaminant migration.	
Yes				
No				
Do Not Know				
Known	0			
Potential	0			

Migration Potential Total		
Raw "known" total	12	
Raw "potential" total	0.0	
Raw combined total	12.0	Note: If "Known" and "Potential" scores are provided, the checklist defaults to known. Therefore,
Total (max 33)	**6.2**	the total "Potential" Score may not reflect the sum of the individual "Potential" scores.

CCME National Classification System (2008, 2010 v 1.2)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptors)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Human				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to humans as a result of the contaminated site. (Class 1 Site*)	22		*Where adverse effects on humans are documented, the site should be automatically designated as a Class 1 site (i.e., action required). There is no need to proceed through the NCS in this case. However, a scoring guideline (22) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites).	Known adverse impact includes domestic and traditional food sources. Adverse effects based on food chain transfer to humans and/or animals can be scored in this category. However, the weight of evidence must show a direct link of a contaminated food source/supply and subsequent ingestion/transfer to humans. Any associated adverse effects to the environment are scored separately later in this worksheet. Someone experienced must provide a thorough description of the sources researched to evaluate and determine the quantified exposure/impact (adverse effect) in the vicinity of the contaminated site.
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	10		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1 for noncarcinogenic chemicals and incremental cancer risks that exceed acceptable levels defined by the jurisdiction for carcinogenic chemicals (for most jurisdictions this is typically either $>10^{-5}$ or $>10^{-6}$). Known impacts can also be evaluated based on blood testing (e.g. blood lead >10 ug/dL) or other health based testing.	**Selected References:** Health Canada – Federal Contaminated Site Risk Assessment in Canada Parts 1 and 2 Guidance on Human Heath Screening Level Risk Assessments (www.hc-sc.gc.ca/ewh-semt/pubs/contamsite/index_e.html) United States Environmental Protection Agency, Integrated Risk Information System (IRIS) – http://toxnet.nml.nih.gov
No quantified or suspected exposures/impacts in humans.	0			
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Human Exposure) and go to Section 2 (Human Exposure Modifying Factors)				
B. Potential for human exposure				
a) Land use (provides an indication of potential human exposure scenarios)			Review zoning and land use maps over the distances indicated. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place. Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	This is the main "receptor" factor used in site scoring. A higher score implies a greater exposure and/or exposure of more sensitive human receptors (e.g., children).
Agricultural Residential / Parkland Commercial Industrial Do Not Know				
	Industrial			
Score	0.5			
b. Indicate the level of accessibility to the contaminated portion of the site (e.g., the potential for coming in contact with contamination)			Review location and structures and contaminants at the site and determine if there are intervening barriers between the site and humans. A low rating should be assigned to a (covered) site surrounded by a fence or in a remote location, whereas a high score should be assigned to a site that has no cover, fence, natural barriers or buffer.	
Limited barriers to prevent site access; contamination not covered Moderate access or no intervening barriers, contaminants are covered. Remote locations in which contaminants not covered. Controlled access or remote location and contaminants are covered Do Not Know				
	Access, not covered			
Score	2			
B. Potential for human exposure				
c) Potential for intake of contaminated soil, water, sediment or foods for operable or potentially operable pathways, as identified in Worksheet II (Migration Potential).		contamianted soil present at surface.	If soils or potable groundwater are present exceeding their respective CCME guidelines, dermal contact is assumed. Exposure to surface water, non-potable groundwater or sediments exceeding their respective CCME guidelines will depend on the site. Select "Yes" if dermal exposure to surface water, non-potable groundwater or sediments is expected. For instance, dermal contact with sediments would not be expected in an active port. Only soils in the top 1.5 m are defined by CCME (2003) as surface soils. If contaminated soils are only located deeper than 1.5 m, direct contact with soils is not anticipated to be an operable contaminant exposure pathway.	Exposure via the skin is generally believed to be a minor exposure route. However for some organic contaminants, skin exposure can play a very important component of overall exposure. Dermal exposure can occur while swimming in contaminated waters, bathing with contaminated surface water/groundwater and digging in contaminated dirt, etc.
i) direct contact Is dermal contact with contaminated surface water, groundwater, sediments or soils anticipated? Yes No Do Not Know				
	Yes			
Score	3			
ii) inhalation (i.e., inhalation of dust, vapour)			If inhabitable buildings are on the site within 30 m of soils or groundwater exceeding their respective guidelines for volatile chemicals, there is a potential of risk to human health (Health Canada, 2004). Review site investigations for location of soil samples (having exceedances of volatile substances) relative to buildings. Refer to (II) Migration Potential worksheet, 4B.a), *Potential for COPCs in Vapour* for a definition of volatility.	Exposure via the lungs (inhalation) can be a very important exposure pathway. Inhalation can be via both particulates (dust) and gas (vapours). Vapours can be a problem where buildings have been built on former industrial sites or where volatile contaminants have migrated below buildings resulting in the potential for vapour intrusion. Assesses the potential for humans to be exposed to vapours originating from site soils. The closer the receptor is to a source of volatile chemicals in soil, the greater the potential of exposure. Also, coarser-grained soil will convey vapour much more efficiently in the soil than finer grained material such as clays and silts. General Notes; Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a vapour migration and/or dust generation in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References; Canadian Council of Ministers of the Environment (CCME). 2006. Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines. PN 1332. www.ccme.ca Golder, 2004. Soil Vapour Intrusion Guidance for Health Canada Screening Level Risk Assessment (SLRA) Submitted to Health Canada, Burnaby, BC
Vapour - Are there inhabitable buildings on the site within 30 m of soils or groundwater with volatile contamination as determined in Worksheet II (Migration Potential)? Yes No Do Not Know				
	No			
Score	0			
Dust - If there is contaminated surface soil (e.g. top 1.5 m) , indicate whether the soil is fine or coarse textured. If it is known that surface soil is not contaminated, enter a score of zero. Fine Coarse Surface soil is not contaminated or absent Do Not Know Texture			Consult grain size data for the site. If soils (containing exceedances of the CCME soil quality guidelines) predominantly consist of fine material (having a median grain size of 75 microns; as defined by CCME (2006)) then these soils are more likely to generate dusts.	
	Coarse			
Score	1			
inhalation total	1			

