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PHASE I AND II ENVIRONMENTAL SITE ASSESSMENT

Sä Dena Hes Mine, Yukon Territory

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REPORT

Golder Associates

Executive Summary

Golder Associates Ltd. completed a Phase I and Phase II Environmental Site Assessment (Phase I and II ESA) on behalf of Keyeh Nejeh Golder Corporation for Teck Metals Ltd. (Teck), at the Sä Dena Hes mine near Watson Lake, Yukon Territory (the Site).

The Sä Dena Hes mine operated as a zinc-lead mine for a 16 month period between August 1991 and December 1992, by Curragh Resources Incorporated. A decline in zinc prices, in December 1992, forced a temporary closure of the mine. The Sä Dena Hes Operating Corporation purchased the mine in April 1994. However, the mine has remained closed since December 1992 due to low demands in the zinc market. Teck is an operating partner of the mine.

The Phase I and II ESA was completed in order to assist Teck with permanent closure of the mine, and included the following primary objectives:

- Characterization of environmental conditions of the Site;
- Development of mitigative measures to minimize potential environmental impacts at the Site (if necessary); and
- Identification and delineation of contamination and contaminant sources in support of a risk assessment to define remedial objectives for the eventual, permanent closure of the mine property.

The scope of work of the Phase I ESA included a review of historical information and reports for the Site, as well as a Site reconnaissance. The results of Phase I ESA were used to generate a list of Areas of Potential Environmental Concern for the Site. Based on the results, eight (8) APECs have been identified at the Site. A summary of each APEC and associated potential contaminants of concern is shown on the Table below.

Reference	Summary	Potential Contaminants of Concern
APEC 1 – Jewelbox Hill	A former metal shop existed at this location as part of underground mine activities. Fuel storage tanks were also located in this area.	Metals, LEPH/HEPH/PAHs, BTEX/VPH, VOCs
APEC 2 – Burnick Zone (1200 Portal)	A metal shop and AST are still present in this area of the mine property. The shop was used as part of underground mine activities in the Burnick Zone	Metals, LEPH/HEPH/PAH, BTEX/VPH, VOCs
APEC 3 – Mill Site	Includes the main concentrator complex, former Golden Hill Shop, fuel storage tanks, and former laboratory and warehouses.	Metals, LEPH/HEPH/PAHs, BTEX/VPH, VOCs
APEC 4 – North Creek Garbage Dump/Borrow Area	Used as an unpermitted disposal area for various metal scraps and discarded drums.	Metals, LEPH/HEPH/PAHs
APEC 5 – Boneyard	Used as a storage area and lay down area for various metal equipment and scrap materials along the access road on the west side of the north tailings pond.	Metals

Reference	Summary	Potential Contaminants of Concern
APEC 6 – Site-wide sediment ponds	Four sediment ponds were used throughout the Site: Jewelbox 1408 Portal, Main Zone Pit, Burnick 1200 Portal, and Jewelbox 1250 Portal.	Metals
APEC 7 – Site-wide waste rock piles	Waste rock piles were identified at the Jewelbox and Burnick Zone Portals. The waste rock was generated as part of the mining process and may contain elevated concentrations of metals.	Metals
APEC 8 – Tailings and Reclaim Ponds	Tailings generated as part of the mining process were directed to a series of ponds northeast of the Mill Site. Portions of the tailings ponds have been drained, exposing tailings sediment on the ground surface, which may contain elevated concentrations of metals.	Metals

The results of the Phase I ESA were used to guide the scope of work for the Phase II ESA. Fifty (50) test pits were completed at the Site in order to determine whether the identified APECs should be considered Areas of Environmental Concern (AECs). The scope of work of the Phase II ESA did not include a groundwater investigation; however Golder reviewed historical surface water data for the Site and conducted synthetic precipitation leaching procedures (SPLP) on soil samples to evaluate the potential for groundwater contamination.

Shallow soil samples were collected from the test pits and were submitted to the laboratory for analytical testing of potential contaminants of concern, while vertical delineation of soil contamination was completed using a Niton X-Ray Fluorescence (XRF) Analyzer. Linear and rank correlation coefficients between the XRF and analytical laboratory results were generated to determine the reliability of the XRF analyzer for use in delineating soil contamination at the Site.

Based on the results of the field investigation, several metals parameters have been identified as contaminants of concern at the Site. Lead and zinc contamination in shallow soil appears to be widespread throughout the Site, as concentrations of these parameters were identified above the applicable Contaminated Sites Regulation (CSR) industrial land use (IL) soil standards at Jewelbox Hill, Burnick Zone, the Mill Site, boneyard, sediment ponds, and tailings ponds. The contamination is considered to be the result of mining activities at the Site. Concentrations of arsenic, cadmium, copper, molybdenum, and selenium were also identified above applicable CSR soil standards.

The calculated coefficients of rank correlation indicate the XRF results from the Phase II ESA can be used to delineate contamination at the Site. However, the analytical and XRF results have not fully delineated metals contamination at the Site.

Petroleum hydrocarbons have also been retained as contaminants of concern at the Site, based on the results of previous investigations completed by Access Consulting Group. Although preliminary remediation of hydrocarbon-contaminated soil has been completed, petroleum hydrocarbon-contaminated soil is inferred to remain *in-situ* at Jewelbox Hill, Burnick Shop, and the Golden Hill Shop (near the Mill Site).

Although a groundwater investigation was not completed as part of the Phase II ESA, SPLP results have identified the potential for leaching of cadmium, lead, selenium, and zinc from soil into groundwater at concentrations above the applicable CSR water quality standards. Concentrations of these parameters are present at concentrations above the CSR aquatic life water quality standards (divided by a factor of ten) at several surface water discharge points throughout the Site.

A summary of the AECs that have been retained at the Site is presented in the table below.

APEC/AEC	Summary	Contaminants of Concern
AEC 1 – Jewelbox Hill	A former metal shop existed at this location as part of underground mine activities. Fuel storage tanks were also located in this area.	**Soil:** arsenic, cadmium, chromium, copper, lead, molybdenum, selenium, zinc, LEPH/HEPH/PAH, VOCs **Groundwater[3]:** cadmium
AEC 2 – Burnick Zone (1200 Portal)	A metal shop and AST are still present in this area of the mine property. The shop was used as part of underground mine activities in the Burnick Zone.	**Soil:** arsenic, cadmium, zinc, LEPH/HEPH/PAH, VOCs **Groundwater[3]:** cadmium
AEC 3 – Mill Site	Includes the main concentrator complex, former Golden Hill Shop, fuel storage tanks, and former laboratory and warehouses.	**Soil:** arsenic, cadmium, lead, molybdenum, selenium, zinc, LEPH/HEPH/PAH, VOCs **Groundwater:** cadmium, lead, selenium, zinc
AEC 5 – Boneyard	Used as a storage area and lay down areas for various metal equipment and scrap materials along the access road on the west side of the north tailings pond.	**Soil**: arsenic
AEC 6 – Site-wide sediment ponds	Sediment samples were collected from the Jewelbox and Main Zone sediment ponds. The results indicate that the sediment contains elevated concentrations of several metals parameters.	**Sediment:** arsenic, cadmium, lead, selenium, silver, zinc
AEC 7 – Site-wide waste rock piles	Waste rock piles were identified at the Jewelbox and Burnick Zone Portals. The waste rock was generated as part of the mining process and existing chemistry data indicate it contains elevated concentrations of metals.	**Soil:** arsenic, cadmium, lead, zinc
AEC 8 – Tailings and Reclaim Ponds	Tailings generated as part of the mining process were directed to a series of ponds northeast of the Mill Site. Portions of the tailings ponds have been drained, exposing tailings sediment on the ground surface. The tailings contain elevated concentrations of metals.	**Sediment/tailings:** arsenic, cadmium, lead, selenium, zinc **Groundwater:** cadmium, lead, zinc

The objectives of the Phase I and II ESA have been largely met, though full horizontal and vertical delineation of soil contamination has not yet been achieved. The results of the Phase II ESA are considered sufficient to provide a preliminary understanding of the Site conditions for the development of a risk assessment.

Additional soil testing is recommended in the vicinity of the Mill structures, once decommissioning of active utilities has been completed. The additional testing would be completed to confirm the presence of remaining PCOCs, such as VOCs near the dry laboratory. The coarse ore stockpile and existing, active storage tanks and fuelling area should also be investigated for potential contamination.

Based on the results of the leachate testing and surface water review, it is expected that a groundwater investigation will be required as part of the Site closure. The development of a hydrogeological assessment plan for implementation during the 2013 field season is recommended for the Site. Given the steep topography and geology at the Site, a groundwater investigation may target the perimeter of areas of environmental concern, in order to monitor potential impacts in groundwater that are migrating off-Site.

It is understood that a risk assessment is expected to guide the overall remediation of the Site, and that the results of this report are intended to support the risk assessment and update the closure plan for the Site. The development of a hydrogeological investigation and remedial action plan should be completed in close collaboration with the risk assessment team.

Study Limitations

This Phase I and Phase II Environmental Site Assessment (ESA) report was prepared for the exclusive use of Teck Metals Ltd. (Teck) and is intended to provide an assessment of environmental conditions at the Sä Dena Hes mine, north of Watson Lake, Yukon Territory. Any use that a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Should additional parties require reliance on this report, written authorization from Golder is required.

The report is based on data and information collected during investigations conducted by Golder's personnel and the review of reports prepared by others as listed in this report. It is based solely on the conditions of the subject property at the time of the Site reconnaissance and investigation, supplemented by a review of historical information and data obtained by Golder as described in this report, and discussions with Teck representatives, as reported herein. The information contained in this report does not provide an assessment of hazardous building materials. Information pertaining to potentially hazardous building materials has been provided by Golder under separate cover.

Except as otherwise may be requested, Golder disclaims any obligation to update this report for events taking place, or with respect to information that becomes available to Golder after the time during which Golder conducted the ESA.

In evaluating the property, Golder has relied in good faith on information provided by other individuals noted in this report. Golder has assumed that the information provided is factual and accurate. Golder accepts no responsibility for any deficiency, misstatement or inaccuracy contained in this report as a result of omissions, misinterpretations or fraudulent acts of persons interviewed or contacted.

Golder makes no other representations whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including, but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation.

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1.0 INTRODUCTION

Golder Associates Ltd. (Golder) completed a Phase I and Phase II Environmental Site Assessment (Phase I and II ESA) on behalf of Keyeh Nejeh Golder Corporation (KNG) for Teck Metals Ltd. (Teck) at the Sä Dena Hes mine near Watson Lake, Yukon Territory (the "Site"; refer to Figure 1, Key Plan and Figure 2, Site Plan).

The Phase I and II ESA was completed in order to assist Teck with permanent closure of the Site, to implement environmental protection measures, if required, and to minimize adverse environmental impacts to the surrounding areas.

2.0 BACKGROUND

The Sä Dena Hes mine operated as a zinc-lead mine for a 16 month period between August 1991 and December 1992, by Curragh Resources Incorporated. A decline in zinc prices, in December 1992, forced a temporary closure of the mine. The Sä Dena Hes Operating Corporation purchased the mine in April 1994. However, the mine has remained closed since December 1992 due to low demands in the zinc market. Teck is an operating partner of the mine.

Sä Dena Hes mine is permitted under a Yukon Quartz Mining Act Production License and a Type A Water Use License. Both permits are to expire on December 31, 2015. Both licences allow for "Temporary Closure" of the mine as it has resided since 1992; however, this status will expire on January 28, 2013, at which point the mine will enter a "Permanent Closure" phase.

2.1 Objectives

The overall objectives of the ESA were to:

- Characterize the environmental conditions of the Site;
- Develop mitigative measures to minimize potential environmental impacts at the Site (if necessary); and
- Identify and delineate contamination and contaminant sources in support of a risk assessment to define remedial objectives for the eventual, permanent closure of the mine property.

In order to meet the project objectives, a Phase I and Phase II ESA was completed for the mine property.

A Phase I ESA provides a preliminary investigation of potential environmental concerns associated with present and historical activities at a property and its immediate surroundings. The scope of a Phase I ESA is sufficient only to identify environmental liabilities that are apparent based on visual examination of surface features at a property, or from available sources of historical information reviewed. The conclusions of a Phase I ESA provide information on potential sources of contamination, though they do not provide information regarding magnitude or extent of contamination.

A Phase II ESA provides a preliminary investigation of the APECs identified during the Phase I ESA. The field activities conducted as part of a Phase II ESA can determine the quality of the soil, groundwater, sediment, and/or surface water quality at the Site, thereby confirming the presence, or absence, of contamination at the Site. The results of the Phase II may also provide an initial delineation of the extent of contamination.

2.2 Scope of Work

The scope of work of the Phase I and Phase II ESA included the following tasks:

- Preparation of a Site-specific Health and Safety Plan;
- Completion of a historical information review and a Site reconnaissance to identify Areas of Potential Environmental Concern (APECs) and Potential Contaminants of Concern (PCOCs) at the Site;
- Excavation of fifty (50) test pits, using an approved excavation contractor, to characterize the soil quality in the APECs identified during the Phase I ESA;
- Collection of representative samples from excavated test pits, Site-wide sediment ponds and tailings management facility;
- Submission of selected soil and sediment samples to an approved laboratory for analysis of the PCOCs identified during the Phase I ESA;
- Field analysis of soil and sediment samples using a Niton XRF analyzer;
- Inclusion of First Nation participants during the field activities;
- Reviewing the analytical data provided by the laboratory and comparing the results to applicable regulatory standards;
- Summarizing the findings of the investigations in a report including test pit logs, analytical data tables, figures; and
- Providing recommendations for additional work at the Site (if necessary).

3.0 SITE DESCRIPTION AND PHYSICAL SETTING

3.1 Site Location and Legal Description

The Site is located approximately 70 kilometres (km) by road from Watson Lake, Yukon and is accessed via a gravel road at kilometre 47 of the Robert Campbell Highway. Most of the mineral occurrences at the Site are near the treeline at 1,200 to 1,500 metres (m) above sea level (asl).

Property information regarding the Site is presented on Table 1, below:

Table 1: Property Information

Site Address	Sä Dena Hes Mine, Yukon
Geographic Coordinates	60°31'24.58" N and 128°51'53.72" W (approximate)
Total Area (hectares)	5,600 (approximate)

The Site is comprised of the mill site, two underground mines, an open pit mine and tailings management facility. The underground mines include the Jewelbox Hill which is immediately west of the mill site and Burnick which is on the North Hill approximately four km north of the mill site. The tailings management facility is comprised of three earthen structures: the North Dam; South Dam; and Reclaim Dam. The Main Zone is the open pit mine and is located adjacent to the Jewelbox Portal.

3.2 Physical Setting

3.2.1 Climate

The Watson Lake weather station, approximately 45 km south of the Site, is the closest weather station to the Site and is monitored by Environment Canada (EC). The Watson Lake station (EC station ID 2101200) indicated an annual average daily mean temperature of -2.9^{o}C, with a monthly average daily mean temperature ranging from -24.2^{o}C in January to 15.1^{o}C in July. The total average annual precipitation is approximately 404.4 millimetres including 196.5 centimetres of snowfall (Environment Canada, 2012). This climate information is based on climate normal data collected between 1971 and 2000.

3.2.2 Eco-region

The Site lies within the Liard Basin eco-region. This eco-region is characterized by low hills separated by broad plains and surrounded by mountains and plateaus. Most of the region is below treeline and is dominated by boreal forest. White spruce is the dominant tree species and willow, alder, rose and high-bush cranberry make up the shrub layer. Moose, black bear, wolverine, marten and lynx are all common mammals found in this area.

3.2.3 Geological and Geographic Setting

The Site is underlain mostly by lower Palaeozoic metasedimentary rocks including both calcareous and non-calcareous politic phyllite and limestone. Intrusive igneous rocks at the Site include three suites: mafic to intermediate, intermediate and quartz porphyry. It is speculated that the area is underlain by a granitic pluton of the mid-Cretaceous Selwyn plutonic suite (Teck, 2012).

3.2.4 Hydrogeology and Hydrology

The mine is located within the False Canyon Creek drainage basin which is a tributary of Frances River. The drainage basin of Tom Creek is located to the south of the Site. Drainage from the Jewelbox and mill site is directed to Camp Creek, a tributary of False Canyon Creek. Drainage from the Burnick area is confined to an un-named tributary of False Canyon Creek (Teck, 2012).

4.0 PHASE I ENVIRONMENTAL SITE ASSESSMENT

4.1 Objectives

The objectives of the Phase I ESA were to:

1) Review historical land use and records to assess current and past activities or uses, accidents and spills, practices and management relating to potential soil vapour, soil, groundwater, sediment or surface water contamination at the Site; and

2) Identify areas of potential environmental concern (if any).

A Phase I ESA provides a preliminary assessment of potential environmental concerns associated with present and historical activities at a property and its immediate surroundings. The scope of a Phase I ESA is sufficient only to identify environmental liabilities that are apparent, based on visual examination of surface features at a property, or from available sources of historical information reviewed.

4.2 Scope of Work

The Phase I ESA was conducted in general accordance with Canadian Standards Association Document Z798-01 *"Phase I Environmental Site Assessment"* (2001). The general scope of work consisted of the three tasks detailed in the sections below.

4.2.1 Task 1 – Site History, Background Data Collection and Evaluation

Golder reviewed and evaluated pertinent available data to investigate historical uses of the Site and properties immediately surrounding the Site, and to identify known and potential sources of contamination at the Site and on adjacent properties. Where warranted and available, Golder used the following sources of information:

- Historical aerial photographs, and site maps and plans;
- Yukon and Environment Canada Contaminated Sites Registry;
- Information supplied by local, territorial and federal regulatory agencies with respect to permits, orders, or violations of environmental statues, regulations, approvals, or requirements, certificates of approval, storage tank registration, special waste storage;
- Geological and geotechnical reports;
- Geological and soil maps, topographic maps, land use documents; and
- Environmental audit reports, public health concerns, public health notices regarding hazardous materials on the property or surrounding areas, well logs, inventories of waste disposal sites, inventories of PCB storage sites, air, surface water and groundwater quality reports, waste generator registries.

Records and reports that were reasonably ascertainable: (*i.e.*, provided by Yukon Government, or publicly available; obtainable within a reasonable time frame and cost; and practically reviewable) were obtained and reviewed.

Where information was provided by a regulatory body, the name of the individual and organization has been documented.

4.2.2 Task 2 – Site Reconnaissance

Golder conducted a Site reconnaissance of the subject Site on August 20, 2012 to collect historical information regarding past uses of the Site and to gather visual indications of potential contamination issues that may exist at the Site. During the Site reconnaissance, Golder documented evidence or past historical presence of the following items:

- Underground and/or aboveground storage tanks (ASTs/USTs) and supply lines;
- Hazardous material and hazardous waste storage or disposal areas including sumps, pits, ponds and landfills;
- Barren or discoloured unpaved surface conditions, including signs of stressed vegetation;
- Electrical transformers and capacitors;
- Maintenance areas; and
- Evidence of recent spills.

Interviews with Site personnel were also conducted to identify current and historical activities and to obtain information on activities that may have potentially caused contamination.

4.2.3 Task 3 – Report Preparation

Golder prepared a written report (this report) for the Site to outline the findings of the Phase I ESA.

The scope of the Phase I ESA was sufficient only to identify environmental liabilities that are apparent based on visual examination of surface features at the Site, or from available sources of historical information reviewed.

4.3 Historical Information Review

4.3.1 Aerial Photograph Review

Historical aerial photographs for the Site were obtained from the Yukon Government Energy, Mines and Resources Library. Aerial photographs from 1946, 1986, 1992 and 1999 were available for review. Table 2 provides a brief summary of the aerial photograph interpretation. Selected aerial photographs are reproduced in Appendix B.

Table 2: Aerial Photograph Interpretation

Year	Photograph	Site Description	Surrounding Areas
1946 1986	A10529-77, 78, 80 A27040-101, 102, 103	There is no evidence of development throughout the Site. The Site is primarily forested.	There is no development visible in the surrounding area. The area is mostly forested with steep terrain and various water bodies.
1992	A27830-85, 86, 87	The Site buildings and access road are visible.	The surrounding areas appear similar to the 1986 photograph.
1999	A28421-168, 169, 170, 171	The Site buildings and access road are visible.	The surrounding areas appear similar to the 1992 photograph. There is an increase in cut lines to the north of the Site.

The aerial photograph review indicated that the Site had been constructed between 1986 and 1992. Prior to 1986, the Site was undeveloped.

4.3.2 Groundwater and Surface Water Usage

A search of the online Yukon Water Data Catalogue was conducted on November 7, 2012 and returned no registered water wells or surface water sampling points within 1.5 km search radius from the site.

A Type A Water License (QZ99-045) is registered to the Site. The water license is issued under the *Yukon Waters Act*, and permits the usage and discharge of water for Site-wide purposes. The water license is scheduled to expire on December 15, 2015.

4.3.3 Yukon Government Contaminated Sites Database

Environmental Programs Branch, Yukon Government was contacted regarding the Contaminated Sites Database. Result of the database search included three permits for the Site:

- A commercial dump permit for the disposal of solid waste;
- A special waste permit for the temporary stockpiling of soil contaminated with metals and petroleum hydrocarbons in excess of special waste criteria; and
- A relocation permit for the relocation of soil contaminated with metals and petroleum hydrocarbons in excess of special waste criteria from Sä Dena Hes to Tervita Northern Rockies Landfill in Fort Nelson, BC.

The Environmental Programs Branch also noted that not all of the contaminated material had been removed from the Site, therefore classifying the Site as contaminated. A complete site investigation has not been completed to their knowledge and there may be other contaminated material that has not been delineated.

4.3.4 Environment Canada Database

Environment Canada was contacted regarding historical data from the Site; however, no information was received as part of the Phase I ESA.

4.3.5 Summary of Previous Reports and Investigations

Golder reviewed four previous reports as part of the Phase I ESA: an Assessment of Environmental Liabilities report, completed in 1993; A Detailed Decommissioning and Reclamation Plan (DDRP) prepared by Teck in January 2012; a Site Investigation and Remedial Soil Excavation Summary Report prepared by Access Consulting Ltd. (Access) in April 2012; and a draft Technical Memorandum prepared by Access in December 2012. The findings relevant to the Phase I ESA are presented in the following sections.

4.3.5.1 Assessment of Environmental Liabilities – Sä Dena Hes Mine near Watson Lake, Yukon Territory – October 12, 1993

The assessment of environmental liabilities was completed by Norecol, Dames, and Moore (NDM), in 1993 to support the temporary closure of the mine site. The report provided a site description, a summary of environmental liabilities, and recommendations for maintenance requirements and associated costs.

Fueling stations and maintenance shops were located at Jewelbox and Burnick Portals and the Mill Site. Fuel was generally stored in ASTs that were within a berm and located within a lined pit.

The NDM report highlighted two, known diesel spills that have occurred at the Site:

- In 1991, approximately 1000 gallons of diesel fuel were spilled at the Jewelbox Portal during transfer of fuel from a truck to ASTs; and
- In 1992, approximately 300 gallons of diesel fuel were spilled at the Burnick Portal. The fuel spill was the result of a fuel line not being shut off.

The spills were reported to the current Department of Indian Affairs and Northern Development, however no cleanup was required.

4.3.5.2 Detailed Decommissioning and Reclamation Plan – Update January 2012

The DDRP for the Site was updated in January 2012 and reviewed as part of the Phase I ESA. The primary objective of the DDRP was to develop a plan for permanent closure of the Site that requires minimal long term and maintenance.

The DDRP discusses the current state of formerly operational areas of the mine property and outlines proposed reclamation steps for each area. Former Site-wide activities that were highlighted in the report, and that may be considered as potential sources of contamination, are summarized below:

- A metal shop with an earthen floor and concrete footings formerly existed at the Jewelbox 1480 portal, and was removed from the Site in 2010. Fuel tanks associated with the shop were also removed, and fuel berms that contained the tanks were assessed for hydrocarbon contamination (see Section 4.3.5.2, below);

- A metal shop with an earthen floor and concrete footings currently exists at the Burnick 1200 portal. The soil quality in the vicinity was assessed for hydrocarbon contamination in 2011 and will be removed for treatment;
- Industrial reagents, including solvents, paints, cleansers, and battery acid have formerly been used at the Site. These products are reported to have been removed from the Site in 2011;
- Hydrocarbon-based products were used at the mine site including hydraulic fluids, lubricating oils, greases, antifreeze, and solvents that were generally contained in 1,000 litre bulk cubes, or 200 litre drums. Investigation work to quantify the extent of hydrocarbon-contaminated soils at the Site began in 2011, the results of which are expected to be used to develop remedial plans;
- Existing fuel storage tanks are currently being used as part of the on-Site caretaker's activities at the Site will be decommissioned and removed from the Site as part of the permanent closure of the mine property;
- Scrap metal and equipment has been stored in laydown areas throughout the mine property and along access roads, and may contain hazardous materials. The equipment is expected to be removed from the Site during permanent closure activities;
- Previous water quality studies by SRK Consulting (SRK) indicate that zinc loading from surface water discharge at the 1380 Portal may pose an unacceptable risk to the water quality in Camp Creek; and
- Three of the sediment ponds located on the mine property are expected to contain elevated metals concentrations, due to former mining activities.

4.3.5.3 Site Investigation and Remedial Soil Excavation – April 2012

Access conducted a Site Investigation and Remedial Soil Excavation at the Site on August 15, 2011. Petroleum hydrocarbon contaminated soil was excavated at four different areas at the Site. These areas included a drum storage area, the Golden Hill Shop Yard (located within the Mill Site), and the Jewelbox and the Burnick Shops. Excavated soil stockpiles were stored on, and covered with, six mm polyethylene sheeting. The excavated soil volume was approximately 130 m^3. Due to logistics or time constraints, contamination at the four areas was not fully delineated.

Based on the results of their investigation, Access identified Special Waste levels of hydrocarbon-contaminated soil and leachable metals contaminated soil, as well as non-Special Waste hydrocarbon- and metals-contaminated soils.

A review of the analytical data collected as part of the Access investigation indicated that concentrations of Special Waste leachable lead were present where concentrations of total lead in soil exceeded approximately 3,000 mg/kg. The Special Waste regulated limit for leachable lead is 5.0 mg/L, based on *Schedule 6 – Hazardous Constituents Controlled Under Leachate Test and Regulated Limits*, under the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations by the Canadian Department of Justice.

Access proposed two disposal options for the excavated contaminated soil: an on-Site land treatment farm and final disposal in the tailings pond or elsewhere on the Site where metal concentrations would be equivalent or higher; and/or transport off-Site to a permitted landfill such as the landfill Facility in Fort Nelson, BC.

4.3.5.4 Technical Memorandum – Update on Remedial Activities - December 2012

Access provided an update to Teck on remedial activities at the Site that were completed during the months of September and October, 2012. Remediation work at the Site began in 2011 (see Section 4.5.3.2, above) at four areas of the mine site: Site 1 – Drum Storage; Site 2 – Golden Hill Shop; Site 3 – Jewelbox, and Site 4 – Burnick Shop. The scope of work that was summarized in the technical memorandum included:

- The completion of a modified Phase II ESA at the Golden Hill Shop and Jewelbox. The objective of the Phase II ESA was to determine the horizontal and vertical extent of hydrocarbon-contaminated soil at each of the Sites identified above. The modified Phase II ESA was completed between September 4 and 7, 2012; and
- The completion of a Phase III Remedial Soil Excavation at Jewelbox. The soil excavation was completed between October 9 and 11, 2012, and consisted of excavation and off-Site disposal of contaminated soil from Site 3 – Jewelbox.

Based on the results of the Phase II ESA completed by Access, the following approximate volumes of contaminated soil were estimated at each of the four sites:

- Site 1 – Drum Storage: 0.6 m^3;
- Site 2 – Golden Hill Shop: 23 m^3;
- Site 3 – Jewelbox: 513 m^3; and
- Site 4 – Burnick Shop: 172 m^3.

The soil volumes presented above are inferred to remain *in-situ* at the Site, and will require excavation as part of remediation work at the Site. The volumes are also considered "in addition to" soil that was previously characterized at the Site. Currently, approximately 469 m^3 of hydrocarbon-contaminated soil is stockpiled at the Site. Stockpiled material has not been characterized for metals contamination.

Access also submitted selected soil samples to the laboratory for analysis of total metals in soil. The analytical results from the laboratory identified concentrations of arsenic, cadmium, copper, lead, selenium, and zinc above the applicable CSR IL soil standards.

During the Phase III remedial excavation, approximately 339 m^3 of contaminated soil was excavated from Site 3. 130 m^3 of special waste material (leachable lead and petroleum hydrocarbons) was disposed of at Tervita's Northern Rockies Landfill in Fort Nelson, BC. Based on the information contained in the memorandum, hydrocarbon-contaminated soils remain *in-situ* at Jewelbox, and additional characterization and confirmatory sampling will be required to delineate existing contamination.

Based on the investigation and remediation work completed to date, approximately 709 m^3 of hydrocarbon-contaminated soil remains *in-situ* at the Site. Each of the sites investigated by Access requires additional excavation and characterization in order to meet remediation objectives for the Site. Impacted material that is currently characterized has generally been classified as special waste in terms of leachable metals and petroleum hydrocarbons.

4.4 Site Reconnaissance

A Site reconnaissance was completed by Mr. Andrew Bruemmer, of Golder, on August 20, 2012. Mr. Bruemmer was accompanied by Mr. Dave Ryder of Teck, and three members of Azimuth Consulting Group (Azimuth). Mr. Brian Currie, the on-Site caretaker, was also interviewed regarding current uses at the Site.

Photographs were taken during the reconnaissance and copies of select photographs are provided in Appendix B. Pertinent information from the Site reconnaissance is incorporated into the following sections.

4.4.1 Site Description and Property Use

The Site is currently a dormant lead-zinc mine and is accessed at the south end of the property via a gravel road. A caretaker currently resides at the Site on a full-time basis to provide on-Site security and conduct monthly and quarterly water quality monitoring.

The Site is made up of the following primary developed areas:

- The Mill Site, which includes the caretaker's residence, former laboratory, bunk trailers, storage areas, the concentrator complex, power house, crusher house and conveyors used during the mine operation (Photograph 1, Appendix B);
- Jewelbox Hill (Photograph 2, Appendix B). The Jewelbox Hill area is located in the southeastern part of the Site, and during mine operation was one of the underground portals. The Jewelbox portal has been permanently closed as part of the mine reclamation activities and associated infrastructure from the area has also been removed. Various lengths of pipe, and discarded exploration cores were observed during the reconnaissance. The Jewelbox 1408 sediment was also observed;
- The Burnick Zone (Photograph 3, Appendix B). The Burnick Zone was a second underground mining area during operation of the mine, and is located at the north end of the Site. The underground portal has been closed in this area, and infrastructure including a ventilation system, a metal shop, and a fuel storage tank have not yet been removed from the Site;
- An open pit mine area (Main Zone) located adjacent to the Jewelbox Hill area; and
- The tailings management area, located to the northwest of the Mill Site (Photograph 4, Appendix B). The tailings area is divided into three ponds: the north tailings pond, south tailings pond, and the reclaim pond.

Several areas within the claim boundary of the mine were also used when the mine was operational. These include the North Creek dike and pumping station, a borrow area and garbage dump (located east of the North Creek dike), a second pump house (located near the east end of North Creek), and a cleared storage area immediately west of the tailings ponds.

The different areas of the mine property are connected by a network of gravel roadways.

The topography at the Site is steep and the exposed surfaces generally consist of gravel fill or bedrock outcroppings. The roadways that extend into the elevated mining areas are generally on east-facing slopes.

4.4.2 Indications of Potential Contamination

During the Site reconnaissance, minor surficial staining, indicative of small leaks or drips, was noted throughout the Site, including at the Mill Site, Jewelbox Hill, Burnick Zone, and North Creek Dump area. Evidence of large or recent spills or leaks was not observed.

Vegetation that was observed on-Site did not appear to be stressed due to former mine activities.

Several storage tanks (see section 4.4.3, below) and drum storage areas were observed during the Site reconnaissance. Drums were generally in poor repair and were stored on the ground surface in several areas of the Mill Site (Photograph 5, Appendix B).

4.4.3 Storage Tanks

During the Site reconnaissance, 7 ASTs were observed, as follows:

- A 5,000 L diesel AST, located near the main access gate to the Site (Photograph 6, Appendix B). This AST is still used as part of caretaking activities at the mine property, and a piping system links the AST to a nearby fuelling station;
- A 2,000 L gasoline AST, located adjacent to the diesel AST described above. This AST is also still used as part of caretaking activities at the Site, and a piping system links the AST to a nearby fuelling station;
- A water storage tank, located in the vicinity of the active diesel and gasoline ASTs. The volume of the water storage tank was reported to be 100,000 litres, and the tank was formerly used for the fire system. Based on the information provided in the DDRP, it occupies a footprint of approximately 17 m x 3 m;
- A 10,000 L storage tank is used for drinking water, the tank is located inside the generator shack near the diesel and gasoline ASTs;
- 5,000 L waste oil AST, located to the east of the concentrator complex. The AST is currently empty;
- An empty, diesel AST on the west side of the Burnick Shop. The size of the AST was not confirmed during the Site reconnaissance, though is expected to be approximately 2,000 litres;
- An empty 1,000 L bulk storage cube was observed at the Golden Hill Shop area (Photograph 7, Appendix B); and
- A 1,000 L bulk storage cube was observed adjacent to the Mill Site shop.

In addition to the ASTs described above, several 200 L drums were observed throughout the Mill Site area of the mine property. The drums were generally empty, or contained lead balls (Photograph 8, Appendix B). It was also reported that fuel tanks were formerly located near the Jewelbox Hill shop area, though these were removed from the Site in 2011.

Based on the information provided in the DDRP, the active ASTs will be decommissioned as part of the permanent closure of the mine property.

4.4.4 Identification and Handling of Site Materials

As reported in the DDRP, the majority of reagents and industrial products used at the mine property were removed as part of reclamation activities for the Site. Those still located on-Site, including diesel and gasoline, are expected to be consumed during closure activities at the Site.

Site materials were generally stored inside the maintenance shop at the Mill Site. Several containers of chemical products used in the on-Site laboratory remain in the lab (Photograph 9, Appendix B). These containers appeared to be stored in a manner similar to during mine operation. The containers are expected to be removed from the Site as part of closure activities at the mine property. Chemical reagents that are known to have been used in the Mill Site include: zinc sulphate, xanthate, sodium cyanide, copper sulphate, sodium carbonate, sodium hydroxide, and methyl isobutyl carbinol. During the Site reconnaissance it was not confirmed whether solvents were used in at the Jewelbox and Burnick shops, though based on shop activities the potential exists.

4.4.5 Wastes

Wastes currently generated at the Site are limited to those generated by the on-Site caretaker as part of maintenance activities at the Site and are removed from the property.

During the Site reconnaissance, as solid waste dumping area was noted east of the North Creek pumping station. The waste included metal scrap, asphalt debris, wood products, and various empty drums (Photograph 10, Appendix B).

A commercial dump permit, referenced in Section 4.3.3, above, is registered to the Site for disposal of wastes at the Jewelbox and Golden Hill areas of the Site.

4.4.6 Water and Wastewater Discharges

Water and wastewater discharges at the Site are summarized as follows:

- During the operation of the mine, process water discharges were directed to the tailings management facility, via a pipeline system. Reclaim water was pumped from the reclaim pond for re-use in the mining process;
- Sanitary wastewater discharges (both current and those generated during operation of the mine) are directed to a septic field to the southeast of the concentrator complex; and
- Storm water is collected in roadside drainage ditches and directed to surface water receptors (see Section 4.4.7, below).

Domestic, non-potable water is provided to the Site via a pumping well near Camp Creek. The well is used on a seasonal basis and pumped water is stored in the water tank referenced in Section 4.4.3, above. Drinking water is trucked onto the Site for consumption.

4.4.7 Natural Environment Receptors – Wetlands and Surface Water

Several drainage features and creeks were observed during the Site reconnaissance. The topography of the mine property is such that localized surface water flow is from west to east.

Based on the observations made during the Site reconnaissance, and information reviewed in the DDRP, it was inferred that Camp Creek acts as the primary drainage point for surface water runoff from the Jewelbox and Main Zone areas. A portion of surface water runoff from Jewelbox hill may also be collected in Portal Creek. Surface water runoff from the Burnick Zone is inferred to flow in a north-easterly direction and drains into a catchment area referred to as Tributary D. North Creek also flows through the mineral claim boundary, though it does not act as a direct drainage for former mine activities.

4.4.8 Building Related Concerns

Several existing buildings remain on-Site and, based on their date of construction, it is possible that they may contain regulated building materials such as lead-containing paints, polychlorinated biphenyls (PCB's), asbestos, mercury or ozone-depleting substances. These were not confirmed during the Site Reconnaissance, but were documented as part of a Hazardous Building Materials assessment also completed by Golder, in conjunction with this report.

4.4.9 Vegetation, Herbicides and Pesticides

Vegetation was observed to be limited on Site to species that are native to the surrounding areas. Vegetation in alpine areas of the mine property, such as the Jewelbox hill was sparse, due to the nature of the climate. The observed vegetation in lower elevation areas of the Site did not appear to be stressed. No herbicides, pesticides or fertilizers were observed during the Site reconnaissance.

4.4.10 Surrounding Land Use

The Sä Dena Hes mine is located in a remote area of the Yukon Territory. With the exception of the Site access road that connects to the Robert Campbell Highway, the surrounding areas were observed to be undeveloped.

4.5 Discussion of Phase I ESA Results

Based on the results of historical information review and the Site reconnaissance, eight (8) APECs have been identified at the Site. A summary of each APEC, and associated PCOCs, is provided on Table 3, below. The locations of the APECs are shown on Figure 3.

Table 3: Summary of Areas of Potential Environmental Concern

Reference	Summary	Potential Contaminants of Concern
APEC 1 – Jewelbox Hill	A former metal shop existed at this location as part of underground mine activities. Fuel storage tanks were also located in this area.	Metals, LEPH/HEPH/PAHs[1], BTEX/VPH, VOCs
APEC 2 – Burnick Zone (1200 Portal)	A metal shop and AST are still present in this area of the mine property. The shop was used as part of underground mine activities in the Burnick Zone	Metals, LEPH/HEPH/PAHs[1], BTEX/VPH, VOCs
APEC 3 – Mill Site	Includes the main concentrator complex, former Golden Hill Shop, fuel storage tanks, and former laboratory and warehouses.	Metals, LEPH/HEPH/PAHs[1], BTEX/VPH, VOCs
APEC 4 – North Creek Garbage Dump/Borrow Area	Used as an unpermitted disposal area for various metal scraps and discarded drums.	Metals, LEPH/HEPH/PAHs[1]
APEC 5 – Boneyard	Used as a storage area and lay down areas for various metal equipment and scrap materials along the access road on the west side of the north tailings pond.	Metals
APEC 6 – Site-wide sediment ponds	Four sediment ponds were used throughout the Site: Jewelbox 1408 Portal, Main Zone Pit, Burnick 1200 Portal, and Jewelbox 1250 Portal. Based on information contained in the DDRP, the ponds are expected to contain elevated concentrations of metals.	Metals
APEC 7 – Site-wide waste rock piles	Waste rock piles were identified at the Jewelbox and Burnick Zone Portals. The waste rock was generated as part of the mining process and may contain elevated concentrations of metals.	Metals
APEC 8 – Tailings and Reclaim Ponds	Tailings generated as part of the mining process were directed to a series of ponds northeast of the Mill Site. Portions of the tailings ponds have been drained, exposing tailings sediment on the ground surface, which may contain elevated concentrations of metals.	Metals

[*1] LEPH/HEPH – Light and heavy extractable petroleum hydrocarbons

A Phase II ESA was completed to address the PCOCs identified within the APECs shown on Table 3. The scope of work Phase II ESA, including field methods, analytical results, and quality assurance procedures are presented in the following sections of this report

5.0 PHASE II ENVIRONMENTAL SITE ASSESSMENT

5.1 Objectives

The primary objective of the Phase II ESA was to assess soil and sediment quality in the APECs identified in the Phase I ESA and to provide a preliminary assessment of the horizontal and vertical extents of identified contamination.

5.2 Scope of Work

The Phase II ESA was conducted in general accordance with Canadian Standards Association Document Z769-00 *"Phase II Environmental Site Assessment"* (Reaffirmed 2008). The scope of work consisted of the following tasks:

- Developing a Site–specific Health and Safety Environment Plan (HaSEP) for undertaking investigation activities at the Site;
- Completing fifty (50) test pits throughout the mine site, to evaluate Site-wide soil quality;
- Collecting representative soil samples from each test pit and submitting selected soil samples for laboratory analysis of metals and, where applicable, light and heavy extractable petroleum hydrocarbons (LEPH/HEPH), and polycyclic aromatic hydrocarbons (PAHs);
- Using a Niton X-Ray Fluorescence (XRF) analyzer to provide field results for metals parameters;
- Reviewing existing results for surface water monitoring and waste rock characterization, and comparing the results to applicable CSR standards for the purposes of identifying contamination;
- Collecting shallow soil samples from accessible areas of the tailings, reclaim, and sediment ponds;
- Reviewing the analytical data provided by the laboratory and comparing the results to applicable standards; and
- Summarizing the findings of the investigations in a report including borehole logs, analytical data tables, figures, and recommendations for additional work at the Site, if necessary.

5.3 Regulatory Framework

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

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

5.3.1 Soil Quality Standards

The CSR provides Generic Numerical Soil Standards (Schedule 1) and Matrix Numerical Soil Standards (Schedule 2) for use in the assessment of soil quality at sites subject to investigation. The soil standards are divided into five categories based on land use and include standards for agricultural land use (AL), park land use (PL), residential land use (RL), commercial land use (CL) and industrial land use (IL). Based on conversations with Teck and Environment Yukon, Golder understands that Teck intends to maintain leases on certain areas of the mine site, therefore CSR IL soil standards are considered applicable for screening of soil results. Areas of the Site that may be returned to natural conditions following mine closure were also screened against CSR PL standards.

Schedule 2 standards are further divided into site-specific pathways for the protection of human health and the environment. The following pathways were considered applicable for soil screening purposes at the Site:

- Human Health Protection:
  - Intake of Contaminated Soil (I).
- Environmental Protection:
  - Toxicity to Soil Invertebrates and Plants (T); and
  - Groundwater Flow to Surface Water Used by Aquatic Life – Freshwater (AW - F).

5.3.2 Water Quality Standards

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

Based on the potential groundwater uses near the Site, water quality standards for the protection of freshwater aquatic life were applied at the Site.

Environment Yukon *Protocol 6: Application of Water Quality Standards* (Protocol 6) provides guidance on the application of water quality standards to groundwater or receiving water body (surface water). When water monitoring is conducted from surface water, CSR-AW standards should be divided by a factor of 10, to account for dilution effects within the groundwater aquifer. The factor of 10 has been applied in the comparison of the surface water results described in Section 5.5.8 of this report.

5.4 Field Methods

5.4.1 Approach and Rationale

The scope of the Phase II ESA was developed based on information reviewed in the DDRP for the Site, and on observations made during the Phase I ESA Site reconnaissance. Preliminary test pit locations targeted known or suspected areas of contamination and were completed to provide soil characterization throughout the APECs identified as part of the Phase I ESA. Additional test pits were selected as "step-out" locations relative to the preliminary phase of assessment; the results of which provided a preliminary delineation of confirmed areas of contamination.

Due to the hydrogeological setting at the site, and as a cost-saving measure during the Phase II ESA, a groundwater investigation was not completed at this stage of the ESA process. Instead, a review of surface water quality data that has been collected from monitoring locations throughout the Site was conducted. The results of the surface water quality review were used to evaluate the potential for groundwater contamination to discharge into surface water bodies and to determine whether or not a hydrogeological assessment is required for the Site.

5.4.2 Health and Safety

Prior to the beginning of the field investigations, Golder prepared a Site-specific Health and Safety Environment Plan (HaSEP) that incorporated the requirements of the Yukon Mines Regulations, as well as the unique Site conditions given the remote location. A detailed list of potential hazards was outlined, along with appropriate measures to mitigate the risks associated with them. A communication plan was developed and implemented throughout the field program and include daily check-in/check-out procedures and the use of satellite phones and SPOT tracking devices.

The HaSEP was submitted to Teck for review and comment, prior to mobilization to the Site.

5.4.3 Test Pitting

Test pits at the Site were completed in two phases using a Hitachi 200 excavator provided by Iyon Kechika Contracting Ltd., of Lower Post, BC.

Thirty (30) test pits were completed at the Site between August 21 and 24, 2012. Following receipt of analytical results from the initial series of test pits, twenty (20) additional test pit locations were selected to provide additional soil characterization throughout the Site. The 20 additional test pits were completed at the Site between September 28 and September 30, 2012.

Where possible, the test pits were advanced to a depth of approximately 3 m below ground surface (bgs), however, depending on the ground conditions that were encountered; certain test pits were only completed to depths of approximately 1.5 m bgs. Completed test pit logs are attached in Appendix C.

During the completion of each test pit, soil samples were collected into 125 millilitre glass jars and selected samples were submitted for laboratory analysis of metals, light and heavy extractable hydrocarbons (LEPHs/HEPHs), and polycyclic aromatic hydrocarbons (PAHs). In addition, Golder collected bulk soil samples

that were retained for XRF analysis. Soil and subsurface conditions at each test pit were logged by a field technician based on detailed observations of the excavated soil and test pit walls. The test pit locations are shown on Figure 4 and Figures 6 to 10; detailed soil descriptions and sampling information are provided in the completed test pit logs in Appendix C.

5.4.4 Soil Sampling

Soil samples submitted for laboratory analysis were collected from the test pit walls at shallow depth intervals (*i.e.,* less than 0.5 m bgs) in pre-cleaned 125 millilitre (mL) glass jars with Teflon®-lined lids supplied by the laboratory. The soil was thumb-packed and sealed in the jars to minimize the loss of volatile substances within the sample. Screening for potential hydrocarbon contamination was carried out using the dry headspace method, whereby half a 250 mL sample jar was filled with soil, covered with tin foil, shaken, and left to stand for several minutes. The headspace over the soil was then monitored for the presence of organic vapours using a photo-ionization detector (PID) containing a 10.6 electron volt (eV) ultraviolet (UV) lamp calibrated to 100 parts-per-million (ppm) isobutylene. Each sample was labelled, registered on a chain-of-custody form, and placed in a cooler with ice for transport to the laboratory.

Bulk soil samples were collected from the test pits at approximately one metre depth intervals and were retained for field analysis using the XRF analyzer. Bulk samples were stored in Ziploc© bags until analysis was completed at the conclusion of the test pitting activities.

5.4.5 XRF Analysis

Golder collected bulk soil samples at approximate one metre intervals from TP12-14 to TP12-50 and retained the samples for analysis using a Niton XRF analyzer. The results of the XRF analysis were compared against applicable CSR soil standards, as well as corresponding analytical results.

As described in Section 5.4.1, one discrete soil sample, collected at a depth of less than 0.5 m bgs, was submitted for analytical analysis at the laboratory. The results of these analyses were used to generate control pairs with the corresponding XRF results. Based on the completed analyses, 43 control pairs were developed for lead and zinc results in the test pits.

The same procedure was employed for analysis of the sediment ponds and tailings samples: 33 control pairs were generated for lead and zinc.

Scatter plots of the control pairs were generated, to create calibration curves between the XRF and laboratory results, and to evaluate the correlation between the two methods of analysis. The results of the interpretations are provided in Section 5.5.6.

5.4.6 Laboratory Analyses

ALS Environmental of Burnaby, BC performed the chemical analyses for soil samples collected during the Phase II ESA. Samples were delivered to the ALS laboratory in Whitehorse in chilled coolers with chain-of-custody forms. ALS subsequently shipped the samples via air to the Burnaby laboratory, where analysis was completed.

The laboratory methods used by ALS to complete the analyses followed accepted national and international methodologies.

Copies of the laboratory analytical reports and associated chains of custody are provided in Appendix E.

5.4.7 Quality Control and Quality Assurance

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

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

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

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

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

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

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

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

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

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

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

- A RPD less than or equal to 35%; and
- A DF less than or equal to 2.0.

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

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

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

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

5.5 Phase II ESA Results

5.5.1 Field Observations

Soil conditions observed during the test pit investigation generally consisted of fill material composed of coarse grained sand and gravel. Test pits completed within APEC 1 and APEC 2 also contained fragments of waste rock.

Native bedrock was encountered at several test pit locations on the east side of APEC 3 – Mill Site and APEC 5 – Boneyard at depths as shallow as 0.6 m bgs. A native silty-sand and silt layer was also observed at a depth of approximately 3.0 m bgs for test pits completed within APEC 4.

Hydrocarbon-impacts in the form of odors and staining were observed in test pits completed at APEC 1 and APEC 2, in addition to certain test pits within APEC 3 (those completed at the former Golden Hill Shop). Although soil samples were not submitted for laboratory analysis at these locations, field PID measurements were recorded and ranged from below the laboratory detection limit (0.1 ppm) to 745.1 ppm at TP12-27 at Jewelbox Hill.

Samples recovered from the sediment and tailings ponds generally fine grained, wet, and dark grey in color, and were characterized by a strong, metallic-like odor. Visual evidence of tailings and strong odors were not observed in the soil samples collected from the reclaim pond. The reclaim pond samples contained organic material including peat.

5.5.2 Test Pit Results

A total of sixty-four soil samples, including four field duplicates, were collected and submitted for laboratory analyses for metals. The results of the laboratory analyses were compared to the applicable CSR soil standards for industrial land use and, where applicable, CSR PL soil standards. The soil results for metals are presented in Tables 6A and 6B, at the end of this report. Test pit locations are shown on Figures 4 and 6 through 10, at the end of this report.

Several analytical results were above the applicable CSR standards, as summarized below:

- Concentrations of arsenic exceeded the applicable CSR standard of 20 mg/kg in 43 samples;
- Concentrations of lead exceeded the applicable CSR standard of 150 to 2,000 mg/kg (pH dependent) in 24 samples; and
- Zinc concentrations exceeded the applicable CSR standard of 150 to 600 mg/kg (pH dependent) in 41 samples.

Several samples also had concentrations exceeding the CSR IL standards for one or more of the following parameters: cadmium, chromium, copper, molybdenum, and selenium.

Analytical results for metals, specific to each APEC, are discussed in further detail in Section 5.6, below. Fourteen (14) soil samples, including one field duplicate, were also submitted for analysis of LEPH/HEPH, and PAHs. The results of these analyses are shown on the attached Table 7A and 7B, at the end of this report. The results for LEPH/HEPH and PAHs were below the laboratory detection limits for each of the samples that were analyzed.

5.5.3 Sediment Pond Analytical Results

Two sediment samples were collected from both the Jewelbox 1408 sediment pond (SS12-06 and SS12-07) and the Main Zone sediment pond (SS12-08 and SS12-09). Four additional sediment samples were collected up-gradient (SS12-36 and SS12-37) and down-gradient (SS12-10 and SS12-11) of the Main Zone Sediment Pond. During the Phase II ESA fieldwork, it was determined that insufficient sediment was available for sampling at both the Burnick 1200 Portal and the Jewelbox 1250 Portal.

Recovered sediment samples were submitted to the laboratory for metals analysis. The analytical results were screened against the CSR IL soil standards to evaluate closure alternatives.

The analytical results indicate that concentrations of cadmium, lead, and zinc exceeded both the CSR IL soil standards in six of the samples that were analyzed (SS12-06 to SS12-11). Concentrations of antimony, arsenic, molybdenum, selenium, and silver were above the CSR IL soil standards in one more samples that were analyzed.

SS12-36 and SS12-37 were collected upgradient of the Main Zone sediment pond and the results were used to evaluate background soil quality. Concentrations of arsenic, cadmium, lead, and zinc from sample SS12-36 were above the applicable CSR IL standards, while the concentration of zinc from sample SS12-37 was above the CSR IL standard.

The sediment results are shown on the attached Table 8, at the end of this report. Sampling locations from both the Jewelbox and Main Zone sediment ponds are shown on Figure 4.

5.5.4 Tailings Pond Analytical Results

Twenty-one (21) shallow soil samples (SS12-12 to SS12-32) were collected from the north end of the tailings pond. The samples were spaced on an approximate 50 x 50 m grid, and collected from depths ranging from 0.5 m to 1.0 m bgs.

In general, concentrations of arsenic, lead and zinc were above the CSR IL soil standards. Arsenic concentrations ranged from 19.9 mg/kg to 68.7 mg/kg; lead concentrations ranged from 2,910 mg/kg to 14,000 mg/kg; and zinc concentrations ranged from 3,750 mg/kg to 18,500 mg/kg.

Concentrations of cadmium, copper, molybdenum, and selenium were also reported above the CSR IL soil standards at one or more sample locations.

The analytical results for the tailings pond samples are shown on Table 9, at the end of this report. Sampling locations are shown on Figure 10.

5.5.5 Reclaim Pond Analytical Results

Three shallow soil samples (SS12-33 to SS12-35) were collected from accessible areas of the Reclaim Pond.

The following sample results were above the applicable CSR IL soil standards:

- The cadmium result from SS12-35 (5.20 mg/kg), was above the CSR IL standard; and
- The selenium result from SS12-34 (15.2 mg/kg) was above the CSR IL soil standard.

The analytical results for the samples are shown on Table 10 at the end of this report, and the sample locations are shown on the attached Figure 11.

5.5.6 XRF Analysis

The XRF analyzer detected concentrations of arsenic, lead, molybdenum, and zinc that were above applicable CSR IL standards. The complete, tabulated XRF results are shown on Tables 11A, 11B and 12 at the end of this report. It should be noted that XRF results for substances with pH-dependent standards were only screened as contaminated if analytical pH data was available for the associated result, or if the XRF result was above the most elevated applicable standard.

A comparison of XRF and analytical results was conducted for lead and zinc, for both soil and sediment samples. The comparison was completed for lead and zinc results only, as these two parameters were considered the primary contaminants of concern for the Site. The results of the comparison are shown on the attached Tables 13 through 16, at the end of this report.

The results of the lead and zinc comparison provided control pairs for use in the generation of calibration curves for each parameter and media type. Calibration curves were created for the results of the soil analyses as well as the sediment analyses, and coefficients of linear and rank correlation were calculated for each calibration curve. The results of the calibration curves are shown on Table 4, below, while the scatter plots that were developed to calculate the correlation coefficients are included on Figures 12 to 15, at the end of this report.

Table 4: Results of XRF Calibration Curves

Parameter	Media Type	Linear Correlation	Rank Correlation
Lead	Soil	0.42	0.63
Zinc	Soil	0.82	0.70
Lead	Sediment/Tailings	0.50	0.76
Zinc	Sediment/Tailings	0.59	0.82

As described in the BC Ministry of Environment Technical Guidance document #12-2 *Contaminated Sites Statistical Applications – Bivariate Description*, the linear correlation coefficient is used to summarize the relationship between two variables. However, one of the shortcomings of the linear correlation coefficient is that it is influenced by extreme values, or outliers (BC MoE, 2001). Therefore the rank correlation was also calculated for each data set, as the value is not as sensitive to extreme values in the overall data population.

The rank correlation assigns a rank to each value in the data set, and then calculates the traditional linear correlation, based on the assigned ranks (BC MoE, 2001). As shown on Table 4, with the exception of zinc in soil, the calculated rank correlation coefficients were generally higher than the linear correlation coefficients.

The calculated correlation coefficients are likely influenced by heterogeneity of the soil matrix that was observed during the Phase II ESA. For example, XRF results may have been influenced by pieces of waste rock or galena, while analytical samples were prepared in a confined environment, thereby reducing the likelihood of entraining larger particles in the analysis.

A correlation coefficient that approaches a value +1 usually indicates a strong correlation between a pair of variables. Based on the results shown on Table 4, a moderately strong correlation exists between the XRF and analytical data pairs and, based on the coefficients of rank correlation, the XRF results are considered reliable for identification of contamination.

5.5.7 Waste Rock Characterization

Two waste rock samples were previously collected at the Site, as part of an Environmental Baseline Update, in June 1999. One sample was collected from the Jewelbox waste rock pile (shown on Figure 6), while the second sample was collected from the Main Zone pile. The waste rock samples were analyzed for metals components. The waste rock results were screened against the CSR IL soil standards as part of Golder's Phase II ESA; the results are shown on Table 17, at the end of this report.

The results of the data screening indicate that concentrations of arsenic, cadmium, lead and zinc exceed the CSR IL soil standards.

5.5.8 Surface Water Characterization

Golder completed a review and analysis of selected surface water monitoring results as part of the Phase II ESA. The surface water samples are collected by Teck on a monthly and/or quarterly basis. Twelve samples from six locations were analysed for metals and compared to the CSR water quality standards for the protection of aquatic life. Where possible, samples were selected to represent a low flow (dry season) and high flow (wet season) sampling event. The locations that were evaluated as part of the surface water characterization included: MH-02 (North Dam seepage), MH-04 (Camp Creek), MH-07 (Reclaim Dam seepage), MH-08 (Burnick Creek), MH-22 (Burnick Portal discharge) and MH-25 (Main Zone 1380 portal). The monitoring locations are shown on Figure 4. The results of the surface water characterization can be summarized as follows:

- Concentrations of cadmium exceeded the applicable CSR water quality standard of 0.00001 to 0.00006 mg/L at six sampling locations;
- Concentrations of cobalt, selenium and zinc exceeded the applicable CSR water quality standards at one or more monitoring locations; and
- Concentrations of lead exceeded the applicable CSR water quality standard of 0.004 to 0.016 mg/L for water samples collected from Main Zone 1380 portal.

In general, the surface water quality results met the Site discharge permit limits.

Complete surface water quality results are shown on Table 18, at the end of this report.

5.5.9 Leachate Results

Golder submitted five soil samples to the laboratory for leachate analysis: TP12-26 (APEC 1), TP12-21 (APEC 2), TP12-32 and TP12-37 (APEC 3), and SS12-23 (APEC 8). In general, the samples were selected to represent worst-case leaching potential (*i.e.,* with the exception of TP12-37, the soil samples with the most elevated concentrations of lead and/or zinc were selected for analysis).

The samples were analyzed using the Synthetic Precipitation Leaching Procedure (SPLP) and results were compared against CSR water quality standards for the protection of freshwater aquatic life. The hardness of the leachate was not measured as part of the SPLP therefore, for CSR standards that vary with hardness, the lowest (most conservative) standard was used for comparison purposes.

Leachable cadmium exceeded the CSR water quality standard for cadmium in each of the samples that were analyzed. Concentrations of leachable lead, selenium and zinc exceeded standards in one or more samples.

Results for the leachate analysis are shown on Table 19.

5.5.10 QA/QC Results

5.5.10.1 Quality Assurance Review

Standard Golder field procedures were used throughout the investigation. Chain-of-custody procedures were followed during sampling events. Samples were given a unique sample control number (SCN), which was used for identification. Samples were submitted to the laboratory under chain-of-custody protocols using forms that did not identify the sampling locations, expected concentrations, or QA/QC samples, such as field duplicate samples. The samples were stored in coolers prior to submission to the analytical laboratory; appropriately completed chain-of-custody forms accompanied the submissions.

5.5.10.2 Paired Analyses

A total of 64 soils samples, including four field duplicates, were submitted for analyses resulting in a duplicate sampling rate of approximately six percent. RPD and DF values were calculated from the detected results of the paired analyses and are presented in the attached Tables 20 and 21.

RPD and DF values were calculated for a total of 21 parameters for the duplicate pairs collected at TP12-11, TP12-23, TP12-30, TP12-50, SS12-14, SS12-23 and SS12-32. The RPDs were above Golder's DQO of 35%, for five parameters: arsenic (38%), molybdenum (48%), cadmium (65%), lead (65%) and zinc (68%). RPDs that exceed internal standards may reflect "within jar" variability, which reflects the nature of the contaminant distribution. High differences encountered in soil samples may also be attributed to sample heterogeneity.

Arsenic and molybdenum results for both the parent and duplicate samples were above the applicable standards and lead and cadmium results for both parent and duplicate sample were below the applicable standards. The associated results are considered reliable.

The reliability of the zinc results for the duplicate pair at TP12-30 is less certain, as the concentration of the parent sample was above the applicable soil standard, while the duplicate result was less than the applicable standard. Based on discussions with Environment Yukon, the most elevated soil concentration should be used during interpretation, therefore soil at TP12-30 is considered contaminated. The elevated RPD is considered attributable to heterogeneity in the soil matrix.

A total of 33 sediment samples, including three field duplicates were submitted for analyses resulting in a duplicate sampling rate of approximately nine percent.

RPD and DF values were calculated for 21 parameters for the duplicate pairs collected at SS12-14, SS12-23 and SS12-32. The RPDs were within Golder's DQO of 35% in the three samples.

5.5.10.3 Laboratory Quality Control

ALS performed the chemical analyses of the soil samples collected during this investigation. ALS is certified by Canadian Association for Laboratory Accreditation (CALA) for the analytical methods used for this program. Each ALS sample analysis batch included at least one method blank, one laboratory duplicate and one reference or control sample.

The laboratory report (ALS files L1200237, L1200250, L1200258, L1200265, and L1221371) contained the analytical results for soil and sediment samples collected during the Phase II ESA. The laboratory report was reviewed by Golder and the following items were noted:

- Laboratory duplicate analysis for several samples had a RPD exceeding the laboratory limit due to sample heterogeneity; and
- The RPD was not available for several samples due to the results being below the detection limit.

The review of the laboratory QC analyses suggests the laboratory data is accurate and reproducible and can be relied upon for environmental site investigation purposes.

Copies of the laboratory analytical reports including the laboratory quality control data are provided in Appendix E.

5.6 Discussion of Phase II ESA Results

The results of the Phase II ESA have identified concentrations of metals above applicable CSR IL standards at 6 of 8 APECs identified at the Site. Lead and zinc are the primary contaminants of concern, though concentrations of arsenic, cadmium, copper, molybdenum, and selenium were also identified above applicable CSR soil standards.

Lead and zinc contamination is considered to be largely related to former mining activities at the Site, including mixing of waste rock and fill materials, dusts and industrial activities near the Mill Site, and natural mineralization of soils. Elevated concentrations of other metals parameters may also be due, in part, to natural mineralization in the area.

A discussion of each APEC with confirmed soil contamination is provided in the following sections.

5.6.1 APEC/AEC 1 – Jewelbox Hill

Eight test pits were completed at Jewelbox Hill. Analytical laboratory results confirmed shallow contamination (*i.e.*, less than 0.5 m bgs) in five test pits where samples were submitted for analysis. Laboratory samples were not submitted from TP12-39, TP12-40, and TP12-41, as this area was remediated by Access following the investigation work completed by Golder, and confirmatory samples collected were expected to provide additional delineation of the area.

Analytical results for lead were observed at concentrations as high as 23,300 mg/kg. Based on the leachate testing analyses conducted by Access, it is considered likely that contaminated soil at Jewelbox Hill exceeds the leachate limit standards for lead, as described in Section 4.3.5.2 of this report, thereby classifying the soil as Special Waste. Additional analyses would be required to confirm the soil classification.

The vertical extent of contamination was estimated using the results of the XRF analysis. XRF results identified zinc contamination at a depth of 3.3 m bgs (the practical limit of the excavator arm) and a concentration of 3,288 mg/kg at TP12-42. Given the linear and rank correlation coefficients for zinc of 0.82 and 0.70, respectively, the results are considered reliable for the purposes of contamination delineation. Lead concentrations at this location and depth were also above the CSR PL standards, however the lower correlation coefficients provide less certainty in the results.

Metals parameters that were identified above standards at Jewelbox Hill include arsenic, cadmium, chromium, copper, lead, molybdenum, selenium, and zinc. Based on the remediation work completed by Access in 2011, it is estimated that approximately 513 m^3 of petroleum hydrocarbon-contaminated soil remains *in-situ*, a portion of which is classified as special waste. The petroleum hydrocarbon-contaminated soil in this area has not been delineated.

Based on the results of SPLP testing for the soil results from TP12-26, cadmium may potentially be leaching into groundwater at concentrations higher than the CSR water quality standard. Cadmium has been retained as a potential contaminant of concern in groundwater.

Waste rock was identified in seven of the eight test pits (with the exception of TP12-39) completed at Jewelbox Hill. Based on the analytical characterization of waste rock piles, as shown in Table 17 of this report, it is inferred that waste rock present in the test pits is contributing to the elevated metals concentrations observed in recovered soil samples. It is possible that pieces of waste rock were entrained into the soil samples while completing the field investigations.

Hydrocarbon investigation and remediation work at Jewelbox Hill has been completed by Access. To date, approximately 130 m^3 of hydrocarbon-contaminated soil from Jewelbox Hill has been removed and disposed off-Site at Tervita's Northern Rockies Landfill facility. An additional 349 m^3 of contaminated soil is currently stockpiled at this AEC. The soil is inferred to be characterized as special waste for leachable lead and petroleum hydrocarbons. Additional remediation work for hydrocarbon-contaminated soil is still required at Jewelbox Hill.

Jewelbox Hill has been retained as AEC 1.

5.6.2 APEC/AEC 2 – Burnick Zone (1200 Portal)

Four test pits were completed near the 1200 Portal of the Burnick Zone. Shallow soil contamination of zinc and arsenic was confirmed by laboratory results in three of four test pits (TP12-20, TP12-21, and TP12-23). The cadmium concentration at TP12-22 was also above the CSR IL soil standard.

XRF analysis results indicate that zinc contamination is present in deeper soils at the 1200 Portal, extending to depths of up 2.7 m bgs at TP12-22. Given the steep topography along the north, east, and west sides of the Burnick shop, and machine refusal during excavation of the test pits, contamination at this AEC was not fully delineated.

Based on the results of SPLP testing for the soil results from TP12-21, cadmium may potentially be leaching into groundwater at concentrations higher than the CSR water quality standard. Cadmium has been retained as a potential contaminant of concern in groundwater.

Similarly to the test pits completed at Jewelbox Hill, waste rock was identified in the four test pits completed at the Burnick Zone. Waste rock present in the test pits is inferred to contribute to the elevated metals concentrations.

Access conducted an excavation at the Burnick shop in 2011. Based on the hydrocarbon investigation work completed to date, approximately 172 m^3 of petroleum hydrocarbon-contaminated soil is inferred to remain *in-situ* in the Burnick Zone. The contaminated material will require remediation as part of the Site closure.

The Burnick Zone (1200 Portal) has been retained as AEC 2.

5.6.3 APEC/AEC 3 – Mill Site

Twenty-eight test pits were completed throughout the Mill Site, including eight test pits at the former Golden Hill shop. Due to the presence of active underground utilities in certain areas of the Mill Site, portions of this area (*e.g.*, the active diesel gasoline ASTs, fuelling area, maintenance shop, and laboratory) were not investigated as part of the Phase II ESA. Surface soil samples were collected from these areas and analysed using the XRF. Results of the surface samples indicate elevated concentrations of metals parameters.

Analytical laboratory results identified shallow metals contamination in soil throughout the Mill Site. During the excavation of the test pits at the Mill Site, visual observations of ore and/or concentrate were not made. However, based on the nature of activities (*e.g.*, dust, trucking activities, spills) surrounding the Mill Site, it is considered likely that concentrate is present in shallow soils throughout the area, and therefore may contribute to elevated concentrations of metals observed during the Phase II ESA.

The extent of the contamination at the Mill Site has not been fully delineated horizontally, though the results of the Phase II ESA suggest that it may extend up to natural vegetation boundaries (such as the tree line on the east side of the drum storage area).

The vertical extent of contamination was assessed using the XRF analyzer. Based on the XRF results, zinc contamination was identified at depths of up 2.4 m bgs at TP12-31. The depth of contamination appears to vary throughout the Mill Site as XRF results were below the CSR IL standards at depths of 1.2 and 1.0 m bgs at TP12-29 and TP12-33, respectively. Given the relatively strong rank correlation between the XRF and analytical results for zinc, the XRF results are considered reliable for the purposes of identification of contamination.

Based on the results of SPLP testing for the soil results from TP12-32 and TP12-37, cadmium, lead, selenium, and zinc may potentially be leaching into groundwater at concentrations higher than the CSR water quality standard. These parameters been retained as a potential contaminants of concern in groundwater.

The Mill Site has been retained as AEC 3.

5.6.4 APEC 4 – North Creek Borrow Area and Garbage Dump

APEC 4 was considered an area of the Site that may be returned to a natural state following the closure of the mine, therefore CSR PL soil standards were applied to test pit results.

Six test pits were completed throughout APEC 4 (TP12-14 to TP12-19). Analytical laboratory results and XRF analysis did not identify concentrations of metals parameters above applicable CSR PL and IL soil standards. Four soil samples were also submitted to the laboratory for analysis of LEPH/HEPH/PAHs; the results of these analyses were below the laboratory detection limits.

Soil contamination has not been identified within APEC 4, and no further investigation is considered necessary in this area of the Site.

5.6.5 APEC/AEC 5 – Boneyard

The Boneyard is located on the west side of the north tailings pond; four test pits were completed within this APEC. APEC 5 was also considered an area of the Site that may be returned to a natural state following the closure of the mine, therefore CSR PL soil standards were applied to test pit results.

The analytical result for arsenic at TP12-43 was above the CSR PL and IL soil standards, at an observed concentration of 23.7 mg/kg. This concentration is only slightly above the applicable standard and may be indicative of natural background conditions. Additional assessment would be required to confirm this.

The remaining analytical and XRF results for metals did not identify concentrations of metals parameters above the applicable CSR soil standards.

The Boneyard has been retained as AEC 5, and additional investigation work would be required to delineate the extent of arsenic contamination in soil.

5.6.6 APEC/AEC 6 – Site-wide Sediment Ponds

Four sediment samples were collected from two ponds (Jewelbox 1408 and Main Zone) throughout the Site.

Concentrations of metals parameters including arsenic, cadmium, lead, molybdenum, selenium, silver, and zinc were identified above CSR IL soil standards, by laboratory results. Contamination was observed at depths of up to 1.1 m bgs at the Jewelbox 1408 sediment pond.

Upgradient sediment sample results from the Main Zone area indicate concentrations of arsenic, cadmium, and zinc above CSR IL soil standards. The results may indicate naturally elevated concentrations of these parameters, however additional background soil sampling would be required to confirm this.

XRF analysis results also identified sediment contamination at the same depths as the analytical results. Rank correlation coefficients of 0.76 and 0.82 were calculated for lead and zinc sediment control pairs; therefore, the XRF results are considered reliable for identification of sediment contamination.

The Site-wide sediment ponds have been retained as AEC 6.

5.6.7 APEC/AEC 7 – Site-wide Waste Rock Piles

Waste rock samples were not collected as part of Golder's Phase II ESA; however, historical waste rock sample results were compared against CSR IL soil standards.

Based on the limited results of the comparison, the Site-wide waste rock piles contain concentrations of metals parameters above applicable soil standards. The extent of contamination within the waste rock piles has not been delineated.

The Site-wide waste rock piles have been retained as AEC 7.

5.6.8 APEC/AEC 8 – Tailings and Reclaim Ponds

Twenty-one tailings samples were collected from the north end of the tailings pond as part of the Phase II ESA (SS12-12 to SS12-32), while three samples were collected from the reclaim pond (SS12-33 to SS12-35)

Analytical laboratory results indicate that metals contamination is present in the tailings is present at depths of up to 1.0 m bgs. The horizontal extent of contamination has not been delineated within the tailings pond.

XRF results showed a strong correlation with the analytical results, based on the calculated coefficients of rank correlation. The XRF analyzer is considered a reliable tool for identification of contamination within the tailings ponds.

One tailings sample was also analyzed for leaching potential using the SPLP. The analysis identified concentrations of leachable cadmium, lead, and zinc that were above the CSR water quality standards for protection of freshwater aquatic life. The results indicate that there is a potential for groundwater contamination in the tailings pond area.

Metals concentrations in samples collected from the reclaim pond were more than an order of magnitude lower than concentrations observed in the tailings pond and sediments in the reclaim pond were not considered characteristic of tailings. The reclaim pond sample results indicate that tailings have not migrated beyond the reclaim dam.

5.6.9 Hydrogeological Conditions

Although a groundwater investigation was not completed as part of the Phase II ESA, Golder evaluated the potential for groundwater contamination at the Site through SPLP testing and by comparing the results of surface water monitoring against CSR water quality standards.

Based on the results of the SPLP testing, cadmium, lead, selenium, and zinc have the potential to leach into underlying groundwater aquifer.

The same metals parameters, in addition to cobalt, were reported at concentrations that exceeded CSR water quality standards at surface water monitoring locations throughout the Site, which suggests that metals contamination in groundwater may also exist.

These metals parameters have been retained as potential contaminants of concern in groundwater.

5.6.10 Summary of APECs and AECs

A summary of the APECs and AECs that have been retained at the Site are summarized on Table 5, below. The AECs that have been retained at the Site are shown on Figure 5.

Table 5: Summary of Areas of Environmental Concern

APEC/AEC	Summary	Contaminants of Concern
AEC 1 – Jewelbox Hill	A former metal shop existed at this location as part of underground mine activities. Fuel storage tanks were also located in this area.	**Soil:** arsenic, cadmium, chromium, copper, lead, molybdenum, selenium, zinc, LEPH/HEPH/PAH[1], VOCs[2] **Groundwater[3]:** cadmium
AEC 2 – Burnick Zone (1200 Portal)	A metal shop and AST are still present in this area of the mine property. The shop was used as part of underground mine activities in the Burnick Zone.	**Soil:** arsenic, cadmium, zinc, LEPH/HEPH/PAHs[1], VOCs[2] **Groundwater[3]:** cadmium
AEC 3 – Mill Site	Includes the main concentrator complex, former Golden Hill Shop, fuel storage tanks, and former laboratory and warehouses.	**Soil:** arsenic, cadmium, lead, molybdenum, selenium, zinc, LEPH/HEPH/PAH[1], VOCs[2] **Groundwater[3]:** cadmium, lead, selenium, zinc
APEC 4 – North Creek Garbage Dump/Borrow Area	Used as an unpermitted disposal area for various metal scraps and discarded drums. Analytical results for soil samples indicate that concentrations of metals and hydrocarbons are below the applicable standards.	None
AEC 5 – Boneyard	Used as a storage area and lay down areas for various metal equipment and scrap materials along the access road on the west side of the north tailings pond.	**Soil**: arsenic
AEC 6 – Site-wide sediment ponds	Sediment samples were collected from the Jewelbox and Main Zone sediment ponds. The results indicate that the sediment contains elevated concentrations of several metals parameters.	**Sediment:** arsenic, cadmium, lead, selenium, silver, zinc
AEC 7 – Site-wide waste rock piles	Waste rock piles were identified at the Jewelbox and Burnick Zone Portals. The waste rock was generated as part of the mining process and existing chemistry data indicate it contains elevated concentrations of metals.	**Soil:** arsenic, cadmium, lead, zinc
AEC 8 – Tailings and Reclaim Ponds	Tailings generated as part of the mining process were directed to a series of ponds northeast of the Mill Site. Portions of the tailings ponds have been drained, exposing tailings sediment on the ground surface. The tailings contain elevated concentrations of metals.	**Soil:** arsenic, cadmium, lead, selenium, zinc **Groundwater[2]:** cadmium, lead, zinc

Notes:

1. An assessment of hydrocarbon contamination was not completed as part of Golder's Phase II ESA, though contamination has been confirmed based on previous investigations completed by Access Consulting Group.
2. VOCs remain a potential contaminant of concern in soil, as test pits were not completed in close vicinity to the Site buildings.
3. Contaminants of concern in groundwater have not been confirmed, but the potential for groundwater contamination exists based on the results of SPLP testing.

6.0 CONCLUSIONS AND RECOMMENDATIONS

A Phase I and II ESA has been completed for the Sä Dena Hes mine, in Yukon Territory. The primary objectives of the assessments were to:

- Characterize the environmental conditions of the Site;
- Develop mitigative measures to minimize potential environmental impacts at the Site (if necessary); and
- Identify and delineate contamination and contaminant sources in support of a risk assessment to define remedial objectives for the eventual, permanent closure of the mine property.

These objectives have been largely met, though full horizontal and vertical delineation of soil contamination has not yet been achieved. The results of the Phase II ESA are considered sufficient to provide an understanding of the Site conditions for the development of a risk assessment. Appropriate mitigative measures are recommended in Section 6.1, below.

Based on the results of the investigations; the following conclusions can be drawn:

- Lead and zinc contamination in shallow soil appears to be widespread throughout the Site as concentrations of these parameters were identified above the applicable CSR IL soil standards at Jewelbox Hill, Burnick Zone, the Mill Site, boneyard, sediment ponds, and tailings ponds. The contamination is considered to be the result of mining activities at the Site;
- Concentrations of arsenic, cadmium, copper, molybdenum, and selenium were also identified above applicable CSR soil standards;
- The analytical and XRF results are considered sufficient to provide a preliminary assessment of the soil quality at the Site though have not fully delineated the vertical and horizontal extent of the contamination;
- The calculated coefficients of rank correlation indicate the XRF results from the Phase II ESA can be used to characterize soil quality and provide delineation of contamination at the Site;
- SPLP results have identified the potential for leaching of cadmium, lead, selenium, and zinc from soil into groundwater at concentrations above the applicable CSR water quality standards; and
- Concentrations of cadmium, cobalt, lead, selenium, and zinc are present at concentrations above the applicable CSR water quality standards (divided by a factor of ten) at several surface water discharge points throughout the Site.

6.1 Recommendations

Elevated concentrations of several metals parameters have been identified throughout the Site, and a review of historical investigation data indicate that Special Waste levels of contaminated soil are also present. In order to develop a remedial plan for soil contamination at the Site, Golder recommends correspondence with Environment Yukon, to establish the expected and acceptable clean-up criteria for the Site for both soil and waste rock piles. Once decommissioning of active utilities has been completed, additional soil testing is recommended in the vicinity of the Mill area and structures, including the coarse ore pile and active diesel fuel tanks. The additional testing would be completed to confirm the presence of remaining PCOCs, such as VOCs near the dry laboratory, or hydrocarbon contamination near the existing storage tanks and fuelling area.

Based on the results of the leachate testing and surface water review, it is expected that a groundwater investigation will be required as part of the Site remediation. Golder recommends the development of a hydrogeological assessment plan for implementation during the 2013 field season. Given the steep topography and geology at the Site, a groundwater investigation would likely target the perimeter of areas of environmental concern, in order to monitor potential impacts in groundwater that are migrating off-Site.

Finally, Golder understands that a risk assessment is expected to guide the overall remediation of the Site, and that the results of this report are intended to support the risk assessment and update the closure plan for the Site. The development of a hydrogeological investigation and remedial action plan should be completed in close collaboration with the risk assessment team.

7.0 CLOSURE

We trust that the information presented in this report is sufficient for your immediate requirements. If you have any questions or concerns, please do not hesitate to contact us.

GOLDER ASSOCIATES LTD.

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Table 6A: Results of Soil Analysis - Metals (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Mine Area			APEC/AEC 1: Jewelbox Hill									APEC/AEC 2: Burnick Zone							
Location			TP12-24	TP12-24	TP12-25	TP12-25	TP12-26	TP12-26	TP12-27	TP12-27	TP12-42	TP12-20	TP12-20	TP12-21	TP12-21	TP12-22	TP12-22	TP12-23	TP12-23
SCN	CSR Standards for IL (AW-F)	MCS	23706-01	1221371-61	23706-02	1221371-62	23706-03	1221371-63	23706-04	1221371-64	1221371-13	23705-07	1221371-58	23705-08	1221371-59	23705-09	1221371-60	23705-10	23705-11
Depth (m bgs)			0.15 - 0.45	1.4 - 1.7	0.15 - 0.45	1.2 - 1.5	0.15 - 0.45	1.4 - 1.7	0.15 - 0.45	2.1 - 2.4	0.4 - 0.6	0.15 - 0.45	2.1 - 2.4	0.3 - 0.6	1.5 - 1.8	0.15 - 0.45	2.4 - 2.7	0.15 - 0.45	0.15 - 0.45
Date Sampled			24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	29-Sep-12	23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12
QA/QC																		FDA	FD
Physical Tests																			
Moisture (%)			10.1	-	11.5	-	9.87	-	6.44	-	-	-	-	-	-	-	-	-	-
pH (pH units)			7.90	7.20	7.90	7.49	7.45	7.42	7.39	7.88	4.85	8.64	7.75	8.46	8.61	8.86	6.88	8.43	8.27
Metals																			
Antimony (Sb)	**40**	G	4.47	31.0	14.8	14.6	12.2	13.5	2.77	15.0	2.49	8.55	3.08	6.55	8.85	2.65	3.07	3.08	3.26
Arsenic (As)	**20**	F	**44.3**	**373**	**93.9**	**125**	18.1	**27.9**	**32.7**	**130**	**22.5**	**37.4**	**28.1**	**47.2**	**21.7**	18.4	19.5	**21.6**	**31.7**
Barium (Ba)	**2000**	G	101	245	84.6	119	27.2	72.4	137	45.6	91.8	53.8	83.0	109	128	76.2	112	59.6	73.2
Beryllium (Be)	**8**	G	1.49	3.36	1.30	2.63	0.84	0.68	0.35	0.82	1.19	1.37	1.37	1.72	2.03	1.74	0.96	1.87	1.88
Cadmium (Cd)	**2 - 150**	F	7.09	**2.94**	**139**	**25.9**	**934**	**261**	24.4	0.981	**2.90**	3.77	16.1	21.2	86.9	0.491	**4.83**	10.5	10.7
Chromium (Cr)	**60 ^{VI} / 65 ^{III}**	F/V	38.6	**68.0**	32.3	32.1	3.42	7.30	5.25	10.4	34.8	23.0	27.9	23.4	26.9	41.2	24.8	41.5	37.8
Cobalt (Co)	**300**	G	18.1	10.1	22.9	20.4	55.0	18.3	5.06	7.53	15.0	12.7	12.8	21.4	20.2	20.5	10.6	20.9	20.4
Copper (Cu)	**90 - 250**	F/T/pH	77.3	**523**	195	**268**	51.7	44.4	20.0	125	49.4	29.4	35.3	22.8	18.2	30.5	20.8	21.2	20.6
Lead (Pb)	**150 - 2000**	F/T/pH	1180	178	**12700**	**2530**	**23300**	**25300**	**2260**	84.9	**495**	414	996	117	237	18.0	146	152	140
Mercury (Hg)	**150**	T	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo)	**40**	G	5.35	**98.6**	11.1	17.1	5.90	7.49	12.7	16.5	3.41	5.13	4.25	6.82	1.10	<0.50	3.77	1.17	1.21
Nickel (Ni)	**500**	G	51.9	147	51.4	71.7	16.3	21.5	22.8	30.1	40.4	35.7	35.0	46.5	30.7	37.8	28.7	38.3	39.4
Selenium (Se)	**10**	G	1.11	**10.1**	2.88	1.45	**57.2**	**15.1**	1.52	2.04	0.41	0.37	2.34	2.97	7.27	<0.20	1.52	0.54	0.74
Silver (Ag)	**40**	G	1.12	15.0	10.1	3.22	45.1	18.4	1.74	1.50	0.73	0.84	1.34	2.79	5.30	0.70	1.47	0.71	0.78
Thallium (Tl)			0.537	0.890	0.445	0.822	0.202	0.233	0.202	0.235	0.313	0.377	0.330	0.510	0.874	0.338	0.310	0.310	0.279
Tin (Sn)	**300**	G	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium (U)			2.14	24.5	3.31	4.78	5.42	3.71	3.44	1.88	1.33	1.02	2.04	3.77	1.80	0.527	1.44	0.748	0.927
Vanadium (V)			97.6	1030	145	158	10.8	21.7	14.2	23.2	84.8	30.6	66.0	30.3	24.7	35.6	67.8	46.3	48.5
Zinc (Zn)	**150 - 600**	F/T/pH	**1340**	**822**	**24100**	**4240**	**160000**	**41400**	**4360**	193	**646**	577	**3740**	**4260**	**17100**	156	**1210**	**4270**	**4020**

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 6A: Results of Soil Analysis - Metals (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Mine Area			APEC/AEC 3: Mill Site															
Location			TP12-01	TP12-02	TP12-03	TP12-04	TP12-05	TP12-06	TP12-06	TP12-07	TP12-08	TP12-08	TP12-09	TP12-09	TP12-28	TP12-29	TP12-29	TP12-30	TP12-30	TP12-30
SCN	CSR Standards for IL (AW-F)	MCS	23703-01	23703-02	23703-03	23703-04	23703-05	23703-06	23703-07	23703-09	23703-11	23704-01	23704-03	23704-04	23706-05	23706-06	1221371-65	23706-07	23706-08	1221371-66
Depth (m bgs)			0.15 - 0.45	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3	1.35 - 1.65	0.3 - 0.6	0.0 - 0.3	1.2 - 1.5	0.3 - 0.6	1.2 - 1.5	0.0 - 0.3	0.0 - 0.3	1.2 - 1.5	0.15 - 0.45	0.15 - 0.45	1.2 - 1.5
Date Sampled			22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12
QA/QC																		FDA	FD	
Physical Tests																				
Moisture (%)			6.99	6.61	9.00	11.5	15.0	14.1	13.7	10.7	15.3	14.6	9.85	11.4	9.66	10.1	-	7.12	7.11	-
pH (pH units)			8.16	8.68	8.23	5.27	6.42	7.64	6.41	6.71	6.15	4.51	7.69	7.99	7.99	7.68	8.06	8.07	8.20	7.61
Metals																				
Antimony (Sb)	**40**	G	1.53	1.35	2.21	1.19	1.30	5.72	10.4	4.12	11.4	6.89	13.6	23.0	5.34	12.0	12.5	2.67	2.31	6.81
Arsenic (As)	**20**	F	15.9	11.0	**27.3**	12.1	15.6	**34.6**	**42.0**	**25.9**	**41.1**	**39.8**	**74.7**	**147**	**33.0**	**50.0**	**56.4**	19.3	18.1	**32.6**
Barium (Ba)	**2000**	G	65.8	155	107	83.2	153	128	183	126	119	118	182	235	130	107	172	138	126	172
Beryllium (Be)	**8**	G	0.72	0.32	0.85	0.56	1.14	0.62	0.72	0.66	0.56	0.45	0.63	0.72	0.57	0.75	0.80	0.50	0.57	0.70
Cadmium (Cd)	**2 - 150**	F	0.564	1.02	0.642	0.370	0.359	18.2	**2.93**	**4.05**	**123**	**4.01**	12.8	14.9	24.5	**158**	11.9	4.09	2.09	3.98
Chromium (Cr)	**60 ^{VI} / 65 ^{III}**	F/V	32.6	16.7	26.9	31.1	39.0	24.3	25.5	24.7	19.8	34.7	19.0	18.0	19.5	21.3	26.4	19.4	19.7	25.5
Cobalt (Co)	**300**	G	21.9	7.49	16.8	11.4	19.2	10.3	10.4	11.1	13.2	11.3	11.8	14.4	10.5	19.5	14.8	9.46	8.83	9.97
Copper (Cu)	**90 - 250**	F/T/pH	27.6	25.9	25.5	17.6	18.3	65.9	48.3	41.9	69.7	51.8	57.4	135	37.3	56.9	52.8	25.4	26.0	50.6
Lead (Pb)	**150 - 2000**	F/T/pH	86.9	100	69.2	66.5	81.0	1170	88.1	379	**10900**	127	**3910**	147	**2500**	**16900**	187	270	138	199
Mercury (Hg)	**150**	T	<0.050	0.159	<0.050	<0.050	<0.050	0.416	0.051	0.242	0.165	<0.050	<0.050	0.084	<0.050	<0.050	<0.050	<0.050	<0.050	0.326
Molybdenum (Mo)	**40**	G	0.75	1.65	2.27	0.92	1.23	7.59	15.5	8.39	11.2	8.82	39.7	**80.1**	7.50	16.4	10.6	3.20	2.73	9.97
Nickel (Ni)	**500**	G	35.5	24.2	34.4	31.5	44.1	37.2	50.1	40.5	40.7	44.9	95.6	174	38.7	46.0	70.5	29.9	29.0	40.8
Selenium (Se)	**10**	G	<0.20	0.32	0.27	<0.20	<0.20	1.49	1.63	0.97	7.27	0.98	5.46	4.49	2.44	**12.8**	1.07	0.67	0.43	0.99
Silver (Ag)	**40**	G	0.11	0.22	0.20	<0.10	0.11	2.13	0.92	0.64	11.2	0.73	4.56	1.49	2.61	17.0	0.94	0.55	0.37	0.69
Thallium (Tl)			0.106	0.094	0.224	0.121	0.137	0.223	0.328	0.240	0.290	0.303	0.511	0.787	0.222	0.315	0.464	0.128	0.149	0.265
Tin (Sn)	**300**	G	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium (U)			0.336	0.454	0.598	0.454	0.697	1.85	2.10	1.25	2.20	2.42	2.41	4.06	1.65	2.14	3.23	1.05	0.908	1.74
Vanadium (V)			18.9	24.8	31.5	33.5	47.1	77.4	140	71.0	97.7	218	151	232	76.6	97.3	166	39.5	36.1	85.9
Zinc (Zn)	**150 - 600**	F/T/pH	177	367	162	**158**	192	**3780**	**400**	985	**22100**	**582**	**1660**	**1480**	**4360**	**27300**	**1700**	**696**	342	**835**

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 6A: Results of Soil Analysis - Metals (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Mine Area			APEC/AEC 3: Mill Site								APEC/AEC 3: Mill Site (Golden Hill Shop)										
Location			TP12-31	TP12-32	TP12-33	TP12-34	TP12-35	TP12-36	TP12-37	TP12-38	TP12-10	TP12-11	TP12-11	TP12-11	TP12-12	TP12-13	TP12-47	TP12-48	TP12-49	TP12-50	TP12-50
SCN	CSR Standards for IL (AW-F)	MCS	1221371-1	1221371-2	1221371-3	1221371-4	1221371-5	1221371-6	1221371-7	1221371-8	23704-06	23704-08	23704-09	23704-10	23704-11	23704-12	1221371-18	1221371-19	1221371-20	1221371-21	1221371-22
Depth (m bgs)			0.5 - 0.7	0.3 - 0.5	0.5 - 0.7	0.5 - 0.7	0.4 - 0.6	0.5 - 0.6	0.3 - 0.5	0.6 - 0.8	0.0 - 0.3	0.0 - 0.3	0.0 - 0.3	1.2 - 1.5	0.3 - 0.6	0.3 - 0.6	0.5 - 0.7	0.6 - 0.8	0.5 - 0.7	0.3 - 0.4	0.3 - 0.4
Date Sampled			28-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12
QA/QC												FDA	FD							FDA	FD
Physical Tests																					
Moisture (%)			-	-	-	-	-	-	-	-	21.0	10.7	10.2	10.8	7.08	7.59	-	-	-	-	-
pH (pH units)			7.59	7.23	8.27	8.01	8.19	6.39	7.17	7.56	7.56	7.78	7.76	7.55	8.36	8.27	8.22	8.08	8.02	7.86	7.76
Metals																					
Antimony (Sb)	40	G	4.55	13.6	1.45	12.7	5.37	8.42	1.99	4.39	4.61	8.81	7.87	1.31	2.12	2.08	1.37	1.32	1.74	2.44	2.61
Arsenic (As)	20	F	**30.9**	**33.6**	9.59	**55.8**	**67.0**	**48.5**	**334**	**26.3**	**30.4**	**78.5**	**72.3**	10.7	**38.2**	**30.5**	16.1	**29.9**	**27.6**	**26.3**	**33.0**
Barium (Ba)	2000	G	136	56.6	246	137	74.2	140	83.1	156	94.1	80.2	86.0	218	106	105	144	160	132	66.4	67.0
Beryllium (Be)	8	G	1.17	0.63	0.50	0.63	1.19	1.21	1.07	0.61	0.72	0.98	0.87	0.51	0.84	0.70	0.66	0.88	0.79	0.64	0.68
Cadmium (Cd)	2 - 150	F	2.66	**617**	0.768	19.6	3.65	**129**	2.20	10.5	**37.9**	**80.3**	**91.8**	0.671	1.31	1.09	0.695	0.997	7.98	12.9	12.4
Chromium (Cr)	60 ^{VI} / 65 ^{III}	F/V	39.2	14.0	23.4	22.8	34.0	40.2	36.0	24.1	28.4	22.6	24.2	22.1	35.5	30.5	33.9	34.9	29.5	34.3	32.2
Cobalt (Co)	300	G	14.0	36.4	8.51	10.0	32.3	33.0	20.3	10.7	14.4	17.7	19.0	9.12	17.6	14.6	13.9	14.5	13.8	13.6	13.8
Copper (Cu)	90 - 250	F/T/pH	41.1	46.1	25.4	52.1	50.2	69.6	27.3	42.9	42.7	54.1	66.6	25.6	50.4	37.5	27.9	34.7	29.2	28.4	30.7
Lead (Pb)	150 - 2000	F/T/pH	572	**34300**	22.1	**4010**	35.4	**9820**	301	1350	**4260**	**11700**	**15600**	36.8	134	88.0	36.2	65.3	345	1460	1260
Mercury (Hg)	150	T	<0.050	0.056	0.061	0.060	<0.050	0.063	<0.050	0.188	<0.050	0.071	0.060	0.073	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo)	40	G	4.89	7.82	2.00	29.4	8.30	5.66	1.29	6.25	5.19	23.9	14.6	1.67	1.27	1.98	1.18	1.32	2.74	2.92	3.24
Nickel (Ni)	500	G	42.5	26.3	31.9	63.9	80.6	65.9	33.5	37.0	35.1	161	137	30.3	35.9	33.4	36.3	36.5	34.3	34.0	35.0
Selenium (Se)	10	G	0.44	**29.2**	0.26	3.86	0.46	7.60	0.34	1.41	2.90	6.49	8.05	0.27	0.23	0.31	<0.20	0.25	0.43	1.07	1.49
Silver (Ag)	40	G	0.72	33.5	0.22	3.89	0.25	9.58	0.42	1.65	4.20	9.32	8.24	0.19	0.50	0.42	0.22	0.35	0.51	1.16	1.30
Thallium (Tl)			0.349	0.191	0.168	0.350	0.307	0.465	0.169	0.242	0.221	0.292	0.302	0.152	0.174	0.144	0.151	0.200	0.204	0.171	0.171
Tin (Sn)	300	G	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium (U)			1.16	2.01	0.890	1.86	1.01	1.00	0.740	1.30	1.54	1.84	2.00	0.664	0.525	0.657	0.603	0.600	0.855	1.06	0.922
Vanadium (V)			85.0	63.2	42.0	115	37.8	65.4	28.9	70.6	50.3	34.1	36.9	37.4	35.2	36.4	40.7	41.1	42.0	46.9	48.9
Zinc (Zn)	150 - 600	F/T/pH	**802**	**105000**	113	**3780**	**748**	**23100**	464	**2250**	**6760**	**17500**	**16400**	130	265	207	142	214	**1580**	**2740**	**2310**

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 6B: Results of Soil Analysis - Metals (PL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Mine Area					APEC 4: North Creek Garbage Dump/Borrow Area						APEC/AEC 5: Boneyard			
Location					TP12-14	TP12-15	TP12-16	TP12-17	TP12-18	TP12-19	TP12-43	TP12-44	TP12-45	TP12-46
SCN	CSR Standards for PL (AW-F)	MCS	CSR Standards for IL (AW-F)	MCS	23705-01	23705-02	23705-03	23705-04	23705-05	23705-06	1221371-14	1221371-15	1221371-16	1221371-17
Depth (m bgs)					0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.5 - 0.7	0.4 - 0.6	0.3 - 0.5	0.5 - 0.7
Date Sampled					23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12
QA/QC														
Physical Tests														
Moisture (%)					9.65	11.9	9.13	-	8.94	-	-	-	-	-
pH (pH units)					8.37	8.53	8.56	8.57	8.67	8.52	7.56	8.28	8.27	8.42
Metals														
Antimony (Sb)	**20**	G	**40**	G	2.42	2.21	1.77	2.42	2.66	2.52	3.19	2.14	2.30	1.38
Arsenic (As)	**20**	F	**20**	F	12.1	13.5	10.7	16.5	15.8	13.0	**23.7**	17.0	18.2	9.87
Barium (Ba)	**500**	G	**2000**	G	81.6	117	108	102	95.9	94.2	123	136	87.4	81.0
Beryllium (Be)	**4**	G	**8**	G	0.34	0.45	0.43	0.43	0.43	0.37	1.17	1.17	0.88	0.80
Cadmium (Cd)	**2 - 150**	F/I/pH	**2 - 150**	F	1.79	1.44	1.33	1.13	1.52	1.78	0.498	0.326	0.744	0.441
Chromium (Cr)	**60 ^{VI} / 65 ^{III}**	F/V	**60 ^{VI} / 65 ^{III}**	F/V	14.3	18.1	16.9	19.4	19.0	15.1	34.6	33.0	19.9	25.5
Cobalt (Co)	**50**	G	**300**	G	6.32	7.54	7.26	7.17	7.70	7.05	19.8	26.0	36.7	18.7
Copper (Cu)	**90 - 150**	F/T/pH	**90 - 250**	F/T/pH	16.4	16.0	19.2	24.6	22.7	21.5	38.9	39.2	32.7	28.7
Lead (Pb)	**150 - 500**	F/I/pH	**150 - 2000**	F/T/pH	39.9	31.6	23.4	34.4	43.7	68.7	46.9	32.9	32.8	30.2
Mercury (Hg)	**15**	I	**150**	T	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo)	**10**	G	**40**	G	3.71	3.15	2.62	3.72	3.73	3.60	5.00	3.61	7.41	2.44
Nickel (Ni)	**100**	G	**500**	G	24.7	26.1	25.2	27.8	28.2	25.8	45.9	50.0	45.4	37.6
Selenium (Se)	**3**	G	**10**	G	0.43	0.38	0.36	0.44	0.47	0.45	0.47	0.37	0.39	0.25
Silver (Ag)	**20**	G	**40**	G	0.40	0.32	0.24	0.37	0.29	0.32	0.30	0.16	0.14	0.11
Thallium (Tl)					0.131	0.138	0.138	0.144	0.153	0.114	0.122	0.118	0.199	0.111
Tin (Sn)	**50**	G	**300**	G	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium (U)	**16**	S			0.931	0.865	0.791	1.15	1.17	0.779	1.41	1.15	1.63	0.765
Vanadium (V)	**200**	G			30.4	33.9	32.8	42.4	38.9	31.8	45.3	34.7	19.4	28.0
Zinc (Zn)	**150 - 450**	F/T/pH	**150 - 600**	F/T/pH	360	311	216	218	218	280	207	147	153	157

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: PL (Park Land); IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 7A: Results of Soil Analysis - Petroleum Hydrocarbons (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Mine Area			APEC/AEC 3: Mill Site									
Location			TP12-06	TP12-06	TP12-07	TP12-08	TP12-09	TP12-09	TP12-28	TP12-29	TP12-30	TP12-30
SCN	CSR Standards for IL (AW-F)	MCS	23703-06	23703-07	23703-09	23703-11	23704-03	23704-04	23706-05	23706-06	23706-07	23706-08
Depth (m bgs)			0.0 - 0.3	1.35 - 1.65	0.3 - 0.6	0.0 - 0.3	0.3 - 0.6	1.2 - 1.5	0.0 - 0.3	0.0 - 0.3	0.15 - 0.45	0.15 - 0.45
Date Sampled			22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	22-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12	24-Aug-12
QA/QC											FDA	FD
Extractable Hydrocarbons												
EPH10-19	***2,000***	G	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
EPH19-32	***5,000***	G	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
LEPH	**2,000**	G	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
HEPH	**5,000**	G	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Polycyclic Aromatic Hydrocarbons												
Acenaphthene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Acenaphthylene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Anthracene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benz(a)anthracene	**10**	G	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	**10**	T	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	**10**	G	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	**10**	G	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Chrysene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	**10**	G	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluoranthene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Fluorene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	**10**	G	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
2-Methylnaphthalene			<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Naphthalene	**50**	G	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Phenanthrene	**50**	G	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Pyrene	**100**	G	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: T = Toxicity to Invertebrates and Plants; G = Generic.

FDA/FD = field duplicate available/field duplicate

EPH_{C10-19} = extractable petroleum hydrocarbons, carbon range 10-19

EPH_{C19-32} = extractable petroleum hydrocarbons, carbon range 19-32

LEPHs = light extractable petroleum hydrocarbons

HEPHs = heavy extractable petroleum hydrocarbons

The standard for $EPHc_{10-19}$ is equivalent to LEPHs, and the standard for EPH_{C19-32} is equivalent to HEPHs when no LEPHs or HEPHs analysis is undertaken and the equivalent standard is indicated by the use of italics.

Table 7B: Results of Soil Analysis - Petroleum Hydrocarbons (PL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Mine Area					APEC 4: North Creek Garbage Dump/Borrow Area			
Location					TP12-14	TP12-15	TP12-16	TP12-18
SCN	CSR Standards for PL (AW-F)	MCS	CSR Standards for IL (AW-F)	MCS	23705-01	23705-02	23705-03	23705-05
Depth (m bgs)					0.15 - 0.45	0.15 - 0.45	0.15 - 0.45	0.15 - 0.45
Date Sampled					23-Aug-12	23-Aug-12	23-Aug-12	23-Aug-12
QA/QC								
Extractable Hydrocarbons								
EPH10-19	***1,000***	G	***2,000***	G	<200	<200	<200	<200
EPH19-32	***1,000***	G	***5,000***	G	<200	<200	<200	<200
LEPH	**1,000**	G	**2,000**	G	<200	<200	<200	<200
HEPH	**1,000**	G	**5,000**	G	<200	<200	<200	<200
Polycyclic Aromatic Hydrocarbons								
Acenaphthene					<0.050	<0.050	<0.050	<0.050
Acenaphthylene					<0.050	<0.050	<0.050	<0.050
Anthracene					<0.050	<0.050	<0.050	<0.050
Benz(a)anthracene	**1**	G	**10**	G	<0.050	<0.050	<0.050	<0.050
Benzo(a)pyrene	**1**	T	**10**	T	<0.050	<0.050	<0.050	<0.050
Benzo(b)fluoranthene	**1**	G	**10**	G	<0.050	<0.050	<0.050	<0.050
Benzo(g,h,i)perylene					<0.050	<0.050	<0.050	<0.050
Benzo(k)fluoranthene	**1**	G	**10**	G	<0.050	<0.050	<0.050	<0.050
Chrysene					<0.050	<0.050	<0.050	<0.050
Dibenz(a,h)anthracene	**1**	G	**10**	G	<0.050	<0.050	<0.050	<0.050
Fluoranthene					<0.050	<0.050	<0.050	<0.050
Fluorene					<0.050	<0.050	<0.050	<0.050
Indeno(1,2,3-c,d)pyrene	**1**	G	**10**	G	<0.050	<0.050	<0.050	<0.050
2-Methylnaphthalene					<0.050	<0.050	<0.050	<0.050
Naphthalene	**5**	G	**50**	G	<0.050	<0.050	<0.050	<0.050
Phenanthrene	**5**	G	**50**	G	<0.050	<0.050	<0.050	<0.050
Pyrene	**10**	G	**100**	G	<0.050	<0.050	<0.050	<0.050

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.
Standards shown are from the Yukon Contaminated Sites Regulation (updated to September 30, 2002).

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: PL (Park Land); IL (Industrial)

MCS: most conservative standard based on applicable site-specific standards
Referenced site-specific factors include: T = Toxicity to Invertebrates and Plants; G = Generic.

FDA/FD = field duplicate available/field duplicate

EPH_{C10-19} = extractable petroleum hydrocarbons, carbon range 10-19

EPH_{C19-32} = extractable petroleum hydrocarbons, carbon range 19-32

LEPHs = light extractable petroleum hydrocarbons

HEPHs = heavy extractable petroleum hydrocarbons

The standard for $EPHc_{10-19}$ is equivalent to LEPHs, and the standard for EPH_{C19-32} is equivalent to HEPHs when no LEPHs or HEPHs analysis is undertaken and the equivalent standard is indicated by the use of italics.