(III) Exposure (Demonstrates the presence of an exposure pathway and receptors)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for human exposure				
iii) Ingestion (i.e., ingestion of food items, water and soils [for children]), including traditional foods.			Review available site data to determine if drinking water (groundwater, surface water, private, commercial or municipal supply) is known or suspected to be contaminated above Guidelines for Canadian Drinking Water Quality. If drinking water supply is known to be contaminated, some immediate action (e.g., provision of alternate drinking water supply) should be initiated to reduce or eliminate exposure. The evaluation of significant potential for exceedances of the water supply in the future may be based on the capture zones of the drinking water wells; contaminant travel times; computer modelling of flow and contaminant transport.	**Selected References:** Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/hecs-sesc/water/publications/drinking_water_quality_guidelines/toc.htm Drinking water can be an extremely important exposure pathway to humans. If site groundwater or surface water is not used for drinking, then this pathway is considered to be inoperable. Consider both wild foods such as salmon, venison, caribou, as well as agricultural sources of food items if the contaminated site is on or adjacent to agricultural land uses.
Drinking Water: Choose a score based on the proximity to a drinking water supply, to indicate the potential for contamination (present or future).				
0 to 100 m 100 to 300 m 300 m to 1 km 1 to 5 km No drinking water present Do Not Know	No drinking water presen			
Score	0			
Is an alternative water supply readily available?				
Yes No Do Not Know	No			
Score	1			
Is human ingestion of contaminated soils possible?			If contaminated soils are located within the top 1.5 m, it is assumed that ingestion of soils is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely, and the duration is shorter. Refer to human health risk assessment reports for the site in question.	
Yes No Do Not Know	Yes			
Score	3			
Are food items consumed by people, such as plants, domestic animals or wildlife harvested from the contaminated land and its surroundings?			Use human health risk assessment reports (or others) to determine if there is significant reliance on traditional food sources associated with the site. Is the food item in question going to spend a large proportion of its time at the site (e.g., large mammals may spend a very small amount of time at a small contaminated site)? Human health risk assessment reports for the site in question will also provide information on potential bioaccumulation of the COPC in question.	
Yes No Do Not Know	Do Not Know			
Score	0.5			
Ingestion total	4.5			
Human Health Total "Potential" Score	11	Note if a "Known" Human Health score is provided, the "Potential" score is disallowed.		
Allowed "Potential" Score	11			
2. Human Exposure Modifying Factors				
a) Strong reliance of local people on natural resources for survival (i.e., food, water, shelter, etc.)	Do Not Know			
Yes No Do Not Know				
Known	---			
Potential	1			
Raw Human "known" total	0			
Raw Human "potential" total	12			
Raw Human Exposure Total Score	12			
Human Health Total (max 22)	**12.0**			
3. Ecological				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to terrestrial or aquatic organisms as a result of the contaminated site.	18		Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are deemed to be severe, the site may be categorized as class one (i.e., a priority for remediation or risk management), regardless of the numerical total NCS score. For the purpose of application of the NCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction. If ecological effects are determined to be severe and an automatic Class 1 is assigned, there is no need to proceed through the NCS. However, a scoring guideline (18) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites).	CCME, 1999: Canadian Water Quality Guidelines for the Protection of Aquatic Life. www.ccme.ca CCME, 1999: Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses. www.ccme.ca Sensitive receptors- review: Canadian Council on Ecological Areas; www.ccea.org. Ecological effects should be evaluated at a population or community level, as opposed to at the level of individuals. For example, population-level effects could include reduced reproduction, growth or survival in a species. Community-level effects could include reduced species diversity or relative abundances. Further discussion of ecological assessment endpoints is provided in *A Framework for Ecological Risk Assessment: General Guidance* (CCME 1996). Notes: Someone experienced must provide a thorough description of the sources researched to classify the environmental receptors in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links.
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	12		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1. Alternatively, known impacts can also be evaluated based on a weight of evidence assessment involving a combination of site observations, tissue testing, toxicity testing and quantitative community assessments. Scoring of adverse effects on individual rare or endangered species will be completed on a case-by-case basis with full scientific justification.	
No quantified or suspected exposures/impacts in terrestrial or aquatic organisms	0		This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 1 and no other observable or measurable sign of impacts. Alternatively, it can be based on a combination of other lines of evidence showing no adverse effects, such as site observations, tissue testing, toxicity testing and quantitative community assessments.	
	Go to Potential			
Score	---			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Ecological Exposure) and go to Section 4 (Ecological Exposure Modifying Factors)				

CCME National Classification System (2008, 2010 v 1.2)

(III) Exposure (Demonstrates the presence of an exposure pathway and receptors)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for ecological exposure (for the contaminated portion of the site)				
a) Terrestrial		wild lands most appropriate to ecological exposure senario (Professional opinion)	Review zoning and land use maps. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place (indicate in the worksheet that future land use is the consideration). Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Wild lands are grouped with agricultural land due to the similarities in receptors that would be expected to occur there (e.g., herbivorous mammals and birds) and the similar need for a high level of protection to ensure ecological functioning. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	
i) Land use				
Agricultural (or Wild lands) Residential/Parkland Commercial Industrial Do Not Know				
	Agricultural (or Wild lands			
Score	3			
ii) Uptake potential		surface contamiantion	If contaminated soils are located within the top 1.5 m, it is assumed that direct contact of soils with plants and soil invertebrates is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely.	
Direct Contact - Are plants and/or soil invertebrates likely exposed to contaminated soils at the site?	Yes			
Yes No Do Not Know				
Score	1			
iii) Ingestion (i.e., wildlife or domestic animals ingesting contaminated food items, soils or water)		surface contamiantion		
Are terrestrial animals likely to be ingesting contaminated water at the site?			Refer to an Ecological Risk Assessment for the site. If there is contaminated surface water at the site, assume that terrestrial organisms will ingest it.	
Yes No Do Not Know	Yes			
Score	1			
Are terrestrial animals likely to be ingesting contaminated soils at the site?		surface contamiantion	Refer to an Ecological Risk Assessment report. Most animals will co-ingest some soil while eating plant matter or soil invertebrates.	
Yes No Do Not Know	Yes			
Score	1			
Can the contamination identified bioaccumulate?			Bioaccumulation of contaminants within food items is considered possible if: 1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in soils exceed the most conservative CCME soil quality guideline for the intended land use, or 2) The contaminant in collected tissue samples exceeds the Canadian Tissue Residue Guidelines.	
Yes No Do Not Know	No			
Score	0			
Distance to sensitive terrestrial ecological area		Guichon Cr. is 50 m	It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor located within this area of the site will be subject to further evaluations. It is also considered that any environmental receptor located greater than 5 km will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance; arctic environments (on a site specific basis); nature preserves, habitats for species at risk, sensitive forests, natural parks or forests.
0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know				
	0 to 300 m			
Score	3			
Raw Terrestrial Total Potential	9	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Terrestrial Total Potential	9			
B. Potential for ecological exposure (for the contaminated portion of the site)				
b) Aquatic			"Sensitive aquatic environments" include those in or adjacent to shellfish or fish harvesting areas, marine parks, ecological reserves and fish migration paths. Also includes those areas deemed to have ecological significance such as for fish food resources, spawning areas or having rare or endangered species. "Typical aquatic environments" include those in areas other than those listed above.	
i) Classification of aquatic environment				
Sensitive Typical Not Applicable (no aquatic environment Do Not Know				
	Do Not Know			
Score	2			
ii) Uptake potential			Groundwater concentrations of contaminants at the point of contact with an aquatic receiving environment can be estimated in three ways: 1) by comparing collected nearshore groundwater concentrations to the CCME water quality guidelines (this will be a conservative comparison, as contaminant concentrations in groundwater often decrease between nearshore wells and the point of discharge). 2) by conducting groundwater modeling to estimate the concentration of groundwater immediately before discharge. 3) by installing water samplers, "peepers", in the sediments in the area of daylighting groundwater.	
Does groundwater daylighting to an aquatic environment exceed the CCME water quality guidelines for the protection of aquatic life at the point of contact?				
Yes No (or Not Applicable) Do Not Know	No			
Score	0			
Distance from the contaminated site to an important surface water resource		Guichon Cr. is 50 m	It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor or important water resource located within this area of the site will be subject to further evaluation. It is also considered that any environmental receptor located greater than 5 km away will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org.	Environmental receptors include: local, regional or provincial species of interest or significance, sensitive wetlands and fens and other aquatic environments.
0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know				
	0 to 300 m			
Score	3		Bioaccumulation of food items is possible if:	

(III) Exposure (Demonstrates the presence of an exposure pathway and receptors)