Table 8: Results of Sediment Pond Analysis
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Mine Area			APEC/AEC 6: Site-Wide Sediment Ponds							
Location			SS12-06	SS12-07	SS12-08	SS12-09	SS12-10	SS12-11	SS12-36	SS12-37
SCN	CSR Standards for IL (AW-F)	MCS	1221371-23	1221371-24	1221371-25	1221371-26	1221371-27	1221371-28	1221371-56	1221371-57
Depth (m bgs)			1.0 - 1.2	0.9 - 1.1	0.7 - 0.9	0.7 - 0.9	0.2 - 0.25	0.2 - 0.25	0.2 - 0.25	0.2 - 0.25
Date Sampled			30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	1-Oct-12	1-Oct-12
QA/QC										
Physical Tests										
Moisture (%)			-	-	-	-	-	-	-	-
pH (pH units)			7.45	7.45	7.56	7.54	7.65	7.05	6.82	6.14
Metals										
Antimony (Sb)	**40**	G	14.1	10.8	19.9	39.2	29.2	19.0	3.70	1.52
Arsenic (As)	**20**	F	19.6	17.9	**44.2**	**20.0**	**82.8**	**80.3**	**23.3**	7.39
Barium (Ba)	**2000**	G	73.0	65.0	136	102	125	109	126	55.1
Beryllium (Be)	**8**	G	1.11	0.84	2.80	3.02	2.41	2.91	2.85	0.86
Cadmium (Cd)	**2 - 150**	F/pH	**386**	**320**	**145**	**450**	**220**	**82.9**	**11.6**	1.76
Chromium (Cr)	**60 ^{VI} / 65 ^{III}**	F/V	5.66	4.41	36.6	13.9	25.2	39.3	42.2	12.5
Cobalt (Co)	**300**	G	27.3	22.4	30.8	36.3	33.4	18.6	16.7	6.91
Copper (Cu)	**90 - 250**	F/T/pH	63.4	30.6	69.4	78.3	70.5	74.5	98.0	18.1
Lead (Pb)	**150 - 2000**	F/T/pH	**30300**	**24800**	**17700**	**34100**	**26600**	**7830**	1240	340
Mercury (Hg)	**150**	T	<0.050	<0.050	0.081	0.070	0.078	0.107	0.068	0.070
Molybdenum (Mo)	**40**	G	11.8	11.4	3.14	4.72	4.41	4.89	1.76	0.92
Nickel (Ni)	**500**	G	19.4	20.4	64.7	30.0	61.2	81.5	43.2	17.0
Selenium (Se)	**10**	G	**40.6**	**21.0**	4.83	**24.3**	7.66	1.59	1.06	0.32
Silver (Ag)	**40**	G	**47.7**	22.5	14.8	**55.8**	17.4	7.10	2.40	0.47
Thallium (Tl)			0.189	0.193	0.701	0.403	0.751	1.05	0.695	0.153
Tin (Sn)	**300**	G	<2.0	<2.0	<2.0	4.3	<2.0	<2.0	<2.0	<2.0
Uranium (U)			4.82	5.49	2.10	1.60	2.52	4.03	4.18	0.453
Vanadium (V)			14.4	10.3	97.6	33.2	90.9	101	66.7	14.1
Zinc (Zn)	**150 - 600**	F/T/pH	**64300**	**52200**	**29500**	**70800**	**44900**	**17000**	**2220**	**363**

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH =

FDA/FD = field duplicate available/field duplicate

Table 9: Results of Tailings Pond Analysis
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Location			APEC/AEC 8 - Tailings Pond & Reclaim Ponds													
SCN	CSR Standards for IL (AW-F)	MCS	SS12-12	SS12-13	SS12-14	SS12-14	SS12-15	SS12-16	SS12-17	SS12-18	SS12-19	SS12-20	SS12-21	SS12-22	SS12-23	SS12-23	SS12-24
			1221371-29	1221371-30	1221371-31	1221371-32	1221371-33	1221371-34	1221371-35	1221371-36	1221371-37	1221371-38	1221371-39	1221371-40	1221371-41	1221371-42	1221371-43
Depth (m bgs)			0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0	0.8 - 1.0
Date Sampled			1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12
QA/QC					FDA	FD									FDA	FD	
Physical Tests																	
Moisture (%)			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH (pH units)			8.13	8.12	8.38	8.44	7.80	8.22	7.83	7.86	7.86	8.21	8.38	8.29	8.26	8.30	8.14
Metals																	
Antimony (Sb)	**40**	G	3.93	3.88	3.10	3.06	4.99	5.35	8.94	5.00	6.78	4.91	4.67	3.80	2.91	3.25	5.12
Arsenic (As)	**20**	F	**21.7**	**30.5**	**28.5**	**23.9**	**40.0**	**28.9**	**59.0**	**30.1**	**65.0**	**38.2**	**53.1**	**47.7**	19.9	**24.1**	**43.9**
Barium (Ba)	**2000**	G	22.5	19.2	19.5	18.8	21.6	25.7	76.3	32.1	35.3	28.6	24.4	25.5	16.0	15.3	34.1
Beryllium (Be)	**8**	G	0.94	0.95	0.85	0.89	1.07	1.26	1.96	1.14	0.95	1.02	1.08	0.95	0.93	0.84	1.17
Cadmium (Cd)	**2 - 150**	F/pH	78.3	33.5	26.7	25.3	**43.7**	28.2	**46.3**	**26.2**	**58.1**	38.3	16.9	18.8	111	86.9	26.1
Chromium (Cr)	**60 ^{VI} / 65 ^{III}**	F/V	7.36	6.55	8.45	8.43	11.0	13.2	16.7	10.8	9.19	11.0	8.17	8.90	5.49	7.43	9.57
Cobalt (Co)	**300**	G	7.47	5.92	5.14	5.03	7.99	7.31	12.0	6.30	8.46	8.18	5.50	5.62	8.55	7.46	6.49
Copper (Cu)	**90 - 250**	F/T/pH	23.4	37.1	31.9	28.4	42.5	44.4	148	41.5	69.0	45.7	41.1	41.8	28.1	30.1	46.2
Lead (Pb)	**150 - 2000**	F/T/pH	**4060**	**7160**	**3540**	**3290**	**6720**	**5460**	**10700**	**4980**	**12900**	**5060**	**3490**	**2910**	**3500**	**3770**	**5770**
Mercury (Hg)	**150**	T	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo)	**40**	G	3.91	7.50	5.73	6.50	10.4	8.57	17.7	7.70	14.3	9.67	10.9	10.3	5.10	5.42	11.3
Nickel (Ni)	**500**	G	7.49	18.7	17.3	16.7	25.0	20.7	69.0	23.3	51.2	43.8	57.8	46.6	7.80	8.99	38.4
Selenium (Se)	**10**	G	1.96	2.22	2.09	2.18	3.41	2.99	5.81	2.46	7.78	3.04	1.43	1.62	5.13	3.21	2.86
Silver (Ag)	**40**	G	3.48	5.60	2.87	3.06	4.48	3.74	8.51	3.61	9.86	3.96	3.16	2.62	6.57	3.46	4.05
Thallium (Tl)			0.098	0.126	0.142	0.141	0.199	0.216	0.290	0.149	0.164	0.210	0.133	0.158	0.085	0.102	0.142
Tin (Sn)	**300**	G	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium (U)			3.10	2.98	2.91	2.83	2.47	2.64	6.84	3.57	4.16	3.31	3.56	3.37	2.90	3.01	4.42
Vanadium (V)			6.14	7.15	8.04	8.17	10.1	11.2	29.8	13.7	14.4	13.4	13.2	14.0	5.94	7.67	15.8
Zinc (Zn)	**150 - 600**	F/T/pH	**14400**	**6470**	**5400**	**4930**	**7910**	**6610**	**9980**	**5730**	**9860**	**7630**	**4070**	**3820**	**18500**	**14500**	**4920**

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 9: Results of Tailings Pond Analysis
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

			APEC/AEC 8 - Tailings & Reclaim Ponds								
Location			SS12-25	SS12-26	SS12-27	SS12-28	SS12-29	SS12-30	SS12-31	SS12-32	SS12-32
SCN			1221371-44	1221371-45	1221371-46	1221371-47	1221371-48	1221371-49	1221371-50	1221371-51	1221371-52
Depth (m bgs)			0.8 - 1.0	0.5 - 0.7	0.5 - 0.7	0.5 - 0.7	0.5 - 0.7	0.5 - 0.7	0.5 - 0.7	0.5 - 0.7	0.5 - 0.7
Date Sampled			1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12
QA/QC										FDA	FD
Physical Tests											
Moisture (%)			-	-	-	-	-	-	-	-	-
pH (pH units)			8.20	8.17	8.11	7.97	8.33	8.29	8.25	8.05	8.04
Metals											
Antimony (Sb)	**40**	G	6.57	11.6	4.79	7.64	4.48	4.95	4.10	4.81	4.68
Arsenic (As)	**20**	F	**68.7**	**48.0**	**46.7**	**35.4**	**59.4**	**22.4**	**21.0**	**51.8**	**49.5**
Barium (Ba)	**2000**	G	50.9	72.3	43.1	49.5	30.2	26.0	16.4	37.7	36.4
Beryllium (Be)	**8**	G	1.27	2.55	1.04	1.59	0.93	1.07	0.96	1.11	1.13
Cadmium (Cd)	**2 - 150**	F/pH	29.4	52.9	18.2	**37.2**	30.0	47.0	107	24.2	27.7
Chromium (Cr)	**60 ^{VI} / 65 ^{III}**	F/V	11.3	21.5	10.7	12.0	8.07	6.47	4.02	10.8	11.4
Cobalt (Co)	**300**	G	8.78	15.9	6.27	8.77	6.66	6.53	8.45	6.56	7.56
Copper (Cu)	**90 - 250**	F/T/pH	75.5	177	42.3	104	44.5	34.1	55.2	47.6	53.2
Lead (Pb)	**150 - 2000**	F/T/pH	**6850**	**14000**	**3700**	**8770**	**4840**	**7280**	**5570**	**4070**	**3860**
Mercury (Hg)	**150**	T	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo)	**40**	G	15.6	15.3	11.1	11.0	12.8	5.52	5.47	12.7	14.1
Nickel (Ni)	**500**	G	67.5	53.5	46.5	35.3	48.0	11.4	6.02	45.8	51.1
Selenium (Se)	**10**	G	3.61	**10.6**	2.16	4.83	2.67	3.06	3.91	2.67	3.25
Silver (Ag)	**40**	G	5.27	12.1	2.88	7.09	4.06	5.62	6.35	3.34	3.45
Thallium (Tl)			0.193	0.409	0.183	0.202	0.174	0.128	0.078	0.188	0.222
Tin (Sn)	**300**	G	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium (U)			4.90	5.56	4.71	4.50	4.13	2.33	2.27	4.39	4.43
Vanadium (V)			21.1	24.0	18.8	19.3	14.2	8.64	5.67	17.3	18.3
Zinc (Zn)	**150 - 600**	F/T/pH	**6150**	**11700**	**3750**	**7220**	**5590**	**8660**	**17600**	**4470**	**5040**

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 10: Results of Reclaim Pond Analysis
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Mine Area			APEC/AEC 8: Tailings/Reclaim Ponds		
Location			SS12-33	SS12-34	SS12-35
SCN	CSR Standards for IL (AW-F)	MCS	1221371-53	1221371-54	1221371-55
Depth (m bgs)			0.2 - 0.25	0.2 - 0.25	0.2 - 0.25
Date Sampled			1-Oct-12	1-Oct-12	1-Oct-12
QA/QC					
Physical Tests					
Moisture (%)			-	-	-
pH (pH units)			7.83	7.52	6.62
Metals					
Antimony (Sb)	**40**	G	1.07	1.67	2.01
Arsenic (As)	**20**	F	6.70	10.4	18.0
Barium (Ba)	**2000**	G	162	178	172
Beryllium (Be)	**8**	G	0.29	0.36	0.89
Cadmium (Cd)	**2 - 150**	F/pH	4.20	5.75	**5.20**
Chromium (Cr)	**60 ^{VI} / 65 ^{III}**	F/V	8.20	9.33	32.8
Cobalt (Co)	**300**	G	5.88	6.76	10.6
Copper (Cu)	**90 - 250**	F/T/pH	97.5	195	31.1
Lead (Pb)	**150 - 2000**	F/T/pH	251	455	153
Mercury (Hg)	**150**	T	0.052	<0.050	<0.050
Molybdenum (Mo)	**40**	G	1.30	2.42	2.09
Nickel (Ni)	**500**	G	15.6	21.0	30.1
Selenium (Se)	**10**	G	4.95	**15.2**	2.18
Silver (Ag)	**40**	G	0.38	0.56	0.53
Thallium (Tl)			0.075	0.084	0.195
Tin (Sn)	**300**	G	<2.0	<2.0	<2.0
Uranium (U)			1.63	4.50	2.08
Vanadium (V)			13.6	16.6	43.7
Zinc (Zn)	**150 - 600**	F/T/pH	462	543	353

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 11A: Results of XRF Analysis - Soil (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area			APEC/AEC 1: Jewelbox Hill														
Reading			150	151	148	149	146	147	143	144	145	244	245	246	248	223	224	225
Location	CSR Standards for IL (AW-F)	MCS	TP12-24	TP12-24	TP12-25	TP12-25	TP12-26	TP12-26	TP12-27	TP12-27	TP12-27	TP12-42	TP12-42	TP12-42	TP12-42	TP12-39	TP12-39	TP12-39
Depth (m bgs)			0.15 - 0.45	1.4 - 1.7	0.15 - 0.45	1.2 - 1.5	0.15 - 0.45	1.4 - 1.7	0.15 - 0.45	1.5 - 1.8	2.1 - 2.4	0.4-0.6	1.6-1.8	2.4-2.6	3.1-3.3	0.3-0.5	1.3-1.5	2.5-2.7
Date Sampled			25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12
QA/QC																		
Physical Tests																		
pH[1]			7.9	-	7.9	-	7.45	-	7.39	-	-	-	-	-	-	-	-	-
Metals																		
Arsenic (As)	20	F	-	235.6	-	-	-	-	-	132.9	166.8	-	-	-	-	345.8	-	-
error			-	*53.2*	-	-	-	-	-	*41.8*	*42.1*	-	-	-	-	*214.5*	-	-
Lead (Pb)	150 - 2000	F/T/pH	1486	-	3496	524.4	101500	23600	1859	99.4	76.9	556.9	5007	5748	1511	5356	1809	14500
error			*126*	-	*176*	*101.9*	*2800*	*800*	*168*	*41.7*	*38.7*	*62.2*	*258*	*243*	*113*	*281*	*125*	*500*
Molybdenum (Mo)	40	G	-	79.8	-	-	-	-	58.5	-	-	-	-	-	-	-	-	37.0
error			-	*14.6*	-	-	-	-	*16.3*	-	-	-	-	-	-	-	-	*15.4*
Zinc (Zn)	150 - 600	F/T/pH	2287	-	6607	709.4	423700	65200	3809	-	-	196.8	11800	14300	3288	13900	1993	42700
error			*220*	-	*312*	*200.8*	*7100*	*1600*	*336*	-	-	*92.0*	*500*	*500*	*225*	*600*	*189*	*1000*

Notes:
Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.
Standards shown are from the Yukon Contaminated Sites Regulation (updated to September 30, 2002).
1. pH results are based on analytical testing for corresponding soil samples.
m bgs = metres below ground surface
Land Use abbreviations: IL (Industrial)
MCS: most conservative standard based on applicable site-specific standards
Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.
FDA/FD = field duplicate available/field duplicate

Table 11A: Results of XRF Analysis - Soil (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area			APEC/AEC 1: Jewelbox Hill															
Reading			226	227	228	229	230	231	232	239	233	240	234	241	236	242	237	243
Location	CSR Standards for IL (AW-F)	MCS	TP12-39	TP12-40	TP12-40	TP12-40	TP12-40	TP12-40	TP12-41	TP12-41	TP12-41	TP12-41	TP12-41	TP12-41	TP12-41	TP12-41	TP12-41	TP12-41
Depth (m bgs)			4.2-4.4	0.3-0.5	1.5-1.7	2.6-2.8	3.5-3.7	4.3-4.5	0.4-0.6	0.4-0.6	1.4-1.6	1.4-1.6	2.3-2.5	2.3-2.5	3.2-3.4	3.2-3.4	4.2-4.4	4.2-4.4
Date Sampled			29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12
QA/QC									FDA	FD	FDA	FD	FDA	FD	FDA	FD	FDA	FD
Physical Tests																		
pH[1]			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																		
Arsenic (As)	20	F	-	-	-	-	-	-	-	-	-	-	**132.2**	**105.8**	-	**87.0**	**76.9**	**98.1**
error			-	-	-	-	-	-	-	-	-	-	*45.0*	*41.7*	-	*42.0*	*45.5*	*40.9*
Lead (Pb)	150 - 2000	F/T/pH	1888	1981	**10100**	**4258**	556.1	502.2	**4582**	**6951**	**11100**	**7253**	228.8	234.1	323.3	326.7	407.5	274.7
error			*119*	*221*	*500*	*205*	*63.6*	*64.8*	*253*	*407*	*400*	*333*	*49.6*	*47.9*	*92.6*	*50.5*	*56.5*	*48.1*
Molybdenum (Mo)	40	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11.9	-
error			-	-	-	-	-	-	-	-	-	-	-	-	-	-	*7.8*	-
Zinc (Zn)	150 - 600	F/T/pH	**920.5**	**4140**	**21900**	**8487**	367.5	324.9	**9249**	**14800**	**30600**	**17200**	198.3	251.5	-	-	-	-
error			*138.9*	*445*	*900*	*374*	*102.4*	*109.5*	*466*	*800*	*900*	*600*	*115.0*	*108.9*	-	-	-	-

Notes:
Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.
Standards shown are from the Yukon Contaminated Sites Regulation (updated to September 30, 2002).
1. pH results are based on analytical testing for corresponding soil samples.
m bgs = metres below ground surface
Land Use abbreviations: IL (Industrial)
MCS: most conservative standard based on applicable site-specific standards
Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.
FDA/FD = field duplicate available/field duplicate

Table 11A: Results of XRF Analysis - Soil (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area			APEC/AEC 2: Burnick Zone									
Reading			162	163	164	160	161	157	158	159	155	156
Location	CSR		TP12-20	TP12-20	TP12-20	TP12-21	TP12-21	TP12-22	TP12-22	TP12-22	TP12-23	TP12-23
Depth (m bgs)	Standards for	MCS	0.15 - 0.45	1.5 - 1.8	2.1 - 2.4	0.3 - 0.6	1.5 - 1.8	0.15 - 0.45	1.5 - 1.8	2.4 - 2.7	0.15 - 0.45	1.5 - 1.8
Date Sampled	IL (AW-F)		25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12
QA/QC												
Physical Tests												
pH[1]			8.64	-	-	8.46	-	8.86	-	-	8.43	-
Metals												
Arsenic (As)	**20**	F	-	-	-	-	-	-	-	-	**67.8**	-
error			-	-	-	-	-	-	-	-	*39.9*	-
Lead (Pb)	**150 - 2000**	F/T/pH	608.9	297.8	900.3	824.9	124.8	115	231.1	161.6	77.8	421.9
error			*86.1*	*47.6*	*108.5*	*127.2*	*50.1*	*51.8*	*54.1*	*41.6*	*43.7*	*61.9*
Molybdenum (Mo)	**40**	G	-	-	-	-	-	-	-	-	-	-
error			-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	**150 - 600**	F/T/pH	606.3	**2525**	**3150**	**30400**	**4780**	-	**1514**	**856.2**	-	**2152**
error			*158*	*173*	*264*	*900*	*314*	-	*181*	*133.6*	-	*185*

Notes:
Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.
Standards shown are from the Yukon Contaminated Sites Regulation (updated to September 30, 2002).
1. pH results are based on analytical testing for corresponding soil samples.
m bgs = metres below ground surface
Land Use abbreviations: IL (Industrial)
MCS: most conservative standard based on applicable site-specific standards
Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.
FDA/FD = field duplicate available/field duplicate

Table 11A: Results of XRF Analysis - Soil (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area			APEC/AEC 3: Mill Site													
Reading			142	140	141	138	139	198	199	200	202	203	204	205	206	207	208
Location	CSR Standards for IL (AW-F)	MCS	TP12-28	TP12-29	TP12-29	TP12-30	TP12-30	TP12-31	TP12-31	TP12-31	TP12-32	TP12-32	TP12-33	TP12-33	TP12-34	TP12-34	TP12-34
Depth (m bgs)			0 - 0.3	0 - 0.3	1.2 - 1.5	0.15 - 0.45	1.2 - 1.5	0.5-0.7	1.3-1.5	2.2-2.4	0.3-0.5	0.55-0.75	0.5-0.7	1.0-1.2	0.5-0.7	1.3-1.5	2.1-2.3
Date Sampled			25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	28-Sep-12	28-Sep-12	28-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12
QA/QC																	
Physical Tests																	
pH[1]			7.99	7.68	-	8.07	-	-	-	-	-	-	-	-	-	-	-
Metals																	
Arsenic (As)	20	F	-	-	74.9	-	-	-	**108.8**	**85.7**	**981.0**	-	-	-	-	**124.3**	-
error			*-*	*-*	*35.7*	*-*	*-*	*-*	*58.3*	*27.7*	*412.1*	*-*	*-*	*-*	*-*	*32.2*	*-*
Lead (Pb)	150 - 2000	F/T/pH	1151	**7991**	185	149.8	189.6	402.3	301.7	143.1	**18900**	**42100**	39.5	136.4	430.7	182.1	120.5
error			*97*	*335*	*41.8*	*39.9*	*39.5*	*43.3*	*68.2*	*31.0*	*500*	*600*	*21.3*	*37.9*	*56.8*	*34.8*	*36.6*
Molybdenum (Mo)	40	G	15.2	21.1	12.8	-	20.2	10.1	-	16.6	27.7	-	-	-	29.2	**71.2**	-
error			*9.1*	*13.9*	*8.1*	*-*	*8*	*6.1*	*-*	*6.9*	*14.6*	*-*	*-*	*-*	*8.4*	*9.2*	*-*
Zinc (Zn)	150 - 600	F/T/pH	**2532**	**16700**	269.1	-	611.6	555.1	**744.2**	**1216**	**53300**	**78100**	-	177.1	**1535**	**3594**	**938.3**
error			*196*	*600*	*102*	*-*	*109.4*	*87.9*	*171.4*	*114.0*	*1100*	*1300*	*-*	*100.4*	*145*	*175*	*131.9*

Notes:
Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.
Standards shown are from the Yukon Contaminated Sites Regulation (updated to September 30, 2002).
1. pH results are based on analytical testing for corresponding soil samples.
m bgs = metres below ground surface
Land Use abbreviations: IL (Industrial)
MCS: most conservative standard based on applicable site-specific standards
Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 11A: Results of XRF Analysis - Soil (IL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area			APEC/AEC 3: Mill Site										APEC/AEC 3 - Mill Site (Golden Hill Shop)								
Reading			209	210	211	212	214	215	217	219	220	222	254	255	256	257	259	260	261	262	263
Location	CSR Standards for IL (AW-F)	MCS	TP12-35	TP12-35	TP12-35	TP12-36	TP12-37	TP12-37	TP12-38	TP12-38	TP12-38	TP12-38	TP12-47	TP12-47	TP12-47	TP12-47	TP12-48	TP12-48	TP12-49	TP12-50	TP12-50
Depth (m bgs)			0.4-0.6	1.1-1.3	1.5-1.7	0.5-0.6	0.3-0.5	0.6-0.8	0.6-0.8	1.4-1.6	2.3-2.5	3.2-3.4	0.5-0.7	1.4-1.6	2.5-2.7	2.6-2.8	0.6-0.8	1.3-1.5	0.5-0.7	0.3-0.4	0.3-0.4
Date Sampled			29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12
QA/QC																				FDA	FD
Physical Tests																					
pH[1]			-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Metals																					
Arsenic (As)	20	F	**270.4**	-	-	-	**195.4**	**81.3**	-	-	-	-	-	-	-	**61.7**	-	-	-	-	-
error			*154.8*	-	-	-	*44.9*	*35.9*	-	-	-	-	-	-	-	*36.5*	-	-	-	-	-
Lead (Pb)	150 - 2000	F/T/pH	**5828**	144.7	1685	**11600**	258.6	138.8	**2216**	744.6	139.7	93.9	79.8	250.7	679.3	77.7	382.9	181.6	380.9	215.8	185.1
error			*205*	*44.2*	*144*	*400*	*46.7*	*40.0*	*156*	*90.5*	*34.6*	*42.7*	*34.6*	*54.7*	*91.6*	*40.3*	*81.2*	*63.1*	*58.7*	*48.4*	*65.1*
Molybdenum (Mo)	40	G	12.8	-	21.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
error			*8.3*	-	*11.5*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (Zn)	150 - 600	F/T/pH	**4441**	493.7	**1379**	**27100**	-	-	**2684**	**1273**	-	-	-	-	**825.6**	-	**660.7**	-	**694.2**	-	-
error			*238*	*133.4*	*195*	*700*	-	-	*235*	*172*	-	-	-	-	*163.3*	-	*178.1*	-	*129.7*	-	-

Notes:
Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.
Standards shown are from the Yukon Contaminated Sites Regulation (updated to September 30, 2002).
1. pH results are based on analytical testing for corresponding soil samples.
m bgs = metres below ground surface
Land Use abbreviations: IL (Industrial)
MCS: most conservative standard based on applicable site-specific standards
Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.
FDA/FD = field duplicate available/field duplicate

Table 11B: Results of XRF Analysis - Soil (PL Standards)
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area					APEC/AEC 4: North Creek Garbage Dump/Burrow Area																APEC/AEC 5: Boneyard				
Reading					183	184	185	180	181	182	177	178	179	173	174	175	176	171	172	168	169	170	249	250	251	252	253
Location	CSR Standards for PL (AW-F)	MCS	CSR Standards for IL (AW-F)	MCS	TP12-14	TP12-14	TP12-14	TP12-15	TP12-15	TP12-15	TP12-16	TP12-16	TP12-16	TP12-17	TP12-17	TP12-17	TP12-17	TP12-18	TP12-18	TP12-19	TP12-19	TP12-19	TP12-43	TP12-43	TP12-44	TP12-45	TP12-46
Depth (m bgs)					0.15 - 0.45	0.9 - 1.2	1.5 - 1.8	0.15 - 0.45	1.2 - 1.5	2.1 - 2.4	0.15 - 0.45	1.2 - 1.5	2.7 - 3.0	0.15 - 0.45	1.2 - 1.5	2.4 - 2.7	2.7 - 3.0	0.15 - 0.45	1.2 - 1.5	0.15 - 0.45	1.2 - 1.5	2.4 - 2.7	0.5-0.7	1.1-1.3	0.4-0.6	0.3-0.5	0.5-0.7
Date Sampled					25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12	29-Sep-12
QA/QC																										
Physical Tests																										
pH[1]					8.37	-	-	8.53	-	-	8.56	-	-	8.57	-	-	-	8.67	-	8.52	-	-					
Metals																										
Arsenic (As)	20	F	20	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
error					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Lead (Pb)	150 - 500	F/I/pH	150 - 2000	F/T/pH	55.1	-	66	58.5	59.9	58.2	64.3	65.9	-	56.8	69.5	83.5	60.9	86.3	85.5	202.8	-	57.7	58.6	-	-	96.7	-
error					*29*	-	*28.8*	*31*	*33.6*	*33*	*30.4*	*31.5*	-	*29.8*	*34.7*	*43.5*	*28.7*	*32*	*33.9*	*42.7*	-	*30.8*	33.0			49.6	
Molybdenum (Mo)	10	G	40	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
error					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-					
Zinc (Zn)	150 - 450	F/T/pH	150 - 600	F/T/pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	280.8	-	-	-	-	-	-	-
error					-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	*100.8*	-	-					

Notes:
Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

1. pH results are based on analytical testing for corresponding soil samples.
m bgs = metres below ground surface; SCN = sample control number
Land Use abbreviations: PL (Park Land); IL (Industrial)

MCS: most conservative standard based on applicable site-specific standards
Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 12: Results of XRF Analysis - Sediment/Tailings
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area			APEC/AEC 3: Mill Site					APEC/AEC 6: Site-wide Sediment Ponds					
Reading			189	190	191	192	193	265	267	268	269	271	272
Location	CSR Standards for IL (AW-F)	MCS	SS12-01	SS12-02	SS12-03	SS12-04	SS12-05	SS12-06	SS12-07	SS12-08	SS12-09	SS12-10	SS12-11
Depth (ft bgs)			0 - 0.1	0 - 0.15	0 - 0.1	0 - 0.33	0 - 0.13	1.0-1.2	0.9-1.1	0.8-1.0	0.8-1.0	0.2-0.3	0.2-0.3
Date Sampled			25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	25-Aug-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12	30-Sep-12
QA/QC													
Metals													
Arsenic (As)	**20**	F	-	-	-	-	-	-	-	-	-	-	-
error			-	-	-	-	-						
Lead (Pb)	**150 - 2000**	F/T/pH	**24300**	**12800**	1058	**3133**	566.6	**67400**	**272500**	**11700**	**172500**	**30900**	**6375**
error			*600*	*400*	*107*	*172*	*73*	1400	5700	400	3200	800	263
Molybdenum (Mo)	**40**	G	-	-	-	-	-	33.6	-	-	-	-	-
error			-	-	-	-	-	21.0					
Zinc (Zn)	**150 - 600**	F/T/pH	**24300**	**13700**	**1622**	**2528**	499	**153100**	**474600**	**25100**	**255700**	**55100**	**16900**
error			*800*	*500*	*192*	*216*	*124.9*	2600	9200	600	4900	1300	500

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life;
G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 12: Results of XRF Analysis - Sediment/Tailings
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area			APEC/AEC 8: Tailings & Reclaim Ponds										
Reading			273	274	275	276	278	280	281	282	283	284	285
Location	CSR Standards for IL (AW-F)	MCS	SS12-12	SS12-13	SS12-14	SS12-14	SS12-15	SS12-16	SS12-17	SS12-18	SS12-19	SS12-20	SS12-21
Depth (ft bgs)			0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0
Date Sampled			1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12
QA/QC					FDA	FD							
Metals													
Arsenic (As)	20	F	-	-	-	-	-	-	-	-	-	-	-
error													
Lead (Pb)	150 - 2000	F/T/pH	**5606**	**3963**	**2346**	**3071**	**4285**	**9212**	**8508**	**5191**	**8690**	**4246**	**3785**
error			394	278	207	276	244	366	336	247	342	254	227
Molybdenum (Mo)	40	G	-	-	-	-	-	-	-	-	-	-	-
error													
Zinc (Zn)	150 - 600	F/T/pH	**41000**	**7049**	**6125**	**8961**	**8937**	**11200**	**12300**	**7571**	**9394**	**9615**	**5133**
error			1300	489	442	615	456	500	500	389	459	495	354

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life;
G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 12: Results of XRF Analysis - Sediment/Tailings
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Mine Area			APEC/AEC 8: Tailings & Reclaim Ponds														
Reading			287	288	289	290	291	294	296	297	298	299	300	301	302	303	304	305
Location	CSR Standards for IL (AW-F)	MCS	SS12-22	SS12-23	SS12-23	SS12-24	SS12-25	SS12-26	SS12-27	SS12-28	SS12-29	SS12-30	SS12-31	SS12-32	SS12-32	SS12-33	SS12-34	SS12-35
Depth (ft bgs)			0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.8-1.0	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.5-0.7	0.2-0.25	0.2-0.25	0.2-0.25
Date Sampled			1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12	1-Oct-12
QA/QC				FDA	FD									FDA	FD			
Metals																		
Arsenic (As)	20	F	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
error																		
Lead (Pb)	150 - 2000	F/T/pH	**3408**	**2962**	**3359**	**5046**	**8628**	**8594**	**5316**	**6977**	**2947**	**9822**	**4500**	1935	**3244**	59.1	81.1	91.0
error			217	197	220	266	343	321	258	284	204	495	294	149	207	14.8	14.6	27.5
Molybdenum (Mo)	40	G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
error																		
Zinc (Zn)	150 - 600	F/T/pH	**6222**	**27200**	**43700**	**6804**	**10900**	**10200**	**6334**	**7399**	**5419**	**18200**	**11700**	**4682**	**5524**	-	-	-
error			388	700	1000	405	500	400	372	382	367	900	600	307	358			

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life;
G = Generic; S = Schedule 10; pH = standard is pH dependent.

FDA/FD = field duplicate available/field duplicate

Table 13: Comparison of XRF and Analytical Results
Lead in Soil Samples - Preliminary Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Location	Depth (m bgs)	XRF Results			Analytical Result (mg/kg)	RPD[2]	Analytical Result Within XRF Error Range?
		Concentration (mg/kg)	Error (ppm)	% Error[1]			
TP12-14	0.15 – 0.45	55.1	29	53%	39.9	32%	Yes
TP12-15	0.15 – 0.45	58.5	31	53%	31.6	60%	Yes
TP12-16	0.15 – 0.45	64.3	30.4	47%	23.4	93%	No
TP12-17	0.15 – 0.45	56.8	29.8	52%	34.4	49%	Yes
TP12-18	0.15 – 0.45	86.3	32	37%	43.7	66%	No
TP12-19	0.15 – 0.45	202.8	42.7	21%	68.7	99%	No
TP12-20	0.15 – 0.45	608.9	86.1	14%	414	38%	No
TP12-20	2.1 - 2.4	900.3	108.5	12%	996	10%	Yes
TP12-21	0.3 – 0.6	824.9	127.2	15%	117	150%	No
TP12-21	1.5 - 1.8	124.8	50.1	40%	237	62%	No
TP12-22	0.15 – 0.45	115	51.8	45%	18	146%	No
TP12-22	2.4 - 2.7	161.6	41.6	26%	146	10%	Yes
TP12-23	0.15 – 0.45	77.8	43.7	56%	152	65%	No
TP12-24	0.15 – 0.45	1486	126	8%	1180	23%	No
TP12-24	1.4 - 1.7	ND	NA	NA	178	-	NA
TP12-25	0.15 – 0.45	3496	176	5%	12700	114%	No
TP12-25	1.2 - 1.5	524.4	101.9	19%	2530	131%	No
TP12-26	0.15 – 0.45	101500	2800	3%	23300	125%	No
TP12-26	1.4 - 1.7	23600	800	3%	25300	7%	No
TP12-27	0.15 – 0.45	1859	168	9%	2260	19%	No
TP12-27	2.1 - 2.4	76.9	38.7	50%	84.9	10%	Yes
TP12-28	0.0 – 0.3	1151	97	8%	2500	74%	No
TP12-29	0.0 – 0.3	7991	335	4%	16900	72%	No
TP12-29	1.2 - 1.5	185	41.8	23%	187	1%	Yes
TP12-30	0.15 – 0.45	149.8	39.9	27%	270	57%	No
TP12-30	1.2 - 1.5	189.6	39.5	21%	199	5%	Yes
TP12-31	0.5-0.7	402.3	43.3	11%	572	35%	No
TP12-32	0.3-0.5	18900	500	3%	34300	58%	No
TP12-33	0.3-0.5	39.5	21.3	54%	22.1	56%	Yes
TP12-34	0.3-0.5	430.7	56.8	13%	4010	161%	No
TP12-35	0.4-0.6	5828	205	4%	35.4	198%	No
TP12-36	0.4-0.6	11600	400	3%	9820	17%	No
TP12-37	0.3-0.5	258.6	46.7	18%	301	15%	Yes
TP12-38	0.5-0.7	2216	156	7%	1350	49%	No
TP12-42	0.4-0.6	556.9	62.2	11%	495	12%	Yes
TP12-43	0.3-0.5	58.6	33.0	56%	46.9	22%	Yes
TP12-44	0.4-0.6	ND	NA	NA	32.9	-	NA
TP12-45	0.3-0.5	96.7	49.6	51%	32.8	99%	No
TP12-46	0.4-0.6	ND	NA	NA	30.2	-	NA
TP12-47	0.3-0.5	79.8	34.6	43%	36.2	75%	No
TP12-48	0.6-0.8	382.9	81.2	21%	65.3	142%	No
TP12-49	0.5-0.7	380.9	58.7	15%	345	10%	Yes
TP12-50	0.3-0.4	215.8	48.4	22%	1460	148%	No

Notes:

1. % error is reported as the XRF error divided by the associated XRF concentration.

2. RPD = relative percent difference between the XRF concentration and the associated analytical result.

ND = Not detected by XRF analyzer; NA = not applicable

Table 14: Comparison of XRF and Analytical Results
Zinc in Soil Samples - Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Location	Depth (m bgs)	XRF Results			Analytical Result (mg/kg)	RPD[2]	Result Within XRF Error Range?
		Concentration (mg/kg)	Error (ppm)	% Error[1]			
TP12-14	0.15 – 0.45	ND	NA	NA	360	-	NA
TP12-15	0.15 – 0.45	ND	NA	NA	311	-	NA
TP12-16	0.15 – 0.45	ND	NA	NA	216	-	NA
TP12-17	0.15 – 0.45	ND	NA	NA	218	-	NA
TP12-18	0.15 – 0.45	ND	NA	NA	218	-	NA
TP12-19	0.15 – 0.45	280.8	100.8	36%	280	0%	Yes
TP12-20	0.15 – 0.45	606.3	158	26%	577	5%	Yes
TP12-20	2.1 - 2.4	3150	264	8%	3740	17%	No
TP12-21	0.3 – 0.6	30400	900	3%	4260	151%	No
TP12-21	1.5 - 1.8	4780	314	7%	17100	113%	No
TP12-22	0.15 – 0.45	ND	NA	NA	156	-	NA
TP12-22	2.4 - 2.7	856.2	133.6	16%	1210	34%	No
TP12-23	0.15 – 0.45	ND	NA	NA	4270	-	NA
TP12-24	0.15 – 0.45	2287	220	10%	1340	52%	No
TP12-24	1.4 - 1.7	ND	NA	NA	822	-	No
TP12-25	0.15 – 0.45	6607	312	5%	24100	114%	No
TP12-25	1.2 - 1.5	709.4	200.8	28%	4240	143%	No
TP12-26	0.15 – 0.45	423700	7100	2%	160000	90%	No
TP12-26	1.4 - 1.7	65200	1600	2%	41400	45%	No
TP12-27	0.15 – 0.45	3809	336	9%	4360	13%	No
TP12-27	2.1 - 2.4	ND	NA	NA	193	-	No
TP12-28	0.0 – 0.3	2532	196	8%	4360	53%	No
TP12-29	0.0 – 0.3	16700	600	4%	27300	48%	No
TP12-29	1.2 - 1.5	269.1	102	38%	1700	145%	No
TP12-30	0.15 – 0.45	ND	NA	NA	696	-	NA
TP12-30	1.2 - 1.5	611.6	109.4	18%	835	31%	No
TP12-31	0.5 - 0.7	555.1	87.9	16%	802	36%	No
TP12-32	0.55 - 0.75	78100	1300	2%	105000	29%	NA
TP12-33	0.5 - 0.7	ND	NA	NA	113	-	NA
TP12-34	0.5 - 0.7	1535	145	9%	3780	84%	No
TP12-35	0.4 - 0.6	4441	238	5%	748	142%	No
TP12-36	0.5 - 0.6	27100	700	3%	23100	16%	No
TP12-37	0.5 - 0.7	ND	NA	NA	464	-	NA
TP12-38	0.6 - 0.8	2684	235	9%	2250	18%	No
TP12-42	0.4 - 0.6	196.8	92.0	47%	646	107%	No
TP12-43	0.5 - 0.7	ND	NA	NA	207	-	NA
TP12-44	0.4 - 0.6	ND	NA	NA	147	-	NA
TP12-45	0.3 - 0.5	ND	NA	NA	153	-	NA
TP12-46	0.5 - 0.7	ND	NA	NA	157	-	NA
TP12-47	0.5 - 0.7	ND	NA	NA	142	-	NA
TP12-48	0.6 - 0.8	660.7	178.1	27%	214	102%	No
TP12-49	0.5 - 0.7	694.2	129.7	19%	1580	78%	No
TP12-50	0.3 - 0.4	ND	NA	NA	2740	-	NA

Notes:
1. % error is reported as the XRF error divided by the associated XRF concentration.
2. RPD = relative percent difference between the XRF concentration and the associated analytical result.
ND = Not detected by XRF analyzer; NA = not applicable

Table 15: Comparison of XRF and Analytical Results
Lead in Sediment Samples - Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Location	Depth (m bgs)	XRF Results			Analytical Result (mg/kg)	RPD[2]	Analytical Result Within XRF Error Range?
		Concentration (mg/kg)	Error (ppm)	% Error[1]			
SS12-06	1.0-1.2	67400	1400	2%	30300	76%	No
SS12-07	0.9-1.1	272500	5700	2%	24800	167%	No
SS12-08	0.8-1.0	11700	400	3%	17700	41%	No
SS12-09	0.8-1.0	172500	3200	2%	34100	134%	No
SS12-10	0.2-0.3	30900	800	3%	26600	15%	No
SS12-11	0.2-0.3	6375	263	4%	7830	20%	No
SS12-12	0.8-1.0	5606	394	7%	4060	32%	No
SS12-13	0.8-1.0	3963	278	7%	7160	57%	No
SS12-14	0.8-1.0	2346	207	9%	3540	41%	No
SS12-14	0.8-1.0	3071	276	9%	3290	7%	Yes
SS12-15	0.8-1.0	4285	244	6%	6720	44%	No
SS12-16	0.8-1.0	9212	366	4%	5460	51%	No
SS12-17	0.8-1.0	8508	336	4%	10700	23%	No
SS12-18	0.8-1.0	5191	247	5%	4980	4%	Yes
SS12-19	0.8-1.0	8690	342	4%	12900	39%	No
SS12-20	0.8-1.0	4246	254	6%	5060	17%	No
SS12-21	0.8-1.0	3785	227	6%	3490	8%	No
SS12-22	0.8-1.0	3408	217	6%	2910	16%	No
SS12-23	0.8-1.0	2962	197	7%	3500	17%	No
SS12-23	0.8-1.0	3359	220	7%	3770	12%	No
SS12-24	0.8-1.0	5046	266	5%	5770	13%	No
SS12-25	0.8-1.0	8628	343	4%	6850	23%	No
SS12-26	0.5-0.7	8594	321	4%	14000	48%	No
SS12-27	0.5-0.7	5316	258	5%	3700	36%	No
SS12-28	0.5-0.7	6977	284	4%	8770	23%	No
SS12-29	0.5-0.7	2947	204	7%	4840	49%	No
SS12-30	0.5-0.7	9822	495	5%	7280	30%	No
SS12-31	0.5-0.7	4500	294	7%	5570	21%	No
SS12-32	0.5-0.7	1935	149	8%	4070	71%	No
SS12-32	0.5-0.7	3244	207	6%	3860	17%	No
SS12-33	0.2-0.3	59.1	14.8	25%	251	124%	No
SS12-34	0.2-0.3	81.1	14.6	18%	455	139%	No
SS12-35	0.2-0.3	91.0	27.5	30%	153	51%	No

Notes:

1. % error is reported as the XRF error divided by the associated XRF concentration.
2. RPD = relative percent difference between the XRF concentration and the associated analytical result.

Table 16: Comparison of XRF and Analytical Results
Zinc in Sediment Samples - Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

Location	Depth (m bgs)	XRF Results			Analytical Result (mg/kg)	RPD[2]	Analytical Result Within XRF Error Range?
		Concentration (mg/kg)	Error (ppm)	% Error[1]			
SS12-06	1.0-1.2	153100	2600	2%	64300	82%	No
SS12-07	0.9-1.1	474600	9200	2%	52200	160%	No
SS12-08	0.8-1.0	25100	600	2%	29500	16%	No
SS12-09	0.8-1.0	255700	4900	2%	70800	113%	No
SS12-10	0.2-0.3	55100	1300	2%	44900	20%	No
SS12-11	0.2-0.3	16900	500	3%	17000	1%	No
SS12-12	0.8-1.0	41000	1300	3%	14400	96%	No
SS12-13	0.8-1.0	7049	489	7%	6470	9%	No
SS12-14	0.8-1.0	6125	442	7%	5400	13%	No
SS12-14	0.8-1.0	8961	615	7%	4930	58%	Yes
SS12-15	0.8-1.0	8937	456	5%	7910	12%	No
SS12-16	0.8-1.0	11200	500	4%	6610	52%	No
SS12-17	0.8-1.0	12300	500	4%	9980	21%	No
SS12-18	0.8-1.0	7571	389	5%	5730	28%	Yes
SS12-19	0.8-1.0	9394	459	5%	9860	5%	No
SS12-20	0.8-1.0	9615	495	5%	7630	23%	No
SS12-21	0.8-1.0	5133	354	7%	4070	23%	No
SS12-22	0.8-1.0	6222	388	6%	3820	48%	No
SS12-23	0.8-1.0	27200	700	3%	18500	38%	No
SS12-23	0.8-1.0	43700	1000	2%	14500	100%	No
SS12-24	0.8-1.0	6804	405	6%	4920	32%	No
SS12-25	0.8-1.0	10900	500	5%	6150	56%	No
SS12-26	0.5-0.7	10200	400	4%	11700	14%	No
SS12-27	0.5-0.7	6334	372	6%	3750	51%	No
SS12-28	0.5-0.7	7399	382	5%	7220	2%	No
SS12-29	0.5-0.7	5419	367	7%	5590	3%	No
SS12-30	0.5-0.7	18200	900	5%	8660	71%	No
SS12-31	0.5-0.7	11700	600	5%	17600	40%	No
SS12-32	0.5-0.7	4682	307	7%	4470	5%	No
SS12-32	0.5-0.7	5524	358	6%	5040	9%	No
SS12-33	0.2-0.3	ND	NA	NA	462	-	NA
SS12-34	0.2-0.3	ND	NA	NA	543	-	NA
SS12-35	0.2-0.3	ND	NA	NA	353	-	NA

Notes:

1. % error is reported as the XRF error divided by the associated XRF concentration.

2. RPD = relative percent difference between the XRF concentration and the associated analytical result.

Table 17: Results of Waste Rock Analysis - Metals
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Location			Main Zone 1250	Jewel Box Zone 1408
SCN	CSR Standards for IL (AW-F)	MCS	1CC005.05.SD001	1CC005.05.SD004
Depth (m bgs)				
Date Sampled			Jun-99	Jun-99
QA/QC				
Physical Tests				
pH (pH units			7.6	7.9
Metals				
Antimony (Sb)	**40**	G	20	15
Arsenic (As)	**20**	F	**177**	<2
Cadmium (Cd)	**2 - 150**	F/I/pH	8.1	**161.7**
Cobalt (Co)	**300**	G	9	18
Copper (Cu)	**90 - 250**	F/T/pH	190	34
Gold (Au)			2	<2
Iron (Fe) (%)			4.11	4.74
Lead (Pb)	**150 - 2000**	F/T/pH	1612	**36176**
Manganese (Mn)			395	3910
Nickel (Ni)	**500**	G	95	41
Silver (Ag)	**40**	G	4.3	18.1
Strontium (Sr)			121	16
Thorium (Th)			14	<2
Uranium (U)			43	<8
Zinc (Zn)	**150 - 600**	F/T/pH	**1294**	**25026**

Notes:

Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.

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

m bgs = metres below ground surface; SCN = sample control number

Land Use abbreviations: PL (Park Land); IL (Industrial)

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

Referenced site-specific factors include: I = Intake of Contaminated Soil; T = Toxicity to Invertebrates and Plants; AW = Groundwater Flow to Surface Water used by Aquatic Life, F = Fresh Water Aquatic Life; G = Generic; S = Schedule 10; pH = standard is pH dependent.

Table 18: Results of Surface Water Analysis
Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

SCN			MH-02	MH-02	MH-04	MH-04	MH-07	MH-07	MH-08	MH-08	MH-22	MH-22	MH-25	MH-25
Location			North Dam Seepage	North Dam Seepage	Camp Creek	Camp Creek	Reclaim Dam Seepage	Reclaim Dam Seepage	Burnick Creek	Burnick Creek	Burnick Portal Discharge	Burnick Portal Discharge	Main Zone 1380 Portal	Main Zone 1380 Portal
Date	Aquatic Life CSR-AW (freshwater)[1, 2]	Notes	21-Mar-12	19-Jun-12	21-Mar-12	16-Jul-12	9-Jan-12	20-Jul-12	21-Mar-12	20-Jul-12	8-Oct-11	20-Jul-12	18-Jul-11	20-Jul-12
Parameters														
Alkalinity ($CaCO_3$)			361	210	153	138	256	222	153	134	100	96.5	31	31.7
Conductivitiy (uS/cm)			1000	709	316	278	492	431	302	262	280	260	473	485
Hardness			481	389	162	155	243	225	160	132	135	122	178	183
pH (laboratory)			7.89	8.26	8.28	7.71	8.23	8.34	8.27	8.13	8.09	8.09	7.43	7.29
Metals														
aluminum			361	210	0.05	0.041	0.011	0.015	0.015	0.06	0.004	0.024	0.121	0.511
antimony	**0.02**		<0.0005	<0.00050	<0.0005	<0.00050	<0.0005	<0.00050	<0.0005	<0.00050	0.0032	0.00281	<0.0005	0.001
arsenic	**0.005**		0.0012	0.00112	0.0006	<0.00040	<0.0004	<0.00040	0.0013	0.00135	0.004	0.00408	0.0004	0.00148
barium	**1**		0.106	0.0694	0.025	0.0188	0.066	0.0605	0.086	0.0496	0.015	0.0151	0.012	0.0164
beryllium	**0.0053**		<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0002	<0.00020	<0.0001	<0.00020	<0.0001	<0.00020
bismuth			<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010
boron	**5**		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.05	<0.1	<0.05	<0.1
cadmium	**0.00001 - 0.00006**	H	**0.0004**	**0.00042**	**0.0003**	**0.00025**	**0.0007**	**0.00046**	**0.0001**	*<0.00010*	**0.00212**	**0.00224**	**0.259**	**0.325**
calcium			162	139	59	57.7	75	67.8	54	45.4	44.3	39.5	67.3	68.7
chromium	**0.0010[VI], 0.0090[III]**	V	<0.002	<0.0020	<0.002	<0.0020	<0.002	<0.0020	<0.002	<0.0020	<0.001	<0.0020	<0.001	<0.0020
cobalt	**0.00009**		**0.0007**	**0.00066**	*<0.0005*	*<0.00050*	<0.0005	*<0.00050*	*<0.0005*	*<0.00050*	<0.0005	*<0.00050*	**0.0019**	**0.00247**
copper	**0.0020 - 0.0090**	H	0.005	<0.0010	<0.001	<0.0010	<0.001	<0.0010	0.004	<0.0010	0.0002	<0.0010	0.0027	0.0048
iron			0.762	0.375	0.098	0.074	0.045	<0.02	0.094	0.082	0.006	<0.02	0.288	1.33
lead	**0.0040 - 0.0160**	H	0.0012	0.00775	0.0025	0.00226	0.0036	0.00315	0.0006	0.00053	0.001	0.00083	**0.337**	**0.567**
magnesium			19	10	3	2.7	14	13.6	6	4.6	5.88	5.6	2.41	2.7
manganese			0.961	0.439	0.004	0.0053	0.053	0.0304	0.023	0.0097	<0.001	0.0023	0.082	0.138
mercury	**0.0001**		-	-	-	-	-	-	-	-	<0.00005	-	<0.00005	-
molybdenum	**1**		<0.001	<0.0010	<0.001	<0.0010	<0.001	0.001	0.001	0.001	0.012	0.0101	<0.001	<0.0010
nickel	**0.0250 - 0.15**	H	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010	<0.001	<0.0010	0.003	0.003	0.003	0.0053
potassium			<1	1.5	<1	<1.0	<1	<1.0	<1	<1.0	0.49	<1.0	0.5	<1.0
selenium	**0.001**		<0.0008	<0.00080	0.0008	<0.00080	<0.0008	<0.00080	<0.0008	<0.00080	**0.011**	**0.0114**	**0.0047**	**0.00453**
silver	**0.00005 - 0.0015**	H	<0.0001	<0.00010	<0.0001	<0.00010	<0.0001	<0.00010	<0.0001	<0.00010	<0.00002	<0.00010	0.00027	0.00077
sodium			10	8.3	<1	<1.0	1	1.2	<1	<1.0	0.74	<1.0	0.7	<1.0
strontium			0.588	0.466	0.207	0.186	0.311	0.3	0.195	0.174	0.23	0.206	0.08	0.0774
thallium	**0.0003**		<0.00005	<0.000050	<0.00005	<0.000050	<0.00005	<0.000050	<0.00005	<0.000050	<0.00005	<0.000050	0.0005	0.000223
titanium	**0.1**		<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.005	<0.01	<0.005	0.012
tin			<0.005	<0.0050	<0.005	<0.0050	<0.005	<0.0050	<0.005	<0.0050	<0.005	<0.0050	<0.005	<0.0050
vanadium			<0.005	<0.0050	<0.005	<0.0050	<0.005	<0.0050	<0.005	<0.0050	<0.005	<0.0050	<0.005	<0.0050
zinc	**0.0075 - 0.24**	H	0.105	0.124	<0.01	<0.01	**0.235**	0.109	<0.01	<0.01	**0.308**	**0.331**	**28.1**	**35.4**

Notes:

Results are expressed in milligrams per litre (mg/L), unless otherwise indicated.

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

2. CSR-AW Standards have been divided by a factor of 10, to account for dilution effects, in accordance with Environment Yukon Protocol 6: Application of Water Quality Standards.

SCN = sample control number

AW = Standards for the protection of freshwater aquatic life; H = standard varies with water hardness; V = standard varies with valence.

Table 19: Results of Synthetic Precipitation Leaching Procedure
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon Territory

SCN			L1221371-2	L1221371-7	L1221371-41	L1221371-59	L1221371-63
Location	Aquatic Life CSR-AW (freshwater)	Notes	TP12-32	TP12-37	SS12-23	TP12-21	TP12-26
QA/QC							
Date			29-Sep-12	29-Sep-12	1-Oct-12	23-Aug-12	24-Aug-12
Parameters							
Extraction Solution Initial pH			4.98	4.98	4.98	4.98	4.98
Final pH			7.44	3.93	6.79	6.64	7.25
SPLP Metals							
Aluminum (Al)-Leachable			0.222	5.35	0.100	0.108	0.029
Antimony (Sb)-Leachable	**0.2**		0.0026	<0.0010	<0.0010	0.0028	0.0021
Arsenic (As)-Leachable	**0.005**		<0.0020	0.0605	0.0022	<0.0020	<0.0020
Barium (Ba)-Leachable	**10**		0.11	0.16	<0.10	<0.10	0.12
Beryllium (Be)-Leachable	**0.053**		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Boron (B)-Leachable	**50**		<0.10	<0.10	<0.10	<0.10	<0.10
Cadmium (Cd)-Leachable	**0.0001 - 0.0006**	H	**0.00085**	**0.00017**	**0.00114**	**0.00013**	**0.00106**
Calcium (Ca)-Leachable			30.9	3.91	9.10	7.29	78.2
Chromium (Cr)-Leachable	**0.010^{VI}, 0.090^{III}**	V	<0.0020	0.0072	<0.0020	<0.0020	<0.0020
Cobalt (Co)-Leachable	**0.0009**		<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Copper (Cu)-Leachable	**0.020 - 0.090**	H	0.0011	0.0079	0.0026	<0.0010	<0.0010
Iron (Fe)-Leachable			0.153	5.09	0.453	0.032	<0.030
Lead (Pb)-Leachable	**0.040 - 0.160**	H	**0.256**	**0.101**	**0.0725**	<0.0010	0.0060
Lithium (Li)-Leachable			<0.10	<0.10	<0.10	<0.10	<0.10
Magnesium (Mg)-Leachable			0.38	1.21	0.21	3.54	1.25
Manganese (Mn)-Leachable			0.0073	0.0876	0.0424	<0.0050	0.0104
Mercury (Hg)-Leachable	**0.001**		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Molybdenum (Mo)-Leachable	**10**		0.0021	<0.0010	0.0131	0.0015	0.0039
Nickel (Ni)-Leachable	**0.250 - 1.5**	H	<0.010	<0.010	<0.010	<0.010	<0.010
Selenium (Se)-Leachable	**0.01**		**0.0122**	<0.0010	0.0074	0.0023	0.0057
Silver (Ag)-Leachable	**0.0005 - 0.015**	H	<0.000050	0.000219	0.000855	<0.000050	<0.000050
Sodium (Na)-Leachable			<20	<20	<20	<20	<20
Thallium (Tl)-Leachable	**0.003**		<0.00010	<0.00010	<0.00010	<0.00010	<0.00010
Titanium (Ti)-Leachable	**1**		<0.010	0.170	<0.010	<0.010	<0.010
Uranium (U)-Leachable	**3**		<0.0010	<0.0010	<0.0010	<0.0010	<0.0010
Vanadium (V)-Leachable			0.0025	0.0087	<0.0010	<0.0010	<0.0010
Zinc (Zn)-Leachable	**0.075 - 2.4**	H	0.060	**0.088**	**0.252**	0.047	0.040

Notes:

Results are expressed in milligrams per litre (mg/L), unless otherwise indicated.

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

SCN = sample control number

AW = Standards for the protection of freshwater aquatic life; V = standard varies with valence.

H - standard varies with water hardness. Samples were not analysed for hardness therefore the most stringent standard was used.

Table 20: Results of QA/QC Analysis - Soil
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Location		TP12-11					TP12-23					TP12-30					TP12-50				
Sample Control Number	Method Detection Limit	23704-08	23704-09	Mean	Relative Percent Difference	Difference Factor (DF)	23705-10	23705-11	Mean	Relative Percent Difference	Difference Factor (DF)	23706-07	23706-08	Mean	Relative Percent Difference	Difference Factor (DF)	1221371-21	1221371-22	Mean	Relative Percent Difference	Difference Factor (DF)
Sample Depth (m)		0.0 - 0.3	0.0 - 0.3				0.15 - 0.45	0.15 - 0.45				0.15 - 0.45	0.15 - 0.45				0.3 - 0.4	0.3 - 0.4			
Date Sampled		22-Aug-12	22-Aug-12				23-Aug-12	23-Aug-12				24-Aug-12	24-Aug-12				30-Sep-12	30-Sep-12			
Quality Assurance		FDA	FD				FDA	FD				FDA	FD				FDA	FD			
Physical Parameters																					
moisture (%)	0.25	10.7	10.2	10.45	5%	NA	-	-	NC	NC	NC	7.12	7.11	7.12	0%	NA	-	-	NC	NC	NC
pH (pH units)	0.10	7.78	7.76	7.77	0%	NA	8.43	8.27	8.35	2%	NA	8.07	8.20	8.14	2%	NA	7.86	7.76	7.81	1%	NA
Total Metals																					
antimony	0.10	8.81	7.87	8.34	11%	NA	3.08	3.26	3.17	6%	NA	2.67	2.31	2.49	14%	NA	2.44	2.61	2.53	7%	NA
arsenic	0.050	78.5	72.3	75.4	8%	NA	21.6	31.7	26.65	**38%**	NA	19.3	18.1	18.70	6%	NA	26.3	33.0	29.65	23%	NA
barium	0.50	80.2	86.0	83.1	7%	NA	59.6	73.2	66.40	20%	NA	138	126	132.00	9%	NA	66.4	67.0	66.70	1%	NA
beryllium	0.20	0.98	0.87	NC	NC	NC	1.87	1.88	NC	NC	NC	0.50	0.57	NC	NC	NC	0.64	0.68	NC	NC	NC
cadmium	0.050	80.3	91.8	86.05	13%	NA	10.5	10.7	10.60	2%	NA	4.09	2.09	3.09	**65%**	NA	12.9	12.4	12.65	4%	NA
chromium (total)	0.50	22.6	24.2	23.4	7%	NA	41.5	37.8	39.65	9%	NA	19.4	19.7	19.55	2%	NA	34.3	32.2	33.25	6%	NA
cobalt	0.10	17.7	19.0	18.35	7%	NA	20.9	20.4	20.65	2%	NA	9.46	8.83	9.15	7%	NA	13.6	13.8	13.70	1%	NA
copper	0.50	54.1	66.6	60.35	21%	NA	21.2	20.6	20.90	3%	NA	25.4	26.0	25.70	2%	NA	28.4	30.7	29.55	8%	NA
lead	0.50	11700	15600	13650	29%	NA	152	140	146.00	8%	NA	270	138	204.00	**65%**	NA	1460	1260	1360	15%	NA
mercury (inorganic)	0.050	0.071	0.060	NC	NC	NC	<0.050	<0.050	NC	NC	NC	<0.050	<0.050	NC	NC	NC	<0.050	<0.050	NC	NC	NC
molybdenum	0.50	23.9	14.6	19.25	**48%**	NA	1.17	1.21	NC	NC	NC	3.20	2.73	2.97	16%	NA	2.92	3.24	3.08	10%	NA
nickel	0.50	161	137	149	16%	NA	38.3	39.4	38.85	3%	NA	29.9	29.0	29.45	3%	NA	34.0	35.0	34.5	3%	NA
selenium	0.20	6.49	8.05	7.27	21%	NA	0.54	0.74	NC	NC	NC	0.67	0.43	0.55	NA	1.2	1.07	1.49	1.28	33%	NA
silver	0.10	9.32	8.24	NC	NC	NC	0.71	0.78	NC	NC	NC	0.55	0.37	NC	NC	NC	1.16	1.30	NC	NC	NC
thallium	0.050	0.292	0.302	NC	NC	NC	0.310	0.279	NC	NC	NC	0.128	0.149	NC	NC	NC	0.171	0.171	NC	NC	NC
tin	2.0	<2.0	<2.0	NC	NC	NC	<2.0	<2.0	NC	NC	NC	<2.0	<2.0	NC	NC	NC	<2.0	<2.0	NC	NC	NC
uranium	0.050	1.84	2.00	1.92	8%	NA	0.748	0.927	0.84	21%	NA	1.05	0.908	0.98	15%	NA	1.06	0.922	0.99	14%	NA
vanadium	0.20	34.1	36.9	35.5	8%	NA	46.3	48.5	47.40	5%	NA	39.5	36.1	37.80	9%	NA	46.9	48.9	47.90	4%	NA
zinc	1.0	17500	16400	16950	6%	NA	4270	4020	4145.00	6%	NA	696	342	519.00	**68%**	NA	2740	2310	2525	17%	NA
Extractable Hydrocarbons																					
EPH10-19	200	-	-	-	-	-	-	-	-	-	-	<200	<200	NC	NC	NC	-	-	-	-	-
EPH19-32	200	-	-	-	-	-	-	-	-	-	-	<200	<200	NC	NC	NC	-	-	-	-	-
LEPH	200	-	-	-	-	-	-	-	-	-	-	<200	<200	NC	NC	NC	-	-	-	-	-
HEPH	200	-	-	-	-	-	-	-	-	-	-	<200	<200	NC	NC	NC	-	-	-	-	-
Polycyclic Aromatic Hydrocarbons																					
Acenaphthene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Acenaphthylene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Anthracene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Benz(a)anthracene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Benzo(a)pyrene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Benzo(b)fluoranthene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Benzo(g,h,i)perylene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Benzo(k)fluoranthene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Chrysene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Dibenz(a,h)anthracene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Fluoranthene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Fluorene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
2-Methylnaphthalene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Naphthalene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Phenanthrene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-
Pyrene	0.050	-	-	-	-	-	-	-	-	-	-	<0.050	<0.050	NC	NC	NC	-	-	-	-	-

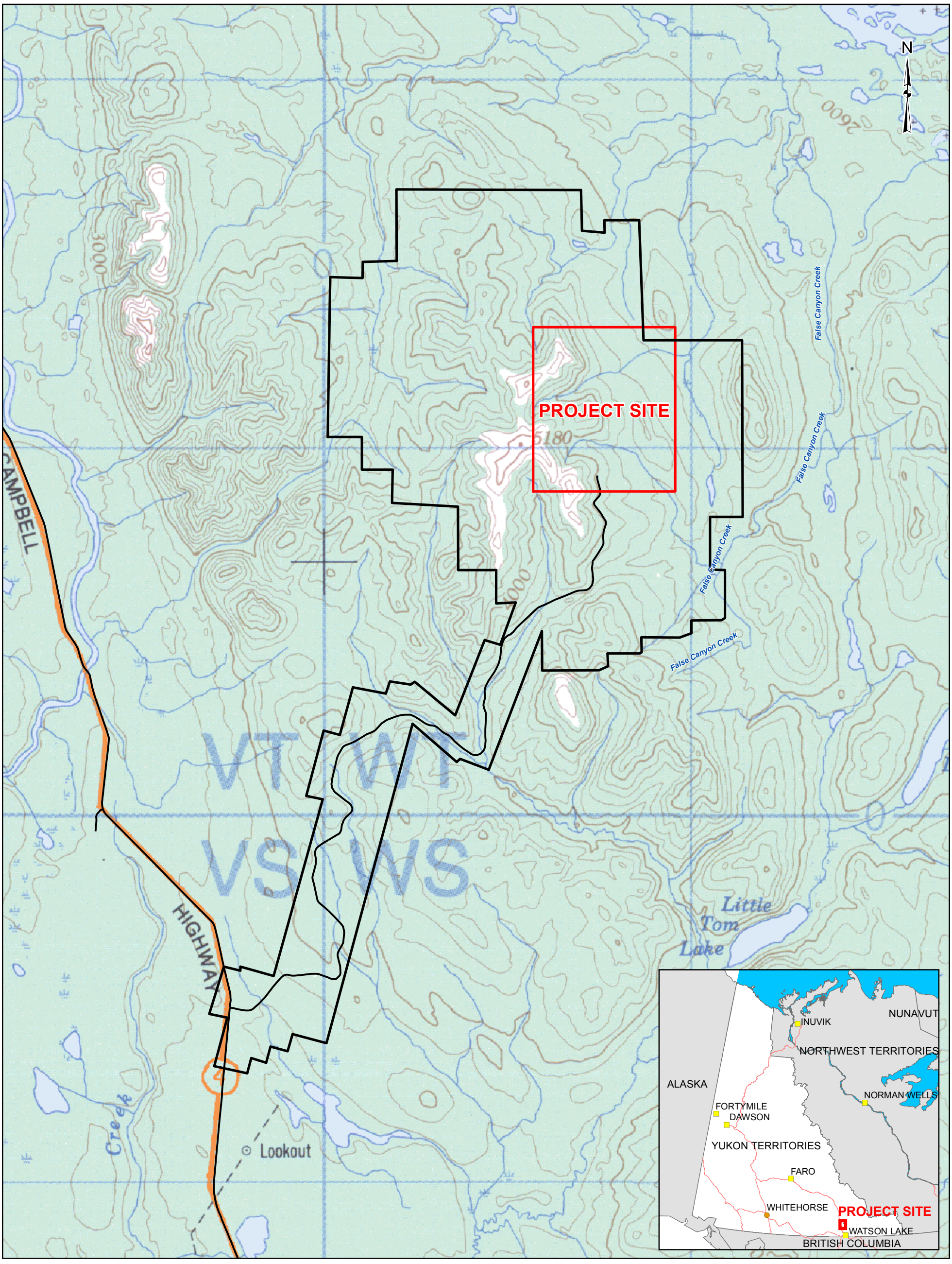
Notes:
1. The QA/QC results for the 2010 field investigations are not shown.
Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.
Mean = average of two values.
Relative percent difference = the difference between two values divided by the mean of the two values.
Difference factor = absolute difference between two values divided by the method detection limit.
Difference factor is calculated when the concentration is within five times the detection limit.
Bold text indicates that the RPD or DF exceeds Golder's internal QA/QC guidelines.
FDA = Field Duplicate Available; FD = Field Duplicate

Table 21: Results of QA/QC Analysis - Sediment/Tailings
Phase II Environmental Site Assessment
Sä Dena Hes Mine, Yukon

Location		SS12-14					SS12-23					SS12-32				
Sample Control Number	Method Detection Limit	1221371-31	1221371-32	Mean	Relative Percent Difference	Difference Factor (DF)	1221371-41	1221371-42	Mean	Relative Percent Difference	Difference Factor (DF)	1221371-51	1221371-52	Mean	Relative Percent Difference	Difference Factor (DF)
Sample Depth (m)		0.8 - 1.0	0.8 - 1.0				0.8 - 1.0	0.8 - 1.0				0.5 - 0.7	0.5 - 0.7			
Date Sampled		1-Oct-12	1-Oct-12				1-Oct-12	1-Oct-12				1-Oct-12	1-Oct-12			
Quality Assurance		FDA	FD				FDA	FD				FDA	FD			
Physical Parameters																
moisture (%)		-	-	NC	NC	NC	-	-	NC	NC	NC	-	-	NC	NC	NC
pH (pH units)	0.10	8.38	8.44	8.41	1%	NA	8.26	8.30	8.28	0%	NA	8.05	8.04	8.05	0%	NA
Total Metals																
antimony	0.10	3.10	3.06	3.08	1%	NA	2.91	3.25	3.08	11%	NA	4.81	4.68	4.75	3%	NA
arsenic	0.050	28.5	23.9	26.2	18%	NA	19.9	24.1	22.00	19%	NA	51.8	49.5	50.65	5%	NA
barium	0.50	19.5	18.8	19.15	4%	NA	16.0	15.3	15.65	4%	NA	37.7	36.4	37.05	4%	NA
beryllium	0.20	0.85	0.89	NC	NC	NC	0.93	0.84	NC	NC	NC	1.11	1.13	NC	NC	NC
cadmium	0.050	26.7	25.3	26	5%	NA	111	86.9	98.95	24%	NA	24.2	27.7	25.95	13%	NA
chromium (total)	0.50	8.45	8.43	8.44	0%	NA	5.49	7.43	6.46	30%	NA	10.8	11.4	11.10	5%	NA
cobalt	0.10	5.14	5.03	5.085	2%	NA	8.55	7.46	8.01	14%	NA	6.56	7.56	7.06	14%	NA
copper	0.50	31.9	28.4	30.15	12%	NA	28.1	30.1	29.10	7%	NA	47.6	53.2	50.40	11%	NA
lead	0.50	3540	3290	3415	7%	NA	3500	3770	3635.00	7%	NA	4070	3860	3965.00	5%	NA
mercury (inorganic)	0.050	<0.050	<0.050	NC	NC	NC	<0.050	<0.050	NC	NC	NC	<0.050	<0.050	NC	NC	NC
molybdenum	0.50	5.73	6.50	6.115	13%	NA	5.10	5.42	NC	NC	NC	12.7	14.1	13.40	10%	NA
nickel	0.50	17.3	16.7	17	4%	NA	7.80	8.99	8.40	14%	NA	45.8	51.1	48.45	11%	NA
selenium	0.20	2.09	2.18	2.135	4%	NA	5.13	3.21	NC	NC	NC	2.67	3.25	2.96	20%	NA
silver	0.10	2.87	3.06	NC	NC	NC	6.57	3.46	NC	NC	NC	3.34	3.45	NC	NC	NC
thallium	0.050	0.142	0.141	NC	NC	NC	0.085	0.102	NC	NC	NC	0.188	0.222	NC	NC	NC
tin	2.0	<2.0	<2.0	NC	NC	NC	<2.0	<2.0	NC	NC	NC	<2.0	<2.0	NC	NC	NC
uranium	0.050	2.91	2.83	2.87	3%	NA	2.90	3.01	2.96	4%	NA	4.39	4.43	4.41	1%	NA
vanadium	0.20	8.04	8.17	8.105	2%	NA	5.94	7.67	6.81	25%	NA	17.3	18.3	17.80	6%	NA
zinc	1.0	5400	4930	5165	9%	NA	18500	14500	16500	24%	NA	4470	5040	4755	12%	NA

Notes:
1. The QA/QC results for the 2010 field investigations are not shown.
Results are expressed in milligrams per kilogram (mg/kg), unless otherwise indicated.
Mean = average of two values.
Relative percent difference = the difference between two values divided by the mean of the two values.
Difference factor = absolute difference between two values divided by the method detection limit.
Difference factor is calculated when the concentration is within five times the detection limit.
Bold text indicates that the RPD or DF exceeds Golder's internal QA/QC guidelines.
FDA = Field Duplicate Available; FD = Field Duplicate

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-01_Keyplan.mxd



LEGEND

- PROJECT SITE
- CLAIM BOUNDARY

2,000 0 2,000

SCALE 1:100,000 METRES

REFERENCE

BASE DATA OBTAINED FROM THE GEOGRATIS (NTS MAP SHEET 105A).
DATUM: NAD83 PROJECTION: UTM ZONE 09

PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE

KEY PLAN

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	17 Sep. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	17 Sep. 2012		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 1

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-02_Siteplan.mxd



LEGEND

CONTOUR - 10m

400 0 400
SCALE 1:20,000 METRES

REFERENCE

ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT.
DATUM: NAD83 PROJECTION: UTM ZONE 09

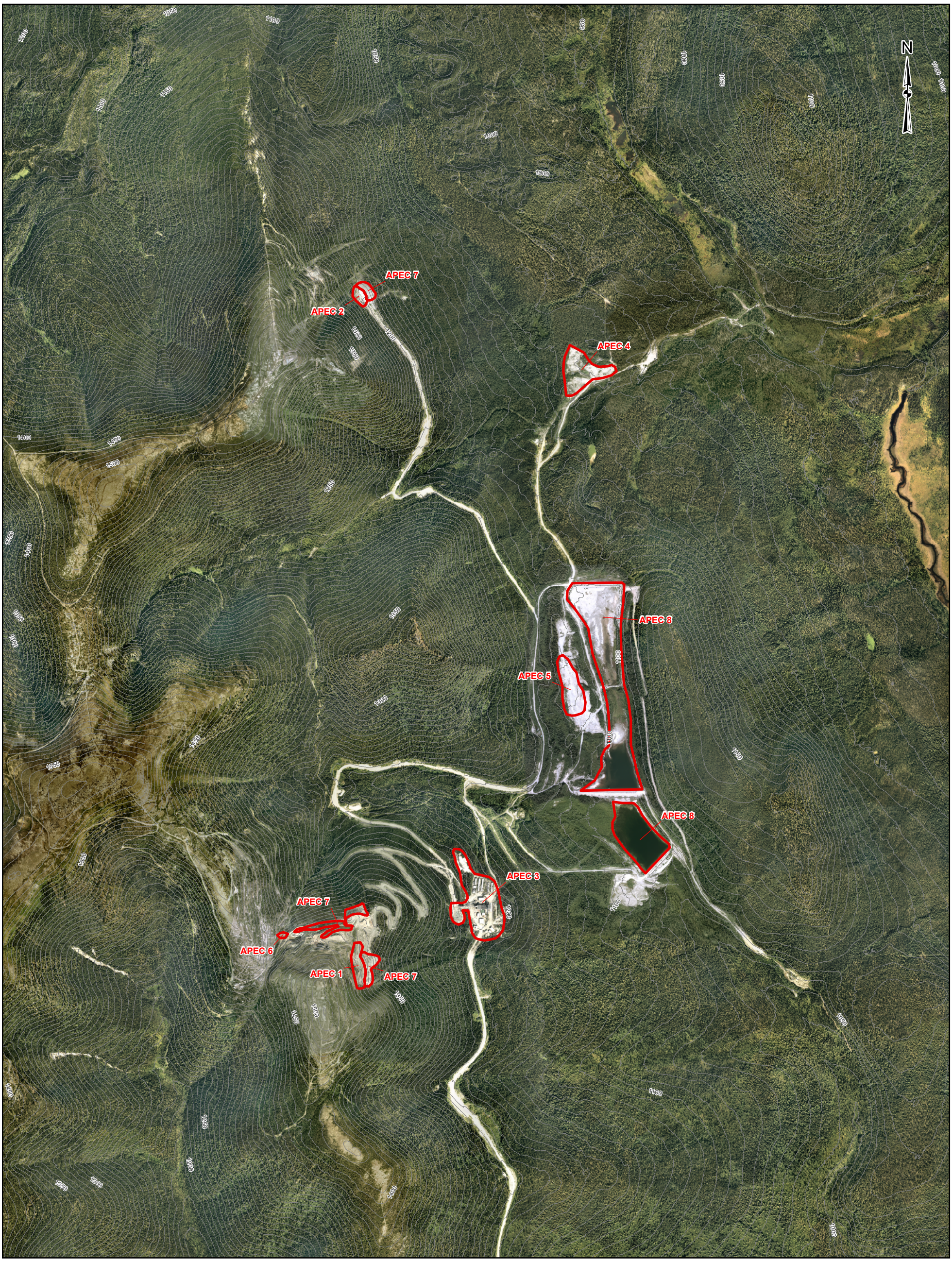
PROJECT
TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE
SITE PLAN

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	30 Aug. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	23 Jan. 2013	**FIGURE: 2**	
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-03_APECs.mxd



LEGEND

APEC

CONTOUR - 10m

Reference	Summary	Potential Contaminants of Concern
APEC 1 – Jewelbox Hill	A former metal shop existed at this location as part of underground mine activities. Fuel storage tanks were also located in this area.	Metals, LEPH/HEPH/PAHs, BTEX/VPH, VOCs
APEC 2 – Burnick Zone (1200 Portal)	A metal shop and AST are still present in this area of the mine property. The shop was used as part of underground mine activities in the Burnick Zone	Metals, LEPH/HEPH/PAHs, BTEX/VPH, VOCs
APEC 3 – Mill Site	Includes the main concentrator complex, former Golden Hill Shop, fuel storage tanks, and former laboratory and warehouses.	Metals, LEPH/HEPH/PAHs, BTEX/VPH, VOCs
APEC 4 – North Creek Garbage Dump/Borrow Area	Used as an unpermitted disposal area for various metal scraps and discarded drums.	Metals, LEPH/HEPH/PAHs
APEC 5 – Boneyard	Used as a storage area and lay down areas for various metal equipment and scrap materials along the access road on the west side of the north tailings pond.	Metals
APEC 6 – Site-wide sediment ponds	Four sediment ponds were used throughout the Site: Jewelbox 1408 Portal, Main Zone Pit, Burnick 1200 Portal, and Jewelbox 1250 Portal. Based on information contained in the DDRP, the ponds are expected to contain elevated concentrations of metals.	Metals
APEC 7 – Site-wide waste rock piles	Waste rock piles were identified at the Jewelbox and Burnick Zone Portals. The waste rock was generated as part of the mining process and may contain elevated concentrations of metals.	Metals
APEC 8 – Tailings and Reclaim Ponds	Tailings generated as part of the mining process were directed to a series of ponds northeast of the Mill Site. Portions of the tailings ponds have been drained, exposing tailings sediment on the ground surface, which may contain elevated concentrations of metals.	Metals

REFERENCE

ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT.
DATUM: NAD83 PROJECTION: UTM ZONE 09

400 0 400
SCALE 1:20,000 METRES

PROJECT
TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN (APECS)

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	30 Aug. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	23 Jan. 2013	**FIGURE: 3**	
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

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LEGEND

- TEST PIT LOCATION
- SURFACE SEDIMENT SAMPLE LOCATION
- SURFACE SOIL SAMPLE LOCATION FIELD ANALYSIS
- APPROXIMATE LOCATION OF SURFACE WATER MONITORING LOCATION
- CONTOUR - 10m

400 0 400
SCALE 1:20,000 METRES

REFERENCE

ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT.
DATUM: NAD83 PROJECTION: UTM ZONE 09

PROJECT
TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

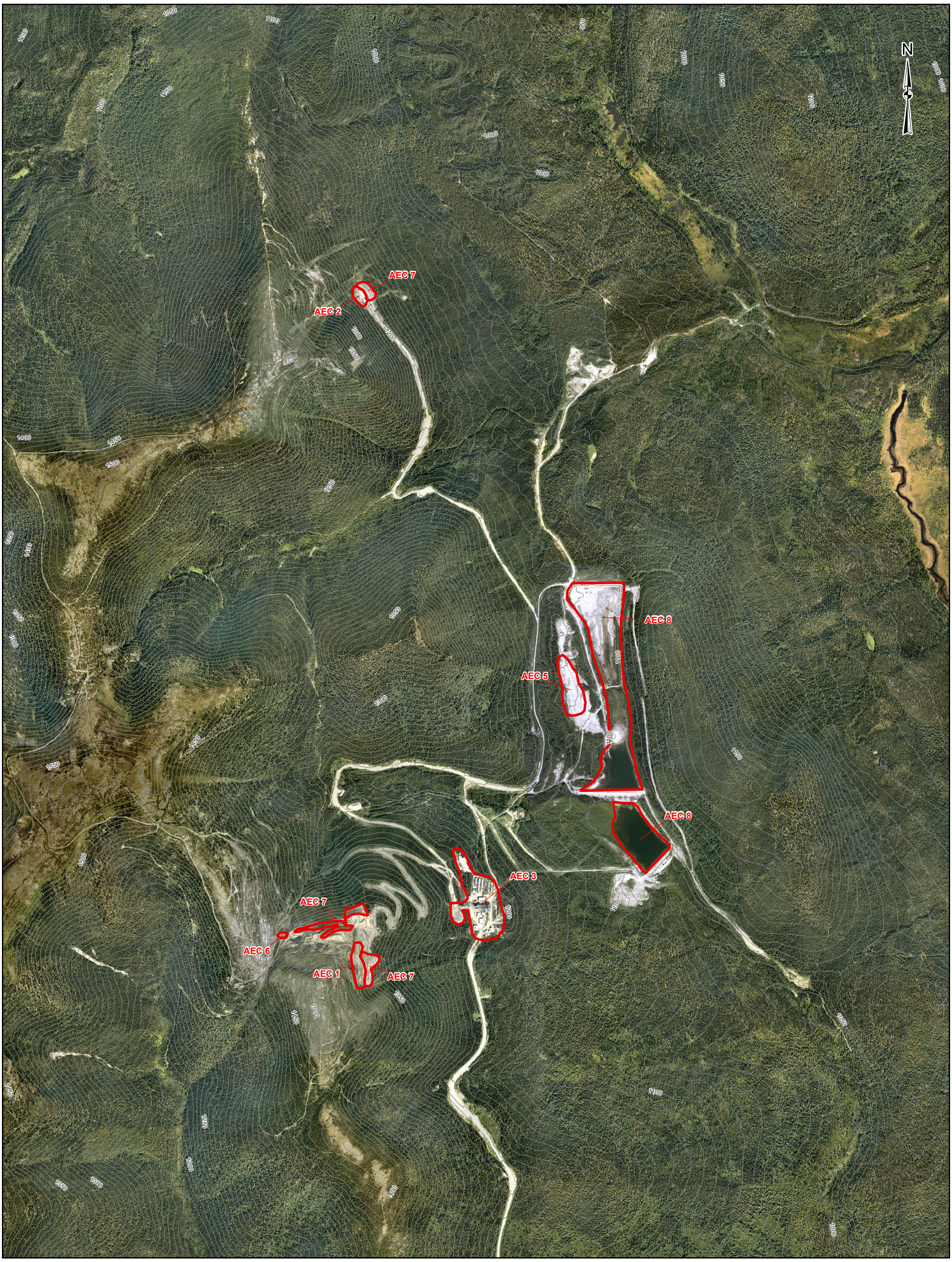
TITLE
SAMPLE LOCATION PLAN

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	30 Aug. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	23 Jan. 2013		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 4

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-05_AECs.mxd



LEGEND

AEC

CONTOUR - 10m

AEC	Contaminants of Concern
AEC 1 – Jewelbox Hill	**Soil:** arsenic, cadmium, chromium, copper, lead, molybdenum, selenium, zinc, LEPH/HEPH/PAH, VOCs **Groundwater:** cadmium
AEC 2 – Burnick Zone (1200 Portal)	**Soil:** arsenic, cadmium, zinc, LEPH/HEPH/PAHs, VOCs **Groundwater:** cadmium
AEC 3 – Mill Site	**Soil:** arsenic, cadmium, lead, molybdenum, selenium, zinc, LEPH/HEPH/PAH, VOCs **Groundwater:** cadmium, lead, selenium, zinc
AEC 5 – Boneyard	**Soil**: arsenic
AEC 6 – Site-wide sediment ponds	**Sediment:** arsenic, cadmium, lead, selenium, silver, zinc
AEC 7 – Site-wide waste rock piles	**Soil:** arsenic, cadmium, lead, zinc
AEC 8 – Tailings and Reclaim Ponds	**Sediment/Tailings:** arsenic, cadmium, lead, selenium, zinc **Groundwater:** cadmium, lead, zinc

REFERENCE

ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT.
DATUM: NAD83 PROJECTION: UTM ZONE 09

400 0 400
SCALE 1:20,000 METRES

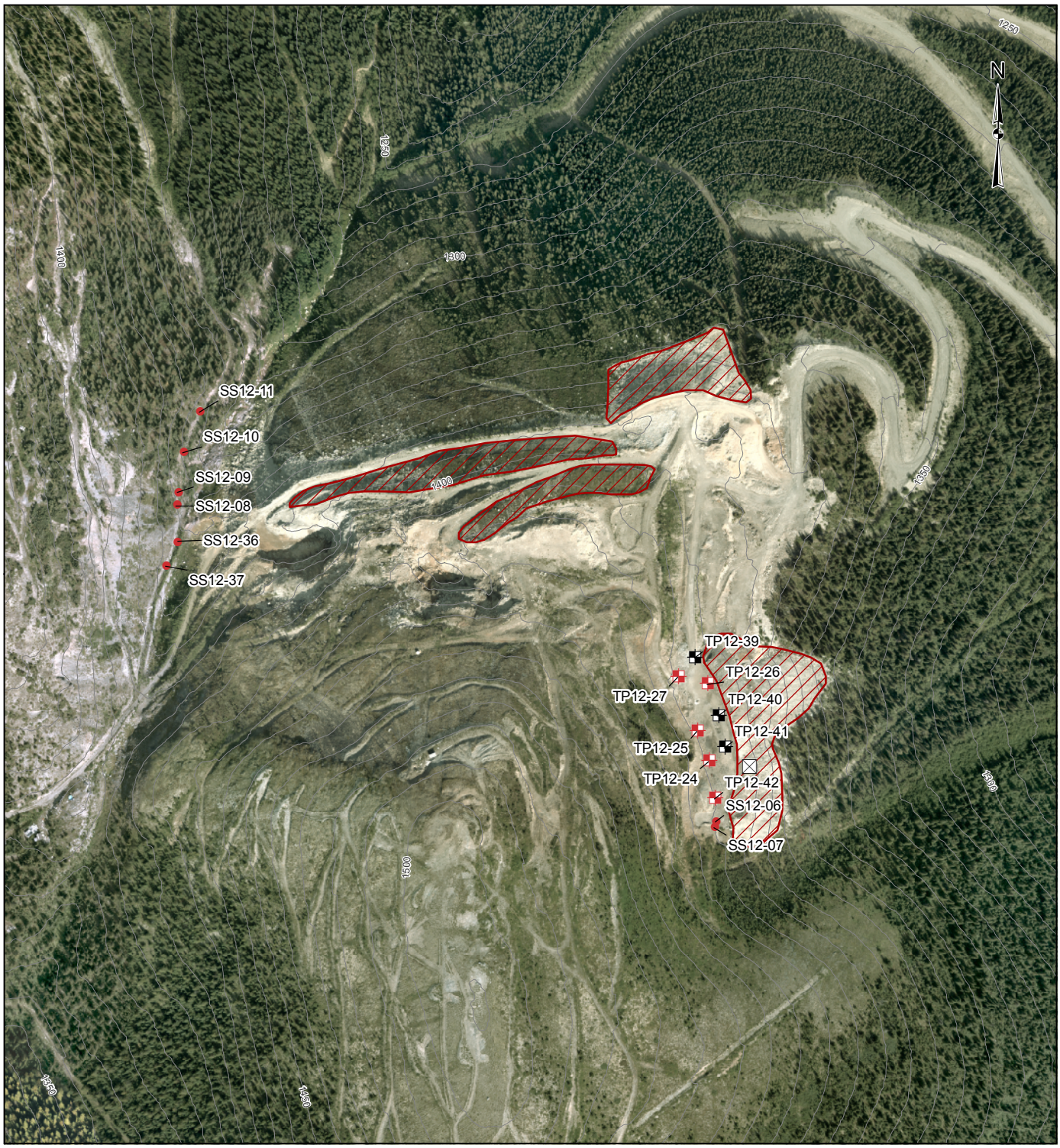
PROJECT
TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE
AREAS OF ENVIRONMENTAL CONCERN (AECS)

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	30 Aug. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	23 Jan. 2013		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 5



LEGEND

2012 TEST PIT LOCATION

- SAMPLE RESULTS EXCEED CSR IL STANDARDS
- TEST PIT LOCATION (NO RESULTS)
- SURFACE SEDIMENT SAMPLE LOCATION ABOVE CSR IL STANDARDS
- APPROXIMATE LOCATION OF HISTORICAL WASTE ROCK SAMPLE (1999)
- CONTOUR - 10m
- APPROXIMATE EXTENT OF WASTE ROCK PILES

100 0 100

SCALE 1:5,000 METRES

REFERENCE

ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT. BASE DATA OBTAINED FROM THE YUKON TERRITORY.
DATUM: NAD83 PROJECTION: UTM ZONE 09

PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE

JEWELBOX HILL

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	13 Sep. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	29 Jan. 2013		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 6

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-06_Jewel_Box_Hill.mxd



LEGEND

2012 TEST PIT LOCATION

- SAMPLE RESULTS DO NOT EXCEED CSR IL STANDARDS
- SAMPLE RESULTS EXCEED CSR IL STANDARDS
- CONTOUR - 10m
- APPROXIMATE EXTENT OF WASTE ROCK PILE

100 0 100

SCALE 1:5,000 METRES

REFERENCE

ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT. BASE DATA OBTAINED FROM THE YUKON TERRITORY.
DATUM: NAD83 PROJECTION: UTM ZONE 09

PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE

BURNICK ZONE

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	13 Sep. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	29 Jan. 2013		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 7

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-07_Burnick_Zone.mxd



LEGEND

2012 TEST PIT LOCATION

- SAMPLE RESULTS DO NOT EXCEED CSR IL STANDARDS
- SAMPLE RESULTS EXCEED CSR IL STANDARDS
- SURFACE SOIL SAMPLE LOCATION FIELD ANALYSIS
- CONTOUR - 10m

100 0 100

SCALE 1:5,000 METRES

REFERENCE

ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT. BASE DATA OBTAINED FROM THE YUKON TERRITORY.
DATUM: NAD83 PROJECTION: UTM ZONE 09

PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE

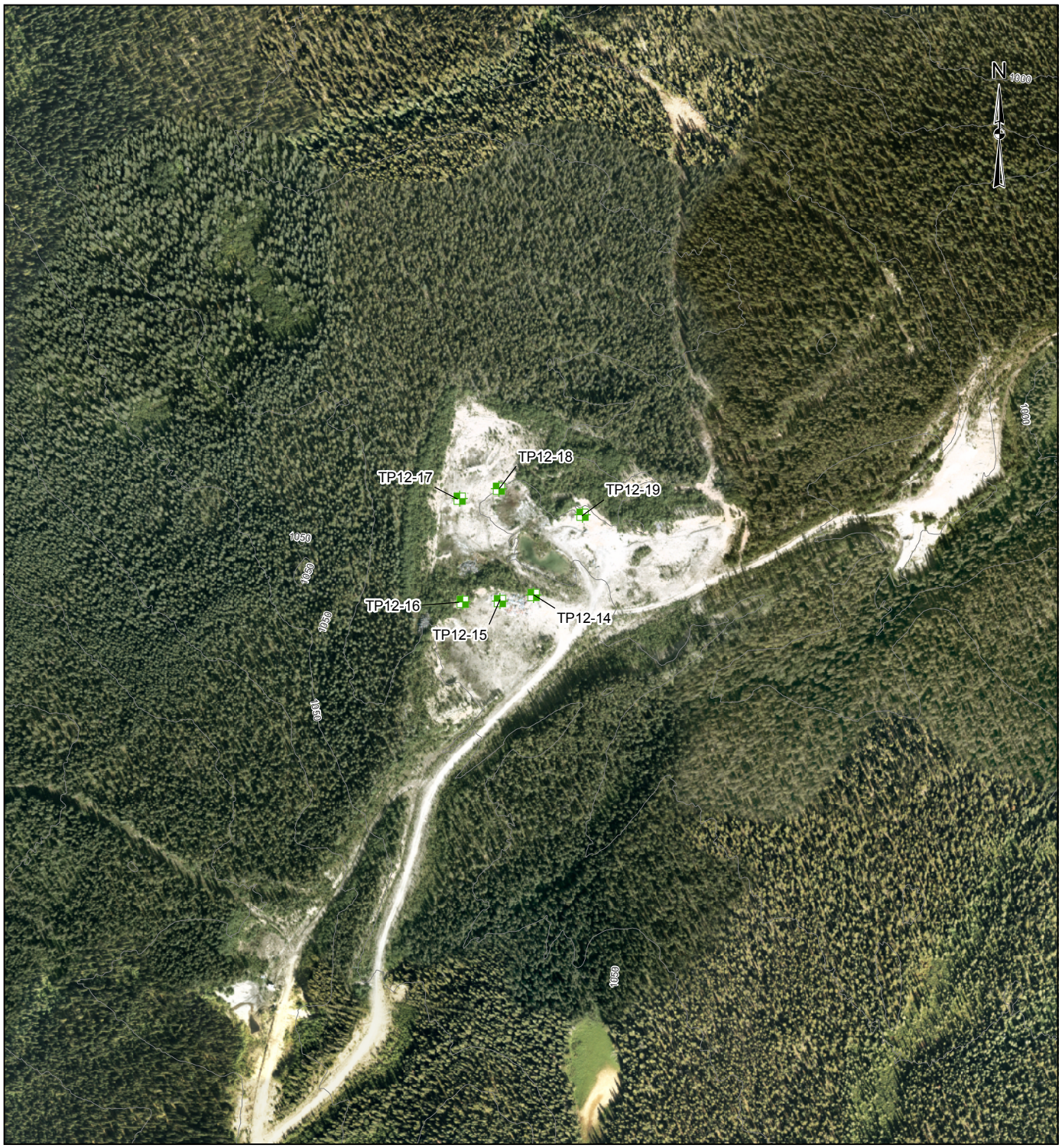
MILL SITE

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	13 Sep. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	23 Jan. 2013		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 8

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-08_Mill_Site.mxd



LEGEND

2012 TEST PIT LOCATION

SAMPLE RESULTS DO NOT EXCEED CSR IL STANDARDS

CONTOUR - 10m

100 0 100

SCALE 1:5,000 METRES

PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE

BORROW AREA AND GARBAGE DUMP

REFERENCE

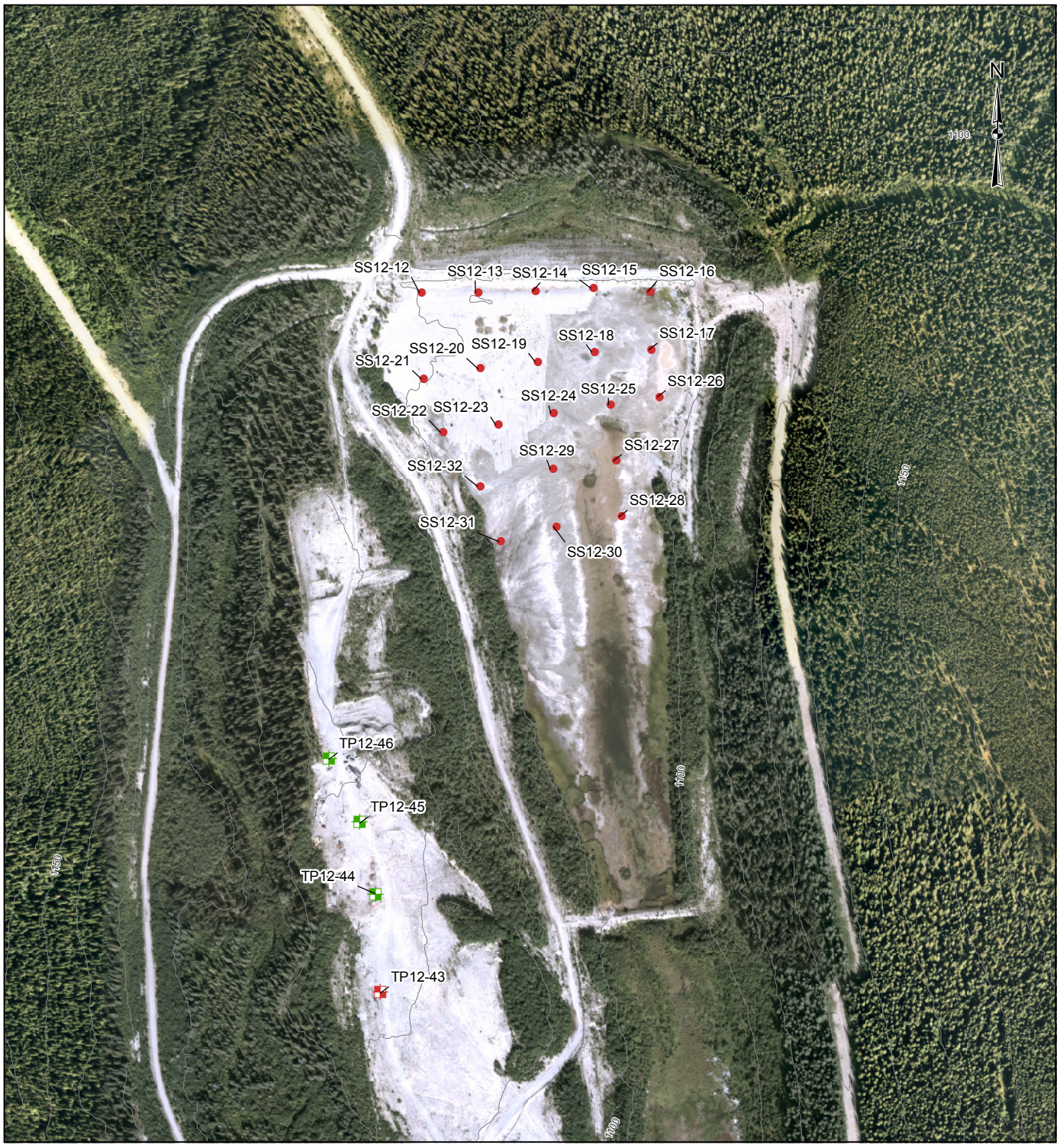
ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT. BASE DATA OBTAINED FROM THE YUKON TERRITORY.
DATUM: NAD83 PROJECTION: UTM ZONE 09

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.		12-1021-0006	PHASE No.	
DESIGN	AB	13 Sep. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	23 Jan. 2013		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 9

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-09_Borrow_Garbage_Dump.mxd



LEGEND

2012 TEST PIT LOCATION

- SAMPLE RESULTS DO NOT EXCEED CSR IL STANDARDS
- SAMPLE RESULTS EXCEED CSR IL STANDARDS
- SURFACE SEDIMENT SAMPLE LOCATION ABOVE CSR IL STANDARDS
- CONTOUR - 10m

100 0 100

SCALE 1:5,000 METRES

PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE

TAILINGS POND AND BONEYARD

REFERENCE

ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT. BASE DATA OBTAINED FROM THE YUKON TERRITORY.
DATUM: NAD83 PROJECTION: UTM ZONE 09

Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	13 Sep. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	23 Jan. 2013		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 10

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-10_Tailings_Pond.mxd



LEGEND

- SURFACE SEDIMENT SAMPLE LOCATION ABOVE CSR IL STANDARDS
- CONTOUR - 10m

100 0 100

SCALE 1:5,000 METRES

PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE

RECLAIM POND

REFERENCE

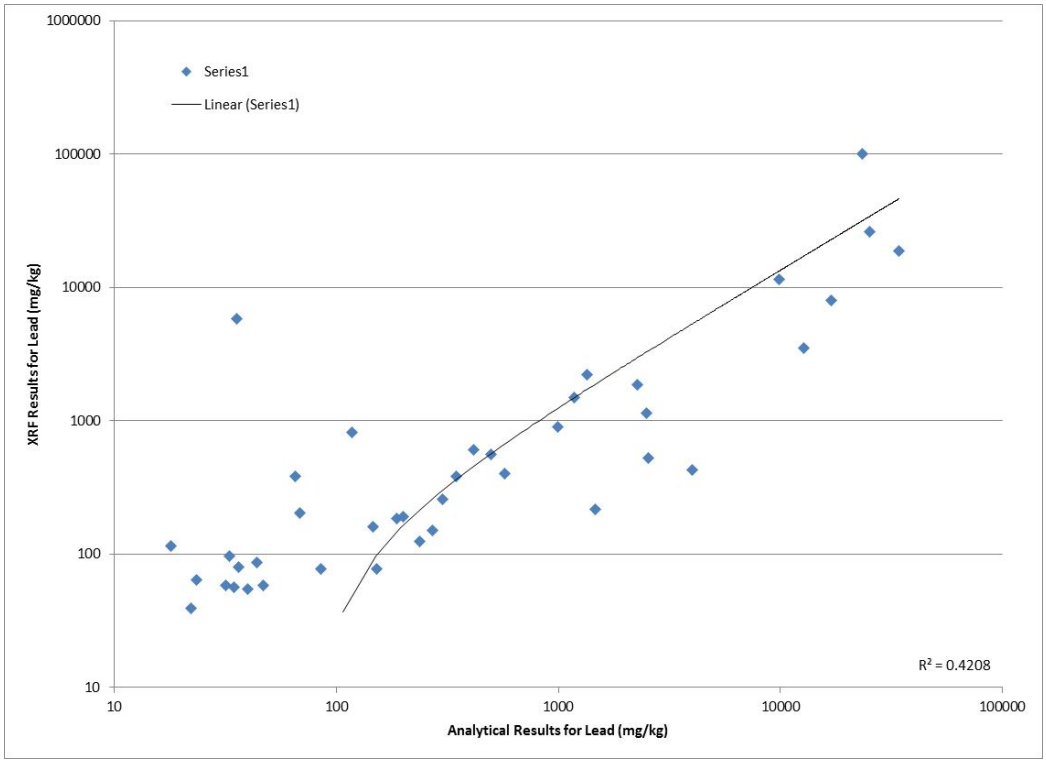
ORTHOPHOTOS AND CONTOURS OBTAINED FROM THE CLIENT. BASE DATA OBTAINED FROM THE YUKON TERRITORY.
DATUM: NAD83 PROJECTION: UTM ZONE 09

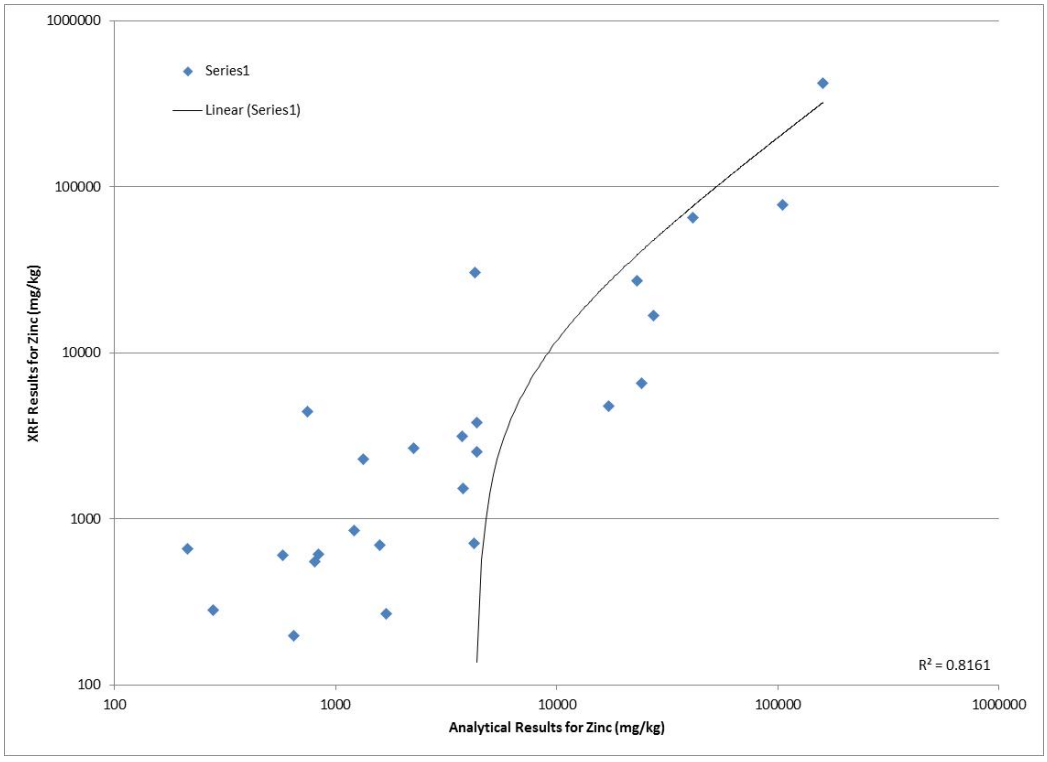
Golder Associates
Greater Vancouver Office, B.C.