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Are aquatic species (i.e., forage fish, invertebrates or plants) that are consumed by predatory fish or wildlife consumers, such as mammals and birds, likely to accumulate contaminants in their tissues?			1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in sediments exceed the CCME ISQGs. 2) The contaminant in collected tissue samples exceeds the CCME tissue quality guidelines.	
Yes				
No				
Do Not Know	Do Not Know			
Score	0.5			
Raw Aquatic Total Potential	5.5	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
Allowed Aquatic Total Potential	5.5			
4. Ecological Exposure Modifying Factors				
a) Known occurrence of a species at risk.		Phase 1 ESA, Columbia 2010	Consult any ecological risk assessment reports. If information is not present, utilize on-line databases such as Eco Explorer. Regional, Provincial (Environment Ministries), or Federal staff (Fisheries and Oceans or Environment Canada) should be able to provide some guidance.	Species at risk include those that are extirpated, endangered, threatened, or of special concern. For a list of species at risk, consult Schedule 1 of the federal Species at Risk Act (http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1). Many provincial governments may also provide regionally applicable lists of species at risk. For example, in British Columbia, consult: BCMWLAP. 2005. Endangered Species and Ecosystems in British Columbia. Provincial red and blue lists. Ministry of Sustainable Resource Management and Water, Land and Air Protection. http://srmwww.gov.bc.ca/atrisk/red-blue.htm
Is there a potential for a species at risk to be present at the site?				
Yes				
No				
Do Not Know	Yes			
	2			
Score	---			
b) Potential impact of aesthetics (e.g., enrichment of a lake or tainting of food flavor).				
Is there evidence of aesthetic impact to receiving water bodies?	No		Documentation may consist of environmental investigation reports, press articles, petitions or other records.	This Item will require some level of documentation by user, including contact names, addresses, phone numbers, e-mail addresses. Evidence of changes must be documented, please attach copy of report containing relevant information.
Yes				
No	0			
Do Not Know	---			
Is there evidence of olfactory impact (i.e., unpleasant smell)?	No		Examples of olfactory change can include the smell of a COPC or an increase in the rate of decay in an aquatic habitat.	
Yes				
No	0			
Do Not Know	---			
Is there evidence of increase in plant growth in the lake or water body?	No		A distinct increase of plant growth in an aquatic environment may suggest enrichment. Nutrients e.g., nitrogen or phosphorous releases to an aquatic body can act as a fertilizer.	
Yes				
No	0			
Do Not Know	---			
Is there evidence that fish or meat taken from or adjacent to the site smells or tastes different?	Do Not Know		Some contaminants can result in a distinctive change in the way food gathered from the site tastes or smells.	
Yes	---			
No	1			
Do Not Know				
Ecological Modifying Factors Total - Known	**2**			
Ecological Modifying Factors Total - Potential	**1**			
Raw Ecological Total - Known	2			
Raw Ecological Total - Potential	15.5			
Raw Ecological Total	17.5			
Ecological Total (Max 18)	**17.5**			
5. Other Potential Contaminant Receptors				
a) Exposure of permafrost (leading to erosion and structural concerns)		site not within permafrost region		Plants and lichens provide a natural insulating layer which will help prevent thawing of the permafrost during the summer. Plants and lichens may also absorb less solar radiation. Solar radiation is turned into heat which can also cause underlying permafrost to melt.
Are there improvements (roads, buildings) at the site dependant upon the permafrost for structural integrity?	No		Consult engineering reports, site plans or air photos of the site. When permafrost melts, the stability of the soil decreases, leading to erosion. Human structures, such as roads and/or buildings are often dependent on the stability that the permafrost provides.	
Yes				
No	0			
Do Not Know	---			
Is there a physical pathway which can transport soils released by damaged permafrost to a nearby aquatic environment?	No		Melting permafrost leads to a decreased stability of underlying soils. Wind or surface run-off erosion can carry soils into nearby aquatic habitats. The increased soil loadings into a river can cause an increase in total dissolved solids and a resulting decrease in aquatic habitat quality. In addition, the erosion can bring contaminants from soils to aquatic environments.	
Yes				
No	0			
Do Not Know	---			
Other Potential Receptors Total - Known	**0**			
Other Potential Receptors Total - Potential	**0**			

Exposure Total		
Raw Human Health + Ecological Total - Known	2	
Raw Human Health + Ecological Total - Potential	27.5	Only includes "Allowed potential" - if a "Known" score was supplied under a given category then the "Potential" score was not included.
Raw Total	29.5	
Exposure Total (max 34)	**21.8**	

CCME National Classification System (2008, 2010 v 1.2)
Score Summary

Scores from individual worksheets are tallied in this worksheet.
Refer to this sheet after filling out the revised NCS completely.

I. Contaminant Characteristics	Known	Potential
1. Residency Media	2	1
2. Chemical Hazard	8	---
3. Contaminant Exceedance Factor	2	---
4. Contaminant Quantity	2	---
5. Modifying Factors	0	---
Raw Total Score	14	1
Raw Total Score (Known + Potential)	15	
Adjusted Total Score (Raw Total / 40 *33)	**12.4**	(max 33)

II. Migration Potential	Known	Potential
1. Groundwater Movement	0	---
2. Surface Water Movement	0	---
3. Soil	12	---
4. Vapour	0	---
5. Sediment Movement	0	---
6. Modifying Factors	0	0
Raw Total Score	12	0
Raw Total Score (Known + Potential)	12	
Adjusted Total Score (Raw Total / 64 * 33)	**6.2**	(max 33)

III. Exposure	Known	Potential
1. Human Receptors		
A. Known Impact	---	
B Potential		
a. Land Use		0.5
b. Accessibility		2
c. Exposure Route		
i. Direct Contact		3
ii. Inhalation		1
iii. Ingestion		4.5
2. Human Receptors Modifying Factors	---	1
Raw Total Human Score	0	12
Raw Total Human Score (Known + Potential)	12	
Adjusted Total Human Score	12.0	(maximum 22)
3. Ecological Receptors		
A. Known Impact	---	
B. Potential		
a. Terrestrial		9
b. Aquatic		5.5
4. Ecological Receptors Modifying Factors	2	1
Raw Total Ecological Score	2	15.5
Raw Total Ecological Score (Known + Potential)	17.5	
Adjusted Total Ecological Score	17.5	(maximum 18)
5. Other Receptors	0	0
Total Other Receptors Score (Known + Potential)	0	
Total Exposure Score (Human + Ecological + Other)	**29.5**	
Adjusted Total Exposure Score (Total Exposure / 46 * 34)	**21.8**	(max 34)

Site Score

Test Site

Site Letter Grade	**D**
Certainty Percentage	**81%**
% Responses that are "Do Not Know"	**10%**
Total NCSCS Score for site	**40.4**
Site Classification Category	**3**

Site Classification Categories*:

Class 1 - High Priority for Action (Total NCS Score >70)
Class 2 - Medium Priority for Action (Total NCS Score 50 - 69.9)
Class 3 - Low Priority for Action (Total NCS Score 37 - 49.9)
Class N - Not a Priority for Action (Total NCS Score <37)
Class INS - Insufficient Information (>15% of responses are "Do Not Know")

* NOTE: The term "action" in the above categories does not necessarily refer to remediation, but could also include risk assessment, risk management or further site characterization and data collection.

CCME National Classification System (2008, 2010 v 1.2)

Contaminant Hazard Ranking

(Based on the Proposed Hazard Ranking developed for the FCSAP Contaminated Sites Classification System)

This information is used in Sheet I (Contaminant Characteristics), section 2 (Chemical Hazard).

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Acetaldehyde	H	*	PHC	
Acetone	L			
Acrolein	H	*		
Acrylonitrile	H	*	PHC	
Alachlor	M			
Aldicarb	H			
Aldrin	H			
Allyl Alcohol	H			
Aluminum	L			
Ammonia	L	*		
Antimony	H			
Arsenic	H	*		
Atrazine	M			
Azinphos-Methyl	H			
Barium	L			
Bendiocarb	H			
Benzene	H	*	CHC	BTEX
Benzidine	H	*	CHC	
Beryllium	H		CHC	
Biphenyl, 1,1-	M			
2,3,4,5-Bis(2-Butylene)tetrahydro-2-furfural	H			
Bis(Chloromethyl)Ether	H	*	CHC	
Bis(2-Chloroethyl)Ether	H		CHC	
Bis(2-Chloroisopropyl)Ether	H			
Bis(2-Ethylhexyl)Phthalate	H	*		PH
Boron	L			
Bromacil	M			
Bromate	M			
Bromochlorodifluoromethane	M	*		HM
Bromochloromethane	H	*		HM
Bromodichloromethane	H			HM
Bromoform (Tribromomethane)	H		PHC	HM
Bromomethane	M			HM
Bromotrifluoromethane	M	*		HM
Bromoxynil	H			
Butadiene, 1,3-	H	*	CHC	
Cadmium	H	*	CHC	
Carbofuran	M			
Carbon Tetrachloride (Tetrachloromethane)	H		PHC	HM
Captafol	M			
Chloramines	M	*		
Chloride	L			

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Chloroaniline, P-	H			
Chlorobenzene (mono)	M			
Chlorobenzilate	M			
Chlorodimeform	M			
Chloroform	H		PHC	HM
Chloromethane	M			
Chloromethyl Methyl Ether	M	*		
(4-Chlorophenyl)Cyclopropylmethanone, O-((4-Nitrophenyl)Methyl)Oxime	H			
Chlorinated Benzenes				
Monochlorobenzene	M			
Dichlorobenzene, 1,2- (O-DCB)	M			
Dichlorobenzene, 1,3- (M-DCB)	M			
Dichlorobenzene, 1,4- (P-DCB)	H			
Trichlorobenzene, 1,2,3-	M			
Trichlorobenzene, 1,2,4-	M			
Trichlorobenzene, 1,3,5-	M			
Tetrachlorobenzene, 1,2,3,4-	M			
Tetrachlorobenzene, 1,2,3,5-	M			
Tetrachlorobenzene, 1,2,4,5-	M			
Pentachlorobenzene	M			
Hexachlorobenzene	H			
Chlorinated Ethanes				
Dichloroethane, 1,1-	M			
Dichloroethane, 1,2- (Ethylene Dichloride (EDC))	H		PHC	
Trichloroethane, 1,1,1-	H	*		
Trichloroethane, 1,1,2-	M			
Tetrachloroethane, 1,1,1,2-	M			
Tetrachloroethane, 1,1,2,2-	M			
Chlorinated Ethenes				
Monochloroethene (Vinyl Chloride)	H	*	CHC	
Dichloroeth(yl)ene, 1,1-	H			
Dichloroeth(yl)ene, 1,2- (cis or trans)	M			
Trichloroeth(yl)ene (TCE)	H	*		
Tetrachloroeth(yl)ene (PCE)	H	*		
Chlorinated Phenols		*		
Monochlorophenols	M			
Chlorophenol, 2-	M			
Dichlorophenols				
Dichlorophenol, 2,4-	M			
Trichlorophenols				
Trichlorophenol, 2,4,5-	H			
Trichlorophenol, 2,4,6-	H		PHC	
Tetrachlorophenols				
Tetrachlorophenol, 2,3,4,6-	H			
Pentachlorophenol (PCP)	H			
Chloromethane	M			HM
Chlorophenol, 2-	M			CP
Chlorothalonil	H			

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Chlorpyrifos	H			
Chromium (Total)	M	*		
Chromium (III)	L	*		
Chromium (VI)	H	*	CHC	
Coal Tar	H		CHC	Refer to PAHs
Cobalt	L			
Copper	L			
Creosote	M	*		Refer to PAHs
Crocidolite	L			
Cyanide (Free)	H			
Cyanazine	M			
Dibenzofuran	H	*		DF
Dibromoethane, 1,2- (Ethylene Dibromide (EDB))	H		PHC	
1,2-Dibromo-3-Chloropropane	H		PHC	
Dibromochloromethane	M	*		HM
Dibromotetrafluoroethane	M			
Dichlorobenzene, 1,2- (O-DCB)	M			CB
Dichlorobenzene, 1,3- (M-DCB)	M			CB
Dichlorobenzene, 1,4- (P-DCB)	H			CB
Dichlorobenzidine, 3,3'-	H		PHC	
DDD	H			
DDE	H			
DDT	H		PHC	
Deltamethrin	M			
Diazinon	M			
Dicamba	H			
Dichloroethane, 1,1-	H			CEA
Dichloroethane, 1,2- (EDC)	H		PHC	CEA
Dichloroeth(yl)ene, 1,1-	H			CEE
Dichloroeth(yl)ene, Cis-1,2-	M			CEE
Dichloroeth(yl)ene, Trans-1,2-	M			CEE
Dichloromethane (Methylene Chloride)	H		PHC	HM
Dichlorophenol, 2,4-	M			CP
Dichloropropane, 1,2-	H			
Dichloropropene, 1,3-	H		PHC	
Diclofop-Methyl	H			
Didecyl Dimethyl Ammonium Chloride	H			
Dieldrin	H			
Dimethoate	H			
Diethyl Phthalate	M			PH
Diethylene Glycol	L			GL
Dimethyl Phthalate	M			PH
Dimethylphenol, 2,4-	L			
Dinitrophenol, 2,4-	M			
Dinitrotoluene, 2,4-	H			
Dinoseb	H			
Di-n-octyl Phthalate	H			
Dioxane, 1,4-	H		PHC	
Dioxins/Furans	H			
Diquat	M			

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Diuron	M			
Endosulfan	H			
Endrin	H			
Ethylbenzene	M			BTEX
Ethylene Dibromide (EDB)	H		PHC	
Ethylene Glycol	L			GL
Ethylene Oxide	H		CHC	
Fluoroacetamide	M			
Fluorides	L	*		
Glycols				
Ethylene Glycol	L			
Diethylene Glycol	L			
Propylene Glycol	L			
Glyphosate	M			
Halogenated Methanes				
Bromochlorodifluoromethane	M	*		
Bromochloromethane	M	*		
Bromodichloromethane	H		PHC	
Bromomethane	M			
Bromotrifluoromethane	M	*		
Chloroform	M		PHC	HM
Chloromethane	M			
Dibromochloromethane	M			
Dichloromethane (Methylene Chloride)	H		PHC	
Methyl Bromide	M	*		
Tetrachloromethane (Carbon Tetrachloride)	H			
Tribromomethane (Bromoform)	H			
Trihalomethanes (THM)	M			
Heptachlor	H			
Heptachlor Epoxide	H			
Hexachlorobenzene	H		PHC	
Hexachlorobutadiene	H			
Hexachlorocyclohexane, Gamma	H		PHC	
Hexachloroethane	H		PHC	
Hydrobromofluorocarbons (HBFCS)	M	*		
Hydrochlorofluorocarbons (HCFCS)	M	*		
3-Iodo-2-propynyl Butyl Carbamate	H			
Iron	L			
Lead	H	*		neurotoxins / teratogens
Lead Arsenate	H			
Leptophos	H			
Lindane	H			
Linuron	H			
Lithium	L			
Malathion	M			
Manganese	L			