PROJECT No.	12-1021-0006		PHASE No.	
DESIGN	AB	13 Sep. 2012	SCALE AS SHOWN	REV. 0
GIS	JP	23 Jan. 2013		
CHECK	AB	1 Feb. 2013		
REVIEW	GJH	1 Feb. 2013		

FIGURE: 11

N:\Bur-Graphics\Projects\2012\1021\12-1021-0006\GIS\Mapping\MXD\General\20130123\Figure-11_Reclaim_Pond.mxd





PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

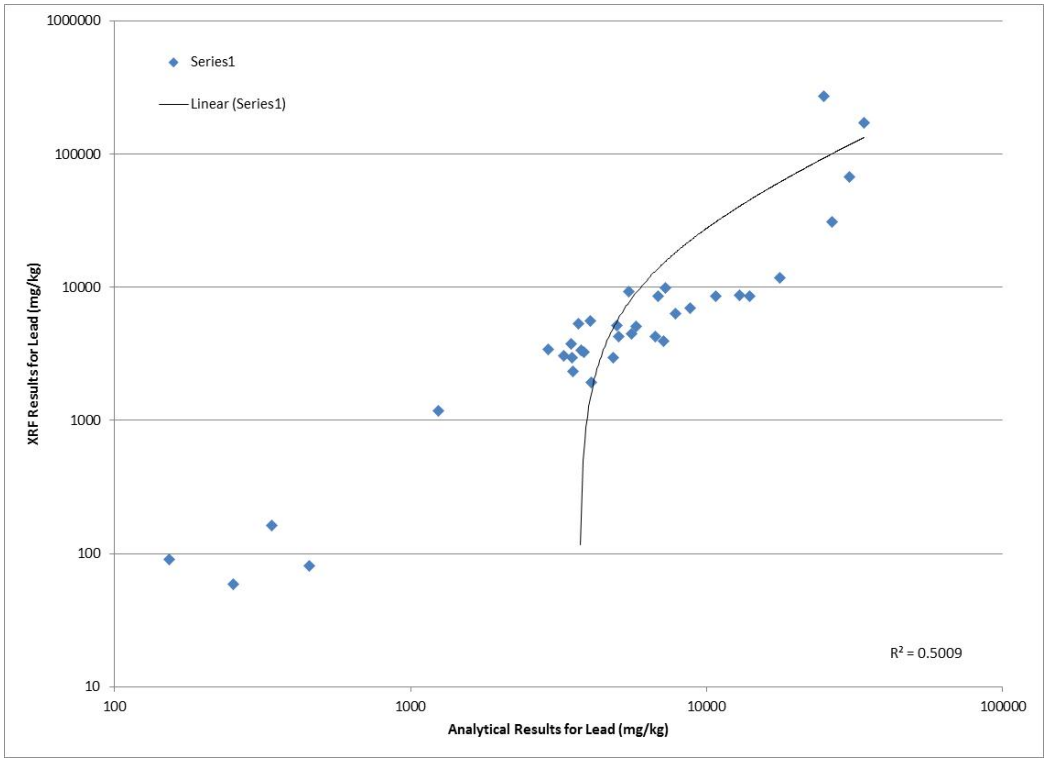
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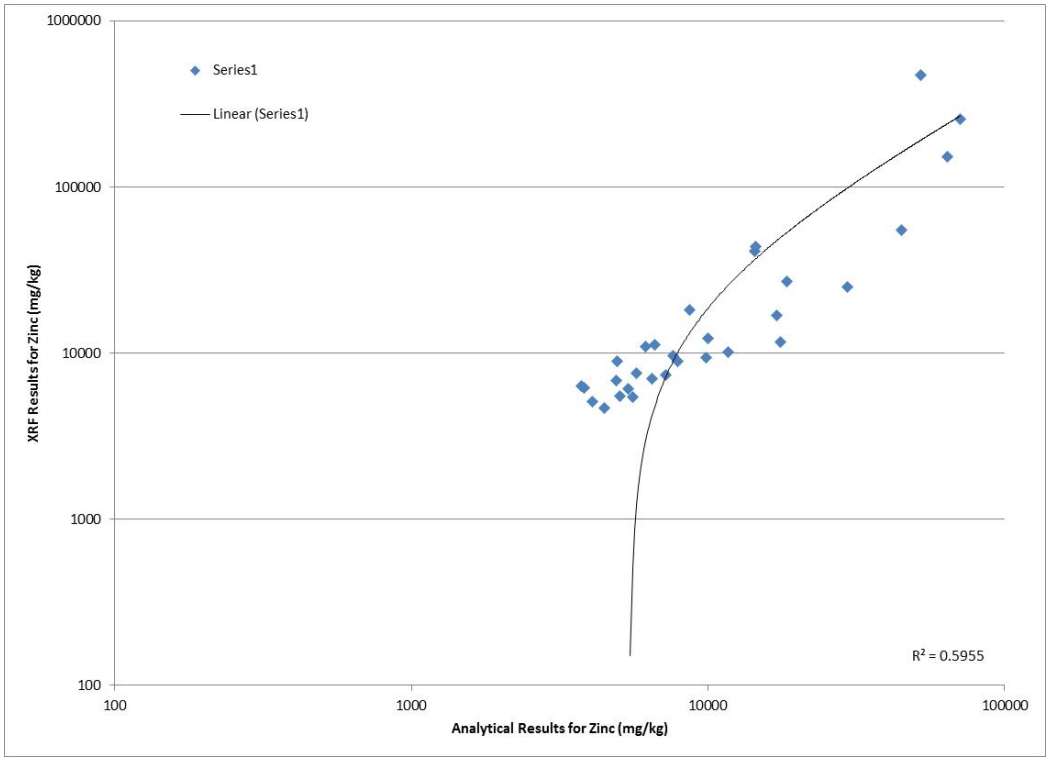
Linear Correlation Curves for Lead and Zinc in Soil

Golder Associates

PROJECT No. 12-1021-0006			FILE No. ----	
DESIGN	SYD	06DEC12	SCALE NTS	REV.
CADD	SYD	06DEC12	**Figure: 12**	
CHECK				
REVIEW				

REVISION DATE: December 6, 2012 BY: Sherry Driedger FILE: O:\Final\2012\1021 KNG\Projects\12-1021-0006 Sa Dena Hes - Teck Metals\12102100006-004-R-Rev0\Figures\fig12.ppt





PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

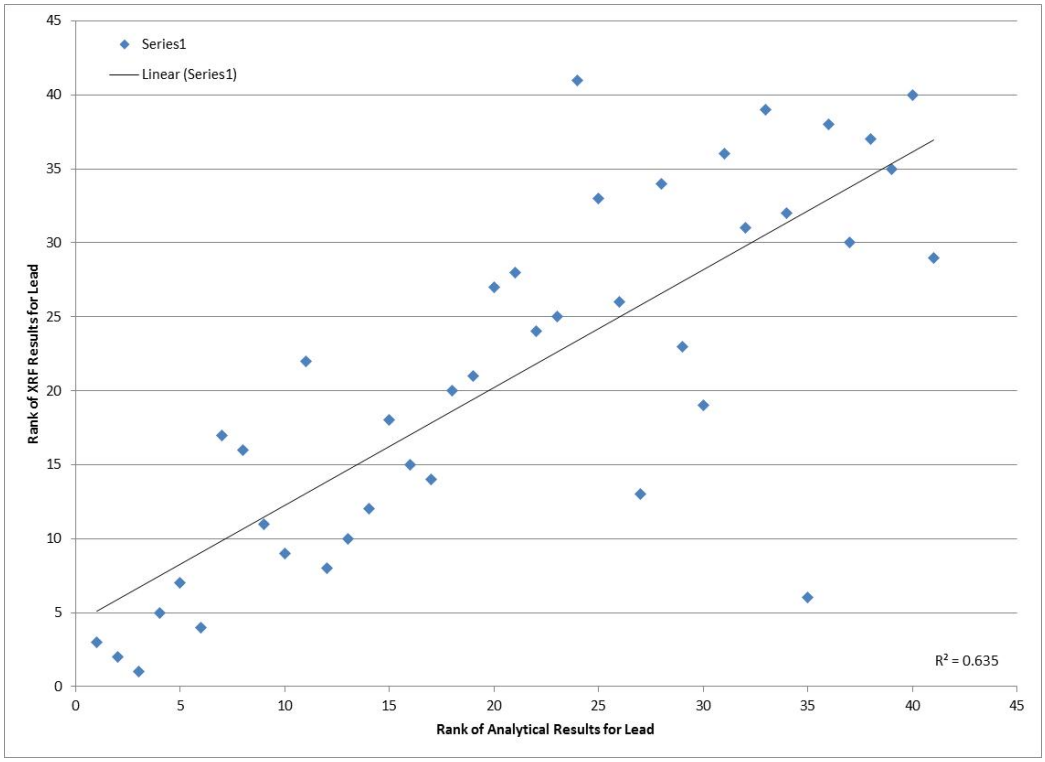
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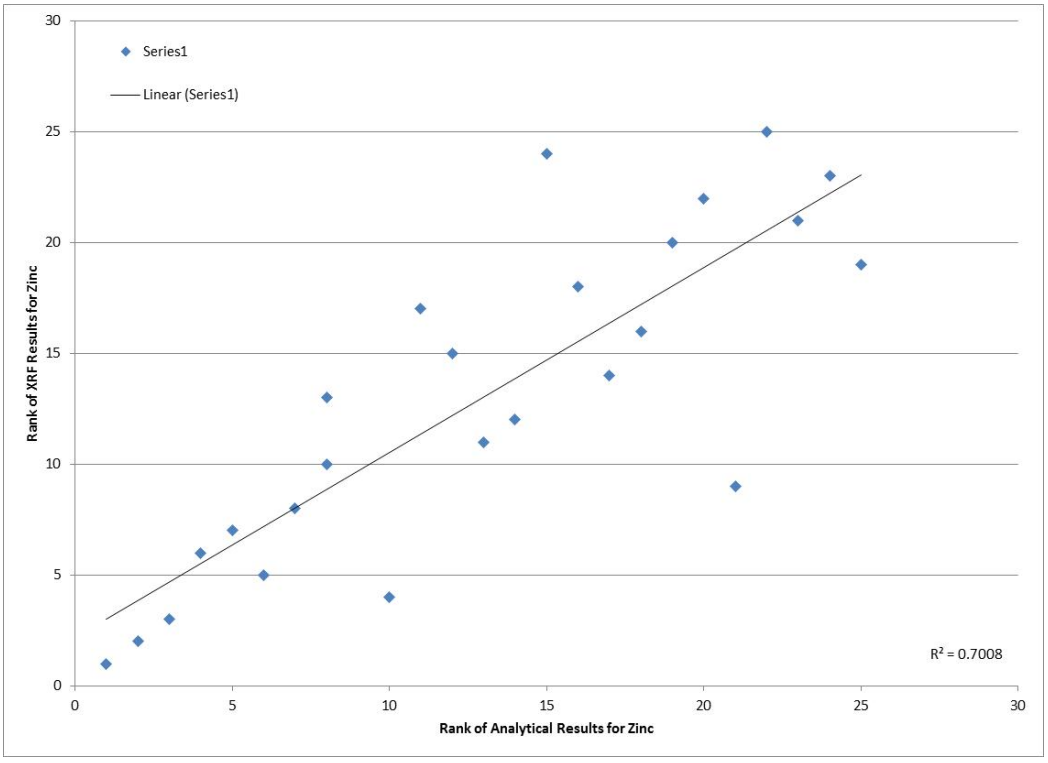
Linear Correlation Curves for Lead and Zinc in Sediment and Tailings

Golder Associates

PROJECT No. 12-1021-0006			FILE No. ----	
DESIGN	SYD	06DEC12	SCALE NTS	REV.
CADD	SYD	06DEC12	**Figure: 13**	
CHECK				
REVIEW				

REVISION DATE: December 6, 2012 BY: Sherry Driedger FILE: O:\Final\2012\1021 KNG\Projects\12-1021-0006 Sa Dena Hes - Teck Metals\12102100006-004-R-Rev0\Figures\fig13.ppt





PROJECT

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SÄ DENA HES MINE ESA
YUKON TERRITORY

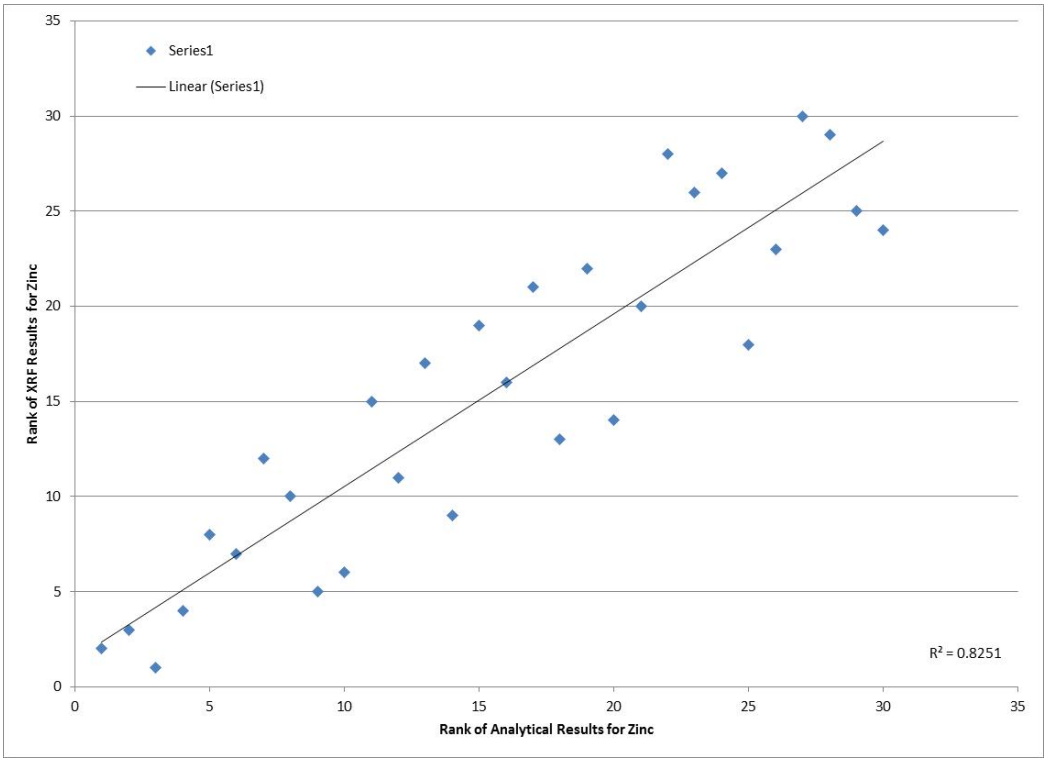
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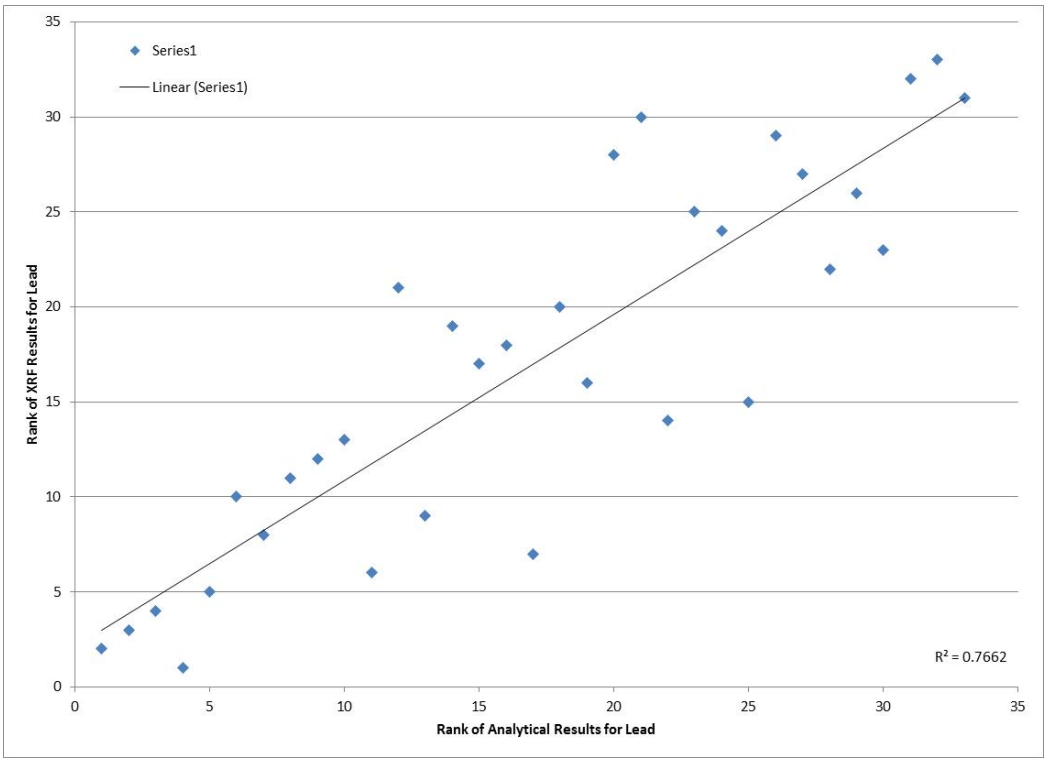
Rank Correlation Curves for Lead and Zinc in Soil

Golder Associates

PROJECT No. 12-1021-0006			FILE No. ----	
DESIGN	SYD	06DEC12	SCALE NTS	REV.
CADD	SYD	06DEC12	**Figure: 14**	
CHECK				
REVIEW				

REVISION DATE: December 6, 2012 BY: Sherry Driedger FILE: O:\Final\2012\1021 KNG\Projects\12-1021-0006 Sa Dena Hes - Teck Metals\1210210006-004-R-Rev0\Figures\fig14.ppt





PROJECT

TECK METALS
SÄ DENA HES MINE ESA
YUKON TERRITORY

TITLE

Rank Correlation Curves for Lead and Zinc in Sediment and Tailings

Golder Associates

PROJECT No. 12-1021-0006			FILE No. ----	
DESIGN	SYD	06DEC12	SCALE NTS	REV.
CADD	SYD	06DEC12	**Figure: 15**	
CHECK				
REVIEW				

REVISION DATE: December 6, 2012 BY: Sherry Driedger FILE: O:\Final\2012\1021 KNG\Projects\12-1021-0006 Sa Dena Hes - Teck Metals\12102100006-004-R-Rev0\Figures\fig15.ppt

APPENDIX A

Agency Inquiries

Yukon
Environment

Permit No: 4201-41-247

ENVIRONMENT ACT PERMIT

Issued for the Relocation and Storage of Contaminated Material
Pursuant to the Environment Act,
the Contaminated Sites Regulation, and the Special Waste Regulations

Permittee: **Teck Resources Limited**

Mailing Address: **601 Knighton Road, Kimberley, BC V1A 1C7**

Site Location: **Sa Dena Hes Mine property**
Access road at Km 47 Robert Campbell

Phone/Fax: **(205) 427-8416 / (205) 427-8451**
Authorized Representative: **Dave Ryder**

Email: **Dave.Ryder@teck.com**

Effective Date: **Date of Director's signature**
Expiry Date: **December 31, 2013**

This permit replaces permit #4201-41-247 issued August 23, 2011.

Scope of Authorization:

In accordance with your application, you are authorized to temporarily store soil contaminated with petroleum hydrocarbons and metals in excess of special waste criteria, hereinafter referred to as "listed special wastes", as set out in the terms and conditions of this permit.

Dated this 3rd day of October, 2012

A/ Director, Environmental Programs Branch
Environment Yukon

PART 1. DEFINITIONS

1. In this permit,
   "Act" means the Environment Act, R.S.Y. 2002, c. 76;

   "associated personnel" means all employees, contractors and volunteers involved in the permitted activities;

   "Branch" means the Environmental Programs Branch, Environment Yukon;

   "environmental protection analyst" means an employee of the Branch so designated by the Minister of Environment under the Act;

   "environmental protection officer" means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

   "listed special waste" means soil contaminated with petroleum hydrocarbons and metals in excess of the special waste criteria;

   "Regulations" means the *Contaminated Sites Regulations*, O.I.C. 2002/171 and the *Special Waste Regulations*, O.I.C. 1995/047;

   "spill" means a spill in excess of the amounts specified in Schedule A of the *Spills Regulations*;

   "vehicle" has the same meaning as in the *Motor Vehicles Act*, R.S.Y. 2002, c. 153; and

   "waste manifest" means the shipping document required to be completed by the permittee as set out in this permit in the form approved by an environmental protection analyst.
2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

PART 2. GENERAL

1. No condition of this permit limits the applicability of any other law or bylaw.

2. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.

3. This permit is restricted to listed special wastes generated by the permittee.

4. The permittee shall ensure that all associated personnel:
   a) have access to a copy of this permit;
   b) are knowledgeable of the terms and conditions of this permit; and
   c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

5. The permittee shall provide notice in writing to an environmental protection analyst from the Branch prior to any significant change of circumstances at the site.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: Oct 3/2012 Initials: BP

6. Where conflicts exist between this permit and the permit application, this permit shall prevail.

7. For clarity, all obligations of the permitee under this permit survive the expiry date.

PART 3. TEMPORARY STORAGE AND HANDLING OF CONTAMINATED MATERIAL

1. The permittee shall not handle special wastes other than listed special wastes.

2. The permittee shall ensure that the contaminated material remains entirely on an impermeable liner with a minimum thickness of 6 mil and is completely covered with an impermeable liner with a minimum thickness of 6 mil that is weighted down to prevent the escape of contaminated material and the infiltration of precipitation and surface water runoff.

3. The permittee shall ensure that signs are posted at the receiving location identifying the stockpiled material as contaminated and that it should not be moved or played on. The signs shall be visible from all four compass directions.

4. The permittee shall ensure that the site is securely fenced to prevent access by the public.

5. The permittee shall ensure that all contaminated material and listed special wastes covered by this permit is relocated from the site to a permitted treatment or disposal facility, or otherwise disposed of in a pre-approved manner, no later than June 28, 2013 in accordance with the terms of a permit issued for that relocation.

PART 4. INSPECTIONS, RECORD KEEPING & REPORTING

1. The permittee shall ensure that the stockpiled material is inspected at least once every two weeks to confirm that the containment required under Part 3 above is still in place, and shall immediately correct any deficiencies.

2. If an inspection reveals that the permittee is in any way not in compliance with this permit, the permittee shall take actions as required to bring the site into compliance.

3. The permittee shall keep records of all inspections and shall keep all analysis results (including raw analytical data), including those from in-situ, ex-situ, and confirmatory sampling, as applicable, for a minimum of 3 years and make them available for inspection by an environmental protection officer upon request. Records shall be kept in a format acceptable to the Branch.

4. The permittee shall submit to an environmental protection analyst a plan describing the final disposal option chosen for the stockpiled listed special wastes no later than January 31, 2013.

DEPARTMENT OF ENVIRONME
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: Oct 3/2012 Initials: SP

5. The analytical results required under Part 5.1 must be submitted to an environmental protection analyst no later than August 1, 2013.

PART 5. SAMPLING AND ANALYSIS

1. Following relocation of the stockpiled listed special wastes, the permittee shall ensure that the native soil beneath the temporary storage liner is grid-sampled and analyzed, in accordance with Protocol 11, *Sampling Procedures for Land Treatment Facilities*.

2. The permittee shall ensure that the native soil beneath the temporary storage liner is sampled and analyzed for metals, PAHs, petroleum hydrocarbons and any other contaminants of concern, and that this sampling and analysis is undertaken in accordance with all protocols pursuant to the *Contaminated Sites Regulation* that pertain to sampling and analysis.

3. All analyses performed in accordance with this Part must be acceptable to the Branch. In particular, the permittee shall ensure that the detection limit of the test method(s) used is lower than the standards in the *Contaminated Sites Regulation*.

PART 6. TRANSPORT AND TRANSFER OF SPECIAL WASTE

1. The permittee shall not transport or transfer listed special wastes other than within the site.

2. The permittee shall ensure that all listed special wastes are transported and transferred in such a manner as to prevent their release into the environment.

3. A waste manifest shall be completed to document each shipment of contaminated material considered to be special waste, and copies of the waste manifest shall be distributed in the manner described thereon.

4. The permit number **YG41-247**shall be used as the Provincial Identification Number on waste manifests used for the transport of the contaminated material.

5. The permittee shall ensure that all vehicles carrying any contaminated material considered to be special waste are secured to prevent access by unauthorized persons.

6. The permittee shall ensure that special wastes are transported to a special waste management facility in the Yukon or another jurisdiction that is permitted to receive the listed special wastes.

7. The permittee shall ensure that special wastes are transported by a carrier permitted in the Yukon to transport the listed special wastes.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: Oct. 3/2012 Initials: SP

PART 7. SPILLS

1. The permittee shall contact either an environmental protection officer, or the 24-hour Yukon Spill Report Centre (**867-667–7244**) as soon as possible under the circumstances in the event of a release, spill, unauthorized emission, discharge, or escape of any contaminated material.

2. The permittee shall ensure that appropriate clean-up equipment (such as sorbent, shovel, broom, bucket, gloves, boots, etc.) is in a readily available location at all locations where contaminated material is handled or stored and in all vehicles transporting contaminated material.

3. The permittee shall ensure that emergency spill procedures are posted at all locations where contaminated material is handled or stored and carried in all vehicles transporting contaminated material, and that all personnel (employees, contractors or volunteers) are familiar with those procedures.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: Oct 3/2012 Initials: SP

Yukon
Environment

Permit No: 4201-45-033

SPECIAL WASTE RELOCATION PERMIT

Issued for the Relocation of Contaminated Material Pursuant to the Environment Act, the Contaminated Sites Regulation, and the Special Waste Regulations

Permittee: **Teck Metals Ltd.**

Mailing Address: **Bag 2000, Kimberly BC V1A 3E1**

Authorized Representative: **Dave Ryder**

Phone/Fax: **(250) 427-8614 / (250) 427-8451**

Email: **dave.ryder@teck.com**

Effective Date: **Date of Director's signature**
Expiry Date: **December 31, 2012**

Removal Location: Sa Dena Hes Mine Site

Receiving Location: Tervita Northern Rockies Landfill, Fort Nelson, BC

Scope of Authorization: In accordance with your application, **Teck Metals Ltd.**, represented by yourself, is hereby permitted to relocate soil contaminated with petroleum hydrocarbons and metals in excess of special waste criteria, hereinafter referred to as contaminated material, from the removal location to the receiving location, both as specified above, as set out in the terms and conditions of this permit.

Dated this 28th day of September, 2012

John Russell A/HDM

Director, Environmental Programs Branch
Environment Yukon

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: SEP 28 2012 Initials: JS

PART 1. DEFINITIONS

1. In this permit,
"Act" means the *Environment Act*, R.S.Y. 2002, c. 76;
"associated personnel" means all employees, contractors and volunteers involved in the permitted activities;

"Branch" means the Environmental Programs Branch, Environment Yukon;

"Duty to Mitigate letter" means a direction in writing from an environmental protection officer outlining the requirements to restore or rehabilitate the natural environment to a condition reasonably equivalent to the condition that existed immediately before the spill occurred;

"environmental protection analyst" means an employee of the Branch so designated by the Minister of Environment under the Act;

"environmental protection officer" means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

"figure" means a drawing showing the three-dimensional boundaries of the excavation with the dimensions clearly marked, and the locations depicting where the confirmatory samples were taken, including the sample names as provided to the laboratory;

"listed special waste" means soil contaminated with petroleum hydrocarbons or metals in excess of the special waste criteria;

"Regulations" means the *Contaminated Sites Regulations*, O.I.C. 2002/171 and the *Special Waste Regulations*, O.I.C. 1995/047;

"site" means the removal location, as noted above, that contains any contaminant with a concentration greater than the standards listed in Schedules 1, 2, or 3 of the *Contaminates Sites Regulation*;

"vehicle" has the same meaning as in the *Motor Vehicles Act*, R.S.Y. 2002, c. 153; and

"waste manifest" means the shipping document required to be completed by the permittee as set out in this permit in the form approved by an environmental protection analyst.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

PART 2. GENERAL

1. No condition of this permit limits the applicability of any other law or bylaw.

2. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.

3. The permittee shall ensure that all associated personnel:
   a) have access to a copy of this permit;

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: SEP 28 2012 Initials:

b) are knowledgeable of the terms and conditions of this permit; and
c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

4. The permittee shall provide notice in writing to an environmental protection analyst prior to any significant change of circumstances at the site, including without limitation:
   a) a change in the receiving location; or
   b) the relocation of material contaminated with substances other than those authorized by this permit.

5. Where conflicts exist between this permit, the permit application, or elements of any plan pertaining to any activity regulated under the Act, this permit shall prevail.

6. For clarity, all obligations of the permittee under this permit survive the expiry date.

7. The permittee shall make all documentation required by this permit available for inspection by an environmental protection officer upon request.

PART 3. RELOCATION OF CONTAMINATED MATERIAL

1. This permit is valid only for the one-time relocation of contaminated material from the removal location to the receiving location, as noted above.

2. The permittee shall ensure that all contaminated material is transported and transferred in such a manner as to prevent its release into the environment.

3. The maximum volume of contaminated material that may be relocated under this permit without undertaking an environmental screening pursuant to the *Yukon Environmental and Socio-economic Assessment Act* is 2,999m^3.

PART 4. SAMPLING AND ANALYSIS

1. The permittee shall ensure that all contaminated material covered by this permit is sampled and analyzed for all contaminants of concern, and that this sampling and analysis is undertaken in accordance with all protocols pursuant to the *Contaminated Sites Regulation* that pertain to sampling and analysis.

2. Following excavation of the contaminated material, the permittee shall ensure that confirmatory samples are taken and analyzed, in accordance with all protocols pursuant to the *Contaminated Sites Regulation* that pertain to sampling and analysis, in order to demonstrate that all contaminated material has been removed from the removal location or to identify any contaminated material remaining at the removal location.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: SEP 28 2012 Initials:

3. All analyses performed in accordance with this Part must be acceptable to the Branch. In particular, the permittee shall ensure that the detection limit of the test method(s) used is lower than the standards in the *Contaminated Sites Regulations.*

4. If the liner on which the stockpiled listed special wastes are stored appears perforated or otherwise damaged following removal of the contaminated material, the permittee shall sample the native soil for all contaminants of concern in the area where damage to the liner is observed.

5. If the permittee suspects contaminated material or runoff from the stockpile has impacted areas outside of the stockpile footprint, the permittee shall sample those areas for all contaminants of concern.

PART 5. INSPECTIONS, RECORD KEEPING & REPORTING

1. The permittee shall keep records of all analysis results (including raw analytical data), including those from in-situ, ex-situ, and confirmatory sampling, as applicable, for a minimum of 3 years and make them available for inspection by an environmental protection officer upon request. Records shall be kept in a format acceptable to the Branch.

2. If an inspection reveals that the permittee is in any way not in compliance with this permit, the permittee shall take actions as required to bring the site into compliance.

3. The permittee shall submit the following to the Branch:
   a) analytical results of the relocated material;
   b) analytical results of confirmatory samples from the removal location;
   c) actual volume of contaminated material relocated;
   d) a figure; and
   e) a document tracking form provided by the Branch accompanying items a) through d), submitted as instructed on that form.

4. The items submitted in 5.3 must be submitted on or before the latter of:
   f) 60 days following the date of issuance of this permit;
   g) the date outlined in a Duty to Mitigate letter provided by the Branch (if applicable); or
   h) as directed in writing by an environmental protection officer.

5. Failure to submit confirmatory sampling results and the accompanying figure may result in the site continuing to be identified as contaminated by the Environmental Programs Branch and inclusion of the site on the Public Registry of contaminated sites.

PART 6. TRANSPORT AND TRANSFER OF SPECIAL WASTE

1. The permittee shall ensure that all listed special wastes are transported and transferred in such a manner as to prevent their release into the environment.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
SEP 2 8 2012
Date: Initials:

2. A waste manifest shall be completed to document each shipment of contaminated material considered to be special waste, and copies of the waste manifest shall be distributed in the manner described thereon.

3. The permit number **YG45-033** shall be used as the Provincial Identification Number on waste manifests used for the transport of the contaminated material.

4. The permittee shall ensure that all vehicles carrying any contaminated material considered to be special waste are secured to prevent access by unauthorized persons.

5. The permittee shall ensure that special wastes are transported to a special waste management facility in the Yukon or another jurisdiction that is permitted to receive the listed special wastes.

6. The permittee shall ensure that special wastes are transported by a carrier permitted in the Yukon to transport the listed special wastes.

PART 8. SPILLS

1. The permittee shall contact either an environmental protection officer, or the 24-hour Yukon Spill Report Centre (**867-667–7244**) as soon as possible under the circumstances in the event of a release, spill, unauthorized emission, discharge, or escape of any contaminated material.

2. The permittee shall ensure that appropriate clean-up equipment (such as sorbent, shovel, broom, bucket, gloves, boots, etc.) is in a readily available location at all locations where contaminated material is handled or stored and in all vehicles transporting contaminated material.

3. The permittee shall ensure that emergency spill procedures are posted at all locations where contaminated material is handled or stored and carried in all vehicles transporting contaminated material, and that all personnel (employees, contractors or volunteers) are familiar with those procedures.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: SEP 28 2012 Initials:

Yukon
Environment

Permit No: 81-020

WASTE MANAGEMENT PERMIT

Issued Pursuant to
the *Environment Act*, the *Solid Waste Regulations*, the
Air Emissions Regulations, and the *Special Waste Regulations*

Permittee: Sa Dena Hes Operating Corporation

Mailing Address: Bag 2000, Kimberly, BC B1A 3E1

Site Location: Sa Dena Hes Property:
Golden Hill (60°32'58.31" N, 128°51'12.98" W) (open)
Jewelbox (60°31'17.69" N,128°52'42.27" W) (closed)

Authorized Representative: Dave Ryder
Phone/Fax: (250) 427-8416 / (250) 427-8451 (Teck Metals Ltd., Kimberly, BC)
(867) 668-6463 / (867) 668-6680 (Access Consulting, Whitehorse, YT)
Email: dave.ryder@tech.com / jlanglais@accessconsulting.ca

Effective Date: January 1, 2012 **Expiry Date:** December 31, 2014

For amendments: This permit replaces permit #81-020 issued on 8 September 2010.

Scope of Authorization: In accordance with your application, you are authorized to operate a dump for the disposal of solid waste generated by commercial activities or enterprises;

at the above site locations (the "site"), as set out in the terms and conditions of this permit.

Dated this 13 day of December, 2011

Director, Environmental Programs Branch
Environment Yukon

1. DEFINITIONS

1. In this permit,

"Act" means the *Environment Act*, R.S.Y. 2002, c. 76;

"approved plan" means a plan that is submitted by the permittee and approved by an environmental protection analyst under this permit and includes any terms and conditions specified by the environmental protection analyst in the approval;

"associated personnel" means all employees, contractors and volunteers involved in the permitted activities;

"Branch" means the Environmental Programs Branch, Environment Yukon;

"cell" means a discrete area of the site into or onto which solid waste is deposited for permanent disposal and includes such areas that are no longer used for that purpose;

"contaminated material" means any soil, snow, sediment, or water that has one or more parameters in excess of applicable standards in the *Contaminated Sites Regulation*, O.I.C. 2002/171;

"dangerous wildlife" means wildlife so defined in the *Wildlife Act,* R.S.Y. 2002, c. 229;

"disposal areas" means the locations of the cell(s);

"dump" means the portion of the site used for the handling or disposal of solid waste, including the location(s) of any machinery, equipment, devices, tanks, buildings or other works used to handle or dispose of the solid waste;

"environmental protection analyst" means an employee of the Branch so designated by the Minister of Environment under the Act;

"environmental protection officer" means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

"incinerator" means equipment used for the burning of solid waste where the air intake and combustion temperature may be controlled;

"open burning" means the combustion of material without control of the combustion air and without a stack or chimney to vent the emitted products of combustion to the atmosphere;

"Regulations" means any or all of the *Air Emissions Regulations*, O.I.C. 1998/207, the *Solid Waste Regulations*, O.I.C. 2000/11, the *Contaminated Sites Regulation*, O.I.C. 2002/171, the *Storage Tank Regulations,* O.I.C. 1996/194, the *Spills Regulations*, O.I.C. 1996/193, and the *Special Waste Regulations*, O.I.C. 1995/047, as applicable;

"solid waste" includes waste which originates from residential, commercial, industrial or institutional sources, or from the demolition or construction of buildings or other structures or which is specified in a solid waste management plan to be solid waste and for greater certainty includes litter, as defined in the *Act*, but does not include untreated brush or wood products that are not mixed with other materials;

"spill" means a spill in excess of the amounts specified in Schedule A of the *Spills Regulations*, O.I.C. 1996/193;

"vehicle" has the same meaning as in the *Motor Vehicles Act*, R.S.Y. 2002, c. 153; and

"waste manifest" means the shipping document required to be completed by the permittee as set out in this permit in the form approved by an environmental protection officer.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

2. GENERAL

1. No condition of this permit limits the applicability of any other law or bylaw.

2. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.

3. The permittee shall not generate, store, transport or otherwise handle special waste except as authorized by a special waste permit issued by the Branch.

4. The permittee shall ensure that all associated personnel:
   a) have access to a copy of this permit;
   b) are knowledgeable of the terms and conditions of this permit; and
   c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

5. The permittee shall provide notice in writing to an environmental protection analyst prior to any significant change of circumstances at the site, including without limitation:
   a) discontinuation of any regulated activity at the site;
   b) change of ownership of the site;
   c) incinerating or open burning of any solid waste;
   d) burial of any type of solid waste other than scrap metal, wood or concrete; or
   e) change to the mailing address or phone number of the permittee.

6. Where conflicts exist between this permit, the permit application or elements of any plan pertaining to any activity regulated under the Act, this permit shall prevail.

7. If an inspection reveals that the site or equipment is in any way not in compliance with this permit or approved plans developed in accordance with this permit, the permittee shall repair the damage or take other actions as required to bring the site or equipment into compliance.

8. For clarity, all obligations of the permittee under this permit survive the expiry date.

3. PLANS AND REPORTS

1. The permittee shall develop and maintain the following plans:
   a) a spill response plan for the site; and
   b) a current site plan showing the locations of the active and closed cells,

and shall produce these plans upon request for inspection by an environmental protection officer.

2. The permittee shall ensure that all associated personnel are familiar with the plans listed in paragraph 3.1.

3. When the permittee is required to submit a plan under this permit, the permittee shall:
   a) ensure the plan meets the requirements for that type of plan as established by the Branch in writing, where applicable;
   b) submit the plan in writing to an environmental protection analyst; and
   c) implement the plan as of the date it is submitted, unless otherwise provided for in this permit.

4. If the permittee wants to amend a submitted plan, the permittee shall submit the proposed amendment to an environmental protection analyst as if the amendment were a plan under paragraph 3.3 of this permit.

5. If an environmental protection analyst directs in writing that a submitted plan be amended, the permittee must prepare the required amendment by the date specified and submit it as if it were a plan referred to in paragraph 3.3 of this permit.

4. FENCING AND SECURITY

1. The permittee shall install and maintain, in accordance with the manufacturer's operating and maintenance instructions and recommendations, an electric exclusion fence(s) and gates that encompass any areas of the site that become or may become an attractant to animals. The fence and gates shall be adequate to prevent dangerous wildlife from entering the encompassed areas of the site.

2. The fences and gates referenced in paragraph 4.1 above must be:
   a) activated continuously from May 1 to October 31 of each year;
   b) activated between November 1 and April 30 of each year if there are tracks or other signs of dangerous wildlife attempting to access the dump; and
   c) activated upon the written request of an environmental protection officer.

3. If the permittee wishes to deactivate the electric fence for any length of time during the period of operation referenced in paragraph 4.2 (other than for regular maintenance of the fence), the permittee shall obtain prior approval from an environmental protection officer.

4. The permittee shall ensure that all gates are closed and secured every time personnel leave the area bounded by the electric fence.

5. The permittee shall install and maintain fencing or other comparable measures to prevent the release of solid waste from the dump.

5. STORAGE AND OFF-SITE TRANSFER OF SOLID WASTE

1. The permittee shall ensure that tires with a rim size of 24.5" or less are kept reasonably clean and not buried or burned, and that they are taken periodically to a municipal or community dump or other permitted tire depot.

2. The permittee shall ensure that they receive written authorization from the operator of any municipal or Yukon government solid waste disposal facility prior to transferring any waste to that facility.

6. BURIAL OF SOLID WASTE

1. The permittee shall ensure that:
   a) the location of any new cell is at least 100m from the high-water mark of any water body; and
   b) the base of any new cell is at least three metres above the highest observed groundwater level (if applicable).

2. The permittee shall submit a letter of notification to an environmental protection analyst when:
   a) a new cell is developed; or
   b) a cell is closed,

   providing details of the cell construction or closure and written confirmation that the cell was properly constructed or closed in accordance with written guidelines developed by the Branch.

3. The permittee shall cover any exposed solid waste in a cell with soil or other comparable material to a depth of 0.1 metres or any other depth that an environmental protection officer considers necessary to prevent windblown solid waste and attraction of birds after every 0.5 metres of solid waste is deposited.

4. Paragraph 6.3 does not apply between November 15 and April 15 of each year if soil or other comparable cover material cannot be obtained at the site.

5. The permittee shall submit to an environmental protection analyst for approval copies of all laboratory analytical results of any contaminated material before accepting it at the dump for deposition into a cell, and shall not allow special wastes or materials containing contaminants in excess of the industrial land use standards in the *Contaminated Sites Regulation*, O.I.C. 2002/171, to be deposited into a cell.

6. The permittee may dispose of tires with a rim size of greater than 24.5" by burial in a cell.

7. SPILLS

1. The permittee shall contact either an environmental protection officer, or the 24-hour Yukon Spill Report Centre (**867-667–7244**) as soon as possible under the circumstances

in the event of a release, spill, unauthorized emission, discharge, or escape of any substance listed in the *Spills Regulations*, O.I.C. 1996/193, or any of the listed special wastes.

2. The permittee shall ensure that appropriate clean-up equipment (such as sorbent, shovel, broom, bucket, gloves, boots, etc.) is in a readily available location at all locations where the listed special wastes are handled or stored.

3. The permittee shall ensure that emergency spill procedures are posted at all locations where the listed special wastes are handled or stored, and that all personnel (employees, contractors or volunteers) are familiar with those procedures.

8. INSPECTIONS

1. The permittee shall conduct weekly inspections of all electric fences and shall maintain them as necessary during periods of activation as specified in paragraph 4.2 to ensure that:
   a) the fence is sufficiently charged to deter wildlife; and
   b) there is no vegetation or windblown litter or other items along the perimeter of the fence, or contacting the fence, that may act as a ground.

9. RECORDS

1. The permittee shall keep all records required under this permit in a format acceptable to an environmental protection officer for a minimum of three years and make them available for inspection by an environmental protection officer upon request.

2. The permittee shall keep the following records at the site:
   a) a copy of each plan developed under this permit, and any amendments to and approvals (if applicable) of each plan;
   b) summaries of all inspections carried out under this permit (including the name of the person conducting the inspection, the date of each inspection, any observations recorded during the inspection, actions taken as a result of those observations, and the date each action was taken);
   c) notes concerning any spills or leaks occurring at the site, including substance involved, estimated quantity, date of observation of the spill or leak, spill reports made, and clean-up procedures implemented;
   d) any and all deficiencies remedied in accordance with paragraph 2.6, and how and when they were remedied;
   e) the types of special wastes segregated at the site, their estimated volumes, and their storage location(s) at the site;
   f) a copy of any waste manifests used to transport special wastes to or from the site;
   g) before and after photographs and a detailed description of any activities undertaken to close any cell; and
   h) written authorization from the operator of any municipal or Yukon government solid waste disposal facility authorizing the transfer of waste to that facility, if any waste is to be transferred off-site.

APPENDIX B

Site Photographs



Photograph 1 - Overview of Mill Site.



Photograph 2 - Jewelbox Hill.



Photograph 3 - Burnick 1200 Portal.



Photograph 4 - Tailings Management Facility.



Photograph 5 - Drum Storage Area.



Photograph 6 - Diesel AST at Mill Site.



Photograph 7 - 1,000L Fuel Storage Cube.



Photograph 8 - Lead Ball Storage.



Photograph 9 - Chemical Containers Stored in Dry Warehouse.



Photograph 10 - North Creek Dumping Area.

APPENDIX C

Test Pit Logs

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-01

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, angular, some sand, fine to coarse, contains shale, dark brown and grey. (FILL)		0.00	1	CS		⊕							
1		BEDROCK.		0.76											
		End of Test Pit. (Refusal)		1.10											
2															
3															



Photograph of TP12-01

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\21021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-02

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
3m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine to coarse, some fine to coarse sand, trace silt, brown, non-cohesive, moist, loose. (FILL)		0.00	1	CS		⊕							
1		BEDROCK		0.61											
		End of Test Pit. (Refusal)		1.22											
2															
3															



Photograph of TP12-02

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\02\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-03

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION % GRAVEL	GRADATION % SAND	GRADATION % FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine and coarse, angular, some fine to coarse sand, trace silt, brown, non-cohesive, moist, loose. - no odour or staining. (FILL) BEDROCK.		0.00 0.30	1	CS		⊕							
		End of Test Pit. (Refusal)		0.61											
1															
2															
3															



Photograph of TP12-03

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-04

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine to coarse, some sand, trace silt, brown, non-cohesive, moist, loose. (FILL) - no odour or staining.		0.00	1	CS		⊕							
		BEDROCK.		0.30											
1		End of Test Pit. (Refusal)		0.91											
2															
3															



Photograph of TP12-04

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-05

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2.5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine to coarse, some sand, trace silt, containing loose shale, brown, non-cohesive, moist, loose. (FILL)		0.00	1	CS									
1		BEDROCK, brown and grey, non-cohesive, moist, loose, fractured.		0.30											
		End of Test Pit. (Refusal)		1.22											
2															
3															

Photograph of TP12-05 not Available

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-06

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(GW) GRAVEL, fine and coarse, some sand and silt, brown, non-cohesive, moist, compact. (FILL) - no odour or staining.		0.00	1	CS									
1		(GM) SILTY GRAVEL, brown, non-cohesive, moist, loose. (FILL) - faint hydrocarbon-like odour from 1.21m to 1.52m depth. - dark brown-black staining from 1.21 to 1.82m depth.		0.61											
2		(GM) SILTY GRAVEL, fine and coarse, some fine to coarse sand, brown, non-cohesive, loose to compact. - contains roots, rootlets and wood debris throughout. (FILL)		1.52	2	CS									
3					3	CS									
		End of Test Pit.		3.35											



Photograph of TP12-06

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-07

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
4m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(GW) GRAVEL, fine and coarse, some fine to medium sand, trace silt, brown, non-cohesive, moist, loose. (FILL) - no odour or staining.		0.00	1	CS	⊕								
1		BEDROCK.		1.22	2	CS	⊕								
2		End of Test Pit. (Refusal)		2.13											
3															

PID ppm ⊕

5 10 15 20
WATER CONTENT PERCENT
Wp W Wl
10 20 30 40

Photograph of TP12-07 not Available

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-08

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(GW) GRAVEL, fine to coarse, some fine to coarse sand, trace to some silt, contains wood debris, brown, with cobble, non-cohesive, moist, loose to compact. (FILL) - no odour or staining.		0.00	1	CS									
1					2	CS									
2					3	CS									
					4	CS									
		BEDROCK. End of Test Pit. (Refusal)		2.44											
3															



Photograph of TP12-08

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-09

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator Excavator Bucket	(GW) GRAVEL, fine and coarse, some fine to coarse sand, trace to some silt from 2.13 to 2.43m depth, brown and grey, with cobble, non-cohesive, moist, loose. (FILL) - no odour or staining.		0.00	1	CS									
1					2	CS									
2					3	CS									
3		End of Test Pit.		3.35											



Photograph of TP12-09

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Gold Hill Shop

RECORD OF TEST PIT: TP12-10

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
3m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(GW) GRAVEL, fine and coarse, some fine to coarse sand and silt, fractured shale, brown, mottled, orange, with cobble, non-cohesive, moist, loose to compact. - faint hydrocarbon-like odour from 0m to 0.60m depth.		0.00	1	CS									
1					2	CS									
		BEDROCK.		1.22											
		End of Test Pit. (Refusal)		1.52											
2															
3															



Photograph of TP12-10

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Gold Hill Shop

RECORD OF TEST PIT: TP12-11

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
7m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine and coarse, some fine to coarse sand, trace silt, brown, non-cohesive, moist, loose. - hydrocarbon-like odour, black staining from 0.94m depth.		0.00	1	CS		⊕							
1		(GW) GRAVEL, fine and coarse, some fine to coarse sand and silt, brown, non-cohesive, moist, loose. - hydrocarbon-like odour.		0.61	2	CS		⊕							
2		BEDROCK. End of Test Pit. (Refusal)		1.83											
3															



Photograph of TP12-11

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Gold Hill Shop

RECORD OF TEST PIT: TP12-12

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine to coarse gravel, some fine to coarse sand, trace silt, brown, angular, non-cohesive, moist, loose. (FILL) - no odour or staining.		0.00	1	CS		⊕							
		BEDROCK.		0.61											
1		End of Test Pit. (Refusal)		0.91											
2															
3															



Photograph of TP12-12

DEPTH SCALE
1 : 30

LOGGED: AB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Gold Hill Shop

RECORD OF TEST PIT: TP12-13

EXCAVATION DATE: August 22, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
3m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(GW) GRAVEL, fine and coarse, some fine to coarse sand, trace silt, brown, non-cohesive, moist, compact. (FILL) - no odour or staining.		0.00	1	CS									
1		BEDROCK.		0.91											
		End of Test Pit. (Refusal)		1.22											
2															
3															



Photograph of TP12-13

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: North Creek Dump Site

RECORD OF TEST PIT: TP12-14

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS: 5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW) SAND, fine to coarse, rounded, some fine to coarse gravel, trace silt, brown, non-cohesive, moist, loose. (FILL) - no odour or staining.		0.00	1	CS		⊕							
1		(SW) SAND, fine to coarse, rounded, some fine and coarse gravel, trace silt, brown, with cobble, non-cohesive. (FILL) - no odour or staining.		0.91	2	CS		⊕							
2		End of Test Pit. (Refusal)		2.13											
3															



Photograph of TP12-14

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: North Creek

RECORD OF TEST PIT: TP12-15

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW) SAND, fine to coarse rounded, some fine and coarse gravel, some silt, brown, with cobble, non-cohesive, moist, compact. (FILL)		0.00	1	CS		⊕							
1					2	CS		⊕							
2		(SW-GW) SAND and GRAVEL, fine to coarse rounded and sub-angular, trace silt, brown, non-cohesive, moist, compact. (FILL) - no odour or staining.		1.83											
3		End of Test Pit.		2.74											



Photograph of TP12-15

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: North Creek Dump Site

RECORD OF TEST PIT: TP12-16

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES NUMBER	SAMPLES TYPE	SAMPLES RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION % GRAVEL	GRADATION % SAND	GRADATION % FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW) SAND, fine to coarse rounded and subangular, some silt, some gravel, brown, non-cohesive, moist, compact. (FILL) - no odour or staining.		0.00	1	CS									
1		(SW-GW) SAND and GRAVEL, fine to coarse, sub-angular, trace silt, brown, non-cohesive, moist, compact. (FILL) - no odour or staining.		0.76	2	CS									
2		(ML) SILT, trace to some fine sand from 2.28m to 2.43m depth, brown, non-cohesive, moist to wet, compact. (NATIVE)		2.29											
3		End of Test Pit.		3.05											



Photograph of TP12-16

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: North Creek Dump Site

RECORD OF TEST PIT: TP12-17

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator Excavator Bucket	(SW-GW) SAND and GRAVEL, fine to coarse, trace to some silt. (FILL) - no odour or staining.		0.00	1	CS		⊕							
1		(SW-GW) SAND and GRAVEL, fine to coarse, trace silt, brown-grey, with cobbles, non-cohesive, moist to wet, compact. (FILL) - no odour or staining.		0.91	2	CS		⊕							
2		(ML) SILT, trace fine sand, brown-grey, non-cohesive, wet, compact. (NATIVE) - no odour or staining.		2.74											
3		End of Test Pit.		3.05											



Photograph of TP12-17

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: North Creek Dump Site

RECORD OF TEST PIT: TP12-18

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
4m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW) SAND, fine to coarse, some fine to coarse gravel, some silt, with cobbles. (FILL) - no odour or staining.		0.00	1	CS		⊕							
1		(SW-GW) SAND and GRAVEL, fine and coarse, some silt, brown, non-cohesive, moist to wet, compact. (FILL) - no odour or staining.		0.91	2	CS		⊕							
		(ML) SILT. (NATIVE)		1.68											
2		End of Test Pit.		1.83											
3															



Photograph of TP12-18

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: North Creek Dump Site

RECORD OF TEST PIT: TP12-19

EXCAVATION DATE: August 26, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW) gravelly SAND, fine to coarse, trace to some silt, metal debris, brown, with cobbles, non-cohesive, moist, compact. (FILL) - no odour or staining.		0.00	1	CS									
1					2	CS									
2		(SW) SAND, fine to coarse, some gravel and silt, brown, non-cohesive, moist, compact. (FILL) - no odour or staining.		1.52											
		(ML) SILT, trace to some fine sand, non-cohesive, moist, compact. (NATIVE) - no odour or staining.		2.44											
3		End of Test Pit.		2.74											



Photograph of TP12-19

DEPTH SCALE
1 : 30

LOGGED: AB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Burnick Shop

RECORD OF TEST PIT: TP12-20

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine and coarse, subangular, some firm to coarse sand, trace silt, with cobble. (FILL) - from 0.45m to 0.91m depth: brown, non-cohesive, moist, compact. - hydrocarbon-like odour and black-grey staining.		0.00	1	CS			51.1						
1		(SW-GW) SAND and GRAVEL, fine to coarse, subangular, some silt, wood debris to 1.82m depth, brown, with cobble, non-cohesive, moist, compact. (FILL) - faint organic-like odour, no staining.		0.91	2	CS									
2															
3		End of Test Pit.		2.59											



Photograph of TP12-20

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Burnick Shop

RECORD OF TEST PIT: TP12-21

SHEET 1 OF 1

DATUM: Ground Surface

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL, fine to coarse, subangular and angular, trace to some silt,with cobble (waste rock), non-cohesive, moist, dense. (FILL) - black staining and hydrocarbon-like odour from 0.30 to 0.60m depth.		0.00	1	CS		⊕							
1		(GW) GRAVEL, coarse, angular and subangular, some fine to coarse sand, trace silt, with cobble (waste rock), brown, non-cohesive, moist, dense. (FILL)		0.91	2	CS		⊕							
2		End of Test Pit.		1.83											
3															



Photograph of TP12-21

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Burnick Shop

RECORD OF TEST PIT: TP12-22

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(GW) GRAVEL, fine and coarse, angular and subangular, some medium and coarse sand, trace silt, grey, with cobble (waste rock), non-cohesive, moist, very compact. (FILL) - no odour or staining.		0.00	1	CS		⊕							
1															
		(SW-GW) SAND and GRAVEL, fine and coarse subangular, some silt, brown, non-cohesive, moist, compact. (FILL) - no odour or staining.		1.37	2	CS		⊕							
2															
		End of Test Pit.		2.74											
3															



Photograph of TP12-22

DEPTH SCALE
1 : 30

LOGGED: AB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Burnick Shop

RECORD OF TEST PIT: TP12-23

EXCAVATION DATE: August 23, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW-GW) SAND and GRAVEL, fine to coarse, subangular and angular, trace silt, grey to 0.45m depth, then brown, with angular cobble (waste rock), non-cohesive, moist, dense. (FILL)		0.00	1	CS		⊕							
1															
2		BEDROCK.		1.98											
		End of Test Pit. (Refusal)		2.13											
3															



Photograph of TP12-23

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box

RECORD OF TEST PIT: TP12-24

EXCAVATION DATE: August 24, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW-GW) SAND and GRAVEL, fine to coarse, angular and subangular, some silt, brown-grey, non-cohesive, moist, compact to dense. (FILL) - faint hydrocarbon-like odour from 0.15m to 0.45m depth.		0.00	1	CS									
1		(GW) GRAVEL and layered BEDROCK, some fine to coarse sand, trace silt, grey, non-cohesive, moist, dense. (FILL) - no odour or staining.		0.91											
		(BEDROCK) layered, grey, non-cohesive, moist, very dense.		1.52	2	CS									
2		End of Test Pit. (Refusal)		2.13											
3															



Photograph of TP12-24

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box

RECORD OF TEST PIT: TP12-25

EXCAVATION DATE: August 24, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine and coarse, subangular and angular, some fine to coarse sand, trace silt, grey to 0.60m then brown, non-cohesive, moist, dense. (FILL) - hydrocarbon-like odour from 0.0m to 0.30m depth. - staining from 0.0m to 0.02m depth.		0.00	1	CS									
1		(SW-GW) SAND and GRAVEL, fine and coarse, trace silt, brown with orange mottling, non-cohesive, moist, compact. (FILL) - faint hydrocarbon-like odour and black stains from 1.52m to 1.82m depth.		0.91	2	CS			101.3						
2		BEDROCK.		1.83											
		End of Test Pit. (Refusal)		2.13											
3															



Photograph of TP12-25

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box

RECORD OF TEST PIT: TP12-26

EXCAVATION DATE: August 24, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
4m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW) gravelly SAND, fine to coarse, subangular, trace silt, brown to 0.60m depth then grey to 0.90m depth, non-cohesive, moist, compact. (FILL) - contains metal debris, mottled orange at approx. 0.60m depth. - no odour or staining.		0.00	1	CS		⊕							
1		(GW) GRAVEL, fine and coarse, angular and subangular, metal debris to 1.21m depth, grey, some sand, trace silt, grey, with cobble (waste rock), non-cohesive, moist, dense. (FILL) - no odour or staining.		0.91	2	CS		⊕							
2		BEDROCK, layered. End of Test Pit. (Refusal)		1.83											
3															



Photograph of TP12-26

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdroz:diak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box

RECORD OF TEST PIT: TP12-27

EXCAVATION DATE: August 24, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
5m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine to coarse, angular and subangular, some medium to coarse sand, grey to 0.60m depth brown to 0.90m depth, non-cohesive, moist, dense. (FILL) - hydrocarbon-like odour and black staining.		0.00	1	CS			745.1						
1		(SW-GW) SAND and GRAVEL, fine to coarse, trace silt, brown, with cobble, non-cohesive, moist, dense. (FILL)		0.91	2	CS			28.1						
2		BEDROCK, layered.		2.13											
		End of Test Pit. (Refusal)		2.74											
3															



Photograph of TP12-27

DEPTH SCALE
1 : 30

LOGGED: AB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-28

EXCAVATION DATE: August 24, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
4m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL, fine and coarse, angular to subangular, trace to some silt, brown-grey, non-cohesive, moist, compact. (FILL) - no odour or staining.		0.00	1	CS		⊕							
1		BEDROCK, layered, fractured, grey, very dense.		0.76											
		End of Test Pit. (Refusal)		1.68											
2															
3															



Photograph of TP12-28

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-29

EXCAVATION DATE: August 24, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
4m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, fine and coarse, angular and subangular, some fine to coarse sand, some silt, grey-brown, non-cohesive, moist, dense. (FILL) - no odour or staining.		0.00	1	CS		⊕							
1					2	CS		⊕							
		BEDROCK.		1.52											
2		End of Test Pit. (Refusal)		1.83											
3															



Photograph of TP12-29

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-30

EXCAVATION DATE: August 24, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
4m Length x 1.5m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL, fine to coarse, subangular, some silt, brown, with cobble, non-cohesive, moist, compact. (FILL) - no odour or staining.		0.00	1	CS		⊕							
1		(GW) GRAVEL, fine to coarse, subangular, some fine to coarse sand, trace silt, brown, non-cohesive, moist, dense. (FILL) - brown-black stains from 1.21m to 1.52m depth.		0.91	2	CS		⊕							
2		End of Test Pit. (Refusal)		1.83											
3															

Photograph of TP12-30 not Available

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: AB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-31

EXCAVATION DATE: September 28, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2.5m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW-GW) SAND and GRAVEL, dark brown, moist. (FILL)		0.00	300	CS	⊕								
1					300A	CS	⊕								
2					300B	CS	⊕								
		End of Test Pit. (Refusal on Bedrock)		2.40											
3															



Photograph of TP12-31

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-32

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1m Length x 0.75m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL. (FILL)		0.00	301	CS									
					301A	CS									
		End of Test Pit. (Refusal on Bedrock)		0.75											
1															
2															
3															



Photograph of TP12-32

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-33

SHEET 1 OF 1

DATUM: Ground Surface

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL. (FILL)		0.00	302	CS									
1					302A	CS									
		End of Test Pit. (Refusal on Bedrock)		1.20											
2															
3															



Photograph of TP12-33

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-34

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2.5m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL, grey-brown, moist. (FILL)		0.00	303	CS	⊕								
1					303A	CS	⊕								
2					303B	CS	⊕								
		End of Test Pit. (Refusal on Bedrock)		2.30											
3															



Photograph of TP12-34

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-35

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS: 2m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW-GW) SAND and GRAVEL, dark grey-brown, moist. (FILL)		0.00	304	CS									
1					304A	CS									
					304B	CS									
		End of Test Pit. (Refusal on Bedrock)		1.70											
2															
3															



Photograph of TP12-35

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-36

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1m Length x 0.75m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL. (FILL)		0.00	305	CS									
1		End of Test Pit. (Refusal on Bedrock)		0.61											
2															
3															



Photograph of TP12-36

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-37

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1.5m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	TOPSOIL, organics.		0.00											
		(SW-GW) SAND and GRAVEL. (FILL)		0.10	306	CS									
					306A	CS									
		End of Test Pit. (Refusal on Bedrock)		0.80											
1															
2															
3															

Photograph of TP12-37 not Available

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Mill Site

RECORD OF TEST PIT: TP12-38

SHEET 1 OF 1

DATUM: Ground Surface

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GP) GRAVEL, fine. (FILL)		0.00											
		(SW-GW) SAND and GRAVEL, with cobble. (FILL)		0.50	307	CS									
1					307A	CS									
2					307B	CS									
3					307C	CS									
		End of Test Pit. (End of Excavator Reach)		3.40											



Photograph of TP12-38

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box Hill

RECORD OF TEST PIT: TP12-39

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DATUM: Ground Surface

TEST PIT DIMENSIONS:
3m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator Excavator Bucket	(SW-GW) SAND and GRAVEL, trace metal debris, dark brown-grey, moist. (FILL)		0.00	308	CS									
1					308A	CS									
2					308B	CS									
3		*CONTINUED NEXT PAGE*													



Photograph of TP12-39

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box Hill

RECORD OF TEST PIT: TP12-39

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DATUM: Ground Surface

TEST PIT DIMENSIONS: 3m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
4	Excavator Bucket	- from 3.8m - 4.40m depth: wood debris. (SW-GW) SAND and GRAVEL, trace metal debris, dark brown-grey, moist. (FILL) *(continued)*			308C	CS									
		End of Test Pit. (End of Excavator Reach)		4.40											
5															
6															
7															



Photograph of TP12-39

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box Hill

RECORD OF TEST PIT: TP12-40

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DATUM: Ground Surface

TEST PIT DIMENSIONS:
3m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, white to light brown, moist. (FILL)		0.00	309	CS									
1					309A	CS									
2					309B	CS									
3					309C	CS									
		CONTINUED NEXT PAGE													



Photograph of TP12-40

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box Hill

RECORD OF TEST PIT: TP12-40

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DATUM: Ground Surface

TEST PIT DIMENSIONS: 3m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
4	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, white to light brown, moist. (FILL) *(continued)*			309D	CS		⊕							
		End of Test Pit. (End of Excavator Reach)		4.50											
5															
6															
7															



Photograph of TP12-40

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B:C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdroz:diak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box Hill

RECORD OF TEST PIT: TP12-41

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DATUM: Ground Surface

TEST PIT DIMENSIONS:
3m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, light grey-brown, moist. (FILL)		0.00	310	CS	⊕								
1					310A	CS	⊕								
2					310B	CS	⊕								
3					310C	CS	⊕								
		CONTINUED NEXT PAGE													

Photograph of TP12-41 not Available

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B:C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box Hill

RECORD OF TEST PIT: TP12-41

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DATUM: Ground Surface

TEST PIT DIMENSIONS: 3m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
4	Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, light grey-brown, moist. (FILL) *(continued)* - at 4.0m depth: wood debris.			310D	CS									
		End of Test Pit. (End of Excavator Reach)		4.40											
5															
6															
7															

PID ppm: ⊕

WATER CONTENT PERCENT: 5 10 15 20; Wp — W — Wl; 10 20 30 40

Photograph of TP12-41 not Available

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B:C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

RECORD OF TEST PIT: TP12-42

SHEET 1 OF 1

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Jewel Box Hill

EXCAVATION DATE: September 29, 2012

DATUM: Ground Surface

INCLINATION: -90°

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW-GW) SAND and GRAVEL, contains organics, red-brown, moist. (FILL)		0.00	312	CS									
1		(SW-GW) SAND and GRAVEL, with waste rock, dark grey-brown, moist. (FILL)		0.80	312A	CS									
2					312B	CS									
3		SHALE.		3.10	312C	CS									
		End of Test Pit. (Refusal on Bedrock)		3.30											



Photograph of TP12-42

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\10\21\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Storage Area

RECORD OF TEST PIT: TP12-43

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1.5m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, angular, with waste rock, some sand, dark grey, moist. (FILL)		0.00	313	CS		⊕							
1					313A	CS		⊕							
		End of Test Pit. (Refusal on Bedrock)		1.30											
2															
3															



Photograph of TP12-43

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\10211\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Storage Area

RECORD OF TEST PIT: TP12-44

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1m Length x 0.75m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, angular, some sand. (FILL)		0.00	314	CS									
		End of Test Pit. (Refusal on Bedrock)		0.61											
1															
2															
3															



Photograph of TP12-44

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Storage Area

RECORD OF TEST PIT: TP12-45

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1m Length x 0.75m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(GW) GRAVEL, angular, some sand, dark grey, moist. (FILL)		0.00	315	CS									
		End of Test Pit. (Refusal on Bedrock)		0.50											
1															
2															
3															



Photograph of TP12-45

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:BC REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdroz:diak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Storage Area

RECORD OF TEST PIT: TP12-46

EXCAVATION DATE: September 29, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1m Length x 0.75m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, dark grey, moist. (FILL)		0.00	316	CS									
1		End of Test Pit. (Refusal on Bedrock)		0.75											
2															
3															



Photograph of TP12-46

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\10\21\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Gold Hill Shop

RECORD OF TEST PIT: TP12-47

EXCAVATION DATE: September 30, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2.5m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, dark brown, moist. (FILL)		0.00	317	CS									
1					317A	CS									
2					317B	CS									
					317C	CS									
3		End of Test Pit. (Refusal on Bedrock)		2.80											



Photograph of TP12-47

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdroz:diak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Gold Hill Shop

RECORD OF TEST PIT: TP12-48

EXCAVATION DATE: September 30, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
2m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, dark grey, moist. (FILL)		0.00	318	CS									
1					318A	CS									
		End of Test Pit. (Refusal on Bedrock)		1.50											
2															
3															



Photograph of TP12-48

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\1021\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdrozdiak 01/31/13

PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Gold Hill Shop

RECORD OF TEST PIT: TP12-49

EXCAVATION DATE: September 30, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1.5m Length x 1m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
		Ground Surface													
0	Hitachi 200 Excavator, Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, dark grey-brown, moist. (FILL)		0.00	319	CS									
1		End of Test Pit. (Refusal on Bedrock)		0.80											
2															
3															



Photograph of TP12-49

DEPTH SCALE
1 : 30

LOGGED: ANB
CHECKED: GJH

Golder Associates

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PROJECT No.: 12-1021-0006

CLIENT: Teck Metals Ltd.
PROJECT: Sa Dena Hes Mine - Phase I & II ESA
LOCATION: Gold Hill Shop

RECORD OF TEST PIT: TP12-50

EXCAVATION DATE: September 30, 2012

INCLINATION: -90°

SHEET 1 OF 1

DATUM: Ground Surface

TEST PIT DIMENSIONS:
1m Length x 0.75m Width

DEPTH SCALE METRES	EXCAVATION METHOD	SOIL PROFILE: DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	SAMPLES: NUMBER	SAMPLES: TYPE	SAMPLES: RECOVERY %	PID ppm / WATER CONTENT PERCENT (Wp, W, Wl)	GRADATION %: GRAVEL	GRADATION %: SAND	GRADATION %: FINES	PLASTICITY	FROZEN GROUND DESCRIPTION	ADDITIONAL LAB. TESTING	PIEZOMETER, STANDPIPE, THERMISTOR INSTALLATION OR SEEPAGE OBSERVATION
0		Ground Surface													
	Hitachi 200 Excavator / Excavator Bucket	(SW-GW) SAND and GRAVEL, with waste rock, dark grey, moist. (FILL)		0.00	320	CS									
		End of Test Pit. (Refusal on Bedrock)		0.50											
1															
2															
3															



Photograph of TP12-50

DEPTH SCALE
1 : 30

Golder Associates

LOGGED: ANB
CHECKED: GJH

File:N:\BUR-GRAPHICS\PROJECTS\2012\12-1021-0006\CAD\GINT\12-1021-0006.GPJ Output Form:BC_TESTPIT WITH PHOTO Template:B.C REGION TEMPLATE BETA 2.GDT Library:BC REGION LIBRARY.GLB bdroz:diak 01/31/13

APPENDIX D

Laboratory Certificates and Chains of Custody

Provided on CD (back cover)

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Golder Associates	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Andrea Badger	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	203 170 Titanium Way	Email 1: andrea_badger@golder.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1	Email 2: gary_hamilton@golder.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076 Fax:	Email 3: andrew_bruemmer@golder.com	
Invoice To	Same as Report ? ☐ Yes ☐ No	**Client / Project Information**	**Analysis Request**
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #: 12-1021-0006	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q35898	
Lab Work Order # (lab use only)		**ALS Contact:** Amber Springer	**Sampler:** A Badger

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals											Number of Containers
	300 TP12-31	28-Sep-12	16:00	Soil	X											2
	301 TP12-32	29-Sep-12	8:15	Soil	X											2
	302 TP12-33	29-Sep-12	8:40	Soil	X											2
	303 TP-12-34	29-Sep-12	8:50	Soil	X											2
	304 TP12-35	29-Sep-12	9:08	Soil	X											2
	305 TP12-36	29-Sep-12	9:25	Soil	X											2
	306 TP12-37	29-Sep-12	9:50	Soil	X											2
	307 TP12-38	29-Sep-12	10:09	Soil	X											2
	308 TP12-39	29-Sep-12	11:38	Soil	X											2
	309 TP12-40	29-Sep-12	12:08	Soil	X											2
	310 TP12-41	29-Sep-12	12:40	Soil	X											2
	311 TP12-41	29-Sep-12	12:40	Soil	X											2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Golder Associates	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Andrea Badger	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	203 170 Titanium Way	Email 1: andrea_badger@golder.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1	Email 2: gary_hamilton@golder.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076 Fax:	Email 3: andrew_bruemmer@golder.com	
Invoice To	Same as Report ? ☐ Yes ☐ No	**Client / Project Information**	**Analysis Request**
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #: 12-1021-0006	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q35898	
Lab Work Order # (lab use only)		**ALS Contact:** Amber Springer	**Sampler:** A Badger

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	312 TP12-42	29-Sep-12	13:20	Soil	X	2
	313 TP12-43	29-Sep-12	15:40	Soil	X	2
	314 TP12-44	29-Sep-12	15:50	Soil	X	2
	315 TP12-45	29-Sep-12	16:00	Soil	X	2
	316 TP12-46	29-Sep-12	16:12	Soil	X	2
	317 TP12-47	30-Sep-12	10:50	Soil	X	2
	318 TP12-48	30-Sep-12	11:25	Soil	X	2
	319 TP12-49	30-Sep-12	11:40	Soil	X	2
	320 TP12-50	30-Sep-12	11:50	Soil	X	2
	321 TP12-50	30-Sep-12	11:50	Soil	X	2
	322 SS12-06	30-Sep-12	12:45	Sediment	X	2
	323 SS12-07	30-Sep-12	12:50	Sediment	X	2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Golder Associates	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Andrea Badger	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	203 170 Titanium Way	Email 1: andrea_badger@golder.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1	Email 2: gary_hamilton@golder.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076 Fax:	Email 3: andrew_bruemmer@golder.com	
Invoice To	Same as Report ? ☐ Yes ☐ No	**Client / Project Information**	**Analysis Request**
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #: 12-1021-0006	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q35898	
Lab Work Order # (lab use only)		**ALS Contact:** Amber Springer	**Sampler:** A Badger

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	324 SS12-08	30-Sep-12	14:15	Sediment	X	2
	325 SS12-09	30-Sep-12	14:20	Sediment	X	2
	326 SS12-10	30-Sep-12	14:30	Sediment	X	2
	327 SS12-11	30-Sep-12	14:35	Sediment	X	2
	328 SS12-12	01-Oct-12	11:06	Sediment	X	2
	329 SS12-13	01-Oct-12	11:20	Sediment	X	2
	330 SS12-14	01-Oct-12	11:30	Sediment	X	2
	331 SS12-14	01-Oct-12	11:30	Sediment	X	2
	332 SS12-15	01-Oct-12	11:40	Sediment	X	2
	333 SS12-16	01-Oct-12	11:46	Sediment	X	2
	334 SS12-17	01-Oct-12	11:54	Sediment	X	2
	335 SS12-18	01-Oct-12	12:03	Sediment	X	2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.

By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.

Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

ALS Environmental

Chain of Custody / Analytical Request Form
Canada Toll Free: 1 800 668 9878
www.alsglobal.com

COC # _____

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Golder Associates	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Andrea Badger	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	203 170 Titanium Way	Email 1: andrea_badger@golder.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1	Email 2: gary_hamilton@golder.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076 Fax:	Email 3: andrew_bruemmer@golder.com	
Invoice To	Same as Report ? ☐ Yes ☐ No	**Client / Project Information**	**Analysis Request**
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #: 12-1021-0006	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q35898	
Lab Work Order # (lab use only)		**ALS Contact:** Amber Springer	**Sampler:** A Badger

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	336 SS12-19	01-Oct-12	12:10	Sediment	X	2
	337 SS12-20	01-Oct-12	12:17	Sediment	X	2
	338 SS12-21	01-Oct-12	12:25	Sediment	X	2
	339 SS12-22	01-Oct-12	12:35	Sediment	X	2
	340 SS12-23	01-Oct-12	12:45	Sediment	X	2
	341 SS12-23	01-Oct-12	12:45	Sediment	X	2
	342 SS12-24	01-Oct-12	12:53	Sediment	X	2
	343 SS12-25	01-Oct-12	13:00	Sediment	X	2
	344 SS12-26	01-Oct-12	13:11	Sediment	X	2
	345 SS12-27	01-Oct-12	13:20	Sediment	X	2
	346 SS12-28	01-Oct-12	13:30	Sediment	X	2
	347 SS12-29	01-Oct-12	13:41	Sediment	X	2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Golder Associates	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Andrea Badger	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	203 170 Titanium Way	Email 1: andrea_badger@golder.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1	Email 2: gary_hamilton@golder.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076 Fax:	Email 3: andrew_bruemmer@golder.com	
Invoice To	Same as Report ? ☐ Yes ☐ No	**Client / Project Information**	**Analysis Request**
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #: 12-1021-0006	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q35898	
Lab Work Order # (lab use only)		**ALS Contact:** Amber Springer	**Sampler:** A Badger

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	348 SS12-30	01-Oct-12	13:50	Sediment	X	2
	349 SS12-31	01-Oct-12	14:00	Sediment	X	2
	350 SS12-32	01-Oct-12	14:10	Sediment	X	2
	351 SS12-32	01-Oct-12	14:10	Sediment	X	2
	352 SS12-33	01-Oct-12	15:00	Sediment	X	2
	353 SS12-34	01-Oct-12	15:05	Sediment	X	2
	354 SS12-35	01-Oct-12	15:10	Sediment	X	2
	355 SS12-36	01-Oct-12	16:15	Sediment	X	2
	356 SS12-37	01-Oct-12	16:20	Sediment	X	2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To		**Report Format / Distribution**	**Service Requested** (Rush for routine analysis subject to availability)
Company:	Golder Associates	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Andrea Badger	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	203 170 Titanium Way	Email 1: andrea_badger@golder.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1	Email 2: gary_hamilton@golder.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076 Fax:	Email 3: andrew_bruemmer@golder.com	
Invoice To	Same as Report ? ☐ Yes ☐ No	**Client / Project Information**	**Analysis Request**
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #: 12-1021-0006	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q35898	
Lab Work Order # (lab use only)		**ALS Contact:** Amber Springer	**Sampler:** A Bruemmer

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	TP12-20 7-8 ft	23-Aug-12		Soil	X	2
	TP12-21 5-6 ft	23-Aug-12		Soil	X	2
	TP12-22 8-9 ft	23-Aug-12		Soil	X	2
	TP12-24 4.5-5.5 ft	24-Aug-12		Soil	X	2
	TP12-25 4-5 ft	24-Aug-12		Soil	X	2
	TP12-26 4.5-5.5 ft	24-Aug-12		Soil	X	2
	TP12-27 7-8 ft	24-Aug-12		Soil	X	2
	TP12-29 4-5 ft	24-Aug-12		Soil	X	2
	TP12-30 4-5 ft	24-Aug-12		Soil	X	2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

№ 23703 page 1 of 4

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

Project Number:		Laboratory Name:	
12-1021-0006		ALS	
Short Title:		Address:	
Sia Dena Hes - ESA		#100-8081 Lougheed Hwy, Bby, BC	
Golder Contact:	Golder E-mail Address:	Tel/Fax:	Contact:
Andrew Bruemmer	abruemmer@golder.com	604 253.4188	Amber Springer

Office the final reports should be sent to:

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

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Analyses Required: CSR Metals *	LEPH/HEPH/PAH	HOLD	RUSH	Remarks (over)
23703 -01	TP12-01	1	0.5-0.45	Soil	22/8/12		Disc			2	X				* Yukon
-02	TP12-02	1	0-0.3							2	X				CSR
-03	TP12-03	1	0-0.3							2	X				
-04	TP12-04	1	0-0.3							2	X				
-05	TP12-05	1	0-0.3							2	X				
-06	TP12-06	1	0-0.3							2	X	X			
-07	↓	2	1.35-1.65							2	X	X			
-08	↓	3	2.1-2.4							2			X		
-09	TP12-07	1	0.3-0.6							2	X	X			
-10	↓	2	1.5-1.8							2			X		
-11	TP12-08	1	0-0.3							2	X	X			
-12	↓	2	0.6-0.9	↓	↓		↓			2					

Sampler's Signature	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Andrew Bruemmer	Andrew Bruemmer	GOLDER	27/08/2012			
Sample Storage (°C)	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company

Comments:	Method of Shipment:	Waybill No.:	Received for Lab by:	Date	Time
PLEASE REFERENCE ALS QUOTE #Q35898	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C) / Cooler opened by:	Date	Time

WHITE: Golder copy YELLOW: Lab copy PINK: Lab returns with Final Report

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

№ 23704 page 2 of 4

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

Project Number: 12-1021-0006		Laboratory Name: ALS	
Short Title: SIA DENA HES - ESA		Address: #100-8081 LOUGHEED HWY, BBY, BC	
Golder Contact: ANDREW BRUEMMER	Golder E-mail Address: abruemmer @golder.com	Tel/Fax: 604.253 4188	Contact: AMBER SPRINGER

Office the final reports should be sent to:

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

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Analyses Required: CSR metals*	LEPH/HEPH/PAH	HOLD	RUSH	Remarks (over)
23704 -01	TP12-08	3	1.2-1.5	Soil	22/8/12		Disc			2	X				*YUKON
-02	↓	4	2.1-2.4	↓	↓		↓			2			X		CSR.
-03	TP12-09	1	0.3-0.6							2	X	X			
-04	↓	2	1.2-1.5							2	X	X			
-05	↓	3	2.1-2.4							2			X		
-06	TP10-10	1	0-0.3							2	X				
-07	↓	2	0.9-1.2							2			X		
-08	TP12-11	1	0-0.3					FDA	23704-09	2	X				
-09	↓	~~2~~ 1	~~1.2-1.5~~					FD	23704-08	2	X				
-10	~~TP12-12~~	~~2~~ 2	~~0.9-1.2~~ 1.2-1.5							2	X				
-11	~~TP12-13~~ TP12-12	1	0.3-0.6		↓		↓			2	X				
-12	~~TP12-13~~	1	↓	↓						2	X				

Sampler's Signature	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Andrew Bruemmer	Andrew Bruemmer	GOLDER	27/08/2012			
Sample Storage (°C)	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company

Comments: PLEASE REFERENCE ALS QUOTE #A35898	Method of Shipment:	Waybill No.:	Received for Lab by:	Date	Time
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C) / Cooler opened by:	Date	Time

WHITE: Golder copy YELLOW: Lab copy PINK: Lab returns with Final Report

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

№ 23705 page 3 of ___

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

Project Number: 12-P021-00006		Laboratory Name: ALS	
Short Title: SJA DENA HES - ESA		Address: #100-8081 LOUGHEED HWY, BBY, BC	
Golder Contact: ANDREW BRUEMMER	Golder E-mail Address: abruemmer @golder.com	Tel/Fax: 604.253.4188	Contact: AMBER SPRINGER

Office the final reports should be sent to:

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

Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Analyses Required: CSR Metals *	LEPH/HEPH/PAH								RUSH	Remarks (over)
23705 -01	TP12-14	1	0.15-0.45	Soil	23/8/12		Disc			2	X	X								*	YUKON
-02	TP12-15	1	↓	↓	↓		↓			2	X	X									CSR
-03	TP12-16	1								2	X	X									
-04	TP12-17	1								2	X										
-05	TP12-18	1								2	X	X									
-06	TP12-19	1								2	/										
-07	TP12-20	1	↓							2	X										
-08	TP12-21	1	0.3-0.6							2	X										
-09	TP12-22	1	0.15-0.45							2	X										
-10	TP12-23	1	↓					FDA	23705-11	2	X										
-11	↓	1	↓	↓	↓		↓	FD	23705-10	2	X										
-12																					

Sampler's Signature	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Andrew Bruemmer	Andrew Bruemmer	GOLDER	27/08/2012			
Sample Storage (°C)	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company

Comments:	Method of Shipment:	Waybill No.:	Received for Lab by:	Date	Time
PLEASE REFERENCE ALS QUOTE # Q35898	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C) / Cooler opened by:	Date	Time

WHITE: Golder copy YELLOW: Lab copy PINK: Lab returns with Final Report

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

№ 23706 page 4 of 4

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

Project Number: 12-1021-0006		Laboratory Name: ALS	
Short Title: SIA DENA HES - ESA		Address: #100-8081 LOUGHEED HWY, BBY, BC	
Golder Contact: ANDREW BRUEMMER	Golder E-mail Address: abruemmer @golder.com	Tel/Fax: 604.253.4188	Contact: AMBER SPRINGER

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Sample Control Number (SCN)	Sample Location	Sa. #	Sample Depth (m)	Sample Matrix (over)	Date Sampled (D/M/Y)	Time Sampled (HH:MM)	Sample Type (over)	QAQC Code (over)	Related SCN (over)	Number of Containers	Analyses Required: CSR Metals *	LEPH/HEPH/PAH	RUSH	Remarks (over)
23706 -01	TP12-24	1	0.15-0.45	Soil	24/8/12					2	X			* YUKON
-02	TP12-25	1	↓	↓	↓					2	X			CSR
-03	TP12-26	1	↓	↓	↓					2	X			
-04	TP12-27	1	↓	↓	↓					2	X			
-05	TP12-28	1	0-0.3	↓	↓					2	X	X		
-06	TP12-29	1	↓	↓	↓					2	X	X		
-07	TP12-30	1	0.15-0.45	↓	↓			FD	23706-08	2	X	X		
-08	↓	1	↓	↓	↓			FD	23706-07	2	X	X		
-09														
-10														
-11														
-12														

Sampler's Signature: ADAM BRUN	Relinquished by: Signature: ADAM BRUN	Company: GOLDER	Date: 27/08/2012	Time	Received by: Signature	Company
Sample Storage (°C)	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company

Comments: PLEASE REFERENCE ALS QUOTE # Q35898	Method of Shipment:	Waybill No.:	Received for Lab by:		Date	Time
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C)	Cooler opened by:	Date	Time

WHITE: Golder copy YELLOW: Lab copy PINK: Lab returns with Final Report

GOLDER ASSOCIATES LTD.
ATTN: Andrew Bruemmer
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 27-AUG-12
Report Date: 04-SEP-12 12:30 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1200237

Project P.O. #: NOT SUBMITTED
Job Reference: 12-1021-0006
C of C Numbers: 23703
Legal Site Desc:

Amber Springer
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1200237-1 SOIL 22-AUG-12 23703-01	L1200237-2 SOIL 22-AUG-12 23703-02	L1200237-3 SOIL 22-AUG-12 23703-03	L1200237-4 SOIL 22-AUG-12 23703-04	L1200237-5 SOIL 22-AUG-12 23703-05
SOIL						
Physical Tests	Moisture (%)	6.99	6.61	9.00	11.5	15.0
	pH (1:2 soil:water) (pH)	8.16	8.68	8.23	5.27	6.42
Metals	Antimony (Sb) (mg/kg)	1.53	1.35	2.21	1.19	1.30
	Arsenic (As) (mg/kg)	15.9	11.0	27.3	12.1	15.6
	Barium (Ba) (mg/kg)	65.8	155	107	83.2	153
	Beryllium (Be) (mg/kg)	0.72	0.32	0.85	0.56	1.14
	Cadmium (Cd) (mg/kg)	0.564	1.02	0.642	0.370	0.359
	Chromium (Cr) (mg/kg)	32.6	16.7	26.9	31.1	39.0
	Cobalt (Co) (mg/kg)	21.9	7.49	16.8	11.4	19.2
	Copper (Cu) (mg/kg)	27.6	25.9	25.5	17.6	18.3
	Lead (Pb) (mg/kg)	86.9	100	69.2	66.5	81.0
	Mercury (Hg) (mg/kg)	<0.050	0.159	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	0.75	1.65	2.27	0.92	1.23
	Nickel (Ni) (mg/kg)	35.5	24.2	34.4	31.5	44.1
	Selenium (Se) (mg/kg)	<0.20	0.32	0.27	<0.20	<0.20
	Silver (Ag) (mg/kg)	0.11	0.22	0.20	<0.10	0.11
	Thallium (Tl) (mg/kg)	0.106	0.094	0.224	0.121	0.137
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	0.336	0.454	0.598	0.454	0.697
	Vanadium (V) (mg/kg)	18.9	24.8	31.5	33.5	47.1
	Zinc (Zn) (mg/kg)	177	367	162	158	192
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1200237-6	L1200237-7	L1200237-9	L1200237-11	
Description	SOIL	SOIL	SOIL	SOIL	
Sampled Date	22-AUG-12	22-AUG-12	22-AUG-12	22-AUG-12	
Sampled Time					
Client ID	23703-06	23703-07	23703-09	23703-11	
Grouping	**Analyte**				
SOIL					
Physical Tests	Moisture (%)	14.1	13.7	10.7	15.3	
	pH (1:2 soil:water) (pH)	7.64	6.41	6.71	6.15	
Metals	Antimony (Sb) (mg/kg)	5.72	10.4	4.12	11.4	
	Arsenic (As) (mg/kg)	34.6	42.0	25.9	41.1	
	Barium (Ba) (mg/kg)	128	183	126	119	
	Beryllium (Be) (mg/kg)	0.62	0.72	0.66	0.56	
	Cadmium (Cd) (mg/kg)	18.2	2.93	4.05	123	
	Chromium (Cr) (mg/kg)	24.3	25.5	24.7	19.8	
	Cobalt (Co) (mg/kg)	10.3	10.4	11.1	13.2	
	Copper (Cu) (mg/kg)	65.9	48.3	41.9	69.7	
	Lead (Pb) (mg/kg)	1170	88.1	379	10900	
	Mercury (Hg) (mg/kg)	0.416	0.051	0.242	0.165	
	Molybdenum (Mo) (mg/kg)	7.59	15.5	8.39	11.2	
	Nickel (Ni) (mg/kg)	37.2	50.1	40.5	40.7	
	Selenium (Se) (mg/kg)	1.49	1.63	0.97	7.27	
	Silver (Ag) (mg/kg)	2.13	0.92	0.64	11.2	
	Thallium (Tl) (mg/kg)	0.223	0.328	0.240	0.290	
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	
	Uranium (U) (mg/kg)	1.85	2.10	1.25	2.20	
	Vanadium (V) (mg/kg)	77.4	140	71.0	97.7	
	Zinc (Zn) (mg/kg)	3780	400	985	22100	
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200	<200	
	EPH19-32 (mg/kg)	<200	<200	<200	<200	
	LEPH (mg/kg)	<200	<200	<200	<200	
	HEPH (mg/kg)	<200	<200	<200	<200	
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benzo(b)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benzo(g,h,i)perylene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Chrysene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Fluoranthene (mg/kg)	<0.050	<0.050	<0.050	<0.050	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200237-1	L1200237-2	L1200237-3	L1200237-4	L1200237-5
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	22-AUG-12	22-AUG-12	22-AUG-12	22-AUG-12	22-AUG-12
	Sampled Time					
	Client ID	23703-01	23703-02	23703-03	23703-04	23703-05
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200237-6	L1200237-7	L1200237-9	L1200237-11	
	Description	SOIL	SOIL	SOIL	SOIL	
	Sampled Date	22-AUG-12	22-AUG-12	22-AUG-12	22-AUG-12	
	Sampled Time					
	Client ID	23703-06	23703-07	23703-09	23703-11	
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	2-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Phenanthrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Pyrene (mg/kg)	<0.050	<0.050	<0.050	<0.050	
	Surrogate: Acenaphthene d10 (%)	85.7	81.0	83.3	84.0	
	Surrogate: Chrysene d12 (%)	74.6	82.8	96.2	74.9	
	Surrogate: Naphthalene d8 (%)	76.6	73.9	82.5	80.2	
	Surrogate: Phenanthrene d10 (%)	77.8	82.3	93.6	84.6	

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Mercury (Hg)	DLA	L1200237-1, -11, -2, -3, -4, -5, -6, -7, -9
Duplicate	Cadmium (Cd)	DUP-H	L1200237-1, -11, -2, -3, -4, -5, -6, -7, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BCMELP CSR

Extractable Hydrocarbons in Sediment/Soil
This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Solids by GC/FID, Version 2.1 July 1999". The procedure, based on EPA 3570, uses a rotary extraction technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene or kept in hexane/acetone and analyzed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAFS	EPA 200.2/245.7

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 245.7).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in Solids. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated
by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, and Pyrene
are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

MOISTURE-VA	Soil	Moisture content	ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA	Soil	PAH - Rotary Extraction (Hexane/Acetone)	EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3545 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

Reference Information

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

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

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

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

Chain of Custody Numbers:

23703

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

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

Quality Control Report

Client: GOLDER ASSOCIATES LTD.
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6
Contact: Andrew Bruemmer

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EPH-TUMB-FID-VA	**Soil**							
Batch R2426998								
WG1535903-3 IRM		**ALS PHC1 RM**						
EPH10-19			82.7		%		70-130	30-AUG-12
EPH19-32			87.9		%		70-130	30-AUG-12
HG-200.2-CVAF-VA	**Soil**							
Batch R2427005								
WG1536023-5 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			95.7		%		70-130	30-AUG-12
WG1536023-6 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			103.7		%		70-130	30-AUG-12
WG1536023-4 DUP		**L1200237-5**						
Mercury (Hg)		<0.050	0.0105		mg/kg	13	40	30-AUG-12
WG1536023-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
WG1536023-2 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
MET-200.2-CCMS-VA	**Soil**							
Batch R2426953								
WG1536023-5 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			102.9		%		70-130	29-AUG-12
Arsenic (As)			107.1		%		70-130	29-AUG-12
Barium (Ba)			101.5		%		70-130	29-AUG-12
Beryllium (Be)			0.52		mg/kg		0.34-0.74	29-AUG-12
Cadmium (Cd)			95.3		%		70-130	29-AUG-12
Chromium (Cr)			104.1		%		70-130	29-AUG-12
Cobalt (Co)			101.4		%		70-130	29-AUG-12
Copper (Cu)			97.2		%		70-130	29-AUG-12
Lead (Pb)			93.4		%		70-130	29-AUG-12
Molybdenum (Mo)			0.70		mg/kg		0.24-1.24	29-AUG-12
Nickel (Ni)			103.6		%		70-130	29-AUG-12
Selenium (Se)			0.32		mg/kg		0.12-0.52	29-AUG-12
Silver (Ag)			0.22		mg/kg		0.12-0.32	29-AUG-12
Thallium (Tl)			0.130		mg/kg		0.075-0.175	29-AUG-12
Uranium (U)			108.1		%		70-130	29-AUG-12
Vanadium (V)			107.1		%		70-130	29-AUG-12
Zinc (Zn)			100.2		%		70-130	29-AUG-12
WG1536023-6 CRM		**VA-NRC-PACS2**						

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2426953								
WG1536023-6 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			95.5		%		70-130	29-AUG-12
Arsenic (As)			104.9		%		70-130	29-AUG-12
Barium (Ba)			119.0		%		70-130	29-AUG-12
Beryllium (Be)			0.38		mg/kg		0.21-0.61	29-AUG-12
Cadmium (Cd)			104.6		%		70-130	29-AUG-12
Chromium (Cr)			98.8		%		70-130	29-AUG-12
Cobalt (Co)			95.2		%		70-130	29-AUG-12
Copper (Cu)			97.8		%		70-130	29-AUG-12
Lead (Pb)			99.8		%		70-130	29-AUG-12
Molybdenum (Mo)			107.2		%		70-130	29-AUG-12
Nickel (Ni)			97.5		%		70-130	29-AUG-12
Selenium (Se)			101.4		%		70-130	29-AUG-12
Silver (Ag)			95.2		%		70-130	29-AUG-12
Thallium (Tl)			98.5		%		70-130	29-AUG-12
Tin (Sn)			102.8		%		70-130	29-AUG-12
Uranium (U)			94.2		%		70-130	29-AUG-12
Vanadium (V)			103.6		%		70-130	29-AUG-12
Zinc (Zn)			100.3		%		70-130	29-AUG-12
WG1536023-4 DUP		**L1200237-5**						
Antimony (Sb)		1.30	1.30		mg/kg	0.1	30	29-AUG-12
Arsenic (As)		15.6	16.0		mg/kg	2.4	30	29-AUG-12
Barium (Ba)		153	157		mg/kg	3.0	40	29-AUG-12
Beryllium (Be)		1.14	1.26		mg/kg	11	30	29-AUG-12
Cadmium (Cd)		0.359	0.676	DUP-H	mg/kg	61	30	29-AUG-12
Chromium (Cr)		39.0	41.4		mg/kg	6.1	30	29-AUG-12
Cobalt (Co)		19.2	19.8		mg/kg	3.0	30	29-AUG-12
Copper (Cu)		18.3	21.1		mg/kg	14	30	29-AUG-12
Lead (Pb)		81.0	85.6		mg/kg	5.5	40	29-AUG-12
Molybdenum (Mo)		1.23	1.22		mg/kg	1.4	40	29-AUG-12
Nickel (Ni)		44.1	46.7		mg/kg	5.9	30	29-AUG-12
Selenium (Se)		<0.20	0.21	RPD-NA	mg/kg	N/A	30	29-AUG-12
Silver (Ag)		0.11	0.12		mg/kg	3.5	40	29-AUG-12
Thallium (Tl)		0.137	0.144		mg/kg	5.2	30	29-AUG-12
Tin (Sn)		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	29-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2426953								
WG1536023-4 DUP		**L1200237-5**						
Uranium (U)		0.697	0.741		mg/kg	6.3	30	29-AUG-12
Vanadium (V)		47.1	50.3		mg/kg	6.6	30	29-AUG-12
Zinc (Zn)		192	193		mg/kg	0.4	30	29-AUG-12
WG1536023-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	29-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	29-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	29-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	29-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	29-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	29-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	29-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	29-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	29-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	29-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	29-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	29-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	29-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	29-AUG-12
Tin (Sn)			<2.0		mg/kg		2	29-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	29-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	29-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	29-AUG-12
WG1536023-2 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	29-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	29-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	29-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	29-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	29-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	29-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	29-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	29-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	29-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	29-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	29-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	29-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2426953								
WG1536023-2 MB								
Silver (Ag)			<0.10		mg/kg		0.1	29-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	29-AUG-12
Tin (Sn)			<2.0		mg/kg		2	29-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	29-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	29-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	29-AUG-12
MOISTURE-VA	**Soil**							
Batch R2425846								
WG1536015-4 DUP		**L1200237-1**						
Moisture		6.99	6.53		%	6.8	20	29-AUG-12
WG1536015-2 LCS								
Moisture			100.4		%		90-110	29-AUG-12
WG1536015-1 MB								
Moisture			<0.25		%		0.25	29-AUG-12
PAH-TMB-H/A-MS-VA	**Soil**							
Batch R2426804								
WG1535903-4 IRM		**ALS PAH1 RM**						
Acenaphthene			90.1		%		60-130	30-AUG-12
Acenaphthylene			103.7		%		60-130	30-AUG-12
Anthracene			86.2		%		60-130	30-AUG-12
Benz(a)anthracene			100.3		%		60-130	30-AUG-12
Benzo(a)pyrene			102.3		%		60-130	30-AUG-12
Benzo(b)fluoranthene			99.4		%		60-130	30-AUG-12
Benzo(g,h,i)perylene			100.2		%		60-130	30-AUG-12
Benzo(k)fluoranthene			98.4		%		60-130	30-AUG-12
Chrysene			102.1		%		60-130	30-AUG-12
Dibenz(a,h)anthracene			106.6		%		60-130	30-AUG-12
Fluoranthene			102.4		%		60-130	30-AUG-12
Fluorene			84.3		%		60-130	30-AUG-12
Indeno(1,2,3-c,d)pyrene			101.5		%		60-130	30-AUG-12
2-Methylnaphthalene			90.3		%		60-130	30-AUG-12
Naphthalene			92.0		%		50-130	30-AUG-12
Phenanthrene			101.5		%		60-130	30-AUG-12
Pyrene			103.4		%		60-130	30-AUG-12
WG1535903-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-VA	**Soil**							
Batch R2426804								
WG1535903-1 MB								
Acenaphthene			<0.0050		mg/kg		0.005	30-AUG-12
Acenaphthylene			<0.0050		mg/kg		0.005	30-AUG-12
Anthracene			<0.0040		mg/kg		0.004	30-AUG-12
Benz(a)anthracene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(a)pyrene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(b)fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Chrysene			<0.010		mg/kg		0.01	30-AUG-12
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	30-AUG-12
Fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Fluorene			<0.010		mg/kg		0.01	30-AUG-12
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	30-AUG-12
2-Methylnaphthalene			<0.010		mg/kg		0.01	30-AUG-12
Naphthalene			<0.010		mg/kg		0.01	30-AUG-12
Phenanthrene			<0.010		mg/kg		0.01	30-AUG-12
Pyrene			<0.010		mg/kg		0.01	30-AUG-12
Surrogate: Naphthalene d8			86.3		%		50-130	30-AUG-12
Surrogate: Acenaphthene d10			87.9		%		60-130	30-AUG-12
Surrogate: Phenanthrene d10			89.5		%		60-130	30-AUG-12
Surrogate: Chrysene d12			89.3		%		60-130	30-AUG-12
PH-1:2-VA	**Soil**							
Batch R2427709								
WG1536023-4 DUP		**L1200237-5**						
pH (1:2 soil:water)		6.42	6.47		pH	0.8	25	31-AUG-12

Quality Control Report

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

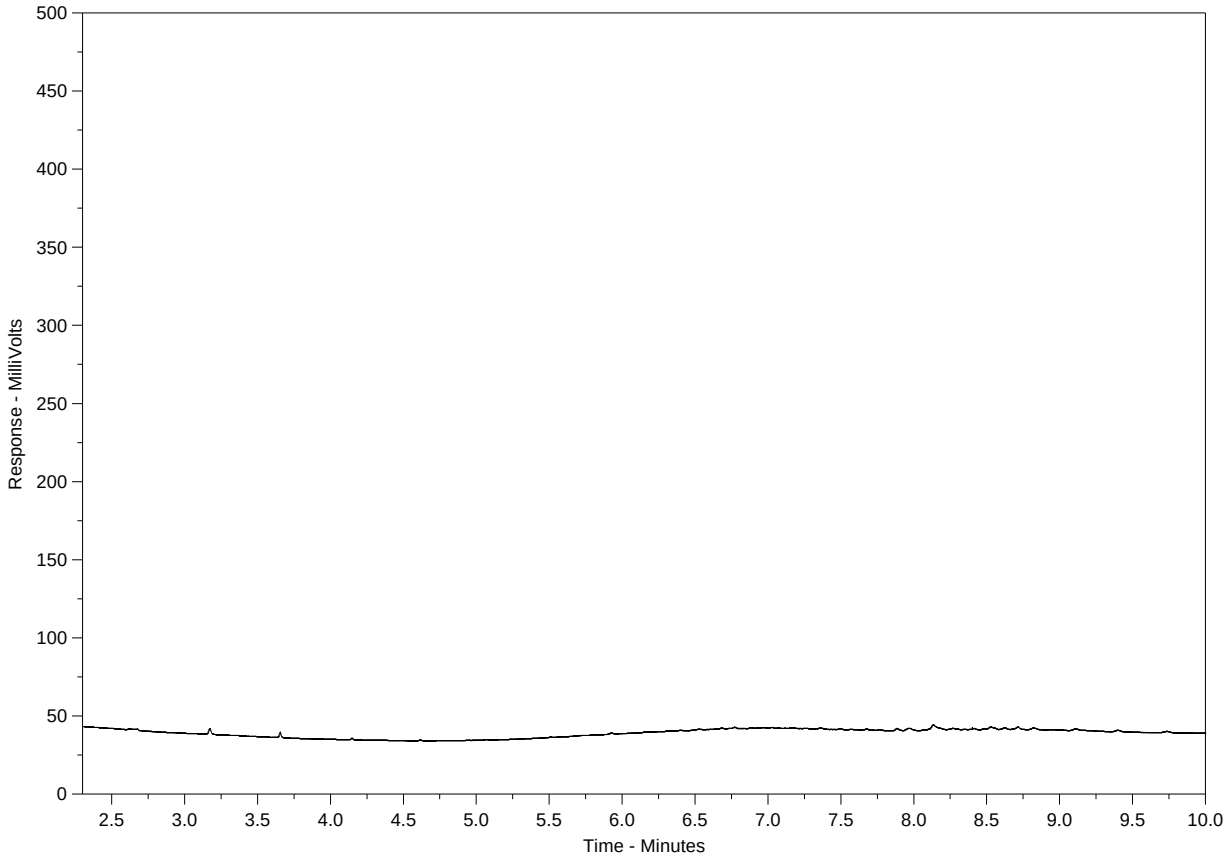
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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

Hydrocarbon Distribution Report

ALS Sample ID: L1200237-6
Client Sample ID: 23703-06



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

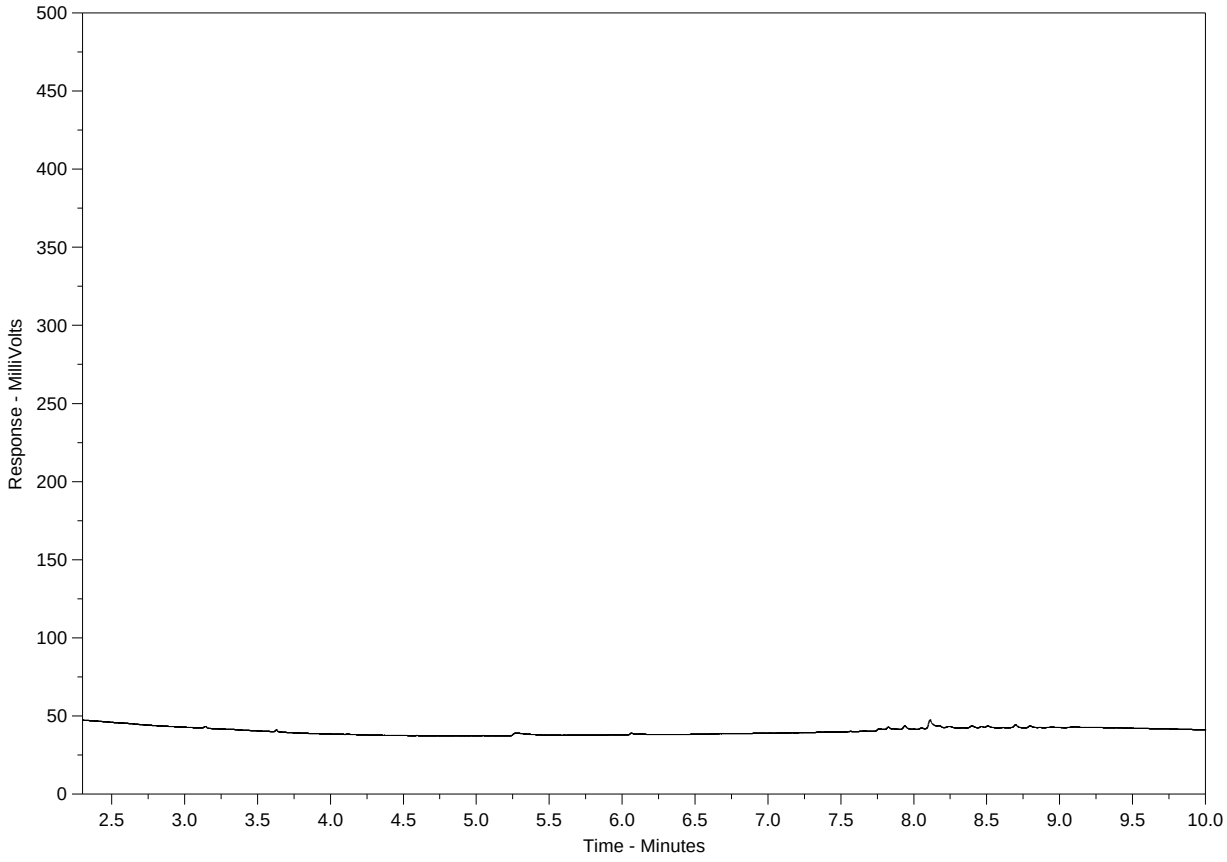
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200237-7
Client Sample ID: 23703-07



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

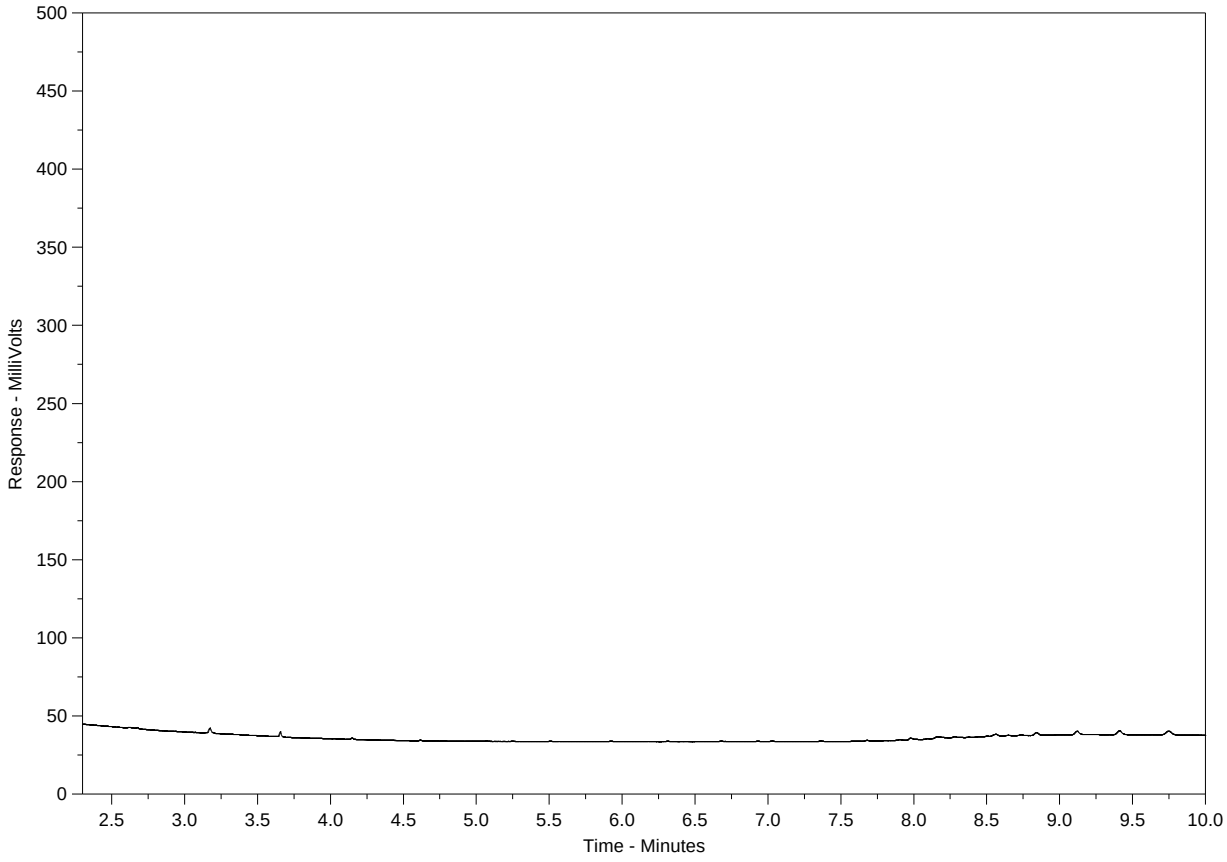
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200237-9
Client Sample ID: 23703-09



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

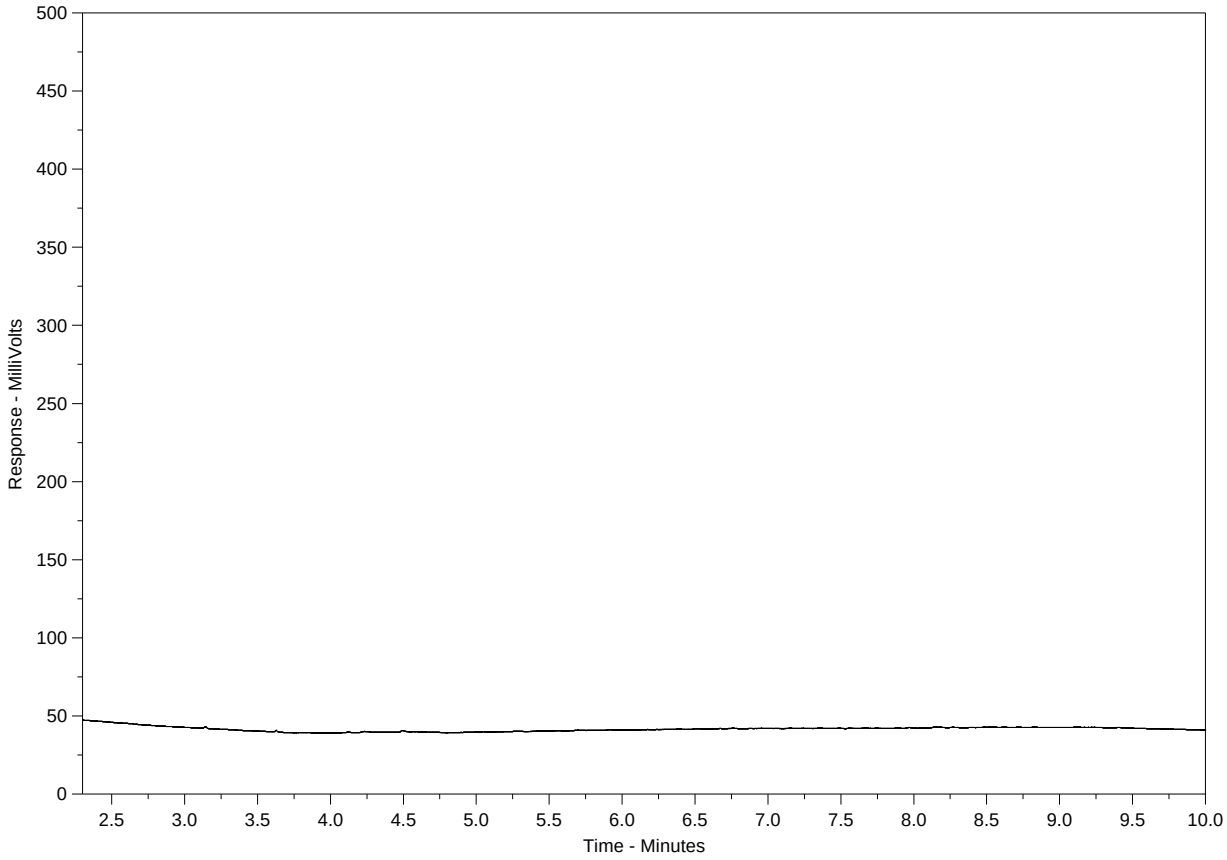
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200237-11
Client Sample ID: 23703-11



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

L-1200237

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

COC No. 23703 page 1 of 4

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

Project Number:	Laboratory Name:
12-1021-0006	ALS
[redacted]	Address: #100-8081 Lougheed Hwy, Bby BC
Golder Contact: Andrew Bruemmer	Golder E-mail Address: abruemmer@golder.com
	Tel/Fax: 604 253.4188
	Contact: Amber Springer

Office the final reports should be sent to:

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

☐ 202–2790 Gladv..., Abbotsford, BC, Tel: 604-850-878..., Fax: 604-850-87...