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Mercury	H	*		
Methamidophos	H			
Methoxylchlor	H			
Methyl Bromide (Bromomethane)	M	*		
2-Methyl-4-chloro-phenoxy Acetic Acid	M			
Methyl Ethyl Ketone	L			
Methyl Isobutyl Ketone	L			
Methyl Mercury	H			
Methyl-Parathion	H			
Methyl Tert Butyl Ether (MTBE)	M			
Metolachlor	M			
Metribuzin	H			
Molybdenum	L			
Monochloramine	M			
Monocrotophos	H			
Nickel	H	*		CEPA - inhalation
Nitrilotriacetic Acid	H		PHC	
Nitrate	L			
Nitrite	M			
Nonylphenol + Ethoxylates	H	*		
Organotins				
Tributyltin	H			
Tricyclohexyltin	H			
Triphenyltin	H			
Parathion	H			
Paraquat (as Dichloride)	H			
Pentachlorobenzene	M			CB
Pentachlorophenol (PCP)	H			CP
Petroleum Hydrocarbons				Ranking based upon fraction of toxic and mobile components in product. Lighter compounds such as benzene are more toxic and mobile.
Petroleum Hydrocarbons (Gasoline)	H			
Petroleum Hydrocarbons (Kerosene incl. Jet Fuels)	H			
Petroleum Hydrocarbons (Diesel incl Heating Oil)	M			
Petroleum Hydrocarbons (Heavy Oils)	L			
Petroleum Hydrocarbons (CCME F1)	H			
Petroleum Hydrocarbons (CCME F2)	M			
Petroleum Hydrocarbons (CCME F3)	L			
Petroleum Hydrocarbons (CCME F4)	L			
Phenol	L			
Phenoxy Herbicides	M			
Phorate	H			
Phosphamidon	H			
Phthalate Esters				
Bis(2-Ethylhexyl)Phthalate	H	*		
Diethyl Phthalate	H			
Dimethyl Phthalate	H			
Di-n-octyl Phthalate	H			
Polybrominated Biphenyls (PBB)	H	*		
Polychlorinated Biphenyls (PCB)	H			

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Polychlorinated Terphenyls	H	*		
Polycyclic Aromatic Hydrocarbons	H	*	PHC	
Acenaphthene	M			
Acenaphthylene	M			
Acridine	H			
Anthracene	M			
Benzo(a)anthracene	H		PHC	
Benzo(a)pyrene	H		PHC	
Benzo(b)fluoranthene	H		PHC	
Benzo(g,h,i)perylene	H			
Benzo(k)fluoranthene	H		PHC	
Chrysene	M			
Dibenzo(a,h)anthracene	H		PHC	
Fluoranthene	M			
Fluorene	M			
Indeno(1,2,3-c,d)pyrene	H		PHC	
Methylnaphthalenes	M			
Naphthalene	M			
Phenanthrene	M			
Pyrene	M			
Quinoline	H			
Propylene Glycol	L			GL
Radium	H			
Radon	H			
Selenium	M			
Silver	L			
Simazine	M			
Sodium	L			
Strontium-90	H			
Strychnine	H			
Styrene	H			
Sulphate	L			
Sulphide	L			
2,3,7,8-Tetrachlorodibenzo-p-dioxins (TCDD)	H	*		DF
Tebuthiuron	H			
Tetrachloroeth(yl)ene (PCE)	H	*		CEE
Tetraethyl Lead	H			
Tetrachlorobenzene, 1,2,3,4-	H			CB
Tetrachlorobenzene, 1,2,3,5-	H			CB
Tetrachlorobenzene, 1,2,4,5-	H			CB
Tetrachloroethane, 1,1,1,2-	M			CEA
Tetrachloroethane, 1,1,2,2-	M			CEA
Tetrachlorophenol, 2,3,4,6-	H			CP
Tetramethyl Lead	H	*		
Thallium	M			
Thiophene	M			
Tin	L			
Toluene	M			BTEX
Toxaphene	H			

Chemical/Parameter	Hazard	CEPA	Carcinogenicity	Notes
Triallate	M			
Tribromomethane (Bromoform)	H			HM
Tributyltetradecylphosphonium Chloride	H	*		
Trichlorobenzene, 1,2,3-	H			CB
Trichlorobenzene, 1,2,4-	H			CB
Trichlorobenzene, 1,3,5-	H			CB
Trichloroethane, 1,1,1-	H	*		CEA
Trichloroethane, 1,1,2-	M			CEA
Trichloroeth(yl)ene (TCE)	H	*		CEE
Tricyclohexyltin Hydroxide	H			
Trichlorophenol, 2,4,5-	H			CP
Trichlorophenol, 2,4,6-	H		PHC	CP
Trifluralin	H			
Trihalomethanes (THM)	M			
Tris(2,3-Dibromopropyl)phosphate	H			
Tritium	L			
Uranium (Non-radioactive) / (Radioactive)	M/H			
Vanadium	M			
Vinyl Chloride	H	*	CHC	CEE
Xylenes	M			BTEX
Zinc	L			

H = High Hazard
M = Medium Hazard
L = Low Hazard
Hazard ratings based on a number of factors including potential human and ecological health effects.

PHC = Potential Human Carcinogen
CHC = Confirmed Human Carcinogen

BTEX = benzene, toluene, ethylbenzene, and xylenes
CB = chlorobenzenes
CEA = chlorinated ethanes
CEE = chlorinated ethenes
CP = chlorophenols
DF = dioxins and furans
GL = glycols
HM = halomethanes
PAH = polycyclic aromatic hydrocarbons
PH = phthalate esters

CCME National Classification System (2008, 2010 v 1.2)

Reference Material (Information to assist in scoring)

Examples of Persistent Substances

This information is used in Sheet I (Chemical Characteristics), section 5 (Modifying Factors).

aldrin	dieldrin	PCBs
benzo(a)pyrene	hexachlorobenzene	PCDDs/PCDFs (dioxins and furans)
chlordane	methylmercury	toxaphene
DDT	mirex	alkylated lead
DDE	octachlorostyrene	

Examples of Substances in the Various Chemical Classes

This information is used in Sheet I (Chemical Characteristics), section 5 (Modifying Factors).

Chemical Class	Examples *
inorganic substances (including metals)	arsenic, barium, cadmium, hexavalent chromium, copper, cyanide, fluoride, lead, mercury, nickel, selenium, sulphur, zinc; brines or salts
volatile petroleum hydrocarbons	benzene, toluene, ethylbenzene, xylenes, PHC F1
light extractable petroleum hydrocarbons	PHC F2
heavy extractable petroleum hydrocarbons	PHC F3
PAHs	Benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, dibenz(a,h0anthracene, indeno(1,2,3-c,d)pyrene, naphthalene, phenanthrene, pyrene
phenolic substances	phenol, pentachlorophenol, chlorophenols, nonchlorinated phenols (e.g., 2,4-dinitrophenol, cresol, etc.)
chlorinated hydrocarbons	PCBs, tetrachloroethylene, trichloroethylene, dioxins and furans, trichlorobenzene, tetrachlorobenzene, pentachlorobenzene, hexachlorobenzene
halogenated methanes	carbon tetrachloride, chloroform, dichloromethane
phthalate esters	di-isononyl phthalate (DINP), di-isodecyl phthalate (DIDP), di-2-ethylhexyl phthalate (DEHP)
pesticides	DDT, hexachlorocyclohexane

* Note: Specific chemicals that belong to the various classes are not limited to those listed in this table. These lists are not exhaustive and are meant just to provide examples of substances that are typically encountered.

Chemical-specific Properties
(Adapted from USEPA Soil Screening Criteria)

The information on Koc is used in Sheet II (Migration Potential), section 1,B,a (Relative Mobility).
The information on the dimensionless Henry's law constant is used in Sheet II (Migration Potential), section 4,B,a (Relative Volatility).
The information on log Kow is used in Sheet III (Exposure), section 3,B,a,iii (Potential for Ecological Exposure - terrestrial ingestion), and section 3,B,b,ii (Potential for Ecological Exposure - aquatic uptake potential).

CAS No.	Compound	Solubility in Water @ 20-25°C (mg/L)	Henry's Law Constant (atm-m3/mol)	Dimensionless Henry's law constant (HLC [atm-m3/mol] * 41) (25 °C).	log Kow	Log Koc (L/kg)
83-32-9	Acenaphthene	4.24E+00	1.55E-04	6.36E-03	3.92	3.85
67-64-1	Acetone	1.00E+06	3.88E-05	1.59E-03	-0.24	-0.24
309-00-2	Aldrin	1.80E-01	1.70E-04	6.97E-03	6.5	6.39
120-12-7	Anthracene	4.34E-02	6.50E-05	2.67E-03	4.55	4.47
56-55-3	Benz(a)anthracene	9.40E-03	3.35E-06	1.37E-04	5.7	5.6
71-43-2	Benzene	1.75E+03	5.55E-03	2.28E-01	2.13	1.77
205-99-2	Benzo(b)fluoranthene	1.50E-03	1.11E-04	4.55E-03	6.2	6.09
207-08-9	Benzo(k)fluoranthene	8.00E-04	8.29E-07	3.40E-05	6.2	6.09
65-85-0	Benzoic acid	3.50E+03	1.54E-06	6.31E-05	1.86	—
50-32-8	Benzo(a)pyrene	1.62E-03	1.13E-06	4.63E-05	6.11	6.01
111-44-4	Bis(2-chloroethyl)ether	1.72E+04	1.80E-05	7.38E-04	1.21	1.19
117-81-7	Bis(2-ethylhexyl)phthalate	3.40E-01	1.02E-07	4.18E-06	7.3	7.18
75-27-4	Bromodichloromethane	6.74E+03	1.60E-03	6.56E-02	2.1	1.74
75-25-2	Bromoform	3.10E+03	5.35E-04	2.19E-02	2.35	1.94
71-36-3	Butanol	7.40E+04	8.81E-06	3.61E-04	0.85	0.84
85-68-7	Butyl benzyl phthalate	2.69E+00	1.26E-06	5.17E-05	4.84	4.76
86-74-8	Carbazole	7.48E+00	1.53E-08	6.26E-07	3.59	3.53
75-15-0	Carbon disulfide	1.19E+03	3.03E-02	1.24E+00	2	1.66
56-23-5	Carbon tetrachloride	7.93E+02	3.04E-02	1.25E+00	2.73	2.24
57-74-9	Chlordane	5.60E-02	4.86E-05	1.99E-03	6.32	5.08
106-47-8	*p-Chloroaniline*	5.30E+03	3.31E-07	1.36E-05	1.85	1.82
108-90-7	Chlorobenzene	4.72E+02	3.70E-03	1.52E-01	2.86	2.34
124-48-1	Chlorodibromomethane	2.60E+03	7.83E-04	3.21E-02	2.17	1.8
67-66-3	Chloroform	7.92E+03	3.67E-03	1.50E-01	1.92	1.6
95-57-8	2-Chlorophenol	2.20E+04	3.91E-04	1.60E-02	2.15	—
218-01-9	Chrysene	1.60E-03	9.46E-05	3.88E-03	5.7	5.6
72-54-8	DDD	9.00E-02	4.00E-06	1.64E-04	6.1	6
72-55-9	DDE	1.20E-01	2.10E-05	8.61E-04	6.76	6.65
50-29-3	DDT	2.50E-02	8.10E-06	3.32E-04	6.53	6.42
53-70-3	Dibenz(a,h)anthracene	2.49E-03	1.47E-08	6.03E-07	6.69	6.58
84-74-2	Di-n-butyl phthalate	1.12E+01	9.38E-10	3.85E-08	4.61	4.53
95-50-1	1,2-Dichlorobenzene	1.56E+02	1.90E-03	7.79E-02	3.43	2.79
106-46-7	1,4-Dichlorobenzene	7.38E+01	2.43E-03	9.96E-02	3.42	2.79

CAS No.	Compound	Solubility in Water @ 20-25°C (mg/L)	Henry's Law Constant (atm-m3/mol)	Dimensionless Henry's law constant (HLC [atm-m3/mol] * 41) (25 °C).	log Kow	Log Koc (L/kg)
91-94-1	3,3-Dichlorobenzidine	3.11E+00	4.00E-09	1.64E-07	3.51	2.86
75-34-3	1,1-Dichloroethane	5.06E+03	5.62E-03	2.30E-01	1.79	1.5
107-06-2	1,2-Dichloroethane	8.52E+03	9.79E-04	4.01E-02	1.47	1.24
75-35-4	1,1-Dichloroethylene	2.25E+03	2.61E-02	1.07E+00	2.13	1.77
156-59-2	cis-1,2-Dichloroethylene	3.50E+03	4.08E-03	1.67E-01	1.86	1.55
156-60-5	trans-1,2-Dichloroethylene	6.30E+03	9.38E-03	3.85E-01	2.07	1.72
120-83-2	2,4-Dichlorophenol	4.50E+03	3.16E-06	1.30E-04	3.08	—
78-87-5	1,2-Dichloropropane	2.80E+03	2.80E-03	1.15E-01	1.97	1.64
542-75-6	1,3-Dichloropropene	2.80E+03	1.77E-02	7.26E-01	2	1.66
60-57-1	Dieldrin	1.95E-01	1.51E-05	6.19E-04	5.37	4.33
84-66-2	Diethylphthalate	1.08E+03	4.50E-07	1.85E-05	2.5	2.46
105-67-9	2,4-Dimethylphenol	7.87E+03	2.00E-06	8.20E-05	2.36	2.32
51-28-5	2,4-Dinitrophenol	2.79E+03	4.43E-07	1.82E-05	1.55	—
121-14-2	2,4-Dinitrotoluene	2.70E+02	9.26E-08	3.80E-06	2.01	1.98
606-20-2	2,6-Dinitrotoluene	1.82E+02	7.47E-07	3.06E-05	1.87	1.84
117-84-0	Di-n-octyl phthalate	2.00E-02	6.68E-05	2.74E-03	8.06	7.92
115-29-7	Endosulfan	5.10E-01	1.12E-05	4.59E-04	4.1	3.33
72-20-8	Endrin	2.50E-01	7.52E-06	3.08E-04	5.06	4.09
100-41-4	Ethylbenzene	1.69E+02	7.88E-03	3.23E-01	3.14	2.56
206-44-0	Fluoranthene	2.06E-01	1.61E-05	6.60E-04	5.12	5.03
86-73-7	Fluorene	1.98E+00	6.36E-05	2.61E-03	4.21	4.14
76-44-8	Heptachlor	1.80E-01	1.09E-03	4.47E-02	6.26	6.15
1024-57-3	Heptachlor epoxide	2.00E-01	9.50E-06	3.90E-04	5	4.92
118-74-1	Hexachlorobenzene	6.20E+00	1.32E-03	5.41E-02	5.89	4.74
87-68-3	Hexachloro-1,3-butadiene	3.23E+00	8.15E-03	3.34E-01	4.81	4.73
319-84-6	a-HCH (a-BHC)	2.00E+00	1.06E-05	4.35E-04	3.8	3.09
319-85-7	b-HCH (b-BHC)	2.40E-01	7.43E-07	3.05E-05	3.81	3.1
58-89-9	g -HCH (Lindane)	6.80E+00	1.40E-05	5.74E-04	3.73	3.03
77-47-4	Hexachlorocyclopentadiene	1.80E+00	2.70E-02	1.11E+00	5.39	5.3
67-72-1	Hexachloroethane	5.00E+01	3.89E-03	1.59E-01	4	3.25
193-39-5	Indeno(1,2,3-cd)pyrene	2.20E-05	1.60E-06	6.56E-05	6.65	6.54
78-59-1	Isophorone	1.20E+04	6.64E-06	2.72E-04	1.7	1.67
7439-97-6	Mercury	—	1.14E-02	4.67E-01	—	—
72-43-5	Methoxychlor	4.50E-02	1.58E-05	6.48E-04	5.08	4.99
74-83-9	Methyl bromide	1.52E+04	6.24E-03	2.56E-01	1.19	1.02
75-09-2	Methylene chloride	1.30E+04	2.19E-03	8.98E-02	1.25	1.07
95-48-7	2-Methylphenol	2.60E+04	1.20E-06	4.92E-05	1.99	1.96
91-20-3	Naphthalene	3.10E+01	4.83E-04	1.98E-02	3.36	3.3
98-95-3	Nitrobenzene	2.09E+03	2.40E-05	9.84E-04	1.84	1.81
86-30-6	N-Nitrosodiphenylamine	3.51E+01	5.00E-06	2.05E-04	3.16	3.11