L1200237-COFC

Sample Control Number (SCN)	[redacted]	Sample Matrix (over)	Date Sampled (D/M/Y)	[redacted]	Number of Containers	CSR Metals *	LEPH/HEPH/PAH							HOLD	RUSH	Remarks (over)
23703 -01		Soil	22/8/12		2	X										* Yukon CSR
-02					2	X										
-03					2	X										
-04					2	X										
-05					2	X										
-06					2	X	X									
-07					2	X	X									
-08					2									X		
-09					2	X	X									
-10					2									X		
-11					2	X	X									
-12					2											

Sampler's Signature	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Andrew Bruemmer	Andrew Bruemmer	GOLDER	27/08/2012	09:50	[signature]	
Sample Storage (°C)	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company

Comments:	Method of Shipment:	Waybill No.:	Received for Lab by:	Date	Time
PLEASE REFERENCE ALS QUOTE #Q35898			BP 5.8°C	Aug 28	9:20
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C) -9.7 / Cooler opened by:	Date 27-Aug-12	Time

WHITE: Golder copy YELLOW: Lab copy PINK: Lab returns with Final Report

GOLDER ASSOCIATES LTD.
ATTN: Andrew Bruemmer
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 27-AUG-12
Report Date: 04-SEP-12 12:47 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1200250

Project P.O. #: NOT SUBMITTED
Job Reference: 12-1021-0006
C of C Numbers: 23704
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L1200250-1 Description: SOIL Sampled Date: 22-AUG-12 Sampled Time: Client ID: 23704-01	L1200250-3 SOIL 22-AUG-12 23704-03	L1200250-4 SOIL 22-AUG-12 23704-04	L1200250-6 SOIL 22-AUG-12 23704-06	L1200250-8 SOIL 22-AUG-12 23704-08
SOIL						
Physical Tests	Moisture (%)	14.6	9.85	11.4	21.0	10.7
	pH (1:2 soil:water) (pH)	4.51	7.69	7.99	7.56	7.78
Metals	Antimony (Sb) (mg/kg)	6.89	13.6	23.0	4.61	8.81
	Arsenic (As) (mg/kg)	39.8	74.7	147	30.4	78.5
	Barium (Ba) (mg/kg)	118	182	235	94.1	80.2
	Beryllium (Be) (mg/kg)	0.45	0.63	0.72	0.72	0.98
	Cadmium (Cd) (mg/kg)	4.01	12.8	14.9	37.9	80.3
	Chromium (Cr) (mg/kg)	34.7	19.0	18.0	28.4	22.6
	Cobalt (Co) (mg/kg)	11.3	11.8	14.4	14.4	17.7
	Copper (Cu) (mg/kg)	51.8	57.4	135	42.7	54.1
	Lead (Pb) (mg/kg)	127	3910	147	4260	11700
	Mercury (Hg) (mg/kg)	<0.050	<0.050	0.084	<0.050	0.071
	Molybdenum (Mo) (mg/kg)	8.82	39.7	80.1	5.19	23.9
	Nickel (Ni) (mg/kg)	44.9	95.6	174	35.1	161
	Selenium (Se) (mg/kg)	0.98	5.46	4.49	2.90	6.49
	Silver (Ag) (mg/kg)	0.73	4.56	1.49	4.20	9.32
	Thallium (Tl) (mg/kg)	0.303	0.511	0.787	0.221	0.292
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	2.42	2.41	4.06	1.54	1.84
	Vanadium (V) (mg/kg)	218	151	232	50.3	34.1
	Zinc (Zn) (mg/kg)	582	1660	1480	6760	17500
Hydrocarbons	EPH10-19 (mg/kg)		<200	<200		
	EPH19-32 (mg/kg)		<200	<200		
	LEPH (mg/kg)		<200	<200		
	HEPH (mg/kg)		<200	<200		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)		<0.050	<0.050		
	Acenaphthylene (mg/kg)		<0.050	<0.050		
	Anthracene (mg/kg)		<0.050	<0.050		
	Benz(a)anthracene (mg/kg)		<0.050	<0.050		
	Benzo(a)pyrene (mg/kg)		<0.050	<0.050		
	Benzo(b)fluoranthene (mg/kg)		<0.050	<0.050		
	Benzo(g,h,i)perylene (mg/kg)		<0.050	<0.050		
	Benzo(k)fluoranthene (mg/kg)		<0.050	<0.050		
	Chrysene (mg/kg)		<0.050	<0.050		
	Dibenz(a,h)anthracene (mg/kg)		<0.050	<0.050		
	Fluoranthene (mg/kg)		<0.050	<0.050		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	Sample ID: L1200250-9 Description: SOIL Sampled Date: 22-AUG-12 Sampled Time: Client ID: 23704-09	L1200250-10 SOIL 22-AUG-12 23704-10	L1200250-11 SOIL 22-AUG-12 23704-11	L1200250-12 SOIL 22-AUG-12 23704-12	
SOIL						
Physical Tests	Moisture (%)	10.2	10.8	7.08	7.59	
	pH (1:2 soil:water) (pH)	7.76	7.55	8.36	8.27	
Metals	Antimony (Sb) (mg/kg)	7.87	1.31	2.12	2.08	
	Arsenic (As) (mg/kg)	72.3	10.7	38.2	30.5	
	Barium (Ba) (mg/kg)	86.0	218	106	105	
	Beryllium (Be) (mg/kg)	0.87	0.51	0.84	0.70	
	Cadmium (Cd) (mg/kg)	91.8	0.671	1.31	1.09	
	Chromium (Cr) (mg/kg)	24.2	22.1	35.5	30.5	
	Cobalt (Co) (mg/kg)	19.0	9.12	17.6	14.6	
	Copper (Cu) (mg/kg)	66.6	25.6	50.4	37.5	
	Lead (Pb) (mg/kg)	15600	36.8	134	88.0	
	Mercury (Hg) (mg/kg)	0.060	0.073	<0.050	<0.050	
	Molybdenum (Mo) (mg/kg)	14.6	1.67	1.27	1.98	
	Nickel (Ni) (mg/kg)	137	30.3	35.9	33.4	
	Selenium (Se) (mg/kg)	8.05	0.27	0.23	0.31	
	Silver (Ag) (mg/kg)	8.24	0.19	0.50	0.42	
	Thallium (Tl) (mg/kg)	0.302	0.152	0.174	0.144	
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	
	Uranium (U) (mg/kg)	2.00	0.664	0.525	0.657	
	Vanadium (V) (mg/kg)	36.9	37.4	35.2	36.4	
	Zinc (Zn) (mg/kg)	16400	130	265	207	
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200250-1	L1200250-3	L1200250-4	L1200250-6	L1200250-8
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	22-AUG-12	22-AUG-12	22-AUG-12	22-AUG-12	22-AUG-12
	Sampled Time					
	Client ID	23704-01	23704-03	23704-04	23704-06	23704-08
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)		<0.050	<0.050		
	Indeno(1,2,3-c,d)pyrene (mg/kg)		<0.050	<0.050		
	2-Methylnaphthalene (mg/kg)		<0.050	<0.050		
	Naphthalene (mg/kg)		<0.050	<0.050		
	Phenanthrene (mg/kg)		<0.050	<0.050		
	Pyrene (mg/kg)		<0.050	<0.050		
	Surrogate: Acenaphthene d10 (%)		81.6	84.7		
	Surrogate: Chrysene d12 (%)		99.1	88.4		
	Surrogate: Naphthalene d8 (%)		81.4	84.9		
	Surrogate: Phenanthrene d10 (%)		97.1	86.6		

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200250-9	L1200250-10	L1200250-11	L1200250-12	
	Description	SOIL	SOIL	SOIL	SOIL	
	Sampled Date	22-AUG-12	22-AUG-12	22-AUG-12	22-AUG-12	
	Sampled Time					
	Client ID	23704-09	23704-10	23704-11	23704-12	
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Selenium (Se)	DUP-H	L1200250-1, -10, -11, -12, -3, -4, -6, -8, -9

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BCMELP CSR

Extractable Hydrocarbons in Sediment/Soil
This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Solids by GC/FID, Version 2.1 July 1999". The procedure, based on EPA 3570, uses a rotary extraction technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene or kept in hexane/acetone and analyzed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

HG-200.2-CVAF-VA Soil Mercury in Soil by CVAFS EPA 200.2/245.7

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 245.7).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

LEPH/HEPH-CALC-VA Soil LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in Solids. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated
by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, and Pyrene
are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

MET-200.2-CCMS-VA Soil Metals in Soil by CRC ICPMS EPA 200.2/6020A

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

MOISTURE-VA Soil Moisture content ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA Soil PAH - Rotary Extraction (Hexane/Acetone) EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3545 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-1:2-VA Soil pH in Soil (1:2 Soil:Water Extraction) BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH

Reference Information

probe.

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

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

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

Chain of Custody Numbers:

23704

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

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

Quality Control Report

Workorder: L1200250 Report Date: 04-SEP-12

Client: GOLDER ASSOCIATES LTD.
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6
Contact: Andrew Bruemmer

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAF-VA	**Soil**							
Batch R2427005								
WG1536521-3 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			89.0		%		70-130	30-AUG-12
WG1536521-4 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			100.1		%		70-130	30-AUG-12
WG1536521-2 DUP		**L1200250-8**						
Mercury (Hg)		0.071	0.0649		mg/kg	9.1	40	30-AUG-12
WG1536521-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
MET-200.2-CCMS-VA	**Soil**							
Batch R2427753								
WG1536521-3 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			102.2		%		70-130	30-AUG-12
Arsenic (As)			105.5		%		70-130	30-AUG-12
Barium (Ba)			99.8		%		70-130	30-AUG-12
Beryllium (Be)			0.49		mg/kg		0.34-0.74	30-AUG-12
Cadmium (Cd)			100.3		%		70-130	30-AUG-12
Chromium (Cr)			104.6		%		70-130	30-AUG-12
Cobalt (Co)			101.5		%		70-130	30-AUG-12
Copper (Cu)			98.2		%		70-130	30-AUG-12
Lead (Pb)			94.9		%		70-130	30-AUG-12
Molybdenum (Mo)			0.66		mg/kg		0.24-1.24	30-AUG-12
Nickel (Ni)			103.0		%		70-130	30-AUG-12
Selenium (Se)			0.30		mg/kg		0.12-0.52	30-AUG-12
Silver (Ag)			0.22		mg/kg		0.12-0.32	30-AUG-12
Thallium (Tl)			0.119		mg/kg		0.075-0.175	30-AUG-12
Uranium (U)			104.0		%		70-130	30-AUG-12
Vanadium (V)			104.6		%		70-130	30-AUG-12
Zinc (Zn)			100.1		%		70-130	30-AUG-12
WG1536521-4 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			98.9		%		70-130	30-AUG-12
Arsenic (As)			106.5		%		70-130	30-AUG-12
Barium (Ba)			127.6		%		70-130	30-AUG-12
Beryllium (Be)			0.39		mg/kg		0.21-0.61	30-AUG-12
Cadmium (Cd)			112.2		%		70-130	30-AUG-12
Chromium (Cr)			104.5		%		70-130	30-AUG-12
Cobalt (Co)			99.1		%		70-130	30-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2427753								
WG1536521-4 CRM		**VA-NRC-PACS2**						
Copper (Cu)			99.0		%		70-130	30-AUG-12
Lead (Pb)			98.3		%		70-130	30-AUG-12
Molybdenum (Mo)			106.7		%		70-130	30-AUG-12
Nickel (Ni)			100.1		%		70-130	30-AUG-12
Selenium (Se)			102.0		%		70-130	30-AUG-12
Silver (Ag)			97.2		%		70-130	30-AUG-12
Thallium (Tl)			98.6		%		70-130	30-AUG-12
Tin (Sn)			103.9		%		70-130	30-AUG-12
Uranium (U)			92.8		%		70-130	30-AUG-12
Vanadium (V)			106.2		%		70-130	30-AUG-12
Zinc (Zn)			102.0		%		70-130	30-AUG-12
WG1536521-2 DUP		**L1200250-8**						
Antimony (Sb)		8.81	8.03		mg/kg	9.2	30	30-AUG-12
Arsenic (As)		78.5	98.2		mg/kg	22	30	30-AUG-12
Barium (Ba)		80.2	83.6		mg/kg	4.1	40	30-AUG-12
Beryllium (Be)		0.98	0.95		mg/kg	2.4	30	30-AUG-12
Cadmium (Cd)		80.3	81.7		mg/kg	1.7	30	30-AUG-12
Chromium (Cr)		22.6	23.7		mg/kg	4.8	30	30-AUG-12
Cobalt (Co)		17.7	20.1		mg/kg	13	30	30-AUG-12
Copper (Cu)		54.1	59.2		mg/kg	9.0	30	30-AUG-12
Lead (Pb)		11700	11200		mg/kg	3.8	40	30-AUG-12
Molybdenum (Mo)		23.9	30.6		mg/kg	25	40	30-AUG-12
Nickel (Ni)		161	190		mg/kg	16	30	30-AUG-12
Selenium (Se)		6.49	4.34	DUP-H	mg/kg	40	30	30-AUG-12
Silver (Ag)		9.32	7.28		mg/kg	25	40	30-AUG-12
Thallium (Tl)		0.292	0.263		mg/kg	10	30	30-AUG-12
Tin (Sn)		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	30-AUG-12
Uranium (U)		1.84	1.64		mg/kg	12	30	30-AUG-12
Vanadium (V)		34.1	34.7		mg/kg	1.7	30	30-AUG-12
Zinc (Zn)		17500	18500		mg/kg	5.6	30	30-AUG-12
WG1536521-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	30-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	30-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	30-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	30-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2427753								
WG1536521-1 MB								
Cadmium (Cd)			<0.050		mg/kg		0.05	30-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	30-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	30-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	30-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	30-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	30-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	30-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	30-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	30-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	30-AUG-12
Tin (Sn)			<2.0		mg/kg		2	30-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	30-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	30-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	30-AUG-12
MOISTURE-VA	**Soil**							
Batch R2426559								
WG1536482-2 LCS								
Moisture			100.2		%		90-110	29-AUG-12
WG1536482-1 MB								
Moisture			<0.25		%		0.25	29-AUG-12
Batch R2426642								
WG1536954-2 LCS								
Moisture			97.9		%		90-110	30-AUG-12
WG1536954-1 MB								
Moisture			<0.25		%		0.25	30-AUG-12
Batch R2428193								
WG1538548-3 DUP		**L1200250-8**						
Moisture		10.7	11.9		%	10	20	01-SEP-12
WG1538548-2 LCS								
Moisture			100.4		%		90-110	01-SEP-12
WG1538548-1 MB								
Moisture			<0.25		%		0.25	01-SEP-12
PH-1:2-VA	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-1:2-VA	**Soil**							
Batch R2428024								
WG1536521-2 DUP		**L1200250-8**						
pH (1:2 soil:water)		7.78	7.75		pH	0.4	25	31-AUG-12

Quality Control Report

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

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

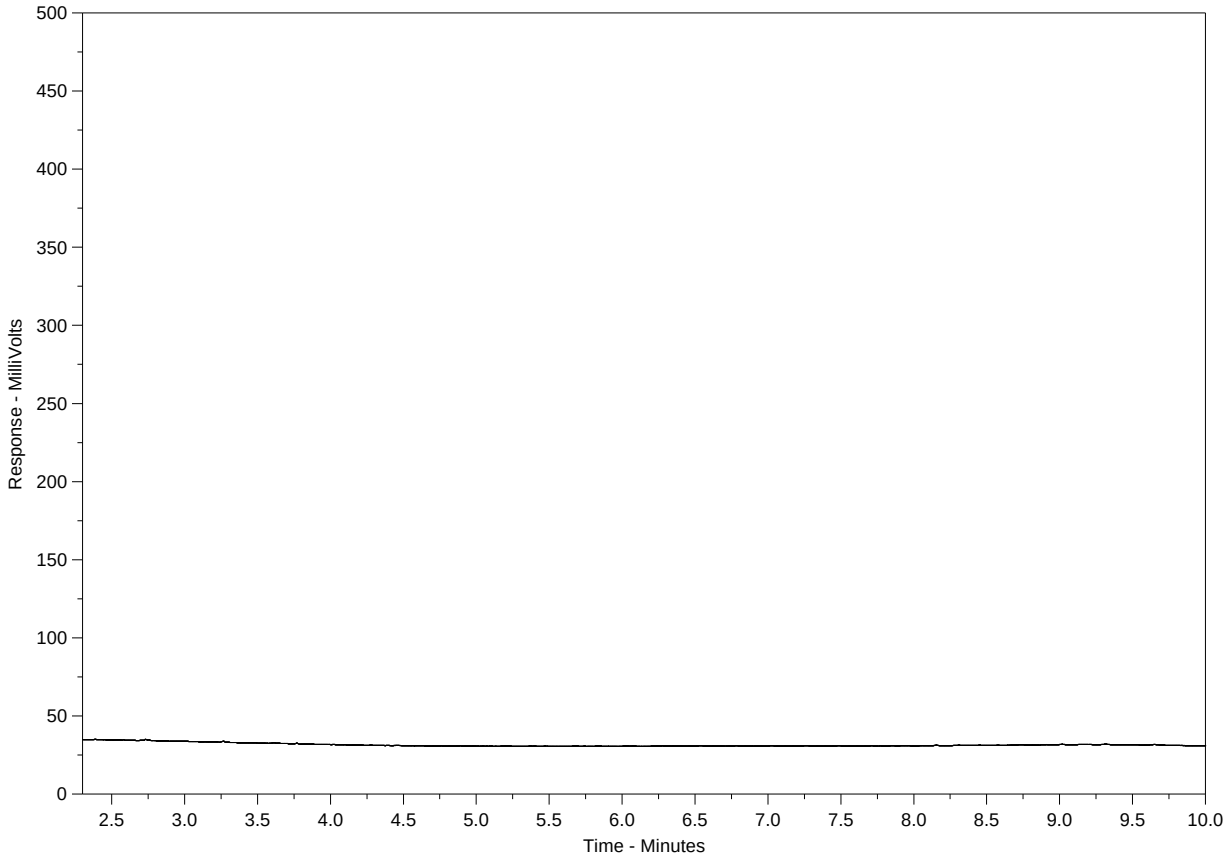
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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

Hydrocarbon Distribution Report

ALS Sample ID: L1200250-3
Client Sample ID: 23704-03



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

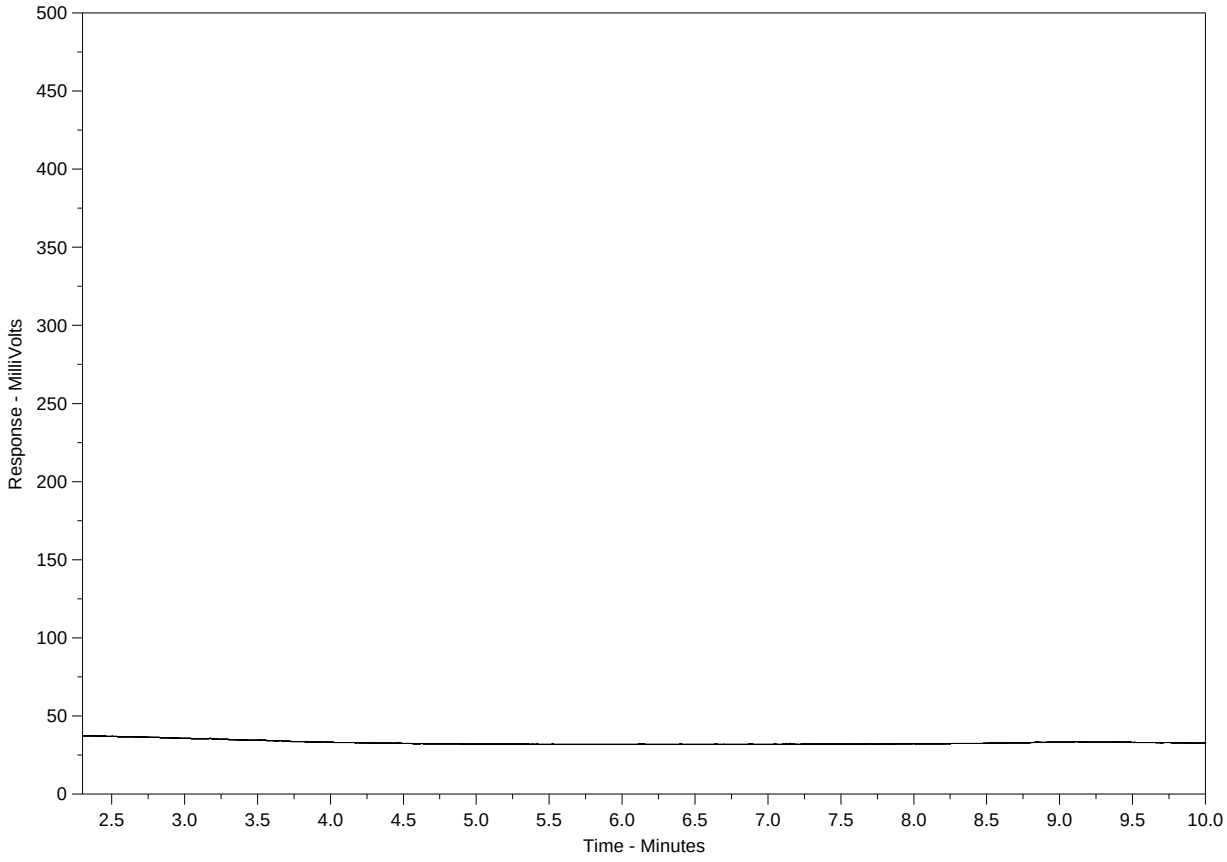
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200250-4
Client Sample ID: 23704-04



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

L1200250

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

No 23704 page 2 of 4

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

Project Number:		Laboratory Name:
12-1021-0006		ALS
		Address: #100-8081 LOUGHEED HWY, BBY, BC
Golder Contact: ANDREW BRUEMMER	Golder E-mail Address: abruemmer @golder.com	Tel/Fax: 604 253 4188 / Contact: AMBER SPRINGER

Office the final reports should be sent to:

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

Sample Control Number (SCN)	Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Analyses Required: CSR metals +	LEPH/HEPH/PAH								HOLD	RUSH	Remarks (over)
23704 -01	Soil	22/8/12	2	X											*YUKON
-02			2										X		CSR
-03			2	X	X										
-04			2	X	X										
-05			2										X		
-06			2	X											
-07			2										X		
-08			2	X											
-09			2	X											
-10			2	X											
-11			2	X											
-12			2	X											

Sampler's Signature	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Adam Brum	Adam Brum	GOLDER	27/08/2012	09:50		
Sample Storage (°C)	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company

Comments:	Method of Shipment:	Waybill No.:	Received for Lab by:		Date	Time
PLEASE REFERENCE ALS QUOTE #035898			RP 5.8°C		Aug 28	9:20
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C) 9.7	Cooler opened by:	Date 27-Aug-12	Time

WHITE: Golder copy YELLOW: Lab copy PINK: Lab returns with Final Report

GOLDER ASSOCIATES LTD.
ATTN: Andrew Bruemmer
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 27-AUG-12
Report Date: 04-SEP-12 13:02 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1200258

Project P.O. #: NOT SUBMITTED
Job Reference: 12-1021-0006
C of C Numbers: 23705
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200258-1	L1200258-2	L1200258-3	L1200258-4	L1200258-5
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	23-AUG-12	23-AUG-12	23-AUG-12	23-AUG-12	23-AUG-12
	Sampled Time					
	Client ID	23705-01	23705-02	23705-03	23705-04	23705-05
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	9.65	11.9	9.13		8.94
	pH (1:2 soil:water) (pH)	8.37	8.53	8.56	8.57	8.67
Metals	Antimony (Sb) (mg/kg)	2.42	2.21	1.77	2.42	2.66
	Arsenic (As) (mg/kg)	12.1	13.5	10.7	16.5	15.8
	Barium (Ba) (mg/kg)	81.6	117	108	102	95.9
	Beryllium (Be) (mg/kg)	0.34	0.45	0.43	0.43	0.43
	Cadmium (Cd) (mg/kg)	1.79	1.44	1.33	1.13	1.52
	Chromium (Cr) (mg/kg)	14.3	18.1	16.9	19.4	19.0
	Cobalt (Co) (mg/kg)	6.32	7.54	7.26	7.17	7.70
	Copper (Cu) (mg/kg)	16.4	16.0	19.2	24.6	22.7
	Lead (Pb) (mg/kg)	39.9	31.6	23.4	34.4	43.7
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	3.71	3.15	2.62	3.72	3.73
	Nickel (Ni) (mg/kg)	24.7	26.1	25.2	27.8	28.2
	Selenium (Se) (mg/kg)	0.43	0.38	0.36	0.44	0.47
	Silver (Ag) (mg/kg)	0.40	0.32	0.24	0.37	0.29
	Thallium (Tl) (mg/kg)	0.131	0.138	0.138	0.144	0.153
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	0.931	0.865	0.791	1.15	1.17
	Vanadium (V) (mg/kg)	30.4	33.9	32.8	42.4	38.9
	Zinc (Zn) (mg/kg)	360	311	216	218	218
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200		<200
	EPH19-32 (mg/kg)	<200	<200	<200		<200
	LEPH (mg/kg)	<200	<200	<200		<200
	HEPH (mg/kg)	<200	<200	<200		<200
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Anthracene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Benzo(b)fluoranthene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Benzo(g,h,i)perylene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Chrysene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Fluoranthene (mg/kg)	<0.050	<0.050	<0.050		<0.050

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200258-6	L1200258-7	L1200258-8	L1200258-9	L1200258-10
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	23-AUG-12	23-AUG-12	23-AUG-12	23-AUG-12	23-AUG-12
	Sampled Time					
	Client ID	23705-06	23705-07	23705-08	23705-09	23705-10
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)					
	pH (1:2 soil:water) (pH)	8.52	8.64	8.46	8.86	8.43
Metals	Antimony (Sb) (mg/kg)	2.52	8.55	6.55	2.65	3.08
	Arsenic (As) (mg/kg)	13.0	37.4	47.2	18.4	21.6
	Barium (Ba) (mg/kg)	94.2	53.8	109	76.2	59.6
	Beryllium (Be) (mg/kg)	0.37	1.37	1.72	1.74	1.87
	Cadmium (Cd) (mg/kg)	1.78	3.77	21.2	0.491	10.5
	Chromium (Cr) (mg/kg)	15.1	23.0	23.4	41.2	41.5
	Cobalt (Co) (mg/kg)	7.05	12.7	21.4	20.5	20.9
	Copper (Cu) (mg/kg)	21.5	29.4	22.8	30.5	21.2
	Lead (Pb) (mg/kg)	68.7	414	117	18.0	152
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	3.60	5.13	6.82	<0.50	1.17
	Nickel (Ni) (mg/kg)	25.8	35.7	46.5	37.8	38.3
	Selenium (Se) (mg/kg)	0.45	0.37	2.97	<0.20	0.54
	Silver (Ag) (mg/kg)	0.32	0.84	2.79	0.70	0.71
	Thallium (Tl) (mg/kg)	0.114	0.377	0.510	0.338	0.310
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	0.779	1.02	3.77	0.527	0.748
	Vanadium (V) (mg/kg)	31.8	30.6	30.3	35.6	46.3
	Zinc (Zn) (mg/kg)	280	577	4260	156	4270
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200258-11				
	Description	SOIL				
	Sampled Date	23-AUG-12				
	Sampled Time					
	Client ID	23705-11				
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)					
	pH (1:2 soil:water) (pH)	8.27				
Metals	Antimony (Sb) (mg/kg)	3.26				
	Arsenic (As) (mg/kg)	31.7				
	Barium (Ba) (mg/kg)	73.2				
	Beryllium (Be) (mg/kg)	1.88				
	Cadmium (Cd) (mg/kg)	10.7				
	Chromium (Cr) (mg/kg)	37.8				
	Cobalt (Co) (mg/kg)	20.4				
	Copper (Cu) (mg/kg)	20.6				
	Lead (Pb) (mg/kg)	140				
	Mercury (Hg) (mg/kg)	<0.050				
	Molybdenum (Mo) (mg/kg)	1.21				
	Nickel (Ni) (mg/kg)	39.4				
	Selenium (Se) (mg/kg)	0.74				
	Silver (Ag) (mg/kg)	0.78				
	Thallium (Tl) (mg/kg)	0.279				
	Tin (Sn) (mg/kg)	<2.0				
	Uranium (U) (mg/kg)	0.927				
	Vanadium (V) (mg/kg)	48.5				
	Zinc (Zn) (mg/kg)	4020				
Hydrocarbons	EPH10-19 (mg/kg)					
	EPH19-32 (mg/kg)					
	LEPH (mg/kg)					
	HEPH (mg/kg)					
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)					
	Acenaphthylene (mg/kg)					
	Anthracene (mg/kg)					
	Benz(a)anthracene (mg/kg)					
	Benzo(a)pyrene (mg/kg)					
	Benzo(b)fluoranthene (mg/kg)					
	Benzo(g,h,i)perylene (mg/kg)					
	Benzo(k)fluoranthene (mg/kg)					
	Chrysene (mg/kg)					
	Dibenz(a,h)anthracene (mg/kg)					
	Fluoranthene (mg/kg)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200258-1	L1200258-2	L1200258-3	L1200258-4	L1200258-5
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	23-AUG-12	23-AUG-12	23-AUG-12	23-AUG-12	23-AUG-12
	Sampled Time					
	Client ID	23705-01	23705-02	23705-03	23705-04	23705-05
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	2-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Phenanthrene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Pyrene (mg/kg)	<0.050	<0.050	<0.050		<0.050
	Surrogate: Acenaphthene d10 (%)	86.6	78.9	77.7		85.2
	Surrogate: Chrysene d12 (%)	88.2	88.0	87.0		67.9
	Surrogate: Naphthalene d8 (%)	85.2	80.2	75.7		82.3
	Surrogate: Phenanthrene d10 (%)	86.6	79.7	79.4		85.7

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200258-6	L1200258-7	L1200258-8	L1200258-9	L1200258-10
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	23-AUG-12	23-AUG-12	23-AUG-12	23-AUG-12	23-AUG-12
	Sampled Time					
	Client ID	23705-06	23705-07	23705-08	23705-09	23705-10
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200258-11				
	Description	SOIL				
	Sampled Date	23-AUG-12				
	Sampled Time					
	Client ID	23705-11				
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)					
	Indeno(1,2,3-c,d)pyrene (mg/kg)					
	2-Methylnaphthalene (mg/kg)					
	Naphthalene (mg/kg)					
	Phenanthrene (mg/kg)					
	Pyrene (mg/kg)					
	Surrogate: Acenaphthene d10 (%)					
	Surrogate: Chrysene d12 (%)					
	Surrogate: Naphthalene d8 (%)					
	Surrogate: Phenanthrene d10 (%)					

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Mercury (Hg)	DLA	L1200258-1
Duplicate	Cadmium (Cd)	DUP-H	L1200258-1

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BCMELP CSR

Extractable Hydrocarbons in Sediment/Soil
This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Solids by GC/FID, Version 2.1 July 1999". The procedure, based on EPA 3570, uses a rotary extraction technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene or kept in hexane/acetone and analyzed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAFS	EPA 200.2/245.7

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 245.7).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

LEPH/HEPH-CALC-VA	Soil	LEPHs and HEPHs	BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in Solids. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated
by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, and Pyrene
are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

MOISTURE-VA	Soil	Moisture content	ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA	Soil	PAH - Rotary Extraction (Hexane/Acetone)	EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3545 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-1:2-VA	Soil	pH in Soil (1:2 Soil:Water Extraction)	BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

Reference Information

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

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

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

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

Chain of Custody Numbers:

23705

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

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

Quality Control Report

Workorder: L1200258 Report Date: 04-SEP-12

Client: GOLDER ASSOCIATES LTD.
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6
Contact: Andrew Bruemmer

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EPH-TUMB-FID-VA	**Soil**							
Batch R2426998								
WG1536042-5 DUP		**L1200258-5**						
EPH10-19		<200	<200	RPD-NA	mg/kg	N/A	40	30-AUG-12
EPH19-32		<200	<200	RPD-NA	mg/kg	N/A	40	30-AUG-12
WG1535903-3 IRM		**ALS PHC1 RM**						
EPH10-19			82.7		%		70-130	30-AUG-12
EPH19-32			87.9		%		70-130	30-AUG-12
HG-200.2-CVAF-VA	**Soil**							
Batch R2427005								
WG1536023-5 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			95.7		%		70-130	30-AUG-12
WG1536023-6 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			103.7		%		70-130	30-AUG-12
WG1536040-4 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			94.3		%		70-130	30-AUG-12
WG1536040-5 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			110.3		%		70-130	30-AUG-12
WG1536040-3 DUP		**L1200258-3**						
Mercury (Hg)		<0.050	0.0197	J	mg/kg	0.0104	0.1	30-AUG-12
WG1536023-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
WG1536023-2 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
WG1536040-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
WG1536040-2 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
Batch R2427768								
WG1536375-5 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			87.8		%		70-130	31-AUG-12
WG1536375-6 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			93.3		%		70-130	31-AUG-12
WG1536375-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	31-AUG-12
WG1536375-2 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	31-AUG-12
MET-200.2-CCMS-VA	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2426953								
WG1536023-5 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			102.9		%		70-130	29-AUG-12
Arsenic (As)			107.1		%		70-130	29-AUG-12
Barium (Ba)			101.5		%		70-130	29-AUG-12
Beryllium (Be)			0.52		mg/kg		0.34-0.74	29-AUG-12
Cadmium (Cd)			95.3		%		70-130	29-AUG-12
Chromium (Cr)			104.1		%		70-130	29-AUG-12
Cobalt (Co)			101.4		%		70-130	29-AUG-12
Copper (Cu)			97.2		%		70-130	29-AUG-12
Lead (Pb)			93.4		%		70-130	29-AUG-12
Molybdenum (Mo)			0.70		mg/kg		0.24-1.24	29-AUG-12
Nickel (Ni)			103.6		%		70-130	29-AUG-12
Selenium (Se)			0.32		mg/kg		0.12-0.52	29-AUG-12
Silver (Ag)			0.22		mg/kg		0.12-0.32	29-AUG-12
Thallium (Tl)			0.130		mg/kg		0.075-0.175	29-AUG-12
Uranium (U)			108.1		%		70-130	29-AUG-12
Vanadium (V)			107.1		%		70-130	29-AUG-12
Zinc (Zn)			100.2		%		70-130	29-AUG-12
WG1536023-6 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			95.5		%		70-130	29-AUG-12
Arsenic (As)			104.9		%		70-130	29-AUG-12
Barium (Ba)			119.0		%		70-130	29-AUG-12
Beryllium (Be)			0.38		mg/kg		0.21-0.61	29-AUG-12
Cadmium (Cd)			104.6		%		70-130	29-AUG-12
Chromium (Cr)			98.8		%		70-130	29-AUG-12
Cobalt (Co)			95.2		%		70-130	29-AUG-12
Copper (Cu)			97.8		%		70-130	29-AUG-12
Lead (Pb)			99.8		%		70-130	29-AUG-12
Molybdenum (Mo)			107.2		%		70-130	29-AUG-12
Nickel (Ni)			97.5		%		70-130	29-AUG-12
Selenium (Se)			101.4		%		70-130	29-AUG-12
Silver (Ag)			95.2		%		70-130	29-AUG-12
Thallium (Tl)			98.5		%		70-130	29-AUG-12
Tin (Sn)			102.8		%		70-130	29-AUG-12
Uranium (U)			94.2		%		70-130	29-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2426953								
WG1536023-6 CRM		**VA-NRC-PACS2**						
Vanadium (V)			103.6		%		70-130	29-AUG-12
Zinc (Zn)			100.3		%		70-130	29-AUG-12
WG1536023-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	29-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	29-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	29-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	29-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	29-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	29-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	29-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	29-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	29-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	29-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	29-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	29-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	29-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	29-AUG-12
Tin (Sn)			<2.0		mg/kg		2	29-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	29-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	29-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	29-AUG-12
WG1536023-2 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	29-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	29-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	29-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	29-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	29-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	29-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	29-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	29-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	29-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	29-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	29-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	29-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	29-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2426953								
WG1536023-2 MB								
Thallium (Tl)			<0.050		mg/kg		0.05	29-AUG-12
Tin (Sn)			<2.0		mg/kg		2	29-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	29-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	29-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	29-AUG-12
Batch R2427753								
WG1536040-4 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			101.5		%		70-130	30-AUG-12
Arsenic (As)			100.2		%		70-130	30-AUG-12
Barium (Ba)			93.7		%		70-130	30-AUG-12
Beryllium (Be)			0.48		mg/kg		0.34-0.74	30-AUG-12
Cadmium (Cd)			92.5		%		70-130	30-AUG-12
Chromium (Cr)			94.7		%		70-130	30-AUG-12
Cobalt (Co)			93.0		%		70-130	30-AUG-12
Copper (Cu)			91.7		%		70-130	30-AUG-12
Lead (Pb)			96.8		%		70-130	30-AUG-12
Molybdenum (Mo)			0.66		mg/kg		0.24-1.24	30-AUG-12
Nickel (Ni)			93.3		%		70-130	30-AUG-12
Selenium (Se)			0.32		mg/kg		0.12-0.52	30-AUG-12
Silver (Ag)			0.22		mg/kg		0.12-0.32	30-AUG-12
Thallium (Tl)			0.113		mg/kg		0.075-0.175	30-AUG-12
Uranium (U)			97.3		%		70-130	30-AUG-12
Vanadium (V)			96.1		%		70-130	30-AUG-12
Zinc (Zn)			92.2		%		70-130	30-AUG-12
WG1536040-5 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			96.3		%		70-130	30-AUG-12
Arsenic (As)			104.5		%		70-130	30-AUG-12
Barium (Ba)			110.6		%		70-130	30-AUG-12
Beryllium (Be)			0.34		mg/kg		0.21-0.61	30-AUG-12
Cadmium (Cd)			109.8		%		70-130	30-AUG-12
Chromium (Cr)			99.8		%		70-130	30-AUG-12
Cobalt (Co)			95.4		%		70-130	30-AUG-12
Copper (Cu)			96.3		%		70-130	30-AUG-12
Lead (Pb)			95.1		%		70-130	30-AUG-12
Molybdenum (Mo)			104.0		%		70-130	30-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2427753								
WG1536040-5 CRM		**VA-NRC-PACS2**						
Nickel (Ni)			96.9		%		70-130	30-AUG-12
Selenium (Se)			100.2		%		70-130	30-AUG-12
Silver (Ag)			96.3		%		70-130	30-AUG-12
Thallium (Tl)			95.9		%		70-130	30-AUG-12
Tin (Sn)			103.5		%		70-130	30-AUG-12
Uranium (U)			89.8		%		70-130	30-AUG-12
Vanadium (V)			102.0		%		70-130	30-AUG-12
Zinc (Zn)			101.3		%		70-130	30-AUG-12
WG1536040-3 DUP		**L1200258-3**						
Antimony (Sb)		1.77	2.05		mg/kg	14	30	30-AUG-12
Arsenic (As)		10.7	11.2		mg/kg	4.5	30	30-AUG-12
Barium (Ba)		108	81.8		mg/kg	27	40	30-AUG-12
Beryllium (Be)		0.43	0.35		mg/kg	21	30	30-AUG-12
Cadmium (Cd)		1.33	1.34		mg/kg	1.1	30	30-AUG-12
Chromium (Cr)		16.9	13.9		mg/kg	20	30	30-AUG-12
Cobalt (Co)		7.26	6.47		mg/kg	11	30	30-AUG-12
Copper (Cu)		19.2	17.0		mg/kg	12	30	30-AUG-12
Lead (Pb)		23.4	23.0		mg/kg	1.7	40	30-AUG-12
Molybdenum (Mo)		2.62	3.21		mg/kg	20	40	30-AUG-12
Nickel (Ni)		25.2	23.9		mg/kg	5.3	30	30-AUG-12
Selenium (Se)		0.36	0.45		mg/kg	22	30	30-AUG-12
Silver (Ag)		0.24	0.25		mg/kg	3.7	40	30-AUG-12
Thallium (Tl)		0.138	0.120		mg/kg	14	30	30-AUG-12
Tin (Sn)		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	30-AUG-12
Uranium (U)		0.791	0.887		mg/kg	11	30	30-AUG-12
Vanadium (V)		32.8	28.5		mg/kg	14	30	30-AUG-12
Zinc (Zn)		216	229		mg/kg	5.8	30	30-AUG-12
Batch R2427959								
WG1536040-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	31-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	31-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	31-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	31-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	31-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	31-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2427959								
WG1536040-1 MB								
Cobalt (Co)			<0.10		mg/kg		0.1	31-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	31-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	31-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	31-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	31-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	31-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	31-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	31-AUG-12
Tin (Sn)			<2.0		mg/kg		2	31-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	31-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	31-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	31-AUG-12
WG1536040-2 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	31-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	31-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	31-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	31-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	31-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	31-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	31-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	31-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	31-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	31-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	31-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	31-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	31-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	31-AUG-12
Tin (Sn)			<2.0		mg/kg		2	31-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	31-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	31-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	31-AUG-12
Batch R2428022								
WG1536375-5 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			96.3		%		70-130	30-AUG-12
Arsenic (As)			100.3		%		70-130	30-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2428022								
WG1536375-5 CRM		**VA-CANMET-TILL1**						
Barium (Ba)			94.3		%		70-130	30-AUG-12
Beryllium (Be)			0.49		mg/kg		0.34-0.74	30-AUG-12
Cadmium (Cd)			87.0		%		70-130	30-AUG-12
Chromium (Cr)			97.4		%		70-130	30-AUG-12
Cobalt (Co)			94.3		%		70-130	30-AUG-12
Copper (Cu)			91.9		%		70-130	30-AUG-12
Lead (Pb)			92.0		%		70-130	30-AUG-12
Molybdenum (Mo)			0.62		mg/kg		0.24-1.24	30-AUG-12
Nickel (Ni)			92.6		%		70-130	30-AUG-12
Selenium (Se)			0.31		mg/kg		0.12-0.52	30-AUG-12
Silver (Ag)			0.21		mg/kg		0.12-0.32	30-AUG-12
Thallium (Tl)			0.116		mg/kg		0.075-0.175	30-AUG-12
Uranium (U)			101.3		%		70-130	30-AUG-12
Vanadium (V)			98.6		%		70-130	30-AUG-12
Zinc (Zn)			90.6		%		70-130	30-AUG-12
WG1536375-6 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			95.8		%		70-130	30-AUG-12
Arsenic (As)			99.9		%		70-130	30-AUG-12
Barium (Ba)			109.6		%		70-130	30-AUG-12
Beryllium (Be)			0.39		mg/kg		0.21-0.61	30-AUG-12
Cadmium (Cd)			98.8		%		70-130	30-AUG-12
Chromium (Cr)			94.9		%		70-130	30-AUG-12
Cobalt (Co)			90.3		%		70-130	30-AUG-12
Copper (Cu)			89.4		%		70-130	30-AUG-12
Lead (Pb)			98.4		%		70-130	30-AUG-12
Molybdenum (Mo)			106.0		%		70-130	30-AUG-12
Nickel (Ni)			88.0		%		70-130	30-AUG-12
Selenium (Se)			98.6		%		70-130	30-AUG-12
Silver (Ag)			96.7		%		70-130	30-AUG-12
Thallium (Tl)			93.3		%		70-130	30-AUG-12
Tin (Sn)			107.6		%		70-130	30-AUG-12
Uranium (U)			87.9		%		70-130	30-AUG-12
Vanadium (V)			97.7		%		70-130	30-AUG-12
Zinc (Zn)			93.4		%		70-130	30-AUG-12
WG1536375-1 MB								

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2428022								
WG1536375-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	30-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	30-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	30-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	30-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	30-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	30-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	30-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	30-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	30-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	30-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	30-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	30-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	30-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	30-AUG-12
Tin (Sn)			<2.0		mg/kg		2	30-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	30-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	30-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	30-AUG-12
WG1536375-2 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	30-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	30-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	30-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	30-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	30-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	30-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	30-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	30-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	30-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	30-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	30-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	30-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	30-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	30-AUG-12
Tin (Sn)			<2.0		mg/kg		2	30-AUG-12

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2428022								
WG1536375-2 MB								
Uranium (U)			<0.050		mg/kg		0.05	30-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	30-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	30-AUG-12
MOISTURE-VA	**Soil**							
Batch R2425846								
WG1536015-2 LCS								
Moisture			100.4		%		90-110	29-AUG-12
WG1536015-1 MB								
Moisture			<0.25		%		0.25	29-AUG-12
Batch R2425861								
WG1536043-2 LCS								
Moisture			97.9		%		90-110	29-AUG-12
WG1536043-1 MB								
Moisture			<0.25		%		0.25	29-AUG-12
Batch R2426559								
WG1536482-2 LCS								
Moisture			100.2		%		90-110	29-AUG-12
WG1536482-1 MB								
Moisture			<0.25		%		0.25	29-AUG-12
PAH-TMB-H/A-MS-VA	**Soil**							
Batch R2426804								
WG1535903-4 IRM		**ALS PAH1 RM**						
Acenaphthene			90.1		%		60-130	30-AUG-12
Acenaphthylene			103.7		%		60-130	30-AUG-12
Anthracene			86.2		%		60-130	30-AUG-12
Benz(a)anthracene			100.3		%		60-130	30-AUG-12
Benzo(a)pyrene			102.3		%		60-130	30-AUG-12
Benzo(b)fluoranthene			99.4		%		60-130	30-AUG-12
Benzo(g,h,i)perylene			100.2		%		60-130	30-AUG-12
Benzo(k)fluoranthene			98.4		%		60-130	30-AUG-12
Chrysene			102.1		%		60-130	30-AUG-12
Dibenz(a,h)anthracene			106.6		%		60-130	30-AUG-12
Fluoranthene			102.4		%		60-130	30-AUG-12
Fluorene			84.3		%		60-130	30-AUG-12
Indeno(1,2,3-c,d)pyrene			101.5		%		60-130	30-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-VA	**Soil**							
Batch R2426804								
WG1535903-4 IRM		**ALS PAH1 RM**						
2-Methylnaphthalene			90.3		%		60-130	30-AUG-12
Naphthalene			92.0		%		50-130	30-AUG-12
Phenanthrene			101.5		%		60-130	30-AUG-12
Pyrene			103.4		%		60-130	30-AUG-12
WG1536042-4 IRM		**ALS PAH1 RM**						
Acenaphthene			90.1		%		60-130	30-AUG-12
Acenaphthylene			103.7		%		60-130	30-AUG-12
Anthracene			86.2		%		60-130	30-AUG-12
Benz(a)anthracene			100.3		%		60-130	30-AUG-12
Benzo(a)pyrene			102.3		%		60-130	30-AUG-12
Benzo(b)fluoranthene			99.4		%		60-130	30-AUG-12
Benzo(g,h,i)perylene			100.2		%		60-130	30-AUG-12
Benzo(k)fluoranthene			98.4		%		60-130	30-AUG-12
Chrysene			102.1		%		60-130	30-AUG-12
Dibenz(a,h)anthracene			106.6		%		60-130	30-AUG-12
Fluoranthene			102.4		%		60-130	30-AUG-12
Fluorene			84.3		%		60-130	30-AUG-12
Indeno(1,2,3-c,d)pyrene			101.5		%		60-130	30-AUG-12
2-Methylnaphthalene			90.3		%		60-130	30-AUG-12
Naphthalene			92.0		%		50-130	30-AUG-12
Phenanthrene			101.5		%		60-130	30-AUG-12
Pyrene			103.4		%		60-130	30-AUG-12
WG1535903-1 MB								
Acenaphthene			<0.0050		mg/kg		0.005	30-AUG-12
Acenaphthylene			<0.0050		mg/kg		0.005	30-AUG-12
Anthracene			<0.0040		mg/kg		0.004	30-AUG-12
Benz(a)anthracene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(a)pyrene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(b)fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Chrysene			<0.010		mg/kg		0.01	30-AUG-12
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	30-AUG-12
Fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Fluorene			<0.010		mg/kg		0.01	30-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-VA	**Soil**							
Batch R2426804								
WG1535903-1 MB								
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	30-AUG-12
2-Methylnaphthalene			<0.010		mg/kg		0.01	30-AUG-12
Naphthalene			<0.010		mg/kg		0.01	30-AUG-12
Phenanthrene			<0.010		mg/kg		0.01	30-AUG-12
Pyrene			<0.010		mg/kg		0.01	30-AUG-12
Surrogate: Naphthalene d8			86.3		%		50-130	30-AUG-12
Surrogate: Acenaphthene d10			87.9		%		60-130	30-AUG-12
Surrogate: Phenanthrene d10			89.5		%		60-130	30-AUG-12
Surrogate: Chrysene d12			89.3		%		60-130	30-AUG-12
WG1536042-1 MB								
Acenaphthene			<0.0050		mg/kg		0.005	30-AUG-12
Acenaphthylene			<0.0050		mg/kg		0.005	30-AUG-12
Anthracene			<0.0040		mg/kg		0.004	30-AUG-12
Benz(a)anthracene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(a)pyrene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(b)fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Chrysene			<0.010		mg/kg		0.01	30-AUG-12
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	30-AUG-12
Fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Fluorene			<0.010		mg/kg		0.01	30-AUG-12
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	30-AUG-12
2-Methylnaphthalene			<0.010		mg/kg		0.01	30-AUG-12
Naphthalene			<0.010		mg/kg		0.01	30-AUG-12
Phenanthrene			<0.010		mg/kg		0.01	30-AUG-12
Pyrene			<0.010		mg/kg		0.01	30-AUG-12
Surrogate: Naphthalene d8			86.3		%		50-130	30-AUG-12
Surrogate: Acenaphthene d10			87.9		%		60-130	30-AUG-12
Surrogate: Phenanthrene d10			89.5		%		60-130	30-AUG-12
Surrogate: Chrysene d12			89.3		%		60-130	30-AUG-12
PH-1:2-VA	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-1:2-VA	**Soil**							
Batch R2427709								
WG1536040-3 DUP		**L1200258-3**						
pH (1:2 soil:water)		8.56	8.67		pH	1.3	25	31-AUG-12

Legend:

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

Sample Parameter Qualifier Definitions:

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

Hold Time Exceedances:

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

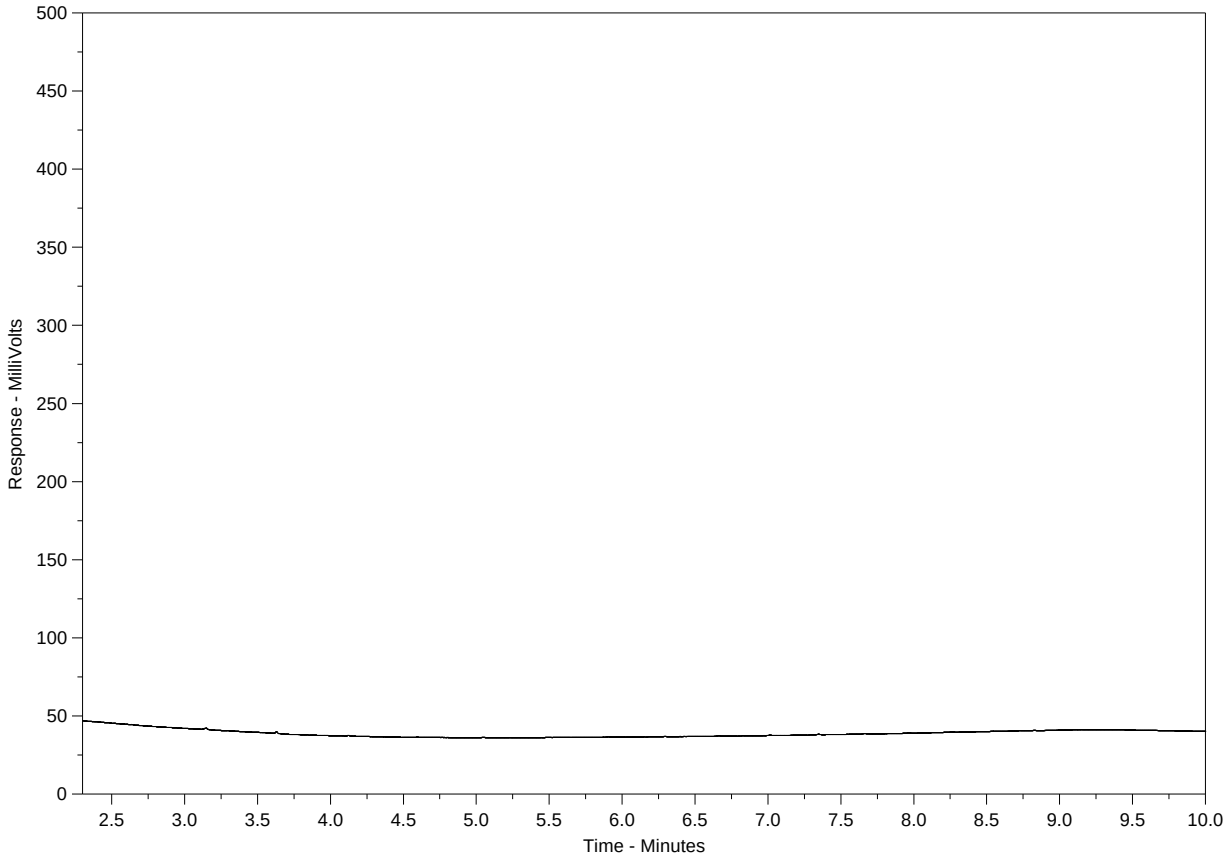
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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

Hydrocarbon Distribution Report

ALS Sample ID: L1200258-1
Client Sample ID: 23705-01



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

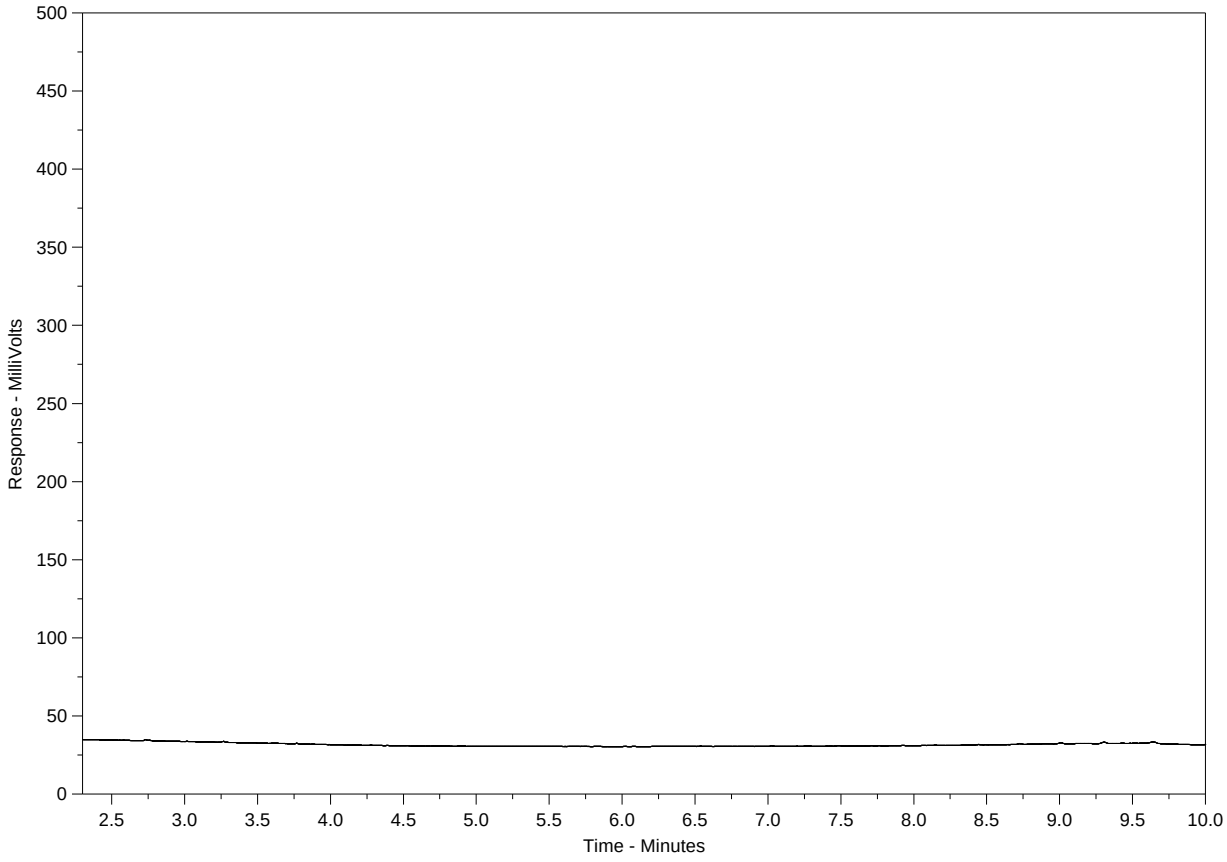
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200258-2
Client Sample ID: 23705-02



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

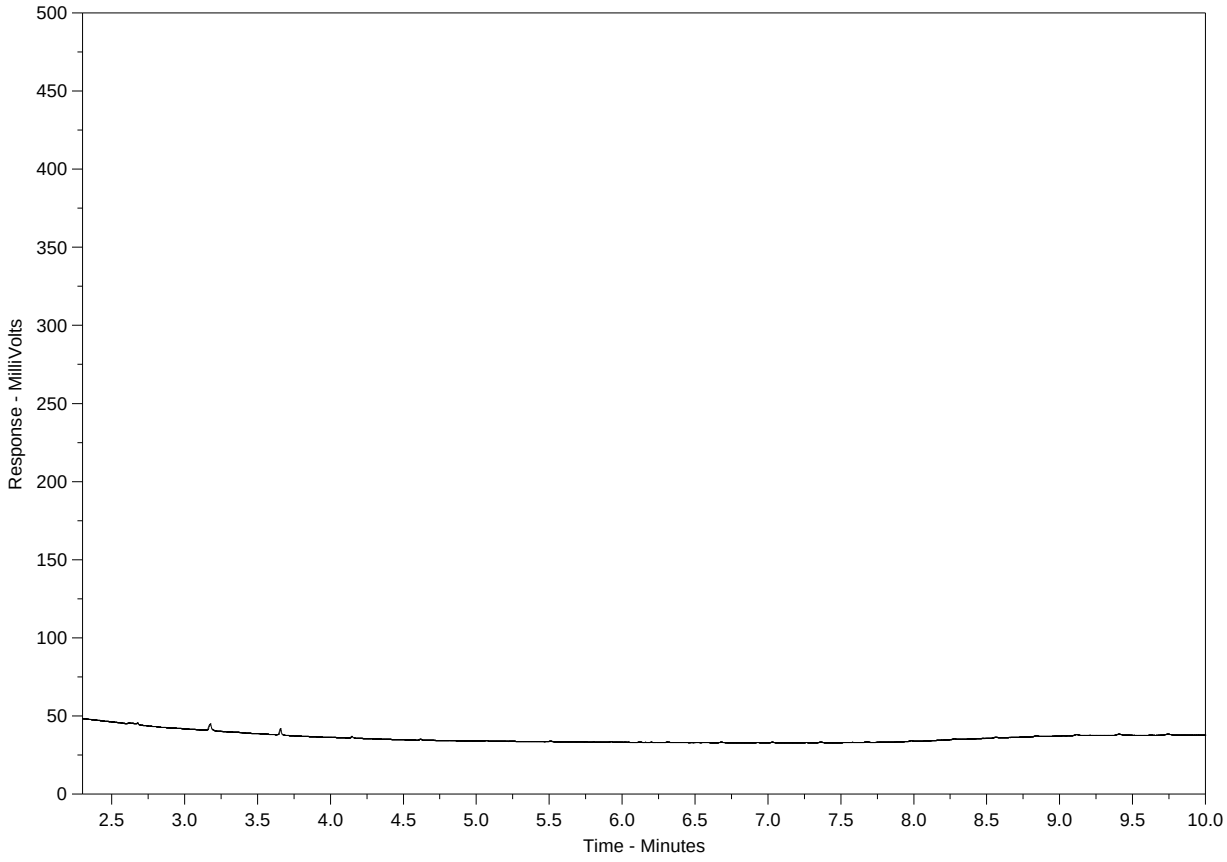
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200258-3
Client Sample ID: 23705-03



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

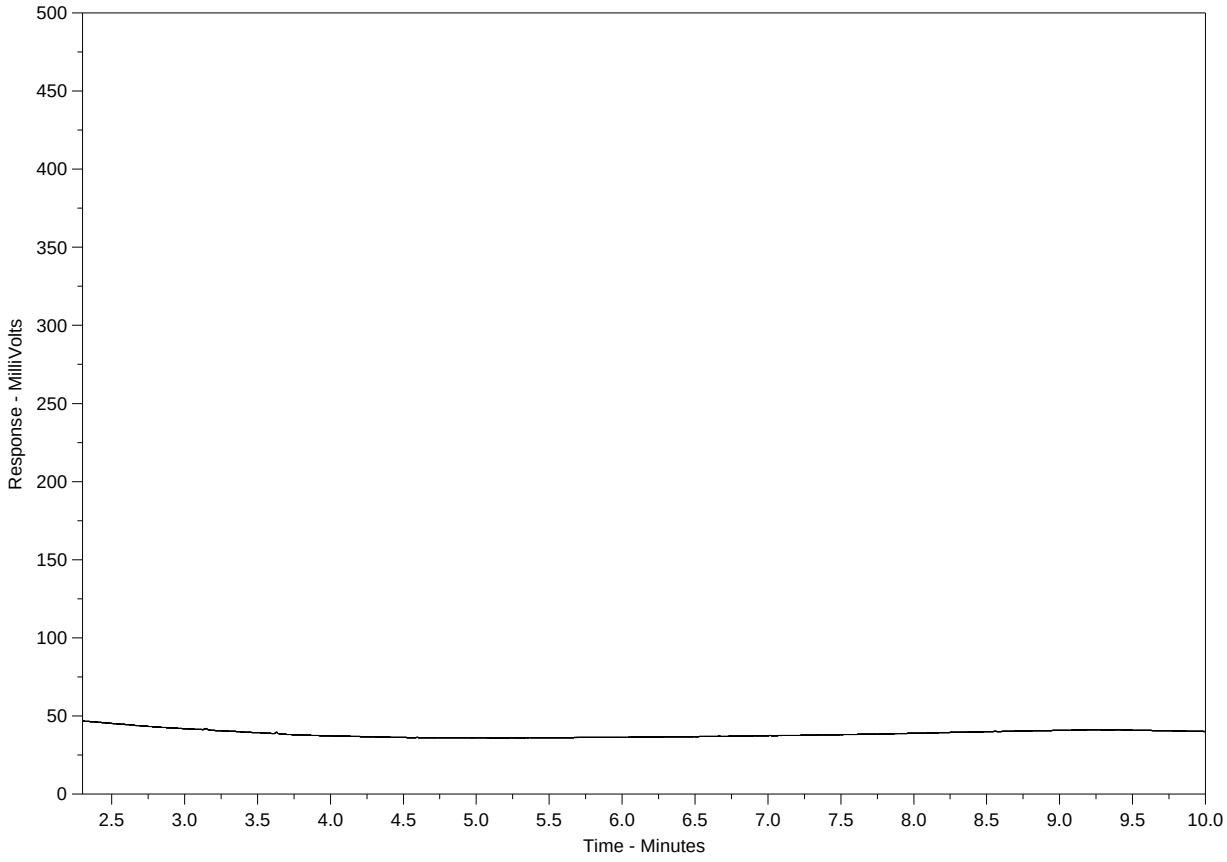
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200258-5
Client Sample ID: 23705-05



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

L1200258

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

№ 23705 page 3 of ___

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

Project Number:		Laboratory Name:
12-P021-00006		ALS
		Address: #108-8081 LOUGHEED HWY, BBY, BC
Golder Contact: ANDREW BRUEMMER	Golder E-mail Address: cbrueimmer@golder.com	Tel/Fax: 604.253.4188 Contact: AMBER SPRINGER

Office the final reports should be sent to:

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

Sample Control Number (SCN)	[redacted]	Sample Matrix (over)	Date Sampled (D/M/Y)	[redacted]	Number of Containers	Analyses Required: CSR Metals *	Analyses Required: LEPH/HEPH/PAH	Analyses Required: [barcode *L1200258-COFC*]	RUSH	Remarks (over)
23705 -01		Soil	23/8/12		2	X	X		*	YUKON
-02					2	X	X			CSR
-03					2	X	X			
-04					2	X				
-05					2	X	X			
-06					2	X				
-07					2	X				
-08					2	X				
-09					2	X				
-10					2	X				
-11					2	X				
-12										

Sampler's Signature	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Adam Brun	Adam Brun	GOLDER	27/08/2012	09:50		
Sample Storage (°C)	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company

Comments:	Method of Shipment:	Waybill No.:	Received for Lab by:	Date	Time
PLEASE REFERENCE ALS QUOTE #Q35898			Britt	Aug 28	9:20
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C) 9.7 / Cooler opened by:	Date 27-Aug-12	Time

WHITE: Golder copy YELLOW: Lab copy PINK: Lab returns with Final Report

GOLDER ASSOCIATES LTD.
ATTN: Andrew Bruemmer
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 27-AUG-12
Report Date: 04-SEP-12 14:45 (MT)
Version: FINAL

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1200265

Project P.O. #: NOT SUBMITTED
Job Reference: 12-1021-0006
C of C Numbers: 23706
Legal Site Desc:

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1200265-1	L1200265-2	L1200265-3	L1200265-4	L1200265-5
Description	SOIL	SOIL	SOIL	SOIL	SOIL
Sampled Date	24-AUG-12	24-AUG-12	24-AUG-12	24-AUG-12	24-AUG-12
Sampled Time					
Client ID	23706-01	23706-02	23706-03	23706-04	23706-05
Grouping / **Analyte**					
SOIL					
Physical Tests Moisture (%)	10.1	11.5	9.87	6.44	9.66
pH (1:2 soil:water) (pH)	7.90	7.90	7.45	7.39	7.99
Metals Antimony (Sb) (mg/kg)	4.47	14.8	12.2	2.77	5.34
Arsenic (As) (mg/kg)	44.3	93.9	18.1	32.7	33.0
Barium (Ba) (mg/kg)	101	84.6	27.2	137	130
Beryllium (Be) (mg/kg)	1.49	1.30	0.84	0.35	0.57
Cadmium (Cd) (mg/kg)	7.09	139	934	24.4	24.5
Chromium (Cr) (mg/kg)	38.6	32.3	3.42	5.25	19.5
Cobalt (Co) (mg/kg)	18.1	22.9	55.0	5.06	10.5
Copper (Cu) (mg/kg)	77.3	195	51.7	20.0	37.3
Lead (Pb) (mg/kg)	1180	12700	23300	2260	2500
Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo) (mg/kg)	5.35	11.1	5.90	12.7	7.50
Nickel (Ni) (mg/kg)	51.9	51.4	16.3	22.8	38.7
Selenium (Se) (mg/kg)	1.11	2.88	57.2	1.52	2.44
Silver (Ag) (mg/kg)	1.12	10.1	45.1	1.74	2.61
Thallium (Tl) (mg/kg)	0.537	0.445	0.202	0.202	0.222
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium (U) (mg/kg)	2.14	3.31	5.42	3.44	1.65
Vanadium (V) (mg/kg)	97.6	145	10.8	14.2	76.6
Zinc (Zn) (mg/kg)	1340	24100	160000	4360	4360
Hydrocarbons EPH10-19 (mg/kg)					<200
EPH19-32 (mg/kg)					<200
LEPH (mg/kg)					<200
HEPH (mg/kg)					<200
Polycyclic Aromatic Hydrocarbons Acenaphthene (mg/kg)					<0.050
Acenaphthylene (mg/kg)					<0.050
Anthracene (mg/kg)					<0.050
Benz(a)anthracene (mg/kg)					<0.050
Benzo(a)pyrene (mg/kg)					<0.050
Benzo(b)fluoranthene (mg/kg)					<0.050
Benzo(g,h,i)perylene (mg/kg)					<0.050
Benzo(k)fluoranthene (mg/kg)					<0.050
Chrysene (mg/kg)					<0.050
Dibenz(a,h)anthracene (mg/kg)					<0.050
Fluoranthene (mg/kg)					<0.050

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200265-6	L1200265-7	L1200265-8		
	Description	SOIL	SOIL	SOIL		
	Sampled Date	24-AUG-12	24-AUG-12	24-AUG-12		
	Sampled Time					
	Client ID	23706-06	23706-07	23706-08		
Grouping	**Analyte**					
SOIL						
Physical Tests	Moisture (%)	10.1	7.12	7.11		
	pH (1:2 soil:water) (pH)	7.68	8.07	8.20		
Metals	Antimony (Sb) (mg/kg)	12.0	2.67	2.31		
	Arsenic (As) (mg/kg)	50.0	19.3	18.1		
	Barium (Ba) (mg/kg)	107	138	126		
	Beryllium (Be) (mg/kg)	0.75	0.50	0.57		
	Cadmium (Cd) (mg/kg)	158	4.09	2.09		
	Chromium (Cr) (mg/kg)	21.3	19.4	19.7		
	Cobalt (Co) (mg/kg)	19.5	9.46	8.83		
	Copper (Cu) (mg/kg)	56.9	25.4	26.0		
	Lead (Pb) (mg/kg)	16900	270	138		
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050		
	Molybdenum (Mo) (mg/kg)	16.4	3.20	2.73		
	Nickel (Ni) (mg/kg)	46.0	29.9	29.0		
	Selenium (Se) (mg/kg)	12.8	0.67	0.43		
	Silver (Ag) (mg/kg)	17.0	0.55	0.37		
	Thallium (Tl) (mg/kg)	0.315	0.128	0.149		
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0		
	Uranium (U) (mg/kg)	2.14	1.05	0.908		
	Vanadium (V) (mg/kg)	97.3	39.5	36.1		
	Zinc (Zn) (mg/kg)	27300	696	342		
Hydrocarbons	EPH10-19 (mg/kg)	<200	<200	<200		
	EPH19-32 (mg/kg)	<200	<200	<200		
	LEPH (mg/kg)	<200	<200	<200		
	HEPH (mg/kg)	<200	<200	<200		
Polycyclic Aromatic Hydrocarbons	Acenaphthene (mg/kg)	<0.050	<0.050	<0.050		
	Acenaphthylene (mg/kg)	<0.050	<0.050	<0.050		
	Anthracene (mg/kg)	<0.050	<0.050	<0.050		
	Benz(a)anthracene (mg/kg)	<0.050	<0.050	<0.050		
	Benzo(a)pyrene (mg/kg)	<0.050	<0.050	<0.050		
	Benzo(b)fluoranthene (mg/kg)	<0.050	<0.050	<0.050		
	Benzo(g,h,i)perylene (mg/kg)	<0.050	<0.050	<0.050		
	Benzo(k)fluoranthene (mg/kg)	<0.050	<0.050	<0.050		
	Chrysene (mg/kg)	<0.050	<0.050	<0.050		
	Dibenz(a,h)anthracene (mg/kg)	<0.050	<0.050	<0.050		
	Fluoranthene (mg/kg)	<0.050	<0.050	<0.050		

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200265-1	L1200265-2	L1200265-3	L1200265-4	L1200265-5
	Description	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled Date	24-AUG-12	24-AUG-12	24-AUG-12	24-AUG-12	24-AUG-12
	Sampled Time					
	Client ID	23706-01	23706-02	23706-03	23706-04	23706-05
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)					<0.050
	Indeno(1,2,3-c,d)pyrene (mg/kg)					<0.050
	2-Methylnaphthalene (mg/kg)					<0.050
	Naphthalene (mg/kg)					<0.050
	Phenanthrene (mg/kg)					<0.050
	Pyrene (mg/kg)					<0.050
	Surrogate: Acenaphthene d10 (%)					80.1
	Surrogate: Chrysene d12 (%)					76.4
	Surrogate: Naphthalene d8 (%)					78.1
	Surrogate: Phenanthrene d10 (%)					83.6

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1200265-6	L1200265-7	L1200265-8		
	Description	SOIL	SOIL	SOIL		
	Sampled Date	24-AUG-12	24-AUG-12	24-AUG-12		
	Sampled Time					
	Client ID	23706-06	23706-07	23706-08		
Grouping	**Analyte**					
SOIL						
Polycyclic Aromatic Hydrocarbons	Fluorene (mg/kg)	<0.050	<0.050	<0.050		
	Indeno(1,2,3-c,d)pyrene (mg/kg)	<0.050	<0.050	<0.050		
	2-Methylnaphthalene (mg/kg)	<0.050	<0.050	<0.050		
	Naphthalene (mg/kg)	<0.050	<0.050	<0.050		
	Phenanthrene (mg/kg)	<0.050	<0.050	<0.050		
	Pyrene (mg/kg)	<0.050	<0.050	<0.050		
	Surrogate: Acenaphthene d10 (%)	81.8	81.1	82.7		
	Surrogate: Chrysene d12 (%)	72.5	79.4	86.8		
	Surrogate: Naphthalene d8 (%)	77.7	78.4	79.7		
	Surrogate: Phenanthrene d10 (%)	88.9	84.4	95.8		

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
EPH-TUMB-FID-VA	Soil	EPH in Solids by Tumbler and GCFID	BCMELP CSR

Extractable Hydrocarbons in Sediment/Soil
This analysis is carried out in accordance with the British Columbia Ministry of Environment, Lands and Parks (BCMELP) Analytical Method for Contaminated Sites "Extractable Petroleum Hydrocarbons in Solids by GC/FID, Version 2.1 July 1999". The procedure, based on EPA 3570, uses a rotary extraction technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene or kept in hexane/acetone and analyzed by capillary column gas chromatography with flame ionization detection (GC/FID). EPH results include Polycyclic Aromatic Hydrocarbons (PAH) and are therefore not equivalent to Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

Accuracy target values for Reference Materials used in this method are derived from averages of long-term method performance, as certified values do not exist for the reported parameters.

HG-200.2-CVAF-VA Soil Mercury in Soil by CVAFS EPA 200.2/245.7

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 245.7).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

LEPH/HEPH-CALC-VA Soil LEPHs and HEPHs BC MOE LABORATORY MANUAL (2005)

Light and Heavy Extractable Petroleum Hydrocarbons in Solids. These results are determined according to the British Columbia Ministry of Environment, Lands, and Parks Analytical Method for Contaminated Sites "Calculation of Light and Heavy Extractable Petroleum Hydrocarbons in Solids or Water". According to this method, LEPH and HEPH are calculated
by subtracting selected Polycyclic Aromatic Hydrocarbon results from Extractable Petroleum Hydrocarbon results. To calculate LEPH, the individual results for Naphthalene and Phenanthrene are subtracted from EPH(C10-19). To calculate HEPH, the individual results for Benz(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Dibenz(a,h)anthracene, Indeno(1,2,3-c,d)pyrene, and Pyrene
are subtracted from EPH(C19-32). Analysis of Extractable Petroleum Hydrocarbons adheres to all prescribed elements of the BCMELP method "Extractable Petroleum Hydrocarbons in Solids by GC/FID" (Version 2.1, July 20, 1999).

MET-200.2-CCMS-VA Soil Metals in Soil by CRC ICPMS EPA 200.2/6020A

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

MOISTURE-VA Soil Moisture content ASTM D2974-00 Method A

This analysis is carried out gravimetrically by drying the sample at 105 C for a minimum of six hours.

PAH-TMB-H/A-MS-VA Soil PAH - Rotary Extraction (Hexane/Acetone) EPA 3570/8270

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Methods 3545 & 8270, published by the United States Environmental Protection Agency (EPA). The procedure uses a mechanical shaking technique to extract a subsample of the sediment/soil with a 1:1 mixture of hexane and acetone. The extract is then solvent exchanged to toluene. The final extract is analysed by capillary column gas chromatography with mass spectrometric detection (GC/MS). Surrogate recoveries may not be reported in cases where interferences from the sample matrix prevent accurate quantitation. Because the two isomers cannot be readily chromatographically separated, benzo(j)fluoranthene is reported as part of the benzo(b)fluoranthene parameter.

PH-1:2-VA Soil pH in Soil (1:2 Soil:Water Extraction) BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

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

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

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

Reference Information

Chain of Custody Numbers:

23706

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

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

Quality Control Report

Client: GOLDER ASSOCIATES LTD.
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6
Contact: Andrew Bruemmer

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAF-VA	**Soil**							
Batch R2427005								
WG1536040-4 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			94.3		%		70-130	30-AUG-12
WG1536040-5 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			110.3		%		70-130	30-AUG-12
WG1536040-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
WG1536040-2 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	30-AUG-12
MET-200.2-CCMS-VA	**Soil**							
Batch R2427753								
WG1536040-4 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			101.5		%		70-130	30-AUG-12
Arsenic (As)			100.2		%		70-130	30-AUG-12
Barium (Ba)			93.7		%		70-130	30-AUG-12
Beryllium (Be)			0.48		mg/kg		0.34-0.74	30-AUG-12
Cadmium (Cd)			92.5		%		70-130	30-AUG-12
Chromium (Cr)			94.7		%		70-130	30-AUG-12
Cobalt (Co)			93.0		%		70-130	30-AUG-12
Copper (Cu)			91.7		%		70-130	30-AUG-12
Lead (Pb)			96.8		%		70-130	30-AUG-12
Molybdenum (Mo)			0.66		mg/kg		0.24-1.24	30-AUG-12
Nickel (Ni)			93.3		%		70-130	30-AUG-12
Selenium (Se)			0.32		mg/kg		0.12-0.52	30-AUG-12
Silver (Ag)			0.22		mg/kg		0.12-0.32	30-AUG-12
Thallium (Tl)			0.113		mg/kg		0.075-0.175	30-AUG-12
Uranium (U)			97.3		%		70-130	30-AUG-12
Vanadium (V)			96.1		%		70-130	30-AUG-12
Zinc (Zn)			92.2		%		70-130	30-AUG-12
WG1536040-5 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			96.3		%		70-130	30-AUG-12
Arsenic (As)			104.5		%		70-130	30-AUG-12
Barium (Ba)			110.6		%		70-130	30-AUG-12
Beryllium (Be)			0.34		mg/kg		0.21-0.61	30-AUG-12
Cadmium (Cd)			109.8		%		70-130	30-AUG-12
Chromium (Cr)			99.8		%		70-130	30-AUG-12
Cobalt (Co)			95.4		%		70-130	30-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2427753								
WG1536040-5 CRM		**VA-NRC-PACS2**						
Copper (Cu)			96.3		%		70-130	30-AUG-12
Lead (Pb)			95.1		%		70-130	30-AUG-12
Molybdenum (Mo)			104.0		%		70-130	30-AUG-12
Nickel (Ni)			96.9		%		70-130	30-AUG-12
Selenium (Se)			100.2		%		70-130	30-AUG-12
Silver (Ag)			96.3		%		70-130	30-AUG-12
Thallium (Tl)			95.9		%		70-130	30-AUG-12
Tin (Sn)			103.5		%		70-130	30-AUG-12
Uranium (U)			89.8		%		70-130	30-AUG-12
Vanadium (V)			102.0		%		70-130	30-AUG-12
Zinc (Zn)			101.3		%		70-130	30-AUG-12
Batch R2427959								
WG1536040-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	31-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	31-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	31-AUG-12
Beryllium (Be)			<0.20		mg/kg		0.2	31-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	31-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	31-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	31-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	31-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	31-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	31-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	31-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	31-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	31-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	31-AUG-12
Tin (Sn)			<2.0		mg/kg		2	31-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	31-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	31-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	31-AUG-12
WG1536040-2 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	31-AUG-12
Arsenic (As)			<0.050		mg/kg		0.05	31-AUG-12
Barium (Ba)			<0.50		mg/kg		0.5	31-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2427959								
WG1536040-2 MB								
Beryllium (Be)			<0.20		mg/kg		0.2	31-AUG-12
Cadmium (Cd)			<0.050		mg/kg		0.05	31-AUG-12
Chromium (Cr)			<0.50		mg/kg		0.5	31-AUG-12
Cobalt (Co)			<0.10		mg/kg		0.1	31-AUG-12
Copper (Cu)			<0.50		mg/kg		0.5	31-AUG-12
Lead (Pb)			<0.50		mg/kg		0.5	31-AUG-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	31-AUG-12
Nickel (Ni)			<0.50		mg/kg		0.5	31-AUG-12
Selenium (Se)			<0.20		mg/kg		0.2	31-AUG-12
Silver (Ag)			<0.10		mg/kg		0.1	31-AUG-12
Thallium (Tl)			<0.050		mg/kg		0.05	31-AUG-12
Tin (Sn)			<2.0		mg/kg		2	31-AUG-12
Uranium (U)			<0.050		mg/kg		0.05	31-AUG-12
Vanadium (V)			<0.20		mg/kg		0.2	31-AUG-12
Zinc (Zn)			<1.0		mg/kg		1	31-AUG-12
MOISTURE-VA	**Soil**							
Batch R2425861								
WG1536043-2 LCS								
Moisture			97.9		%		90-110	29-AUG-12
WG1536043-1 MB								
Moisture			<0.25		%		0.25	29-AUG-12
Batch R2425869								
WG1536045-2 LCS								
Moisture			97.9		%		90-110	29-AUG-12
WG1536045-1 MB								
Moisture			<0.25		%		0.25	29-AUG-12
PAH-TMB-H/A-MS-VA	**Soil**							
Batch R2426804								
WG1536042-4 IRM		**ALS PAH1 RM**						
Acenaphthene			90.1		%		60-130	30-AUG-12
Acenaphthylene			103.7		%		60-130	30-AUG-12
Anthracene			86.2		%		60-130	30-AUG-12
Benz(a)anthracene			100.3		%		60-130	30-AUG-12
Benzo(a)pyrene			102.3		%		60-130	30-AUG-12
Benzo(b)fluoranthene			99.4		%		60-130	30-AUG-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PAH-TMB-H/A-MS-VA	**Soil**							
Batch R2426804								
WG1536042-4 IRM		**ALS PAH1 RM**						
Benzo(g,h,i)perylene			100.2		%		60-130	30-AUG-12
Benzo(k)fluoranthene			98.4		%		60-130	30-AUG-12
Chrysene			102.1		%		60-130	30-AUG-12
Dibenz(a,h)anthracene			106.6		%		60-130	30-AUG-12
Fluoranthene			102.4		%		60-130	30-AUG-12
Fluorene			84.3		%		60-130	30-AUG-12
Indeno(1,2,3-c,d)pyrene			101.5		%		60-130	30-AUG-12
2-Methylnaphthalene			90.3		%		60-130	30-AUG-12
Naphthalene			92.0		%		50-130	30-AUG-12
Phenanthrene			101.5		%		60-130	30-AUG-12
Pyrene			103.4		%		60-130	30-AUG-12
WG1536042-1 MB								
Acenaphthene			<0.0050		mg/kg		0.005	30-AUG-12
Acenaphthylene			<0.0050		mg/kg		0.005	30-AUG-12
Anthracene			<0.0040		mg/kg		0.004	30-AUG-12
Benz(a)anthracene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(a)pyrene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(b)fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(g,h,i)perylene			<0.010		mg/kg		0.01	30-AUG-12
Benzo(k)fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Chrysene			<0.010		mg/kg		0.01	30-AUG-12
Dibenz(a,h)anthracene			<0.0050		mg/kg		0.005	30-AUG-12
Fluoranthene			<0.010		mg/kg		0.01	30-AUG-12
Fluorene			<0.010		mg/kg		0.01	30-AUG-12
Indeno(1,2,3-c,d)pyrene			<0.010		mg/kg		0.01	30-AUG-12
2-Methylnaphthalene			<0.010		mg/kg		0.01	30-AUG-12
Naphthalene			<0.010		mg/kg		0.01	30-AUG-12
Phenanthrene			<0.010		mg/kg		0.01	30-AUG-12
Pyrene			<0.010		mg/kg		0.01	30-AUG-12
Surrogate: Naphthalene d8			86.3		%		50-130	30-AUG-12
Surrogate: Acenaphthene d10			87.9		%		60-130	30-AUG-12
Surrogate: Phenanthrene d10			89.5		%		60-130	30-AUG-12
Surrogate: Chrysene d12			89.3		%		60-130	30-AUG-12

Quality Control Report

Legend:

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

Sample Parameter Qualifier Definitions:

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

Hold Time Exceedances:

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

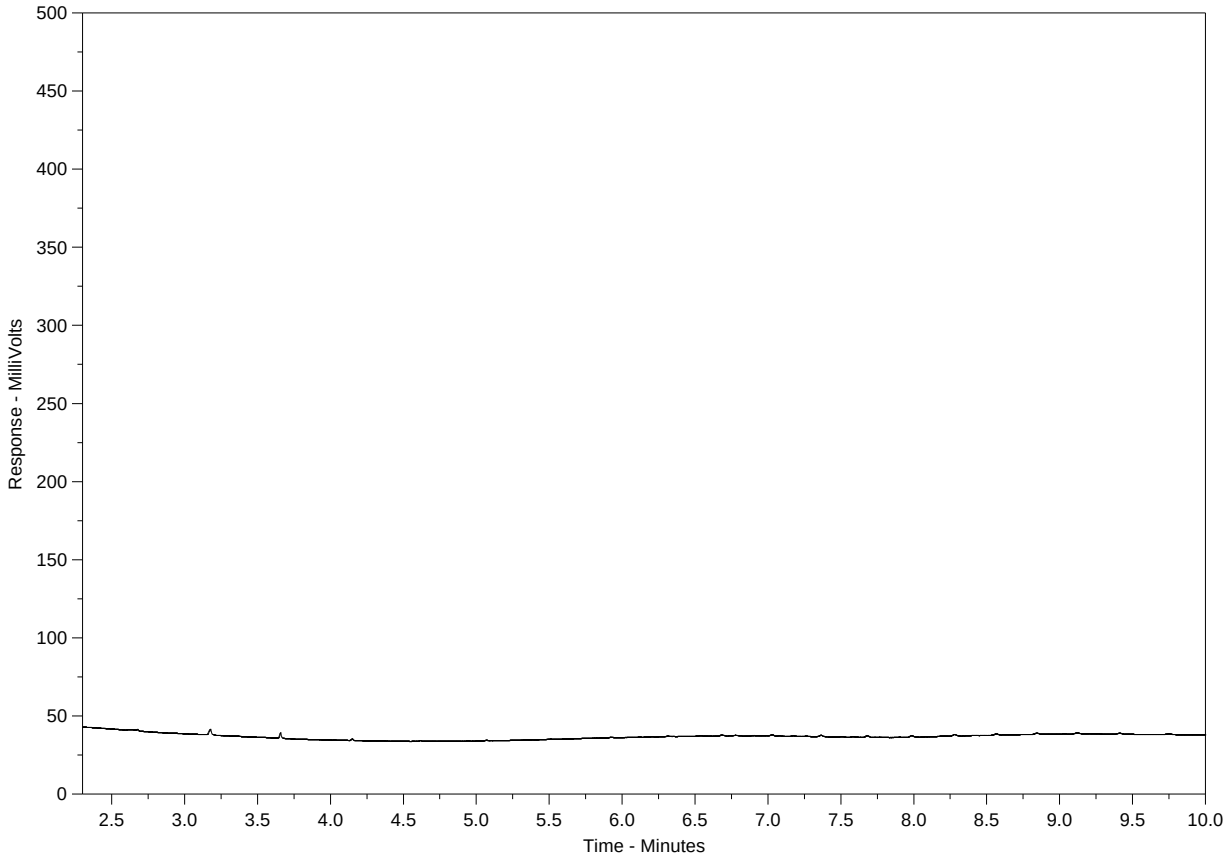
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

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

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

Hydrocarbon Distribution Report

ALS Sample ID: L1200265-5
Client Sample ID: 23706-05



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

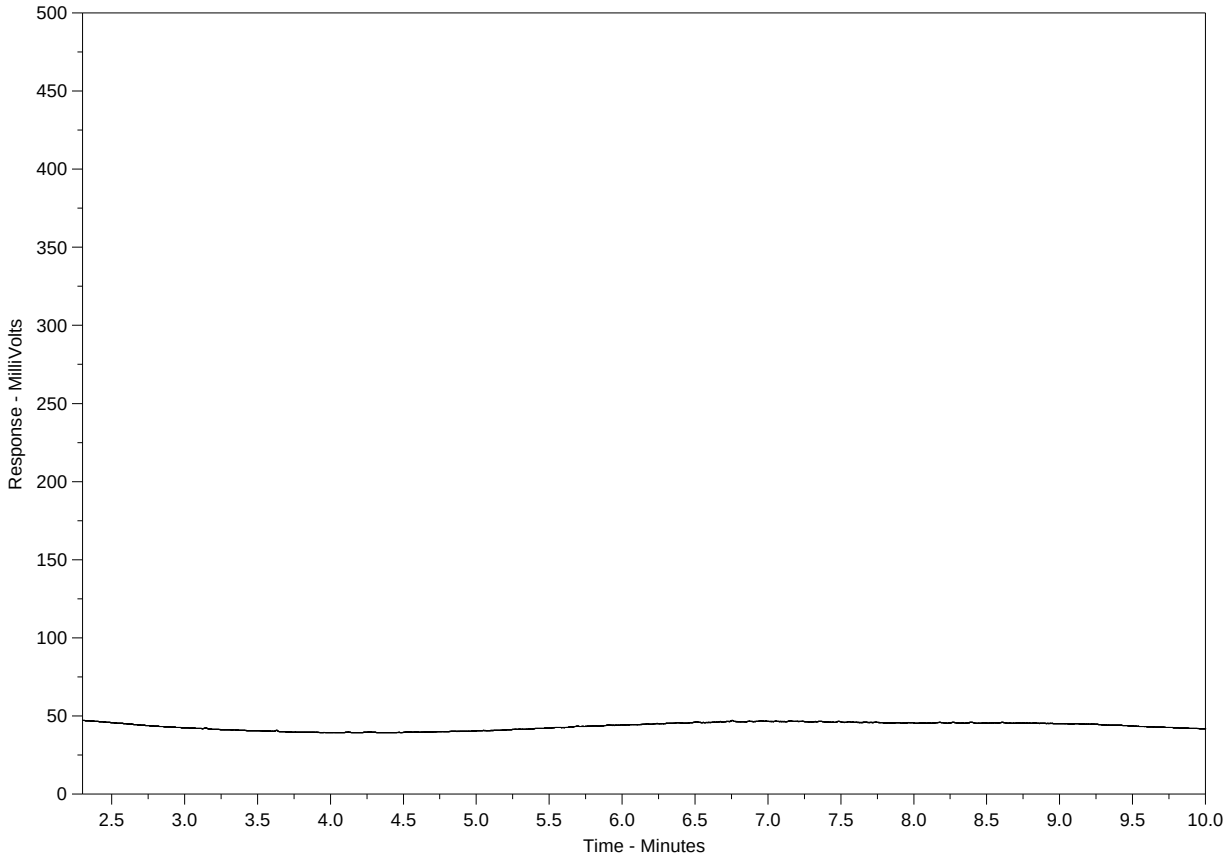
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200265-6
Client Sample ID: 23706-06



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

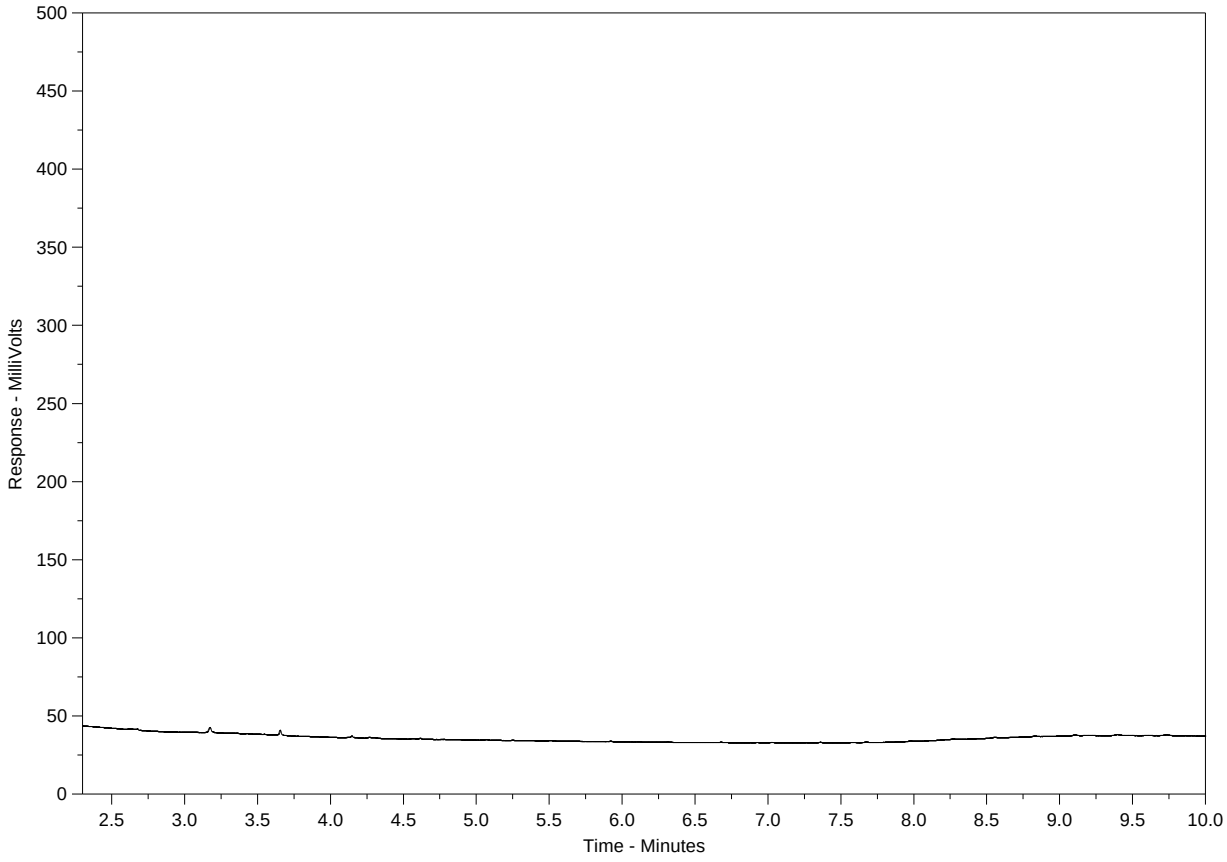
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200265-7
Client Sample ID: 23706-07



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

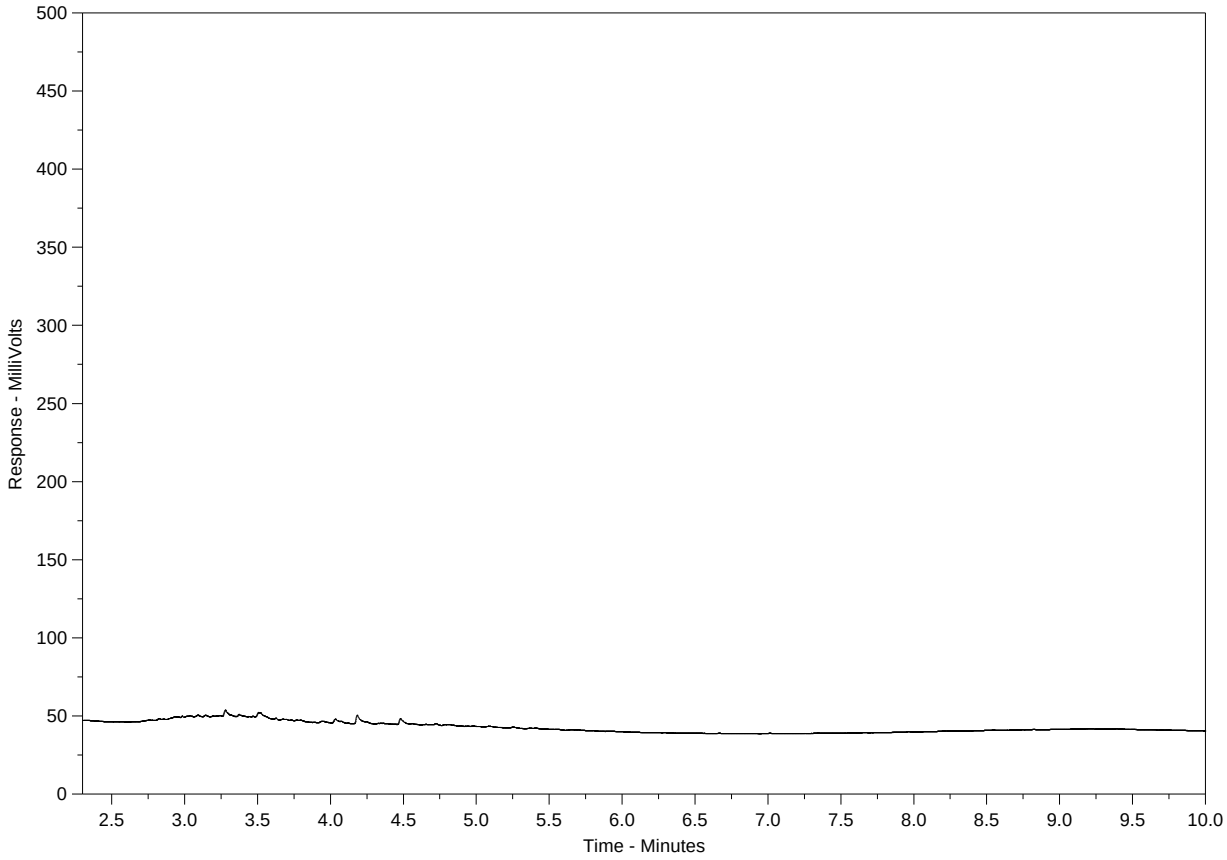
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

Hydrocarbon Distribution Report

ALS Sample ID: L1200265-8
Client Sample ID: 23706-08



nC10	nC19	nC32
174°C	330°C	467°C
346°F	626°F	873°F
← Gasoline →	← Motor Oils / Lube Oils / Grease →	
← Diesel / Jet Fuels →		

The EPH Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample. For further interpretation, a current library of reference products is available on www.alsglobal.com or upon request.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products, and three n-alkane hydrocarbon marker compounds. Retention times may vary between samples by as much as 0.5 minutes.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the response scale at the left.

A "-L-" in the sample ID denotes a low level sample. A "-S-" denotes a silica gel cleaned sample.

L-1200265-A

CHAIN-OF-CUSTODY RECORD/ANALYSIS REQUEST

ID 23706 page 4 of 4

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

Project Number:		Laboratory Name:
12-1021-0006		ALS
		Address: #100-8081 LOUGHEED HWY, BBY, BC
Golder Contact: ANDREW BRUEMMER	Golder E-mail Address: abruemmer @golder.com	Tel/Fax: 604.253.4188
		Contact: AMBER SPRINGER

Office the final reports should be sent to:

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

Sample Control Number (SCN)		Sample Matrix (over)	Date Sampled (D/M/Y)	Number of Containers	Analyses Required: CSR Metals *	Analyses Required: LEPH/HEPH/PAH	RUSH	Remarks (over)
23706	-01	Soil	24/8/12	2	X			* YUKON
	-02			2	X			CSR
	-03			2	X			
	-04			2	X			
	-05			2	X	X		
	-06			2	X	X		
	-07			2	X	X		
	-08			2	X	X		
	-09							
	-10							
	-11							
	-12							

L1200265-COFC

Sampler's Signature: Adam Brum	Relinquished by: Signature: Adam Brum	Company: GOLDER	Date: 27/08/2012	Time: 09:50	Received by: Signature	Company
Sample Storage (°C)	Relinquished by: Signature	Company	Date	Time	Received by: Signature	Company
Comments: PLEASE REFERENCE ALS QUOTE # Q35898	Method of Shipment:	Waybill No.:	Received for Lab by: BP 5.8°C	Date: ~~27 Aug 12~~ Aug 28	Time: 9:20	
	Shipped by:	Shipment Condition: Seal Intact:	Temp (°C): -9.7	Cooler opened by:	Date: 27 Aug 12	Time

WHITE: Golder copy YELLOW: Lab copy PINK: Lab returns with Final Report

GOLDER ASSOCIATES LTD.
ATTN: Andrew Bruemmer
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6

Date Received: 09-OCT-12
Report Date: 02-NOV-12 17:17 (MT)
Version: FINAL REV. 2

Client Phone: 604-298-6623

Certificate of Analysis

Lab Work Order #: L1221371

Project P.O. #: 8284
Job Reference: 12-1021-0006
C of C Numbers: 1, 2, 3, 4, 5, 6
Legal Site Desc:

Comments:

02-NOV-12: SPLP Metals have been added for L1221371 - 2, 7, 41, 59 & 63. Grain Size has been added for L1221371-25.