CAS No.	Compound	Solubility in Water @ 20-25°C (mg/L)	Henry's Law Constant (atm-m3/mol)	Dimensionless Henry's law constant (HLC [atm-m3/mol] * 41) (25 °C).	log Kow	Log Koc (L/kg)
621-64-7	N-Nitrosodi-n-propylamine	9.89E+03	2.25E-06	9.23E-05	1.4	1.38
1336-36-3	PCBs	—	—	—	5.58	5.49
87-86-5	Pentachlorophenol	1.95E+03	2.44E-08	1.00E-06	5.09	—
108-95-2	Phenol	8.28E+04	3.97E-07	1.63E-05	1.48	1.46
129-00-0	Pyrene	1.35E-01	1.10E-05	4.51E-04	5.11	5.02
100-42-5	Styrene	3.10E+02	2.75E-03	1.13E-01	2.94	2.89
79-34-5	1,1,2,2-Tetrachloroethane	2.97E+03	3.45E-04	1.41E-02	2.39	1.97
127-18-4	Tetrachloroethylene	2.00E+02	1.84E-02	7.54E-01	2.67	2.19
108-88-3	Toluene	5.26E+02	6.64E-03	2.72E-01	2.75	2.26
8001-35-2	Toxaphene	7.40E-01	6.00E-06	2.46E-04	5.5	5.41
120-82-1	1,2,4-Trichlorobenzene	3.00E+02	1.42E-03	5.82E-02	4.01	3.25
71-55-6	1,1,1-Trichloroethane	1.33E+03	1.72E-02	7.05E-01	2.48	2.04
79-00-5	1,1,2-Trichloroethane	4.42E+03	9.13E-04	3.74E-02	2.05	1.7
79-01-6	Trichloroethylene	1.10E+03	1.03E-02	4.22E-01	2.71	2.22
95-95-4	2,4,5-Trichlorophenol	1.20E+03	4.33E-06	1.78E-04	3.9	—
88-06-2	2,4,6-Trichlorophenol	8.00E+02	7.79E-06	3.19E-04	3.7	—
108-05-4	Vinyl acetate	2.00E+04	5.11E-04	2.10E-02	0.73	0.72
75-01-4	Vinyl chloride	2.76E+03	2.70E-02	1.11E+00	1.5	1.27
108-38-3	m-Xylene	1.61E+02	7.34E-03	3.01E-01	3.2	2.61
95-47-6	o-Xylene	1.78E+02	5.19E-03	2.13E-01	3.13	2.56
106-42-3	p-Xylene	1.85E+02	7.66E-03	3.14E-01	3.17	2.59

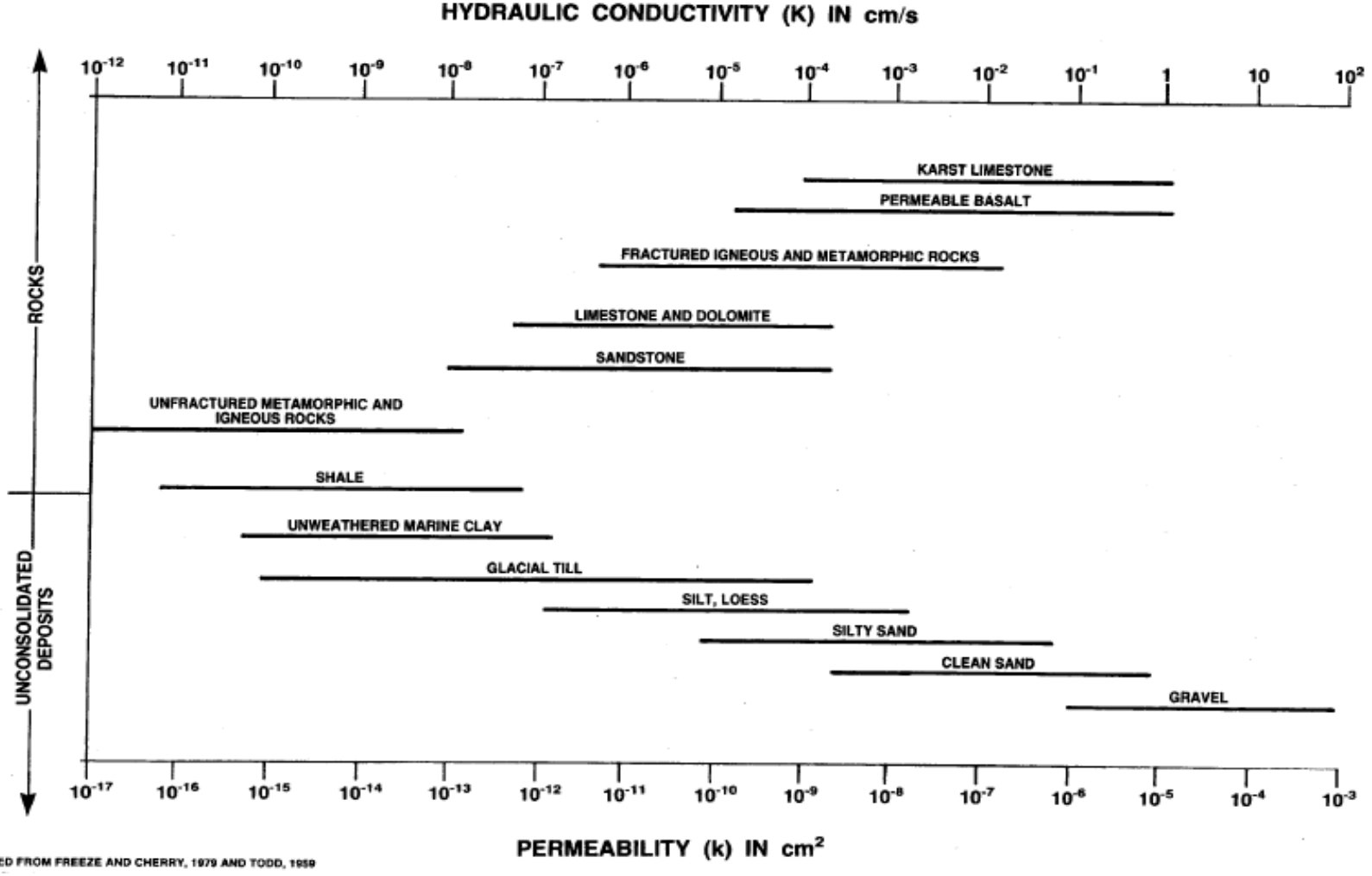
Source: United States Environmental Protection Agency. 1996. Soil Screening Guidance: Technical Background Document. EPA/540/R-95/128 (http://www.epa.gov/superfund/resources/soil/toc.htm#p5)