Amber Springer
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-1	L1221371-2	L1221371-3	L1221371-4	L1221371-5
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	28-SEP-12	29-SEP-12	29-SEP-12	29-SEP-12	29-SEP-12
	Sampled Time	16:00	08:15	08:40	08:50	09:08
	Client ID	300 TP12-31	301 TP12-32	302 TP12-33	303 TP12-34	304 TP12-35
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	7.59	7.23	8.27	8.01	8.19
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	4.55	13.6	1.45	12.7	5.37
	Arsenic (As) (mg/kg)	30.9	33.6	9.59	55.8	67.0
	Barium (Ba) (mg/kg)	136	56.6	246	137	74.2
	Beryllium (Be) (mg/kg)	1.17	0.63	0.50	0.63	1.19
	Cadmium (Cd) (mg/kg)	2.66	617	0.768	19.6	3.65
	Chromium (Cr) (mg/kg)	39.2	14.0	23.4	22.8	34.0
	Cobalt (Co) (mg/kg)	14.0	36.4	8.51	10.0	32.3
	Copper (Cu) (mg/kg)	41.1	46.1	25.4	52.1	50.2
	Lead (Pb) (mg/kg)	572	34300	22.1	4010	35.4
	Mercury (Hg) (mg/kg)	<0.050	0.056	0.061	0.060	<0.050
	Molybdenum (Mo) (mg/kg)	4.89	7.82	2.00	29.4	8.30
	Nickel (Ni) (mg/kg)	42.5	26.3	31.9	63.9	80.6
	Selenium (Se) (mg/kg)	0.44	29.2	0.26	3.86	0.46
	Silver (Ag) (mg/kg)	0.72	33.5	0.22	3.89	0.25
	Thallium (Tl) (mg/kg)	0.349	0.191	0.168	0.350	0.307
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	1.16	2.01	0.890	1.86	1.01
	Vanadium (V) (mg/kg)	85.0	63.2	42.0	115	37.8
	Zinc (Zn) (mg/kg)	802	105000	113	3780	748
SPLP Metals	Extraction Solution Initial pH (pH)		4.98			
	Final pH (pH)		7.44			
	Aluminum (Al)-Leachable (mg/L)		0.222			
	Antimony (Sb)-Leachable (mg/L)		0.0026			
	Arsenic (As)-Leachable (mg/L)		<0.0020			
	Barium (Ba)-Leachable (mg/L)		0.11			
	Beryllium (Be)-Leachable (mg/L)		<0.0050			
	Boron (B)-Leachable (mg/L)		<0.10			
	Cadmium (Cd)-Leachable (mg/L)		0.00085			
	Calcium (Ca)-Leachable (mg/L)		30.9			
	Chromium (Cr)-Leachable (mg/L)		<0.0020			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-6	L1221371-7	L1221371-8	L1221371-13	L1221371-14
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	29-SEP-12	29-SEP-12	29-SEP-12	29-SEP-12	29-SEP-12
	Sampled Time	09:25	09:50	10:09	13:20	15:40
	Client ID	305 TP12-36	306 TP12-37	307 TP12-38	312 TP12-42	313 TP12-43
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	6.39	7.17	7.56	4.85	7.56
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	8.42	1.99	4.39	2.49	3.19
	Arsenic (As) (mg/kg)	48.5	334	26.3	22.5	23.7
	Barium (Ba) (mg/kg)	140	83.1	156	91.8	123
	Beryllium (Be) (mg/kg)	1.21	1.07	0.61	1.19	1.17
	Cadmium (Cd) (mg/kg)	129	2.20	10.5	2.90	0.498
	Chromium (Cr) (mg/kg)	40.2	36.0	24.1	34.8	34.6
	Cobalt (Co) (mg/kg)	33.0	20.3	10.7	15.0	19.8
	Copper (Cu) (mg/kg)	69.6	27.3	42.9	49.4	38.9
	Lead (Pb) (mg/kg)	9820	301	1350	495	46.9
	Mercury (Hg) (mg/kg)	0.063	<0.050	0.188	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	5.66	1.29	6.25	3.41	5.00
	Nickel (Ni) (mg/kg)	65.9	33.5	37.0	40.4	45.9
	Selenium (Se) (mg/kg)	7.60	0.34	1.41	0.41	0.47
	Silver (Ag) (mg/kg)	9.58	0.42	1.65	0.73	0.30
	Thallium (Tl) (mg/kg)	0.465	0.169	0.242	0.313	0.122
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	1.00	0.740	1.30	1.33	1.41
	Vanadium (V) (mg/kg)	65.4	28.9	70.6	84.8	45.3
	Zinc (Zn) (mg/kg)	23100	464	2250	646	207
SPLP Metals	Extraction Solution Initial pH (pH)		4.98			
	Final pH (pH)		3.93			
	Aluminum (Al)-Leachable (mg/L)		5.35			
	Antimony (Sb)-Leachable (mg/L)		<0.0010			
	Arsenic (As)-Leachable (mg/L)		0.0605			
	Barium (Ba)-Leachable (mg/L)		0.16			
	Beryllium (Be)-Leachable (mg/L)		<0.0050			
	Boron (B)-Leachable (mg/L)		<0.10			
	Cadmium (Cd)-Leachable (mg/L)		0.00017			
	Calcium (Ca)-Leachable (mg/L)		3.91			
	Chromium (Cr)-Leachable (mg/L)		0.0072			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-15	L1221371-16	L1221371-17	L1221371-18	L1221371-19
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	29-SEP-12	29-SEP-12	29-SEP-12	30-SEP-12	30-SEP-12
	Sampled Time	15:50	16:00	16:12	10:50	11:25
	Client ID	314 TP12-44	315 TP12-45	316 TP12-46	317 TP12-47	318 TP12-48
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	8.28	8.27	8.42	8.22	8.08
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	2.14	2.30	1.38	1.37	1.32
	Arsenic (As) (mg/kg)	17.0	18.2	9.87	16.1	29.9
	Barium (Ba) (mg/kg)	136	87.4	81.0	144	160
	Beryllium (Be) (mg/kg)	1.17	0.88	0.80	0.66	0.88
	Cadmium (Cd) (mg/kg)	0.326	0.744	0.441	0.695	0.997
	Chromium (Cr) (mg/kg)	33.0	19.9	25.5	33.9	34.9
	Cobalt (Co) (mg/kg)	26.0	36.7	18.7	13.9	14.5
	Copper (Cu) (mg/kg)	39.2	32.7	28.7	27.9	34.7
	Lead (Pb) (mg/kg)	32.9	32.8	30.2	36.2	65.3
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	3.61	7.41	2.44	1.18	1.32
	Nickel (Ni) (mg/kg)	50.0	45.4	37.6	36.3	36.5
	Selenium (Se) (mg/kg)	0.37	0.39	0.25	<0.20	0.25
	Silver (Ag) (mg/kg)	0.16	0.14	0.11	0.22	0.35
	Thallium (Tl) (mg/kg)	0.118	0.199	0.111	0.151	0.200
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	1.15	1.63	0.765	0.603	0.600
	Vanadium (V) (mg/kg)	34.7	19.4	28.0	40.7	41.1
	Zinc (Zn) (mg/kg)	147	153	157	142	214
SPLP Metals	Extraction Solution Initial pH (pH)					
	Final pH (pH)					
	Aluminum (Al)-Leachable (mg/L)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-20	L1221371-21	L1221371-22	L1221371-23	L1221371-24
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	30-SEP-12	30-SEP-12	30-SEP-12	30-SEP-12	30-SEP-12
	Sampled Time	11:40	11:50	11:50	12:45	12:50
	Client ID	319 TP12-49	320 TP12-50	321 TP12-50	322 SS12-06	323 SS12-07
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	8.02	7.86	7.76	7.45	7.45
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	1.74	2.44	2.61	14.1	10.8
	Arsenic (As) (mg/kg)	27.6	26.3	33.0	19.6	17.9
	Barium (Ba) (mg/kg)	132	66.4	67.0	73.0	65.0
	Beryllium (Be) (mg/kg)	0.79	0.64	0.68	1.11	0.84
	Cadmium (Cd) (mg/kg)	7.98	12.9	12.4	386	320
	Chromium (Cr) (mg/kg)	29.5	34.3	32.2	5.66	4.41
	Cobalt (Co) (mg/kg)	13.8	13.6	13.8	27.3	22.4
	Copper (Cu) (mg/kg)	29.2	28.4	30.7	63.4	30.6
	Lead (Pb) (mg/kg)	345	1460	1260	30300	24800
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	2.74	2.92	3.24	11.8	11.4
	Nickel (Ni) (mg/kg)	34.3	34.0	35.0	19.4	20.4
	Selenium (Se) (mg/kg)	0.43	1.07	1.49	40.6	21.0
	Silver (Ag) (mg/kg)	0.51	1.16	1.30	47.7	22.5
	Thallium (Tl) (mg/kg)	0.204	0.171	0.171	0.189	0.193
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	0.855	1.06	0.922	4.82	5.49
	Vanadium (V) (mg/kg)	42.0	46.9	48.9	14.4	10.3
	Zinc (Zn) (mg/kg)	1580	2740	2310	64300	52200
SPLP Metals	Extraction Solution Initial pH (pH)					
	Final pH (pH)					
	Aluminum (Al)-Leachable (mg/L)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-25	L1221371-26	L1221371-27	L1221371-28	L1221371-29
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	30-SEP-12	30-SEP-12	30-SEP-12	30-SEP-12	01-OCT-12
	Sampled Time	14:15	14:20	14:30	14:35	11:06
	Client ID	324 SS12-08	325 SS12-09	326 SS12-10	327 SS12-11	328 SS12-12
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	7.56	7.54	7.65	7.05	8.13
Particle Size	% Gravel (>2mm) (%)	<0.10				
	% Sand (2.0mm - 0.063mm) (%)	12.2				
	% Silt (0.063mm - 4um) (%)	54.0				
	% Clay (<4um) (%)	33.8				
	Texture	Silt loam / Silty clay loam				
Metals	Antimony (Sb) (mg/kg)	19.9	39.2	29.2	19.0	3.93
	Arsenic (As) (mg/kg)	44.2	20.0	82.8	80.3	21.7
	Barium (Ba) (mg/kg)	136	102	125	109	22.5
	Beryllium (Be) (mg/kg)	2.80	3.02	2.41	2.91	0.94
	Cadmium (Cd) (mg/kg)	145	450	220	82.9	78.3
	Chromium (Cr) (mg/kg)	36.6	13.9	25.2	39.3	7.36
	Cobalt (Co) (mg/kg)	30.8	36.3	33.4	18.6	7.47
	Copper (Cu) (mg/kg)	69.4	78.3	70.5	74.5	23.4
	Lead (Pb) (mg/kg)	17700	34100	26600	7830	4060
	Mercury (Hg) (mg/kg)	0.081	0.070	0.078	0.107	<0.050
	Molybdenum (Mo) (mg/kg)	3.14	4.72	4.41	4.89	3.91
	Nickel (Ni) (mg/kg)	64.7	30.0	61.2	81.5	7.49
	Selenium (Se) (mg/kg)	4.83	24.3	7.66	1.59	1.96
	Silver (Ag) (mg/kg)	14.8	55.8	17.4	7.10	3.48
	Thallium (Tl) (mg/kg)	0.701	0.403	0.751	1.05	0.098
	Tin (Sn) (mg/kg)	<2.0	4.3	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	2.10	1.60	2.52	4.03	3.10
	Vanadium (V) (mg/kg)	97.6	33.2	90.9	101	6.14
	Zinc (Zn) (mg/kg)	29500	70800	44900	17000	14400
SPLP Metals	Extraction Solution Initial pH (pH)					
	Final pH (pH)					
	Aluminum (Al)-Leachable (mg/L)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-30	L1221371-31	L1221371-32	L1221371-33	L1221371-34
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12
	Sampled Time	11:20	11:30	11:30	11:40	11:46
	Client ID	329 SS12-13	330 SS12-14	331 SS12-14	332 SS12-15	333 SS12-16
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	8.12	8.38	8.44	7.80	8.22
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	3.88	3.10	3.06	4.99	5.35
	Arsenic (As) (mg/kg)	30.5	28.5	23.9	40.0	28.9
	Barium (Ba) (mg/kg)	19.2	19.5	18.8	21.6	25.7
	Beryllium (Be) (mg/kg)	0.95	0.85	0.89	1.07	1.26
	Cadmium (Cd) (mg/kg)	33.5	26.7	25.3	43.7	28.2
	Chromium (Cr) (mg/kg)	6.55	8.45	8.43	11.0	13.2
	Cobalt (Co) (mg/kg)	5.92	5.14	5.03	7.99	7.31
	Copper (Cu) (mg/kg)	37.1	31.9	28.4	42.5	44.4
	Lead (Pb) (mg/kg)	7160	3540	3290	6720	5460
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	7.50	5.73	6.50	10.4	8.57
	Nickel (Ni) (mg/kg)	18.7	17.3	16.7	25.0	20.7
	Selenium (Se) (mg/kg)	2.22	2.09	2.18	3.41	2.99
	Silver (Ag) (mg/kg)	5.60	2.87	3.06	4.48	3.74
	Thallium (Tl) (mg/kg)	0.126	0.142	0.141	0.199	0.216
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	2.98	2.91	2.83	2.47	2.64
	Vanadium (V) (mg/kg)	7.15	8.04	8.17	10.1	11.2
	Zinc (Zn) (mg/kg)	6470	5400	4930	7910	6610
SPLP Metals	Extraction Solution Initial pH (pH)					
	Final pH (pH)					
	Aluminum (Al)-Leachable (mg/L)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1221371-35 Soil 01-OCT-12 11:54 334 SS12-17	L1221371-36 Soil 01-OCT-12 12:03 335 SS12-18	L1221371-37 Soil 01-OCT-12 12:10 336 SS12-19	L1221371-38 Soil 01-OCT-12 12:17 337 SS12-20	L1221371-39 Soil 01-OCT-12 12:25 338 SS12-21
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	7.83	7.86	7.86	8.21	8.38
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	8.94	5.00	6.78	4.91	4.67
	Arsenic (As) (mg/kg)	59.0	30.1	65.0	38.2	53.1
	Barium (Ba) (mg/kg)	76.3	32.1	35.3	28.6	24.4
	Beryllium (Be) (mg/kg)	1.96	1.14	0.95	1.02	1.08
	Cadmium (Cd) (mg/kg)	46.3	26.2	58.1	38.3	16.9
	Chromium (Cr) (mg/kg)	16.7	10.8	9.19	11.0	8.17
	Cobalt (Co) (mg/kg)	12.0	6.30	8.46	8.18	5.50
	Copper (Cu) (mg/kg)	148	41.5	69.0	45.7	41.1
	Lead (Pb) (mg/kg)	10700	4980	12900	5060	3490
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	17.7	7.70	14.3	9.67	10.9
	Nickel (Ni) (mg/kg)	69.0	23.3	51.2	43.8	57.8
	Selenium (Se) (mg/kg)	5.81	2.46	7.78	3.04	1.43
	Silver (Ag) (mg/kg)	8.51	3.61	9.86	3.96	3.16
	Thallium (Tl) (mg/kg)	0.290	0.149	0.164	0.210	0.133
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	6.84	3.57	4.16	3.31	3.56
	Vanadium (V) (mg/kg)	29.8	13.7	14.4	13.4	13.2
	Zinc (Zn) (mg/kg)	9980	5730	9860	7630	4070
SPLP Metals	Extraction Solution Initial pH (pH)					
	Final pH (pH)					
	Aluminum (Al)-Leachable (mg/L)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-40	L1221371-41	L1221371-42	L1221371-43	L1221371-44
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12
	Sampled Time	12:35	12:45	12:45	12:53	13:00
	Client ID	339 SS12-22	340 SS12-23	341 SS12-23	342 SS12-24	343 SS12-25
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	8.29	8.26	8.30	8.14	8.20
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	3.80	2.91	3.25	5.12	6.57
	Arsenic (As) (mg/kg)	47.7	19.9	24.1	43.9	68.7
	Barium (Ba) (mg/kg)	25.5	16.0	15.3	34.1	50.9
	Beryllium (Be) (mg/kg)	0.95	0.93	0.84	1.17	1.27
	Cadmium (Cd) (mg/kg)	18.8	111	86.9	26.1	29.4
	Chromium (Cr) (mg/kg)	8.90	5.49	7.43	9.57	11.3
	Cobalt (Co) (mg/kg)	5.62	8.55	7.46	6.49	8.78
	Copper (Cu) (mg/kg)	41.8	28.1	30.1	46.2	75.5
	Lead (Pb) (mg/kg)	2910	3500	3770	5770	6850
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	10.3	5.10	5.42	11.3	15.6
	Nickel (Ni) (mg/kg)	46.6	7.80	8.99	38.4	67.5
	Selenium (Se) (mg/kg)	1.62	5.13	3.21	2.86	3.61
	Silver (Ag) (mg/kg)	2.62	6.57	3.46	4.05	5.27
	Thallium (Tl) (mg/kg)	0.158	0.085	0.102	0.142	0.193
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	3.37	2.90	3.01	4.42	4.90
	Vanadium (V) (mg/kg)	14.0	5.94	7.67	15.8	21.1
	Zinc (Zn) (mg/kg)	3820	18500	14500	4920	6150
SPLP Metals	Extraction Solution Initial pH (pH)		4.98			
	Final pH (pH)		6.79			
	Aluminum (Al)-Leachable (mg/L)		0.100			
	Antimony (Sb)-Leachable (mg/L)		<0.0010			
	Arsenic (As)-Leachable (mg/L)		0.0022			
	Barium (Ba)-Leachable (mg/L)		<0.10			
	Beryllium (Be)-Leachable (mg/L)		<0.0050			
	Boron (B)-Leachable (mg/L)		<0.10			
	Cadmium (Cd)-Leachable (mg/L)		0.00114			
	Calcium (Ca)-Leachable (mg/L)		9.10			
	Chromium (Cr)-Leachable (mg/L)		<0.0020			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-45	L1221371-46	L1221371-47	L1221371-48	L1221371-49
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12
	Sampled Time	13:11	13:20	13:30	13:41	13:50
	Client ID	344 SS12-26	345 SS12-27	346 SS12-28	347 SS12-29	348 SS12-30
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	8.17	8.11	7.97	8.33	8.29
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	11.6	4.79	7.64	4.48	4.95
	Arsenic (As) (mg/kg)	48.0	46.7	35.4	59.4	22.4
	Barium (Ba) (mg/kg)	72.3	43.1	49.5	30.2	26.0
	Beryllium (Be) (mg/kg)	2.55	1.04	1.59	0.93	1.07
	Cadmium (Cd) (mg/kg)	52.9	18.2	37.2	30.0	47.0
	Chromium (Cr) (mg/kg)	21.5	10.7	12.0	8.07	6.47
	Cobalt (Co) (mg/kg)	15.9	6.27	8.77	6.66	6.53
	Copper (Cu) (mg/kg)	177	42.3	104	44.5	34.1
	Lead (Pb) (mg/kg)	14000	3700	8770	4840	7280
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	15.3	11.1	11.0	12.8	5.52
	Nickel (Ni) (mg/kg)	53.5	46.5	35.3	48.0	11.4
	Selenium (Se) (mg/kg)	10.6	2.16	4.83	2.67	3.06
	Silver (Ag) (mg/kg)	12.1	2.88	7.09	4.06	5.62
	Thallium (Tl) (mg/kg)	0.409	0.183	0.202	0.174	0.128
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	5.56	4.71	4.50	4.13	2.33
	Vanadium (V) (mg/kg)	24.0	18.8	19.3	14.2	8.64
	Zinc (Zn) (mg/kg)	11700	3750	7220	5590	8660
SPLP Metals	Extraction Solution Initial pH (pH)					
	Final pH (pH)					
	Aluminum (Al)-Leachable (mg/L)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-50	L1221371-51	L1221371-52	L1221371-53	L1221371-54
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12
	Sampled Time	14:00	14:10	14:10	15:00	15:05
	Client ID	349 SS12-31	350 SS12-32	351 SS12-32	352 SS12-33	353 SS12-34
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	8.25	8.05	8.04	7.83	7.52
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	4.10	4.81	4.68	1.07	1.67
	Arsenic (As) (mg/kg)	21.0	51.8	49.5	6.70	10.4
	Barium (Ba) (mg/kg)	16.4	37.7	36.4	162	178
	Beryllium (Be) (mg/kg)	0.96	1.11	1.13	0.29	0.36
	Cadmium (Cd) (mg/kg)	107	24.2	27.7	4.20	5.75
	Chromium (Cr) (mg/kg)	4.02	10.8	11.4	8.20	9.33
	Cobalt (Co) (mg/kg)	8.45	6.56	7.56	5.88	6.76
	Copper (Cu) (mg/kg)	55.2	47.6	53.2	97.5	195
	Lead (Pb) (mg/kg)	5570	4070	3860	251	455
	Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	0.052	<0.050
	Molybdenum (Mo) (mg/kg)	5.47	12.7	14.1	1.30	2.42
	Nickel (Ni) (mg/kg)	6.02	45.8	51.1	15.6	21.0
	Selenium (Se) (mg/kg)	3.91	2.67	3.25	4.95	15.2
	Silver (Ag) (mg/kg)	6.35	3.34	3.45	0.38	0.56
	Thallium (Tl) (mg/kg)	0.078	0.188	0.222	0.075	0.084
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	2.27	4.39	4.43	1.63	4.50
	Vanadium (V) (mg/kg)	5.67	17.3	18.3	13.6	16.6
	Zinc (Zn) (mg/kg)	17600	4470	5040	462	543
SPLP Metals	Extraction Solution Initial pH (pH)					
	Final pH (pH)					
	Aluminum (Al)-Leachable (mg/L)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1221371-55 Soil 01-OCT-12 15:10 354 SS12-35	L1221371-56 Soil 01-OCT-12 16:15 355 SS12-36	L1221371-57 Soil 01-OCT-12 16:20 356 SS12-37	L1221371-58 Soil 23-AUG-12 TP12-20 7-8 FT	L1221371-59 Soil 23-AUG-12 TP12-21 5-6 FT
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	6.62	6.82	6.14	7.75	8.61
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	2.01	3.70	1.52	3.08	8.85
	Arsenic (As) (mg/kg)	18.0	23.3	7.39	28.1	21.7
	Barium (Ba) (mg/kg)	172	126	55.1	83.0	128
	Beryllium (Be) (mg/kg)	0.89	2.85	0.86	1.37	2.03
	Cadmium (Cd) (mg/kg)	5.20	11.6	1.76	16.1	86.9
	Chromium (Cr) (mg/kg)	32.8	42.2	12.5	27.9	26.9
	Cobalt (Co) (mg/kg)	10.6	16.7	6.91	12.8	20.2
	Copper (Cu) (mg/kg)	31.1	98.0	18.1	35.3	18.2
	Lead (Pb) (mg/kg)	153	1240	340	996	237
	Mercury (Hg) (mg/kg)	<0.050	0.068	0.070	<0.050	<0.050
	Molybdenum (Mo) (mg/kg)	2.09	1.76	0.92	4.25	1.10
	Nickel (Ni) (mg/kg)	30.1	43.2	17.0	35.0	30.7
	Selenium (Se) (mg/kg)	2.18	1.06	0.32	2.34	7.27
	Silver (Ag) (mg/kg)	0.53	2.40	0.47	1.34	5.30
	Thallium (Tl) (mg/kg)	0.195	0.695	0.153	0.330	0.874
	Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
	Uranium (U) (mg/kg)	2.08	4.18	0.453	2.04	1.80
	Vanadium (V) (mg/kg)	43.7	66.7	14.1	66.0	24.7
	Zinc (Zn) (mg/kg)	353	2220	363	3740	17100
SPLP Metals	Extraction Solution Initial pH (pH)					4.98
	Final pH (pH)					6.64
	Aluminum (Al)-Leachable (mg/L)					0.108
	Antimony (Sb)-Leachable (mg/L)					0.0028
	Arsenic (As)-Leachable (mg/L)					<0.0020
	Barium (Ba)-Leachable (mg/L)					<0.10
	Beryllium (Be)-Leachable (mg/L)					<0.0050
	Boron (B)-Leachable (mg/L)					<0.10
	Cadmium (Cd)-Leachable (mg/L)					0.00013
	Calcium (Ca)-Leachable (mg/L)					7.29
	Chromium (Cr)-Leachable (mg/L)					<0.0020

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample ID	L1221371-60	L1221371-61	L1221371-62	L1221371-63	L1221371-64
Description	Soil	Soil	Soil	Soil	Soil
Sampled Date	23-AUG-12	24-AUG-12	24-AUG-12	24-AUG-12	24-AUG-12
Sampled Time					
Client ID	TP12-22 8-9 FT	TP12-24 4.5-5.5 FT	TP12-25 4-5 FT	TP12-26 4.5-5.5 FT	TP12-27 7-8 FT
Grouping / **Analyte**					
SOIL					
Physical Tests pH (1:2 soil:water) (pH)	6.88	7.20	7.49	7.42	7.88
Particle Size % Gravel (>2mm) (%)					
% Sand (2.0mm - 0.063mm) (%)					
% Silt (0.063mm - 4um) (%)					
% Clay (<4um) (%)					
Texture					
Metals Antimony (Sb) (mg/kg)	3.07	31.0	14.6	13.5	15.0
Arsenic (As) (mg/kg)	19.5	373	125	27.9	130
Barium (Ba) (mg/kg)	112	245	119	72.4	45.6
Beryllium (Be) (mg/kg)	0.96	3.36	2.63	0.68	0.82
Cadmium (Cd) (mg/kg)	4.83	2.94	25.9	261	0.981
Chromium (Cr) (mg/kg)	24.8	68.0	32.1	7.30	10.4
Cobalt (Co) (mg/kg)	10.6	10.1	20.4	18.3	7.53
Copper (Cu) (mg/kg)	20.8	523	268	44.4	125
Lead (Pb) (mg/kg)	146	178	2530	25300	84.9
Mercury (Hg) (mg/kg)	<0.050	<0.050	<0.050	<0.050	<0.050
Molybdenum (Mo) (mg/kg)	3.77	98.6	17.1	7.49	16.5
Nickel (Ni) (mg/kg)	28.7	147	71.7	21.5	30.1
Selenium (Se) (mg/kg)	1.52	10.1	1.45	15.1	2.04
Silver (Ag) (mg/kg)	1.47	15.0	3.22	18.4	1.50
Thallium (Tl) (mg/kg)	0.310	0.890	0.822	0.233	0.235
Tin (Sn) (mg/kg)	<2.0	<2.0	<2.0	<2.0	<2.0
Uranium (U) (mg/kg)	1.44	24.5	4.78	3.71	1.88
Vanadium (V) (mg/kg)	67.8	1030	158	21.7	23.2
Zinc (Zn) (mg/kg)	1210	822	4240	41400	193
SPLP Metals Extraction Solution Initial pH (pH)				4.98	
Final pH (pH)				7.25	
Aluminum (Al)-Leachable (mg/L)				0.029	
Antimony (Sb)-Leachable (mg/L)				0.0021	
Arsenic (As)-Leachable (mg/L)				<0.0020	
Barium (Ba)-Leachable (mg/L)				0.12	
Beryllium (Be)-Leachable (mg/L)				<0.0050	
Boron (B)-Leachable (mg/L)				<0.10	
Cadmium (Cd)-Leachable (mg/L)				0.00106	
Calcium (Ca)-Leachable (mg/L)				78.2	
Chromium (Cr)-Leachable (mg/L)				<0.0020	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-65	L1221371-66			
	Description	Soil	Soil			
	Sampled Date	24-AUG-12	24-AUG-12			
	Sampled Time					
	Client ID	TP12-29 4-5 FT	TP12-30 4-5 FT			
Grouping	**Analyte**					
SOIL						
Physical Tests	pH (1:2 soil:water) (pH)	8.06	7.61			
Particle Size	% Gravel (>2mm) (%)					
	% Sand (2.0mm - 0.063mm) (%)					
	% Silt (0.063mm - 4um) (%)					
	% Clay (<4um) (%)					
	Texture					
Metals	Antimony (Sb) (mg/kg)	12.5	6.81			
	Arsenic (As) (mg/kg)	56.4	32.6			
	Barium (Ba) (mg/kg)	172	172			
	Beryllium (Be) (mg/kg)	0.80	0.70			
	Cadmium (Cd) (mg/kg)	11.9	3.98			
	Chromium (Cr) (mg/kg)	26.4	25.5			
	Cobalt (Co) (mg/kg)	14.8	9.97			
	Copper (Cu) (mg/kg)	52.8	50.6			
	Lead (Pb) (mg/kg)	187	199			
	Mercury (Hg) (mg/kg)	<0.050	0.326			
	Molybdenum (Mo) (mg/kg)	10.6	9.97			
	Nickel (Ni) (mg/kg)	70.5	40.8			
	Selenium (Se) (mg/kg)	1.07	0.99			
	Silver (Ag) (mg/kg)	0.94	0.69			
	Thallium (Tl) (mg/kg)	0.464	0.265			
	Tin (Sn) (mg/kg)	<2.0	<2.0			
	Uranium (U) (mg/kg)	3.23	1.74			
	Vanadium (V) (mg/kg)	166	85.9			
	Zinc (Zn) (mg/kg)	1700	835			
SPLP Metals	Extraction Solution Initial pH (pH)					
	Final pH (pH)					
	Aluminum (Al)-Leachable (mg/L)					
	Antimony (Sb)-Leachable (mg/L)					
	Arsenic (As)-Leachable (mg/L)					
	Barium (Ba)-Leachable (mg/L)					
	Beryllium (Be)-Leachable (mg/L)					
	Boron (B)-Leachable (mg/L)					
	Cadmium (Cd)-Leachable (mg/L)					
	Calcium (Ca)-Leachable (mg/L)					
	Chromium (Cr)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1221371-1 Soil 28-SEP-12 16:00 300 TP12-31	L1221371-2 Soil 29-SEP-12 08:15 301 TP12-32	L1221371-3 Soil 29-SEP-12 08:40 302 TP12-33	L1221371-4 Soil 29-SEP-12 08:50 303 TP12-34	L1221371-5 Soil 29-SEP-12 09:08 304 TP12-35
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)		<0.0050			
	Copper (Cu)-Leachable (mg/L)		0.0011			
	Iron (Fe)-Leachable (mg/L)		0.153			
	Lead (Pb)-Leachable (mg/L)		0.256			
	Lithium (Li)-Leachable (mg/L)		<0.10			
	Magnesium (Mg)-Leachable (mg/L)		0.38			
	Manganese (Mn)-Leachable (mg/L)		0.0073			
	Mercury (Hg)-Leachable (mg/L)		<0.0010			
	Molybdenum (Mo)-Leachable (mg/L)		0.0021			
	Nickel (Ni)-Leachable (mg/L)		<0.010			
	Selenium (Se)-Leachable (mg/L)		0.0122			
	Silver (Ag)-Leachable (mg/L)		<0.000050			
	Sodium (Na)-Leachable (mg/L)		<20			
	Thallium (Tl)-Leachable (mg/L)		<0.00010			
	Titanium (Ti)-Leachable (mg/L)		<0.010			
	Uranium (U)-Leachable (mg/L)		<0.0010			
	Vanadium (V)-Leachable (mg/L)		0.0025			
	Zinc (Zn)-Leachable (mg/L)		0.060			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1221371-6 Soil 29-SEP-12 09:25 305 TP12-36	L1221371-7 Soil 29-SEP-12 09:50 306 TP12-37	L1221371-8 Soil 29-SEP-12 10:09 307 TP12-38	L1221371-13 Soil 29-SEP-12 13:20 312 TP12-42	L1221371-14 Soil 29-SEP-12 15:40 313 TP12-43
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)		<0.0050			
	Copper (Cu)-Leachable (mg/L)		0.0079			
	Iron (Fe)-Leachable (mg/L)		5.09			
	Lead (Pb)-Leachable (mg/L)		0.101			
	Lithium (Li)-Leachable (mg/L)		<0.10			
	Magnesium (Mg)-Leachable (mg/L)		1.21			
	Manganese (Mn)-Leachable (mg/L)		0.0876			
	Mercury (Hg)-Leachable (mg/L)		<0.0010			
	Molybdenum (Mo)-Leachable (mg/L)		<0.0010			
	Nickel (Ni)-Leachable (mg/L)		<0.010			
	Selenium (Se)-Leachable (mg/L)		<0.0010			
	Silver (Ag)-Leachable (mg/L)		0.000219			
	Sodium (Na)-Leachable (mg/L)		<20			
	Thallium (Tl)-Leachable (mg/L)		<0.00010			
	Titanium (Ti)-Leachable (mg/L)		0.170			
	Uranium (U)-Leachable (mg/L)		<0.0010			
	Vanadium (V)-Leachable (mg/L)		0.0087			
	Zinc (Zn)-Leachable (mg/L)		0.088			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-15	L1221371-16	L1221371-17	L1221371-18	L1221371-19
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	29-SEP-12	29-SEP-12	29-SEP-12	30-SEP-12	30-SEP-12
	Sampled Time	15:50	16:00	16:12	10:50	11:25
	Client ID	314 TP12-44	315 TP12-45	316 TP12-46	317 TP12-47	318 TP12-48
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Lithium (Li)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Manganese (Mn)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Molybdenum (Mo)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Sodium (Na)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Titanium (Ti)-Leachable (mg/L)					
	Uranium (U)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-20	L1221371-21	L1221371-22	L1221371-23	L1221371-24
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	30-SEP-12	30-SEP-12	30-SEP-12	30-SEP-12	30-SEP-12
	Sampled Time	11:40	11:50	11:50	12:45	12:50
	Client ID	319 TP12-49	320 TP12-50	321 TP12-50	322 SS12-06	323 SS12-07
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Lithium (Li)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Manganese (Mn)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Molybdenum (Mo)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Sodium (Na)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Titanium (Ti)-Leachable (mg/L)					
	Uranium (U)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-25	L1221371-26	L1221371-27	L1221371-28	L1221371-29
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	30-SEP-12	30-SEP-12	30-SEP-12	30-SEP-12	01-OCT-12
	Sampled Time	14:15	14:20	14:30	14:35	11:06
	Client ID	324 SS12-08	325 SS12-09	326 SS12-10	327 SS12-11	328 SS12-12
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Lithium (Li)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Manganese (Mn)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Molybdenum (Mo)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Sodium (Na)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Titanium (Ti)-Leachable (mg/L)					
	Uranium (U)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-30	L1221371-31	L1221371-32	L1221371-33	L1221371-34
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12
	Sampled Time	11:20	11:30	11:30	11:40	11:46
	Client ID	329 SS12-13	330 SS12-14	331 SS12-14	332 SS12-15	333 SS12-16
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Lithium (Li)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Manganese (Mn)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Molybdenum (Mo)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Sodium (Na)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Titanium (Ti)-Leachable (mg/L)					
	Uranium (U)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-35	L1221371-36	L1221371-37	L1221371-38	L1221371-39
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12
	Sampled Time	11:54	12:03	12:10	12:17	12:25
	Client ID	334 SS12-17	335 SS12-18	336 SS12-19	337 SS12-20	338 SS12-21
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Lithium (Li)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Manganese (Mn)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Molybdenum (Mo)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Sodium (Na)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Titanium (Ti)-Leachable (mg/L)					
	Uranium (U)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1221371-40 Soil 01-OCT-12 12:35 339 SS12-22	L1221371-41 Soil 01-OCT-12 12:45 340 SS12-23	L1221371-42 Soil 01-OCT-12 12:45 341 SS12-23	L1221371-43 Soil 01-OCT-12 12:53 342 SS12-24	L1221371-44 Soil 01-OCT-12 13:00 343 SS12-25
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)		<0.0050			
	Copper (Cu)-Leachable (mg/L)		0.0026			
	Iron (Fe)-Leachable (mg/L)		0.453			
	Lead (Pb)-Leachable (mg/L)		0.0725			
	Lithium (Li)-Leachable (mg/L)		<0.10			
	Magnesium (Mg)-Leachable (mg/L)		0.21			
	Manganese (Mn)-Leachable (mg/L)		0.0424			
	Mercury (Hg)-Leachable (mg/L)		<0.0010			
	Molybdenum (Mo)-Leachable (mg/L)		0.0131			
	Nickel (Ni)-Leachable (mg/L)		<0.010			
	Selenium (Se)-Leachable (mg/L)		0.0074			
	Silver (Ag)-Leachable (mg/L)		0.000855			
	Sodium (Na)-Leachable (mg/L)		<20			
	Thallium (Tl)-Leachable (mg/L)		<0.00010			
	Titanium (Ti)-Leachable (mg/L)		<0.010			
	Uranium (U)-Leachable (mg/L)		<0.0010			
	Vanadium (V)-Leachable (mg/L)		<0.0010			
	Zinc (Zn)-Leachable (mg/L)		0.252			

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-45	L1221371-46	L1221371-47	L1221371-48	L1221371-49
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12
	Sampled Time	13:11	13:20	13:30	13:41	13:50
	Client ID	344 SS12-26	345 SS12-27	346 SS12-28	347 SS12-29	348 SS12-30
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Lithium (Li)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Manganese (Mn)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Molybdenum (Mo)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Sodium (Na)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Titanium (Ti)-Leachable (mg/L)					
	Uranium (U)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-50	L1221371-51	L1221371-52	L1221371-53	L1221371-54
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12	01-OCT-12
	Sampled Time	14:00	14:10	14:10	15:00	15:05
	Client ID	349 SS12-31	350 SS12-32	351 SS12-32	352 SS12-33	353 SS12-34
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Lithium (Li)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Manganese (Mn)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Molybdenum (Mo)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Sodium (Na)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Titanium (Ti)-Leachable (mg/L)					
	Uranium (U)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Grouping	Analyte	L1221371-55 Soil 01-OCT-12 15:10 354 SS12-35	L1221371-56 Soil 01-OCT-12 16:15 355 SS12-36	L1221371-57 Soil 01-OCT-12 16:20 356 SS12-37	L1221371-58 Soil 23-AUG-12 TP12-20 7-8 FT	L1221371-59 Soil 23-AUG-12 TP12-21 5-6 FT
Sample ID						
Description						
Sampled Date						
Sampled Time						
Client ID						
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					<0.0050
	Copper (Cu)-Leachable (mg/L)					<0.0010
	Iron (Fe)-Leachable (mg/L)					0.032
	Lead (Pb)-Leachable (mg/L)					<0.0010
	Lithium (Li)-Leachable (mg/L)					<0.10
	Magnesium (Mg)-Leachable (mg/L)					3.54
	Manganese (Mn)-Leachable (mg/L)					<0.0050
	Mercury (Hg)-Leachable (mg/L)					<0.0010
	Molybdenum (Mo)-Leachable (mg/L)					0.0015
	Nickel (Ni)-Leachable (mg/L)					<0.010
	Selenium (Se)-Leachable (mg/L)					0.0023
	Silver (Ag)-Leachable (mg/L)					<0.000050
	Sodium (Na)-Leachable (mg/L)					<20
	Thallium (Tl)-Leachable (mg/L)					<0.00010
	Titanium (Ti)-Leachable (mg/L)					<0.010
	Uranium (U)-Leachable (mg/L)					<0.0010
	Vanadium (V)-Leachable (mg/L)					<0.0010
	Zinc (Zn)-Leachable (mg/L)					0.047

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-60	L1221371-61	L1221371-62	L1221371-63	L1221371-64
	Description	Soil	Soil	Soil	Soil	Soil
	Sampled Date	23-AUG-12	24-AUG-12	24-AUG-12	24-AUG-12	24-AUG-12
	Sampled Time					
	Client ID	TP12-22 8-9 FT	TP12-24 4.5-5.5 FT	TP12-25 4-5 FT	TP12-26 4.5-5.5 FT	TP12-27 7-8 FT
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)				<0.0050	
	Copper (Cu)-Leachable (mg/L)				<0.0010	
	Iron (Fe)-Leachable (mg/L)				<0.030	
	Lead (Pb)-Leachable (mg/L)				0.0060	
	Lithium (Li)-Leachable (mg/L)				<0.10	
	Magnesium (Mg)-Leachable (mg/L)				1.25	
	Manganese (Mn)-Leachable (mg/L)				0.0104	
	Mercury (Hg)-Leachable (mg/L)				<0.0010	
	Molybdenum (Mo)-Leachable (mg/L)				0.0039	
	Nickel (Ni)-Leachable (mg/L)				<0.010	
	Selenium (Se)-Leachable (mg/L)				0.0057	
	Silver (Ag)-Leachable (mg/L)				<0.000050	
	Sodium (Na)-Leachable (mg/L)				<20	
	Thallium (Tl)-Leachable (mg/L)				<0.00010	
	Titanium (Ti)-Leachable (mg/L)				<0.010	
	Uranium (U)-Leachable (mg/L)				<0.0010	
	Vanadium (V)-Leachable (mg/L)				<0.0010	
	Zinc (Zn)-Leachable (mg/L)				0.040	

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

	Sample ID	L1221371-65	L1221371-66			
	Description	Soil	Soil			
	Sampled Date	24-AUG-12	24-AUG-12			
	Sampled Time					
	Client ID	TP12-29 4-5 FT	TP12-30 4-5 FT			
Grouping	**Analyte**					
SOIL						
SPLP Metals	Cobalt (Co)-Leachable (mg/L)					
	Copper (Cu)-Leachable (mg/L)					
	Iron (Fe)-Leachable (mg/L)					
	Lead (Pb)-Leachable (mg/L)					
	Lithium (Li)-Leachable (mg/L)					
	Magnesium (Mg)-Leachable (mg/L)					
	Manganese (Mn)-Leachable (mg/L)					
	Mercury (Hg)-Leachable (mg/L)					
	Molybdenum (Mo)-Leachable (mg/L)					
	Nickel (Ni)-Leachable (mg/L)					
	Selenium (Se)-Leachable (mg/L)					
	Silver (Ag)-Leachable (mg/L)					
	Sodium (Na)-Leachable (mg/L)					
	Thallium (Tl)-Leachable (mg/L)					
	Titanium (Ti)-Leachable (mg/L)					
	Uranium (U)-Leachable (mg/L)					
	Vanadium (V)-Leachable (mg/L)					
	Zinc (Zn)-Leachable (mg/L)					

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

Reference Information

QC Samples with Qualifiers & Comments:

QC Type Description	Parameter	Qualifier	Applies to Sample Number(s)
Duplicate	Lead (Pb)	DLB	L1221371-1, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -3, -4, -5, -6, -7, -8
Duplicate	Cadmium (Cd)	DUP-H	L1221371-29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43, -44, -45, -46, -47, -48, -49, -50, -51, -52, -53, -54, -55, -56, -57, -58, -59, -60, -61, -62
Duplicate	Zinc (Zn)	DUP-H	L1221371-29, -30, -31, -32, -33, -34, -35, -36, -37, -38, -39, -40, -41, -42, -43, -44, -45, -46, -47, -48, -49, -50, -51, -52, -53, -54, -55, -56, -57, -58, -59, -60, -61, -62
Duplicate	Cadmium (Cd)	DUP-H	L1221371-1, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -3, -4, -5, -6, -7, -8
Duplicate	Molybdenum (Mo)	DUP-H	L1221371-1, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -3, -4, -5, -6, -7, -8
Duplicate	Cadmium (Cd)	DUP-H	L1221371-63, -64, -65, -66
Duplicate	Zinc (Zn)	DUP-H	L1221371-63, -64, -65, -66
Duplicate	Mercury (Hg)	DUP-H,J	L1221371-63, -64, -65, -66
Method Blank	Lead (Pb)	MB-LOR	L1221371-1, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -3, -4, -5, -6, -7, -8
Method Blank	Zinc (Zn)	MB-LOR	L1221371-1, -13, -14, -15, -16, -17, -18, -19, -2, -20, -21, -22, -23, -24, -25, -26, -27, -28, -3, -4, -5, -6, -7, -8

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLB	Detection limit was raised due to detection of analyte at comparable level in Method Blank.
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
DUP-H,J	Duplicate results outside ALS DQO, due to sample heterogeneity. Duplicate results and limits are expressed in terms of absolute difference.
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
HARDNESS-CALC-VA	Soil	Hardness	APHA 2340B

Hardness is calculated from Calcium and Magnesium concentrations, and is expressed as calcium carbonate equivalents.

HG-200.2-CVAF-VA	Soil	Mercury in Soil by CVAFS	EPA 200.2/245.7

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis is by atomic fluorescence spectrophotometry (EPA Method 245.7).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

HG-SPLP-P13-CVAF-VA	Soil	Mercury by CVAFS (SPLP)	BCMOE Protocol 13 & EPA 1312/245.7

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1312, published by the United States Environmental Protection Agency (EPA) and Protocol 13 for Contaminated Sites - Screening Level Risk Assessment - 2008, published by the BCMOE. In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using extraction fluid #2 (water adjusted to pH 5.0 - by adding drops of 60/40 weight percent mixture of sulfuric and nitric acids). The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using atomic fluorescence spectrophotometry (EPA 245.7).

MET-200.2-CCMS-VA	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A

This analysis is carried out using procedures from CSR Analytical Method: "Strong Acid Leachable Metals (SALM) in Soil", BC Ministry of Environment, 26 June 2009, and procedures adapted from EPA Method 200.2. The sample is manually homogenized, dried at 60 degrees Celsius, sieved through a 2 mm (10 mesh) sieve (this sieve step is omitted for international soil samples), and a representative subsample of the dry material is weighed. The sample is then digested at 95 degrees Celsius for 2 hours by block digester using concentrated nitric and hydrochloric acids. Instrumental analysis of the digested extract is by collision cell inductively coupled plasma - mass spectrometry (modifed from EPA Method 6020A).

Method Limitation: This method is not a total digestion technique. It is a very strong acid digestion that is intended to dissolve those metals that may be environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not usually mobile in the environment.

Reference Information

MET-SPLP-P13-CCMS-VA Soil Metals by ICPMS (SPLP) BCMOE Protocol 13 & EPA 1312/6020A

This analysis is carried out in accordance with the extraction procedure outlined in "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods Volume 1C" SW-846 EPA Method 1312, published by the United States Environmental Protection Agency (EPA) and Protocol 13 for Contaminated Sites - Screening Level Risk Assessment - 2008, published by the BCMOE. In summary, the sample is extracted at a 20:1 liquid to solids ratio for 16 to 20 hours using extraction fluid #2 (water adjusted to pH 5.0 - by adding drops of 60/40 weight percent mixture of sulfuric and nitric acids). The extract is then filtered through a 0.6 to 0.8 micron glass fibre filter and analysed using inductively coupled plasma - mass spectrometry (EPA Method 6020A).

PH-1:2-VA Soil pH in Soil (1:2 Soil:Water Extraction) BC WLAP METHOD: PH, ELECTROMETRIC, SOIL

This analysis is carried out in accordance with procedures described in the pH, Electrometric in Soil and Sediment method - Section B Physical/Inorganic and Misc. Constituents, BC Environmental Laboratory Manual 2007. The procedure involves mixing the dried (at <60°C) and sieved (No. 10 / 2mm) sample with deionized/distilled water at a 1:2 ratio of sediment to water. The pH of the solution is then measured using a standard pH probe.

PSA-PIPET+GRAVEL-SK Soil Particle size - Sieve and Pipette SSIR-51 METHOD 3.2.1

Particle size distribution is determined by a combination of techniques. Dry sieving is performed for coarse particles, wet sieving for sand particles and the pipette sedimentation method for clay particles.

Reference:

Burt, R. (2009). Soil Survey Field and Laboratory Methods Manual. Soil Survey Investigations Report No. 5. Method 3.2.1.2.2. United States Department of Agriculture Natural Resources Conservation Service.

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

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

Laboratory Definition Code	Laboratory Location
SK	ALS ENVIRONMENTAL - SASKATOON, SASKATCHEWAN, CANADA
VA	ALS ENVIRONMENTAL - VANCOUVER, BRITISH COLUMBIA, CANADA

Chain of Custody Numbers:

1 2 3 4 5
6

GLOSSARY OF REPORT TERMS

Surrogate - A compound that is similar in behaviour to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.
mg/kg - milligrams per kilogram based on dry weight of sample.
mg/kg wwt - milligrams per kilogram based on wet weight of sample.
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight of sample.
mg/L - milligrams per litre.
< - Less than.
D.L. - The reported Detection Limit, also known as the Limit of Reporting (LOR).
N/A - Result not available. Refer to qualifier code and definition for explanation.

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

Quality Control Report

Client: GOLDER ASSOCIATES LTD.
500 - 4260 Still Creek Drive
Burnaby BC V5C 6C6
Contact: Andrew Bruemmer

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAF-VA	**Soil**							
Batch R2454918								
WG1564612-5 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			88.6		%		70-130	14-OCT-12
WG1564612-6 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			98.5		%		70-130	14-OCT-12
WG1564612-3 DUP		**L1221371-51**						
Mercury (Hg)		<0.050	<0.0050	RPD-NA	mg/kg	N/A	40	14-OCT-12
WG1564612-4 DUP		**L1221371-62**						
Mercury (Hg)		<0.050	0.0302		mg/kg	14	40	14-OCT-12
WG1564612-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	14-OCT-12
WG1564612-2 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	14-OCT-12
Batch R2455346								
WG1564585-5 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			104.1		%		70-130	15-OCT-12
WG1564585-6 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			96.8		%		70-130	15-OCT-12
WG1564585-4 DUP		**L1221371-27**						
Mercury (Hg)		0.078	0.0656		mg/kg	17	40	15-OCT-12
WG1564585-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	15-OCT-12
WG1564585-2 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	15-OCT-12
Batch R2456194								
WG1564620-4 CRM		**VA-CANMET-TILL1**						
Mercury (Hg)			91.9		%		70-130	16-OCT-12
WG1564620-5 CRM		**VA-NRC-PACS2**						
Mercury (Hg)			98.7		%		70-130	16-OCT-12
WG1564620-3 DUP		**L1221371-66**						
Mercury (Hg)		0.326	0.166	DUP-H,J	mg/kg	0.160	0.1	16-OCT-12
WG1564620-1 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	16-OCT-12
WG1564620-2 MB								
Mercury (Hg)			<0.0050		mg/kg		0.005	16-OCT-12
HG-SPLP-P13-CVAF-VA	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-SPLP-P13-CVAF-VA	**Soil**							
Batch R2463823								
WG1574586-2 DUP		**L1221371-2**						
Mercury (Hg)-Leachable		<0.0010	<0.0010	RPD-NA	mg/L	N/A	30	27-OCT-12
WG1574586-1 MB								
Mercury (Hg)-Leachable			<0.0010		mg/L		0.001	27-OCT-12
MET-200.2-CCMS-VA	**Soil**							
Batch R2455366								
WG1564612-5 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			97.3		%		70-130	14-OCT-12
Arsenic (As)			98.5		%		70-130	14-OCT-12
Barium (Ba)			96.0		%		70-130	14-OCT-12
Beryllium (Be)			0.48		mg/kg		0.34-0.74	14-OCT-12
Cadmium (Cd)			76.4		%		70-130	14-OCT-12
Chromium (Cr)			98.7		%		70-130	14-OCT-12
Cobalt (Co)			94.9		%		70-130	14-OCT-12
Copper (Cu)			89.2		%		70-130	14-OCT-12
Lead (Pb)			88.0		%		70-130	14-OCT-12
Molybdenum (Mo)			0.68		mg/kg		0.24-1.24	14-OCT-12
Nickel (Ni)			96.3		%		70-130	14-OCT-12
Selenium (Se)			0.30		mg/kg		0.12-0.52	14-OCT-12
Silver (Ag)			0.20		mg/kg		0.12-0.32	14-OCT-12
Thallium (Tl)			0.128		mg/kg		0.075-0.175	14-OCT-12
Uranium (U)			103.8		%		70-130	14-OCT-12
Vanadium (V)			102.7		%		70-130	14-OCT-12
Zinc (Zn)			93.3		%		70-130	14-OCT-12
WG1564612-6 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			92.0		%		70-130	14-OCT-12
Arsenic (As)			101.0		%		70-130	14-OCT-12
Barium (Ba)			124.0		%		70-130	14-OCT-12
Beryllium (Be)			0.39		mg/kg		0.21-0.61	14-OCT-12
Cadmium (Cd)			111.6		%		70-130	14-OCT-12
Chromium (Cr)			97.2		%		70-130	14-OCT-12
Cobalt (Co)			92.2		%		70-130	14-OCT-12
Copper (Cu)			88.1		%		70-130	14-OCT-12
Lead (Pb)			121.1		%		70-130	14-OCT-12
Molybdenum (Mo)			104.5		%		70-130	14-OCT-12
Nickel (Ni)			94.0		%		70-130	14-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2455366								
WG1564612-6 CRM		**VA-NRC-PACS2**						
Selenium (Se)			103.1		%		70-130	14-OCT-12
Silver (Ag)			96.1		%		70-130	14-OCT-12
Thallium (Tl)			100.8		%		70-130	14-OCT-12
Tin (Sn)			95.2		%		70-130	14-OCT-12
Uranium (U)			94.4		%		70-130	14-OCT-12
Vanadium (V)			101.3		%		70-130	14-OCT-12
Zinc (Zn)			102.6		%		70-130	14-OCT-12
WG1564612-3 DUP		**L1221371-51**						
Antimony (Sb)		4.81	4.78		mg/kg	0.6	30	14-OCT-12
Arsenic (As)		51.8	51.6		mg/kg	0.3	30	14-OCT-12
Barium (Ba)		37.7	32.7		mg/kg	14	40	14-OCT-12
Beryllium (Be)		1.11	1.13		mg/kg	1.9	30	14-OCT-12
Cadmium (Cd)		24.2	26.6		mg/kg	9.8	30	14-OCT-12
Chromium (Cr)		10.8	10.9		mg/kg	0.7	30	14-OCT-12
Cobalt (Co)		6.56	6.80		mg/kg	3.6	30	14-OCT-12
Copper (Cu)		47.6	50.6		mg/kg	6.0	30	14-OCT-12
Lead (Pb)		4070	4040		mg/kg	0.7	40	14-OCT-12
Molybdenum (Mo)		12.7	13.6		mg/kg	7.2	40	14-OCT-12
Nickel (Ni)		45.8	48.9		mg/kg	6.5	30	14-OCT-12
Selenium (Se)		2.67	3.02		mg/kg	12	30	14-OCT-12
Silver (Ag)		3.34	3.71		mg/kg	10	40	14-OCT-12
Thallium (Tl)		0.188	0.201		mg/kg	6.4	30	14-OCT-12
Tin (Sn)		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	14-OCT-12
Uranium (U)		4.39	4.51		mg/kg	2.6	30	14-OCT-12
Vanadium (V)		17.3	17.6		mg/kg	2.0	30	14-OCT-12
Zinc (Zn)		4470	4760		mg/kg	6.2	30	14-OCT-12
WG1564612-4 DUP		**L1221371-62**						
Antimony (Sb)		14.6	13.8		mg/kg	5.3	30	14-OCT-12
Arsenic (As)		125	110		mg/kg	13	30	14-OCT-12
Barium (Ba)		119	134		mg/kg	12	40	14-OCT-12
Beryllium (Be)		2.63	3.37		mg/kg	24	30	14-OCT-12
Cadmium (Cd)		25.9	18.6	DUP-H	mg/kg	33	30	14-OCT-12
Chromium (Cr)		32.1	39.2		mg/kg	20	30	14-OCT-12
Cobalt (Co)		20.4	22.6		mg/kg	10	30	14-OCT-12
Copper (Cu)		268	229		mg/kg	16	30	14-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2455366								
WG1564612-4 DUP		**L1221371-62**						
Lead (Pb)		2530	1710		mg/kg	38	40	14-OCT-12
Molybdenum (Mo)		17.1	19.1		mg/kg	11	40	14-OCT-12
Nickel (Ni)		71.7	80.5		mg/kg	12	30	14-OCT-12
Selenium (Se)		1.45	1.74		mg/kg	18	30	14-OCT-12
Silver (Ag)		3.22	2.62		mg/kg	20	40	14-OCT-12
Thallium (Tl)		0.822	0.842		mg/kg	2.4	30	14-OCT-12
Tin (Sn)		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	14-OCT-12
Uranium (U)		4.78	4.82		mg/kg	0.8	30	14-OCT-12
Vanadium (V)		158	169		mg/kg	7.2	30	14-OCT-12
Zinc (Zn)		4240	3050	DUP-H	mg/kg	33	30	14-OCT-12
WG1564612-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	14-OCT-12
Arsenic (As)			<0.050		mg/kg		0.05	14-OCT-12
Barium (Ba)			<0.50		mg/kg		0.5	14-OCT-12
Beryllium (Be)			<0.20		mg/kg		0.2	14-OCT-12
Cadmium (Cd)			<0.050		mg/kg		0.05	14-OCT-12
Chromium (Cr)			<0.50		mg/kg		0.5	14-OCT-12
Cobalt (Co)			<0.10		mg/kg		0.1	14-OCT-12
Copper (Cu)			<0.50		mg/kg		0.5	14-OCT-12
Lead (Pb)			<0.50		mg/kg		0.5	14-OCT-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	14-OCT-12
Nickel (Ni)			<0.50		mg/kg		0.5	14-OCT-12
Selenium (Se)			<0.20		mg/kg		0.2	14-OCT-12
Silver (Ag)			<0.10		mg/kg		0.1	14-OCT-12
Thallium (Tl)			<0.050		mg/kg		0.05	14-OCT-12
Tin (Sn)			<2.0		mg/kg		2	14-OCT-12
Uranium (U)			<0.050		mg/kg		0.05	14-OCT-12
Vanadium (V)			<0.20		mg/kg		0.2	14-OCT-12
Zinc (Zn)			<1.0		mg/kg		1	14-OCT-12
WG1564612-2 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	14-OCT-12
Arsenic (As)			<0.050		mg/kg		0.05	14-OCT-12
Barium (Ba)			<0.50		mg/kg		0.5	14-OCT-12
Beryllium (Be)			<0.20		mg/kg		0.2	14-OCT-12
Cadmium (Cd)			<0.050		mg/kg		0.05	14-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2455366								
WG1564612-2 MB								
Chromium (Cr)			<0.50		mg/kg		0.5	14-OCT-12
Cobalt (Co)			<0.10		mg/kg		0.1	14-OCT-12
Copper (Cu)			<0.50		mg/kg		0.5	14-OCT-12
Lead (Pb)			<0.50		mg/kg		0.5	14-OCT-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	14-OCT-12
Nickel (Ni)			<0.50		mg/kg		0.5	14-OCT-12
Selenium (Se)			<0.20		mg/kg		0.2	14-OCT-12
Silver (Ag)			<0.10		mg/kg		0.1	14-OCT-12
Thallium (Tl)			<0.050		mg/kg		0.05	14-OCT-12
Tin (Sn)			<2.0		mg/kg		2	14-OCT-12
Uranium (U)			<0.050		mg/kg		0.05	14-OCT-12
Vanadium (V)			<0.20		mg/kg		0.2	14-OCT-12
Zinc (Zn)			<1.0		mg/kg		1	14-OCT-12
Batch R2455457								
WG1564585-5 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			106.1		%		70-130	15-OCT-12
Arsenic (As)			105.3		%		70-130	15-OCT-12
Barium (Ba)			96.5		%		70-130	15-OCT-12
Beryllium (Be)			0.51		mg/kg		0.34-0.74	15-OCT-12
Cadmium (Cd)			95.7		%		70-130	15-OCT-12
Chromium (Cr)			106.1		%		70-130	15-OCT-12
Cobalt (Co)			99.9		%		70-130	15-OCT-12
Copper (Cu)			96.4		%		70-130	15-OCT-12
Lead (Pb)			95.0		%		70-130	15-OCT-12
Molybdenum (Mo)			0.72		mg/kg		0.24-1.24	15-OCT-12
Nickel (Ni)			103.0		%		70-130	15-OCT-12
Selenium (Se)			0.33		mg/kg		0.12-0.52	15-OCT-12
Silver (Ag)			0.23		mg/kg		0.12-0.32	15-OCT-12
Thallium (Tl)			0.131		mg/kg		0.075-0.175	15-OCT-12
Uranium (U)			110.4		%		70-130	15-OCT-12
Vanadium (V)			108.2		%		70-130	15-OCT-12
Zinc (Zn)			100.2		%		70-130	15-OCT-12
WG1564585-6 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			102.1		%		70-130	15-OCT-12
Arsenic (As)			104.7		%		70-130	15-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2455457								
WG1564585-6 CRM		**VA-NRC-PACS2**						
Barium (Ba)			112.6		%		70-130	15-OCT-12
Beryllium (Be)			0.39		mg/kg		0.21-0.61	15-OCT-12
Cadmium (Cd)			103.8		%		70-130	15-OCT-12
Chromium (Cr)			100.1		%		70-130	15-OCT-12
Cobalt (Co)			95.1		%		70-130	15-OCT-12
Copper (Cu)			95.4		%		70-130	15-OCT-12
Lead (Pb)			99.3		%		70-130	15-OCT-12
Molybdenum (Mo)			105.7		%		70-130	15-OCT-12
Nickel (Ni)			100.0		%		70-130	15-OCT-12
Selenium (Se)			97.0		%		70-130	15-OCT-12
Silver (Ag)			102.1		%		70-130	15-OCT-12
Thallium (Tl)			95.6		%		70-130	15-OCT-12
Tin (Sn)			103.8		%		70-130	15-OCT-12
Uranium (U)			89.3		%		70-130	15-OCT-12
Vanadium (V)			105.9		%		70-130	15-OCT-12
Zinc (Zn)			98.1		%		70-130	15-OCT-12
WG1564585-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	15-OCT-12
Arsenic (As)			<0.050		mg/kg		0.05	15-OCT-12
Barium (Ba)			<0.50		mg/kg		0.5	15-OCT-12
Beryllium (Be)			<0.20		mg/kg		0.2	15-OCT-12
Cadmium (Cd)			<0.050		mg/kg		0.05	15-OCT-12
Chromium (Cr)			<0.50		mg/kg		0.5	15-OCT-12
Cobalt (Co)			<0.10		mg/kg		0.1	15-OCT-12
Copper (Cu)			<0.50		mg/kg		0.5	15-OCT-12
Lead (Pb)			<0.50		mg/kg		0.5	15-OCT-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	15-OCT-12
Nickel (Ni)			<0.50		mg/kg		0.5	15-OCT-12
Selenium (Se)			<0.20		mg/kg		0.2	15-OCT-12
Silver (Ag)			<0.10		mg/kg		0.1	15-OCT-12
Thallium (Tl)			<0.050		mg/kg		0.05	15-OCT-12
Tin (Sn)			<2.0		mg/kg		2	15-OCT-12
Uranium (U)			<0.050		mg/kg		0.05	15-OCT-12
Vanadium (V)			<0.20		mg/kg		0.2	15-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2455457								
WG1564585-1 MB								
Zinc (Zn)			<1.0		mg/kg		1	15-OCT-12
WG1564585-2 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	15-OCT-12
Arsenic (As)			<0.050		mg/kg		0.05	15-OCT-12
Barium (Ba)			<0.50		mg/kg		0.5	15-OCT-12
Beryllium (Be)			<0.20		mg/kg		0.2	15-OCT-12
Cadmium (Cd)			<0.050		mg/kg		0.05	15-OCT-12
Chromium (Cr)			<0.50		mg/kg		0.5	15-OCT-12
Cobalt (Co)			<0.10		mg/kg		0.1	15-OCT-12
Copper (Cu)			<0.50		mg/kg		0.5	15-OCT-12
Lead (Pb)			1.26	MB-LOR	mg/kg		0.5	15-OCT-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	15-OCT-12
Nickel (Ni)			<0.50		mg/kg		0.5	15-OCT-12
Selenium (Se)			<0.20		mg/kg		0.2	15-OCT-12
Silver (Ag)			<0.10		mg/kg		0.1	15-OCT-12
Thallium (Tl)			<0.050		mg/kg		0.05	15-OCT-12
Tin (Sn)			<2.0		mg/kg		2	15-OCT-12
Uranium (U)			<0.050		mg/kg		0.05	15-OCT-12
Vanadium (V)			<0.20		mg/kg		0.2	15-OCT-12
Zinc (Zn)			1.0	MB-LOR	mg/kg		1	15-OCT-12
Batch R2456143								
WG1564585-4 DUP		**L1221371-27**						
Antimony (Sb)		29.2	29.2		mg/kg	0.2	30	15-OCT-12
Arsenic (As)		82.8	62.9		mg/kg	27	30	15-OCT-12
Barium (Ba)		125	106		mg/kg	16	40	15-OCT-12
Beryllium (Be)		2.41	2.59		mg/kg	7.1	30	15-OCT-12
Cadmium (Cd)		220	144	DUP-H	mg/kg	42	30	15-OCT-12
Chromium (Cr)		25.2	28.2		mg/kg	11	30	15-OCT-12
Cobalt (Co)		33.4	31.7		mg/kg	5.3	30	15-OCT-12
Copper (Cu)		70.5	54.5		mg/kg	26	30	15-OCT-12
Lead (Pb)		26600	25200		mg/kg	5.5	40	15-OCT-12
Molybdenum (Mo)		4.41	2.86	DUP-H	mg/kg	43	40	15-OCT-12
Nickel (Ni)		61.2	69.6		mg/kg	13	30	15-OCT-12
Selenium (Se)		7.66	6.95		mg/kg	9.7	30	15-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2456143								
WG1564585-4 DUP		**L1221371-27**						
Silver (Ag)		17.4	16.4		mg/kg	6.0	40	15-OCT-12
Thallium (Tl)		0.751	0.761		mg/kg	1.4	30	15-OCT-12
Tin (Sn)		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	15-OCT-12
Uranium (U)		2.52	2.44		mg/kg	3.3	30	15-OCT-12
Vanadium (V)		90.9	98.6		mg/kg	8.1	30	15-OCT-12
Zinc (Zn)		44900	33900		mg/kg	28	30	15-OCT-12
Batch R2457260								
WG1564620-4 CRM		**VA-CANMET-TILL1**						
Antimony (Sb)			110.5		%		70-130	16-OCT-12
Arsenic (As)			113.5		%		70-130	16-OCT-12
Barium (Ba)			106.0		%		70-130	16-OCT-12
Beryllium (Be)			0.52		mg/kg		0.34-0.74	16-OCT-12
Cadmium (Cd)			100.2		%		70-130	16-OCT-12
Chromium (Cr)			115.9		%		70-130	16-OCT-12
Cobalt (Co)			111.0		%		70-130	16-OCT-12
Copper (Cu)			106.7		%		70-130	16-OCT-12
Lead (Pb)			97.6		%		70-130	16-OCT-12
Molybdenum (Mo)			0.72		mg/kg		0.24-1.24	16-OCT-12
Nickel (Ni)			111.9		%		70-130	16-OCT-12
Selenium (Se)			0.39		mg/kg		0.12-0.52	16-OCT-12
Silver (Ag)			0.24		mg/kg		0.12-0.32	16-OCT-12
Thallium (Tl)			0.129		mg/kg		0.075-0.175	16-OCT-12
Uranium (U)			114.6		%		70-130	16-OCT-12
Vanadium (V)			116.8		%		70-130	16-OCT-12
Zinc (Zn)			111.8		%		70-130	16-OCT-12
WG1564620-5 CRM		**VA-NRC-PACS2**						
Antimony (Sb)			97.7		%		70-130	16-OCT-12
Arsenic (As)			111.4		%		70-130	16-OCT-12
Barium (Ba)			128.8		%		70-130	16-OCT-12
Beryllium (Be)			0.41		mg/kg		0.21-0.61	16-OCT-12
Cadmium (Cd)			114.3		%		70-130	16-OCT-12
Chromium (Cr)			107.6		%		70-130	16-OCT-12
Cobalt (Co)			101.1		%		70-130	16-OCT-12
Copper (Cu)			100.9		%		70-130	16-OCT-12
Lead (Pb)			103.9		%		70-130	16-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2457260								
WG1564620-5 CRM		**VA-NRC-PACS2**						
Molybdenum (Mo)			104.8		%		70-130	16-OCT-12
Nickel (Ni)			103.9		%		70-130	16-OCT-12
Selenium (Se)			102.7		%		70-130	16-OCT-12
Silver (Ag)			111.0		%		70-130	16-OCT-12
Thallium (Tl)			103.0		%		70-130	16-OCT-12
Tin (Sn)			102.3		%		70-130	16-OCT-12
Uranium (U)			94.2		%		70-130	16-OCT-12
Vanadium (V)			109.6		%		70-130	16-OCT-12
Zinc (Zn)			106.8		%		70-130	16-OCT-12
WG1564620-1 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	16-OCT-12
Arsenic (As)			<0.050		mg/kg		0.05	16-OCT-12
Barium (Ba)			<0.50		mg/kg		0.5	16-OCT-12
Beryllium (Be)			<0.20		mg/kg		0.2	16-OCT-12
Cadmium (Cd)			<0.050		mg/kg		0.05	16-OCT-12
Chromium (Cr)			<0.50		mg/kg		0.5	16-OCT-12
Cobalt (Co)			<0.10		mg/kg		0.1	16-OCT-12
Copper (Cu)			<0.50		mg/kg		0.5	16-OCT-12
Lead (Pb)			<0.50		mg/kg		0.5	16-OCT-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	16-OCT-12
Nickel (Ni)			<0.50		mg/kg		0.5	16-OCT-12
Selenium (Se)			<0.20		mg/kg		0.2	16-OCT-12
Silver (Ag)			<0.10		mg/kg		0.1	16-OCT-12
Thallium (Tl)			<0.050		mg/kg		0.05	16-OCT-12
Tin (Sn)			<2.0		mg/kg		2	16-OCT-12
Uranium (U)			<0.050		mg/kg		0.05	16-OCT-12
Vanadium (V)			<0.20		mg/kg		0.2	16-OCT-12
Zinc (Zn)			<1.0		mg/kg		1	16-OCT-12
WG1564620-2 MB								
Antimony (Sb)			<0.10		mg/kg		0.1	16-OCT-12
Arsenic (As)			<0.050		mg/kg		0.05	16-OCT-12
Barium (Ba)			<0.50		mg/kg		0.5	16-OCT-12
Beryllium (Be)			<0.20		mg/kg		0.2	16-OCT-12
Cadmium (Cd)			<0.050		mg/kg		0.05	16-OCT-12
Chromium (Cr)			<0.50		mg/kg		0.5	16-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-VA	**Soil**							
Batch R2457260								
WG1564620-2 MB								
Cobalt (Co)			<0.10		mg/kg		0.1	16-OCT-12
Copper (Cu)			<0.50		mg/kg		0.5	16-OCT-12
Lead (Pb)			<0.50		mg/kg		0.5	16-OCT-12
Molybdenum (Mo)			<0.50		mg/kg		0.5	16-OCT-12
Nickel (Ni)			<0.50		mg/kg		0.5	16-OCT-12
Selenium (Se)			<0.20		mg/kg		0.2	16-OCT-12
Silver (Ag)			<0.10		mg/kg		0.1	16-OCT-12
Thallium (Tl)			<0.050		mg/kg		0.05	16-OCT-12
Tin (Sn)			<2.0		mg/kg		2	16-OCT-12
Uranium (U)			<0.050		mg/kg		0.05	16-OCT-12
Vanadium (V)			<0.20		mg/kg		0.2	16-OCT-12
Zinc (Zn)			<1.0		mg/kg		1	16-OCT-12
Batch R2459017								
WG1564620-3 DUP		**L1221371-66**						
Antimony (Sb)		6.81	6.22		mg/kg	9.0	30	18-OCT-12
Arsenic (As)		32.6	29.9		mg/kg	8.6	30	18-OCT-12
Barium (Ba)		172	198		mg/kg	14	40	18-OCT-12
Beryllium (Be)		0.70	0.68		mg/kg	3.0	30	18-OCT-12
Cadmium (Cd)		3.98	5.83	DUP-H	mg/kg	38	30	18-OCT-12
Chromium (Cr)		25.5	23.9		mg/kg	6.7	30	18-OCT-12
Cobalt (Co)		9.97	10.6		mg/kg	5.9	30	18-OCT-12
Copper (Cu)		50.6	48.7		mg/kg	3.8	30	18-OCT-12
Lead (Pb)		199	248		mg/kg	22	40	18-OCT-12
Molybdenum (Mo)		9.97	8.83		mg/kg	12	40	18-OCT-12
Nickel (Ni)		40.8	40.4		mg/kg	1.1	30	18-OCT-12
Selenium (Se)		0.99	1.02		mg/kg	2.5	30	18-OCT-12
Silver (Ag)		0.69	0.74		mg/kg	7.9	40	18-OCT-12
Thallium (Tl)		0.265	0.248		mg/kg	6.7	30	18-OCT-12
Tin (Sn)		<2.0	<2.0	RPD-NA	mg/kg	N/A	40	18-OCT-12
Uranium (U)		1.74	1.65		mg/kg	4.9	30	18-OCT-12
Vanadium (V)		85.9	76.9		mg/kg	11	30	18-OCT-12
Zinc (Zn)		835	1160	DUP-H	mg/kg	32	30	18-OCT-12
MET-SPLP-P13-CCMS-VA	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-SPLP-P13-CCMS-VA	**Soil**							
Batch	**R2466924**							
WG1574586-2	**DUP**	**L1221371-2**						
Aluminum (Al)-Leachable		0.222	0.205		mg/L	8.0	30	31-OCT-12
Antimony (Sb)-Leachable		0.0026	0.0025		mg/L	3.3	30	31-OCT-12
Arsenic (As)-Leachable		<0.0020	<0.0020	RPD-NA	mg/L	N/A	30	31-OCT-12
Barium (Ba)-Leachable		0.11	0.11		mg/L	1.7	30	31-OCT-12
Beryllium (Be)-Leachable		<0.0050	<0.0050	RPD-NA	mg/L	N/A	30	31-OCT-12
Boron (B)-Leachable		<0.10	<0.10	RPD-NA	mg/L	N/A	30	31-OCT-12
Cadmium (Cd)-Leachable		0.00085	0.00082		mg/L	3.4	30	31-OCT-12
Calcium (Ca)-Leachable		30.9	30.2		mg/L	2.1	30	31-OCT-12
Chromium (Cr)-Leachable		<0.0020	<0.0020	RPD-NA	mg/L	N/A	30	31-OCT-12
Cobalt (Co)-Leachable		<0.0050	<0.0050	RPD-NA	mg/L	N/A	30	31-OCT-12
Copper (Cu)-Leachable		0.0011	<0.0010	RPD-NA	mg/L	N/A	30	31-OCT-12
Iron (Fe)-Leachable		0.153	0.150		mg/L	2.2	30	31-OCT-12
Lead (Pb)-Leachable		0.256	0.239		mg/L	6.7	30	31-OCT-12
Lithium (Li)-Leachable		<0.10	<0.10	RPD-NA	mg/L	N/A	30	31-OCT-12
Magnesium (Mg)-Leachable		0.38	0.37		mg/L	2.3	30	31-OCT-12
Manganese (Mn)-Leachable		0.0073	0.0070		mg/L	5.0	30	31-OCT-12
Molybdenum (Mo)-Leachable		0.0021	0.0020		mg/L	5.5	30	31-OCT-12
Nickel (Ni)-Leachable		<0.010	<0.010	RPD-NA	mg/L	N/A	30	31-OCT-12
Selenium (Se)-Leachable		0.0122	0.0120		mg/L	1.9	30	31-OCT-12
Silver (Ag)-Leachable		<0.000050	<0.000050	RPD-NA	mg/L	N/A	30	31-OCT-12
Sodium (Na)-Leachable		<20	<20	RPD-NA	mg/L	N/A	30	31-OCT-12
Thallium (Tl)-Leachable		<0.00010	<0.00010	RPD-NA	mg/L	N/A	30	31-OCT-12
Titanium (Ti)-Leachable		<0.010	<0.010	RPD-NA	mg/L	N/A	30	31-OCT-12
Uranium (U)-Leachable		<0.0010	<0.0010	RPD-NA	mg/L	N/A	30	31-OCT-12
Vanadium (V)-Leachable		0.0025	0.0022		mg/L	11	30	31-OCT-12
Zinc (Zn)-Leachable		0.060	0.057		mg/L	4.3	30	31-OCT-12
WG1574586-1	**MB**							
Aluminum (Al)-Leachable			<0.020		mg/L		0.02	31-OCT-12
Antimony (Sb)-Leachable			<0.0010		mg/L		0.001	31-OCT-12
Arsenic (As)-Leachable			<0.0020		mg/L		0.002	31-OCT-12
Barium (Ba)-Leachable			<0.10		mg/L		0.1	31-OCT-12
Beryllium (Be)-Leachable			<0.0050		mg/L		0.005	31-OCT-12
Boron (B)-Leachable			<0.10		mg/L		0.1	31-OCT-12
Cadmium (Cd)-Leachable			<0.00010		mg/L		0.0001	31-OCT-12

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-SPLP-P13-CCMS-VA	**Soil**							
Batch R2466924								
WG1574586-1 MB								
Calcium (Ca)-Leachable			<0.20		mg/L		0.2	31-OCT-12
Chromium (Cr)-Leachable			<0.0020		mg/L		0.002	31-OCT-12
Cobalt (Co)-Leachable			<0.0050		mg/L		0.005	31-OCT-12
Copper (Cu)-Leachable			<0.0010		mg/L		0.001	31-OCT-12
Iron (Fe)-Leachable			<0.030		mg/L		0.03	31-OCT-12
Lead (Pb)-Leachable			<0.0010		mg/L		0.001	31-OCT-12
Lithium (Li)-Leachable			<0.10		mg/L		0.1	31-OCT-12
Magnesium (Mg)-Leachable			<0.10		mg/L		0.1	31-OCT-12
Manganese (Mn)-Leachable			<0.0050		mg/L		0.005	31-OCT-12
Molybdenum (Mo)-Leachable			<0.0010		mg/L		0.001	31-OCT-12
Nickel (Ni)-Leachable			<0.010		mg/L		0.01	31-OCT-12
Selenium (Se)-Leachable			<0.0010		mg/L		0.001	31-OCT-12
Silver (Ag)-Leachable			<0.000050		mg/L		0.00005	31-OCT-12
Sodium (Na)-Leachable			<20		mg/L		20	31-OCT-12
Thallium (Tl)-Leachable			<0.00010		mg/L		0.0001	31-OCT-12
Titanium (Ti)-Leachable			<0.010		mg/L		0.01	31-OCT-12
Uranium (U)-Leachable			<0.0010		mg/L		0.001	31-OCT-12
Vanadium (V)-Leachable			<0.0010		mg/L		0.001	31-OCT-12
Zinc (Zn)-Leachable			<0.030		mg/L		0.03	31-OCT-12
PH-1:2-VA	**Soil**							
Batch R2455250								
WG1564585-4 DUP		**L1221371-27**						
pH (1:2 soil:water)		7.65	7.71		pH	0.8	25	15-OCT-12
Batch R2456421								
WG1564620-3 DUP		**L1221371-66**						
pH (1:2 soil:water)		7.61	7.67		pH	0.8	25	16-OCT-12
Batch R2457145								
WG1564612-3 DUP		**L1221371-51**						
pH (1:2 soil:water)		8.05	8.03		pH	0.2	25	17-OCT-12
WG1564612-4 DUP		**L1221371-62**						
pH (1:2 soil:water)		7.49	7.60		pH	1.5	25	17-OCT-12
PSA-PIPET+GRAVEL-SK	**Soil**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PSA-PIPET+GRAVEL-SK	**Soil**							
Batch	**R2467811**							
WG1577871-1	**DUP**	**L1221371-25**						
% Gravel (>2mm)		<0.10	<0.10	RPD-NA	%	N/A	25	02-NOV-12
% Sand (2.0mm - 0.063mm)		12.2	10.2	J	%	1.98	5	02-NOV-12
% Silt (0.063mm - 4um)		54.0	55.8	J	%	1.81	5	02-NOV-12
% Clay (<4um)		33.8	34.0	J	%	0.17	5	02-NOV-12
WG1577871-2	**IRM**	**FARM2009**						
% Sand (2.0mm - 0.063mm)			44.1		%		40-50	02-NOV-12
% Silt (0.063mm - 4um)			37.8		%		30-40	02-NOV-12
% Clay (<4um)			18.1		%		13-23	02-NOV-12

Legend:

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

Sample Parameter Qualifier Definitions:

Qualifier	Description
DUP-H	Duplicate results outside ALS DQO, due to sample heterogeneity.
DUP-H,J	Duplicate results outside ALS DQO, due to sample heterogeneity. Duplicate results and limits are expressed in terms of absolute difference.
J	Duplicate results and limits are expressed in terms of absolute difference.
MB-LOR	Method Blank exceeds ALS DQO. LORs adjusted for samples with positive hits below 5 times blank level. Please contact ALS if re-analysis is required.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Metals							
Mercury in Soil by CVAFS							
	58	23-AUG-12	12-OCT-12 13:41	28	50	days	EHTR
	59	23-AUG-12	12-OCT-12 13:41	28	50	days	EHTR
	60	23-AUG-12	12-OCT-12 13:41	28	50	days	EHTR
	61	24-AUG-12	12-OCT-12 13:41	28	49	days	EHTR
	62	24-AUG-12	12-OCT-12 13:41	28	49	days	EHTR
	63	24-AUG-12	15-OCT-12 13:20	28	52	days	EHTR
	64	24-AUG-12	15-OCT-12 13:20	28	52	days	EHTR
	65	24-AUG-12	15-OCT-12 13:20	28	52	days	EHTR
	66	24-AUG-12	15-OCT-12 13:20	28	52	days	EHTR
SPLP Metals							
Mercury by CVAFS (SPLP)							
	59	23-AUG-12	27-OCT-12 14:42	28	65	days	EHTR
	63	24-AUG-12	27-OCT-12 14:42	28	64	days	EHTR

Legend & Qualifier Definitions:

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

Notes*:
Where actual sampling date is not provided to ALS, the date (& time) of receipt is used for calculation purposes.
Where actual sampling time is not provided to ALS, the earlier of 12 noon on the sampling date or the time (& date) of receipt is used for calculation purposes. Samples for L1221371 were received on 09-OCT-12 14:35.

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

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

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

L122137

ALS Environmental

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COC # _____

Report To		Report Format / Distribution	Service Requested (Rush for routine analysis subject to availability)
Company:	Golder Associates	☑ Standard ☐ Other	◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Andrea Badger	☑ PDF ☑ Excel ☐ Digital ☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	203 170 Titanium Way	Email 1: andrea_badger@golder.com	○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1	Email 2: gary_hamilton@golder.com	○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076 Fax:	Email 3: andrew_bruemmer@golder.com	
Invoice To	Same as Report ? ☐ Yes ☐ No	Client / Project Information	Analysis Request
Hardcopy of Invoice with Report?	☐ Yes ☐ No	Job #: 12-1021-0006	Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #: Q35898	
Lab Work Order # (lab use only)		ALS Contact: Amber Springer	Sampler: A Badger

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	300 TP12-31	28-Sep-12	16:00	Soil	X	2
	301 TP12-32	29-Sep-12	8:15	Soil	X	2
	302 TP12-33	29-Sep-12	8:40	Soil	X	2
	303 TP-12-34	29-Sep-12	8:50	Soil	X	2
	304 TP12-35	29-Sep-12	9:08	Soil	X	2
	305 TP12-36	29-Sep-12	9:25	Soil	X	2
	306 TP12-37	29-Sep-12	9:50	Soil	X	2
	307 TP12-38	29-Sep-12	10:09	Soil	X	2
	308 TP12-39	29-Sep-12	11:38	Soil	X	2
	309 TP12-40	29-Sep-12	12:08	Soil	X	2
	310 TP12-41	29-Sep-12	12:40	Soil	X	2
	311 TP12-41	29-Sep-12	12:40	Soil	X	2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00		09-Oct-12	14:35	17.6 °C				

ALS Environmental

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www.alsglobal.com

COC # _____

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Address:	203 170 Titanium Way			Email 1:	andrea_badger@golder.com			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1			Email 2:	gary_hamilton@golder.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076	Fax:		Email 3:	andrew_bruemmer@golder.com			
Invoice To	Same as Report ?	☐ Yes	☐ No	Client / Project Information				Analysis Request
Hardcopy of Invoice with Report?		☐ Yes	☐ No	Job #:	12-1021-0006			Please indicate below Filtered, Preserved or both (F, P, F/P)
Company:				PO / AFE:				
Contact:				LSD:				
Address:								
Phone:		Fax:		Quote #:	Q35898			
Lab Work Order # (lab use only)				ALS Contact:	Amber Springer	Sampler:	A Badger	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	312 TP12-42	29-Sep-12	13:20	Soil	X	2
	313 TP12-43	29-Sep-12	15:40	Soil	X	2
	314 TP12-44	29-Sep-12	15:50	Soil	X	2
	315 TP12-45	29-Sep-12	16:00	Soil	X	2
	316 TP12-46	29-Sep-12	16:12	Soil	X	2
	317 TP12-47	30-Sep-12	10:50	Soil	X	2
	318 TP12-48	30-Sep-12	11:25	Soil	X	2
	319 TP12-49	30-Sep-12	11:40	Soil	X	2
	320 TP12-50	30-Sep-12	11:50	Soil	X	2
	321 TP12-50	30-Sep-12	11:50	Soil	X	2
	322 SS12-06	30-Sep-12	12:45	Sediment	X	2
	323 SS12-07	30-Sep-12	12:50	Sediment	X	2

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Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

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Phone:		Fax:		Quote #:	Q35898			
Lab Work Order # (lab use only)				ALS Contact:	Amber Springer	Sampler:	A Badger	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	324 SS12-08	30-Sep-12	14:15	Sediment	X	2
	325 SS12-09	30-Sep-12	14:20	Sediment	X	2
	326 SS12-10	30-Sep-12	14:30	Sediment	X	2
	327 SS12-11	30-Sep-12	14:35	Sediment	X	2
	328 SS12-12	01-Oct-12	11:06	Sediment	X	2
	329 SS12-13	01-Oct-12	11:20	Sediment	X	2
	330 SS12-14	01-Oct-12	11:30	Sediment	X	2
	331 SS12-14	01-Oct-12	11:30	Sediment	X	2
	332 SS12-15	01-Oct-12	11:40	Sediment	X	2
	333 SS12-16	01-Oct-12	11:46	Sediment	X	2
	334 SS12-17	01-Oct-12	11:54	Sediment	X	2
	335 SS12-18	01-Oct-12	12:03	Sediment	X	2

Analysis Request — Please indicate below Filtered, Preserved or both (F, P, F/P)

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Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

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Address:								
Phone:		Fax:		Quote #:	Q35898			
Lab Work Order # (lab use only)				ALS Contact:	Amber Springer	Sampler:	A Badger	

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	336 SS12-19	01-Oct-12	12:10	Sediment	X	2
	337 SS12-20	01-Oct-12	12:17	Sediment	X	2
	338 SS12-21	01-Oct-12	12:25	Sediment	X	2
	339 SS12-22	01-Oct-12	12:35	Sediment	X	2
	340 SS12-23	01-Oct-12	12:45	Sediment	X	2
	341 SS12-23	01-Oct-12	12:45	Sediment	X	2
	342 SS12-24	01-Oct-12	12:53	Sediment	X	2
	343 SS12-25	01-Oct-12	13:00	Sediment	X	2
	344 SS12-26	01-Oct-12	13:11	Sediment	X	2
	345 SS12-27	01-Oct-12	13:20	Sediment	X	2
	346 SS12-28	01-Oct-12	13:30	Sediment	X	2
	347 SS12-29	01-Oct-12	13:41	Sediment	X	2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

ALS Environmental

Chain of Custody / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com

COC # _____

Report To				Report Format / Distribution				Service Requested (Rush for routine analysis subject to availability)
Company:	Golder Associates			☑ Standard	☐ Other			◉ Regular (Standard Turnaround Times - Business Days)
Contact:	Andrea Badger			☑ PDF	☑ Excel	☐ Digital	☐ Fax	○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
Address:	203 170 Titanium Way			Email 1:	andrea_badger@golder.com			○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
	Whitehorse, YT Y1A 0G1			Email 2:	gary_hamilton@golder.com			○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT
Phone:	867-633-6076	Fax:		Email 3:	andrew_bruemmer@golder.com			
Invoice To	Same as Report ?	☐ Yes	☐ No	Client / Project Information				
Hardcopy of Invoice with Report?		☐ Yes	☐ No	Job #:	12-1021-0006			
Company:				PO / AFE:				
Contact:				LSD:				
Address:								
Phone:		Fax:		Quote #:	Q35898			
Lab Work Order # (lab use only)				ALS Contact:	Amber Springer	Sampler:	A Badger	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	348 SS12-30	01-Oct-12	13:50	Sediment	X	2
	349 SS12-31	01-Oct-12	14:00	Sediment	X	2
	350 SS12-32	01-Oct-12	14:10	Sediment	X	2
	351 SS12-32	01-Oct-12	14:10	Sediment	X	2
	352 SS12-33	01-Oct-12	15:00	Sediment	X	2
	353 SS12-34	01-Oct-12	15:05	Sediment	X	2
	354 SS12-35	01-Oct-12	15:10	Sediment	X	2
	355 SS12-36	01-Oct-12	16:15	Sediment	X	2
	356 SS12-37	01-Oct-12	16:20	Sediment	X	2

Analysis Request — Please indicate below Filtered, Preserved or both (F, P, F/P)

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
Andrea Badger	9-Oct-12	13:00				°C				

ALS Environmental

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COC # _____

Report To			
Company:	Golder Associates		
Contact:	Andrea Badger		
Address:	203 170 Titanium Way		
	Whitehorse, YT Y1A 0G1		
Phone:	867-633-6076	Fax:	
Invoice To	Same as Report ? ☐ Yes	☐ No	
Hardcopy of Invoice with Report?	☐ Yes	☐ No	
Company:			
Contact:			
Address:			
Phone:		Fax:	

Report Format / Distribution			
☑ Standard	☐ Other		
☑ PDF	☑ Excel	☐ Digital	☐ Fax
Email 1:	andrea_badger@golder.com		
Email 2:	gary_hamilton@golder.com		
Email 3:	andrew_bruemmer@golder.com		

Client / Project Information	
Job #:	12-1021-0006
PO / AFE:	
LSD:	
Quote #:	Q35898

Lab Work Order # (lab use only)		ALS Contact:	Amber Springer	Sampler:	A Bruemmer

Service Requested (Rush for routine analysis subject to availability)

- ◉ Regular (Standard Turnaround Times - Business Days)
- ○ Priority (2-4 Business Days) - 50% Surcharge - Contact ALS to Confirm TAT
- ○ Emergency (1-2 Bus. Days) - 100% Surcharge - Contact ALS to Confirm TAT
- ○ Same Day or Weekend Emergency - Contact ALS to Confirm TAT

Analysis Request

Please indicate below Filtered, Preserved or both (F, P, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Yukon CSR Metals	Number of Containers
	TP12-20 7-8 ft	23-Aug-12		Soil	X	2
	TP12-21 5-6 ft	23-Aug-12		Soil	X	2
	TP12-22 8-9 ft	23-Aug-12		Soil	X	2
	TP12-24 4.5-5.5 ft	24-Aug-12		Soil	X	2
	TP12-25 4-5 ft	24-Aug-12		Soil	X	2
	TP12-26 4.5-5.5 ft	24-Aug-12		Soil	X	2
	TP12-27 7-8 ft	24-Aug-12		Soil	X	2
	TP12-29 4-5 ft	24-Aug-12		Soil	X	2
	TP12-30 4-5 ft	24-Aug-12		Soil	X	2

Special Instructions / Regulations with water or land use (CCME-Freshwater Aquatic Life/BC CSR - Commercial/AB Tier 1 - Natural, etc) / Hazardous Details

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Released by:	Date (dd-mmm-yy)	Time (hh-mm)	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
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APPENDIX E

Previous Reports Completed By Access Consulting Group

Provided on CD (back cover)

3 Calcite Business Centre, 151 Industrial Road, Whitehorse, Yukon Y1A 2V3
PHONE (867) 668-6463 FAX (867) 667-6680 WWW.ACCESSCONSULTING.CA
mail@accessconsulting.ca

Summary Report

Access Project Code: TEK-11-01

To: Dave Ryder, Senior Environmental Coordinator, Teck Resources Limited
Jules Farkas, Environmental Protection Officer, Environment Yukon

From: Janelle Langlais, Environmental Scientist, Access Consulting Group
Scott Keesey, Environmental Manager, Access Consulting Group

Date: April 18, 2012

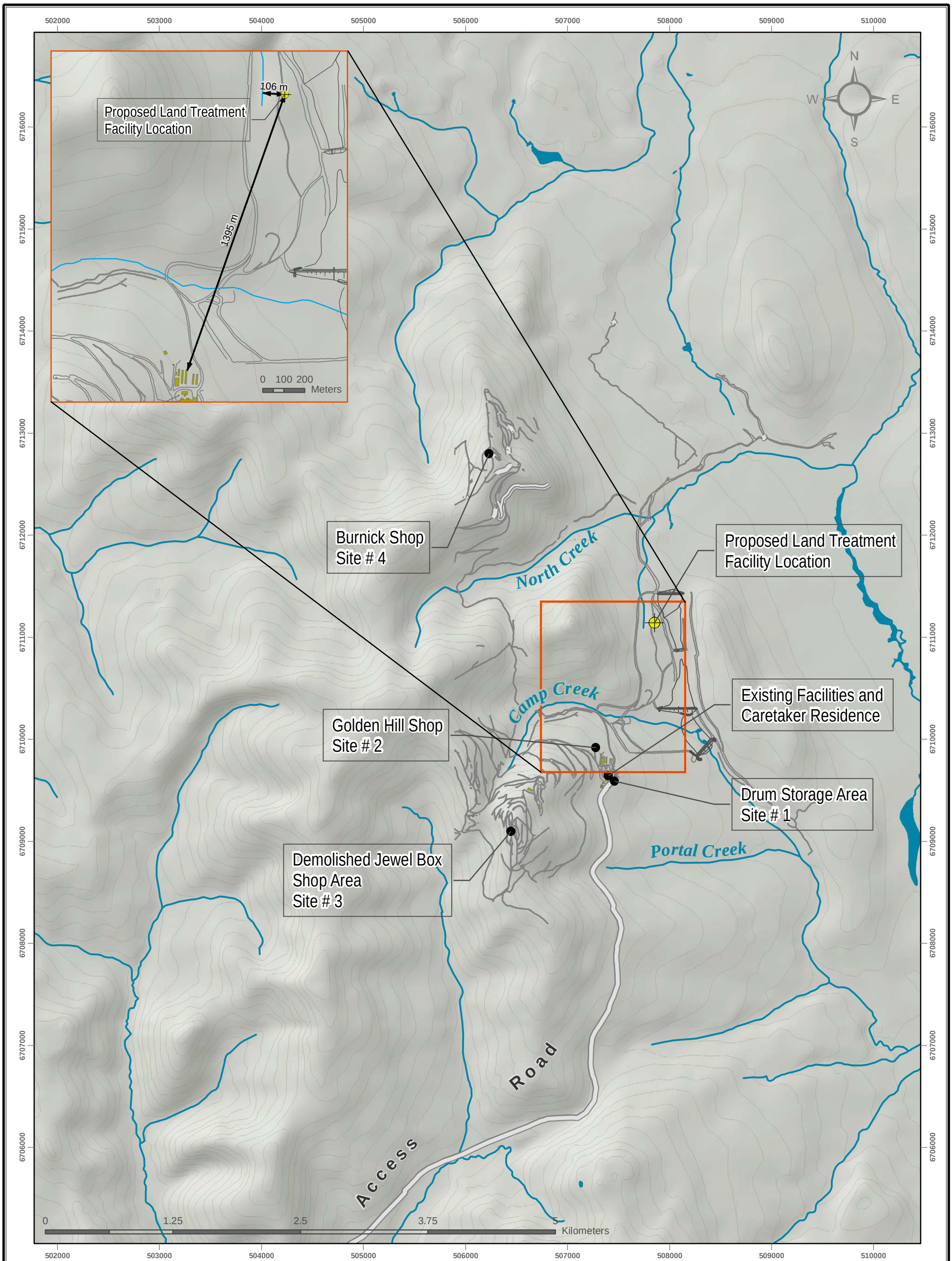
Re: Site Investigation & Remedial Soil Excavation

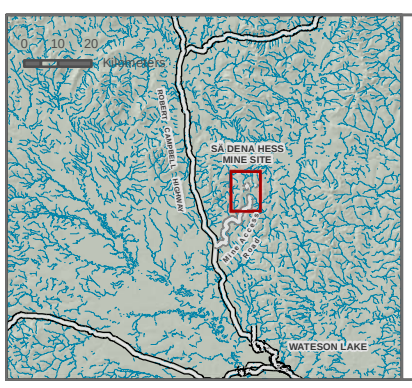
1. INTRODUCTION

This summary report describes a site investigation and remedial soil excavations that were undertaken for Teck Resources Limited (TECK) by Access Consulting Group (ACG) on August 15 - 20, 2011 at the Sa Dena Hes mine site near Watson Lake, Yukon. Various instances of hydrocarbon contamination located on site have been identified in recent years as a result of servicing mining vehicles and improper storage of drums and/or liquid waste during historical mining operations and care and maintenance activities. TECK retained ACG to excavate these potentially contaminated materials and present options for their disposal.

2. SCOPE OF WORK

- Excavation of surficial (< 0.5 – 1 m) hydrocarbon contaminated soil at: Drum Storage Area (Site 1), Golden Hill Shop Yard (Site 2), Jewel Box (Site 3), and Burnick Shop (Site 4), Figure 1 below presents site locations;
- Collection of applicable laboratory analytical samples from excavation walls, base and soil stockpiles as per Yukon Contaminated Site Regulations (CSR);
- Segregation of contaminated soil into 10 m^3 stockpiles to obtain characterization samples as per CSR special waste protocols;
- Inventory of special waste and contaminated non-special waste soil currently stored on site;
- Collection of samples for toxicity characteristic leaching procedure (leachate or leachable metal) tests from proposed land treatment facility (LTF) site location and tailings pond, and;
- Submission of a summary report to TECK and Yukon Government, Environmental Programs Branch (EPB) which includes disposal options and further recommendations regarding each site.





1:35,000 When map measurments equal 11 by 17 inches

National Topographic Data Base (NTDB) compiled by Natural Resources Canada at a scale of 1:50,000. Cadastral datacompiled by Natural Resources Canada. Reproduced underlicense from © Her Majesty the Queen in Right of Canada,Department of Natural Resources Canada. All rights reserved. Points collected by GPS or manually placed by JOL.

Datum: NAD 83 Proj.: UTM Zone 9N

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- Acess Road
- Mine Road
- Mine Feature
- Contour (100 ft; 30.5 m)
- Watercourse
- Waterbody
- Structures

Teck

ACCESS

SÄ DENA HES MINE

PROPOSED LAND TREATMENT FACILITY LOCATION AND CONTAMINATED SOIL LOCATIONS

DRAWN BY JML	APRIL 2012	VERIFIED BY JOL

D:\Project\AllProjects\Sa_Dena_Hess\GIS\Maps\Permitting\Waste_Permit_2011\ContaminatedSitesAndLTF_20111128.mxd
(*Last edited by: jlindeman;13/04/2012/13:57 PM*)

3. METHODOLOGY

Regulatory Guidelines and Criteria

The site investigation, remedial excavations and soil sampling was undertaken as per the Yukon Contaminated Sites Regulations with particular attention to Part 3 Restoration of Contaminated Sites, specifically Protocol No. 2 *Analysis of Samples taken in relation to the Contaminated Sites Regulations*, Protocol No. 3 *Soil Sampling Procedures at Contaminated Sites*, and Protocol No. 5 *Petroleum Hydrocarbon Analytical Methods.*

Analyzed soil parameters were compared to the CSR "*Schedule 1 - Generic Numerical Soil Standards"* and *"Schedule 2 – Matrix Numerical Soil Standards"* under the industrial land use listing, here on in, referred to as CSR Industrial Soil Standards or CSR Standards. Industrial Land use Standards were applied as the Sa Dena Hes mine site is currently in the state of care and maintenance and as such classified as industrial land. All sites were within 1.0 km of surface water and therefore CSR aquatic life standards or most stringent standards applicable have been applied to soil sample results. In addition, site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants standards specified in applicable matrixes were also applied to all samples. CSR Groundwater Used for Drinking Water Standards were not applied as there is no drinking water source within 1.5 km of the sites; drinking water is trucked in for onsite consumption.

Special Waste Criteria

Excavated soil stockpiles, LTF samples, and raw tailings sample results were compared to *Schedule 6, Hazardous Constituents Controlled Under Leachate Test and Regulated Limits*, of the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149), Department of Justice, Canada, here on in, referred to as Schedule 6, Leachate Test and Regulated Limits. Any metal parameter that exceeds these limits is classified as special waste. In addition, if the total level of petroleum hydrocarbons (TPHC) in soil is equal to or greater than 30,000 parts per million (ppm) or mg/kg, the soil is considered to be special waste. To determine this, hydrocarbon levels in all fractions (volatile, light and heavy) must be added together; if the sum is greater than 30,000 mg/kg, the material is classified as special waste.

Field Screening and Soil Sampling Procedure

A photoionization detector (PID) meter (Photovac 2020 Combo Pro) was used during the site investigation at Site 3 - Jewel Box, and remedial excavations to obtain field screening results of volatile organic compounds (VOCs) produced by grab samples of potentially contaminated soil. An area was considered potentially contaminated if samples indicated the presence of VOC gases above 50 ppm or confirmed by visual field observations. ACG uses a standard industry practice PID field reading parameter of 50 ppm as a contaminated soil limit or unless proven to be higher based on laboratory soil analysis from previous sampling events.

During the four excavations, PID soil samples were collected approximately every 0.5 meters in depth. Once field grab samples indicated a low presence of VOC gases (below 50 ppm) confirmatory samples were collected from the walls and the base of some excavations. Site 1, Drum Storage Area, was the only site fully excavated. The other three sites (site 2, site 3, and site 4) are incomplete and will be completed in 2012. Once all contamination has been excavated appropriate confirmatory soil samples will be collected as per CSR guidelines; one sample collected for each 10 meters running length (5 meters for special waste) from the walls of the excavation and for each 3 meters running depth. Confirmatory samples are required by the CSR to verify the absence of hydrocarbon contamination or to ensure hydrocarbon concentrations do not exceed applicable regulatory criteria.

At each of the four sites the excavated soil was segregated into approximately 10 m^3 soil stockpiles to ensure a characterization sample was collected for every 10 m^3 of special waste materials as per the applicable CSR Protocol. Personnel placed materials in separate stockpiles of hydrocarbon special waste (≥ 30,000 mg/kg TPHC), contaminated non-special waste (<30,000 mg/kg TPHC and ≥ CSR Industrial Soil Standards) and non-contaminated (< CSR Industrial Soil Standards). This was based on visual field observations and PID screening results.

Quality Assurance and Quality Control (QA/QC)

Quality assurance and quality control practices were employed during the collection, storing, and shipping of soil samples. These practices included:

- ACG field screened samples using a daily calibrated PID meter;
- Changing nitrile gloves between collection of samples;
- Using two clean, laboratory prepared 120 ml glass jars per sample;
- Packing jars completely to eliminate sample headspace and contaminant volatilization; and,
- Transportation/storage of samples in ice-packed, insulated coolers, with chain of custody documentation.

Laboratory Analytical Program

Confirmatory soil samples collected during the excavations were submitted to Maxxam Analytics Inc. in Burnaby, British Columbia (a CAEAL certified laboratory as per CSR Protocol No. 2). The following analyses were conducted as per Protocol No. 5 under the CSR:

- Benzene, toluene, ethylbenzene and xylenes (together known as BTEX or Monocyclic Aromatics Hydrocarbons);
- Volatile Petroleum Hydrocarbons (VPH);
- Polycyclic Aromatic Hydrocarbons (PAHs), and;
- Light and Heavy Extractable Petroleum Hydrocarbons (LEPH/HEPH).

In addition, excavated soil stockpile samples, LTF site samples and raw tailings samples were analyzed for total metals by inductively coupled plasma/mass spectrometry as well as subjected to toxicity characteristic leaching procedure tests.

4. RESULTS/DISCUSSION

Site 1: Drums Storage Area

Rough field sketches with an interpretation of results and PID field readings are available in Appendix A. Final excavation limits were (length x width x depth) 27.5 m x 13 m x 0.5 m. Based on soil sample results presented in Table 1, Appendix B, all wall and base samples did not exceed the CSR Industrial Soil Standards, with the exception of the north wall sample # 31 (Site 1-31-N-Wall). The sample resulted in a CSR exceedance in LEPHs & HEPHs and is also considered to be of hydrocarbon special waste levels as it contained a total level of petroleum hydrocarbons greater than 30,000 mg/kg. This section of the wall could not be excavated due to the presence of a hydro pole.

Eight stockpiles of soil were created during the excavation of the contaminated soil at site 1: Piles 1 - 6, Clean, and Clean Soil. One characterization sample was collected to represent both Piles 1 and 2 as together would be approximately 10 m^3 of soil. Also one characterization sample was collected to represent both the Clean and Clean Soil Piles as the Clean Soil stockpile was approximately 1 m^3 in size. Soil sample results from Piles 1 + 2, 3, 4, 5 and 6 exceeded the HEPHs CSR Industrial Soil Standards and are presented in Table 2, Appendix B. These same piles resulted in CSR Industrial Soil Standard exceedances in arsenic, cadmium, lead and zinc, with the exception of Pile 3 not exceeding the lead criteria. The sample collected to represent soil stockpiles 1 and 2 also had a CSR exceedance in antimony; see Table 3, Appendix B. As the Sa Dena Hes mine site was a lead, zinc and silver mine the high metal results were not unexpected. Soil samples collected from stockpiles 3 and 4 also indicated a total level of petroleum hydrocarbons above 30,000 mg/kg and are therefore considered special waste. Special waste limits were also reached in samples collected from stockpiles 1 + 2, and 5 for leachable lead as per the applicable, Schedule 6, Leachate Test and Regulated Limits, Table 4, Appendix B. Finally, the sample collected for both the excavated Clean and Clean Soil stockpiles were below CSR Industrial Soil Standards, Table 2, Appendix B.

Site 2: Golden Hill Shop Yard

Table 5, Appendix B, presents the soil sample results collected from the walls and base of the excavation. Final excavation limits were (length x width x depth) 14.7 m x 8.1 m x 1.20 m. Sample results from samples: Site 2-1-N-Wall, Site 2-2-Base, Site 2-17-S-Wall and Site 2-18-E-Wall exceeded the CSR Industrial Soil Standards for HEPHs. No samples collected were considered to be of hydrocarbon special waste levels. Wall and base samples Site 2-13-W-Wall, Site 2-16-S-Base, Site 2-19-W-Wall and Site 2-21-E-Wall did not exceed the CSR Industrial Soil Standards. Areas resulting in exceedances will have to be excavated until results are demonstrated to be below the applicable Standards.

Three soil stockpiles were excavated during the removal of the contaminated soil at Site 2: SW-Pile, W-Pile and Clean Pile. No samples collected were considered to be of hydrocarbon special waste levels. Based on results presented in Table 5, Appendix B, W-Pile exceeded both the LEPH and HEPH CSR Industrial Soil Standards and SW-Pile exceeded the HEPH CSR Standard. Additionally shown in Table 6, Appendix B, both stockpiles exceeded the CSR Standards for arsenic, cadmium, lead and zinc. Both stockpiles resulted in lead and or cadmium leachate levels above the applicable Schedule 6, Leachate Test and Regulated Limits, and are considered to be special waste, see Table 7, Appendix B. The soil sample collected from the Clean Soil Pile at site 2 did not exceed any of the hydrocarbon CSR Industrial Soil Standards (Table 5, Appendix B).

Site 3: Jewel Box

Site Investigation

A site investigation was initiated as areas with hydrocarbon contamination were difficult to identify due to the presence of rain and soot from burnt building materials covering the ground. As such, biased PID samples were collected with a focus on

hotspots, (soils likely above CSR Hydrocarbon Standards, resulting in exceedances) evident by visible hydrocarbon staining and areas where known storage containers were located. Eight areas were suspected to contain hydrocarbon contamination: Site A, Site B, Site C, Site D, Site E, Site F, Site G, and Site H. Based on PID field screening results, two sites were identified as being potentially contaminated (Site A and Site B). These sites were designated to be excavated; however personnel were only able to excavate Site A, at this time. Six out of the eight suspected areas had samples sent in for laboratory analysis: Site A (see paragraph below), Site B, Site C, Site D, Site E, and Site H. Samples were not collected for laboratory analysis from Sites G and H as visual and PID observations indicated a low likelihood of contamination. Analytical sample results shown in Table 8, Appendix B, resulted in both Site B and Site C exceeding the CSR Industrial Standard for HEPHs. Additionally, Site B contained total petroleum hydrocarbon concentrations that are of special waste levels. Sites D and E had elevated levels of HEPHs but did not exceed any of the CSR Hydrocarbon Industrial Standards. Site D was slightly below the CSR Standard having a concentration of 4840 mg/kg in HEPHs compared to the 5000 mg/kg Standard; while Site E had a HEPH concentration of 2930 mg/kg.

Remedial Excavation – Site 3A

Based on onsite PID field screening, personnel would excavate Sites A and B, however due to time restraints only Site A was completed. Final excavation limits were (length x width x depth) 4.40 m x 3.65 m x 0.6 m. All wall and base samples collected from the excavation did not exceed any of the hydrocarbon CSR Industrial Standards; however two of the samples did display elevated levels of LEPHS & HEPHS, shown in Table 8, Appendix B. For example the base sample collected, Site 3A-2-Base, resulted in a LEPH concentration of 1340 mg/kg while the CSR Standard is 2000 mg/kg. Sample 4, Site 3A-4S-Wall, had a HEPH concentration of 4060 mg/kg which is slightly lower in comparison to the CSR Standard of 5000 mg/kg. This area was excavated based on higher PID readings and excavation was stopped once PID readings were below 50 ppm. As previously mentioned, ACG has a PID field parameter of 50 ppm based on standard industry practices. The excavated soil stockpile, Site 3-A-Excavated Soil, also did not exceed any hydrocarbon CSR Industrial Standards or Schedule 6, Leachate Test and Regulated Limits, see Tables 7 & 8. Conversely, the sample did result in a CSR Industrial Standard exceedance in arsenic and zinc shown in Table 6, Appendix B. This was not unexpected as Site 3, Jewel Box, is a historically disturbed area and one of the main entrances into the adit was located approximately 100 m for this site. Background samples around this site would likely result in similar exceedances.

Site 4: Burnick Shop

Table 9, Appendix B, presents the soil sample results collected from the base of the excavation. Final excavation limits were approximately 38.6 m x 11.37 m x 0.4 m (length x width x depth). Three soil samples were collected from the base of the excavation pit: Site 4-1 Base, Site 4-2 Base, and Site 4-26 Base. The results of the laboratory analysis have indicated two of the three soil samples (Site 4-1 Base and Site 4-2 Base) collected did not exceed the CSR Industrial Soil Standards. However, a soil sample collected near the entrance of the building, Site 4-26 Base, contained a HEPH concentration of 8590 mg/kg that exceeded the CSR Standard of 5000 mg/kg for HEPHs.

Four soil stockpiles were produced during the excavation of contaminated soil at Site 4: Pile 1, Pile 2, Pile 3 and Pile 4. Soil was excavated from inside the mechanics shop and transported to Site 2, Golden Hill Shop Yard, for storage; stockpiles were appropriately labeled and covered. None of the soil stockpiles resulted in total petroleum hydrocarbon levels greater than 30,000 mg/kg or ppm and therefore are not considered to be special waste material. However, soil samples collected from Pile 1 and Pile 2 had HEPH concentrations in exceedance of the CSR Industrial Soil Standard; see Table 9, Appendix B. The soil sample from Pile 1 had a HEPH concentration of 14,500 mg/kg and Pile 2 had a concentration of 17,200 mg/kg; both of which were above the 5000 mg/kg HEPH Standard. Pile 3 and Pile 4 however, were slightly lower than the HEPH 5000 mg/kg CSR Standard and did not result in an exceedance. Pile 3 had a HEPH concentration of 4,830 mg/kg and Pile 4 a concentration of 4,460 mg/kg. Soil stockpiles were a result of scraping off a top layer of 30 – 40 cm of soil from the floor of the shop and placing it into 10 m^3 soil stockpiles. The underlying base soil sample collected near the entrance of the building, Site 4-26 Base, taken after the top layer was scrapped off, indicated a HEPH concentration of 8,590 mg/kg which resulted in a CSR

exceedance. Yet soil samples from Piles 3 and 4, the soil layer excavated from above the base sample 26, did not exceed any of the CSR Standards. These results were not expected as it seems unlikely that the base sample 26 could result in a CSR exceedance while the excavated top layer of soil, assumed to be the most contaminated, did not.

Table 10, Appendix B, presents the total metal concentrations in the samples collected from all four excavated soil stockpiles. All stockpiles resulted in CSR Industrial Soil Standard exceedances in either zinc and arsenic or zinc and copper. Yet, none of the stockpiles exceeded the Schedule 6 Leachate Test and Regulated Limits and therefore is not considered to be special waste in regards to leachable metals, see Table 11, Appendix B.

Background LTF & Tailings Samples

Two leachate test samples were collected from the proposed LTF location as well as two samples from the raw tailings at the tailings pond and results are shown in Tables 12 and 13. The purpose of this was to determine if the metal contaminated soil can be disposed of on site in the tailings pond once it has been remediated for hydrocarbons in the proposed LTF. To establish this, metal levels and leachate test results from the excavated soil stockpiles from all four sites needed to be comparable in metal concentrations as the tailings. The results have shown that metal concentrations and leachable metal results are higher in the soil samples collected from all the excavated soil stockpiles relative to the levels from the two tailings samples, Tailings 1 and Tailings 2. It was expected that similar high concentrations of metals and leachate test results would be evident, but this expected result was not returned from the two samples collected. More tailings samples will be collected in 2012 for further characterization. It may be probable that the metal concentrations in the tailings pond are equivalent or higher than the results shown, and that the limitation of only collecting two samples did not fully represent the true concentrations.

The excavated soil stockpiles from all four sites were also higher in metal concentrations and leachate test results than the two background soil samples collected from the proposed LTF location. The purpose of these tests was to determine if the background metal concentrations at the proposed LTF location were comparable to the excavated soil stockpiles. If this was established then the proposed LTF would not have to be designed to meet special waste standards, thus reducing expenditures.

5. CONCLUSIONS AND RECOMMENDATIONS

Petroleum hydrocarbon contaminated soil was excavated at four different sites: Drum Storage Area (Site 1), Golden Hill Shop Yard (Site 2), Jewel Box (Site 3), and Burnick Shop (Site 4) for Teck Resources Limited by Access Consulting Group on August 15 - 20, 2011 at the Sa Dena Hes mine site near Watson Lake, Yukon. Excavated soil stockpiles were stored on and covered with 6 mil polyethylene sheeting and labeled appropriately in all four directions as per Special Waste Permit #41-247 attached as Appendix C. Approximately 130 m^3 of special waste and/or contaminated non-special waste is currently stored on site, of that:

- 20 m^3 - special waste total petroleum hydrocarbons and metals contaminated non-special waste;
- 50 m^3 - special waste leachable metals and both hydrocarbon and metals contaminated non-special waste;
- 30 m^3 - hydrocarbon and metals contaminated non-special waste, and;
- 30 m^3 - metals contaminated non-special waste.

All excavated soil stockpiles exceeded the CSR Industrial Standards in one or more metal parameters. This was not unexpected as all four sites have been historically disturbed and background samples around these areas would likely result in similar concentrations. Teck Resources Limited may want to explore the option of determining background soil quality at these locations to demonstrate naturally elevated metal concentrations. Several disposal options exist to treat the contaminated soil and special waste material; all options require Yukon, Environmental Program Branch approval prior to implementation:

Special Waste (Total Petroleum Hydrocarbons and Leachable Metals) Disposal Options:

1. Treat on site in a permitted special waste LTF and final disposal in tailings pond or elsewhere on the mine site where metal concentrations in soil are equivalent or higher – requires a hydrogeological assessment, a minimum 60 mil hydrocarbon-resistant HDPE geomembrane liner and possibly a Yukon Environmental Socio-Economic Assessment Act (YESAA) submission.

2. Transport offsite – Currently there are no facilities in the Yukon Territory that can accept soils with both total petroleum hydrocarbon special waste and leachable metals special waste contamination. As such the soil would have to be transported to a facility in Northern B.C. such as CCS Northern Rockies Facility in Fort Nelson that can accept special waste material; however additional lab costs would be required.

Contaminated Non-special Waste (Hydrocarbons and Total Metals) Disposal Options:

1. Treat on site in an LTF and final disposal in tailings pond or elsewhere on the mine site where metal concentrations in soil are equivalent or higher – does not require hydrogeological assessment, requires a minimum 30 mil hydrocarbon-resistant HDPE geomembrane liner and will not require a YESAA submission if total amount of material is < 3,000 m^3.

2. Transport offsite – To a permitted disposal facility such as CCS Northern Rockies Facility in Fort Nelson; additional lab costs would be required.

Equivalent metal concentrations were not established between the excavated soil stockpiles and the tailings pond to accurately determine if the soil could be disposed of in the tailings pond once it has been remediated for hydrocarbons. Additional samples will have to be collected from the raw tailings to attempt to demonstrate that the metal concentrations are in fact similar or another suitable disposal location identified within the mine site. If an alternative site is identified equivalent metal concentrations will have to be established. The two samples collected during the August sampling event did not provide sufficient evidence of this. In addition background soil samples collected from the proposed LTF location are also

less than the excavated soil stockpiles in regards to metal concentrations and leachate metal results. Therefore if the soil contaminated with both hydrocarbons and special waste leachable metals is to be treated onsite without designing the LTF to meet special waste standards (i.e. hydrogeological assessment and 60 mil liner), a location where equivalent or higher metal concentrations needs to be identified.

The following specifically addresses each site regarding analytical results, recommendations and work still to be completed:

Site 1: Drum Storage Area

Approximately 60 m^3 of contaminated soil was excavated at site 1, Drum Storage Area and is currently stored on site. Piles 3 and 4, approximately 20 m^3 of soil, are considered to be special waste in regards to total petroleum hydrocarbons as well as containing metal contamination. Piles 1, 2, 5, approximately 30 m^3 of soil, are considered special waste leachable metals as well as containing both metal and hydrocarbon non-special waste contamination. Pile 6, approximately 10 m^3 of soil, is contaminated by both hydrocarbons and metals. Appropriate disposal options of these various types of soil contamination have been previously discussed above.

A hydro pole will need to be removed to allow for the excavation of the west wall, sample #31, (Site 1-31-N-Wall) which resulted in a total petroleum hydrocarbon concentration above 30,000 mg/kg and is considered to be special waste material. The soil may be placed onto soil stockpiles 3 or 4 which are of similar special waste concentrations. The two excavated soil stockpiles (Clean and Clean Soil) sample results were below CSR Industrial Soil Standards and may be left in place or used as backfill with EPB approval. As the soil excavated from this site was of special waste levels, nine more confirmatory samples will have to be collected from the walls and base of the excavation. As stated in the CSR guidelines, of each excavation face, one sample should be taken for each 10 meters running length (5 meters for special waste) and for each 3 meters running depth. Minimum samples were collected as special waste levels had not been confirmed.

Site 2: Golden Hill Shop Yard

Approximately 20 m^3 of soil contaminated by hydrocarbons, total metals (as well as being of special waste levels in regards to leachable metals) was excavated from Site 2 and is currently stored on site. Appropriate disposal options have been previously discussed to treat this type of special waste materials. The soil sample collected from the clean stockpile of soil did not exceed any of the CSR Industrial Soil Standards in regards to hydrocarbons and as such may be left in place or used as backfill.

Soil samples collected from the walls and base of the excavation pit resulted in samples Site 2-1-N-Wall, Site 2-2-Base, Site 2-17-S-Wall and Site 2-18-E-Wall exceeding the CSR Industrial Soil Standards for HEPHs. These areas will have to be excavated until results are demonstrated to be below the CSR Standards. Due to the presence of buried hydrocarbon contaminated waste, such as oily rags and oily metal debris, it is unknown how much contaminated soil may be present in the area. It is recommended to obtain a field test kit for total petroleum hydrocarbons in soil for the continuous excavation at this site, such as the PetroFLAG Analyzer System (PF-MTR-01) – Dexsil or a Diesel Dog product. The use of a portable kit would be more economical and efficient as real time sample results would allow for the continuous excavation of the soil. This would reduce the excessive costs of shipping samples out laboratory analysis, and personnel having to make return trips to the site.

Site 3: Jewel Box

Site Investigation

A site investigation was conducted to identify hydrocarbon contamination at Site 3, Jewel Box. Six areas suspected of hydrocarbon contamination were sampled and sent in for laboratory analysis: Site A (see paragraph below), Site B, Site C, Site D, Site E, and Site H. Based on laboratory analysis two samples collected, Site B and C, resulted in CSR Industrial Standard exceedances for HEPHs. Additionally, Site B also contained total petroleum hydrocarbon concentrations that are of special waste levels. Once these areas have been excavated the soil stockpiles will have to undergo metal leachate testing as well as

total metal analysis, to determine disposal options. In addition, as the soil to be excavated is of special waste levels on each excavation wall and base, one sample should be collected for every five meters of running length and for each three meters of running depth.

Remedial Excavation – Site 3A

Based on the PID field screening tests conducted during the site investigation two areas indicated the presence of hydrocarbon contamination, Site A and Site B. Due to time restraints, only Site A was excavated. All samples collected from the excavation pit did not exceed any CSR Industrial Standards. The sample collected from the excavated stockpile, approximately 10 m^3 of soil, is not considered special waste in regards to hydrocarbons or leachable metals; however the sample did result in a CSR exceedance in lead and zinc. The area was excavated as PID field reading exceeded ACG's field guideline of 50 ppm. As the walls and base of the excavation are below CSR Standards it may be backfilled with the original excavated soil if approval is received from EPB.

Site 4: Burnick Shop

None of the four soil stockpiles that were produced during the excavation contained petroleum hydrocarbons or metal leachate special waste materials. Approximately 20 m^3 of soil from Piles 1 and 2 were considered contaminated by petroleum hydrocarbons and total metals under CSR Industrial Soil Standards. Piles 3 and 4 approximately 20 m^3 of soil is contaminated by either zinc and arsenic or zinc and copper. In addition, these piles also contained hydrocarbons slightly lower than the CSR Standards and did not result in an exceedance.

One out of the three soil samples that were collected from the base of the excavation pit, Site 4-26 Base, exceeded the CSR Industrial Standards for HEPHs. This area will have to be excavated horizontally and vertically until hydrocarbon concentrations are demonstrated to be below CSR Standards. No wall samples were collected during the excavation as the surrounding building infrastructure prevented full excavation of all impacted soil. In order to excavate all contaminated soil the shop building will have to be moved or dismantled.

6. LIMITATIONS

This report was prepared for the exclusive use of Teck Resources Limited. Access Consulting Group has attempted to exercise professional procedures while conducting a site investigation and remedial soil excavations to prepare the contents of this report. The material in the report reflects Access Consulting Group's best judgment in light of the information available at the time of the preparation of this report. Any use that a third party makes of this report, or any reliance on decisions to be made based on it, is the responsibility of the third parties. Access Consulting Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. Access Consulting Group believes that the contents of this report are substantively correct.

The information and data contained in this report, including without limitation the results of any sampling and analyses conducted by Access Consulting Group, are based solely on the conditions observed at the time of the sampling and have been developed or obtained through the exercise of Access Consulting Group's professional judgment and are set to the best of Access Consulting Group's knowledge, information, and belief. Although every effort has been made to confirm that all such information and data is factual, complete and accurate, Access Consulting Group offers no guarantees or warranties, either expressed or implied, with respect to such information or data.

Access Consulting Group shall not by the act of issuing this report be deemed to have represented that any sampling and analyses conducted by it have been exhaustive or will identify all contaminants or contamination of the site, and persons relying on the results thereof do so at their own risk.

7. CLOSURE

Should you have any questions regarding this report, or if you require further information, please contact Access Consulting Group in Whitehorse, Yukon, at (867) 668-6463.

Prepared by:

ACCESS CONSULTING GROUP

Janelle Langlais B.Sc.
Environmental Scientist

Reviewed by:

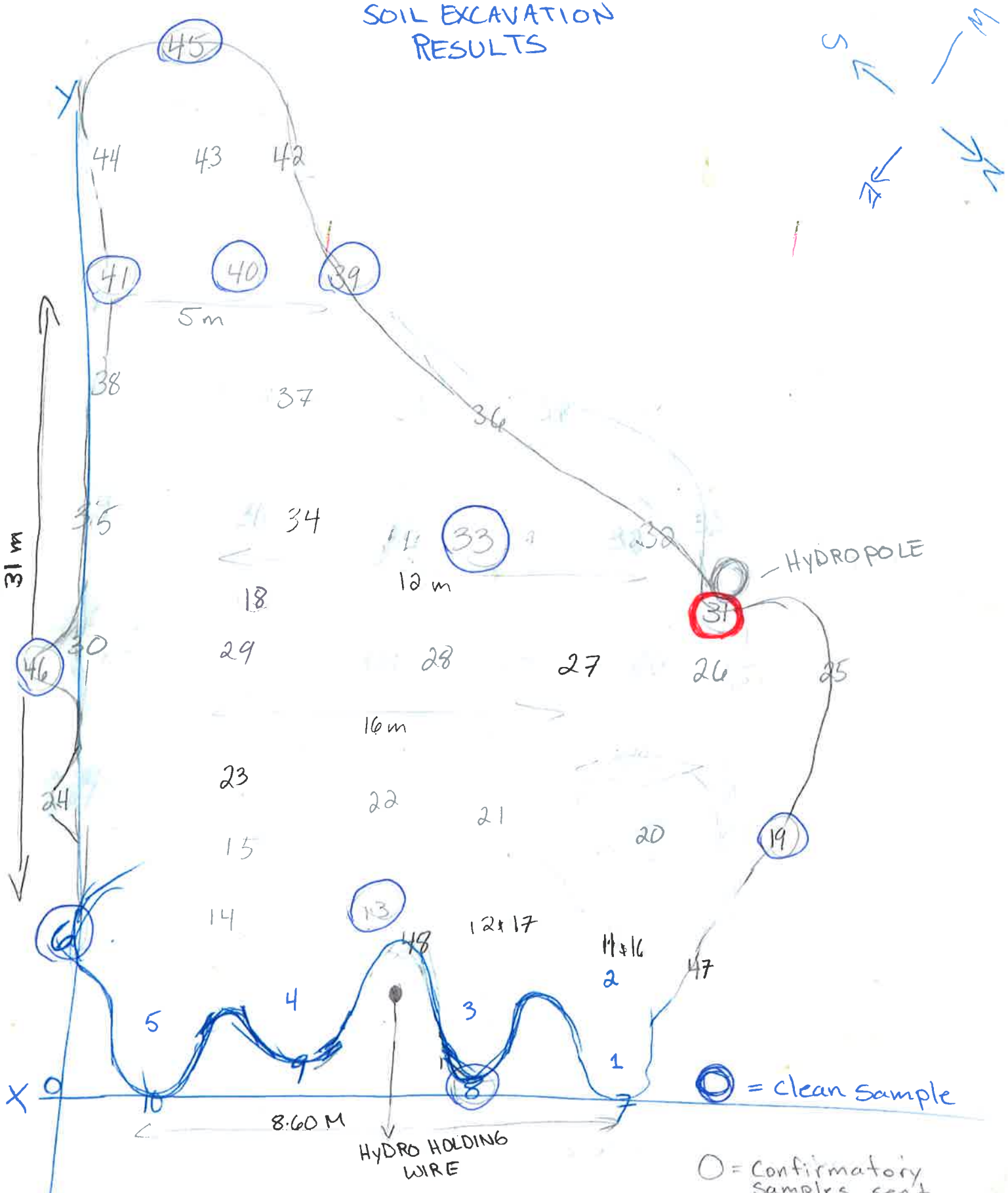
ACCESS CONSULTING GROUP

Kurt Neunherz, BIE (Applied)
Contaminated Sites Remediation Manager

APPENDIX A

FIELD SKETCHES AND PID
FIELD READING

SOIL EXCAVATION RESULTS



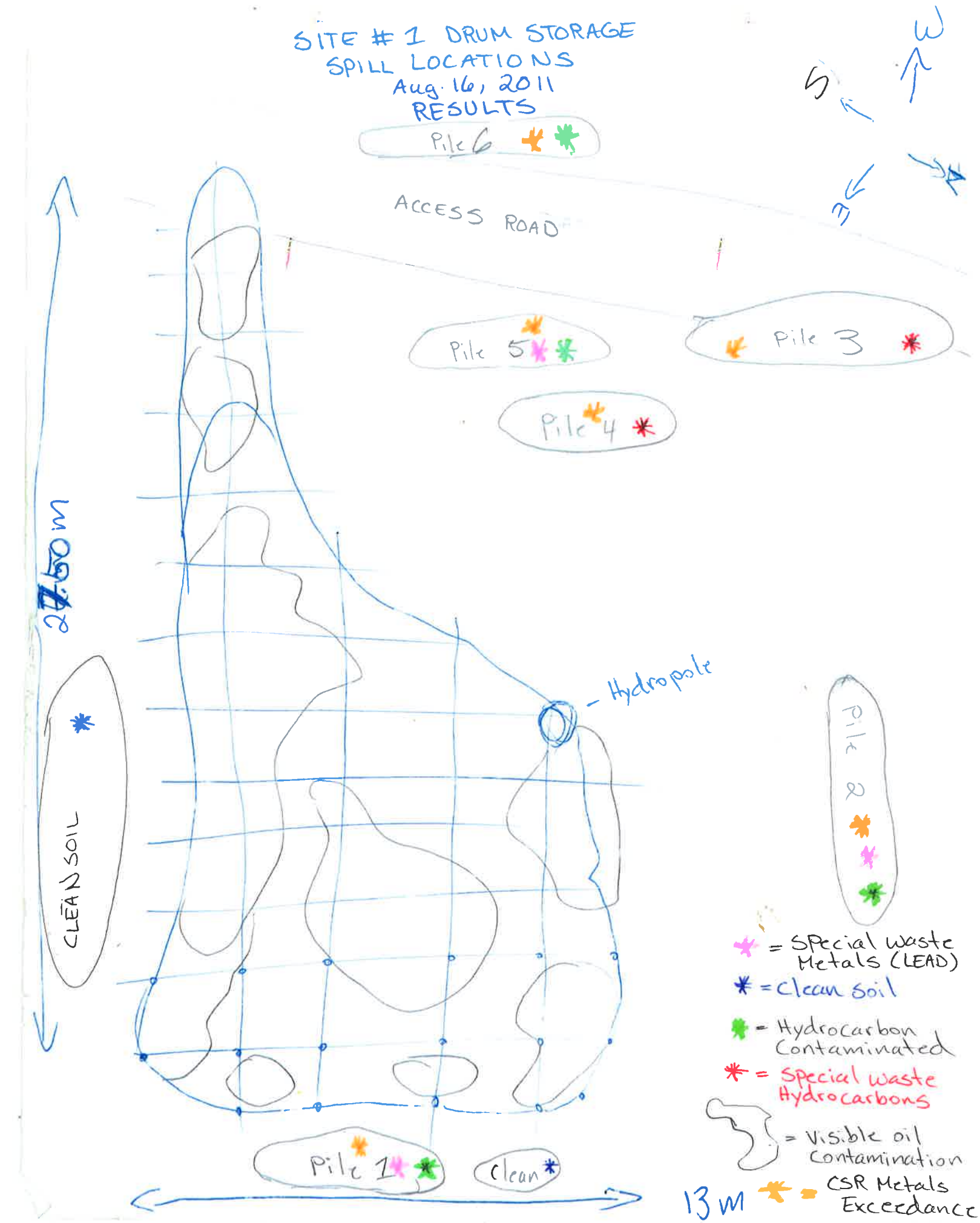
SITE # 1

DRUM STORAGE

AUG. 16, 2011

*Exceedances based on CSR Industrial standards (LEPH & HEPH)

SITE # 1 DRUM STORAGE
SPILL LOCATIONS
Aug. 16, 2011
RESULTS



Contaminated Soil Excavation Sheet

Project Number: TEK-11-02
Technicians: J.LANGLAIS
Location: SITE 1 - DRUM STORAGE AREA
Date: AUG. 16, 2011

ACCESS

Sample #	Depth (meters)	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
1	.40	0.0	Y	NE Base	
2	.30	95.0	Y	NE base	
3	.50	0.0	N	NE Base	
4	.20	0.0	N	NE Base	
5	.40	0.0	N	NE Base	
6	.20	0.0	N	SE Wall	Y
7	.40	0.0	N	NE WALL	
8	.50	0.1	N	NE WALL	Y
9	.50	0.0	N	NE WALL	
10	.40	0.0	N	NE WALL	
11	.20	17.3	Y	NE BASE	
12	.20	5.3	Y	NE BASE	
13	.20	0.0	N	NE BASE	Y
14	.30	0.0	N	NE BASE	
15	.30	0.0	N	NE BASE	
16	.50	0.0	N	NE BASE	
17	.50	0.0	N	NE BASE	
18	.65	0.0	N	REF SAMPLE	
19	.35	0.0	N	N WALL	Y
20	.20	0.0	N	NE BASE	
21	.30	0.0	N	NE BASE	
22	.30	0.0	N	NE BASE	
23	.30	0.0	N	NE BASE	
24	.50	0.0	N	SE WALL	
25	.40	0.0	N	N WALL	
26	.30	0.0	N	MID BASE	
27	.30	0.0	N	MID BASE	
28	.40	0.0	N	MID BASE	
29	.40	0.0	N	MID BASE	
30	.50	0.0	N	SE WALL	
31	.05	0.0	N	W WALL	Y
32	.20	0.0	N	W WALL	
33	.30	0.3	N	MID BASE	Y

Contaminated Soil Excavation Sheet

Project Number: TEK-11-02
Technicians: J. LANGLAIS
Location: SITE 1 - DRUM STORAGE AREA
Date: AUG. 16, 2011

ACCESS

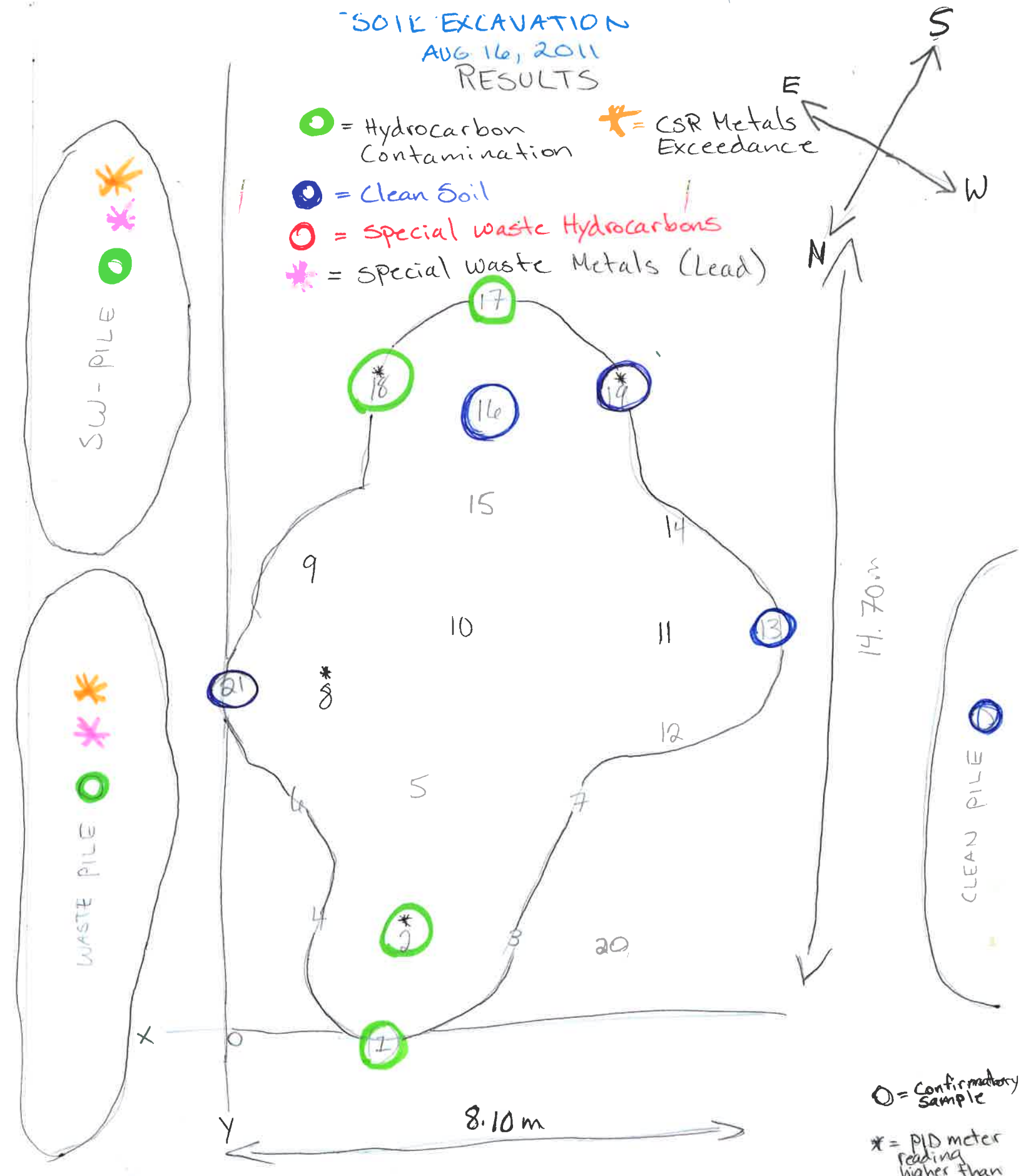
Sample #	Depth (meters)	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
34	.30	0.0	N	MID BASE	
35	.30	0.0	N	SE WALL	
36	.20	0.0	N	W WALL	
37	.30	0.0	N	SW BASE	
38	.30	0.0	N	SE WALL	
39	.20	0.0	N	W WALL	Y
40	.20	0.0	N	SW BASE	Y
41	.20	0.0	N	SE WALL	Y
42	.30	0.0	N	SW WALL	
43	.30	0.0	N	SW BASE	
44	.30	0.0	N	S WALL	
45	.20	0.0	N	SW WALL	Y
46	0.5	0.0	N	SE WALL	Y
47	.20	0.0	N	N WALL	
48	.20	0.0	N	E WALL	

SITE 2- GOLDEN HILL SHOP

SOIL EXCAVATION

AUG 16, 2011

RESULTS



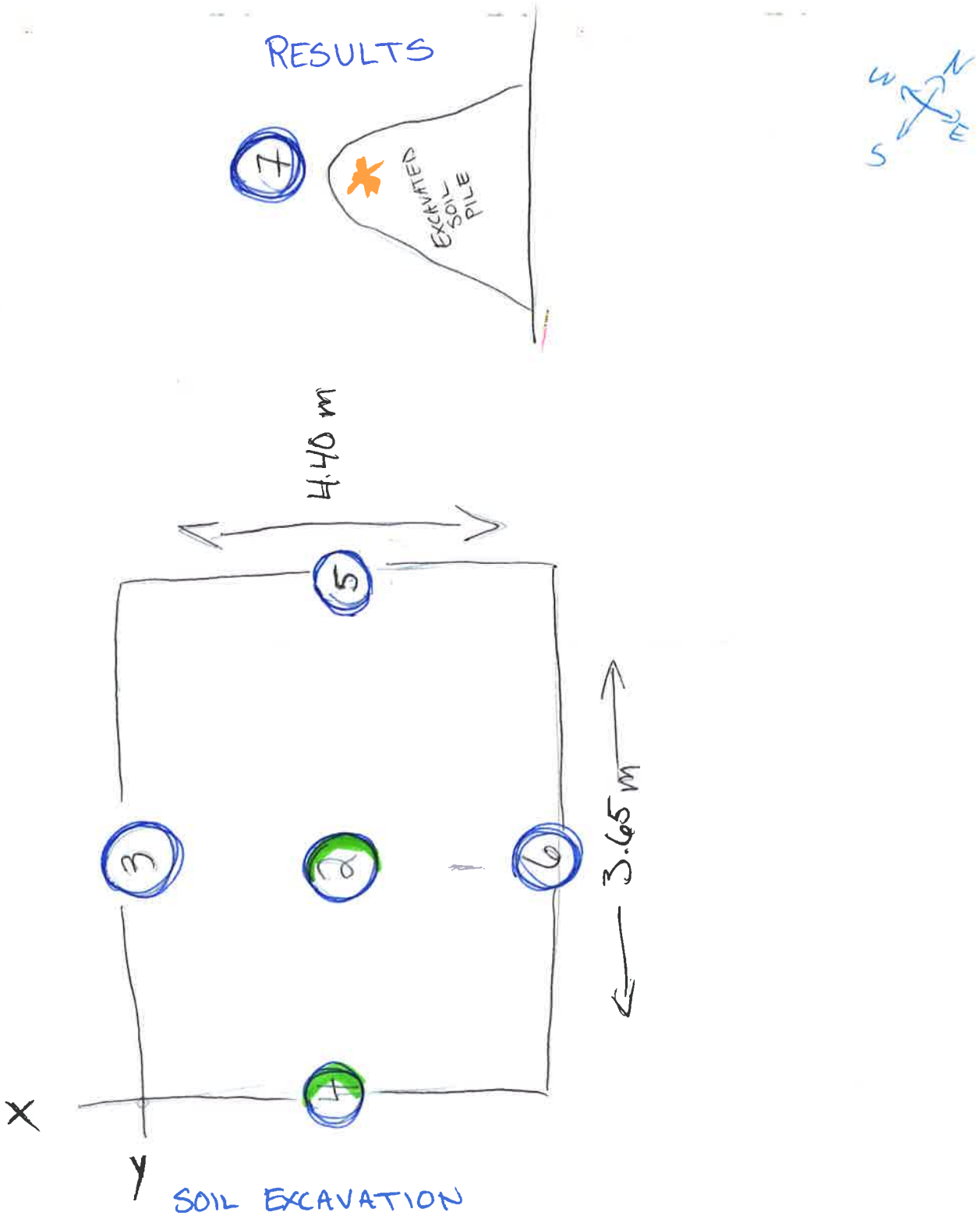
* based on CSR Industrial LEPH & HEPH standards

Contaminated Soil Excavation Sheet

Project Number: TEK-02-11
Technicians: J. LANGLAIS
Location: SITE #2 GOLDEN HILL SHOP
Date: AUG. 18/11

ACCESS

Sample #	X (m)	Y (m)	Z (meters) Depth	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
1	4	0	.40	0.0	N	N WALL	✓
2	4	1	.70	44	N	BASE	✓
3	5.5	1	.30	0.0	N	W WALL	✓
4	6.0	4	.30	0.0	N	E WALL	
5	4	4.5	.20	0.0	N	N BASE	
6	4	4.5	.30	0.0	N	E WALL	
7	4	4.5	.10	0.0	N	W WALL	
8	4.5	5	1.14	5.0	N	E BASE	
9	4.5	7	.52	0.0	N	E BASE	
10	4	9	.20	0.0	N	MID BASE	
11	6.5	9	.88	0.0	N	W BASE	
12	6.5	7	.44	0.0	N	W WALL	
13	8.10	9	.42	0.0	N	W WALL	✓
14	6.5	10	.60	0.0	N	W WALL	
15	4	10.5	.20	0.0	N	BASE	
16	4	12.5	1.20	0.0	N	S BASE	
17	4	14.70	.60	0.0	N	S WALL	✓
18	4	12.5	.60	22.9	N	E WALL	✓
19	6.1	12.5	.65	2.7	N	W WALL	✓
20	4.5	1	.05	0.0	N	SURFACE	
21	0	5	.40	0.0	N	E WALL	✓



SOIL EXCAVATION

SITE 3 - A - OLD DIESEL TANK STORAGE

= PID SAMPLE LOCATIONS

Aug. 16, 2011

= Special Waste Hydrocarbons

= Hydrocarbon Contamination

= Samples sent in for lab analysis

= Clean Soil

= Sample near exceedance in regards to Hydrocarbons

= CSR Metals Exceedance

= special waste Metals

*-based on CSR Industrial LEPH & HEPH standards

Contaminated Soil Excavation Sheet

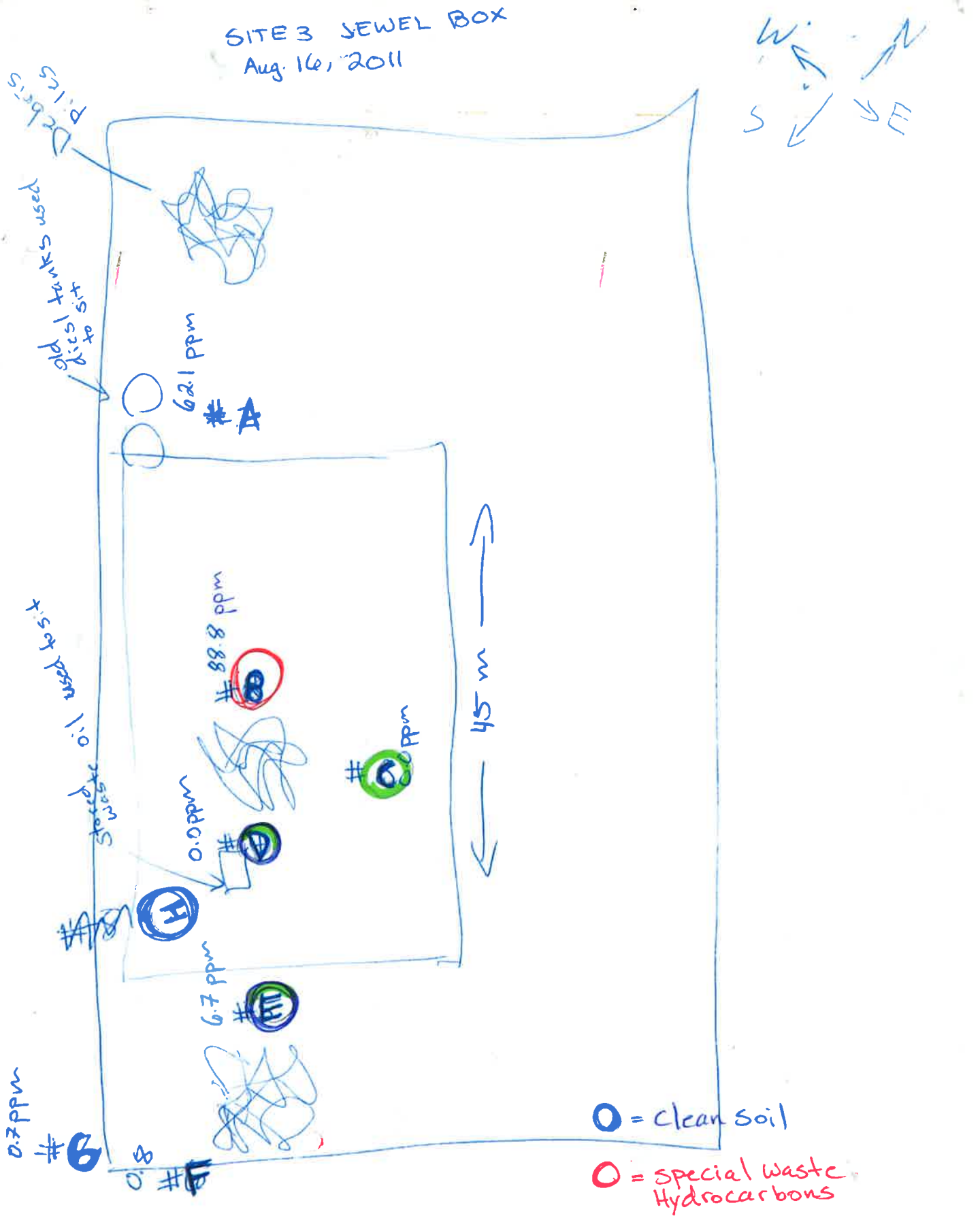
Project Number: TEK-02-11 **Location:** Site #3-A

Technicians: Janelle L **Date:** Aug. 16, 2011

ACCESS

Sample #	X (m)	Y (m)	Z (meters) Depth	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
1	4.0	1.8	0.6	.9	N	BASE	
2	2.2	1.8	0.5	119	N	BASE	Y
3	0	1.8	0.5	55	N	SW wall	Y
4	2.2	0	0.6	63	N	S wall	Y
5	2.2	3.65	0.6	16	N	N wall	Y
6	4.40	1.8	0.6	26	N	NE Wall	Y
7	\	\	N/A	119	\	Excavated Soil	Y

SITE 3 JEWEL BOX
Aug. 16, 2011



= clean soil

= special waste Hydrocarbons

= Hydrocarbon Contamination

A'BC.. = PID SAMPLE LOCATIONS

= Sample sent in for lab analysis

= Sample near exceedance in regards to Hydrocarbons

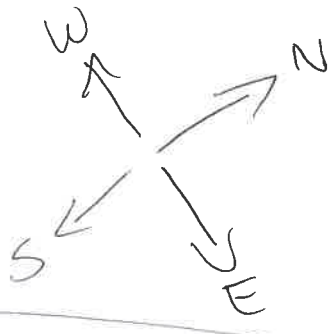
* based on CSR Industrial LEPH & HEPH standards

SITE 4 BURNICK SHOP
SOIL EXCAVATION
AUG 19, 2011
RESULTS



* based on CSR Industrial LEPH & HEPH standards

SITE 4 BURNICK SHOP
EXCAVATED SOIL PILES STORED AT SITE 2
AUG. 19, 2011



Piles = approximately $10m^3$

PILE 3

PILE 1

PILE 4

PILE 2

* - CSR Metals Exceedance

X - Sample near Exceedance in regards to Hydrocarbons

* - Special waste Hydrocarbons

* - Hydrocarbon Contamination

* - Special Waste (Lead)

* - Clean Soil

CONCRETE SLAB

Contaminated Soil Excavation Sheet

Project Number: TEK-11-02
Technicians: J.LANGLAIS
Location: SITE 4 - BURNICK SHOP
Date: AUG. 19, 2011

ACCESS

Sample #	Depth (meters)	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
1	.30	0.0	N	N BASE	Y
2	.40	0.0	N	MID BASE	Y
3	.30	0.0	N	W BASE	
4	.30	0.0	N	E BASE	
5	.30	0.0	N	W BASE	
6	.30	0.0	N	MID BASE	
7	.30	0.0	N	E BASE	
8	.40	0.0	N	MID BASE	
9	.40	0.0	N	MID BASE	
10	.30	0.0	N	N WALL	
11	.30	0.0	N	N WALL	
12	.30	0.0	N	N WALL	
13	.30	0.0	N	W WALL	
14	.30	0.0	N	E WALL	
15	.30	0.0	N	W WALL	
16	.30	0.0	N	E WALL	
17	.40	0.0	N	W WALL	
18	.40	0.0	N	E WALL	
19	.40	0.0	N	W WALL	
20	.40	0.0	N	MID BASE	
21	.40	0.0	N	MID BASE	
22	.40	0.0	N	MID BASE	
23	.40	0.0	N	E WALL	
24	.30	0.0	N	W WALL	
25	.30	0.0	N	S BASE	
26	.30	0.0	N	S BASE	Y
27	.30	0.0	N	S BASE	
28	.30	0.0	N	E WALL	
29	.30	0.0	N	SW WALL	
30	.25	0.0	N	W WALL	
31	.25	0.0	N	S BASE	
32	.25	0.0	N	S BASE	
33	.25	0.0	N	E WALL	
34	.20	0.0	N	S WALL	
35	.20	0.0	N	S WALL	
36	.20	0.0	N	S WALL	

APPENDIX B

ANALYTICAL SOIL RESULTS

TABLE 1: PETROLEUM HYDROCARBON SOIL SAMPLE RESULTS - SITE 1 EXCAVATION WALLS & BASE

SA DENA HES August 18, 2011	UNITS	SITE 1 -13-BASE	SITE 1 -6-S-WALL	SITE 1 -8-E-WALL	SITE 1 -19-NE-WALL	SITE 1 -31-N-WALL	SITE 1 -33-BASE	SITE 1 -46-SE-WALL	SITE 1 -39-W-WALL	SITE 1 -40-BASE	SITE 1 -41-SE-WALL	SITE 1 -45-SW-WALL	CONTAMINATED SITES REGULATIONS* (INDUSTRIAL STANDARDS)
Volatiles - Soil													
VPHs (VHs6-10 minus BTEX)	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	**200**
Methyl t-Butyl Ether	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Benzene	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**10**
Toluene	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**25**
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**20**
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
o-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
Styrene	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	**50**
Total Xylenes (m,p,o)	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	**50**
VHs C6-C10	mg/kg	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	-
Polycyclic Aromatic Hydrocarbons - Soil													
Naphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**50**
2-Methylnaphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Acenaphthylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Acenaphthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluorene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.4 (2)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Phenanthrene	mg/kg	<0.05	<0.05	<0.05	<0.05	2.9 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**50**
Anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.6 (2)	<0.08 (2)	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.7 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	2.5 (1)	0.16	<0.05	<0.05	<0.05	<0.05	<0.05	**100**
Benzo(a)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Chrysene	mg/kg	<0.05	<0.05	<0.05	<0.05	1.3 (1)	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	-
Benzo(b&j)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Benzo(k)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Dibenzo(a,h)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Benzo(g,h,i)perylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Low Molecular Weight PAH`s	mg/kg	<0.05	<0.05	<0.05	<0.05	2.9	<0.08	<0.05	<0.05	<0.05	<0.05	<0.05	-
High Molecular Weight PAH`s	mg/kg	<0.05	<0.05	<0.05	<0.05	4.6	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	-
Total PAH	mg/kg	<0.05	<0.05	<0.05	<0.05	7.4	0.22	<0.05	<0.05	<0.05	<0.05	<0.05	-
Extractable Petroleum Hydrocarbons - Soil													
LEPHs	mg/kg	<100	<100	<100	<100	12000	1490	<100	<100	179	<100	<100	**2000**
HEPHs	mg/kg	<100	118	<100	<100	29200	846	135	323	1080	313	238	**5000**
Ext. Pet. Hydrocarbons-Soil													
EPH (C10-C19)	mg/kg	<100	<100	<100	<100	12100	1490	<100	<100	179	<100	<100	-
EPH (C19-C32)	mg/kg	<100	118	<100	<100	29200	847	135	323	1080	313	238	-
Surrogate Recovery-Soil													
4-BROMOFLUOROBENZENE (sur.)	%	100	99	99	98	96	106	98	103	102	98	99	-
D10-ETHYLBENZENE (sur.)	%	99	98	98	98	95	97	88	102	99	101	101	-
D4-1,2-DICHLOROETHANE (sur.)	%	98	100	98	97	98	98	90	99	98	99	96	-
D8-TOLUENE (sur.)	%	101	99	99	99	101	99	100	100	100	99	100	-
D10-ANTHRACENE (sur.)	%	97	103	99	94	94	96	100	105	94	91	99	-
D8-ACENAPHTHYLENE (sur.)	%	100	105	102	96	94	96	102	106	94	91	99	-
D8-NAPHTHALENE (sur.)	%	98	102	98	96	92	90	101	99	93	91	93	-
TERPHENYL-D14 (sur.)	%	100	106	101	102	90	102	107	105	99	98	100	-
O-TERPHENYL (sur.)	%	100	101	100	93	116	100	98	104	98	94	101	-
Physical Properties-Soil													
Moisture	%	11	13	12	11	9.3	11	13	12	10	14	16	-

Yellow Highlighted Data - CSR Exceedance

RED Highlighted Data - Hydrocarbon Special Waste (Total Petroleum Hydrocarbons ≥ 30,000 mg/kg)

***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and subject to aquatic life standards or most stringent standard applicable

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 2: PETROLEUM HYDROCARBON SOIL SAMPLE RESULTS - SITE 1 EXCAVATED SOIL STOCKPILES

SA DENA HES August 17, 2011	UNITS	SITE 1 -CLEAN SOIL	SITE 1 -PILES 1 & 2	SITE 1-PILE 3	SITE 1-PILE 4	SITE 1-PILE 5	SITE 1-PILE 6	CONTAMINATED SITES REGULATIONS* (INDUSTRIAL STANDARDS)
Volatiles - Soil								
VPHs (VHs6-10 minus BTEX)	mg/kg	<10	<10	<10	<10	<10	<10	**200**
Methyl t-Butyl Ether	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Benzene	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**10**
Toluene	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**25**
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**20**
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
o-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
Styrene	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	**50**
Total Xylenes (m,p,o)	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	**50**
VHs C6-C10	mg/kg	<10	<10	<10	<10	<10	<10	-
Polycyclic Aromatic Hydrocarbons - Soil								
Naphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**50**
2-Methylnaphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Acenaphthylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Acenaphthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluorene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Phenanthrene	mg/kg	<0.05	<0.05	<0.07 (2)	<0.05	<0.05	<0.05	**50**
Anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Pyrene	mg/kg	<0.05	0.08	0.08	<0.05	0.17	0.16	**100**
Benzo(a)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	**10**
Chrysene	mg/kg	<0.05	<0.05	<0.05	<0.3 (1)	<0.07 (2)	<0.1 (2)	-
Benzo(b&j)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	-
Benzo(k)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	**10**
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	**10**
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	**10**
Dibenzo(a,h)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	**10**
Benzo(g,h,i)perylene	mg/kg	<0.05	<0.05	<0.05	<0.3 (1)	<0.05	<0.05	-
Low Molecular Weight PAH`s	mg/kg	<0.05	<0.05	<0.07	<0.05	<0.05	<0.05	-
High Molecular Weight PAH`s	mg/kg	<0.05	0.08	0.08	<0.3	0.17	0.2	-
Total PAH	mg/kg	<0.05	0.08	0.08	<0.3	0.17	0.2	-
Extractable Petroleum Hydrocarbons - Soil								
LEPHs	mg/kg	<100	297	1600	808	788	701	**2000**
HEPHs	mg/kg	1640	16800	42300	43500	25300	22500	**5000**
Ext. Pet. Hydrocarbons-Soil								
EPH (C10-C19)	mg/kg	<100	297	1600	808	788	701	-
EPH (C19-C32)	mg/kg	1640	16800	42300	43500	25300	22500	-
Surrogate Recovery-Soil								
4-BROMOFLUOROBENZENE (sur.)	%	97	92	96	92	97	98	-
D10-ETHYLBENZENE (sur.)	%	96	81	86	79	87	89	-
D4-1,2-DICHLOROETHANE (sur.)	%	98	85	99	81	97	96	-
D8-TOLUENE (sur.)	%	100	107	102	107	101	101	-
D10-ANTHRACENE (sur.)	%	101	80	86	85	85	88	-
D8-ACENAPHTHYLENE (sur.)	%	104	80	76	84	85	89	-
D8-NAPHTHALENE (sur.)	%	98	75	81	82	84	84	-
TERPHENYL-D14 (sur.)	%	103	82	67	61	78	82	-
O-TERPHENYL (sur.)	%	99	91	100	106	89	95	-
Physical Properties-Soil								
Moisture	%	11	7.7	9.4	7.1	7.6	11	-

Yellow Highlighted Data - CSR Exceedance

RED Highlighted Data - Hydrocarbon Special Waste (Total Petroleum Hydrocarbons ≥ 30,000 mg/kg)

***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and subject to aquatic life standards or most stringent standard applicable

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 3 : METAL SOIL RESULTS - SITE 1 EXCAVATED SOIL STOCKPILES

SA DENA HES August 17, 2011	UNITS	SITE 1 -PILES 1 & 2	SITE 1-PILE 3	SITE 1-PILE 4	SITE 1-PILE 5	SITE 1-PILE 6	CSR INDUSTRIAL METAL STANDARDS
Physical Properties							
Soluble (2:1) pH	pH Units	7.18	6.25	7.14	6.70	7.26	-
Total Metals by ICPMS							
Total Aluminum (Al)	mg/kg	15400	14700	14200	13500	15200	-
Total Antimony (Sb)	mg/kg	91.9	4.5	6.4	8.3	5.9	40
Total Arsenic (As)	mg/kg	28.4	26.4	22.3	24.7	34.7	20
Total Barium (Ba)	mg/kg	117	116	117	94.1	323	2,000
Total Beryllium (Be)	mg/kg	0.6	0.6	0.6	0.7	0.6	8
Total Bismuth (Bi)	mg/kg	1.6	0.8	2.2	6.9	1.2	-
Total Cadmium (Cd)	mg/kg	29.5	10.6	22.8	127	15.1	2/2.5 *
Total Calcium (Ca)	mg/kg	12600	5260	15200	17800	6410	-
Total Chromium (Cr)	mg/kg	29	24	32	21	27	60
Total Cobalt (Co)	mg/kg	13.3	10.2	11.2	15.8	10.3	300
Total Copper (Cu)	mg/kg	84.2	41.6	38.0	41.3	41.2	250
Total Iron (Fe)	mg/kg	28300	25900	25900	26300	24800	-
Total Lead (Pb)	mg/kg	3230	1200	2880	14600	2180	2,000
Total Magnesium (Mg)	mg/kg	10500	10900	9780	9730	10400	-
Total Manganese (Mn)	mg/kg	418	274	363	715	327	-
Total Mercury (Hg)	mg/kg	0.15	<0.05	0.14	<0.05	0.07	150
Total Molybdenum (Mo)	mg/kg	5.8	5.5	4.8	7.6	13.3	-
Total Nickel (Ni)	mg/kg	29.9	34.4	31.3	32.1	40.7	500
Total Phosphorus (P)	mg/kg	529	566	634	652	727	-
Total Potassium (K)	mg/kg	1140	1140	1150	1110	1270	-
Total Selenium (Se)	mg/kg	1.8	1.2	3.1	9.3	2.1	10
Total Silver (Ag)	mg/kg	2.06	1.13	2.40	9.59	1.71	40
Total Sodium (Na)	mg/kg	<100	<100	<100	<100	<100	-
Total Strontium (Sr)	mg/kg	34.0	26.8	44.3	43.4	33.8	-
Total Thallium (Tl)	mg/kg	0.21	0.21	0.18	0.20	0.29	-
Total Tin (Sn)	mg/kg	14.3	0.6	0.8	2.0	0.7	300
Total Titanium (Ti)	mg/kg	494	669	580	494	840	-
Total Vanadium (V)	mg/kg	44	75	58	56	111	-
Total Zinc (Zn)	mg/kg	5390	2020	4800	22300	2800	600
Total Zirconium (Zr)	mg/kg	1.6	3.4	2.8	2.4	3.9	-

Yellow Highlighted Data - CSR Exceedance

***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and subject to aquatic life standards or most stringent standard applicable

* Standards based on pH

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 4 : LEACHATE SOIL RESULTS - SITE 1 EXCAVATED SOIL STOCKPILES

SA DENA HES August 17, 2011	UNITS	SITE 1 -PILES 1 & 2	SITE 1-PILE 3	SITE 1-PILE 4	SITE 1-PILE 5	SITE 1-PILE 6	SCHEDULE 6 LEACHATE TEST AND REGULATED LIMITS
Metals							
LEACHATE Antimony (Sb)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Arsenic (As)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	2.500
LEACHATE Barium (Ba)	mg/L	0.5	0.4	0.3	0.4	2.1	100.000
LEACHATE Beryllium (Be)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Boron (B)	mg/L	0.5	1.1	1.2	0.3	1.0	500.000
LEACHATE Cadmium (Cd)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	0.500
LEACHATE Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5.000
LEACHATE Cobalt (Co)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Copper (Cu)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Iron (Fe)	mg/L	<0.5	0.6	<0.5	0.8	1.6	-
LEACHATE Lead (Pb)	mg/L	5.6	3.1	2.0	20.0	3.4	5.00
LEACHATE Mercury (Hg)	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	0.10
LEACHATE Molybdenum (Mo)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Nickel (Ni)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Selenium (Se)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	1.00
LEACHATE Silver (Ag)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Thallium (Tl)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Uranium (U)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	10.00
LEACHATE Vanadium (V)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Zinc (Zn)	mg/L	1.9	1.2	2.1	5.7	2.0	-
LEACHATE Zirconium (Zr)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	-

Yellow Highlighted Data - Schedule 6 Exceedance

***Department of Justice Canada, Export and Import of Hazardous Waste and Hazardous Recycable Material Regulations, Schedule 6, Hazardous Constituents Controlled Under Leachate Test and Regulated Limits**

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 5: PETROLEUM HYDROCARBON SOIL SAMPLE RESULTS - SITE 2 EXCAVATION WALLS, BASE & STOCKPILES

SA DENA HES August 18, 2011	UNITS	SITE 2-SW-PILE	SITE 2-W-PILE	SITE 2-CLEAN-PILE	SITE 2-1-N-WALL	SITE 2-2-BASE	SITE 2-13-W-WALL	SITE 2-17-S-WALL	SITE 2-18-E-WALL	SITE 2-16-S-BASE	SITE 2-21-E-WALL	SITE 2-19-W-WALL	CONTAMINATED SITES REGULATIONS* (INDUSTRIAL STANDARDS)
Volatiles - Soil													
VPHs (VHs6-10 minus BTEX)	mg/kg	<10	17	<10	19	36	<10	24	97	20	<10	<10	**200**
Methyl t-Butyl Ether	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Benzene	mg/kg	<0.005	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**10**
Toluene	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**25**
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**20**
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
o-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
Styrene	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	**50**
Total Xylenes (m,p,o)	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	**50**
VHs C6-C10	mg/kg	<10	17	<10	19	36	<10	24	97	20	<10	<10	-
Polycyclic Aromatic Hydrocarbons - Soil													
Naphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**50**
2-Methylnaphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	-
Acenaphthylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Acenaphthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluorene	mg/kg	<0.05	<0.05	<0.05	<0.1 (1)	<0.06 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Phenanthrene	mg/kg	<0.05	<0.08 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**50**
Anthracene	mg/kg	<0.08 (1)	<0.1 (1)	<0.05	<0.05	<0.09 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluoranthene	mg/kg	<0.1 (1)	<0.06 (1)	<0.05	<0.09 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Pyrene	mg/kg	0.61	0.79	<0.05	0.55	0.43	<0.05	0.18	0.31	<0.05	<0.05	<0.05	**100**
Benzo(a)anthracene	mg/kg	<0.06 (1)	0.08	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Chrysene	mg/kg	<0.2 (1)	0.16	<0.05	0.09	0.10	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	-
Benzo(b&j)fluoranthene	mg/kg	<0.05	<0.06 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Benzo(k)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Dibenzo(a,h)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Benzo(g,h,i)perylene	mg/kg	<0.1 (1)	0.11	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Low Molecular Weight PAH`s	mg/kg	<0.08	<0.1	<0.05	<0.1	<0.09	<0.05	<0.05	0.06	<0.05	<0.05	<0.05	-
High Molecular Weight PAH`s	mg/kg	0.6	1.1	<0.05	0.70	0.53	<0.05	0.18	0.37	<0.05	<0.05	<0.05	-
Total PAH	mg/kg	0.6	1.1	<0.05	0.7	0.53	<0.05	0.18	0.44	<0.05	<0.05	<0.05	-
Extractable Petroleum Hydrocarbons - Soil													
LEPHs	mg/kg	1360	2310	<100	1650	1380	<100	1040	1760	<100	<100	134	**2000**
HEPHs	mg/kg	23200	25600	3070	14600	9930	1160	10900	14400	797	705	2190	**5000**
Ext. Pet. Hydrocarbons-Soil													
EPH (C10-C19)	mg/kg	1360	2310	<100	1650	1380	<100	1040	1760	<100	<100	134	-
EPH (C19-C32)	mg/kg	23200	25600	3070	14600	9930	1160	10900	14400	797	705	2190	-
Surrogate Recovery-Soil													
4-BROMOFLUOROBENZENE (sur.)	%	97	99	95	97	104	94	109	125	96	95	100	-
D10-ETHYLBENZENE (sur.)	%	94	81	85	79	85	90	85	87	85	85	104	-
D4-1,2-DICHLOROETHANE (sur.)	%	92	85	82	83	81	80	81	78	81	83	99	-
D8-TOLUENE (sur.)	%	102	107	108	106	109	107	110	107	107	107	100	-
D10-ANTHRACENE (sur.)	%	90	93	88	78	87	84	97	85	94	99	88	-
D8-ACENAPHTHYLENE (sur.)	%	88	94	90	81	86	93	101	90	95	98	90	-
D8-NAPHTHALENE (sur.)	%	84	87	91	82	85	92	94	85	93	91	88	-
TERPHENYL-D14 (sur.)	%	62	82	82	73	74	91	91	81	101	98	94	-
O-TERPHENYL (sur.)	%	92	117	97	100	126	102	106	106	90	100	98	-
Physical Properties-Soil													
Moisture	%	8.7	10	10	11	8.0	9.4	11	11	8.4	11	12	-

Yellow Highlighted Data - CSR Exceedance

RED Highlighted Data - Hydrocarbon Special Waste (Total Petroleum Hydrocarbons ≥ 30,000 mg/kg)

***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and subject to aquatic life standards or most stringent standard applicable

Maxxam Analytic sample names do not necessarily match with this table due to the North arrow originally mislabled on Field Sketch

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 6 : METAL SOIL RESULTS - SITES 2 & 3 EXCAVATION SOIL STOCKPILES

SA DENA HES August 18 & 19, 2011	UNITS	SITE 2-SW-PILE	SITE 2-W-PILE	SITE 3-A-EXCAVATED SOIL	CSR INDUSTRIAL METAL STANDARDS
Physical Properties					
Soluble (2:1) pH	pH Units	7.76	7.91	8.20	-
Total Metals by ICPMS					
Total Aluminum (Al)	mg/kg	7180	7780	11700	-
Total Antimony (Sb)	mg/kg	15.2	18.4	6.1	40
Total Arsenic (As)	mg/kg	37.7	31.3	47.8	20
Total Barium (Ba)	mg/kg	75.4	83.0	125	2,000
Total Beryllium (Be)	mg/kg	1.0	0.9	0.7	8
Total Bismuth (Bi)	mg/kg	2.3	2.1	0.4	-
Total Cadmium (Cd)	mg/kg	181	131	9.94	24/150 *
Total Calcium (Ca)	mg/kg	132000	114000	25400	-
Total Chromium (Cr)	mg/kg	16	18	21	60
Total Cobalt (Co)	mg/kg	17.6	23.3	9.3	300
Total Copper (Cu)	mg/kg	51.7	44.7	57.8	250
Total Iron (Fe)	mg/kg	25400	26300	31800	-
Total Lead (Pb)	mg/kg	25100	30400	826	2,000
Total Magnesium (Mg)	mg/kg	6550	7250	8120	-
Total Manganese (Mn)	mg/kg	1400	2870	342	-
Total Mercury (Hg)	mg/kg	0.08	0.06	<0.05	150
Total Molybdenum (Mo)	mg/kg	5.3	6.5	7.8	-
Total Nickel (Ni)	mg/kg	56.7	59.3	35.7	500
Total Phosphorus (P)	mg/kg	823	788	2350	-
Total Potassium (K)	mg/kg	564	580	727	-
Total Selenium (Se)	mg/kg	3.1	3.3	1.2	10
Total Silver (Ag)	mg/kg	16.5	18.4	1.09	40
Total Sodium (Na)	mg/kg	<100	<100	<100	-
Total Strontium (Sr)	mg/kg	155	140	129	-
Total Thallium (Tl)	mg/kg	0.28	0.31	0.39	-
Total Tin (Sn)	mg/kg	2.0	0.9	0.4	300
Total Titanium (Ti)	mg/kg	226	254	277	-
Total Vanadium (V)	mg/kg	34	35	48	-
Total Zinc (Zn)	mg/kg	35700	30800	1570	600
Total Zirconium (Zr)	mg/kg	0.7	<0.5	3.7	-

Yellow Highlighted Data - CSR Exceedance

***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and applicable to aquatic life standards or most stringent standard applicable

* Standards based on pH

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 7 : LEACHATE SOIL RESULTS - SITES 2 & 3 EXCAVATION SOIL STOCKPILES

SA DENA HES
August 18 & 19, 2011

	UNITS	SITE 2-SW-PILE	SITE 2-W-PILE	SITE 3-A-EXCAVATED SOIL	SCHEDULE 6 LEACHATE TEST AND REGULATED LIMITS
Metals					
LEACHATE Antimony (Sb)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Arsenic (As)	mg/L	<0.1	<0.1	<0.1	2.500
LEACHATE Barium (Ba)	mg/L	0.3	0.4	0.9	100.000
LEACHATE Beryllium (Be)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Boron (B)	mg/L	<0.1	<0.1	<0.1	500.000
LEACHATE Cadmium (Cd)	mg/L	0.3	0.5	<0.1	0.500
LEACHATE Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	5.000
LEACHATE Cobalt (Co)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Copper (Cu)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Iron (Fe)	mg/L	<0.5	<0.5	<0.5	-
LEACHATE Lead (Pb)	mg/L	61.2	74.2	1.2	5.00
LEACHATE Mercury (Hg)	mg/L	<0.002	<0.002	<0.002	0.10
LEACHATE Molybdenum (Mo)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Nickel (Ni)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Selenium (Se)	mg/L	<0.1	<0.1	<0.1	1.00
LEACHATE Silver (Ag)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Thallium (Tl)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Uranium (U)	mg/L	<0.1	<0.1	<0.1	10.00
LEACHATE Vanadium (V)	mg/L	<0.1	<0.1	<0.1	-
LEACHATE Zinc (Zn)	mg/L	75.1	95.7	3.3	-
LEACHATE Zirconium (Zr)	mg/L	<0.1	<0.1	<0.1	-

Yellow Highlighted Data - Schedule 6 Exceedance
***Department of Justice Canada, Export and Import of Hazardous Waste and Hazardous Recycable Material Regulations, Schedule 6, Hazardous Constituents Controlled Under**
RDL: Reportable Detection Limit
- : Not Specified
(1): RDL raised due to sample matrix interference.
(2): RDL raised due to sample matrix interference.
N/A: Not Available

TABLE 8: PETROLEUM HYDROCARBON SOIL SAMPLE RESULTS - SITE 3 EXCAVATION WALLS, BASE, STOCKPILES & TEST PLOTS

SA DENA HES August 19, 2011	UNITS	SITE 3A-EXCAVATED SOIL	SITE 3A-6E-WALL	SITE 3A-3W-WALL	SITE 3A-2BASE	SITE 3A-5N-WALL	SITE 3A-4S-WALL	SITE 3B	SITE 3C	SITE 3D	SITE 3E	SITE 3H	CONTAMINATED SITES REGULATIONS* (INDUSTRIAL STANDARDS)
Volatiles - Soil													
VPHs (VHs6-10 minus BTEX)	mg/kg	30	41	<10	59	19	110	<10	<10	15	<10	<10	**200**
Methyl t-Butyl Ether	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Benzene	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.007	<0.005	<0.005	<0.005	<0.005	**10**
Toluene	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**25**
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**20**
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
o-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	0.07	<0.04	<0.04	<0.04	<0.04	<0.04	-
Styrene	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	**50**
Total Xylenes (m,p,o)	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	0.07	<0.04	<0.04	<0.04	<0.04	<0.04	**50**
VHs C6-C10	mg/kg	30	41	<10	59	19	110	<10	<10	15	<10	<10	-
Polycyclic Aromatic Hydrocarbons - Soil													
Naphthalene	mg/kg	<0.05	<0.05	<0.05	<0.2 (1)	<0.05	<0.1 (1)	<0.05	<0.05	<0.05	<0.05	<0.05	**50**
2-Methylnaphthalene	mg/kg	0.11	<0.05	<0.05	0.47	<0.05	0.23	<0.05	<0.05	0.14	<0.05	<0.05	-
Acenaphthylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Acenaphthene	mg/kg	<0.05	<0.05	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluorene	mg/kg	<0.05	<0.05	<0.05	0.09	<0.05	0.06	<0.05	<0.05	<0.05	<0.05	<0.05	-
Phenanthrene	mg/kg	<0.05	<0.05	<0.05	0.08	<0.05	0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**50**
Anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.25	<0.05	<0.05	<0.05	<0.05	**100**
Benzo(a)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3 (2)	<0.05	<0.05	<0.05	<0.05	**10**
Chrysene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3 (2)	<0.05	<0.05	<0.05	<0.05	-
Benzo(b&j)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3 (2)	<0.05	<0.05	<0.05	<0.05	-
Benzo(k)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3 (2)	<0.05	<0.05	<0.05	<0.05	**10**
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3 (2)	<0.05	<0.05	<0.05	<0.05	**10**
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3 (2)	<0.05	<0.05	<0.05	<0.05	**10**
Dibenzo(a,h)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3 (2)	<0.05	<0.05	<0.05	<0.05	**10**
Benzo(g,h,i)perylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3 (2)	<0.05	<0.05	<0.05	<0.05	-
Low Molecular Weight PAH`s	mg/kg	0.11	<0.05	<0.05	0.7	<0.05	0.4	<0.05	<0.05	0.14	<0.05	<0.05	-
High Molecular Weight PAH`s	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.3	<0.05	<0.05	<0.05	<0.05	-
Total PAH	mg/kg	0.11	<0.05	<0.05	0.7	<0.05	0.4	<0.3	<0.05	0.14	<0.05	<0.05	-
Extractable Petroleum Hydrocarbons - Soil													
LEPHs	mg/kg	528	663	<100	1340	329	1020	1240	410	1160	163	<100	**2000**
HEPHs	mg/kg	323	171	<100	1130	166	4060	44800	23200	4840	2930	576	**5000**
Ext. Pet. Hydrocarbons-Soil													
EPH (C10-C19)	mg/kg	528	663	<100	1340	329	1020	1240	410	1160	163	<100	-
EPH (C19-C32)	mg/kg	323	171	<100	1130	166	4060	44800	23200	4840	2930	576	-
Surrogate Recovery-Soil													
4-BROMOFLUOROBENZENE (sur.)	%	102	107	97	120	96	129	96	97	104	99	99	-
D10-ETHYLBENZENE (sur.)	%	85	88	88	83	86	97	81	88	96	97	95	-
D4-1,2-DICHLOROETHANE (sur.)	%	80	81	82	81	85	97	81	94	95	98	92	-
D8-TOLUENE (sur.)	%	108	105	109	105	105	101	107	102	99	101	103	-
D10-ANTHRACENE (sur.)	%	87	91	98	83	98	91	100	78	71	82	51 (3)	-
D8-ACENAPHTHYLENE (sur.)	%	90	90	94	88	99	98	97	89	88	98	81	-
D8-NAPHTHALENE (sur.)	%	95	88	97	85	93	92	81	86	87	92	87	-
TERPHENYL-D14 (sur.)	%	92	96	100	86	100	91	78	81	73	86	66	-
O-TERPHENYL (sur.)	%	94	92	99	91	102	102	96	100	84	99	92	-
Physical Properties-Soil													
Moisture	%	8.9	17	13	11	11	14	17	7.8	16	15	10	-

Yellow Highlighted Data - CSR Exceedance

RED Highlighted Data - Hydrocarbon Special Waste (Total Petroleum Hydrocarbons ≥ 30,000 mg/kg)

***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and subject to aquatic life standards or most stringent standard applicable

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 9 : PETROLEUM HYDROCARBON SOIL SAMPLE RESULTS - SITE 4 EXCAVATION BASE & STOCKPILES

SA DENA HES August 19, 2011	Units	Site 4- Pile 1	Site 4- Pile 2	Site 4- Pile 3	Site 4-Pile 4	Site 4-1 Base	Site 4-2 Base	Site 4-26 Base	CONTAMINATED SITES REGULATIONS* (INDUSTRIAL STANDARDS)
Volatiles - Soil									
VPHs (VHs6-10 minus BTEX)	mg/kg	<10	<10	<10	<10	11	<10	<10	**200**
Methyl t-Butyl Ether	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	-
Benzene	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	**10**
Toluene	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	**25**
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	**20**
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
o-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	-
Styrene	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	**50**
Total Xylenes (m,p,o)	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	**50**
VHs C6-C10	mg/kg	<10	<10	<10	<10	11	<10	<10	-
Polycyclic Aromatic Hydrocarbons - Soil									
Naphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.06 (1)	<0.05	<0.05	**50**
2-Methylnaphthalene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.30	<0.05	<0.05	-
Acenaphthylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.06 (1)	<0.05	<0.05	-
Acenaphthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluorene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.2 (1)	<0.05	<0.05	-
Phenanthrene	mg/kg	<0.05	<0.05	<0.05	<0.05	0.16	<0.05	<0.05	**50**
Anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Fluoranthene	mg/kg	<0.05	0.13	<0.05	<0.05	<0.05	<0.05	<0.05	-
Pyrene	mg/kg	<0.05	0.26	<0.05	<0.05	0.06	<0.05	0.06	**100**
Benzo(a)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Chrysene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Benzo(b&j)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Benzo(k)fluoranthene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Dibenzo(a,h)anthracene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	**10**
Benzo(g,h,i)perylene	mg/kg	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	-
Low Molecular Weight PAH`s	mg/kg	<0.05	<0.05	<0.05	<0.05	0.5	<0.05	<0.05	-
High Molecular Weight PAH`s	mg/kg	<0.05	0.39	<0.05	<0.05	0.06	<0.05	0.06	-
Total PAH	mg/kg	<0.05	0.39	<0.05	<0.05	0.5	<0.05	0.06	-
Extractable Petroleum Hydrocarbons - Soil									
LEPHs	mg/kg	254	308	131	154	1690	<100	274	**2000**
HEPHs	mg/kg	14500	17200	4830	4460	119	160	8590	**5000**
Ext. Pet. Hydrocarbons-Soil									
EPH (C10-C19)	mg/kg	254	308	131	154	1700	<100	274	-
EPH (C19-C32)	mg/kg	14500	17200	4830	4460	119	160	8590	-
Surrogate Recovery-Soil									
4-BROMOFLUOROBENZENE (sur.)	%	82	99	85	95	103	100	97	-
D10-ETHYLBENZENE (sur.)	%	89	91	98	93	95	96	90	-
D4-1,2-DICHLOROETHANE (sur.)	%	72	91	74	92	96	93	95	-
D8-TOLUENE (sur.)	%	116	104	117	100	100	103	103	-
D10-ANTHRACENE (sur.)	%	76	94	92	95	101	97	89	-
D8-ACENAPHTHYLENE (sur.)	%	77	97	93	96	97	100	93	-
D8-NAPHTHALENE (sur.)	%	75	90	90	94	92	100	86	-
TERPHENYL-D14 (sur.)	%	73	98	94	102	104	103	85	-
O-TERPHENYL (sur.)	%	101	100	102	88	100	101	107	-
Physical Properties-Soil									
Moisture	%	3.9	5.2	10	11	4.7	4.7	6.3	-

Yellow Highlighted Data - CSR Exceedance

RED Highlighted Data - Hydrocarbon Special Waste (Total Petroleum Hydrocarbons ≥ 30,000 mg/kg)

***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and subject to aquatic life standards or most stringent standard applicable

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 10: METAL SOIL RESULTS - SITE 4 EXCAVATED SOIL STOCKPILES

SA DENA HES August 19, 2011	UNITS	SITE 4-PILE 1	SITE 4-PILE 2	SITE 4-PILE 3	SITE 4-PILE 4	CSR INDUSTRIAL METAL STANDARDS
Physical Properties						
Soluble (2:1) pH	pH Units	7.59	7.75	8.47	8.47	-
Total Metals by ICPMS						
Total Aluminum (Al)	mg/kg	12200	12400	9650	10500	-
Total Antimony (Sb)	mg/kg	3.9	3.9	3.3	2.5	40
Total Arsenic (As)	mg/kg	20.2	26.6	45.2	16.3	20
Total Barium (Ba)	mg/kg	163	171	136	141	2,000
Total Beryllium (Be)	mg/kg	0.6	0.9	0.5	0.5	8
Total Bismuth (Bi)	mg/kg	3.7	3.1	0.6	0.9	-
Total Cadmium (Cd)	mg/kg	10.4	18.1	4.83	5.38	25/150*
Total Calcium (Ca)	mg/kg	32700	32500	25400	25500	-
Total Chromium (Cr)	mg/kg	23	23	18	20	60
Total Cobalt (Co)	mg/kg	10.0	11.1	8.6	9.1	300
Total Copper (Cu)	mg/kg	29.1	34.2	29.8	500	250
Total Iron (Fe)	mg/kg	24700	24700	23800	23400	-
Total Lead (Pb)	mg/kg	360	552	238	263	2,000
Total Magnesium (Mg)	mg/kg	10200	10300	8950	9440	-
Total Manganese (Mn)	mg/kg	435	471	369	370	-
Total Mercury (Hg)	mg/kg	<0.05	0.06	<0.05	<0.05	150
Total Molybdenum (Mo)	mg/kg	3.8	4.4	3.4	3.4	-
Total Nickel (Ni)	mg/kg	31.8	31.1	29.4	28.8	500
Total Phosphorus (P)	mg/kg	1210	782	720	869	-
Total Potassium (K)	mg/kg	983	1010	544	627	-
Total Selenium (Se)	mg/kg	2.1	3.5	0.9	1.8	10
Total Silver (Ag)	mg/kg	1.20	1.74	0.61	0.71	40
Total Sodium (Na)	mg/kg	<100	<100	<100	<100	-
Total Strontium (Sr)	mg/kg	97.5	116	81.0	89.5	-
Total Thallium (Tl)	mg/kg	0.25	0.24	0.17	0.17	-
Total Tin (Sn)	mg/kg	0.6	1.0	0.4	0.4	300
Total Titanium (Ti)	mg/kg	509	509	334	401	-
Total Vanadium (V)	mg/kg	39	38	29	32	-
Total Zinc (Zn)	mg/kg	1960	3560	887	1030	600
Total Zirconium (Zr)	mg/kg	2.8	2.9	3.3	3.6	-

Yellow Highlighted Data - CSR Exceedance
***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**
Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and applicable to aquatic life standards or most stringent standard applicable
* Standards based on pH
RDL: Reportable Detection Limit
- : Not Specified
(1): RDL raised due to sample matrix interference.
(2): RDL raised due to sample matrix interference.
N/A: Not Available

TABLE 11 : LEACHATE SOIL RESULTS - SITE 4 EXCAVATED SOIL STOCKPILES

SA DENA HES August 19, 2011	UNITS	SITE 4-PILE 1	SITE 4-PILE 2	SITE 4-PILE 3	SITE 4-PILE 4	SCHEDULE 6 LEACHATE TEST AND REGULATED LIMITS
Metals						
LEACHATE Antimony (Sb)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Arsenic (As)	mg/L	<0.1	<0.1	<0.1	<0.1	2.500
LEACHATE Barium (Ba)	mg/L	0.8	1.0	1.4	1.4	100.000
LEACHATE Beryllium (Be)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Boron (B)	mg/L	0.6	0.1	0.1	0.2	500.000
LEACHATE Cadmium (Cd)	mg/L	<0.1	<0.1	<0.1	<0.1	0.500
LEACHATE Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	<0.1	5.000
LEACHATE Cobalt (Co)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Copper (Cu)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Iron (Fe)	mg/L	1.0	0.9	<0.5	<0.5	-
LEACHATE Lead (Pb)	mg/L	0.2	0.3	0.2	0.2	5.00
LEACHATE Mercury (Hg)	mg/L	<0.002	<0.002	<0.002	<0.002	0.10
LEACHATE Molybdenum (Mo)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Nickel (Ni)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Selenium (Se)	mg/L	<0.1	<0.1	<0.1	<0.1	1.00
LEACHATE Silver (Ag)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Thallium (Tl)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Uranium (U)	mg/L	<0.1	<0.1	<0.1	<0.1	10.00
LEACHATE Vanadium (V)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Zinc (Zn)	mg/L	1.8	2.1	0.7	0.7	-
LEACHATE Zirconium (Zr)	mg/L	<0.1	<0.1	<0.1	<0.1	-

Yellow Highlighted Data - Schedule 6 Exceedance

***Department of Justice Canada, Export and Import of Hazardous Waste and Hazardous Recycable Material Regulations, Schedule 6, Hazardous Constituents Controlled Under Leachate Test and Regulated Limits**

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 12 : METAL SOIL RESULTS - LTF & TAILINGS BACKGROUND SAMPLES

SA DENA HES August 18, 2011	Units	LTF 1	LTF 2	TAILINGS 1	TAILINGS 2	CSR INDUSTRIAL METAL STANDARDS
Physical Properties						
Soluble (2:1) pH	pH Units	8.60	8.68	8.84	8.76	-
Total Metals by ICPMS						
Total Aluminum (Al)	mg/kg	12000	11300	9710	9990	-
Total Antimony (Sb)	mg/kg	4.5	1.9	2.8	2.7	40
Total Arsenic (As)	mg/kg	16.1	13.1	20.9	19.1	20
Total Barium (Ba)	mg/kg	122	82.0	160	91.4	2,000
Total Beryllium (Be)	mg/kg	0.5	<0.4	<0.4	0.4	8
Total Bismuth (Bi)	mg/kg	0.1	0.1	0.1	0.1	-
Total Cadmium (Cd)	mg/kg	1.87	0.71	1.57	1.43	150
Total Calcium (Ca)	mg/kg	23800	21100	32900	24100	-
Total Chromium (Cr)	mg/kg	23	17	15	18	60
Total Cobalt (Co)	mg/kg	11.4	11.8	8.6	8.8	300
Total Copper (Cu)	mg/kg	31.7	20.8	25.1	22.1	250
Total Iron (Fe)	mg/kg	24200	23600	21000	22100	-
Total Lead (Pb)	mg/kg	47.2	25.0	57.3	63.8	2,000
Total Magnesium (Mg)	mg/kg	9200	9060	10200	9030	-
Total Manganese (Mn)	mg/kg	271	260	259	269	-
Total Mercury (Hg)	mg/kg	<0.05	<0.05	<0.05	<0.05	150
Total Molybdenum (Mo)	mg/kg	5.4	2.4	3.3	3.0	-
Total Nickel (Ni)	mg/kg	34.6	27.1	28.4	29.4	500
Total Phosphorus (P)	mg/kg	1330	866	1050	1380	-
Total Potassium (K)	mg/kg	761	516	618	573	-
Total Selenium (Se)	mg/kg	1.1	<0.5	0.8	0.6	10
Total Silver (Ag)	mg/kg	0.39	0.22	0.29	0.29	40
Total Sodium (Na)	mg/kg	<100	<100	<100	<100	-
Total Strontium (Sr)	mg/kg	93.9	76.8	116	86.0	-
Total Thallium (Tl)	mg/kg	0.14	0.12	0.11	0.11	-
Total Tin (Sn)	mg/kg	0.6	0.3	0.2	0.2	300
Total Titanium (Ti)	mg/kg	452	332	370	326	-
Total Vanadium (V)	mg/kg	50	28	38	38	-
Total Zinc (Zn)	mg/kg	202	113	223	214	600
Total Zirconium (Zr)	mg/kg	5.8	4.6	4.3	3.9	-

Yellow Highlighted Data - CSR Exceedance

***Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Sandards (Industrial)**

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Sites are within 1 km of surface water and applicable to aquatic life standards or most stringent standard applicable

** Standards based on pH*

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 13 : LEACHATE SOIL RESULTS - LTF & TAILINGS BACKGROUND SAMPLES

SA DENA HES August 18, 2011	UNITS	LTF 1	LTF 2	TAILINGS 1	TAILINGS 2	SCHEDULE 6 LEACHATE TEST AND REGULATED LIMITS
Metals						
LEACHATE Antimony (Sb)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Arsenic (As)	mg/L	<0.1	<0.1	<0.1	<0.1	2.500
LEACHATE Barium (Ba)	mg/L	1.1	0.7	1.0	1.0	100.000
LEACHATE Beryllium (Be)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Boron (B)	mg/L	<0.1	<0.1	<0.1	<0.1	500.000
LEACHATE Cadmium (Cd)	mg/L	<0.1	<0.1	<0.1	<0.1	0.500
LEACHATE Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	<0.1	5.000
LEACHATE Cobalt (Co)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Copper (Cu)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Iron (Fe)	mg/L	<0.5	<0.5	<0.5	<0.5	-
LEACHATE Lead (Pb)	mg/L	<0.1	<0.1	<0.1	<0.1	5.00
LEACHATE Mercury (Hg)	mg/L	<0.002	<0.002	<0.002	<0.002	0.10
LEACHATE Molybdenum (Mo)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Nickel (Ni)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Selenium (Se)	mg/L	<0.1	<0.1	<0.1	<0.1	1.00
LEACHATE Silver (Ag)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Thallium (Tl)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Uranium (U)	mg/L	<0.1	<0.1	<0.1	<0.1	10.00
LEACHATE Vanadium (V)	mg/L	<0.1	<0.1	<0.1	<0.1	-
LEACHATE Zinc (Zn)	mg/L	<0.1	<0.1	0.1	0.2	-
LEACHATE Zirconium (Zr)	mg/L	<0.1	<0.1	<0.1	<0.1	-

Yellow Highlighted Data - Schedule 6 Exceedance
Recycable Material Regulations, Schedule 6, Hazardous Constituents Controlled Under Leachate Test and Regulated Limits
RDL: Reportable Detection Limit
- : Not Specified
(1): RDL raised due to sample matrix interference.
(2): RDL raised due to sample matrix interference.
N/A: Not Available

APPENDIX C

SPECIAL WASTE PERMIT # 41-247

Yukon
Environment

Permit No: 41-247

SPECIAL WASTE PERMIT

Issued for the generation and storage of special wastes pursuant to the Environment Act and the Special Waste Regulations

Permittee: **Teck Resources Limited**

Mailing Address: **601 Knighton Road, Kimberley, BC, V1A 1C7**

Site Location: **Sa Dena Hes Mine Property**
Access road at Km 47 Robert Campbell Hwy

Phone/Fax: **(205) 427-8416 / (205) 427-8451**

Authorized Representative: **Dave Ryder**

Email: **dave.ryder@teck.com**

Effective Date: **Date of Director's Signature**
Expiry Date: **December 31, 2012**

Scope of Authorization: In accordance with your application, you are authorized to generate or store soil contaminated with petroleum hydrocarbons and metals in excess of special waste criteria, hereinafter referred to as "listed special wastes", as set out in the terms and conditions of this permit.

Dated this ____ day of _____, 2011

_____
Director, Environmental Programs Branch
Environment Yukon

1.0 DEFINITIONS

1. In this permit,

   "Act" means the *Environment Act*, R.S.Y. 2002, c. 76;

   "associated personnel" means all employees, contractors and volunteers involved in the permitted activities;

   "Branch" means the Environmental Programs Branch, Environment Yukon;

   "environmental protection analyst" means an employee of the Branch so designated by the Minister of Environment under the Act;

   "environmental protection officer" means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

   "facility" means the special waste management facility located at the site;

   "head office" means the office of the permittee located in Yukon;

   "listed special waste" means soil contaminated with petroleum hydrocarbons and metals in excess of special waste criteria;

   "Regulations" means the *Air Emissions Regulations*, O.I.C. 1998/207, the *Solid Waste Regulations*, O.I.C. 2000/11, the *Storage Tank Regulations,* O.I.C. 1996/194, the *Spills Regulations*, O.I.C. 1996/193, and the *Special Waste Regulations*, O.I.C. 1995/047;

   "spill" means a spill in excess of the amounts specified in Schedule A of the *Spills Regulations*;

   "vehicle" has the same meaning as in the *Motor Vehicles Act*, R.S.Y. 2002, c. 153; and

   "waste manifest" means the shipping document required to be completed by the permittee as set out in this permit in the form approved by an environmental protection analyst.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

2.0 GENERAL

1. No condition of this permit limits the applicability of any other law or bylaw.

2. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.

3. This permit is restricted to special wastes generated by the permittee.

4. The permittee shall ensure that all associated personnel:
   a) have access to a copy of this permit;
   b) are knowledgeable of the terms and conditions of this permit; and
   c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

5. The permittee shall provide notice in writing to an environmental protection analyst from the Branch prior to any significant change of circumstances at the site, including without limitation:
   a) closure of the facility;
   b) a change of ownership of the facility;
   c) generating or handling special wastes other than those authorized by this permit; or
   d) a change in the mailing address, site location or phone number of the permittee.

6. Where conflicts exist between this permit, the permit application or any plans, this permit shall prevail.

7. For clarity, all obligations of the permitee under this permit survive the expiry date.

3.0 TRANSPORT AND TRANSFER

1. The permittee shall not transport or transfer special wastes other than within the site.

2. The permittee shall ensure that all listed special wastes are transported and transferred in such a manner as to prevent their release into the environment.

3. The permittee shall complete a waste manifest documenting each shipment of special wastes from the site. The permittee shall distribute copies of the waste manifest in the manner described thereon.

4. The permit number **YG41-247** shall be used as the Provincial Identification Number on waste manifests used for the transport of the listed special wastes.

5. The permittee shall ensure that all vehicles operated by the permittee and carrying any special wastes are secured to prevent access by unauthorized persons.

6. The permittee shall ensure that special wastes are transported to a special waste management facility in the Yukon or another jurisdiction that is permitted to receive the listed special wastes.

7. The permittee shall ensure that special wastes are transported by a carrier permitted in the Yukon to transport the listed special wastes.

4.0 STORAGE AND HANDLING

1. The permittee shall not handle special wastes other than listed special wastes.

2. The permittee shall not discard, destroy, treat, process, incinerate, or recycle special wastes, except for mixing or dilution authorized by an environmental protection officer pursuant to section 4.3(i) below.

3. The permittee shall:

a) cover or store out of inclement weather all drums and other portable containers containing special wastes;
b) store all drums and other portable containers containing special wastes off the ground;
c) immediately remove all special wastes stored in leaking containers or transfer them to intact containers;
d) store special wastes in a manner that will prevent incompatible substances from reacting adversely with each other;
e) ensure that all containers used for the storage of special waste are clearly marked to identify what special waste the container is intended to hold;
f) ensure that containers used for the storage of special waste are made of materials that will not adversely react with the special waste;
g) not allow any residue at the bottom of a container used for the storage of special wastes to be released to the environment. Such residue shall be collected by the permittee, separated from other waste and treated as a special waste until proven by testing to not be special waste;
h) only mix or dilute a special waste with any other material where such mixing or dilution is authorized by an environmental protection officer from the Branch as an acceptable treatment/disposal option for the special waste;
i) keep all containers used to store special waste closed at all times during storage and not open, handle or store the container in a manner which may cause it to leak or rupture; and
j) have every closed container that
    (i) has a capacity of more than 230 litres;
    (ii) is designed to be installed in a fixed location; and
    (iii) will contain special waste
  a) certified by a testing agency recognized by the Standards Council of Canada prior to putting special waste in the container.

4. The permittee shall not store special waste in storage tanks unless specifically authorized by this permit.

5. The permittee shall ensure that all contaminated material covered by this permit is relocated from the site to a permitted treatment or disposal facility, or otherwise disposed of in a pre-aproved manner, no later than August 31, 2012 in accordance with the terms of a permit issued for that relocation.

6. The permittee shall ensure that the contaminated material is placed on an impermeable liner with a minimum thickness of 6 mil and completely covered with an impermeable liner with a minimum thickness of 6 mil that is weighted down to prevent the escape of contaminated material and the infiltration of precipitation and surface water runoff.

7. The permittee shall ensure that signs are posted at the storage location identifying the stockpiled material as contaminated and that it should not be moved or played on. The signs shall be visible from all four compass directions.

5.0 SPILLS

1. The permittee shall contact either an environmental protection officer, or the 24-hour Yukon Spill Report Centre (**867-667–7244**) as soon as possible under the circumstances in the event of a release, spill, unauthorized emission, discharge, or escape of any of the listed special wastes.

2. The permittee shall ensure that appropriate clean-up equipment (such as sorbent, shovel, broom, bucket, gloves, boots, etc.) is in a readily available location at all locations where the listed special wastes are handled or stored.

3. The permittee shall ensure that emergency spill procedures are posted at all locations where the listed special wastes are handled or stored, and that all personnel (employees, contractors or volunteers) are familiar with those procedures.

6.0 INSPECTIONS AND RECORD KEEPING

1. The permittee shall ensure that the stockpiled material is inspected at least once every two weeks to confirm that the containment required under Part 4.6 is still in place, and shall immediately correct any deficiencies.

2. The permittee shall keep records of:
   a) the types of listed special wastes collected at the facility, their estimated volumes, and their storage location(s) at the facility;
   b) all analysis results (including raw analytical data), including those from in-situ, ex-situ, and confirmatory sampling, as applicable;
   c) inspections performed in accordance with subsection 1 above, and the results of those inspections;
   d) the name of any company that transports listed special wastes from the facility;
   e) the location to which the listed special wastes are transported; and
   f) a copy of any waste manifest used to transport listed special wastes to, from, or by the facility.

3. The permittee shall keep all records required by this permit for a minimum of three years and make them available for inspection by an environmental protection officer upon request. Records shall be kept in a format acceptable to the Branch.

4. If an inspection reveals that the permittee is in any way not in compliance with this permit or approved plans (if applicable), the permittee shall repair the damage or take other actions as required to bring the facility into compliance.

APPENDIX D

MAXXAM ANALYTICAL CERTIFICATE OF ANALYSIS

Success Through Science®

Your Project #: TEK 11-02
Your C.O.C. #: 08336918, 08336919

Attention: Scott Keesey
ACCESS CONSULTING GROUP
#3 Calcite
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 3C8

Report Date: 2011/08/30

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B178122
Received: 2011/08/23, 09:15

Sample Matrix: Soil
Samples Received: 21

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE Soil LH, VH, F1 SIM/MS	1	2011/08/23	2011/08/24	BBY8-SOP-00010	EPA SW846 8260C
BTEX/MTBE Soil LH, VH, F1 SIM/MS	6	2011/08/23	2011/08/25	BBY8-SOP-00010	EPA SW846 8260C
BTEX/MTBE Soil LH, VH, F1 SIM/MS	1	2011/08/23	2011/08/26	BBY8-SOP-00010	EPA SW846 8260C
BTEX/MTBE Soil LH, VH, F1 SIM/MS	1	2011/08/24	2011/08/24	BBY8-SOP-00010	EPA SW846 8260C
BTEX/MTBE Soil LH, VH, F1 SIM/MS	8	2011/08/24	2011/08/25	BBY8-SOP-00010	EPA SW846 8260C
Elements by ICPMS (total)	5	2011/08/24	2011/08/24	BBY7SOP-00001	EPA 200.8
Elements by ICPMS (total)	4	2011/08/25	2011/08/26	BBY7SOP-00001	EPA 200.8
Metals - TCLP	4	2011/08/23	2011/08/24	BBY7SOP-00005	EPA 1311
Metals - TCLP	5	2011/08/24	2011/08/25	BBY7SOP-00005	EPA 1311
Moisture	8	N/A	2011/08/24	BBY8SOP-00017	Ont MOE -E 3139
Moisture	9	N/A	2011/08/25	BBY8SOP-00017	Ont MOE -E 3139
PAH in Soil by GC/MS (SIM)	7	2011/08/23	2011/08/26	BBY8SOP-00022	EPA 8270D
PAH in Soil by GC/MS (SIM)	1	2011/08/23	2011/08/29	BBY8SOP-00022	EPA 8270D
PAH in Soil by GC/MS (SIM)	5	2011/08/24	2011/08/25	BBY8SOP-00022	EPA 8270D
PAH in Soil by GC/MS (SIM)	3	2011/08/24	2011/08/26	BBY8SOP-00022	EPA 8270D
PAH in Soil by GC/MS (SIM)	1	2011/08/27	2011/08/30	BBY8SOP-00022	EPA 8270D
Total LMW, HMW, Total PAH Calc	5	N/A	2011/08/25		PAHTOT-S
Total LMW, HMW, Total PAH Calc	3	N/A	2011/08/26		PAHTOT-S
Total LMW, HMW, Total PAH Calc	7	N/A	2011/08/29		PAHTOT-S
Total LMW, HMW, Total PAH Calc	2	N/A	2011/08/30		PAHTOT-S
pH (2:1 DI Water Extract)	5	2011/08/24	2011/08/24	BBY6SOP-00028	Carter, SSMA 16.2
pH (2:1 DI Water Extract)	4	2011/08/25	2011/08/25	BBY6SOP-00028	Carter, SSMA 16.2
TCLP pH Measurements	4	N/A	2011/08/24		
TCLP pH Measurements	5	N/A	2011/08/25		
EPH less PAH in Soil By GC/FID	5	N/A	2011/08/25		
EPH less PAH in Soil By GC/FID	3	N/A	2011/08/26		
EPH less PAH in Soil By GC/FID	7	N/A	2011/08/29		
EPH less PAH in Soil By GC/FID	2	N/A	2011/08/30		
BC Hydrocarbons in Soil by GC/FID	7	2011/08/23	2011/08/24	BBY8SOP-00029	BC Env Lab Manual
BC Hydrocarbons in Soil by GC/FID	1	2011/08/23	2011/08/25	BBY8SOP-00029	BC Env Lab Manual
BC Hydrocarbons in Soil by GC/FID	5	2011/08/24	2011/08/24	BBY8SOP-00029	BC Env Lab Manual
BC Hydrocarbons in Soil by GC/FID	4	2011/08/24	2011/08/25	BBY8SOP-00029	BC Env Lab Manual
Volatile HC-BTEX	9	N/A	2011/08/25		
Volatile HC-BTEX	8	N/A	2011/08/26		

* Results relate only to the items tested.

../2

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

Encryption Key

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

Kimberley Mohr, BBY Customer Service Supervisor
Email: kmohr@maxxam.ca
Phone# (604) 638-3254

==========

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

Total cover pages: 2

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

PHYSICAL TESTING (SOIL)

Maxxam ID		BI1620	BI1621	BI1622		BI1623		BI1624		BI1625		
Sampling Date		2011/08/18 10:00	2011/08/18 10:00	2011/08/18 09:40		2011/08/18 09:30		2011/08/18 10:05		2011/08/18 10:05		
	Units	**SITE 1 -13-BASE**	**SITE 1 -6-S-WALL**	**SITE 1 -8-E-WALL**	**QC Batch**	**SITE 1 -19-NE-WALL**	**QC Batch**	**SITE 1 -31-N-WALL**	**QC Batch**	**SITE 1 -33-BASE**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	11	13	12	5116253	11	5116302	9.3	5116253	11	0.3	5116302

Maxxam ID		BI1626		BI1627		BI1628	BI1629		BI1630	BI1631		
Sampling Date		2011/08/18 10:10		2011/08/18 10:15		2011/08/18 10:15	2011/08/18 10:20		2011/08/18 10:20	2011/08/18 10:30		
	Units	**SITE 1 -46-SE-WALL**	**QC Batch**	**SITE 1 -39-W-WALL**	**QC Batch**	**SITE 1 -40-BASE**	**SITE 1 -41-SE-WALL**	**QC Batch**	**SITE 1 -45-SW-WALL**	**SITE 1 -CLEAN SOIL**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	13	5116302	12	5116253	10	14	5116302	16	11	0.3	5116253

Maxxam ID		BI1656		BI1657	BI1658	BI1659	BI1660		
Sampling Date		2011/08/17 11:39		2011/08/17 12:00	2011/08/17 14:40	2011/08/17 15:50	2011/08/17 16:15		
	Units	**SITE 1 -PILES 1 & 2**	**QC Batch**	**SITE 1-PILE 3**	**SITE 1-PILE 4**	**SITE 1-PILE 5**	**SITE 1-PILE 6**	**RDL**	**QC Batch**
Physical Properties									
Moisture	%	7.7	5116253	9.4	7.1	7.6	11	0.3	5116302

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BI1656	BI1657	BI1658	BI1659	BI1660		BI1661	BI1662	BI1663	BI1664		
Sampling Date		2011/08/17 11:39	2011/08/17 12:00	2011/08/17 14:40	2011/08/17 15:50	2011/08/17 16:15		2011/08/18 19:30	2011/08/18 19:35	2011/08/18 19:11	2011/08/18 19:20		
	Units	**SITE 1 -PILES 1 & 2**	**SITE 1-PILE 3**	**SITE 1-PILE 4**	**SITE 1-PILE 5**	**SITE 1-PILE 6**	**QC Batch**	**LTF 1**	**LTF 2**	**TAILINGS 1**	**TAILINGS 2**	**RDL**	**QC Batch**
TCLP Extraction Procedure													
Initial pH of Sample	pH Units	5.67	5.19	5.18	5.67	5.52	5118426	9.43	9.32	9.62	9.68	N/A	5115000
Final pH of Leachate	pH Units	5.14	4.90	5.05	5.00	4.93	5118426	6.07	5.92	6.01	5.84	N/A	5115000
pH of Leaching Fluid	pH Units	4.88	4.88	4.88	4.88	4.88	5118426	4.95	4.95	4.95	4.95	N/A	5115000

N/A = Not Applicable
RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1620	BI1621	BI1622	BI1623	BI1624		BI1625	BI1626		
Sampling Date		2011/08/18 10:00	2011/08/18 10:00	2011/08/18 09:40	2011/08/18 09:30	2011/08/18 10:05		2011/08/18 10:05	2011/08/18 10:10		
	Units	**SITE 1 -13-BASE**	**SITE 1 -6-S-WALL**	**SITE 1 -8-E-WALL**	**SITE 1 -19-NE-WALL**	**SITE 1 -31-N-WALL**	**QC Batch**	**SITE 1 -33-BASE**	**SITE 1 -46-SE-WALL**	**RDL**	**QC Batch**
Volatiles											
VPH (VH6 to 10 - BTEX)	mg/kg	<10	<10	<10	<10	<10	5115855	<10	<10	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	5118125	<0.1	<0.1	0.1	5121241
Benzene	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	5118125	<0.005	<0.005	0.005	5121241
Toluene	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	5118125	<0.02	<0.02	0.02	5121241
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	5118125	<0.01	<0.01	0.01	5121241
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	5118125	<0.04	<0.04	0.04	5121241
o-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	5118125	<0.04	<0.04	0.04	5121241
Styrene	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	5118125	<0.03	<0.03	0.03	5121241
Xylenes (Total)	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	5118125	<0.04	<0.04	0.04	5121241
VH C6-C10	mg/kg	<10	<10	<10	<10	<10	5118125	<10	<10	10	5121241
Surrogate Recovery (%)											
4-BROMOFLUOROBENZENE (sur.)	%	100	99	99	98	96	5118125	106	98		5121241
D10-ETHYLBENZENE (sur.)	%	99	98	98	98	95	5118125	97	88		5121241
D4-1,2-DICHLOROETHANE (sur.)	%	98	100	98	97	98	5118125	98	90		5121241
D8-TOLUENE (sur.)	%	101	99	99	99	101	5118125	99	100		5121241

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1627	BI1628	BI1629	BI1630	BI1631		BI1656		
Sampling Date		2011/08/18 10:15	2011/08/18 10:15	2011/08/18 10:20	2011/08/18 10:20	2011/08/18 10:30		2011/08/17 11:39		
	Units	**SITE 1 -39-W-WALL**	**SITE 1 -40-BASE**	**SITE 1 -41-SE-WALL**	**SITE 1 -45-SW-WALL**	**SITE 1 -CLEAN SOIL**	**QC Batch**	**SITE 1 -PILES 1 & 2**	**RDL**	**QC Batch**
Volatiles										
VPH (VH6 to 10 - BTEX)	mg/kg	<10	<10	<10	<10	<10	5115855	<10	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	<0.1	<0.1	<0.1	<0.1	5118125	<0.1	0.1	5118190
Benzene	mg/kg	<0.005	<0.005	<0.005	<0.005	<0.005	5118125	<0.005	0.005	5118190
Toluene	mg/kg	<0.02	<0.02	<0.02	<0.02	<0.02	5118125	<0.02	0.02	5118190
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	<0.01	<0.01	5118125	<0.01	0.01	5118190
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	5118125	<0.04	0.04	5118190
o-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	5118125	<0.04	0.04	5118190
Styrene	mg/kg	<0.03	<0.03	<0.03	<0.03	<0.03	5118125	<0.03	0.03	5118190
Xylenes (Total)	mg/kg	<0.04	<0.04	<0.04	<0.04	<0.04	5118125	<0.04	0.04	5118190
VH C6-C10	mg/kg	<10	<10	<10	<10	<10	5118125	<10	10	5118190
Surrogate Recovery (%)										
4-BROMOFLUOROBENZENE (sur.)	%	103	102	98	99	97	5118125	92		5118190
D10-ETHYLBENZENE (sur.)	%	102	99	101	101	96	5118125	81		5118190
D4-1,2-DICHLOROETHANE (sur.)	%	99	98	99	96	98	5118125	85		5118190
D8-TOLUENE (sur.)	%	100	100	99	100	100	5118125	107		5118190

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1657		BI1658		BI1659	BI1660		
Sampling Date		2011/08/17 12:00		2011/08/17 14:40		2011/08/17 15:50	2011/08/17 16:15		
	Units	**SITE 1-PILE 3**	**QC Batch**	**SITE 1-PILE 4**	**QC Batch**	**SITE 1-PILE 5**	**SITE 1-PILE 6**	**RDL**	**QC Batch**
Volatiles									
VPH (VH6 to 10 - BTEX)	mg/kg	<10	5115855	<10	5115855	<10	<10	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	5121241	<0.1	5118190	<0.1	<0.1	0.1	5121241
Benzene	mg/kg	<0.005	5121241	<0.005	5118190	<0.005	<0.005	0.005	5121241
Toluene	mg/kg	<0.02	5121241	<0.02	5118190	<0.02	<0.02	0.02	5121241
Ethylbenzene	mg/kg	<0.01	5121241	<0.01	5118190	<0.01	<0.01	0.01	5121241
m & p-Xylene	mg/kg	<0.04	5121241	<0.04	5118190	<0.04	<0.04	0.04	5121241
o-Xylene	mg/kg	<0.04	5121241	<0.04	5118190	<0.04	<0.04	0.04	5121241
Styrene	mg/kg	<0.03	5121241	<0.03	5118190	<0.03	<0.03	0.03	5121241
Xylenes (Total)	mg/kg	<0.04	5121241	<0.04	5118190	<0.04	<0.04	0.04	5121241
VH C6-C10	mg/kg	<10	5121241	<10	5118190	<10	<10	10	5121241
Surrogate Recovery (%)									
4-BROMOFLUOROBENZENE (sur.)	%	96	5121241	92	5118190	97	98		5121241
D10-ETHYLBENZENE (sur.)	%	86	5121241	79	5118190	87	89		5121241
D4-1,2-DICHLOROETHANE (sur.)	%	99	5121241	81	5118190	97	96		5121241
D8-TOLUENE (sur.)	%	102	5121241	107	5118190	101	101		5121241

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1620	BI1621	BI1622		BI1623		
Sampling Date		2011/08/18 10:00	2011/08/18 10:00	2011/08/18 09:40		2011/08/18 09:30		
	Units	**SITE 1 -13-BASE**	**SITE 1 -6-S-WALL**	**SITE 1 -8-E-WALL**	**QC Batch**	**SITE 1 -19-NE-WALL**	**RDL**	**QC Batch**
Polycyclic Aromatics								
Naphthalene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
2-Methylnaphthalene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Acenaphthylene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Acenaphthene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Fluorene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Phenanthrene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Anthracene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Fluoranthene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Pyrene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Benzo(a)anthracene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Chrysene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Benzo(b&j)fluoranthene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Benzo(k)fluoranthene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Benzo(a)pyrene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Dibenz(a,h)anthracene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Benzo(g,h,i)perylene	mg/kg	<0.05	<0.05	<0.05	5119361	<0.05	0.05	5119591
Low Molecular Weight PAH`s	mg/kg	<0.05	<0.05	<0.05	5115005	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	<0.05	<0.05	<0.05	5115005	<0.05	0.05	5115005
Total PAH	mg/kg	<0.05	<0.05	<0.05	5115005	<0.05	0.05	5115005
Surrogate Recovery (%)								
D10-ANTHRACENE (sur.)	%	97	103	99	5119361	94		5119591
D8-ACENAPHTHYLENE (sur.)	%	100	105	102	5119361	96		5119591
D8-NAPHTHALENE (sur.)	%	98	102	98	5119361	96		5119591
TERPHENYL-D14 (sur.)	%	100	106	101	5119361	102		5119591
Calculated Parameters								
LEPH (C10-C19 less PAH)	mg/kg	<100	<100	<100	5115008	<100	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	<100	118	<100	5115008	<100	100	5115008
Hydrocarbons								
EPH (C10-C19)	mg/kg	<100	<100	<100	5119442	<100	100	5119544
EPH (C19-C32)	mg/kg	<100	118	<100	5119442	<100	100	5119544
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	100	101	100	5119442	93		5119544

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1624			BI1625		BI1626		BI1627		
Sampling Date		2011/08/18 10:05			2011/08/18 10:05		2011/08/18 10:10		2011/08/18 10:15		
	Units	**SITE 1 -31-N-WALL**	**RDL**	**QC Batch**	**SITE 1 -33-BASE**	**RDL**	**SITE 1 -46-SE-WALL**	**QC Batch**	**SITE 1 -39-W-WALL**	**RDL**	**QC Batch**
Polycyclic Aromatics											
Naphthalene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
2-Methylnaphthalene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Acenaphthylene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Acenaphthene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Fluorene	mg/kg	<0.4(2)	0.4	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Phenanthrene	mg/kg	2.9(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Anthracene	mg/kg	<0.6(2)	0.6	5119361	<0.08(2)	0.08	<0.05	5119549	<0.05	0.05	5119361
Fluoranthene	mg/kg	0.7(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Pyrene	mg/kg	2.5(1)	0.3	5119361	0.16	0.05	<0.05	5119549	<0.05	0.05	5119361
Benzo(a)anthracene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Chrysene	mg/kg	1.3(1)	0.3	5119361	0.06	0.05	<0.05	5119549	<0.05	0.05	5119361
Benzo(b&j)fluoranthene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Benzo(k)fluoranthene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Benzo(a)pyrene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Indeno(1,2,3-cd)pyrene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Dibenz(a,h)anthracene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Benzo(g,h,i)perylene	mg/kg	<0.3(1)	0.3	5119361	<0.05	0.05	<0.05	5119549	<0.05	0.05	5119361
Low Molecular Weight PAH`s	mg/kg	2.9	0.6	5115005	<0.08	0.08	<0.05	5115005	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	4.6	0.3	5115005	0.22	0.05	<0.05	5115005	<0.05	0.05	5115005
Total PAH	mg/kg	7.4	0.6	5115005	0.22	0.08	<0.05	5115005	<0.05	0.05	5115005
Surrogate Recovery (%)											
D10-ANTHRACENE (sur.)	%	94		5119361	96		100	5119549	105		5119361
D8-ACENAPHTHYLENE (sur.)	%	94		5119361	96		102	5119549	106		5119361
D8-NAPHTHALENE (sur.)	%	92		5119361	90		101	5119549	99		5119361
TERPHENYL-D14 (sur.)	%	90		5119361	102		107	5119549	105		5119361
Calculated Parameters											
LEPH (C10-C19 less PAH)	mg/kg	12000	100	5115008	1490	100	<100	5115008	<100	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	29200	100	5115008	846	100	135	5115008	323	100	5115008
Hydrocarbons											
EPH (C10-C19)	mg/kg	12100	100	5119442	1490	100	<100	5119529	<100	100	5119442
EPH (C19-C32)	mg/kg	29200	100	5119442	847	100	135	5119529	323	100	5119442
Surrogate Recovery (%)											
O-TERPHENYL (sur.)	%	116		5119442	100		98	5119529	104		5119442

RDL = Reportable Detection Limit
(1) - RDL raised due to sample dilution.
(2) - RDL raised due to sample matrix interference.

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1628	BI1629		BI1630	BI1631	BI1656		
Sampling Date		2011/08/18 10:15	2011/08/18 10:20		2011/08/18 10:20	2011/08/18 10:30	2011/08/17 11:39		
	Units	**SITE 1 -40-BASE**	**SITE 1 -41-SE-WALL**	**QC Batch**	**SITE 1 -45-SW-WALL**	**SITE 1 -CLEAN SOIL**	**SITE 1 -PILES 1 & 2**	**RDL**	**QC Batch**
Polycyclic Aromatics									
Naphthalene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
2-Methylnaphthalene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Acenaphthylene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Acenaphthene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Fluorene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Phenanthrene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Anthracene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Fluoranthene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Pyrene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	0.08	0.05	5119361
Benzo(a)anthracene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Chrysene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Benzo(b&j)fluoranthene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Benzo(k)fluoranthene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Benzo(a)pyrene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Dibenz(a,h)anthracene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Benzo(g,h,i)perylene	mg/kg	<0.05	<0.05	5119591	<0.05	<0.05	<0.05	0.05	5119361
Low Molecular Weight PAH`s	mg/kg	<0.05	<0.05	5115005	<0.05	<0.05	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	<0.05	<0.05	5115005	<0.05	<0.05	0.08	0.05	5115005
Total PAH	mg/kg	<0.05	<0.05	5115005	<0.05	<0.05	0.08	0.05	5115005
Surrogate Recovery (%)									
D10-ANTHRACENE (sur.)	%	94	91	5119591	99	101	80		5119361
D8-ACENAPHTHYLENE (sur.)	%	94	91	5119591	99	104	80		5119361
D8-NAPHTHALENE (sur.)	%	93	91	5119591	93	98	75		5119361
TERPHENYL-D14 (sur.)	%	99	98	5119591	100	103	82		5119361
Calculated Parameters									
LEPH (C10-C19 less PAH)	mg/kg	179	<100	5115008	<100	<100	297	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	1080	313	5115008	238	1640	16800	100	5115008
Hydrocarbons									
EPH (C10-C19)	mg/kg	179	<100	5119544	<100	<100	297	100	5119442
EPH (C19-C32)	mg/kg	1080	313	5119544	238	1640	16800	100	5119442
Surrogate Recovery (%)									
O-TERPHENYL (sur.)	%	98	94	5119544	101	99	91		5119442

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1657			BI1658			BI1659		BI1660		
Sampling Date		2011/08/17 12:00			2011/08/17 14:40			2011/08/17 15:50		2011/08/17 16:15		
	Units	**SITE 1-PILE 3**	**RDL**	**QC Batch**	**SITE 1-PILE 4**	**RDL**	**QC Batch**	**SITE 1-PILE 5**	**RDL**	**SITE 1-PILE 6**	**RDL**	**QC Batch**
Polycyclic Aromatics												
Naphthalene	mg/kg	<0.05	0.05	5134036	<0.05	0.05	5119591	<0.05	0.05	<0.05	0.05	5119549
2-Methylnaphthalene	mg/kg	<0.05	0.05	5134036	<0.05	0.05	5119591	<0.05	0.05	<0.05	0.05	5119549
Acenaphthylene	mg/kg	<0.05	0.05	5134036	<0.05	0.05	5119591	<0.05	0.05	<0.05	0.05	5119549
Acenaphthene	mg/kg	<0.05	0.05	5134036	<0.05	0.05	5119591	<0.05	0.05	<0.05	0.05	5119549
Fluorene	mg/kg	<0.05	0.05	5134036	<0.05	0.05	5119591	<0.05	0.05	<0.05	0.05	5119549
Phenanthrene	mg/kg	<0.07 (1)	0.07	5134036	<0.05	0.05	5119591	<0.05	0.05	<0.05	0.05	5119549
Anthracene	mg/kg	<0.05	0.05	5134036	<0.05	0.05	5119591	<0.05	0.05	<0.05	0.05	5119549
Fluoranthene	mg/kg	<0.05	0.05	5134036	<0.05	0.05	5119591	<0.05	0.05	<0.05	0.05	5119549
Pyrene	mg/kg	0.08	0.05	5134036	<0.05	0.05	5119591	0.17	0.05	0.16	0.05	5119549
Benzo(a)anthracene	mg/kg	<0.05	0.05	5134036	<0.3 (2)	0.3	5119591	<0.05	0.05	<0.05	0.05	5119549
Chrysene	mg/kg	<0.05	0.05	5134036	<0.3 (2)	0.3	5119591	<0.07 (1)	0.07	<0.1 (1)	0.1	5119549
Benzo(b&j)fluoranthene	mg/kg	<0.05	0.05	5134036	<0.3 (2)	0.3	5119591	<0.05	0.05	<0.05	0.05	5119549
Benzo(k)fluoranthene	mg/kg	<0.05	0.05	5134036	<0.3 (2)	0.3	5119591	<0.05	0.05	<0.05	0.05	5119549
Benzo(a)pyrene	mg/kg	<0.05	0.05	5134036	<0.3 (2)	0.3	5119591	<0.05	0.05	<0.05	0.05	5119549
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	0.05	5134036	<0.3 (2)	0.3	5119591	<0.05	0.05	<0.05	0.05	5119549
Dibenz(a,h)anthracene	mg/kg	<0.05	0.05	5134036	<0.3 (2)	0.3	5119591	<0.05	0.05	<0.05	0.05	5119549
Benzo(g,h,i)perylene	mg/kg	<0.05	0.05	5134036	<0.3 (2)	0.3	5119591	<0.05	0.05	<0.05	0.05	5119549
Low Molecular Weight PAH`s	mg/kg	<0.07	0.07	5115005	<0.05	0.05	5115005	<0.05	0.05	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	0.08	0.05	5115005	<0.3	0.3	5115005	0.17	0.07	0.2	0.1	5115005
Total PAH	mg/kg	0.08	0.07	5115005	<0.3	0.3	5115005	0.17	0.07	0.2	0.1	5115005
Surrogate Recovery (%)												
D10-ANTHRACENE (sur.)	%	86		5134036	85		5119591	85		88		5119549
D8-ACENAPHTHYLENE (sur.)	%	76		5134036	84		5119591	85		89		5119549
D8-NAPHTHALENE (sur.)	%	81		5134036	82		5119591	84		84		5119549
TERPHENYL-D14 (sur.)	%	67		5134036	61		5119591	78		82		5119549
Calculated Parameters												
LEPH (C10-C19 less PAH)	mg/kg	1600	100	5115008	808	100	5115008	788	100	701	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	42300	100	5115008	43500	100	5115008	25300	100	22500	100	5115008
Hydrocarbons												
EPH (C10-C19)	mg/kg	1600	100	5119529	808	100	5119544	788	100	701	100	5119529
EPH (C19-C32)	mg/kg	42300	100	5119529	43500	100	5119544	25300	100	22500	100	5119529
Surrogate Recovery (%)												
O-TERPHENYL (sur.)	%	100		5119529	106		5119544	89		95		5119529

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.
(2) - RDL raised due to sample dilution.