CAS = Chemical Abstracts Service

Kow = Octanol/water partition coefficient

RANGE OF VALUES OF HYDRAULIC CONDUCTIVITY AND PERMEABILITY

The information on Koc is used in Sheet II (Migration Potential), section 1,B,f (Hydraulic Conductivity)



MODIFIED FROM FREEZE AND CHERRY, 1979 AND TODD, 1959

APPENDIX G

COMMENTS on MoT RESPONSE TO LNIB CONCERNS WITH GODEY PIT SALT CONTAMINANTION

COLUMBIA ENVIRONMENTAL

The recommendations we made in our third party review report (dated March 21, 2012) are reiterated below, each followed by a summary of SLE's responses/actions as documented in their letter dated April 22, 2013. My opinions on the adequacy of SLE' responses/actions are presented in red.

Columbia Recommendation

Columbia recommends that further investigation (and risk assessment if warranted) into metals impacts to surface water and groundwater be conducted. It is possible that the identified metals are representative of background; however, further justification is required to confirm the absence of risk or liability posed by these metals.

SLE Response/Action

Surface Water

SLE clarified that Diamond Vale Brook does not actually reside on the Joeyaska Reserve lands, but rather originates via upwelling groundwater on the 980 Coldwater Road property. Therefore, risks related to surface water quality in Diamond Vale Brook are not relevant to LNIB lands.

- Scott's Opinion: I agree that risks to surface water bodies are not relevant to LNIB.

Groundwater

Regarding metals in groundwater on the Joeyaska Reserve, SLE did not consider these to be related to Godey Pit salt contamination and therefore they were not addressed in the risk assessments. SLE states that they are awaiting feedback from MOE on this matter.

- Scott's Opinion: Further evidence seems to be needed to support the argument that the other metals detected in groundwater on the Joeyaska Reserve are unrelated to Godey Pit.

Columbia Recommendation

Columbia recommends that the additional assessment recommended by MoT's consultants (listed below) be conducted to better understand the agricultural and ecological risks. If additional risks are identified, additional remedial action may be required.

SLE Response/Action

According to SLE, he additional assessments recommended have been largely carried out and are documented in SLE's addendum report dated March 2012. The recommendations and their status (in bold) are summarized below.

1. Additional vegetation tissue sampling on and off-site and refinement of dietary risk estimates for wildlife and livestock. **COMPLETE. RISKS SHOWN TO BE LOW (ASSUMING LIVESTOCK DO NOT OBTAIN 100% OF THEIR WATER FROM DIAMOND VALE BROOK).**

2. More detailed risk assessment if dietary risks to wildlife and livestock cannot be ruled out with additional plant tissue data. **NOT NEEDED SINCE RISKS LOW.**
3. Long term monitoring of the shrub/tree community to assess long term impacts of high salinity on the terrestrial ecosystem. **NOT COMPLETED. SLE RECOMMENDED THAT THIS BE COMPLETED DOWN THE ROAD AS A MEASURE OF REMEDIATION SUCCESS.**
4. Field assessment of amphibian presence, in particular the provincially and federally listed great basin spadefoot toad. **NOT COMPLETED. SLE RECOMMENDED THAT THIS BE COMPLETED DOWN THE ROAD AS A MEASURE OF REMEDIATION SUCCESS.**
5. Find appropriate reference locations for water quality monitoring for comparison of apparent risks to amphibians and aquatic invertebrates on-site. **PARTIALLY COMPLETE. SLE ATTEMPTED THIS BUT WERE UNSUCCESSFUL. THEY DO NOT RECOMMEND FURTHER EFFORT ON THIS.**

- Scott's Opinion: Items 1-3 are most relevant to LNIB. Items 1 and 2 have been addressed. Regarding item 3, it seems reasonable to use vegetation monitoring later to assess the effectiveness of the remediation. Since impacted surface water is not present on LNIB lands (Diamond Value Brook shown to be off-site), items 4 and 5 may no longer be relevant to LNIB.

Columbia Recommendation

Columbia recommends that the LNIB conduct internal stakeholder meetings with band members, particularly the affected parties of the Joeyaska Reserve to gather input into this process and confirm the land use assumptions applied to the risk assessments is valid. Traditional knowledge should be sought with respect to species potentially extirpated from the reserve due to salt impacts, particularly amphibians.

SLE Response/Action

Recommendation is directed to LNIB. Not relevant to SLE.

Columbia Recommendation

Columbia recommends ongoing monitoring of the existing drinking water well to ensure that residents are not exposed to the contaminants at levels of concern in the future. In addition, the water quality in domestic wells installed on-Site in the future should be monitored to ensure that residents are not exposed to the contaminants at concentrations of concern. If contamination within the existing or future wells is identified, the health risks associated with the use of the water should be assessed.

SLE Response/Action

SLE states that ongoing monitoring of the existing drinking water well for sodium and chloride will be incorporated into the annual sampling and monitoring program carried out as part of the RAP, despite their opinion that the potential for impact is low. SLE does not explicitly

recommend risk management measures for new deep drinking water wells installed on the Joeyaska Reserve in the future but indicates that deep wells would likely not be impacted. Regarding potential future shallow wells, SLE states that they do not recommend people consume water from the shallow aquifer in areas where groundwater exceeds the drinking water guidelines.

Scott's Opinion: Risk controls may be needed to address the installation of new wells on the Joeyaska Reserve (e.g. requirement to cite outside of plume and at a minimum depth, monitoring).

My Additional Comments

- Clarification should be sought on whether the fertility of soils on the southwest portion of the Joeyaska Reserve is impaired. The original AERA indicated that this was true for the area near Diamond Vale Brook. SLE (2013) seemed to dismiss this issue for the Joeyaska Reserve given that Diamond Vale Brook is located offsite. However, the brook originates at the property boundary and so impacts could extend onto the Joeyaska Reserve.