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		BI1656		BI1657	BI1658	BI1659		
Sampling Date		2011/08/17 11:39		2011/08/17 12:00	2011/08/17 14:40	2011/08/17 15:50		
	Units	**SITE 1 -PILES 1 & 2**	**QC Batch**	**SITE 1-PILE 3**	**SITE 1-PILE 4**	**SITE 1-PILE 5**	**RDL**	**QC Batch**
Physical Properties								
Soluble (2:1) pH	pH Units	7.18	5117637	6.25	7.14	6.70	0.01	5122652
Total Metals by ICPMS								
Total Aluminum (Al)	mg/kg	15400	5117633	14700	14200	13500	100	5122649
Total Antimony (Sb)	mg/kg	91.9	5117633	4.5	6.4	8.3	0.1	5122649
Total Arsenic (As)	mg/kg	28.4	5117633	26.4	22.3	24.7	0.5	5122649
Total Barium (Ba)	mg/kg	117	5117633	116	117	94.1	0.1	5122649
Total Beryllium (Be)	mg/kg	0.6	5117633	0.6	0.6	0.7	0.4	5122649
Total Bismuth (Bi)	mg/kg	1.6	5117633	0.8	2.2	6.9	0.1	5122649
Total Cadmium (Cd)	mg/kg	29.5	5117633	10.6	22.8	127	0.05	5122649
Total Calcium (Ca)	mg/kg	12600	5117633	5260	15200	17800	100	5122649
Total Chromium (Cr)	mg/kg	29	5117633	24	32	21	1	5122649
Total Cobalt (Co)	mg/kg	13.3	5117633	10.2	11.2	15.8	0.3	5122649
Total Copper (Cu)	mg/kg	84.2	5117633	41.6	38.0	41.3	0.5	5122649
Total Iron (Fe)	mg/kg	28300	5117633	25900	25900	26300	100	5122649
Total Lead (Pb)	mg/kg	3230	5117633	1200	2880	14600	0.1	5122649
Total Magnesium (Mg)	mg/kg	10500	5117633	10900	9780	9730	100	5122649
Total Manganese (Mn)	mg/kg	418	5117633	274	363	715	0.2	5122649
Total Mercury (Hg)	mg/kg	0.15	5117633	<0.05	0.14	<0.05	0.05	5122649
Total Molybdenum (Mo)	mg/kg	5.8	5117633	5.5	4.8	7.6	0.1	5122649
Total Nickel (Ni)	mg/kg	29.9	5117633	34.4	31.3	32.1	0.8	5122649
Total Phosphorus (P)	mg/kg	529	5117633	566	634	652	10	5122649
Total Potassium (K)	mg/kg	1140	5117633	1140	1150	1110	100	5122649
Total Selenium (Se)	mg/kg	1.8	5117633	1.2	3.1	9.3	0.5	5122649
Total Silver (Ag)	mg/kg	2.06	5117633	1.13	2.40	9.59	0.05	5122649
Total Sodium (Na)	mg/kg	<100	5117633	<100	<100	<100	100	5122649
Total Strontium (Sr)	mg/kg	34.0	5117633	26.8	44.3	43.4	0.1	5122649
Total Thallium (Tl)	mg/kg	0.21	5117633	0.21	0.18	0.20	0.05	5122649
Total Tin (Sn)	mg/kg	14.3	5117633	0.6	0.8	2.0	0.1	5122649
Total Titanium (Ti)	mg/kg	494	5117633	669	580	494	1	5122649
Total Vanadium (V)	mg/kg	44	5117633	75	58	56	2	5122649
Total Zinc (Zn)	mg/kg	5390	5117633	2020	4800	22300	1	5122649
Total Zirconium (Zr)	mg/kg	1.6	5117633	3.4	2.8	2.4	0.5	5122649

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		BI1660		BI1661	BI1662	BI1663	BI1664		
Sampling Date		2011/08/17 16:15		2011/08/18 19:30	2011/08/18 19:35	2011/08/18 19:11	2011/08/18 19:20		
	Units	**SITE 1-PILE 6**	**QC Batch**	**LTF 1**	**LTF 2**	**TAILINGS 1**	**TAILINGS 2**	**RDL**	**QC Batch**
Physical Properties									
Soluble (2:1) pH	pH Units	7.26	5122652	8.60	8.68	8.84	8.76	0.01	5117637
Total Metals by ICPMS									
Total Aluminum (Al)	mg/kg	15200	5122649	12000	11300	9710	9990	100	5117633
Total Antimony (Sb)	mg/kg	5.9	5122649	4.5	1.9	2.8	2.7	0.1	5117633
Total Arsenic (As)	mg/kg	34.7	5122649	16.1	13.1	20.9	19.1	0.5	5117633
Total Barium (Ba)	mg/kg	323	5122649	122	82.0	160	91.4	0.1	5117633
Total Beryllium (Be)	mg/kg	0.6	5122649	0.5	<0.4	<0.4	0.4	0.4	5117633
Total Bismuth (Bi)	mg/kg	1.2	5122649	0.1	0.1	0.1	0.1	0.1	5117633
Total Cadmium (Cd)	mg/kg	15.1	5122649	1.87	0.71	1.57	1.43	0.05	5117633
Total Calcium (Ca)	mg/kg	6410	5122649	23800	21100	32900	24100	100	5117633
Total Chromium (Cr)	mg/kg	27	5122649	23	17	15	18	1	5117633
Total Cobalt (Co)	mg/kg	10.3	5122649	11.4	11.8	8.6	8.8	0.3	5117633
Total Copper (Cu)	mg/kg	41.2	5122649	31.7	20.8	25.1	22.1	0.5	5117633
Total Iron (Fe)	mg/kg	24800	5122649	24200	23600	21000	22100	100	5117633
Total Lead (Pb)	mg/kg	2180	5122649	47.2	25.0	57.3	63.8	0.1	5117633
Total Magnesium (Mg)	mg/kg	10400	5122649	9200	9060	10200	9030	100	5117633
Total Manganese (Mn)	mg/kg	327	5122649	271	260	259	269	0.2	5117633
Total Mercury (Hg)	mg/kg	0.07	5122649	<0.05	<0.05	<0.05	<0.05	0.05	5117633
Total Molybdenum (Mo)	mg/kg	13.3	5122649	5.4	2.4	3.3	3.0	0.1	5117633
Total Nickel (Ni)	mg/kg	40.7	5122649	34.6	27.1	28.4	29.4	0.8	5117633
Total Phosphorus (P)	mg/kg	727	5122649	1330	866	1050	1380	10	5117633
Total Potassium (K)	mg/kg	1270	5122649	761	516	618	573	100	5117633
Total Selenium (Se)	mg/kg	2.1	5122649	1.1	<0.5	0.8	0.6	0.5	5117633
Total Silver (Ag)	mg/kg	1.71	5122649	0.39	0.22	0.29	0.29	0.05	5117633
Total Sodium (Na)	mg/kg	<100	5122649	<100	<100	<100	<100	100	5117633
Total Strontium (Sr)	mg/kg	33.8	5122649	93.9	76.8	116	86.0	0.1	5117633
Total Thallium (Tl)	mg/kg	0.29	5122649	0.14	0.12	0.11	0.11	0.05	5117633
Total Tin (Sn)	mg/kg	0.7	5122649	0.6	0.3	0.2	0.2	0.1	5117633
Total Titanium (Ti)	mg/kg	840	5122649	452	332	370	326	1	5117633
Total Vanadium (V)	mg/kg	111	5122649	50	28	38	38	2	5117633
Total Zinc (Zn)	mg/kg	2800	5122649	202	113	223	214	1	5117633
Total Zirconium (Zr)	mg/kg	3.9	5122649	5.8	4.6	4.3	3.9	0.5	5117633

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

TCLP METALS (SOIL)

Maxxam ID		BI1656	BI1657	BI1658	BI1659	BI1660		BI1661	BI1662	BI1663		
Sampling Date		2011/08/17 11:39	2011/08/17 12:00	2011/08/17 14:40	2011/08/17 15:50	2011/08/17 16:15		2011/08/18 19:30	2011/08/18 19:35	2011/08/18 19:11		
	Units	**SITE 1 -PILES 1 & 2**	**SITE 1-PILE 3**	**SITE 1-PILE 4**	**SITE 1-PILE 5**	**SITE 1-PILE 6**	**QC Batch**	**LTF 1**	**LTF 2**	**TAILINGS 1**	**RDL**	**QC Batch**
Metals												
LEACHATE Antimony (Sb)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Arsenic (As)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Barium (Ba)	mg/L	0.5	0.4	0.3	0.4	2.1	5123896	1.1	0.7	1.0	0.1	5119451
LEACHATE Beryllium (Be)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Boron (B)	mg/L	0.5	1.1	1.2	0.3	1.0	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Cadmium (Cd)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Cobalt (Co)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Copper (Cu)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Iron (Fe)	mg/L	<0.5	0.6	<0.5	0.8	1.6	5123896	<0.5	<0.5	<0.5	0.5	5119451
LEACHATE Lead (Pb)	mg/L	5.6	3.1	2.0	20.0	3.4	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Mercury (Hg)	mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	5123896	<0.002	<0.002	<0.002	0.002	5119451
LEACHATE Molybdenum (Mo)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Nickel (Ni)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Selenium (Se)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Silver (Ag)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Thallium (Tl)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Uranium (U)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Vanadium (V)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451
LEACHATE Zinc (Zn)	mg/L	1.9	1.2	2.1	5.7	2.0	5123896	<0.1	<0.1	0.1	0.1	5119451
LEACHATE Zirconium (Zr)	mg/L	<0.1	<0.1	<0.1	<0.1	<0.1	5123896	<0.1	<0.1	<0.1	0.1	5119451

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

TCLP METALS (SOIL)

Maxxam ID		BI1664		
Sampling Date		2011/08/18 19:20		
	Units	**TAILINGS 2**	**RDL**	**QC Batch**
Metals				
LEACHATE Antimony (Sb)	mg/L	<0.1	0.1	5119451
LEACHATE Arsenic (As)	mg/L	<0.1	0.1	5119451
LEACHATE Barium (Ba)	mg/L	1.0	0.1	5119451
LEACHATE Beryllium (Be)	mg/L	<0.1	0.1	5119451
LEACHATE Boron (B)	mg/L	<0.1	0.1	5119451
LEACHATE Cadmium (Cd)	mg/L	<0.1	0.1	5119451
LEACHATE Chromium (Cr)	mg/L	<0.1	0.1	5119451
LEACHATE Cobalt (Co)	mg/L	<0.1	0.1	5119451
LEACHATE Copper (Cu)	mg/L	<0.1	0.1	5119451
LEACHATE Iron (Fe)	mg/L	<0.5	0.5	5119451
LEACHATE Lead (Pb)	mg/L	<0.1	0.1	5119451
LEACHATE Mercury (Hg)	mg/L	<0.002	0.002	5119451
LEACHATE Molybdenum (Mo)	mg/L	<0.1	0.1	5119451
LEACHATE Nickel (Ni)	mg/L	<0.1	0.1	5119451
LEACHATE Selenium (Se)	mg/L	<0.1	0.1	5119451
LEACHATE Silver (Ag)	mg/L	<0.1	0.1	5119451
LEACHATE Thallium (Tl)	mg/L	<0.1	0.1	5119451
LEACHATE Uranium (U)	mg/L	<0.1	0.1	5119451
LEACHATE Vanadium (V)	mg/L	<0.1	0.1	5119451
LEACHATE Zinc (Zn)	mg/L	0.2	0.1	5119451
LEACHATE Zirconium (Zr)	mg/L	<0.1	0.1	5119451

RDL = Reportable Detection Limit

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

Package 1	2.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5115000	Initial pH of Sample	2011/08/24					4.95, RDL=N/A	pH Units	7.3	20		
5115000	Final pH of Leachate	2011/08/24					4.95, RDL=N/A	pH Units	0.2	20		
5115000	pH of Leaching Fluid	2011/08/24					4.95, RDL=N/A	pH Units	0	20		
5116253	Moisture	2011/08/24					<0.3	%	4.4	20		
5116302	Moisture	2011/08/25					<0.3	%	2.2	20		
5117633	Total Antimony (Sb)	2011/08/24	102	75 - 125	103	75 - 125	<0.1	mg/kg	2.9	30	107	70 - 130
5117633	Total Arsenic (As)	2011/08/24	101	75 - 125	103	75 - 125	0.6, RDL=0.5	mg/kg	1.9	30	97	70 - 130
5117633	Total Barium (Ba)	2011/08/24	NC	75 - 125	103	75 - 125	<0.1	mg/kg	0.6	35	109	70 - 130
5117633	Total Beryllium (Be)	2011/08/24	104	75 - 125	108	75 - 125	<0.4	mg/kg	NC	30		
5117633	Total Cadmium (Cd)	2011/08/24	105	75 - 125	105	75 - 125	<0.05	mg/kg	13.4	30	103	70 - 130
5117633	Total Chromium (Cr)	2011/08/24	98	75 - 125	97	75 - 125	<1	mg/kg	4.4	30	107	70 - 130
5117633	Total Cobalt (Co)	2011/08/24	104	75 - 125	103	75 - 125	<0.3	mg/kg	1.2	30	100	70 - 130
5117633	Total Copper (Cu)	2011/08/24	109	75 - 125	99	75 - 125	<0.5	mg/kg	0.5	30	92	70 - 130
5117633	Total Lead (Pb)	2011/08/24	NC	75 - 125	101	75 - 125	<0.1	mg/kg	37.2(1)	35	105	70 - 130
5117633	Total Manganese (Mn)	2011/08/24	NC	75 - 125	100	75 - 125	<0.2	mg/kg	0.3	30	101	70 - 130
5117633	Total Mercury (Hg)	2011/08/24	105	75 - 125	106	75 - 125	<0.05	mg/kg	NC	35		
5117633	Total Molybdenum (Mo)	2011/08/24	NC	75 - 125	103	75 - 125	<0.1	mg/kg	3.0	35	106	70 - 130
5117633	Total Nickel (Ni)	2011/08/24	101	75 - 125	101	75 - 125	<0.8	mg/kg	2.3	30	99	70 - 130
5117633	Total Selenium (Se)	2011/08/24	100	75 - 125	105	75 - 125	<0.5	mg/kg	NC	30		
5117633	Total Silver (Ag)	2011/08/24	93	75 - 125	93	75 - 125	<0.05	mg/kg	NC	35		
5117633	Total Strontium (Sr)	2011/08/24	NC	75 - 125	96	75 - 125	<0.1	mg/kg	7.3	35	94	70 - 130
5117633	Total Thallium (Tl)	2011/08/24	103	75 - 125	99	75 - 125	<0.05	mg/kg	NC	30	95	70 - 130
5117633	Total Tin (Sn)	2011/08/24	97	75 - 125	91	75 - 125	<0.1	mg/kg	5.0	35		
5117633	Total Titanium (Ti)	2011/08/24	NC	75 - 125	100	75 - 125	<1	mg/kg	0.2	35	105	70 - 130
5117633	Total Vanadium (V)	2011/08/24	NC	75 - 125	102	75 - 125	<2	mg/kg	0.5	30	106	70 - 130
5117633	Total Zinc (Zn)	2011/08/24	NC	75 - 125	105	75 - 125	<1	mg/kg	4.9	30	94	70 - 130
5117633	Total Aluminum (Al)	2011/08/24					<100	mg/kg	2.4	35	104	70 - 130
5117633	Total Calcium (Ca)	2011/08/24					<100	mg/kg	3.4	30	92	70 - 130
5117633	Total Iron (Fe)	2011/08/24					<100	mg/kg	0.6	30	98	70 - 130
5117633	Total Magnesium (Mg)	2011/08/24					<100	mg/kg	0.4	30	98	70 - 130
5117633	Total Phosphorus (P)	2011/08/24					<10	mg/kg	6.9	30	93	70 - 130
5117633	Total Bismuth (Bi)	2011/08/24					<0.1	mg/kg	NC	30		
5117633	Total Potassium (K)	2011/08/24					<100	mg/kg	3.3	35		
5117633	Total Sodium (Na)	2011/08/24					<100	mg/kg	3.2	35		
5117633	Total Zirconium (Zr)	2011/08/24					<0.5	mg/kg	1.4	30		
5117637	Soluble (2:1) pH	2011/08/24			101	96 - 104			0.8	20		
5118125	4-BROMOFLUOROBENZENE (sur.)	2011/08/24	102	70 - 130	99	70 - 130	98	%			101	70 - 130
5118125	D10-ETHYLBENZENE (sur.)	2011/08/24	107	50 - 130	90	50 - 130	96	%			88	50 - 130
5118125	D4-1,2-DICHLOROETHANE (sur.)	2011/08/24	103	70 - 130	92	70 - 130	97	%			93	70 - 130
5118125	D8-TOLUENE (sur.)	2011/08/24	98	70 - 130	102	70 - 130	100	%			100	70 - 130

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5118125	Benzene	2011/08/25	108	60 - 140	96	60 - 140	<0.005	mg/kg	NC	40		
5118125	Toluene	2011/08/25	109	60 - 140	101	60 - 140	<0.02	mg/kg	NC	40		
5118125	Ethylbenzene	2011/08/25	117	60 - 140	110	60 - 140	<0.01	mg/kg	NC	40		
5118125	m & p-Xylene	2011/08/25	120	60 - 140	112	60 - 140	<0.04	mg/kg	NC	40		
5118125	o-Xylene	2011/08/25	119	60 - 140	108	60 - 140	<0.04	mg/kg	NC	40		
5118125	VH C6-C10	2011/08/25					<10	mg/kg	NC	40	103	60 - 140
5118125	Methyl-tert-butylether(MTBE)	2011/08/25					<0.1	mg/kg	NC	40		
5118125	Styrene	2011/08/25					<0.03	mg/kg	NC	40		
5118125	Xylenes (Total)	2011/08/25					<0.04	mg/kg	NC	40		
5118190	4-BROMOFLUOROBENZENE (sur.)	2011/08/24	96	70 - 130	94	70 - 130	95	%			94	70 - 130
5118190	D10-ETHYLBENZENE (sur.)	2011/08/24	83	50 - 130	76	50 - 130	83	%			76	50 - 130
5118190	D4-1,2-DICHLOROETHANE (sur.)	2011/08/24	86	70 - 130	80	70 - 130	80	%			81	70 - 130
5118190	D8-TOLUENE (sur.)	2011/08/24	109	70 - 130	106	70 - 130	107	%			106	70 - 130
5118190	Benzene	2011/08/25	90	60 - 140	84	60 - 140	<0.005	mg/kg	NC	40		
5118190	Toluene	2011/08/25	99	60 - 140	95	60 - 140	<0.02	mg/kg	NC	40		
5118190	Ethylbenzene	2011/08/25	92	60 - 140	90	60 - 140	<0.01	mg/kg	NC	40		
5118190	m & p-Xylene	2011/08/25	85	60 - 140	85	60 - 140	<0.04	mg/kg	NC	40		
5118190	o-Xylene	2011/08/25	90	60 - 140	88	60 - 140	<0.04	mg/kg	NC	40		
5118190	VH C6-C10	2011/08/25					<10	mg/kg	NC	40	109	60 - 140
5118190	Methyl-tert-butylether(MTBE)	2011/08/25					<0.1	mg/kg	NC	40		
5118190	Styrene	2011/08/25					<0.03	mg/kg	NC	40		
5118190	Xylenes (Total)	2011/08/25					<0.04	mg/kg	NC	40		
5118426	Initial pH of Sample	2011/08/25					4.88, RDL=N/A	pH Units	0.8	20		
5118426	Final pH of Leachate	2011/08/25					4.88, RDL=N/A	pH Units	0.6	20		
5118426	pH of Leaching Fluid	2011/08/25					4.88, RDL=N/A	pH Units	0	20		
5119361	D10-ANTHRACENE (sur.)	2011/08/26	119	60 - 130	109	60 - 130	100	%				
5119361	D8-ACENAPHTHYLENE (sur.)	2011/08/26	120	50 - 130	111	50 - 130	101	%				
5119361	D8-NAPHTHALENE (sur.)	2011/08/26	111	50 - 130	109	50 - 130	100	%				
5119361	TERPHENYL-D14 (sur.)	2011/08/26	117	60 - 130	111	60 - 130	104	%				
5119361	Naphthalene	2011/08/26	95	50 - 130	103	50 - 130	<0.05	mg/kg	NC(2)	50		
5119361	2-Methylnaphthalene	2011/08/26	98	50 - 130	105	50 - 130	<0.05	mg/kg	NC	50		
5119361	Acenaphthylene	2011/08/26	102	50 - 130	104	50 - 130	<0.05	mg/kg	NC	50		
5119361	Acenaphthene	2011/08/26	103	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119361	Fluorene	2011/08/26	105	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119361	Phenanthrene	2011/08/26	98	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119361	Anthracene	2011/08/26	101	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		
5119361	Fluoranthene	2011/08/26	101	60 - 130	105	60 - 130	<0.05	mg/kg	NC	50		
5119361	Pyrene	2011/08/26	105	60 - 130	109	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(a)anthracene	2011/08/26	90	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119361	Chrysene	2011/08/26	93	60 - 130	105	60 - 130	<0.05	mg/kg	NC	50		

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5119361	Benzo(b&j)fluoranthene	2011/08/26	99	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(k)fluoranthene	2011/08/26	82	60 - 130	118	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(a)pyrene	2011/08/26	95	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119361	Indeno(1,2,3-cd)pyrene	2011/08/26	85	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		
5119361	Dibenz(a,h)anthracene	2011/08/26	90	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(g,h,i)perylene	2011/08/26	79	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119442	O-TERPHENYL (sur.)	2011/08/24	101	50 - 130	103	50 - 130	102	%				
5119442	EPH (C10-C19)	2011/08/24	NC	50 - 130	112	50 - 130	<100	mg/kg	26.9	40		
5119442	EPH (C19-C32)	2011/08/24	NC	50 - 130	107	50 - 130	<100	mg/kg	6.9	40		
5119451	LEACHATE Arsenic (As)	2011/08/25	107	75 - 125	108	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Beryllium (Be)	2011/08/25	116	75 - 125	119	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Cadmium (Cd)	2011/08/25	106	75 - 125	112	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Chromium (Cr)	2011/08/25	98	75 - 125	102	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Cobalt (Co)	2011/08/25	98	75 - 125	105	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Copper (Cu)	2011/08/25	97	75 - 125	102	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Lead (Pb)	2011/08/25	103	75 - 125	105	75 - 125	<0.1	mg/L	24.0	35		
5119451	LEACHATE Nickel (Ni)	2011/08/25	100	75 - 125	104	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Selenium (Se)	2011/08/25	107	75 - 125	109	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Uranium (U)	2011/08/25	101	75 - 125	101	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Vanadium (V)	2011/08/25	102	75 - 125	105	75 - 125	<0.1	mg/L	NC	35		
5119451	LEACHATE Zinc (Zn)	2011/08/25	96	75 - 125	101	75 - 125	<0.1	mg/L	2.3	35		
5119451	LEACHATE Antimony (Sb)	2011/08/25					<0.1	mg/L	NC	35		
5119451	LEACHATE Barium (Ba)	2011/08/25					<0.1	mg/L	0.2	35		
5119451	LEACHATE Boron (B)	2011/08/25					<0.1	mg/L	NC	35		
5119451	LEACHATE Iron (Fe)	2011/08/25					<0.5	mg/L	NC	35		
5119451	LEACHATE Mercury (Hg)	2011/08/25					<0.002	mg/L	NC	35		
5119451	LEACHATE Molybdenum (Mo)	2011/08/25					<0.1	mg/L	NC	35		
5119451	LEACHATE Silver (Ag)	2011/08/25					<0.1	mg/L	NC	35		
5119451	LEACHATE Thallium (Tl)	2011/08/25					<0.1	mg/L	NC	35		
5119451	LEACHATE Zirconium (Zr)	2011/08/25					<0.1	mg/L	NC	35		
5119529	O-TERPHENYL (sur.)	2011/08/24	93	50 - 130	98	50 - 130	96	%				
5119529	EPH (C10-C19)	2011/08/24	NC	50 - 130	99	50 - 130	<100	mg/kg	25.7	40		
5119529	EPH (C19-C32)	2011/08/24	NC	50 - 130	102	50 - 130	<100	mg/kg	3.1	40		
5119544	O-TERPHENYL (sur.)	2011/08/25	95	50 - 130	99	50 - 130	102	%				
5119544	EPH (C10-C19)	2011/08/25	63	50 - 130	99	50 - 130	<100	mg/kg	NC	40		
5119544	EPH (C19-C32)	2011/08/25	NC	50 - 130	101	50 - 130	<100	mg/kg	17.8	40		
5119549	D10-ANTHRACENE (sur.)	2011/08/25	81	60 - 130	109	60 - 130	102	%				
5119549	D8-ACENAPHTHYLENE (sur.)	2011/08/25	81	50 - 130	111	50 - 130	102	%				
5119549	D8-NAPHTHALENE (sur.)	2011/08/25	78	50 - 130	110	50 - 130	101	%				
5119549	TERPHENYL-D14 (sur.)	2011/08/25	71	60 - 130	117	60 - 130	108	%				

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5119549	Naphthalene	2011/08/26	62	50 - 130	103	50 - 130	<0.05	mg/kg	NC	50		
5119549	2-Methylnaphthalene	2011/08/26	64	50 - 130	104	50 - 130	<0.05	mg/kg	NC	50		
5119549	Acenaphthylene	2011/08/26	67	50 - 130	106	50 - 130	<0.05	mg/kg	NC	50		
5119549	Acenaphthene	2011/08/26	68	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119549	Fluorene	2011/08/26	68	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119549	Phenanthrene	2011/08/26	67	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Anthracene	2011/08/26	69	60 - 130	105	60 - 130	<0.05	mg/kg	NC(2)	50		
5119549	Fluoranthene	2011/08/26	65	60 - 130	110	60 - 130	<0.05	mg/kg	NC	50		
5119549	Pyrene	2011/08/26	64	60 - 130	115	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(a)anthracene	2011/08/26	82	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119549	Chrysene	2011/08/26	88	60 - 130	102	60 - 130	<0.05	mg/kg	NC(2)	50		
5119549	Benzo(b&j)fluoranthene	2011/08/26	62	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(k)fluoranthene	2011/08/26	72	60 - 130	102	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(a)pyrene	2011/08/26	83	60 - 130	104	60 - 130	<0.05	mg/kg	NC	50		
5119549	Indeno(1,2,3-cd)pyrene	2011/08/26	77	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Dibenz(a,h)anthracene	2011/08/26	78	60 - 130	102	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(g,h,i)perylene	2011/08/26	80	60 - 130	101	60 - 130	<0.05	mg/kg	NC	50		
5119591	D10-ANTHRACENE (sur.)	2011/08/25	93	60 - 130	95	60 - 130	97	%				
5119591	D8-ACENAPHTHYLENE (sur.)	2011/08/25	63	50 - 130	94	50 - 130	95	%				
5119591	D8-NAPHTHALENE (sur.)	2011/08/25	92	50 - 130	97	50 - 130	99	%				
5119591	TERPHENYL-D14 (sur.)	2011/08/25	100	60 - 130	101	60 - 130	102	%				
5119591	Naphthalene	2011/08/25	81	50 - 130	91	50 - 130	<0.05	mg/kg	NC	50		
5119591	2-Methylnaphthalene	2011/08/25	82	50 - 130	92	50 - 130	<0.05	mg/kg	NC	50		
5119591	Acenaphthylene	2011/08/25	82	50 - 130	92	50 - 130	<0.05	mg/kg	NC	50		
5119591	Acenaphthene	2011/08/25	85	50 - 130	97	50 - 130	<0.05	mg/kg	NC	50		
5119591	Fluorene	2011/08/25	85	50 - 130	94	50 - 130	<0.05	mg/kg	NC	50		
5119591	Phenanthrene	2011/08/25	80	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119591	Anthracene	2011/08/25	82	60 - 130	92	60 - 130	<0.05	mg/kg	NC	50		
5119591	Fluoranthene	2011/08/25	86	60 - 130	96	60 - 130	<0.05	mg/kg	NC	50		
5119591	Pyrene	2011/08/25	89	60 - 130	99	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(a)anthracene	2011/08/25	77	60 - 130	84	60 - 130	<0.05	mg/kg	NC	50		
5119591	Chrysene	2011/08/25	81	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(b&j)fluoranthene	2011/08/25	88	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(k)fluoranthene	2011/08/25	74	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(a)pyrene	2011/08/25	85	60 - 130	93	60 - 130	<0.05	mg/kg	NC	50		
5119591	Indeno(1,2,3-cd)pyrene	2011/08/25	81	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5119591	Dibenz(a,h)anthracene	2011/08/25	81	60 - 130	87	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(g,h,i)perylene	2011/08/25	78	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5121241	4-BROMOFLUOROBENZENE (sur.)	2011/08/25	98	70 - 130	97	70 - 130	97	%			98	70 - 130
5121241	D10-ETHYLBENZENE (sur.)	2011/08/25	87	50 - 130	81	50 - 130	89	%			83	50 - 130

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QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5121241	D4-1,2-DICHLOROETHANE (sur.)	2011/08/25	94	70 - 130	94	70 - 130	88	%			89	70 - 130
5121241	D8-TOLUENE (sur.)	2011/08/25	103	70 - 130	103	70 - 130	104	%			105	70 - 130
5121241	Benzene	2011/08/25	86	60 - 140	92	60 - 140	<0.005	mg/kg	NC	40		
5121241	Toluene	2011/08/25	91	60 - 140	99	60 - 140	<0.02	mg/kg	NC	40		
5121241	Ethylbenzene	2011/08/25	89	60 - 140	98	60 - 140	<0.01	mg/kg	NC	40		
5121241	m & p-Xylene	2011/08/25	85	60 - 140	96	60 - 140	<0.04	mg/kg	NC	40		
5121241	o-Xylene	2011/08/25	88	60 - 140	98	60 - 140	<0.04	mg/kg	NC	40		
5121241	VH C6-C10	2011/08/25					<10	mg/kg	NC	40	102	60 - 140
5121241	Methyl-tert-butylether(MTBE)	2011/08/25					<0.1	mg/kg	NC	40		
5121241	Styrene	2011/08/25					<0.03	mg/kg	NC	40		
5121241	Xylenes (Total)	2011/08/25					<0.04	mg/kg	NC	40		
5122649	Total Antimony (Sb)	2011/08/26	101	75 - 125	98	75 - 125	<0.1	mg/kg	NC	30	93	70 - 130
5122649	Total Arsenic (As)	2011/08/26	98	75 - 125	103	75 - 125	<0.5	mg/kg	3.3	30	86	70 - 130
5122649	Total Barium (Ba)	2011/08/26	NC	75 - 125	99	75 - 125	<0.1	mg/kg	2.2	35	99	70 - 130
5122649	Total Beryllium (Be)	2011/08/26	106	75 - 125	105	75 - 125	<0.4	mg/kg	NC	30		
5122649	Total Cadmium (Cd)	2011/08/26	103	75 - 125	101	75 - 125	<0.05	mg/kg	12.4	30	88	70 - 130
5122649	Total Chromium (Cr)	2011/08/26	99	75 - 125	96	75 - 125	<1	mg/kg	13.1	30	94	70 - 130
5122649	Total Cobalt (Co)	2011/08/26	97	75 - 125	98	75 - 125	<0.3	mg/kg	1.9	30	89	70 - 130
5122649	Total Copper (Cu)	2011/08/26	93	75 - 125	99	75 - 125	<0.5	mg/kg	2.2	30	85	70 - 130
5122649	Total Lead (Pb)	2011/08/26	97	75 - 125	98	75 - 125	<0.1	mg/kg	0.02	35	93	70 - 130
5122649	Total Manganese (Mn)	2011/08/26	NC	75 - 125	98	75 - 125	<0.2	mg/kg	8.6	30	93	70 - 130
5122649	Total Mercury (Hg)	2011/08/26	101	75 - 125	105	75 - 125	<0.05	mg/kg	NC	35		
5122649	Total Molybdenum (Mo)	2011/08/26	98	75 - 125	95	75 - 125	<0.1	mg/kg	2.5	35	89	70 - 130
5122649	Total Nickel (Ni)	2011/08/26	93	75 - 125	100	75 - 125	<0.8	mg/kg	3.2	30	84	70 - 130
5122649	Total Selenium (Se)	2011/08/26	104	75 - 125	110	75 - 125	<0.5	mg/kg	NC	30		
5122649	Total Silver (Ag)	2011/08/26	92	75 - 125	85	75 - 125	<0.05	mg/kg	NC	35		
5122649	Total Strontium (Sr)	2011/08/26	NC	75 - 125	95	75 - 125	<0.1	mg/kg	9.4	35	85	70 - 130
5122649	Total Thallium (Tl)	2011/08/26	90	75 - 125	96	75 - 125	<0.05	mg/kg	NC	30	87	70 - 130
5122649	Total Tin (Sn)	2011/08/26	93	75 - 125	80	75 - 125	<0.1	mg/kg	NC	35		
5122649	Total Titanium (Ti)	2011/08/26	NC	75 - 125	93	75 - 125	<1	mg/kg	6.7	35	95	70 - 130
5122649	Total Vanadium (V)	2011/08/26	105	75 - 125	99	75 - 125	<2	mg/kg	0.5	30	96	70 - 130
5122649	Total Zinc (Zn)	2011/08/26	NC	75 - 125	105	75 - 125	<1	mg/kg	8.7	30	82	70 - 130
5122649	Total Aluminum (Al)	2011/08/26					<100	mg/kg	0.1	35	94	70 - 130
5122649	Total Calcium (Ca)	2011/08/26					<100	mg/kg	7.1	30	86	70 - 130
5122649	Total Iron (Fe)	2011/08/26					<100	mg/kg	3.9	30	85	70 - 130
5122649	Total Magnesium (Mg)	2011/08/26					<100	mg/kg	4.9	30	89	70 - 130
5122649	Total Phosphorus (P)	2011/08/26					<10	mg/kg	7.3	30	93	70 - 130
5122649	Total Bismuth (Bi)	2011/08/26					<0.1	mg/kg	NC	30		
5122649	Total Potassium (K)	2011/08/26					<100	mg/kg	1.6	35		
5122649	Total Sodium (Na)	2011/08/26					<100	mg/kg	NC	35		

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5122649	Total Zirconium (Zr)	2011/08/26					<0.5	mg/kg	NC	30		
5122652	Soluble (2:1) pH	2011/08/25			101	96 - 104			0.9	20		
5123896	LEACHATE Arsenic (As)	2011/08/25	104	75 - 125	102	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Beryllium (Be)	2011/08/25	117	75 - 125	113	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Cadmium (Cd)	2011/08/25	105	75 - 125	100	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Chromium (Cr)	2011/08/25	97	75 - 125	98	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Cobalt (Co)	2011/08/25	96	75 - 125	96	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Copper (Cu)	2011/08/25	95	75 - 125	97	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Lead (Pb)	2011/08/25	95	75 - 125	97	75 - 125	<0.1	mg/L	2.4	35		
5123896	LEACHATE Nickel (Ni)	2011/08/25	98	75 - 125	97	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Selenium (Se)	2011/08/25	104	75 - 125	103	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Uranium (U)	2011/08/25	97	75 - 125	96	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Vanadium (V)	2011/08/25	100	75 - 125	100	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Zinc (Zn)	2011/08/25	100	75 - 125	95	75 - 125	<0.1	mg/L	3.5	35		
5123896	LEACHATE Antimony (Sb)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Barium (Ba)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Boron (B)	2011/08/25					<0.1	mg/L	30.4	35		
5123896	LEACHATE Iron (Fe)	2011/08/25					<0.5	mg/L	NC	35		
5123896	LEACHATE Mercury (Hg)	2011/08/25					<0.002	mg/L	NC	35		
5123896	LEACHATE Molybdenum (Mo)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Silver (Ag)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Thallium (Tl)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Zirconium (Zr)	2011/08/25					<0.1	mg/L	NC	35		
5134036	D10-ANTHRACENE (sur.)	2011/08/30	79	60 - 130	111	60 - 130	93	%				
5134036	D8-ACENAPHTHYLENE (sur.)	2011/08/30	79	50 - 130	109	50 - 130	93	%				
5134036	D8-NAPHTHALENE (sur.)	2011/08/30	77	50 - 130	102	50 - 130	91	%				
5134036	TERPHENYL-D14 (sur.)	2011/08/30	56(1, 3)	60 - 130	75	60 - 130	64	%				
5134036	Naphthalene	2011/08/30	64	50 - 130	82	50 - 130	<0.05	mg/kg	NC	50		
5134036	2-Methylnaphthalene	2011/08/30	67	50 - 130	88	50 - 130	<0.05	mg/kg	NC	50		
5134036	Acenaphthylene	2011/08/30	66	50 - 130	88	50 - 130	<0.05	mg/kg	NC	50		
5134036	Acenaphthene	2011/08/30	69	50 - 130	93	50 - 130	<0.05	mg/kg	NC	50		
5134036	Fluorene	2011/08/30	72	50 - 130	97	50 - 130	<0.05	mg/kg	NC	50		
5134036	Phenanthrene	2011/08/30	65	60 - 130	88	60 - 130	<0.05	mg/kg	NC	50		
5134036	Anthracene	2011/08/30	69	60 - 130	93	60 - 130	<0.05	mg/kg	NC	50		
5134036	Fluoranthene	2011/08/30	68	60 - 130	93	60 - 130	<0.05	mg/kg	NC	50		
5134036	Pyrene	2011/08/30	71	60 - 130	96	60 - 130	<0.05	mg/kg	NC	50		
5134036	Benzo(a)anthracene	2011/08/30	73	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5134036	Chrysene	2011/08/30	78	60 - 130	94	60 - 130	<0.05	mg/kg	NC	50		
5134036	Benzo(b&j)fluoranthene	2011/08/30	73	60 - 130	99	60 - 130	<0.05	mg/kg	NC	50		
5134036	Benzo(k)fluoranthene	2011/08/30	78	60 - 130	87	60 - 130	<0.05	mg/kg	NC	50		

Maxxam Job #: B178122
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5134036	Benzo(a)pyrene	2011/08/30	80	60 - 130	99	60 - 130	<0.05	mg/kg	NC	50		
5134036	Indeno(1,2,3-cd)pyrene	2011/08/30	78	60 - 130	100	60 - 130	<0.05	mg/kg	NC	50		
5134036	Dibenz(a,h)anthracene	2011/08/30	83	60 - 130	104	60 - 130	<0.05	mg/kg	NC	50		
5134036	Benzo(g,h,i)perylene	2011/08/30	73	60 - 130	97	60 - 130	<0.05	mg/kg	NC	50		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - RDL raised due to sample matrix interference.
(3) - Surrogate recovery below control limit - 1 surrogate failure allowed - Pot. low bias

Maxxam Analytics Inc
8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com
Phone: (604) 444-4808
Fax.: (604) 444-4511
Toll-Free: 1-800-440-4808

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

08336918

LAB USE ONLY
MAXXAM JOB # B178122

ANALYSIS REQUEST

LAB USE ONLY
COC #

COMPANY NAME:	CLIENT PROJECT NO.:
Access Consulting Group	TEK-11-02
COMPANY ADDRESS: #3 Calcite Business Center, 151 Industrial Rd., Whitehorse, YT, Y1A 2V3	TEL.: 867-668-6463 E-MAIL: jlanglais@accessconsulting.ca FAX: 867-667-6680

SAMPLER NAME (PRINT):	PROJECT MANAGER:	LABORATORY CONTACT:
Janelle Langlais	Scott Keesey	Kim Mohr

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	OTHER	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	EPH/LEPH	PAH	BTEX/VPH/VH
1	SITE 1 -13-BASE	B11620				X		18/08/11	10:00	2	X	X	X
2	SITE 1 -6-S-WALL	621				X		18/08/11	10:00	2	X	X	X
3	SITE 1 -8-E-WALL	622				X		18/08/11	9:40	2	X	X	X
4	SITE 1 -19-NE-WALL	623				X		18/08/11	9:30	2	X	X	X
5	SITE 1 -31-N-WALL	624				X		18/08/11	10:05	2	X	X	X
6	SITE 1 -33-BASE	625				X		18/08/11	10:05	2	X	X	X
7	SITE 1 -46-SE-WALL	626				X		18/08/11	10;10	2	X	X	X
8	SITE 1 -39-W-WALL	627				X		18/08/11	10:15	2	X	X	X
9	SITE 1 -40-BASE	628				X		18/08/11	10:15	2	X	X	X
10	SITE 1 -41-SE-WALL	629				X		18/08/11	10:20	2	X	X	X
11	SITE 1 -45-SW-WALL	630				X		18/08/11	10:20	2	X	X	X
12	SITE 1 -CLEAN SOIL	631				X		18/08/11	10:30	2	X	X	X

B178122

TAT (Turnaround Time)
LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL
* Some exceptions apply - please contact laboratory

STANDARD	5 BUSINESS DAYS	X
RUSH	3 BUSINESS DAYS	
RUSH	2 BUSINESS DAYS	
URGENT	1 BUSINESS DAY	

OTHER BUSINESS DAYS _____

PO NUMBER OR QUOTE NUMBER: 6141

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

CCME
CSR
AB TIER 1
OTHER

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:

JARS USED:

LAB USE ONLY
ARRIVAL TEMPERATURE °C: 2,2,2
DUE DATE:
LOG IN CHECK:

RELINQUISHED BY SAMPLER: Janelle Langlais	DATE: DD/MM/YY Aug/22/11	TIME: 14:30	RECEIVED BY:
RELINQUISHED BY:	DATE: DD/MM/YY	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE: DD/MM/YY 23/08/11	TIME: 09:15	RECEIVED BY LABORATORY: NICOLE LOCKYER

CUSTODY RECORD

Maxxam Analytics Inc
8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com
Phone: (604) 444-4808
Fax.: (604) 444-4511
Toll-Free: 1-800-440-4808

08336919

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

LAB USE ONLY — MAXXAM JOB #

ANALYSIS REQUEST

LAB USE ONLY — COC #

COMPANY NAME:	Access Consulting Group
CLIENT PROJECT NO.:	TEK-11-02
COMPANY ADDRESS:	#3 Calcite Business Center 151 Industrial Rd. Whitehorse, YT Y1A 2V3
TEL.:	867-668-6463
E-MAIL:	jlanglais@accessconsulting.ca
FAX:	867-667-6680
SAMPLER NAME (PRINT):	Janelle Langlais
PROJECT MANAGER:	Scott Keesey
LABORATORY CONTACT:	Kim Mohr

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	OTHER	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	EPH/LEPH	PAH	BTEX/VPH/VH	TCLP METALS	TOTAL METALS
1	SITE 1 - PILES 1 & 2	B1 1656				X		17/08/11	11:39	4	X	X	X	X	X
2	SITE 1 -PILE 3	657				X		17/08/11	12:00	4	X	X	X	X	X
3	SITE 1 -PILE 4	658				X		17/08/11	14:40	4	X	X	X	X	X
4	SITE 1 -PILE 5	659				X		17/08/11	15:00	4	X	X	X	X	X
5	SITE 1 -PILE 6	660				X		17/08/11	16:15	4	X	X	X	X	X
6	LTF 1	661				X		18/08/11	19:30	2				X	X
7	LTF 2	662				X		18/08/11	19:35	2				X	X
8	TAILINGS 1	663				X		18/08/11	19:11	2				X	X
9	TAILINGS 2	664				X		18/08/11	19:20	2				X	X
10															
11															
12															

B178122

TAT (Turnaround Time)

LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL

* Some exceptions apply - please contact laboratory

STANDARD	5 BUSINESS DAYS	X
RUSH	3 BUSINESS DAYS	
RUSH	2 BUSINESS DAYS	
URGENT	1 BUSINESS DAY	

OTHER BUSINESS DAYS _____

PO NUMBER OR QUOTE NUMBER: 6141

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

CCME
CSR
AB TIER 1
OTHER

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:

JARS USED:

LAB USE ONLY

ARRIVAL TEMPERATURE °C: 2, 2, 2

DUE DATE:

LOG IN CHECK:

RELINQUINSHED BY SAMPLER: Janelle Langlais	DATE: DD/MM/YY Aug/22/11	TIME: 14:30	RECEIVED BY:
RELINQUINSHED BY:	DATE: DD/MM/YY	TIME:	RECEIVED BY:
RELINQUINSHED BY:	DATE: DD/MM/YY 23/08/11	TIME: 09:15	RECEIVED BY LABORATORY: NICOLE LOCKYER

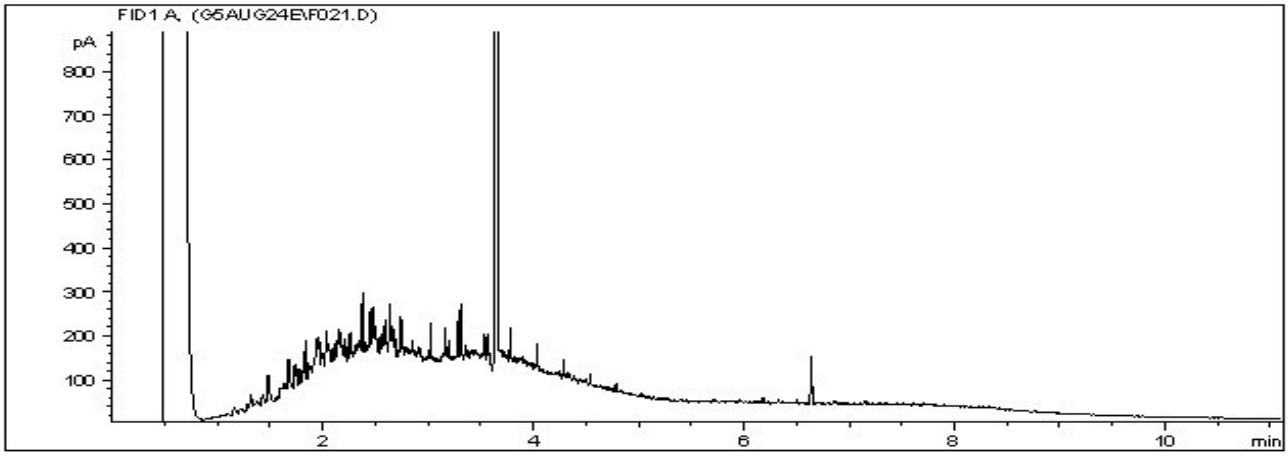
CUSTODY RECORD

Report Date: 2011/08/30
Maxxam Job #: B178122
Maxxam Sample: BI1625

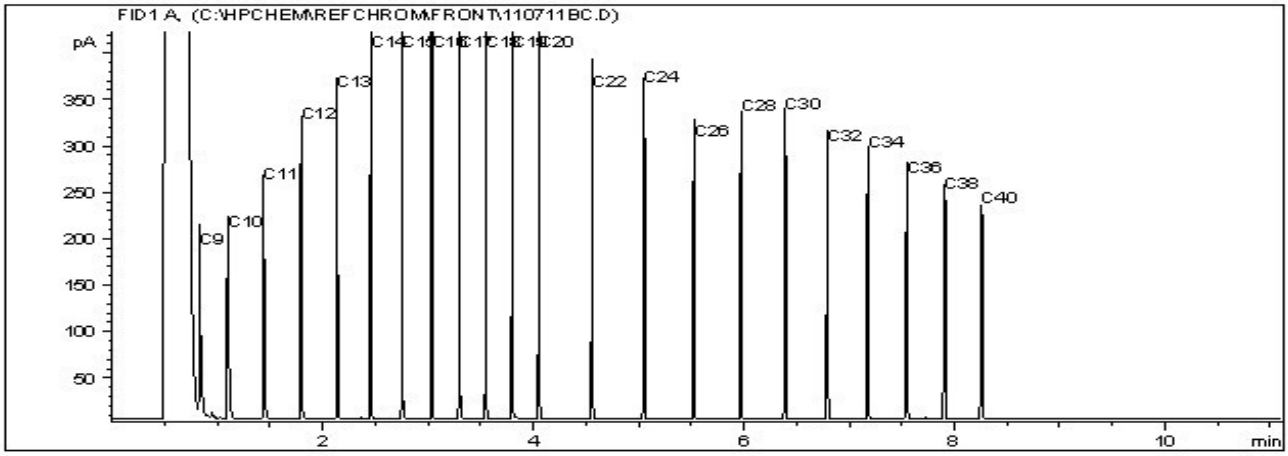
ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Client ID: SITE 1 -33-BASE

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12		Diesel:	C8 - C22	
Varsol:	C8 - C12		Lubricating Oils:	C20 -	Page 1 of 1
Kerosene:	C7 - C16		Crude Oils:	C3 - C60+	

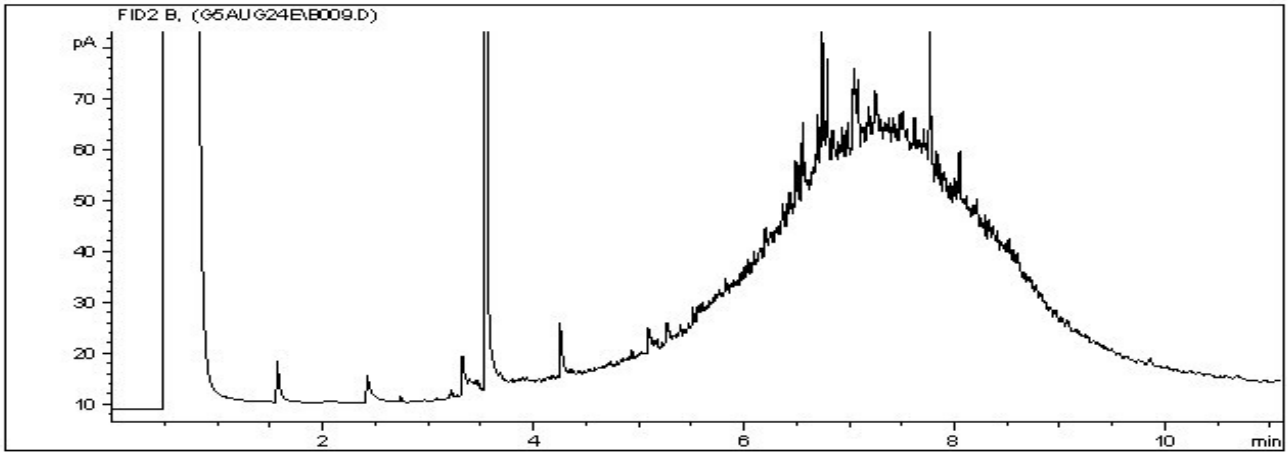
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178122
Maxxam Sample: BI1626

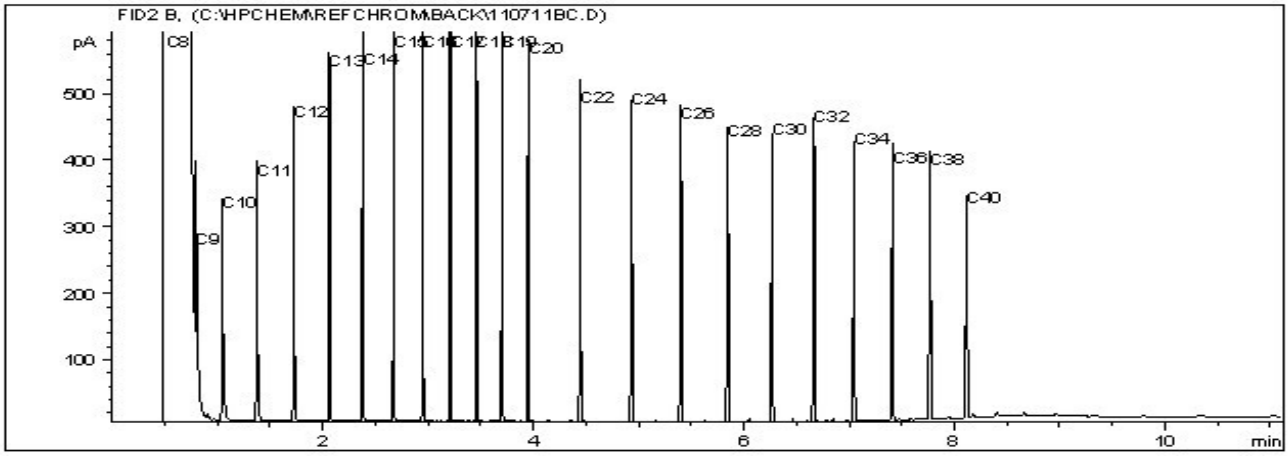
ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Client ID: SITE 1 -46-SE-WALL

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12		Diesel:	C8 - C22	
Varsol:	C8 - C12		Lubricating Oils:	C20 -	Page 1 of 1
Kerosene:	C7 - C16		Crude Oils:	C3 - C60+	

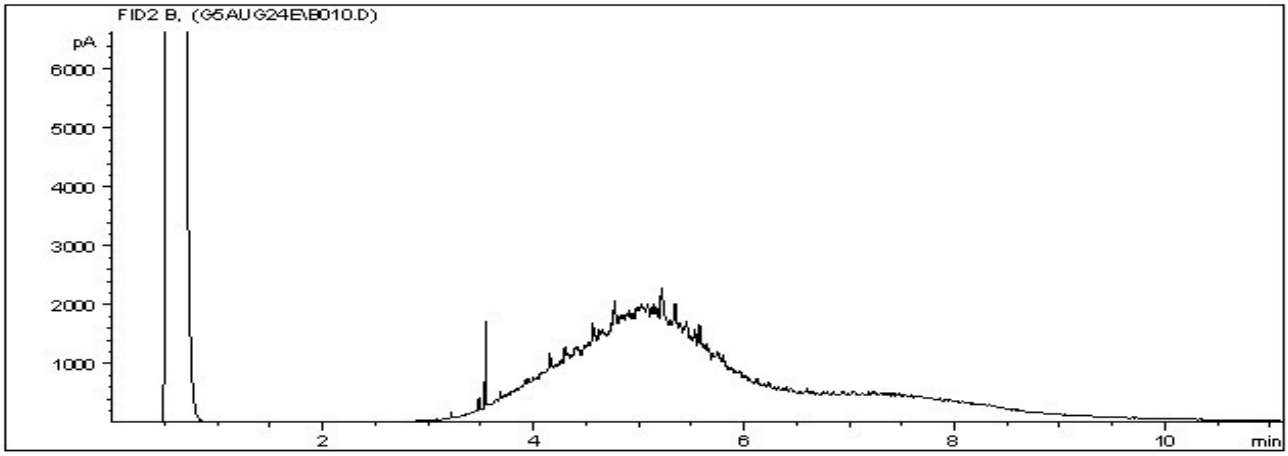
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178122
Maxxam Sample: BI1657

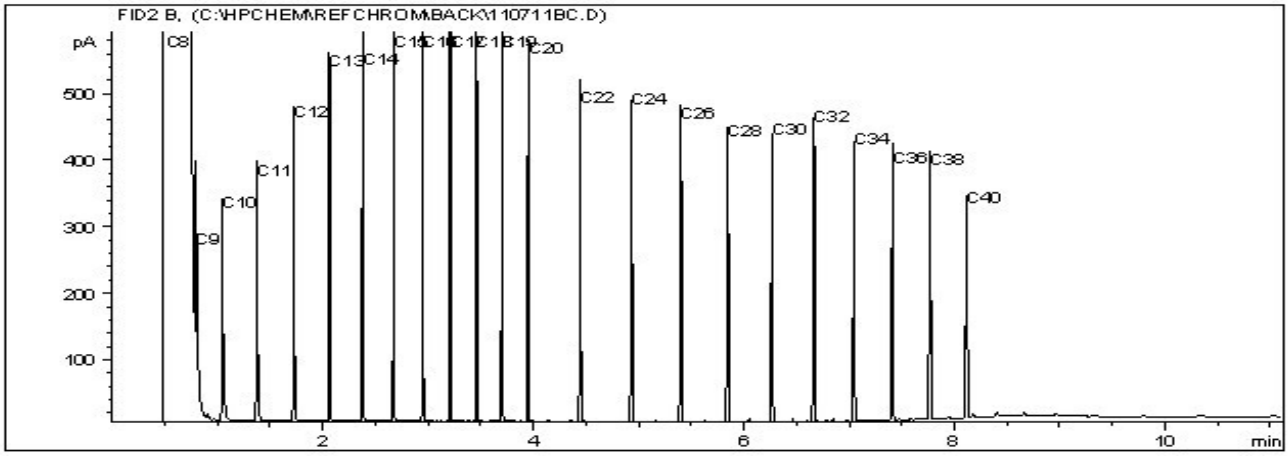
ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Client ID: SITE 1-PILE 3

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C60+
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

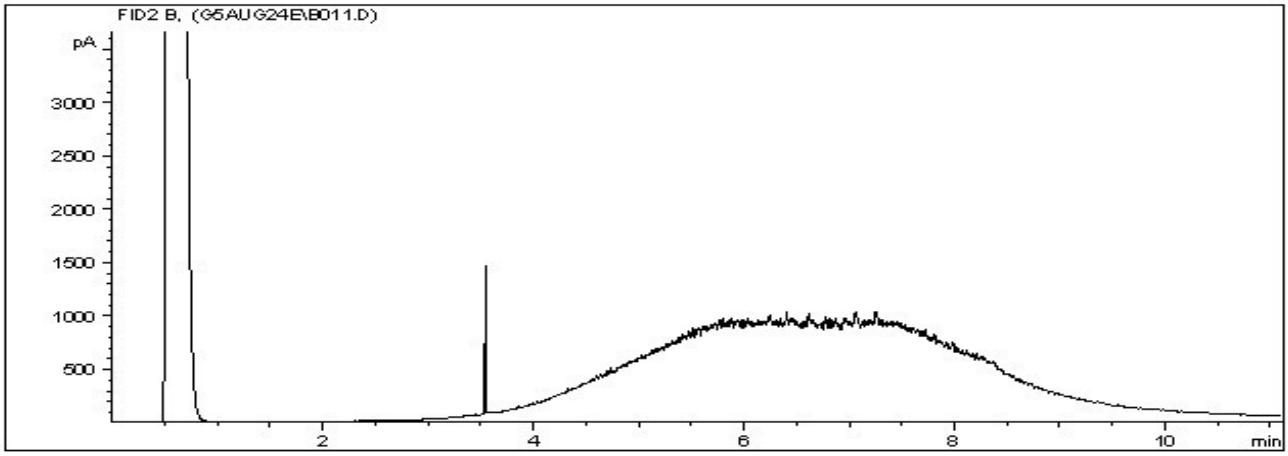
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178122
Maxxam Sample: BI1659

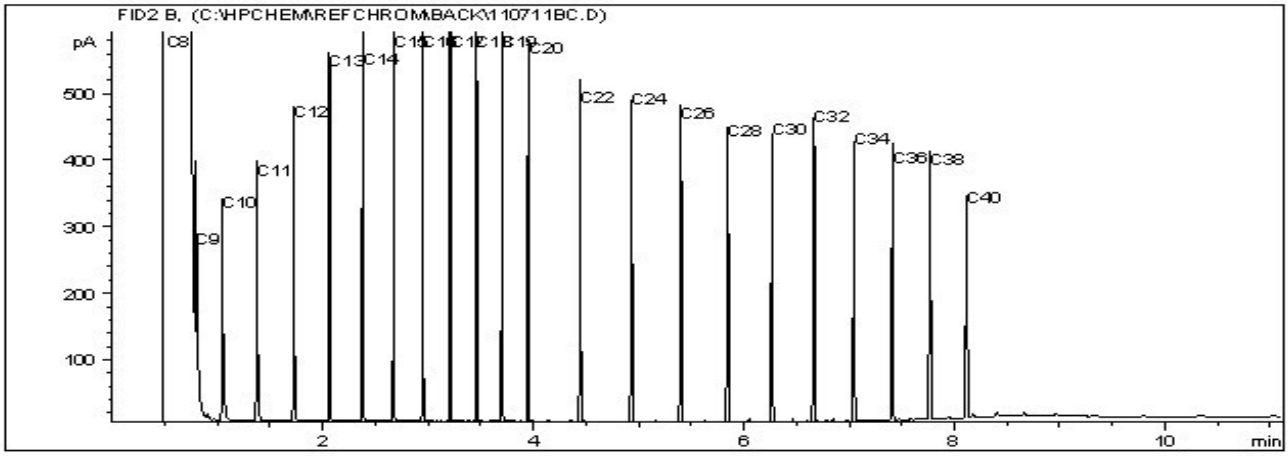
ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Client ID: SITE 1-PILE 5

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C60+
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

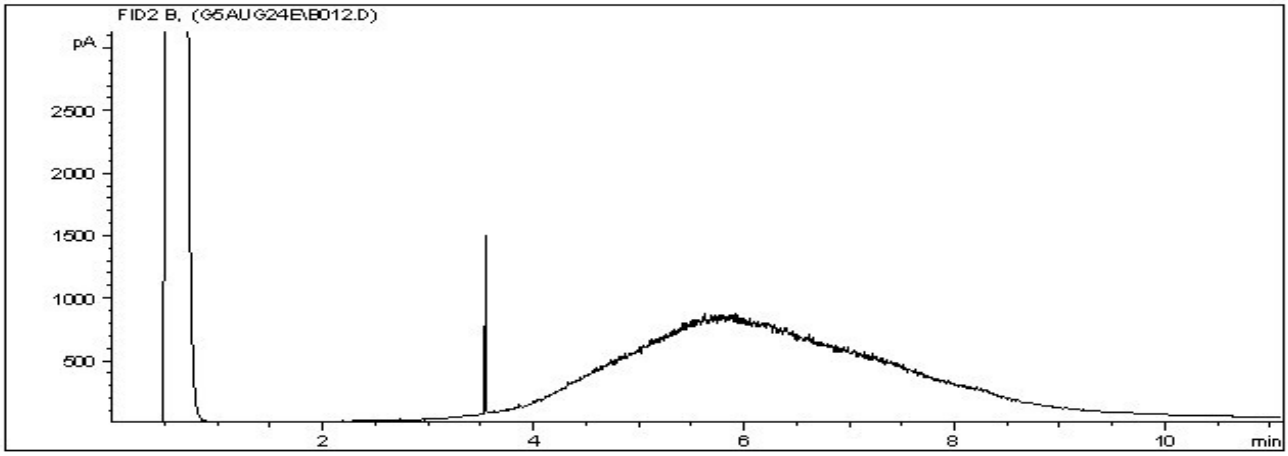
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178122
Maxxam Sample: BI1660

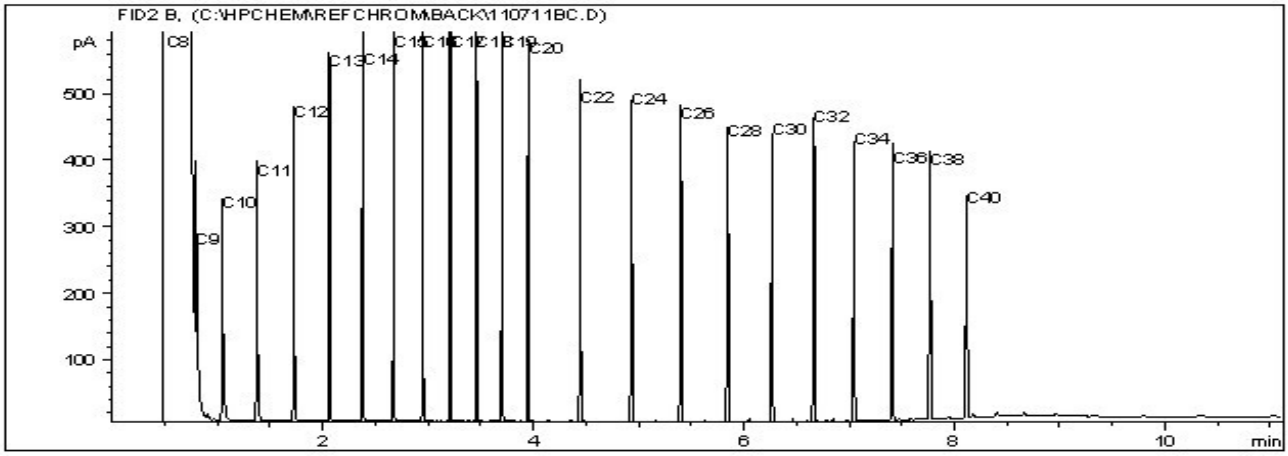
ACCESS CONSULTING GROUP
Client Project #: TEK 11-02

Client ID: SITE 1-PILE 6

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C60+
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

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

Your Project #: TEK-11-02/YHC-11-04
Your C.O.C. #: 08336917

Attention: Scott Keesey
ACCESS CONSULTING GROUP
#3 Calcite
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 3C8

Report Date: 2011/08/30

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B178124
Received: 2011/08/23, 09:15

Sample Matrix: Soil
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE Soil LH, VH, F1 SIM/MS	7	2011/08/24	2011/08/25	BBY8-SOP-00010	EPA SW846 8260C
Elements by ICPMS (total)	4	2011/08/25	2011/08/26	BBY7SOP-00001	EPA 200.8
Metals - TCLP	4	2011/08/24	2011/08/25	BBY7SOP-00005	EPA 1311
Moisture	7	N/A	2011/08/25	BBY8SOP-00017	Ont MOE -E 3139
PAH in Soil by GC/MS (SIM)	5	2011/08/24	2011/08/25	BBY8SOP-00022	EPA 8270D
PAH in Soil by GC/MS (SIM)	2	2011/08/24	2011/08/26	BBY8SOP-00022	EPA 8270D
Total LMW, HMW, Total PAH Calc	5	N/A	2011/08/25		PAHTOT-S
Total LMW, HMW, Total PAH Calc	1	N/A	2011/08/26		PAHTOT-S
Total LMW, HMW, Total PAH Calc	1	N/A	2011/08/29		PAHTOT-S
pH (2:1 DI Water Extract)	4	2011/08/25	2011/08/25	BBY6SOP-00028	Carter, SSMA 16.2
TCLP pH Measurements	4	N/A	2011/08/25		
EPH less PAH in Soil By GC/FID	4	N/A	2011/08/25		
EPH less PAH in Soil By GC/FID	2	N/A	2011/08/26		
EPH less PAH in Soil By GC/FID	1	N/A	2011/08/29		
BC Hydrocarbons in Soil by GC/FID	2	2011/08/24	2011/08/24	BBY8SOP-00029	BC Env Lab Manual
BC Hydrocarbons in Soil by GC/FID	5	2011/08/24	2011/08/25	BBY8SOP-00029	BC Env Lab Manual
Volatile HC-BTEX	7	N/A	2011/08/26		

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE LH, VH, F1 SIM/MS	2	2011/08/24	2011/08/24	BBY8-SOP-00010	EPA 8260C
Extrac. Pet HC when LEPH/HEPH required	3	2011/08/28	2011/08/29	BBY8SOP-00029	BCCSR Method 4
PAH in Water by GC/MS (SIM)	3	2011/08/28	2011/08/30	BBY8SOP-00021	EPA 8270D
Total LMW, HMW, Total PAH Calc	3	N/A	2011/08/30		
EPH less PAH in Water by GC/FID	3	N/A	2011/08/30		
Volatile HC-BTEX	2	N/A	2011/08/25		

* Results relate only to the items tested.

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Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

Encryption Key

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

Kimberley Mohr, BBY Customer Service Supervisor
Email: kmohr@maxxam.ca
Phone# (604) 638-3254

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

Total cover pages: 2

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

PHYSICAL TESTING (SOIL)

Maxxam ID		BI1639	BI1640	BI1641	BI1642	BI1643	BI1644	BI1645		
Sampling Date		2011/08/19 13:30	2011/08/19 13:40	2011/08/19 16:32	2011/08/19 11:11	2011/08/19 13:10	2011/08/19 13:00	2011/08/19 13:10		
	Units	**SITE 4-1-BASE**	**SITE 4-2-BASE**	**SITE 4-26-BASE**	**SITE 4-PILE 1**	**SITE 4-PILE 2**	**SITE 4-PILE 3**	**SITE 4-PILE 4**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	4.7	4.7	6.3	3.9	5.2	10	11	0.3	5116302

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BI1642	BI1643	BI1644	BI1645		
Sampling Date		2011/08/19 11:11	2011/08/19 13:10	2011/08/19 13:00	2011/08/19 13:10		
	Units	**SITE 4-PILE 1**	**SITE 4-PILE 2**	**SITE 4-PILE 3**	**SITE 4-PILE 4**	**RDL**	**QC Batch**
TCLP Extraction Procedure							
Initial pH of Sample	pH Units	5.15	5.78	9.02	8.98	N/A	5118426
Final pH of Leachate	pH Units	5.57	5.80	5.85	5.90	N/A	5118426
pH of Leaching Fluid	pH Units	4.88	4.88	4.88	4.88	N/A	5118426

N/A = Not Applicable
RDL = Reportable Detection Limit

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1639	BI1640	BI1641		
Sampling Date		2011/08/19 13:30	2011/08/19 13:40	2011/08/19 16:32		
	Units	**SITE 4-1-BASE**	**SITE 4-2-BASE**	**SITE 4-26-BASE**	**RDL**	**QC Batch**
Volatiles						
VPH (VH6 to 10 - BTEX)	mg/kg	11	<10	<10	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	<0.1	<0.1	0.1	5121241
Benzene	mg/kg	<0.005	<0.005	<0.005	0.005	5121241
Toluene	mg/kg	<0.02	<0.02	<0.02	0.02	5121241
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	0.01	5121241
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	0.04	5121241
o-Xylene	mg/kg	<0.04	<0.04	<0.04	0.04	5121241
Styrene	mg/kg	<0.03	<0.03	<0.03	0.03	5121241
Xylenes (Total)	mg/kg	<0.04	<0.04	<0.04	0.04	5121241
VH C6-C10	mg/kg	11	<10	<10	10	5121241
Surrogate Recovery (%)						
4-BROMOFLUOROBENZENE (sur.)	%	103	100	97		5121241
D10-ETHYLBENZENE (sur.)	%	95	96	90		5121241
D4-1,2-DICHLOROETHANE (sur.)	%	96	93	95		5121241
D8-TOLUENE (sur.)	%	100	103	103		5121241

RDL = Reportable Detection Limit

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1642		BI1643		BI1644		BI1645		
Sampling Date		2011/08/19 11:11		2011/08/19 13:10		2011/08/19 13:00		2011/08/19 13:10		
	Units	**SITE 4-PILE 1**	**QC Batch**	**SITE 4-PILE 2**	**QC Batch**	**SITE 4-PILE 3**	**QC Batch**	**SITE 4-PILE 4**	**RDL**	**QC Batch**
Volatiles										
VPH (VH6 to 10 - BTEX)	mg/kg	<10	5115855	<10	5115855	<10	5115855	<10	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	5118190	<0.1	5121241	<0.1	5118190	<0.1	0.1	5121241
Benzene	mg/kg	<0.005	5118190	<0.005	5121241	<0.005	5118190	<0.005	0.005	5121241
Toluene	mg/kg	<0.02	5118190	<0.02	5121241	<0.02	5118190	<0.02	0.02	5121241
Ethylbenzene	mg/kg	<0.01	5118190	<0.01	5121241	<0.01	5118190	<0.01	0.01	5121241
m & p-Xylene	mg/kg	<0.04	5118190	<0.04	5121241	<0.04	5118190	<0.04	0.04	5121241
o-Xylene	mg/kg	<0.04	5118190	<0.04	5121241	<0.04	5118190	<0.04	0.04	5121241
Styrene	mg/kg	<0.03	5118190	<0.03	5121241	<0.03	5118190	<0.03	0.03	5121241
Xylenes (Total)	mg/kg	<0.04	5118190	<0.04	5121241	<0.04	5118190	<0.04	0.04	5121241
VH C6-C10	mg/kg	<10	5118190	<10	5121241	<10	5118190	<10	10	5121241
Surrogate Recovery (%)										
4-BROMOFLUOROBENZENE (sur.)	%	82	5118190	99	5121241	85	5118190	95		5121241
D10-ETHYLBENZENE (sur.)	%	89	5118190	91	5121241	98	5118190	93		5121241
D4-1,2-DICHLOROETHANE (sur.)	%	72	5118190	91	5121241	74	5118190	92		5121241
D8-TOLUENE (sur.)	%	116	5118190	104	5121241	117	5118190	100		5121241

RDL = Reportable Detection Limit

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

BCCSR BTEX/VPH IN WATER (WATER)

Maxxam ID		BI1646	BI1647		
Sampling Date		2011/08/19 10:30	2011/08/19 10:40		
	Units	**MW-4**	**MW-2**	**RDL**	**QC Batch**
Volatiles					
VPH (VH6 to 10 - BTEX)	ug/L	<300	<300	300	5114632
Methyl-tert-butylether (MTBE)	ug/L	<4	<4	4	5119255
Benzene	ug/L	<0.4	<0.4	0.4	5119255
Toluene	ug/L	<0.4	<0.4	0.4	5119255
Ethylbenzene	ug/L	<0.4	4.6	0.4	5119255
m & p-Xylene	ug/L	<0.4	<0.4	0.4	5119255
o-Xylene	ug/L	<0.4	1.9	0.4	5119255
Styrene	ug/L	<0.4	<0.4	0.4	5119255
Xylenes (Total)	ug/L	<0.4	1.9	0.4	5119255
VH C6-C10	ug/L	<300	<300	300	5119255
Surrogate Recovery (%)					
4-BROMOFLUOROBENZENE (sur.)	%	103	100		5119255
D4-1,2-DICHLOROETHANE (sur.)	%	106	110		5119255
D8-TOLUENE (sur.)	%	98	97		5119255

RDL = Reportable Detection Limit

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1639		BI1640		BI1641		
Sampling Date		2011/08/19 13:30		2011/08/19 13:40		2011/08/19 16:32		
	Units	**SITE 4-1-BASE**	**RDL**	**SITE 4-2-BASE**	**QC Batch**	**SITE 4-26-BASE**	**RDL**	**QC Batch**
Polycyclic Aromatics								
Naphthalene	mg/kg	<0.06 (1)	0.06	<0.05	5119591	<0.05	0.05	5119361
2-Methylnaphthalene	mg/kg	0.30	0.05	<0.05	5119591	<0.05	0.05	5119361
Acenaphthylene	mg/kg	<0.06 (1)	0.06	<0.05	5119591	<0.05	0.05	5119361
Acenaphthene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Fluorene	mg/kg	<0.2 (1)	0.2	<0.05	5119591	<0.05	0.05	5119361
Phenanthrene	mg/kg	0.16	0.05	<0.05	5119591	<0.05	0.05	5119361
Anthracene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Fluoranthene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Pyrene	mg/kg	0.06	0.05	<0.05	5119591	0.06	0.05	5119361
Benzo(a)anthracene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Chrysene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Benzo(b&j)fluoranthene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Benzo(k)fluoranthene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Benzo(a)pyrene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Dibenz(a,h)anthracene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Benzo(g,h,i)perylene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.05	5119361
Low Molecular Weight PAH`s	mg/kg	0.5	0.2	<0.05	5115005	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	0.06	0.05	<0.05	5115005	0.06	0.05	5115005
Total PAH	mg/kg	0.5	0.2	<0.05	5115005	0.06	0.05	5115005
Surrogate Recovery (%)								
D10-ANTHRACENE (sur.)	%	101		97	5119591	89		5119361
D8-ACENAPHTHYLENE (sur.)	%	97		100	5119591	93		5119361
D8-NAPHTHALENE (sur.)	%	92		100	5119591	86		5119361
TERPHENYL-D14 (sur.)	%	104		103	5119591	85		5119361
Calculated Parameters								
LEPH (C10-C19 less PAH)	mg/kg	1690	100	<100	5115008	274	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	119	100	160	5115008	8590	100	5115008
Hydrocarbons								
EPH (C10-C19)	mg/kg	1700	100	<100	5119544	274	100	5119442
EPH (C19-C32)	mg/kg	119	100	160	5119544	8590	100	5119442
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	100		101	5119544	107		5119442

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1642		BI1643		BI1644		BI1645		
Sampling Date		2011/08/19 11:11		2011/08/19 13:10		2011/08/19 13:00		2011/08/19 13:10		
	Units	**SITE 4-PILE 1**	**QC Batch**	**SITE 4-PILE 2**	**QC Batch**	**SITE 4-PILE 3**	**QC Batch**	**SITE 4-PILE 4**	**RDL**	**QC Batch**
Polycyclic Aromatics										
Naphthalene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
2-Methylnaphthalene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Acenaphthylene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Acenaphthene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Fluorene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Phenanthrene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Anthracene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Fluoranthene	mg/kg	<0.05	5119591	0.13	5121873	<0.05	5119591	<0.05	0.05	5119549
Pyrene	mg/kg	<0.05	5119591	0.26	5121873	<0.05	5119591	<0.05	0.05	5119549
Benzo(a)anthracene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Chrysene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Benzo(b&j)fluoranthene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Benzo(k)fluoranthene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Benzo(a)pyrene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Dibenz(a,h)anthracene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Benzo(g,h,i)perylene	mg/kg	<0.05	5119591	<0.05	5121873	<0.05	5119591	<0.05	0.05	5119549
Low Molecular Weight PAH`s	mg/kg	<0.05	5115005	<0.05	5115005	<0.05	5115005	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	<0.05	5115005	0.39	5115005	<0.05	5115005	<0.05	0.05	5115005
Total PAH	mg/kg	<0.05	5115005	0.39	5115005	<0.05	5115005	<0.05	0.05	5115005
Surrogate Recovery (%)										
D10-ANTHRACENE (sur.)	%	76	5119591	94	5121873	92	5119591	95		5119549
D8-ACENAPHTHYLENE (sur.)	%	77	5119591	97	5121873	93	5119591	96		5119549
D8-NAPHTHALENE (sur.)	%	75	5119591	90	5121873	90	5119591	94		5119549
TERPHENYL-D14 (sur.)	%	73	5119591	98	5121873	94	5119591	102		5119549
Calculated Parameters										
LEPH (C10-C19 less PAH)	mg/kg	254	5115008	308	5115008	131	5115008	154	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	14500	5115008	17200	5115008	4830	5115008	4460	100	5115008
Hydrocarbons										
EPH (C10-C19)	mg/kg	254	5119544	308	5119470	131	5119544	154	100	5119529
EPH (C19-C32)	mg/kg	14500	5119544	17200	5119470	4830	5119544	4460	100	5119529
Surrogate Recovery (%)										
O-TERPHENYL (sur.)	%	101	5119544	100	5119470	102	5119544	88		5119529

RDL = Reportable Detection Limit

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

LEPH & HEPH FOR CSR IN WATER (WATER)

Maxxam ID		BI1646		BI1647		BI1648		
Sampling Date		2011/08/19 10:30		2011/08/19 10:40		2011/08/19 10:45		
	Units	**MW-4**	**RDL**	**MW-2**	**RDL**	**MW-8**	**RDL**	**QC Batch**
Polycyclic Aromatics								
Low Molecular Weight PAH`s	ug/L	<0.5	0.5	<0.8	0.8	<2	2	5115006
High Molecular Weight PAH`s	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5115006
Total PAH	ug/L	<0.5	0.5	<0.8	0.8	<2	2	5115006
Naphthalene	ug/L	0.11	0.05	<0.4(1)	0.4	<0.5(1)	0.5	5130027
2-Methylnaphthalene	ug/L	0.10	0.05	<0.05	0.05	<0.05	0.05	5130027
Quinoline	ug/L	<0.5	0.5	<0.8(1)	0.8	<2(1)	2	5130027
Acenaphthylene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Acenaphthene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Fluorene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Phenanthrene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Anthracene	ug/L	<0.01	0.01	<0.01	0.01	<0.01	0.01	5130027
Acridine	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Fluoranthene	ug/L	<0.02	0.02	<0.02	0.02	<0.02	0.02	5130027
Pyrene	ug/L	<0.02	0.02	<0.02	0.02	<0.02	0.02	5130027
Benzo(a)anthracene	ug/L	<0.01	0.01	<0.01	0.01	<0.01	0.01	5130027
Chrysene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Benzo(b&j)fluoranthene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Benzo(k)fluoranthene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Benzo(a)pyrene	ug/L	<0.009	0.009	<0.009	0.009	<0.009	0.009	5130027
Indeno(1,2,3-cd)pyrene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Dibenz(a,h)anthracene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Benzo(g,h,i)perylene	ug/L	<0.05	0.05	<0.05	0.05	<0.05	0.05	5130027
Surrogate Recovery (%)								
D10-ANTHRACENE (sur.)	%	82		83		82		5130027
D8-ACENAPHTHYLENE (sur.)	%	79		81		81		5130027
D8-NAPHTHALENE (sur.)	%	75		76		73		5130027
D9-Acridine	%	59		67		67		5130027
TERPHENYL-D14 (sur.)	%	78		78		78		5130027
Calculated Parameters								
LEPH (C10-C19 less PAH)	mg/L	<0.20	0.20	<0.20	0.20	0.24	0.20	5115032
HEPH (C19-C32 less PAH)	mg/L	<0.20	0.20	<0.20	0.20	<0.20	0.20	5115032
Ext. Pet. Hydrocarbon								
EPH (C10-C19)	mg/L	<0.20	0.20	<0.20	0.20	0.24	0.20	5130017
EPH (C19-C32)	mg/L	<0.20	0.20	<0.20	0.20	<0.20	0.20	5130017

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

LEPH & HEPH FOR CSR IN WATER (WATER)

Maxxam ID		BI1646		BI1647		BI1648		
Sampling Date		2011/08/19 10:30		2011/08/19 10:40		2011/08/19 10:45		
	Units	**MW-4**	**RDL**	**MW-2**	**RDL**	**MW-8**	**RDL**	**QC Batch**
Surrogate Recovery (%)								
O-TERPHENYL (sur.)	%	97		97		97		5130017

RDL = Reportable Detection Limit

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		BI1642	BI1643	BI1644	BI1645		
Sampling Date		2011/08/19 11:11	2011/08/19 13:10	2011/08/19 13:00	2011/08/19 13:10		
	Units	**SITE 4-PILE 1**	**SITE 4-PILE 2**	**SITE 4-PILE 3**	**SITE 4-PILE 4**	**RDL**	**QC Batch**
Physical Properties							
Soluble (2:1) pH	pH Units	7.59	7.75	8.47	8.47	0.01	5122652
Total Metals by ICPMS							
Total Aluminum (Al)	mg/kg	12200	12400	9650	10500	100	5122649
Total Antimony (Sb)	mg/kg	3.9	3.9	3.3	2.5	0.1	5122649
Total Arsenic (As)	mg/kg	20.2	26.6	45.2	16.3	0.5	5122649
Total Barium (Ba)	mg/kg	163	171	136	141	0.1	5122649
Total Beryllium (Be)	mg/kg	0.6	0.9	0.5	0.5	0.4	5122649
Total Bismuth (Bi)	mg/kg	3.7	3.1	0.6	0.9	0.1	5122649
Total Cadmium (Cd)	mg/kg	10.4	18.1	4.83	5.38	0.05	5122649
Total Calcium (Ca)	mg/kg	32700	32500	25400	25500	100	5122649
Total Chromium (Cr)	mg/kg	23	23	18	20	1	5122649
Total Cobalt (Co)	mg/kg	10.0	11.1	8.6	9.1	0.3	5122649
Total Copper (Cu)	mg/kg	29.1	34.2	29.8	500	0.5	5122649
Total Iron (Fe)	mg/kg	24700	24700	23800	23400	100	5122649
Total Lead (Pb)	mg/kg	360	552	238	263	0.1	5122649
Total Magnesium (Mg)	mg/kg	10200	10300	8950	9440	100	5122649
Total Manganese (Mn)	mg/kg	435	471	369	370	0.2	5122649
Total Mercury (Hg)	mg/kg	<0.05	0.06	<0.05	<0.05	0.05	5122649
Total Molybdenum (Mo)	mg/kg	3.8	4.4	3.4	3.4	0.1	5122649
Total Nickel (Ni)	mg/kg	31.8	31.1	29.4	28.8	0.8	5122649
Total Phosphorus (P)	mg/kg	1210	782	720	869	10	5122649
Total Potassium (K)	mg/kg	983	1010	544	627	100	5122649
Total Selenium (Se)	mg/kg	2.1	3.5	0.9	1.8	0.5	5122649
Total Silver (Ag)	mg/kg	1.20	1.74	0.61	0.71	0.05	5122649
Total Sodium (Na)	mg/kg	<100	<100	<100	<100	100	5122649
Total Strontium (Sr)	mg/kg	97.5	116	81.0	89.5	0.1	5122649
Total Thallium (Tl)	mg/kg	0.25	0.24	0.17	0.17	0.05	5122649
Total Tin (Sn)	mg/kg	0.6	1.0	0.4	0.4	0.1	5122649
Total Titanium (Ti)	mg/kg	509	509	334	401	1	5122649
Total Vanadium (V)	mg/kg	39	38	29	32	2	5122649
Total Zinc (Zn)	mg/kg	1960	3560	887	1030	1	5122649
Total Zirconium (Zr)	mg/kg	2.8	2.9	3.3	3.6	0.5	5122649

RDL = Reportable Detection Limit

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

TCLP METALS (SOIL)

Maxxam ID		BI1642	BI1643	BI1644	BI1645		
Sampling Date		2011/08/19 11:11	2011/08/19 13:10	2011/08/19 13:00	2011/08/19 13:10		
	Units	**SITE 4-PILE 1**	**SITE 4-PILE 2**	**SITE 4-PILE 3**	**SITE 4-PILE 4**	**RDL**	**QC Batch**
Metals							
LEACHATE Antimony (Sb)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Arsenic (As)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Barium (Ba)	mg/L	0.8	1.0	1.4	1.4	0.1	5123896
LEACHATE Beryllium (Be)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Boron (B)	mg/L	0.6	0.1	0.1	0.2	0.1	5123896
LEACHATE Cadmium (Cd)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Cobalt (Co)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Copper (Cu)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Iron (Fe)	mg/L	1.0	0.9	<0.5	<0.5	0.5	5123896
LEACHATE Lead (Pb)	mg/L	0.2	0.3	0.2	0.2	0.1	5123896
LEACHATE Mercury (Hg)	mg/L	<0.002	<0.002	<0.002	<0.002	0.002	5123896
LEACHATE Molybdenum (Mo)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Nickel (Ni)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Selenium (Se)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Silver (Ag)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Thallium (Tl)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Uranium (U)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Vanadium (V)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Zinc (Zn)	mg/L	1.8	2.1	0.7	0.7	0.1	5123896
LEACHATE Zirconium (Zr)	mg/L	<0.1	<0.1	<0.1	<0.1	0.1	5123896

RDL = Reportable Detection Limit

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

Package 1	7.3°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5116302	Moisture	2011/08/25					<0.3	%	2.2	20		
5118190	4-BROMOFLUOROBENZENE (sur.)	2011/08/24	96	70 - 130	94	70 - 130	95	%			94	70 - 130
5118190	D10-ETHYLBENZENE (sur.)	2011/08/24	83	50 - 130	76	50 - 130	83	%			76	50 - 130
5118190	D4-1,2-DICHLOROETHANE (sur.)	2011/08/24	86	70 - 130	80	70 - 130	80	%			81	70 - 130
5118190	D8-TOLUENE (sur.)	2011/08/24	109	70 - 130	106	70 - 130	107	%			106	70 - 130
5118190	Benzene	2011/08/25	90	60 - 140	84	60 - 140	<0.005	mg/kg	NC	40		
5118190	Toluene	2011/08/25	99	60 - 140	95	60 - 140	<0.02	mg/kg	NC	40		
5118190	Ethylbenzene	2011/08/25	92	60 - 140	90	60 - 140	<0.01	mg/kg	NC	40		
5118190	m & p-Xylene	2011/08/25	85	60 - 140	85	60 - 140	<0.04	mg/kg	NC	40		
5118190	o-Xylene	2011/08/25	90	60 - 140	88	60 - 140	<0.04	mg/kg	NC	40		
5118190	VH C6-C10	2011/08/25					<10	mg/kg	NC	40	109	60 - 140
5118190	Methyl-tert-butylether(MTBE)	2011/08/25					<0.1	mg/kg	NC	40		
5118190	Styrene	2011/08/25					<0.03	mg/kg	NC	40		
5118190	Xylenes (Total)	2011/08/25					<0.04	mg/kg	NC	40		
5118426	Initial pH of Sample	2011/08/25					4.88, RDL=N/A	pH Units	0.8	20		
5118426	Final pH of Leachate	2011/08/25					4.88, RDL=N/A	pH Units	0.6	20		
5118426	pH of Leaching Fluid	2011/08/25					4.88, RDL=N/A	pH Units	0	20		
5119255	4-BROMOFLUOROBENZENE (sur.)	2011/08/24	105	70 - 130	106	70 - 130	103	%			105	70 - 130
5119255	D4-1,2-DICHLOROETHANE (sur.)	2011/08/24	108	70 - 130	103	70 - 130	104	%			103	70 - 130
5119255	D8-TOLUENE (sur.)	2011/08/24	97	70 - 130	100	70 - 130	99	%			103	70 - 130
5119255	Methyl-tert-butylether(MTBE)	2011/08/24	108	70 - 130	106	70 - 130	<4	ug/L				
5119255	Benzene	2011/08/24	103	70 - 130	108	70 - 130	<0.4	ug/L	NC	30		
5119255	Toluene	2011/08/24	106	70 - 130	110	70 - 130	<0.4	ug/L	NC	30		
5119255	Ethylbenzene	2011/08/24	103	70 - 130	105	70 - 130	<0.4	ug/L	NC	30		
5119255	m & p-Xylene	2011/08/24	103	70 - 130	105	70 - 130	<0.4	ug/L	NC	30		
5119255	o-Xylene	2011/08/24	109	70 - 130	109	70 - 130	<0.4	ug/L	NC	30		
5119255	Styrene	2011/08/24	107	70 - 130	104	70 - 130	<0.4	ug/L				
5119255	VH C6-C10	2011/08/24					<300	ug/L			97	70 - 130
5119255	Xylenes (Total)	2011/08/24					<0.4	ug/L	NC	30		
5119361	D10-ANTHRACENE (sur.)	2011/08/26	119	60 - 130	109	60 - 130	100	%				
5119361	D8-ACENAPHTHYLENE (sur.)	2011/08/26	120	50 - 130	111	50 - 130	101	%				
5119361	D8-NAPHTHALENE (sur.)	2011/08/26	111	50 - 130	109	50 - 130	100	%				
5119361	TERPHENYL-D14 (sur.)	2011/08/26	117	60 - 130	111	60 - 130	104	%				
5119361	Naphthalene	2011/08/26	95	50 - 130	103	50 - 130	<0.05	mg/kg	NC(1)	50		
5119361	2-Methylnaphthalene	2011/08/26	98	50 - 130	105	50 - 130	<0.05	mg/kg	NC	50		
5119361	Acenaphthylene	2011/08/26	102	50 - 130	104	50 - 130	<0.05	mg/kg	NC	50		
5119361	Acenaphthene	2011/08/26	103	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119361	Fluorene	2011/08/26	105	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119361	Phenanthrene	2011/08/26	98	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119361	Anthracene	2011/08/26	101	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5119361	Fluoranthene	2011/08/26	101	60 - 130	105	60 - 130	<0.05	mg/kg	NC	50		
5119361	Pyrene	2011/08/26	105	60 - 130	109	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(a)anthracene	2011/08/26	90	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119361	Chrysene	2011/08/26	93	60 - 130	105	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(b&j)fluoranthene	2011/08/26	99	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(k)fluoranthene	2011/08/26	82	60 - 130	118	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(a)pyrene	2011/08/26	95	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119361	Indeno(1,2,3-cd)pyrene	2011/08/26	85	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		
5119361	Dibenz(a,h)anthracene	2011/08/26	90	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(g,h,i)perylene	2011/08/26	79	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119442	O-TERPHENYL (sur.)	2011/08/24	101	50 - 130	103	50 - 130	102	%				
5119442	EPH (C10-C19)	2011/08/24	NC	50 - 130	112	50 - 130	<100	mg/kg	26.9	40		
5119442	EPH (C19-C32)	2011/08/24	NC	50 - 130	107	50 - 130	<100	mg/kg	6.9	40		
5119470	O-TERPHENYL (sur.)	2011/08/24	103	50 - 130	103	50 - 130	104	%				
5119470	EPH (C10-C19)	2011/08/24	NC	50 - 130	103	50 - 130	<100	mg/kg	NC	40		
5119470	EPH (C19-C32)	2011/08/24	NC	50 - 130	106	50 - 130	<100	mg/kg	2.5	40		
5119529	O-TERPHENYL (sur.)	2011/08/24	93	50 - 130	98	50 - 130	96	%				
5119529	EPH (C10-C19)	2011/08/24	NC	50 - 130	99	50 - 130	<100	mg/kg	25.7	40		
5119529	EPH (C19-C32)	2011/08/24	NC	50 - 130	102	50 - 130	<100	mg/kg	3.1	40		
5119544	O-TERPHENYL (sur.)	2011/08/25	95	50 - 130	99	50 - 130	102	%				
5119544	EPH (C10-C19)	2011/08/25	63	50 - 130	99	50 - 130	<100	mg/kg	NC	40		
5119544	EPH (C19-C32)	2011/08/25	NC	50 - 130	101	50 - 130	<100	mg/kg	17.8	40		
5119549	D10-ANTHRACENE (sur.)	2011/08/25	81	60 - 130	109	60 - 130	102	%				
5119549	D8-ACENAPHTHYLENE (sur.)	2011/08/25	81	50 - 130	111	50 - 130	102	%				
5119549	D8-NAPHTHALENE (sur.)	2011/08/25	78	50 - 130	110	50 - 130	101	%				
5119549	TERPHENYL-D14 (sur.)	2011/08/25	71	60 - 130	117	60 - 130	108	%				
5119549	Naphthalene	2011/08/26	62	50 - 130	103	50 - 130	<0.05	mg/kg	NC	50		
5119549	2-Methylnaphthalene	2011/08/26	64	50 - 130	104	50 - 130	<0.05	mg/kg	NC	50		
5119549	Acenaphthylene	2011/08/26	67	50 - 130	106	50 - 130	<0.05	mg/kg	NC	50		
5119549	Acenaphthene	2011/08/26	68	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119549	Fluorene	2011/08/26	68	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119549	Phenanthrene	2011/08/26	67	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Anthracene	2011/08/26	69	60 - 130	105	60 - 130	<0.05	mg/kg	NC(1)	50		
5119549	Fluoranthene	2011/08/26	65	60 - 130	110	60 - 130	<0.05	mg/kg	NC	50		
5119549	Pyrene	2011/08/26	64	60 - 130	115	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(a)anthracene	2011/08/26	82	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119549	Chrysene	2011/08/26	88	60 - 130	102	60 - 130	<0.05	mg/kg	NC(1)	50		
5119549	Benzo(b&j)fluoranthene	2011/08/26	62	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(k)fluoranthene	2011/08/26	72	60 - 130	102	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(a)pyrene	2011/08/26	83	60 - 130	104	60 - 130	<0.05	mg/kg	NC	50		

Maxxam Job #: B178124
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ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5119549	Indeno(1,2,3-cd)pyrene	2011/08/26	77	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Dibenz(a,h)anthracene	2011/08/26	78	60 - 130	102	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(g,h,i)perylene	2011/08/26	80	60 - 130	101	60 - 130	<0.05	mg/kg	NC	50		
5119591	D10-ANTHRACENE (sur.)	2011/08/25	93	60 - 130	95	60 - 130	97	%				
5119591	D8-ACENAPHTHYLENE (sur.)	2011/08/25	63	50 - 130	94	50 - 130	95	%				
5119591	D8-NAPHTHALENE (sur.)	2011/08/25	92	50 - 130	97	50 - 130	99	%				
5119591	TERPHENYL-D14 (sur.)	2011/08/25	100	60 - 130	101	60 - 130	102	%				
5119591	Naphthalene	2011/08/25	81	50 - 130	91	50 - 130	<0.05	mg/kg	NC	50		
5119591	2-Methylnaphthalene	2011/08/25	82	50 - 130	92	50 - 130	<0.05	mg/kg	NC	50		
5119591	Acenaphthylene	2011/08/25	82	50 - 130	92	50 - 130	<0.05	mg/kg	NC	50		
5119591	Acenaphthene	2011/08/25	85	50 - 130	97	50 - 130	<0.05	mg/kg	NC	50		
5119591	Fluorene	2011/08/25	85	50 - 130	94	50 - 130	<0.05	mg/kg	NC	50		
5119591	Phenanthrene	2011/08/25	80	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119591	Anthracene	2011/08/25	82	60 - 130	92	60 - 130	<0.05	mg/kg	NC	50		
5119591	Fluoranthene	2011/08/25	86	60 - 130	96	60 - 130	<0.05	mg/kg	NC	50		
5119591	Pyrene	2011/08/25	89	60 - 130	99	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(a)anthracene	2011/08/25	77	60 - 130	84	60 - 130	<0.05	mg/kg	NC	50		
5119591	Chrysene	2011/08/25	81	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(b&j)fluoranthene	2011/08/25	88	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(k)fluoranthene	2011/08/25	74	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(a)pyrene	2011/08/25	85	60 - 130	93	60 - 130	<0.05	mg/kg	NC	50		
5119591	Indeno(1,2,3-cd)pyrene	2011/08/25	81	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5119591	Dibenz(a,h)anthracene	2011/08/25	81	60 - 130	87	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(g,h,i)perylene	2011/08/25	78	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5121241	4-BROMOFLUOROBENZENE (sur.)	2011/08/25	98	70 - 130	97	70 - 130	97	%			98	70 - 130
5121241	D10-ETHYLBENZENE (sur.)	2011/08/25	87	50 - 130	81	50 - 130	89	%			83	50 - 130
5121241	D4-1,2-DICHLOROETHANE (sur.)	2011/08/25	94	70 - 130	94	70 - 130	88	%			89	70 - 130
5121241	D8-TOLUENE (sur.)	2011/08/25	103	70 - 130	103	70 - 130	104	%			105	70 - 130
5121241	Benzene	2011/08/25	86	60 - 140	92	60 - 140	<0.005	mg/kg	NC	40		
5121241	Toluene	2011/08/25	91	60 - 140	99	60 - 140	<0.02	mg/kg	NC	40		
5121241	Ethylbenzene	2011/08/25	89	60 - 140	98	60 - 140	<0.01	mg/kg	NC	40		
5121241	m & p-Xylene	2011/08/25	85	60 - 140	96	60 - 140	<0.04	mg/kg	NC	40		
5121241	o-Xylene	2011/08/25	88	60 - 140	98	60 - 140	<0.04	mg/kg	NC	40		
5121241	VH C6-C10	2011/08/25					<10	mg/kg	NC	40	102	60 - 140
5121241	Methyl-tert-butylether(MTBE)	2011/08/25					<0.1	mg/kg	NC	40		
5121241	Styrene	2011/08/25					<0.03	mg/kg	NC	40		
5121241	Xylenes (Total)	2011/08/25					<0.04	mg/kg	NC	40		
5121873	D10-ANTHRACENE (sur.)	2011/08/24	86	60 - 130	94	60 - 130	97	%				
5121873	D8-ACENAPHTHYLENE (sur.)	2011/08/24	84	50 - 130	93	50 - 130	98	%				
5121873	D8-NAPHTHALENE (sur.)	2011/08/24	94	50 - 130	96	50 - 130	102	%				

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5121873	TERPHENYL-D14 (sur.)	2011/08/24	84	60 - 130	100	60 - 130	104	%				
5121873	Naphthalene	2011/08/25	83	50 - 130	91	50 - 130	<0.05	mg/kg	22.1(2)	50		
5121873	2-Methylnaphthalene	2011/08/25	85	50 - 130	91	50 - 130	<0.05	mg/kg	28.3(2)	50		
5121873	Acenaphthylene	2011/08/25	74	50 - 130	92	50 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Acenaphthene	2011/08/25	80	50 - 130	95	50 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Fluorene	2011/08/25	79	50 - 130	94	50 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Phenanthrene	2011/08/25	76	60 - 130	90	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Anthracene	2011/08/25	74	60 - 130	91	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Fluoranthene	2011/08/25	77	60 - 130	94	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Pyrene	2011/08/25	79	60 - 130	98	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Benzo(a)anthracene	2011/08/25	68	60 - 130	82	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Chrysene	2011/08/25	79	60 - 130	93	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Benzo(b&j)fluoranthene	2011/08/25	75	60 - 130	88	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Benzo(k)fluoranthene	2011/08/25	75	60 - 130	90	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Benzo(a)pyrene	2011/08/25	76	60 - 130	92	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Indeno(1,2,3-cd)pyrene	2011/08/25	72	60 - 130	85	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Dibenz(a,h)anthracene	2011/08/25	72	60 - 130	86	60 - 130	<0.05	mg/kg	NC(2)	50		
5121873	Benzo(g,h,i)perylene	2011/08/25	72	60 - 130	84	60 - 130	<0.05	mg/kg	NC(2)	50		
5122649	Total Antimony (Sb)	2011/08/26	101	75 - 125	98	75 - 125	<0.1	mg/kg	NC	30	93	70 - 130
5122649	Total Arsenic (As)	2011/08/26	98	75 - 125	103	75 - 125	<0.5	mg/kg	3.3	30	86	70 - 130
5122649	Total Barium (Ba)	2011/08/26	NC	75 - 125	99	75 - 125	<0.1	mg/kg	2.2	35	99	70 - 130
5122649	Total Beryllium (Be)	2011/08/26	106	75 - 125	105	75 - 125	<0.4	mg/kg	NC	30		
5122649	Total Cadmium (Cd)	2011/08/26	103	75 - 125	101	75 - 125	<0.05	mg/kg	12.4	30	88	70 - 130
5122649	Total Chromium (Cr)	2011/08/26	99	75 - 125	96	75 - 125	<1	mg/kg	13.1	30	94	70 - 130
5122649	Total Cobalt (Co)	2011/08/26	97	75 - 125	98	75 - 125	<0.3	mg/kg	1.9	30	89	70 - 130
5122649	Total Copper (Cu)	2011/08/26	93	75 - 125	99	75 - 125	<0.5	mg/kg	2.2	30	85	70 - 130
5122649	Total Lead (Pb)	2011/08/26	97	75 - 125	98	75 - 125	<0.1	mg/kg	0.02	35	93	70 - 130
5122649	Total Manganese (Mn)	2011/08/26	NC	75 - 125	98	75 - 125	<0.2	mg/kg	8.6	30	93	70 - 130
5122649	Total Mercury (Hg)	2011/08/26	101	75 - 125	105	75 - 125	<0.05	mg/kg	NC	35		
5122649	Total Molybdenum (Mo)	2011/08/26	98	75 - 125	95	75 - 125	<0.1	mg/kg	2.5	35	89	70 - 130
5122649	Total Nickel (Ni)	2011/08/26	93	75 - 125	100	75 - 125	<0.8	mg/kg	3.2	30	84	70 - 130
5122649	Total Selenium (Se)	2011/08/26	104	75 - 125	110	75 - 125	<0.5	mg/kg	NC	30		
5122649	Total Silver (Ag)	2011/08/26	92	75 - 125	85	75 - 125	<0.05	mg/kg	NC	35		
5122649	Total Strontium (Sr)	2011/08/26	NC	75 - 125	95	75 - 125	<0.1	mg/kg	9.4	35	85	70 - 130
5122649	Total Thallium (Tl)	2011/08/26	90	75 - 125	96	75 - 125	<0.05	mg/kg	NC	30	87	70 - 130
5122649	Total Tin (Sn)	2011/08/26	93	75 - 125	80	75 - 125	<0.1	mg/kg	NC	35		
5122649	Total Titanium (Ti)	2011/08/26	NC	75 - 125	93	75 - 125	<1	mg/kg	6.7	35	95	70 - 130
5122649	Total Vanadium (V)	2011/08/26	105	75 - 125	99	75 - 125	<2	mg/kg	0.5	30	96	70 - 130
5122649	Total Zinc (Zn)	2011/08/26	NC	75 - 125	105	75 - 125	<1	mg/kg	8.7	30	82	70 - 130
5122649	Total Aluminum (Al)	2011/08/26					<100	mg/kg	0.1	35	94	70 - 130

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5122649	Total Calcium (Ca)	2011/08/26					<100	mg/kg	7.1	30	86	70 - 130
5122649	Total Iron (Fe)	2011/08/26					<100	mg/kg	3.9	30	85	70 - 130
5122649	Total Magnesium (Mg)	2011/08/26					<100	mg/kg	4.9	30	89	70 - 130
5122649	Total Phosphorus (P)	2011/08/26					<10	mg/kg	7.3	30	93	70 - 130
5122649	Total Bismuth (Bi)	2011/08/26					<0.1	mg/kg	NC	30		
5122649	Total Potassium (K)	2011/08/26					<100	mg/kg	1.6	35		
5122649	Total Sodium (Na)	2011/08/26					<100	mg/kg	NC	35		
5122649	Total Zirconium (Zr)	2011/08/26					<0.5	mg/kg	NC	30		
5122652	Soluble (2:1) pH	2011/08/25			101	96 - 104			0.9	20		
5123896	LEACHATE Arsenic (As)	2011/08/25	104	75 - 125	102	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Beryllium (Be)	2011/08/25	117	75 - 125	113	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Cadmium (Cd)	2011/08/25	105	75 - 125	100	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Chromium (Cr)	2011/08/25	97	75 - 125	98	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Cobalt (Co)	2011/08/25	96	75 - 125	96	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Copper (Cu)	2011/08/25	95	75 - 125	97	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Lead (Pb)	2011/08/25	95	75 - 125	97	75 - 125	<0.1	mg/L	2.4	35		
5123896	LEACHATE Nickel (Ni)	2011/08/25	98	75 - 125	97	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Selenium (Se)	2011/08/25	104	75 - 125	103	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Uranium (U)	2011/08/25	97	75 - 125	96	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Vanadium (V)	2011/08/25	100	75 - 125	100	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Zinc (Zn)	2011/08/25	100	75 - 125	95	75 - 125	<0.1	mg/L	3.5	35		
5123896	LEACHATE Antimony (Sb)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Barium (Ba)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Boron (B)	2011/08/25					<0.1	mg/L	30.4	35		
5123896	LEACHATE Iron (Fe)	2011/08/25					<0.5	mg/L	NC	35		
5123896	LEACHATE Mercury (Hg)	2011/08/25					<0.002	mg/L	NC	35		
5123896	LEACHATE Molybdenum (Mo)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Silver (Ag)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Thallium (Tl)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Zirconium (Zr)	2011/08/25					<0.1	mg/L	NC	35		
5130017	O-TERPHENYL (sur.)	2011/08/29	101	50 - 130	99	50 - 130	96	%				
5130017	EPH (C10-C19)	2011/08/29	104	50 - 130	95	50 - 130	<0.20	mg/L	NC	30		
5130017	EPH (C19-C32)	2011/08/29	106	50 - 130	102	50 - 130	<0.20	mg/L	NC	30		
5130027	D10-ANTHRACENE (sur.)	2011/08/29	96	60 - 130	106	60 - 130	89	%				
5130027	D8-ACENAPHTHYLENE (sur.)	2011/08/29	89	50 - 130	97	50 - 130	89	%				
5130027	D8-NAPHTHALENE (sur.)	2011/08/29	80	50 - 130	92	50 - 130	83	%				
5130027	D9-Acridine	2011/08/29	78	50 - 130	84	50 - 130	75	%				
5130027	TERPHENYL-D14 (sur.)	2011/08/29	97	60 - 130	100	60 - 130	87	%				
5130027	Naphthalene	2011/08/29	NC	50 - 130	91	50 - 130	<0.05	ug/L	NC	40		
5130027	2-Methylnaphthalene	2011/08/29	NC	50 - 130	85	50 - 130	<0.05	ug/L	NC	40		

Maxxam Job #: B178124
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5130027	Quinoline	2011/08/29	124	50 - 130	113	50 - 130	<0.5	ug/L	NC	40		
5130027	Acenaphthylene	2011/08/29	83	50 - 130	88	50 - 130	<0.05	ug/L	NC	40		
5130027	Acenaphthene	2011/08/29	NC	50 - 130	91	50 - 130	<0.05	ug/L	NC	40		
5130027	Fluorene	2011/08/29	NC	50 - 130	88	50 - 130	<0.05	ug/L	NC	40		
5130027	Phenanthrene	2011/08/29	NC	60 - 130	89	60 - 130	<0.05	ug/L	NC	40		
5130027	Anthracene	2011/08/29	88	60 - 130	94	60 - 130	<0.01	ug/L	NC	40		
5130027	Acridine	2011/08/29	77	50 - 130	74	50 - 130	<0.05	ug/L	NC	40		
5130027	Fluoranthene	2011/08/29	95	60 - 130	88	60 - 130	<0.02	ug/L	NC	40		
5130027	Pyrene	2011/08/29	94	60 - 130	91	60 - 130	<0.02	ug/L	NC	40		
5130027	Benzo(a)anthracene	2011/08/29	110	60 - 130	83	60 - 130	<0.01	ug/L	NC	40		
5130027	Chrysene	2011/08/29	128	60 - 130	86	60 - 130	<0.05	ug/L	NC	40		
5130027	Benzo(b&j)fluoranthene	2011/08/29	106	60 - 130	88	60 - 130	<0.05	ug/L	NC	40		
5130027	Benzo(k)fluoranthene	2011/08/29	120	60 - 130	85	60 - 130	<0.05	ug/L	NC	40		
5130027	Benzo(a)pyrene	2011/08/29	115	60 - 130	91	60 - 130	<0.009	ug/L	NC	40		
5130027	Indeno(1,2,3-cd)pyrene	2011/08/29	111	60 - 130	83	60 - 130	<0.05	ug/L	NC	40		
5130027	Dibenz(a,h)anthracene	2011/08/29	119	60 - 130	88	60 - 130	<0.05	ug/L	NC	40		
5130027	Benzo(g,h,i)perylene	2011/08/29	115	60 - 130	88	60 - 130	<0.05	ug/L	NC	40		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - RDL raised due to sample matrix interference.
(2) - RDL raised due to sample dilution.

Maxxam Analytics Inc
8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com
Phone: (604) 444-4808
Fax.: (604) 444-4511
Toll-Free: 1-800-440-4808

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

08336917

LAB USE ONLY
MAXXAM JOB # B178124

ANALYSIS REQUEST

LAB USE ONLY
COC #

COMPANY NAME:	Access Consulting Group
CLIENT PROJECT NO.:	TEK-11-02
COMPANY ADDRESS:	#3 Calcite Business Center 151 Industrial Rd. Whitehorse, YT Y1A 2V3
TEL.:	867-668-6463
E-MAIL:	jlanglais@accessconsulting.ca
FAX:	867-667-6680
SAMPLER NAME (PRINT):	Janelle Langlais
PROJECT MANAGER:	Scott Keesey
LABORATORY CONTACT:	Kim Mohr

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	OTHER	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	EPH/LEPH	PAH	BTEX/VPH/VH	TCLP Metals	Total Metals
1	SITE 4 -1 - BASE	BI1639				X		19/08/11	13:30	2	X	X	X		
2	SITE 4 -2 - BASE	BI1640				X		19/08/11	13:40	2	X	X	X		
3	SITE 4 -26 - BASE	BI1641				X		19/08/11	16:32	2	X	X	X		
4	SITE 4 - PILE 1	BI1642				X		19/08/11	11:11	4	X	X	X	X	X
5	SITE 4 - PILE 2	BI1643				X		19/08/11	13:10	4	X	X	X	X	X
6	SITE 4 - PILE 3	BI1644				X		20/08/11	13:00	4	X	X	X	X	X
7	SITE 4 - PILE 4	BI 1645				X		20/08/11	13:10	4	X	X	X	X	X
8	MW-4	BI 1646	X					20/08/11	10:30	6	X	X	X		
9	MW-2	BJ 1647	X					20/08/11	10:40	6	X	X	X		
10	MW-8	BI 1648	X					20/08/11	10:45	1	X				
11															
12															

TAT (Turnaround Time)
LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL
* Some exceptions apply - please contact laboratory

STANDARD	5 BUSINESS DAYS	X
RUSH	3 BUSINESS DAYS	
RUSH	2 BUSINESS DAYS	
URGENT	1 BUSINESS DAY	

OTHER BUSINESS DAYS _____

PO NUMBER OR QUOTE NUMBER: 6141

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE: Water samples have not been PRESERVED!! Please analyze within 7 days!!

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:

CCME
CSR
AB TIER 1
OTHER

JARS USED:

LAB USE ONLY
ARRIVAL TEMPERATURE °C: 7, 7, 8
DUE DATE:
LOG IN CHECK:

RELINQUISHED BY SAMPLER: Janelle Langlais	DATE: DD/MM/YY Aug/22/11	TIME: 14:30	RECEIVED BY:
RELINQUISHED BY:	DATE: DD/MM/YY	TIME:	RECEIVED BY:
RELINQUISHED BY:	DATE: DD/MM/YY 23/08/11	TIME: 09:15	RECEIVED BY LABORATORY: NICOLE LOCKYER

CUSTODY RECORD

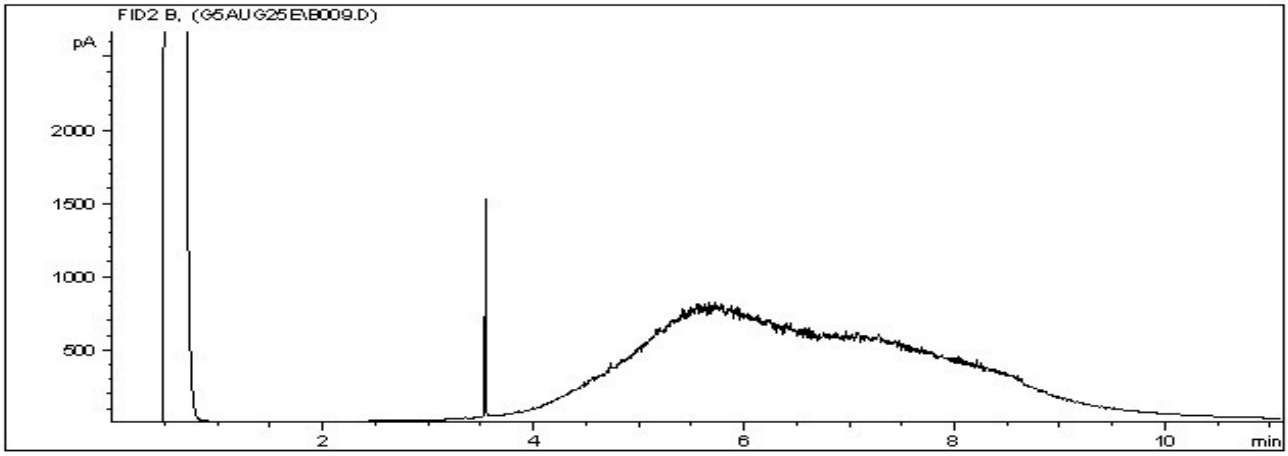
B178124

Report Date: 2011/08/30
Maxxam Job #: B178124
Maxxam Sample: BI1643

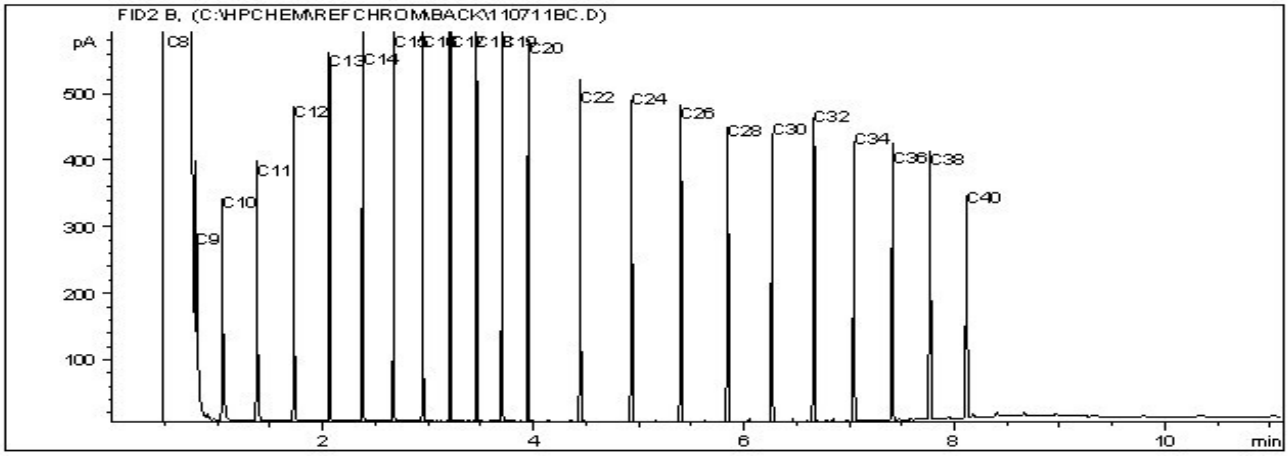
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Client ID: SITE 4-PILE 2

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 -
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

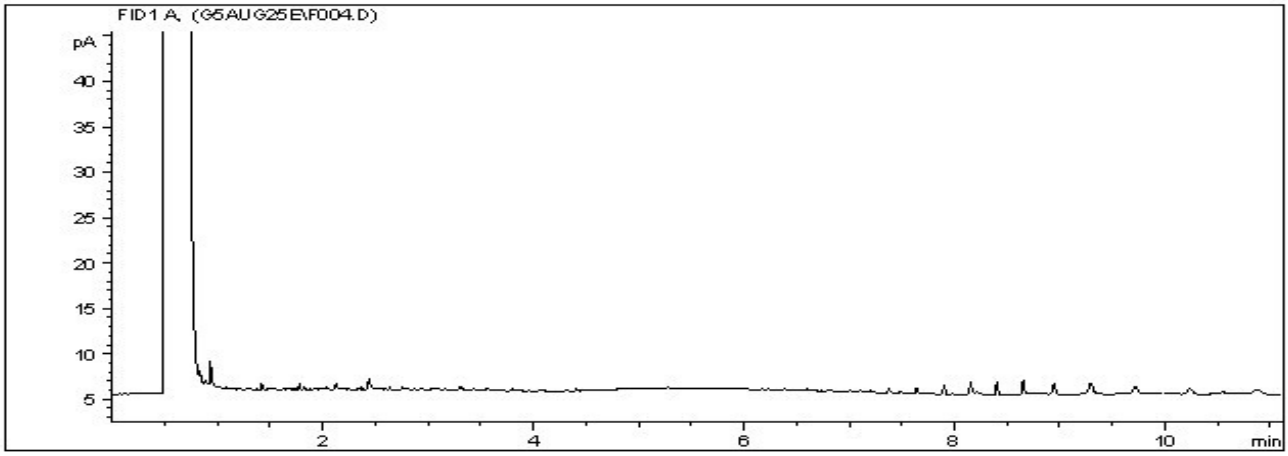
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

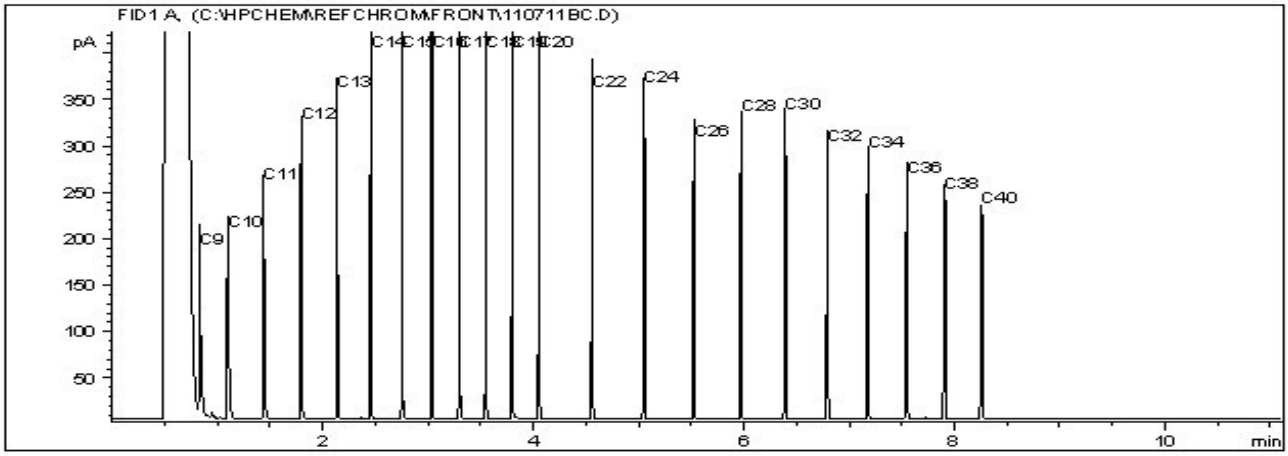
Report Date: 2011/08/30
Maxxam Job #: B178124
Maxxam Sample: BI1643 Lab-Dup

Client ID: SITE 4-PILE 2

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 -
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

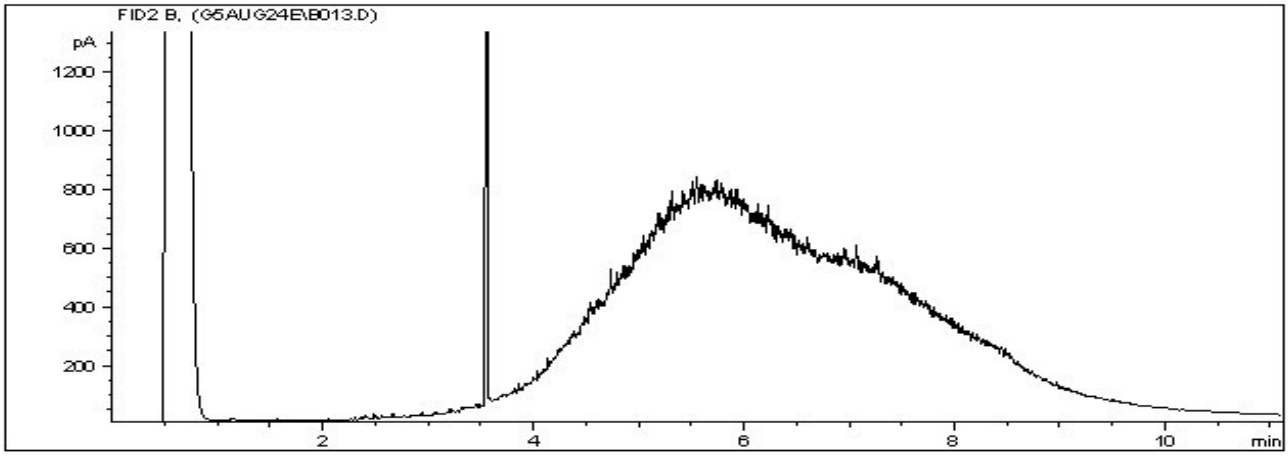
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178124
Maxxam Sample: BI1645

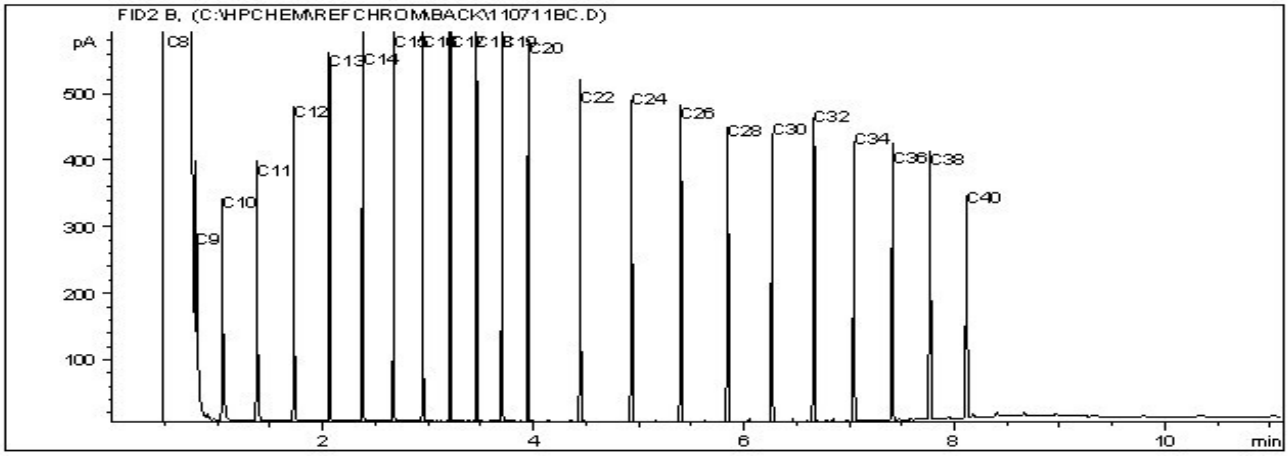
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Client ID: SITE 4-PILE 4

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C60+
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

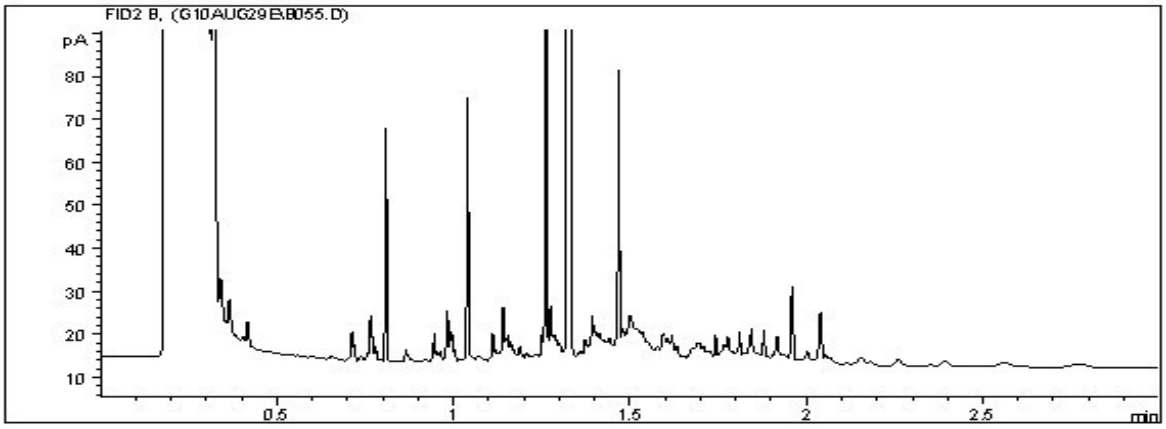
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178124
Maxxam Sample: BI1646

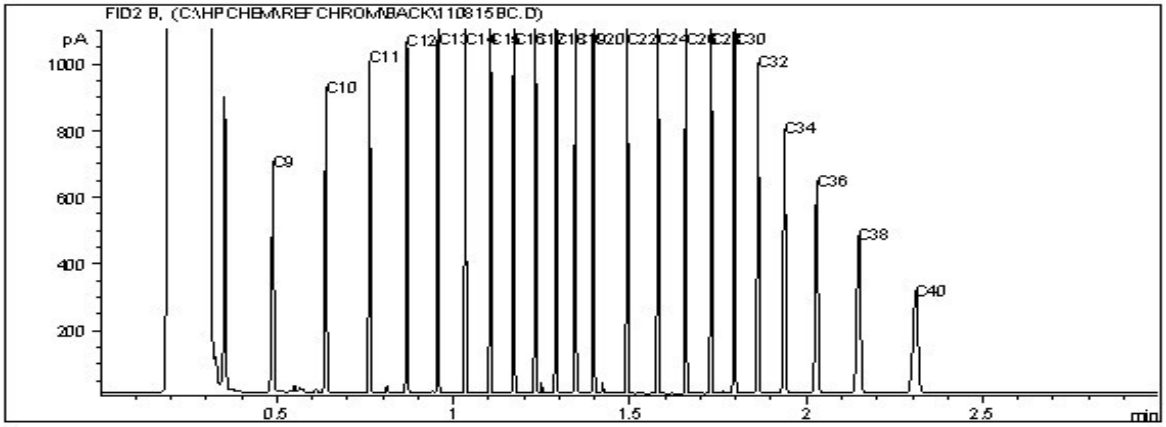
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Client ID: MW-4

Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

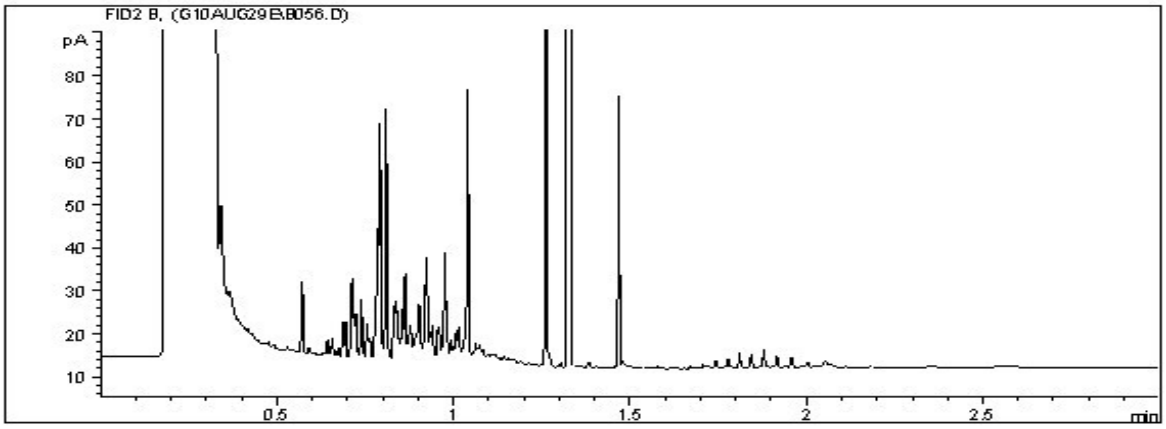
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178124
Maxxam Sample: BI1647

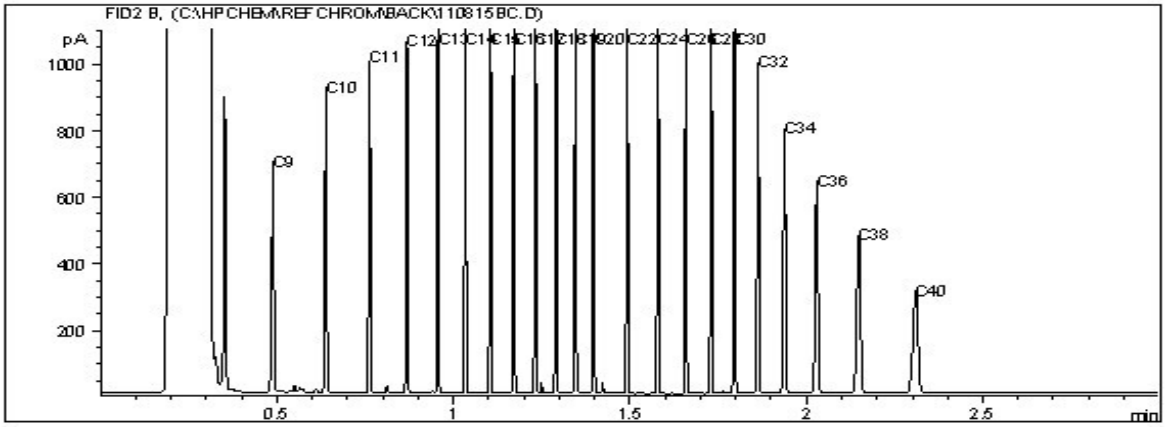
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Client ID: MW-2

Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

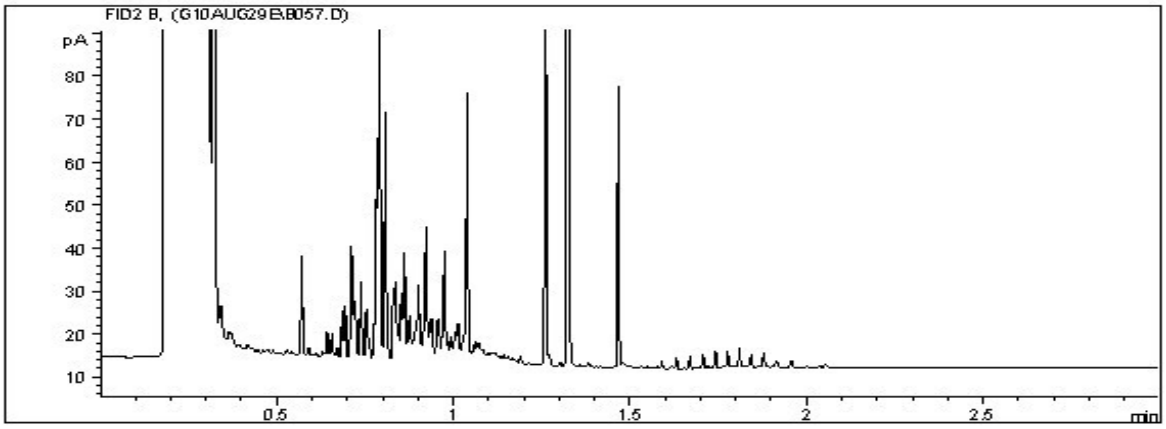
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178124
Maxxam Sample: BI1648

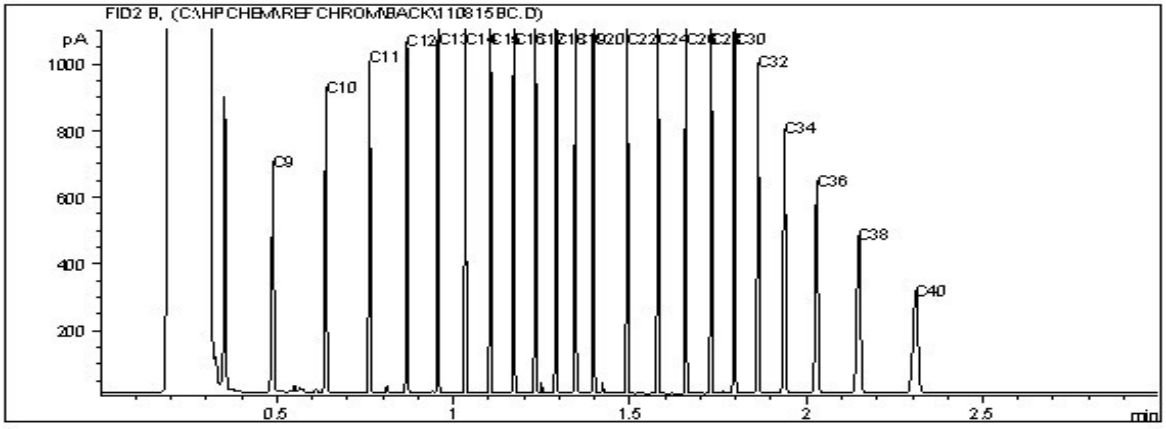
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02/YHC-11-04

Client ID: MW-8

Extrac. Pet HC when LEPH/HEPH required Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C40
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

Page 1 of 1

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

Maxxam

Success Through Science®

Your Project #: TEK-11-02
Your C.O.C. #: 08336921, 08336922

Attention: Scott Keesey
ACCESS CONSULTING GROUP
#3 Calcite
151 Industrial Road
WHITEHORSE, YT
CANADA Y1A 3C8

Report Date: 2011/08/30

CERTIFICATE OF ANALYSIS

MAXXAM JOB #: B178176
Received: 2011/08/23, 09:15

Sample Matrix: Soil
Samples Received: 22

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/MTBE Soil LH, VH, F1 SIM/MS	1	2011/08/23	2011/08/24	BBY8-SOP-00010	EPA SW846 8260C
BTEX/MTBE Soil LH, VH, F1 SIM/MS	19	2011/08/23	2011/08/25	BBY8-SOP-00010	EPA SW846 8260C
BTEX/MTBE Soil LH, VH, F1 SIM/MS	2	2011/08/23	2011/08/26	BBY8-SOP-00010	EPA SW846 8260C
Elements by ICPMS (total)	3	2011/08/24	2011/08/24	BBY7SOP-00001	EPA 200.8
Metals - TCLP	3	2011/08/24	2011/08/25	BBY7SOP-00005	EPA 1311
Moisture	22	N/A	2011/08/24	BBY8SOP-00017	Ont MOE -E 3139
PAH in Soil by GC/MS (SIM)	3	2011/08/23	2011/08/24	BBY8SOP-00022	EPA 8270D
PAH in Soil by GC/MS (SIM)	10	2011/08/23	2011/08/25	BBY8SOP-00022	EPA 8270D
PAH in Soil by GC/MS (SIM)	8	2011/08/23	2011/08/26	BBY8SOP-00022	EPA 8270D
PAH in Soil by GC/MS (SIM)	1	2011/08/23	2011/08/29	BBY8SOP-00022	EPA 8270D
Total LMW, HMW, Total PAH Calc	11	N/A	2011/08/25		PAHTOT-S
Total LMW, HMW, Total PAH Calc	2	N/A	2011/08/26		PAHTOT-S
Total LMW, HMW, Total PAH Calc	8	N/A	2011/08/29		PAHTOT-S
Total LMW, HMW, Total PAH Calc	1	N/A	2011/08/30		PAHTOT-S
pH (2:1 DI Water Extract)	3	2011/08/24	2011/08/24	BBY6SOP-00028	Carter, SSMA 16.2
TCLP pH Measurements	3	N/A	2011/08/25		
EPH less PAH in Soil By GC/FID	10	N/A	2011/08/25		
EPH less PAH in Soil By GC/FID	3	N/A	2011/08/26		
EPH less PAH in Soil By GC/FID	8	N/A	2011/08/29		
EPH less PAH in Soil By GC/FID	1	N/A	2011/08/30		
BC Hydrocarbons in Soil by GC/FID	13	2011/08/23	2011/08/24	BBY8SOP-00029	BC Env Lab Manual
BC Hydrocarbons in Soil by GC/FID	8	2011/08/23	2011/08/25	BBY8SOP-00029	BC Env Lab Manual
BC Hydrocarbons in Soil by GC/FID	1	2011/08/23	2011/08/26	BBY8SOP-00029	BC Env Lab Manual
Volatile HC-BTEX	2	N/A	2011/08/25		
Volatile HC-BTEX	20	N/A	2011/08/26		

* Results relate only to the items tested.

Encryption Key

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

Kimberley Mohr, BBY Customer Service Supervisor
Email: kmohr@maxxam.ca
Phone# (604) 638-3254

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Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

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

Total cover pages: 2

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

PHYSICAL TESTING (SOIL)

Maxxam ID		BI1938		BI1939		BI1940	BI1941		BI1942	BI1943		
Sampling Date		2011/08/18 12:20		2011/08/18 12:20		2011/08/18 16:30	2011/08/18 16:40		2011/08/18 16:45	2011/08/18 16:45		
	Units	**SITE 2-SW-PILE**	**QC Batch**	**SITE 2-W-PILE**	**QC Batch**	**SITE 2-CLEAN-PILE**	**SITE 2-1-E-WALL**	**QC Batch**	**SITE 2-2-BASE**	**SITE 2-13-N-WALL**	**RDL**	**QC Batch**
Physical Properties												
Moisture	%	8.7	5116408	10	5116253	10	11	5116408	8.0	9.4	0.3	5116253

Maxxam ID		BI1944		BI1945		BI1946		BI1947	BI1948		
Sampling Date		2011/08/18 17:20		2011/08/18 17:10		2011/08/18 16:50		2011/08/18 16:50	2011/08/18 16:55		
	Units	**SITE 2-17-W-WALL**	**QC Batch**	**SITE 2-18-S-WALL**	**QC Batch**	**SITE 2-16-W-BASE**	**QC Batch**	**SITE 2-21-S-WALL**	**SITE 2-19-N-WALL**	**RDL**	**QC Batch**
Physical Properties											
Moisture	%	11	5116408	11	5116253	8.4	5116408	11	12	0.3	5116253

Maxxam ID		BI1982	BI1983	BI1984		BI1985	BI1986		BI1987		
Sampling Date		2011/08/19 10:40	2011/08/19 10:10	2011/08/19 10:00		2011/08/19 10:00	2011/08/19 10:20		2011/08/19 10:30		
	Units	**SITE 3-A-EXCAVATED SOIL**	**SITE 3-A-6-E-WALL**	**SITE 3-A-3-W-WALL**	**QC Batch**	**SITE 3-A-2-BASE**	**SITE 3-A-5-N-WALL**	**QC Batch**	**SITE 3-A-4-S-WALL**	**RDL**	**QC Batch**
Physical Properties											
Moisture	%	8.9	17	13	5116408	11	11	5116253	14	0.3	5116408

Maxxam ID		BI1988	BI1989		BI1990		BI1991	BI1992		
Sampling Date		2011/08/19 19:05	2011/08/19 19:10		2011/08/19 19:20		2011/08/19 19:30	2011/08/19 19:35		
	Units	**SITE 3-B**	**SITE 3-C**	**QC Batch**	**SITE 3-D**	**QC Batch**	**SITE 3-E**	**SITE 3-H**	**RDL**	**QC Batch**
Physical Properties										
Moisture	%	17	7.8	5116253	16	5116408	15	10	0.3	5116253

RDL = Reportable Detection Limit

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

ELEMENTS BY ATOMIC SPECTROSCOPY (SOIL)

Maxxam ID		BI1938	BI1939	BI1982		
Sampling Date		2011/08/18 12:20	2011/08/18 12:20	2011/08/19 10:40		
	Units	**SITE 2-SW-PILE**	**SITE 2-W-PILE**	**SITE 3-A-EXCAVATED SOIL**	**RDL**	**QC Batch**
TCLP Extraction Procedure						
Initial pH of Sample	pH Units	8.86	8.97	9.36	N/A	5118426
Final pH of Leachate	pH Units	5.73	5.72	5.76	N/A	5118426
pH of Leaching Fluid	pH Units	4.88	4.88	4.88	N/A	5118426

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1938		BI1939	BI1940	BI1941	BI1942	BI1943	BI1944		
Sampling Date		2011/08/18 12:20		2011/08/18 12:20	2011/08/18 16:30	2011/08/18 16:40	2011/08/18 16:45	2011/08/18 16:45	2011/08/18 17:20		
	Units	**SITE 2-SW-PILE**	**QC Batch**	**SITE 2-W-PILE**	**SITE 2-CLEAN-PILE**	**SITE 2-1-E-WALL**	**SITE 2-2-BASE**	**SITE 2-13-N-WALL**	**SITE 2-17-W-WALL**	**RDL**	**QC Batch**
Volatiles											
VPH (VH6 to 10 - BTEX)	mg/kg	<10	5115855	17	<10	19	36	<10	24	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	5118118	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	5118190
Benzene	mg/kg	<0.005	5118118	0.009	<0.005	<0.005	<0.005	<0.005	<0.005	0.005	5118190
Toluene	mg/kg	<0.02	5118118	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.02	5118190
Ethylbenzene	mg/kg	<0.01	5118118	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	0.01	5118190
m & p-Xylene	mg/kg	<0.04	5118118	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	5118190
o-Xylene	mg/kg	<0.04	5118118	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	5118190
Styrene	mg/kg	<0.03	5118118	<0.03	<0.03	<0.03	<0.03	<0.03	<0.03	0.03	5118190
Xylenes (Total)	mg/kg	<0.04	5118118	<0.04	<0.04	<0.04	<0.04	<0.04	<0.04	0.04	5118190
VH C6-C10	mg/kg	<10	5118118	17	<10	19	36	<10	24	10	5118190
Surrogate Recovery (%)											
4-BROMOFLUOROBENZENE (sur.)	%	97	5118118	99	95	97	104	94	109		5118190
D10-ETHYLBENZENE (sur.)	%	94	5118118	81	85	79	85	90	85		5118190
D4-1,2-DICHLOROETHANE (sur.)	%	92	5118118	85	82	83	81	80	81		5118190
D8-TOLUENE (sur.)	%	102	5118118	107	108	106	109	107	110		5118190

N/A = Not Applicable
RDL = Reportable Detection Limit

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1945	BI1946	BI1947		BI1948		BI1982		
Sampling Date		2011/08/18 17:10	2011/08/18 16:50	2011/08/18 16:50		2011/08/18 16:55		2011/08/19 10:40		
	Units	**SITE 2-18-S-WALL**	**SITE 2-16-W-BASE**	**SITE 2-21-S-WALL**	**QC Batch**	**SITE 2-19-N-WALL**	**QC Batch**	**SITE 3-A-EXCAVATED SOIL**	**RDL**	**QC Batch**
Volatiles										
VPH (VH6 to 10 - BTEX)	mg/kg	97	20	<10	5115855	<10	5115855	30	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	<0.1	<0.1	5118190	<0.1	5118125	<0.1	0.1	5118190
Benzene	mg/kg	<0.005	<0.005	<0.005	5118190	<0.005	5118125	<0.005	0.005	5118190
Toluene	mg/kg	<0.02	<0.02	<0.02	5118190	<0.02	5118125	<0.02	0.02	5118190
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	5118190	<0.01	5118125	<0.01	0.01	5118190
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	5118190	<0.04	5118125	<0.04	0.04	5118190
o-Xylene	mg/kg	<0.04	<0.04	<0.04	5118190	<0.04	5118125	<0.04	0.04	5118190
Styrene	mg/kg	<0.03	<0.03	<0.03	5118190	<0.03	5118125	<0.03	0.03	5118190
Xylenes (Total)	mg/kg	<0.04	<0.04	<0.04	5118190	<0.04	5118125	<0.04	0.04	5118190
VH C6-C10	mg/kg	97	20	<10	5118190	<10	5118125	30	10	5118190
Surrogate Recovery (%)										
4-BROMOFLUOROBENZENE (sur.)	%	125	96	95	5118190	100	5118125	102		5118190
D10-ETHYLBENZENE (sur.)	%	87	85	85	5118190	104	5118125	85		5118190
D4-1,2-DICHLOROETHANE (sur.)	%	78	81	83	5118190	99	5118125	80		5118190
D8-TOLUENE (sur.)	%	107	107	107	5118190	100	5118125	108		5118190

RDL = Reportable Detection Limit

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1983	BI1984	BI1985	BI1986		BI1987		
Sampling Date		2011/08/19 10:10	2011/08/19 10:00	2011/08/19 10:00	2011/08/19 10:20		2011/08/19 10:30		
	Units	**SITE 3-A-6-E-WALL**	**SITE 3-A-3-W-WALL**	**SITE 3-A-2-BASE**	**SITE 3-A-5-N-WALL**	**QC Batch**	**SITE 3-A-4-S-WALL**	**RDL**	**QC Batch**
Volatiles									
VPH (VH6 to 10 - BTEX)	mg/kg	41	<10	59	19	5115855	110	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	<0.1	<0.1	<0.1	5118190	<0.1	0.1	5121241
Benzene	mg/kg	<0.005	<0.005	<0.005	<0.005	5118190	<0.005	0.005	5121241
Toluene	mg/kg	<0.02	<0.02	<0.02	<0.02	5118190	<0.02	0.02	5121241
Ethylbenzene	mg/kg	<0.01	<0.01	<0.01	<0.01	5118190	0.01	0.01	5121241
m & p-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	5118190	<0.04	0.04	5121241
o-Xylene	mg/kg	<0.04	<0.04	<0.04	<0.04	5118190	0.07	0.04	5121241
Styrene	mg/kg	<0.03	<0.03	<0.03	<0.03	5118190	<0.03	0.03	5121241
Xylenes (Total)	mg/kg	<0.04	<0.04	<0.04	<0.04	5118190	0.07	0.04	5121241
VH C6-C10	mg/kg	41	<10	59	19	5118190	110	10	5121241
Surrogate Recovery (%)									
4-BROMOFLUOROBENZENE (sur.)	%	107	97	120	96	5118190	129		5121241
D10-ETHYLBENZENE (sur.)	%	88	88	83	86	5118190	97		5121241
D4-1,2-DICHLOROETHANE (sur.)	%	81	82	81	85	5118190	97		5121241
D8-TOLUENE (sur.)	%	105	109	105	105	5118190	101		5121241

RDL = Reportable Detection Limit

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

BCCSR BTEX/VPH BY HS IN SOIL (SOIL)

Maxxam ID		BI1988		BI1989	BI1990	BI1991	BI1992		
Sampling Date		2011/08/19 19:05		2011/08/19 19:10	2011/08/19 19:20	2011/08/19 19:30	2011/08/19 19:35		
	Units	**SITE 3-B**	**QC Batch**	**SITE 3-C**	**SITE 3-D**	**SITE 3-E**	**SITE 3-H**	**RDL**	**QC Batch**
Volatiles									
VPH (VH6 to 10 - BTEX)	mg/kg	<10	5115855	<10	15	<10	<10	10	5115855
Methyl-tert-butylether (MTBE)	mg/kg	<0.1	5118190	<0.1	<0.1	<0.1	<0.1	0.1	5121241
Benzene	mg/kg	0.007	5118190	<0.005	<0.005	<0.005	<0.005	0.005	5121241
Toluene	mg/kg	<0.02	5118190	<0.02	<0.02	<0.02	<0.02	0.02	5121241
Ethylbenzene	mg/kg	<0.01	5118190	<0.01	<0.01	<0.01	<0.01	0.01	5121241
m & p-Xylene	mg/kg	<0.04	5118190	<0.04	<0.04	<0.04	<0.04	0.04	5121241
o-Xylene	mg/kg	<0.04	5118190	<0.04	<0.04	<0.04	<0.04	0.04	5121241
Styrene	mg/kg	<0.03	5118190	<0.03	<0.03	<0.03	<0.03	0.03	5121241
Xylenes (Total)	mg/kg	<0.04	5118190	<0.04	<0.04	<0.04	<0.04	0.04	5121241
VH C6-C10	mg/kg	<10	5118190	<10	15	<10	<10	10	5121241
Surrogate Recovery (%)									
4-BROMOFLUOROBENZENE (sur.)	%	96	5118190	97	104	99	99		5121241
D10-ETHYLBENZENE (sur.)	%	81	5118190	88	96	97	95		5121241
D4-1,2-DICHLOROETHANE (sur.)	%	81	5118190	94	95	98	92		5121241
D8-TOLUENE (sur.)	%	107	5118190	102	99	101	103		5121241

RDL = Reportable Detection Limit

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1938			BI1939			BI1940		BI1941		
Sampling Date		2011/08/18 12:20			2011/08/18 12:20			2011/08/18 16:30		2011/08/18 16:40		
	Units	**SITE 2-SW-PILE**	**RDL**	**QC Batch**	**SITE 2-W-PILE**	**RDL**	**QC Batch**	**SITE 2-CLEAN-PILE**	**RDL**	**SITE 2-1-E-WALL**	**RDL**	**QC Batch**
Polycyclic Aromatics												
Naphthalene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
2-Methylnaphthalene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
Acenaphthylene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
Acenaphthene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
Fluorene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.1(1)	0.1	5117558
Phenanthrene	mg/kg	<0.05	0.05	5119549	<0.08(1)	0.08	5119361	<0.05	0.05	<0.05	0.05	5117558
Anthracene	mg/kg	<0.08(1)	0.08	5119549	<0.1(1)	0.1	5119361	<0.05	0.05	<0.05	0.05	5117558
Fluoranthene	mg/kg	<0.1(1)	0.1	5119549	<0.06(1)	0.06	5119361	<0.05	0.05	<0.09(1)	0.09	5117558
Pyrene	mg/kg	0.61	0.05	5119549	0.79	0.05	5119361	<0.05	0.05	0.55	0.05	5117558
Benzo(a)anthracene	mg/kg	<0.06(1)	0.06	5119549	0.08	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
Chrysene	mg/kg	<0.2(1)	0.2	5119549	0.16	0.05	5119361	<0.05	0.05	0.09	0.05	5117558
Benzo(b&j)fluoranthene	mg/kg	<0.05	0.05	5119549	<0.06(1)	0.06	5119361	<0.05	0.05	<0.05	0.05	5117558
Benzo(k)fluoranthene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
Benzo(a)pyrene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
Dibenz(a,h)anthracene	mg/kg	<0.05	0.05	5119549	<0.05	0.05	5119361	<0.05	0.05	<0.05	0.05	5117558
Benzo(g,h,i)perylene	mg/kg	<0.1(1)	0.1	5119549	0.11	0.05	5119361	<0.05	0.05	0.06	0.05	5117558
Low Molecular Weight PAH`s	mg/kg	<0.08	0.08	5115005	<0.1	0.1	5115005	<0.05	0.05	<0.1	0.1	5115005
High Molecular Weight PAH`s	mg/kg	0.6	0.2	5115005	1.1	0.06	5115005	<0.05	0.05	0.70	0.09	5115005
Total PAH	mg/kg	0.6	0.2	5115005	1.1	0.1	5115005	<0.05	0.05	0.7	0.1	5115005
Surrogate Recovery (%)												
D10-ANTHRACENE (sur.)	%	90		5119549	93		5119361	88		78		5117558
D8-ACENAPHTHYLENE (sur.)	%	88		5119549	94		5119361	90		81		5117558
D8-NAPHTHALENE (sur.)	%	84		5119549	87		5119361	91		82		5117558
TERPHENYL-D14 (sur.)	%	62		5119549	82		5119361	82		73		5117558
Calculated Parameters												
LEPH (C10-C19 less PAH)	mg/kg	1360	100	5115008	2310	100	5115008	<100	100	1650	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	23200	100	5115008	25600	100	5115008	3070	100	14600	100	5115008
Hydrocarbons												
EPH (C10-C19)	mg/kg	1360	100	5119529	2310	100	5119442	<100	100	1650	100	5117538
EPH (C19-C32)	mg/kg	23200	100	5119529	25600	100	5119442	3070	100	14600	100	5117538
Surrogate Recovery (%)												
O-TERPHENYL (sur.)	%	92		5119529	117		5119442	97		100		5117538

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1942		BI1943		BI1944	BI1945		BI1946		
Sampling Date		2011/08/18 16:45		2011/08/18 16:45		2011/08/18 17:20	2011/08/18 17:10		2011/08/18 16:50		
	Units	**SITE 2-2-BASE**	**RDL**	**SITE 2-13-N-WALL**	**QC Batch**	**SITE 2-17-W-WALL**	**SITE 2-18-S-WALL**	**QC Batch**	**SITE 2-16-W-BASE**	**RDL**	**QC Batch**
Polycyclic Aromatics											
Naphthalene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
2-Methylnaphthalene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	0.06	5119361	<0.05	0.05	5119549
Acenaphthylene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Acenaphthene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Fluorene	mg/kg	<0.06 (1)	0.06	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Phenanthrene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Anthracene	mg/kg	<0.09 (1)	0.09	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Fluoranthene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Pyrene	mg/kg	0.43	0.05	<0.05	5119591	0.18	0.31	5119361	<0.05	0.05	5119549
Benzo(a)anthracene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Chrysene	mg/kg	0.10	0.05	<0.05	5119591	<0.05	0.06	5119361	<0.05	0.05	5119549
Benzo(b&j)fluoranthene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Benzo(k)fluoranthene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Benzo(a)pyrene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Dibenz(a,h)anthracene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Benzo(g,h,i)perylene	mg/kg	<0.05	0.05	<0.05	5119591	<0.05	<0.05	5119361	<0.05	0.05	5119549
Low Molecular Weight PAH`s	mg/kg	<0.09	0.09	<0.05	5115005	<0.05	0.06	5115005	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	0.53	0.05	<0.05	5115005	0.18	0.37	5115005	<0.05	0.05	5115005
Total PAH	mg/kg	0.53	0.09	<0.05	5115005	0.18	0.44	5115005	<0.05	0.05	5115005
Surrogate Recovery (%)											
D10-ANTHRACENE (sur.)	%	87		84	5119591	97	85	5119361	94		5119549
D8-ACENAPHTHYLENE (sur.)	%	86		93	5119591	101	90	5119361	95		5119549
D8-NAPHTHALENE (sur.)	%	85		92	5119591	94	85	5119361	93		5119549
TERPHENYL-D14 (sur.)	%	74		91	5119591	91	81	5119361	101		5119549
Calculated Parameters											
LEPH (C10-C19 less PAH)	mg/kg	1380	100	<100	5115008	1040	1760	5115008	<100	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	9930	100	1160	5115008	10900	14400	5115008	797	100	5115008
Hydrocarbons											
EPH (C10-C19)	mg/kg	1380	100	<100	5119544	1040	1760	5119442	<100	100	5119529
EPH (C19-C32)	mg/kg	9930	100	1160	5119544	10900	14400	5119442	797	100	5119529
Surrogate Recovery (%)											
O-TERPHENYL (sur.)	%	126		102	5119544	106	106	5119442	90		5119529

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1947		BI1948		BI1982		BI1983		
Sampling Date		2011/08/18 16:50		2011/08/18 16:55		2011/08/19 10:40		2011/08/19 10:10		
	Units	**SITE 2-21-S-WALL**	**QC Batch**	**SITE 2-19-N-WALL**	**QC Batch**	**SITE 3-A-EXCAVATED SOIL**	**QC Batch**	**SITE 3-A-6-E-WALL**	**RDL**	**QC Batch**
Polycyclic Aromatics										
Naphthalene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
2-Methylnaphthalene	mg/kg	<0.05	5119361	<0.05	5119591	0.11	5117558	<0.05	0.05	5119549
Acenaphthylene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Acenaphthene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Fluorene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Phenanthrene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Anthracene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Fluoranthene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Pyrene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Benzo(a)anthracene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Chrysene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Benzo(b&j)fluoranthene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Benzo(k)fluoranthene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Benzo(a)pyrene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Dibenz(a,h)anthracene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Benzo(g,h,i)perylene	mg/kg	<0.05	5119361	<0.05	5119591	<0.05	5117558	<0.05	0.05	5119549
Low Molecular Weight PAH`s	mg/kg	<0.05	5115005	<0.05	5115005	0.11	5115005	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	<0.05	5115005	<0.05	5115005	<0.05	5115005	<0.05	0.05	5115005
Total PAH	mg/kg	<0.05	5115005	<0.05	5115005	0.11	5115005	<0.05	0.05	5115005
Surrogate Recovery (%)										
D10-ANTHRACENE (sur.)	%	99	5119361	88	5119591	87	5117558	91		5119549
D8-ACENAPHTHYLENE (sur.)	%	98	5119361	90	5119591	90	5117558	90		5119549
D8-NAPHTHALENE (sur.)	%	91	5119361	88	5119591	95	5117558	88		5119549
TERPHENYL-D14 (sur.)	%	98	5119361	94	5119591	92	5117558	96		5119549
Calculated Parameters										
LEPH (C10-C19 less PAH)	mg/kg	<100	5115008	134	5115008	528	5115008	663	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	705	5115008	2190	5115008	323	5115008	171	100	5115008
Hydrocarbons										
EPH (C10-C19)	mg/kg	<100	5119442	134	5119544	528	5117538	663	100	5119529
EPH (C19-C32)	mg/kg	705	5119442	2190	5119544	323	5117538	171	100	5119529
Surrogate Recovery (%)										
O-TERPHENYL (sur.)	%	100	5119442	98	5119544	94	5117538	92		5119529

RDL = Reportable Detection Limit

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1984			BI1985			BI1986		BI1987		BI1988		
Sampling Date		2011/08/19 10:00			2011/08/19 10:00			2011/08/19 10:20		2011/08/19 10:30		2011/08/19 19:05		
	Units	**SITE 3-A-3-W-WALL**	**RDL**	**QC Batch**	**SITE 3-A-2-BASE**	**RDL**	**QC Batch**	**SITE 3-A-5-N-WALL**	**RDL**	**SITE 3-A-4-S-WALL**	**RDL**	**SITE 3-B**	**RDL**	**QC Batch**
Polycyclic Aromatics														
Naphthalene	mg/kg	<0.05	0.05	5122759	<0.2(1)	0.2	5119549	<0.05	0.05	<0.1(1)	0.1	<0.05	0.05	5119361
2-Methylnaphthalene	mg/kg	<0.05	0.05	5122759	0.47	0.05	5119549	<0.05	0.05	0.23	0.05	<0.05	0.05	5119361
Acenaphthylene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.05	0.05	5119361
Acenaphthene	mg/kg	<0.05	0.05	5122759	0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.05	0.05	5119361
Fluorene	mg/kg	<0.05	0.05	5122759	0.09	0.05	5119549	<0.05	0.05	0.06	0.05	<0.05	0.05	5119361
Phenanthrene	mg/kg	<0.05	0.05	5122759	0.08	0.05	5119549	<0.05	0.05	0.05	0.05	<0.05	0.05	5119361
Anthracene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.05	0.05	5119361
Fluoranthene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.05	0.05	5119361
Pyrene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	0.25	0.05	5119361
Benzo(a)anthracene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.3(2)	0.3	5119361
Chrysene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.3(2)	0.3	5119361
Benzo(b&j)fluoranthene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.3(2)	0.3	5119361
Benzo(k)fluoranthene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.3(2)	0.3	5119361
Benzo(a)pyrene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.3(2)	0.3	5119361
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.3(2)	0.3	5119361
Dibenz(a,h)anthracene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.3(2)	0.3	5119361
Benzo(g,h,i)perylene	mg/kg	<0.05	0.05	5122759	<0.05	0.05	5119549	<0.05	0.05	<0.05	0.05	<0.3(2)	0.3	5119361
Low Molecular Weight PAH`s	mg/kg	<0.05	0.05	5115005	0.7	0.2	5115005	<0.05	0.05	0.4	0.1	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	<0.05	0.05	5115005	<0.05	0.05	5115005	<0.05	0.05	<0.05	0.05	<0.3	0.3	5115005
Total PAH	mg/kg	<0.05	0.05	5115005	0.7	0.2	5115005	<0.05	0.05	0.4	0.1	<0.3	0.3	5115005
Surrogate Recovery (%)														
D10-ANTHRACENE (sur.)	%	98		5122759	83		5119549	98		91		100		5119361
D8-ACENAPHTHYLENE (sur.)	%	94		5122759	88		5119549	99		98		97		5119361
D8-NAPHTHALENE (sur.)	%	97		5122759	85		5119549	93		92		81		5119361
TERPHENYL-D14 (sur.)	%	100		5122759	86		5119549	100		91		78		5119361
Calculated Parameters														
LEPH (C10-C19 less PAH)	mg/kg	<100	100	5115008	1340	100	5115008	329	100	1020	100	1240	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	<100	100	5115008	1130	100	5115008	166	100	4060	100	44800	100	5115008
Hydrocarbons														
EPH (C10-C19)	mg/kg	<100	100	5122815	1340	100	5119529	329	100	1020	100	1240	100	5119442
EPH (C19-C32)	mg/kg	<100	100	5122815	1130	100	5119529	166	100	4060	100	44800	100	5119442
Surrogate Recovery (%)														
O-TERPHENYL (sur.)	%	99		5122815	91		5119529	102		102		96		5119442

RDL = Reportable Detection Limit
(1) - RDL raised due to sample matrix interference.
(2) - RDL raised due to sample dilution.

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

LEPH & HEPH FOR CSR IN SOIL (SOIL)

Maxxam ID		BI1989		BI1990		BI1991		BI1992		
Sampling Date		2011/08/19 19:10		2011/08/19 19:20		2011/08/19 19:30		2011/08/19 19:35		
	Units	**SITE 3-C**	**QC Batch**	**SITE 3-D**	**QC Batch**	**SITE 3-E**	**QC Batch**	**SITE 3-H**	**RDL**	**QC Batch**
Polycyclic Aromatics										
Naphthalene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
2-Methylnaphthalene	mg/kg	<0.05	5119361	0.14	5119549	<0.05	5119361	<0.05	0.05	5119591
Acenaphthylene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Acenaphthene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Fluorene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Phenanthrene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Anthracene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Fluoranthene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Pyrene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Benzo(a)anthracene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Chrysene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Benzo(b&j)fluoranthene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Benzo(k)fluoranthene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Benzo(a)pyrene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Indeno(1,2,3-cd)pyrene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Dibenz(a,h)anthracene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Benzo(g,h,i)perylene	mg/kg	<0.05	5119361	<0.05	5119549	<0.05	5119361	<0.05	0.05	5119591
Low Molecular Weight PAH`s	mg/kg	<0.05	5115005	0.14	5115005	<0.05	5115005	<0.05	0.05	5115005
High Molecular Weight PAH`s	mg/kg	<0.05	5115005	<0.05	5115005	<0.05	5115005	<0.05	0.05	5115005
Total PAH	mg/kg	<0.05	5115005	0.14	5115005	<0.05	5115005	<0.05	0.05	5115005
Surrogate Recovery (%)										
D10-ANTHRACENE (sur.)	%	78	5119361	71	5119549	82	5119361	51(1)		5119591
D8-ACENAPHTHYLENE (sur.)	%	89	5119361	88	5119549	98	5119361	81		5119591
D8-NAPHTHALENE (sur.)	%	86	5119361	87	5119549	92	5119361	87		5119591
TERPHENYL-D14 (sur.)	%	81	5119361	73	5119549	86	5119361	66		5119591
Calculated Parameters										
LEPH (C10-C19 less PAH)	mg/kg	410	5115008	1160	5115008	163	5115008	<100	100	5115008
HEPH (C19-C32 less PAH)	mg/kg	23200	5115008	4840	5115008	2930	5115008	576	100	5115008
Hydrocarbons										
EPH (C10-C19)	mg/kg	410	5119442	1160	5119529	163	5119442	<100	100	5119544
EPH (C19-C32)	mg/kg	23200	5119442	4840	5119529	2930	5119442	576	100	5119544
Surrogate Recovery (%)										
O-TERPHENYL (sur.)	%	100	5119442	84	5119529	99	5119442	92		5119544

RDL = Reportable Detection Limit
(1) - Surrogate recovery below control limit - 1 surrogate failure allowed - Pot. low bias

Maxxam Job #: B178176
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Sampler Initials: JL

CSR/CCME METALS IN SOIL (SOIL)

Maxxam ID		BI1938	BI1939	BI1982		
Sampling Date		2011/08/18 12:20	2011/08/18 12:20	2011/08/19 10:40		
	Units	**SITE 2-SW-PILE**	**SITE 2-W-PILE**	**SITE 3-A-EXCAVATED SOIL**	**RDL**	**QC Batch**
Physical Properties						
Soluble (2:1) pH	pH Units	7.76	7.91	8.20	0.01	5117420
Total Metals by ICPMS						
Total Aluminum (Al)	mg/kg	7180	7780	11700	100	5117416
Total Antimony (Sb)	mg/kg	15.2	18.4	6.1	0.1	5117416
Total Arsenic (As)	mg/kg	37.7	31.3	47.8	0.5	5117416
Total Barium (Ba)	mg/kg	75.4	83.0	125	0.1	5117416
Total Beryllium (Be)	mg/kg	1.0	0.9	0.7	0.4	5117416
Total Bismuth (Bi)	mg/kg	2.3	2.1	0.4	0.1	5117416
Total Cadmium (Cd)	mg/kg	181	131	9.94	0.05	5117416
Total Calcium (Ca)	mg/kg	132000	114000	25400	100	5117416
Total Chromium (Cr)	mg/kg	16	18	21	1	5117416
Total Cobalt (Co)	mg/kg	17.6	23.3	9.3	0.3	5117416
Total Copper (Cu)	mg/kg	51.7	44.7	57.8	0.5	5117416
Total Iron (Fe)	mg/kg	25400	26300	31800	100	5117416
Total Lead (Pb)	mg/kg	25100	30400	826	0.1	5117416
Total Magnesium (Mg)	mg/kg	6550	7250	8120	100	5117416
Total Manganese (Mn)	mg/kg	1400	2870	342	0.2	5117416
Total Mercury (Hg)	mg/kg	0.08	0.06	<0.05	0.05	5117416
Total Molybdenum (Mo)	mg/kg	5.3	6.5	7.8	0.1	5117416
Total Nickel (Ni)	mg/kg	56.7	59.3	35.7	0.8	5117416
Total Phosphorus (P)	mg/kg	823	788	2350	10	5117416
Total Potassium (K)	mg/kg	564	580	727	100	5117416
Total Selenium (Se)	mg/kg	3.1	3.3	1.2	0.5	5117416
Total Silver (Ag)	mg/kg	16.5	18.4	1.09	0.05	5117416
Total Sodium (Na)	mg/kg	<100	<100	<100	100	5117416
Total Strontium (Sr)	mg/kg	155	140	129	0.1	5117416
Total Thallium (Tl)	mg/kg	0.28	0.31	0.39	0.05	5117416
Total Tin (Sn)	mg/kg	2.0	0.9	0.4	0.1	5117416
Total Titanium (Ti)	mg/kg	226	254	277	1	5117416
Total Vanadium (V)	mg/kg	34	35	48	2	5117416
Total Zinc (Zn)	mg/kg	35700	30800	1570	1	5117416
Total Zirconium (Zr)	mg/kg	0.7	<0.5	3.7	0.5	5117416

RDL = Reportable Detection Limit

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Sampler Initials: JL

TCLP METALS (SOIL)

Maxxam ID		BI1938	BI1939	BI1982		
Sampling Date		2011/08/18 12:20	2011/08/18 12:20	2011/08/19 10:40		
	Units	**SITE 2-SW-PILE**	**SITE 2-W-PILE**	**SITE 3-A-EXCAVATED SOIL**	**RDL**	**QC Batch**
Metals						
LEACHATE Antimony (Sb)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Arsenic (As)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Barium (Ba)	mg/L	0.3	0.4	0.9	0.1	5123896
LEACHATE Beryllium (Be)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Boron (B)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Cadmium (Cd)	mg/L	0.3	0.5	<0.1	0.1	5123896
LEACHATE Chromium (Cr)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Cobalt (Co)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Copper (Cu)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Iron (Fe)	mg/L	<0.5	<0.5	<0.5	0.5	5123896
LEACHATE Lead (Pb)	mg/L	61.2	74.2	1.2	0.1	5123896
LEACHATE Mercury (Hg)	mg/L	<0.002	<0.002	<0.002	0.002	5123896
LEACHATE Molybdenum (Mo)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Nickel (Ni)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Selenium (Se)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Silver (Ag)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Thallium (Tl)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Uranium (U)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Vanadium (V)	mg/L	<0.1	<0.1	<0.1	0.1	5123896
LEACHATE Zinc (Zn)	mg/L	75.1	95.7	3.3	0.1	5123896
LEACHATE Zirconium (Zr)	mg/L	<0.1	<0.1	<0.1	0.1	5123896

RDL = Reportable Detection Limit

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Package 1	2.0°C

Each temperature is the average of up to three cooler temperatures taken at receipt

General Comments

Maxxam Job #: B178176
Report Date: 2011/08/30

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Client Project #: TEK-11-02

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5116253	Moisture	2011/08/24					<0.3	%	4.4	20		
5116408	Moisture	2011/08/24					<0.3	%	5.9	20		
5117416	Total Antimony (Sb)	2011/08/24	110	75 - 125	103	75 - 125	<0.1	mg/kg	NC	30	107	70 - 130
5117416	Total Arsenic (As)	2011/08/24	108	75 - 125	104	75 - 125	<0.5	mg/kg	2.6	30	100	70 - 130
5117416	Total Barium (Ba)	2011/08/24	NC	75 - 125	105	75 - 125	<0.1	mg/kg	0.6	35	115	70 - 130
5117416	Total Beryllium (Be)	2011/08/24	113	75 - 125	106	75 - 125	<0.4	mg/kg	NC	30		
5117416	Total Cadmium (Cd)	2011/08/24	113	75 - 125	102	75 - 125	<0.05	mg/kg	NC	30	104	70 - 130
5117416	Total Chromium (Cr)	2011/08/24	NC	75 - 125	100	75 - 125	<1	mg/kg	3.6	30	107	70 - 130
5117416	Total Cobalt (Co)	2011/08/24	106	75 - 125	105	75 - 125	<0.3	mg/kg	2.5	30	105	70 - 130
5117416	Total Copper (Cu)	2011/08/24	103	75 - 125	103	75 - 125	<0.5	mg/kg	0.04	30	95	70 - 130
5117416	Total Lead (Pb)	2011/08/24	106	75 - 125	106	75 - 125	<0.1	mg/kg	2.9	35	105	70 - 130
5117416	Total Manganese (Mn)	2011/08/24	NC	75 - 125	103	75 - 125	<0.2	mg/kg	2.2	30	104	70 - 130
5117416	Total Mercury (Hg)	2011/08/24	110	75 - 125	113	75 - 125	<0.05	mg/kg	NC	35		
5117416	Total Molybdenum (Mo)	2011/08/24	115	75 - 125	105	75 - 125	<0.1	mg/kg	2.1	35	138(1, 2)	70 - 130
5117416	Total Nickel (Ni)	2011/08/24	NC	75 - 125	103	75 - 125	<0.8	mg/kg	0.8	30	97	70 - 130
5117416	Total Selenium (Se)	2011/08/24	108	75 - 125	107	75 - 125	<0.5	mg/kg	NC	30		
5117416	Total Silver (Ag)	2011/08/24	102	75 - 125	99	75 - 125	<0.05	mg/kg	NC	35		
5117416	Total Strontium (Sr)	2011/08/24	NC	75 - 125	102	75 - 125	<0.1	mg/kg	0.5	35	98	70 - 130
5117416	Total Thallium (Tl)	2011/08/24	109	75 - 125	103	75 - 125	<0.05	mg/kg	NC	30	104	70 - 130
5117416	Total Tin (Sn)	2011/08/24	106	75 - 125	89	75 - 125	<0.1	mg/kg	NC	35		
5117416	Total Titanium (Ti)	2011/08/24	NC	75 - 125	99	75 - 125	<1	mg/kg	2.2	35	109	70 - 130
5117416	Total Vanadium (V)	2011/08/24	NC	75 - 125	104	75 - 125	<2	mg/kg	3.9	30	108	70 - 130
5117416	Total Zinc (Zn)	2011/08/24	NC	75 - 125	107	75 - 125	<1	mg/kg	0.7	30	92	70 - 130
5117416	Total Aluminum (Al)	2011/08/24					<100	mg/kg	0.9	35	107	70 - 130
5117416	Total Calcium (Ca)	2011/08/24					<100	mg/kg	0.5	30	97	70 - 130
5117416	Total Iron (Fe)	2011/08/24					<100	mg/kg	5.7	30	102	70 - 130
5117416	Total Magnesium (Mg)	2011/08/24					<100	mg/kg	1.6	30	103	70 - 130
5117416	Total Phosphorus (P)	2011/08/24					<10	mg/kg	3.6	30	101	70 - 130
5117416	Total Bismuth (Bi)	2011/08/24					<0.1	mg/kg	NC	30		
5117416	Total Potassium (K)	2011/08/24					<100	mg/kg	2.1	35		
5117416	Total Sodium (Na)	2011/08/24					<100	mg/kg	NC	35		
5117416	Total Zirconium (Zr)	2011/08/24					<0.5	mg/kg	NC	30		
5117420	Soluble (2:1) pH	2011/08/24			101	96 - 104			2.1	20		
5117538	O-TERPHENYL (sur.)	2011/08/24	95	50 - 130	104	50 - 130	105	%				
5117538	EPH (C10-C19)	2011/08/24	90	50 - 130	103	50 - 130	<100	mg/kg	NC	40		
5117538	EPH (C19-C32)	2011/08/24	91	50 - 130	104	50 - 130	<100	mg/kg	NC	40		
5117558	D10-ANTHRACENE (sur.)	2011/08/24	84	60 - 130	96	60 - 130	106	%				
5117558	D8-ACENAPHTHYLENE (sur.)	2011/08/24	86	50 - 130	97	50 - 130	104	%				
5117558	D8-NAPHTHALENE (sur.)	2011/08/24	88	50 - 130	106	50 - 130	115	%				
5117558	TERPHENYL-D14 (sur.)	2011/08/24	89	60 - 130	101	60 - 130	110	%				

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Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5117558	Naphthalene	2011/08/24	69	50 - 130	83	50 - 130	<0.05	mg/kg	NC	50		
5117558	2-Methylnaphthalene	2011/08/24	69	50 - 130	97	50 - 130	<0.05	mg/kg	NC	50		
5117558	Acenaphthylene	2011/08/24	70	50 - 130	86	50 - 130	<0.05	mg/kg	NC	50		
5117558	Acenaphthene	2011/08/24	70	50 - 130	89	50 - 130	<0.05	mg/kg	NC	50		
5117558	Fluorene	2011/08/24	72	50 - 130	89	50 - 130	<0.05	mg/kg	NC	50		
5117558	Phenanthrene	2011/08/24	66	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5117558	Anthracene	2011/08/24	70	60 - 130	89	60 - 130	<0.05	mg/kg	NC	50		
5117558	Fluoranthene	2011/08/24	67	60 - 130	89	60 - 130	<0.05	mg/kg	NC	50		
5117558	Pyrene	2011/08/24	72	60 - 130	88	60 - 130	<0.05	mg/kg	NC	50		
5117558	Benzo(a)anthracene	2011/08/24	63	60 - 130	77	60 - 130	<0.05	mg/kg	NC	50		
5117558	Chrysene	2011/08/24	71	60 - 130	88	60 - 130	<0.05	mg/kg	NC	50		
5117558	Benzo(b&j)fluoranthene	2011/08/24	69	60 - 130	81	60 - 130	<0.05	mg/kg	NC	50		
5117558	Benzo(k)fluoranthene	2011/08/24	67	60 - 130	90	60 - 130	<0.05	mg/kg	NC	50		
5117558	Benzo(a)pyrene	2011/08/24	74	60 - 130	89	60 - 130	<0.05	mg/kg	NC	50		
5117558	Indeno(1,2,3-cd)pyrene	2011/08/24	71	60 - 130	83	60 - 130	<0.05	mg/kg	NC	50		
5117558	Dibenz(a,h)anthracene	2011/08/24	73	60 - 130	85	60 - 130	<0.05	mg/kg	NC	50		
5117558	Benzo(g,h,i)perylene	2011/08/24	69	60 - 130	82	60 - 130	<0.05	mg/kg	NC	50		
5118118	4-BROMOFLUOROBENZENE (sur.)	2011/08/24	98	70 - 130	100	70 - 130	99	%			98	70 - 130
5118118	D10-ETHYLBENZENE (sur.)	2011/08/24	93	50 - 130	87	50 - 130	102	%			81	50 - 130
5118118	D4-1,2-DICHLOROETHANE (sur.)	2011/08/24	90	70 - 130	94	70 - 130	105	%			95	70 - 130
5118118	D8-TOLUENE (sur.)	2011/08/24	99	70 - 130	103	70 - 130	99	%			100	70 - 130
5118118	Benzene	2011/08/26	90	60 - 140	88	60 - 140	<0.005	mg/kg	NC	40		
5118118	Toluene	2011/08/26	92	60 - 140	92	60 - 140	<0.02	mg/kg	NC	40		
5118118	Ethylbenzene	2011/08/26	100	60 - 140	102	60 - 140	<0.01	mg/kg	NC	40		
5118118	m & p-Xylene	2011/08/26	101	60 - 140	103	60 - 140	<0.04	mg/kg	NC	40		
5118118	o-Xylene	2011/08/26	99	60 - 140	100	60 - 140	<0.04	mg/kg	NC	40		
5118118	VH C6-C10	2011/08/26					<10	mg/kg	NC	40	106	60 - 140
5118118	Methyl-tert-butylether(MTBE)	2011/08/26					<0.1	mg/kg	NC	40		
5118118	Styrene	2011/08/26					<0.03	mg/kg	NC	40		
5118118	Xylenes (Total)	2011/08/26					<0.04	mg/kg	NC	40		
5118125	4-BROMOFLUOROBENZENE (sur.)	2011/08/24	102	70 - 130	99	70 - 130	98	%			101	70 - 130
5118125	D10-ETHYLBENZENE (sur.)	2011/08/24	107	50 - 130	90	50 - 130	96	%			88	50 - 130
5118125	D4-1,2-DICHLOROETHANE (sur.)	2011/08/24	103	70 - 130	92	70 - 130	97	%			93	70 - 130
5118125	D8-TOLUENE (sur.)	2011/08/24	98	70 - 130	102	70 - 130	100	%			100	70 - 130
5118125	Benzene	2011/08/25	108	60 - 140	96	60 - 140	<0.005	mg/kg	NC	40		
5118125	Toluene	2011/08/25	109	60 - 140	101	60 - 140	<0.02	mg/kg	NC	40		
5118125	Ethylbenzene	2011/08/25	117	60 - 140	110	60 - 140	<0.01	mg/kg	NC	40		
5118125	m & p-Xylene	2011/08/25	120	60 - 140	112	60 - 140	<0.04	mg/kg	NC	40		
5118125	o-Xylene	2011/08/25	119	60 - 140	108	60 - 140	<0.04	mg/kg	NC	40		
5118125	VH C6-C10	2011/08/25					<10	mg/kg	NC	40	103	60 - 140

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QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5118125	Methyl-tert-butylether(MTBE)	2011/08/25					<0.1	mg/kg	NC	40		
5118125	Styrene	2011/08/25					<0.03	mg/kg	NC	40		
5118125	Xylenes (Total)	2011/08/25					<0.04	mg/kg	NC	40		
5118190	4-BROMOFLUOROBENZENE (sur.)	2011/08/24	96	70 - 130	94	70 - 130	95	%			94	70 - 130
5118190	D10-ETHYLBENZENE (sur.)	2011/08/24	83	50 - 130	76	50 - 130	83	%			76	50 - 130
5118190	D4-1,2-DICHLOROETHANE (sur.)	2011/08/24	86	70 - 130	80	70 - 130	80	%			81	70 - 130
5118190	D8-TOLUENE (sur.)	2011/08/24	109	70 - 130	106	70 - 130	107	%			106	70 - 130
5118190	Benzene	2011/08/25	90	60 - 140	84	60 - 140	<0.005	mg/kg	NC	40		
5118190	Toluene	2011/08/25	99	60 - 140	95	60 - 140	<0.02	mg/kg	NC	40		
5118190	Ethylbenzene	2011/08/25	92	60 - 140	90	60 - 140	<0.01	mg/kg	NC	40		
5118190	m & p-Xylene	2011/08/25	85	60 - 140	85	60 - 140	<0.04	mg/kg	NC	40		
5118190	o-Xylene	2011/08/25	90	60 - 140	88	60 - 140	<0.04	mg/kg	NC	40		
5118190	VH C6-C10	2011/08/25					<10	mg/kg	NC	40	109	60 - 140
5118190	Methyl-tert-butylether(MTBE)	2011/08/25					<0.1	mg/kg	NC	40		
5118190	Styrene	2011/08/25					<0.03	mg/kg	NC	40		
5118190	Xylenes (Total)	2011/08/25					<0.04	mg/kg	NC	40		
5118426	Initial pH of Sample	2011/08/25					4.88, RDL=N/A	pH Units	0.8	20		
5118426	Final pH of Leachate	2011/08/25					4.88, RDL=N/A	pH Units	0.6	20		
5118426	pH of Leaching Fluid	2011/08/25					4.88, RDL=N/A	pH Units	0	20		
5119361	D10-ANTHRACENE (sur.)	2011/08/26	119	60 - 130	109	60 - 130	100	%				
5119361	D8-ACENAPHTHYLENE (sur.)	2011/08/26	120	50 - 130	111	50 - 130	101	%				
5119361	D8-NAPHTHALENE (sur.)	2011/08/26	111	50 - 130	109	50 - 130	100	%				
5119361	TERPHENYL-D14 (sur.)	2011/08/26	117	60 - 130	111	60 - 130	104	%				
5119361	Naphthalene	2011/08/26	95	50 - 130	103	50 - 130	<0.05	mg/kg	NC(3)	50		
5119361	2-Methylnaphthalene	2011/08/26	98	50 - 130	105	50 - 130	<0.05	mg/kg	NC	50		
5119361	Acenaphthylene	2011/08/26	102	50 - 130	104	50 - 130	<0.05	mg/kg	NC	50		
5119361	Acenaphthene	2011/08/26	103	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119361	Fluorene	2011/08/26	105	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119361	Phenanthrene	2011/08/26	98	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119361	Anthracene	2011/08/26	101	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		
5119361	Fluoranthene	2011/08/26	101	60 - 130	105	60 - 130	<0.05	mg/kg	NC	50		
5119361	Pyrene	2011/08/26	105	60 - 130	109	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(a)anthracene	2011/08/26	90	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119361	Chrysene	2011/08/26	93	60 - 130	105	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(b&j)fluoranthene	2011/08/26	99	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(k)fluoranthene	2011/08/26	82	60 - 130	118	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(a)pyrene	2011/08/26	95	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119361	Indeno(1,2,3-cd)pyrene	2011/08/26	85	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		
5119361	Dibenz(a,h)anthracene	2011/08/26	90	60 - 130	106	60 - 130	<0.05	mg/kg	NC	50		
5119361	Benzo(g,h,i)perylene	2011/08/26	79	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		

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Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5119442	O-TERPHENYL (sur.)	2011/08/24	101	50 - 130	103	50 - 130	102	%				
5119442	EPH (C10-C19)	2011/08/24	NC	50 - 130	112	50 - 130	<100	mg/kg	26.9	40		
5119442	EPH (C19-C32)	2011/08/24	NC	50 - 130	107	50 - 130	<100	mg/kg	6.9	40		
5119529	O-TERPHENYL (sur.)	2011/08/24	93	50 - 130	98	50 - 130	96	%				
5119529	EPH (C10-C19)	2011/08/24	NC	50 - 130	99	50 - 130	<100	mg/kg	25.7	40		
5119529	EPH (C19-C32)	2011/08/24	NC	50 - 130	102	50 - 130	<100	mg/kg	3.1	40		
5119544	O-TERPHENYL (sur.)	2011/08/25	95	50 - 130	99	50 - 130	102	%				
5119544	EPH (C10-C19)	2011/08/25	63	50 - 130	99	50 - 130	<100	mg/kg	NC	40		
5119544	EPH (C19-C32)	2011/08/25	NC	50 - 130	101	50 - 130	<100	mg/kg	17.8	40		
5119549	D10-ANTHRACENE (sur.)	2011/08/25	81	60 - 130	109	60 - 130	102	%				
5119549	D8-ACENAPHTHYLENE (sur.)	2011/08/25	81	50 - 130	111	50 - 130	102	%				
5119549	D8-NAPHTHALENE (sur.)	2011/08/25	78	50 - 130	110	50 - 130	101	%				
5119549	TERPHENYL-D14 (sur.)	2011/08/25	71	60 - 130	117	60 - 130	108	%				
5119549	Naphthalene	2011/08/26	62	50 - 130	103	50 - 130	<0.05	mg/kg	NC	50		
5119549	2-Methylnaphthalene	2011/08/26	64	50 - 130	104	50 - 130	<0.05	mg/kg	NC	50		
5119549	Acenaphthylene	2011/08/26	67	50 - 130	106	50 - 130	<0.05	mg/kg	NC	50		
5119549	Acenaphthene	2011/08/26	68	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119549	Fluorene	2011/08/26	68	50 - 130	108	50 - 130	<0.05	mg/kg	NC	50		
5119549	Phenanthrene	2011/08/26	67	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Anthracene	2011/08/26	69	60 - 130	105	60 - 130	<0.05	mg/kg	NC(3)	50		
5119549	Fluoranthene	2011/08/26	65	60 - 130	110	60 - 130	<0.05	mg/kg	NC	50		
5119549	Pyrene	2011/08/26	64	60 - 130	115	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(a)anthracene	2011/08/26	82	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119549	Chrysene	2011/08/26	88	60 - 130	102	60 - 130	<0.05	mg/kg	NC(3)	50		
5119549	Benzo(b&j)fluoranthene	2011/08/26	62	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(k)fluoranthene	2011/08/26	72	60 - 130	102	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(a)pyrene	2011/08/26	83	60 - 130	104	60 - 130	<0.05	mg/kg	NC	50		
5119549	Indeno(1,2,3-cd)pyrene	2011/08/26	77	60 - 130	103	60 - 130	<0.05	mg/kg	NC	50		
5119549	Dibenz(a,h)anthracene	2011/08/26	78	60 - 130	102	60 - 130	<0.05	mg/kg	NC	50		
5119549	Benzo(g,h,i)perylene	2011/08/26	80	60 - 130	101	60 - 130	<0.05	mg/kg	NC	50		
5119591	D10-ANTHRACENE (sur.)	2011/08/25	93	60 - 130	95	60 - 130	97	%				
5119591	D8-ACENAPHTHYLENE (sur.)	2011/08/25	63	50 - 130	94	50 - 130	95	%				
5119591	D8-NAPHTHALENE (sur.)	2011/08/25	92	50 - 130	97	50 - 130	99	%				
5119591	TERPHENYL-D14 (sur.)	2011/08/25	100	60 - 130	101	60 - 130	102	%				
5119591	Naphthalene	2011/08/25	81	50 - 130	91	50 - 130	<0.05	mg/kg	NC	50		
5119591	2-Methylnaphthalene	2011/08/25	82	50 - 130	92	50 - 130	<0.05	mg/kg	NC	50		
5119591	Acenaphthylene	2011/08/25	82	50 - 130	92	50 - 130	<0.05	mg/kg	NC	50		
5119591	Acenaphthene	2011/08/25	85	50 - 130	97	50 - 130	<0.05	mg/kg	NC	50		
5119591	Fluorene	2011/08/25	85	50 - 130	94	50 - 130	<0.05	mg/kg	NC	50		
5119591	Phenanthrene	2011/08/25	80	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5119591	Anthracene	2011/08/25	82	60 - 130	92	60 - 130	<0.05	mg/kg	NC	50		
5119591	Fluoranthene	2011/08/25	86	60 - 130	96	60 - 130	<0.05	mg/kg	NC	50		
5119591	Pyrene	2011/08/25	89	60 - 130	99	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(a)anthracene	2011/08/25	77	60 - 130	84	60 - 130	<0.05	mg/kg	NC	50		
5119591	Chrysene	2011/08/25	81	60 - 130	95	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(b&j)fluoranthene	2011/08/25	88	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(k)fluoranthene	2011/08/25	74	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(a)pyrene	2011/08/25	85	60 - 130	93	60 - 130	<0.05	mg/kg	NC	50		
5119591	Indeno(1,2,3-cd)pyrene	2011/08/25	81	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5119591	Dibenz(a,h)anthracene	2011/08/25	81	60 - 130	87	60 - 130	<0.05	mg/kg	NC	50		
5119591	Benzo(g,h,i)perylene	2011/08/25	78	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5121241	4-BROMOFLUOROBENZENE (sur.)	2011/08/25	98	70 - 130	97	70 - 130	97	%			98	70 - 130
5121241	D10-ETHYLBENZENE (sur.)	2011/08/25	87	50 - 130	81	50 - 130	89	%			83	50 - 130
5121241	D4-1,2-DICHLOROETHANE (sur.)	2011/08/25	94	70 - 130	94	70 - 130	88	%			89	70 - 130
5121241	D8-TOLUENE (sur.)	2011/08/25	103	70 - 130	103	70 - 130	104	%			105	70 - 130
5121241	Benzene	2011/08/25	86	60 - 140	92	60 - 140	<0.005	mg/kg	NC	40		
5121241	Toluene	2011/08/25	91	60 - 140	99	60 - 140	<0.02	mg/kg	NC	40		
5121241	Ethylbenzene	2011/08/25	89	60 - 140	98	60 - 140	<0.01	mg/kg	NC	40		
5121241	m & p-Xylene	2011/08/25	85	60 - 140	96	60 - 140	<0.04	mg/kg	NC	40		
5121241	o-Xylene	2011/08/25	88	60 - 140	98	60 - 140	<0.04	mg/kg	NC	40		
5121241	VH C6-C10	2011/08/25					<10	mg/kg	NC	40	102	60 - 140
5121241	Methyl-tert-butylether(MTBE)	2011/08/25					<0.1	mg/kg	NC	40		
5121241	Styrene	2011/08/25					<0.03	mg/kg	NC	40		
5121241	Xylenes (Total)	2011/08/25					<0.04	mg/kg	NC	40		
5122759	D10-ANTHRACENE (sur.)	2011/08/25	93	60 - 130	101	60 - 130	102	%				
5122759	D8-ACENAPHTHYLENE (sur.)	2011/08/25	94	50 - 130	97	50 - 130	97	%				
5122759	D8-NAPHTHALENE (sur.)	2011/08/25	95	50 - 130	103	50 - 130	104	%				
5122759	TERPHENYL-D14 (sur.)	2011/08/25	94	60 - 130	101	60 - 130	104	%				
5122759	Naphthalene	2011/08/26	78	50 - 130	83	50 - 130	<0.05	mg/kg	NC	50		
5122759	2-Methylnaphthalene	2011/08/26	75	50 - 130	88	50 - 130	<0.05	mg/kg	NC	50		
5122759	Acenaphthylene	2011/08/26	76	50 - 130	85	50 - 130	<0.05	mg/kg	NC	50		
5122759	Acenaphthene	2011/08/26	78	50 - 130	88	50 - 130	<0.05	mg/kg	NC	50		
5122759	Fluorene	2011/08/26	79	50 - 130	88	50 - 130	<0.05	mg/kg	NC	50		
5122759	Phenanthrene	2011/08/26	73	60 - 130	86	60 - 130	<0.05	mg/kg	NC	50		
5122759	Anthracene	2011/08/26	77	60 - 130	91	60 - 130	<0.05	mg/kg	NC	50		
5122759	Fluoranthene	2011/08/26	75	60 - 130	94	60 - 130	<0.05	mg/kg	NC	50		
5122759	Pyrene	2011/08/26	80	60 - 130	90	60 - 130	<0.05	mg/kg	NC	50		
5122759	Benzo(a)anthracene	2011/08/26	67	60 - 130	77	60 - 130	<0.05	mg/kg	NC	50		
5122759	Chrysene	2011/08/26	74	60 - 130	89	60 - 130	<0.05	mg/kg	NC	50		
5122759	Benzo(b&j)fluoranthene	2011/08/26	65	60 - 130	84	60 - 130	<0.05	mg/kg	NC	50		

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5122759	Benzo(k)fluoranthene	2011/08/26	80	60 - 130	87	60 - 130	<0.05	mg/kg	NC	50		
5122759	Benzo(a)pyrene	2011/08/26	76	60 - 130	90	60 - 130	<0.05	mg/kg	NC	50		
5122759	Indeno(1,2,3-cd)pyrene	2011/08/26	73	60 - 130	82	60 - 130	<0.05	mg/kg	NC	50		
5122759	Dibenz(a,h)anthracene	2011/08/26	76	60 - 130	82	60 - 130	<0.05	mg/kg	NC	50		
5122759	Benzo(g,h,i)perylene	2011/08/26	70	60 - 130	82	60 - 130	<0.05	mg/kg	NC	50		
5122815	O-TERPHENYL (sur.)	2011/08/26	96	50 - 130	98	50 - 130	100	%				
5122815	EPH (C10-C19)	2011/08/26	85	50 - 130	100	50 - 130	<100	mg/kg	NC	40		
5122815	EPH (C19-C32)	2011/08/26	81	50 - 130	102	50 - 130	<100	mg/kg	NC	40		
5123896	LEACHATE Arsenic (As)	2011/08/25	104	75 - 125	102	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Beryllium (Be)	2011/08/25	117	75 - 125	113	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Cadmium (Cd)	2011/08/25	105	75 - 125	100	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Chromium (Cr)	2011/08/25	97	75 - 125	98	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Cobalt (Co)	2011/08/25	96	75 - 125	96	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Copper (Cu)	2011/08/25	95	75 - 125	97	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Lead (Pb)	2011/08/25	95	75 - 125	97	75 - 125	<0.1	mg/L	2.4	35		
5123896	LEACHATE Nickel (Ni)	2011/08/25	98	75 - 125	97	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Selenium (Se)	2011/08/25	104	75 - 125	103	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Uranium (U)	2011/08/25	97	75 - 125	96	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Vanadium (V)	2011/08/25	100	75 - 125	100	75 - 125	<0.1	mg/L	NC	35		
5123896	LEACHATE Zinc (Zn)	2011/08/25	100	75 - 125	95	75 - 125	<0.1	mg/L	3.5	35		
5123896	LEACHATE Antimony (Sb)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Barium (Ba)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Boron (B)	2011/08/25					<0.1	mg/L	30.4	35		
5123896	LEACHATE Iron (Fe)	2011/08/25					<0.5	mg/L	NC	35		
5123896	LEACHATE Mercury (Hg)	2011/08/25					<0.002	mg/L	NC	35		
5123896	LEACHATE Molybdenum (Mo)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Silver (Ag)	2011/08/25					<0.1	mg/L	NC	35		

Maxxam Job #: B178176
Report Date: 2011/08/30

ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Sampler Initials: JL

QUALITY ASSURANCE REPORT

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	Units	Value (%)	QC Limits	% Recovery	QC Limits
5123896	LEACHATE Thallium (Tl)	2011/08/25					<0.1	mg/L	NC	35		
5123896	LEACHATE Zirconium (Zr)	2011/08/25					<0.1	mg/L	NC	35		

N/A = Not Applicable
RDL = Reportable Detection Limit
RPD = Relative Percent Difference
Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.
Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.
QC Standard: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Spiked Blank: A blank matrix to which a known amount of the analyte has been added. Used to evaluate analyte recovery.
Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.
Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.
NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spiked amount was not sufficiently significant to permit a reliable recovery calculation.
NC (RPD): The RPD was not calculated. The level of analyte detected in the parent sample and its duplicate was not sufficiently significant to permit a reliable calculation.
(1) - Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.
(2) - Reference Material for Mo exceeds acceptance criteria. 10% of analytes failure in multielement scan is allowed.
(3) - RDL raised due to sample matrix interference.

Maxxam Analytics Inc
8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com
Phone: (604) 444-4808
Fax.: (604) 444-4511
Toll-Free: 1-800-440-4808

08336921

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

LAB USE ONLY — MAXXAM JOB #: B178176 | ANALYSIS REQUEST | LAB USE ONLY — COC #:

COMPANY NAME: Access Consulting Group	CLIENT PROJECT NO.: TEK-11-02
COMPANY ADDRESS: #3 Calcite Business Center, 151 Industrial Rd., Whitehorse, YT, Y1A 2V3	TEL: 867-668-6463 E-MAIL: jlanglais@accessconsulting.ca FAX: 867-667-6680
SAMPLER NAME (PRINT): Janelle Langlais	PROJECT MANAGER: Scott Keesey
LABORATORY CONTACT: Kim Mohr	

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	OTHER	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	EPH/LEPH	PAH	BTEX/VPH/VH	TCLP METALS	TOTAL METALS
1	SITE 2-SW-PILE	B178176				X		18/08/11	12:20	4	X	X	X	X	X
2	SITE 2-W-PILE	939				X		18/08/11	12:20	4	X	X	X	X	X
3	SITE 2-CLEAN-PILE	940				X		18/08/11	16:30	4	X	X	X		
4	SITE 2-1-E-WALL	941				X		18/08/11	16:40	2	X	X	X		
5	SITE 2-2-BASE	942				X		18/08/11	16:45	2	X	X	X		
6	SITE 2-13-N-WALL	943				X		18/08/11	16:45	2	X	X	X		
7	SITE 2-17-W-WALL	944				X		18/08/11	17:20	2	X	X	X		
8	SITE 2-18-S-WALL	945				X		18/08/11	17:10	2	X	X	X		
9	SITE 2-16-W-BASE	946				X		18/08/11	16:50	2	X	X	X		
10	SITE 2-21-S-WALL	947				X		18/08/11	16:50	2	X	X	X		
11	SITE 2-19-N-WALL	948				X		18/08/11	16:55	2	X	X	X		
12															

B178176

TAT (Turnaround Time)
LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL
* Some exceptions apply - please contact laboratory

STANDARD	5 BUSINESS DAYS	X
RUSH	3 BUSINESS DAYS	
RUSH	2 BUSINESS DAYS	
URGENT	1 BUSINESS DAY	

OTHER BUSINESS DAYS _____

PO NUMBER OR QUOTE NUMBER: 6141

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:

CCME
CSR
AB TIER 1
OTHER

JARS USED:

LAB USE ONLY — ARRIVAL TEMPERATURE °C: 2,2,2 | DUE DATE: | LOG IN CHECK:

	DATE: DD/MM/YY	TIME:	RECEIVED BY:
RELINQUISHED BY SAMPLER: Janelle Langlais	Aug/22/11	14:30	
RELINQUISHED BY:			
RELINQUISHED BY:	23/08/11	09:15	RECEIVED BY LABORATORY: NICOLE LOCKYER

CUSTODY RECORD

Maxxam Analytics Inc

8577 Commerce Court
Burnaby, BC V5A 4N5
www.maxxamanalytics.com

Phone: (604) 444-4808
Fax.: (604) 444-4511
Toll-Free: 1-800-440-4808

CHAIN-OF CUSTODY RECORD AND ANALYSIS REQUEST

08336922

LAB USE ONLY — MAXXAM JOB #

ANALYSIS REQUEST

LAB USE ONLY — COC #

COMPANY NAME:	Access Consulting Group
CLIENT PROJECT NO.:	TEK-11-02
COMPANY ADDRESS:	#3 Calcite Business Center 151 Industrial Rd. Whitehorse, YT Y1A 2V3
TEL.:	867-668-6463
E-MAIL:	jlanglais@accessconsulting.ca
FAX:	867-667-6680
SAMPLER NAME (PRINT):	Janelle Langlais
PROJECT MANAGER:	Scott Keesey
LABORATORY CONTACT:	Kim Mohr

	FIELD SAMPLE ID	MAXXAM LAB # (LAB USE ONLY)	MATRIX: GROUNDWATER	SURFACE WATER	DRINKING WATER	SOIL	OTHER	SAMPLING: DATE DD/MM/YY	TIME	# CONTAINERS	EPH/LEPH	PAH	BTEX/VPH/VH	TCLP METALS	TOTAL METALS
1	SITE 3-A-EXCAVATED SOIL	B[illegible]982				X		19/08/11	10:40	4	X	X	X	X	X
2	SITE 3-A-6-E-WALL	983				X		19/08/11	10:10	2	X	X	X		
3	SITE 3-A-3-W-WALL	984				X		19/08/11	10:00	2	X	X	X		
4	SITE 3-A-2-BASE	985				X		19/08/11	10:00	2	X	X	X		
5	SITE 3-A-5-N-WALL	986				X		19/08/11	10:20	2	X	X	X		
6	SITE 3-A-4-S-WALL	987				X		19/08/11	10:30	2	X	X	X		
7	SITE 3-B	988				X		19/08/11	19:05	2	X	X	X		
8	SITE 3-C	989				X		19/08/11	19:10	2	X	X	X		
9	SITE 3-D	990				X		19/08/11	19:20	2	X	X	X		
10	SITE 3-E	991				X		19/08/11	19:30	2	X	X	X		
11	SITE 3-H	992				X		19/08/11	19:35	2	X	X	X		
12															

B178176

TAT (Turnaround Time)
LESS THAN 5 DAY TAT MUST HAVE PRIOR APPROVAL
* Some exceptions apply - please contact laboratory

STANDARD	5 BUSINESS DAYS	X
RUSH	3 BUSINESS DAYS	
RUSH	2 BUSINESS DAYS	
URGENT	1 BUSINESS DAY	

OTHER BUSINESS DAYS _____

PO NUMBER OR QUOTE NUMBER: 6141

SPECIAL DETECTION LIMITS / CONTAMINANT TYPE:

CCME
CSR
AB TIER 1
OTHER

JARS USED:

LAB USE ONLY — ARRIVAL TEMPERATURE °C: 2,2,2 | DUE DATE: | LOG IN CHECK:

ACCOUNTING CONTACT:

SPECIAL REPORTING OR BILLING INSTRUCTIONS:

	DATE: DD/MM/YY	TIME:	RECEIVED BY:
RELINQUISHED BY SAMPLER: Janelle Langlais	Aug/22/11	14:30	
RELINQUISHED BY:			
RELINQUISHED BY:	23/08/11	09:15	RECEIVED BY LABORATORY: NICOLE LOCKYER

CUSTODY RECORD

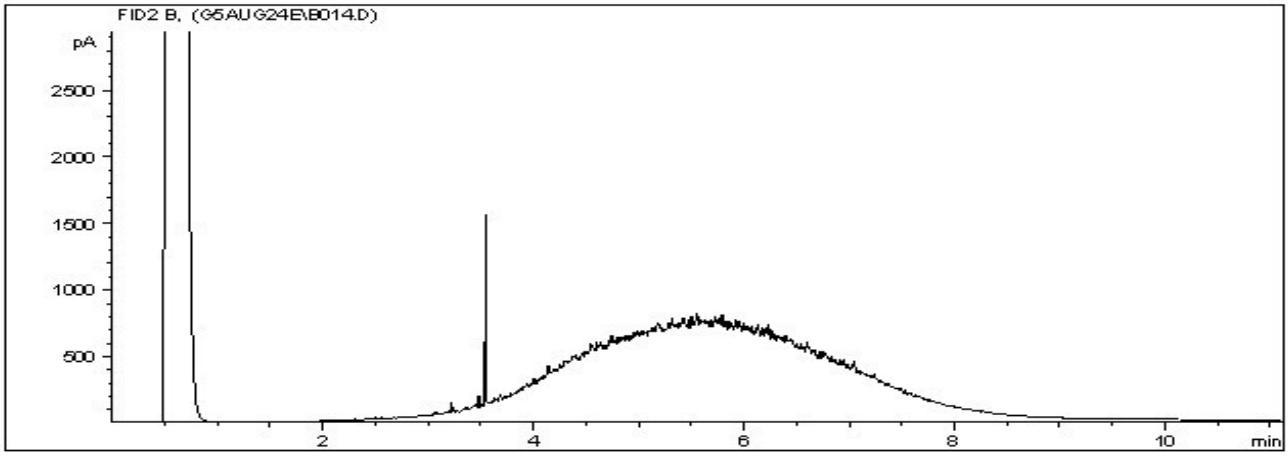
COCFORM - SC - 20070602

Report Date: 2011/08/30
Maxxam Job #: B178176
Maxxam Sample: BI1938

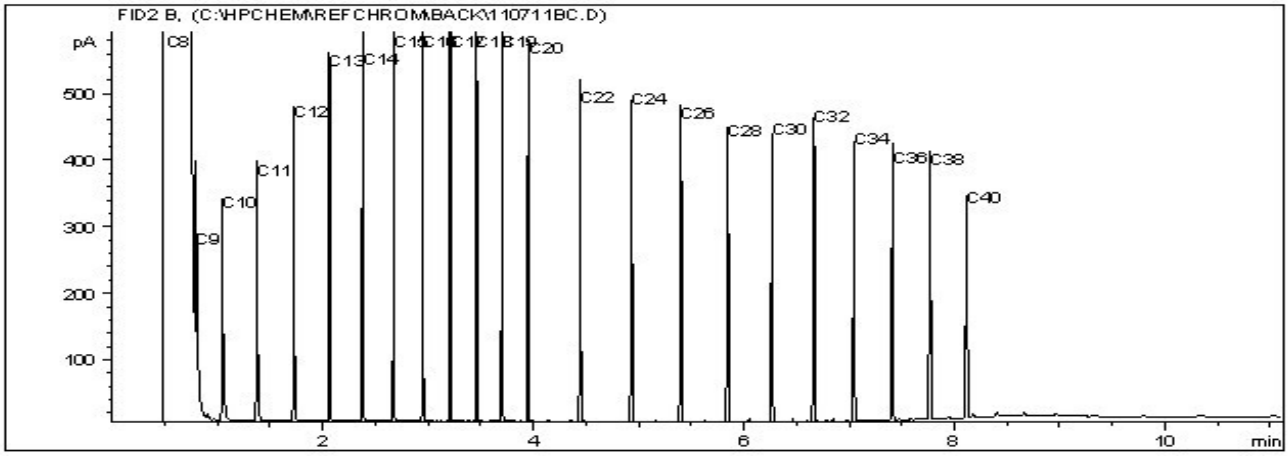
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Client ID: SITE 2-SW-PILE

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 -
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

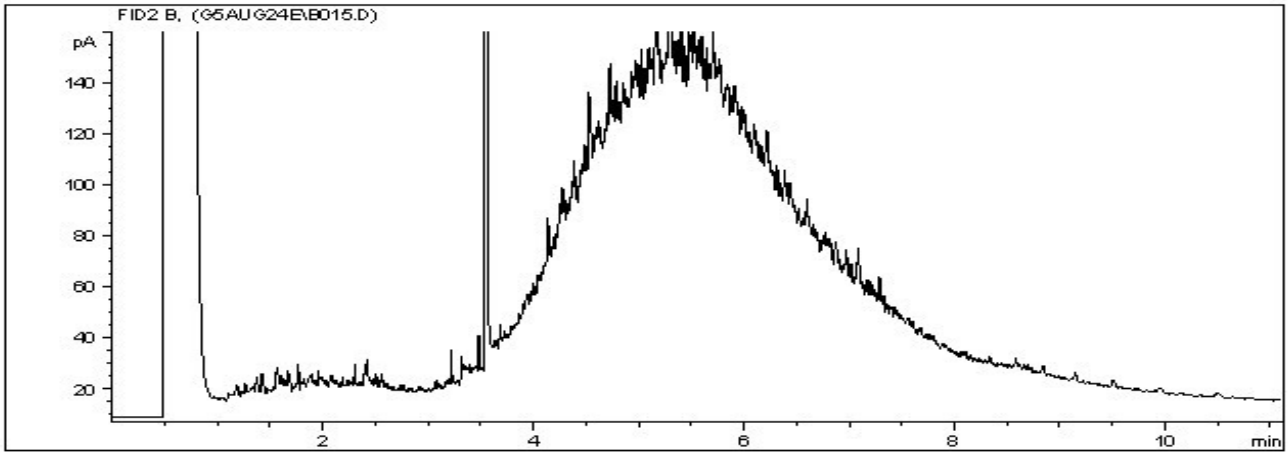
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178176
Maxxam Sample: BI1946

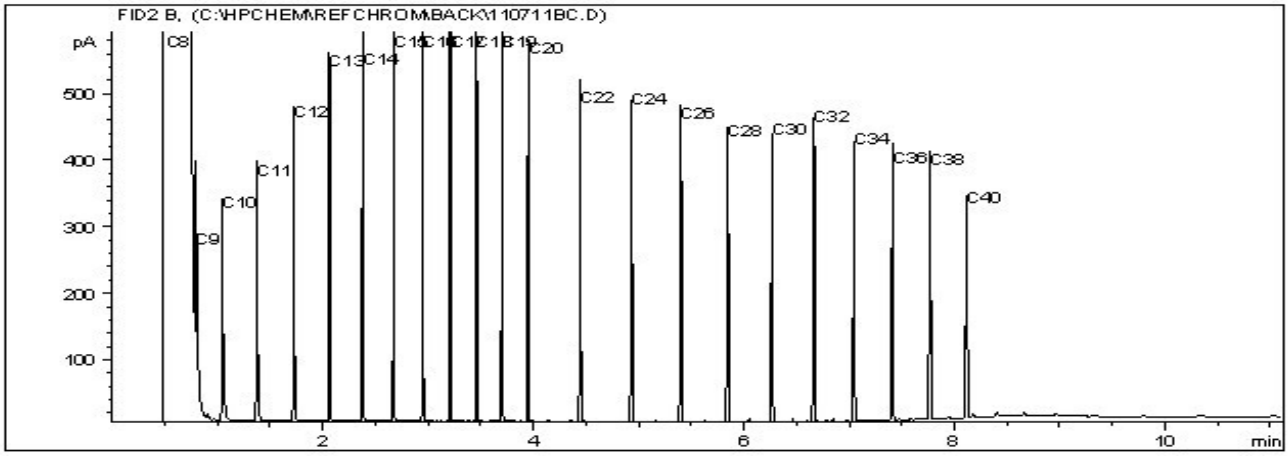
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Client ID: SITE 2-16-W-BASE

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C60+
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

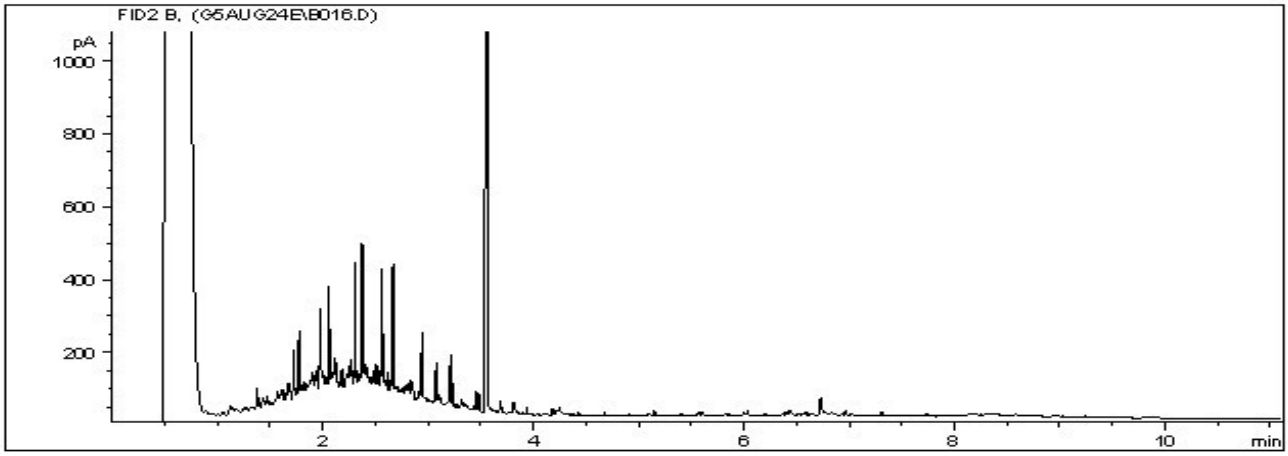
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

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Maxxam Job #: B178176
Maxxam Sample: BI1983

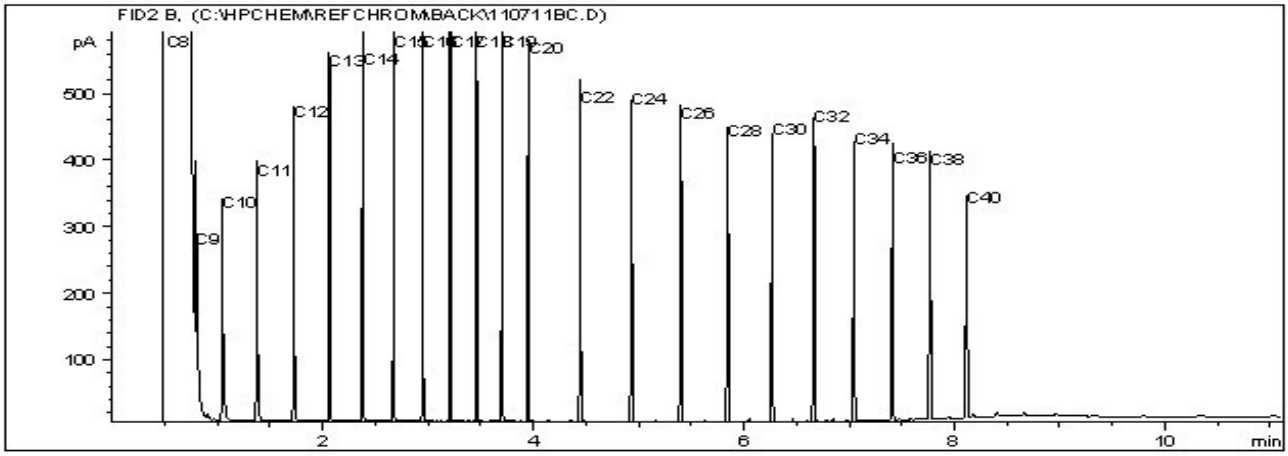
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Client ID: SITE 3-A-6-E-WALL

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C60+
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

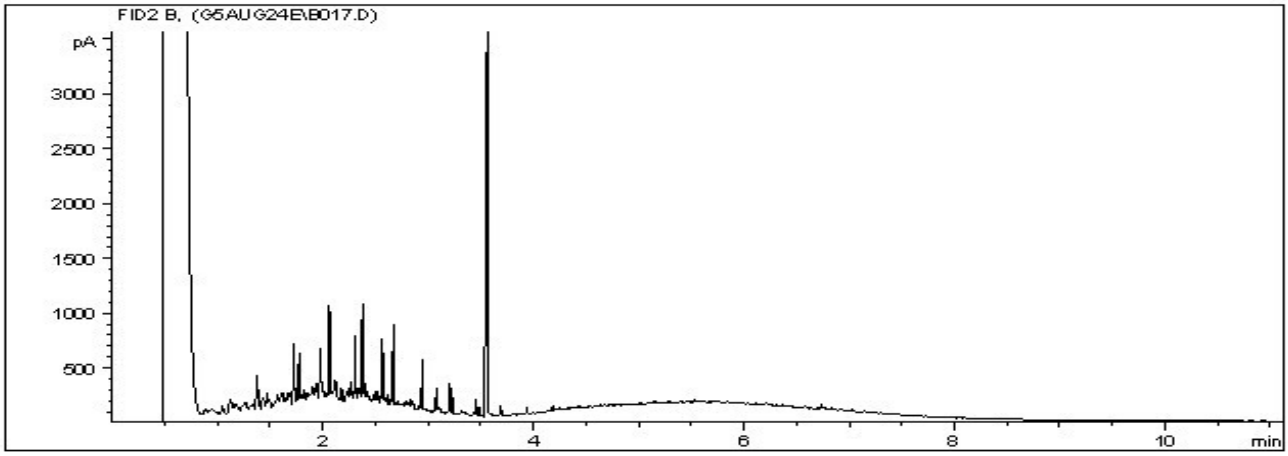
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178176
Maxxam Sample: BI1985

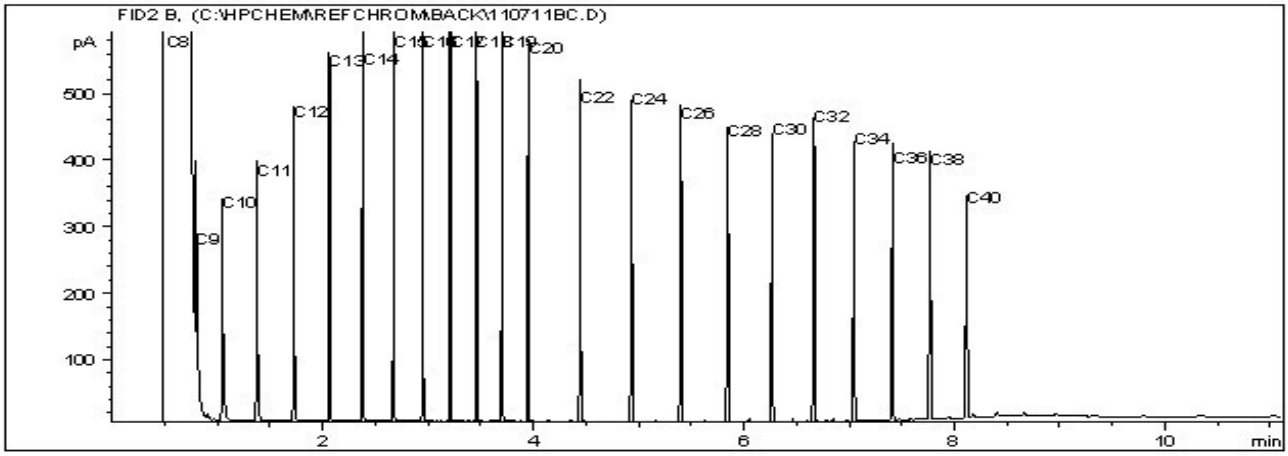
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Client ID: SITE 3-A-2-BASE

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C60+
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

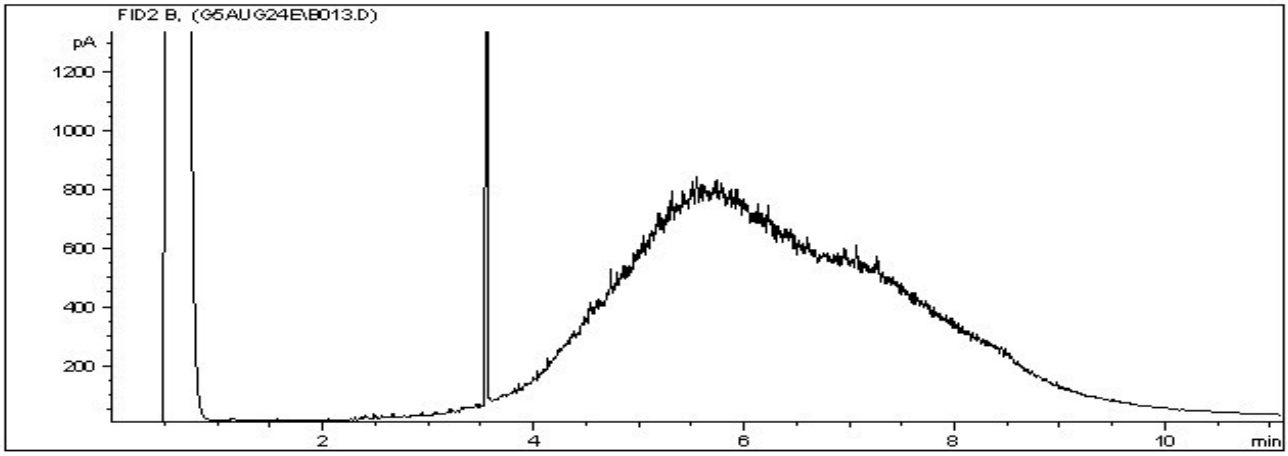
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178176
Maxxam Sample: BI1985 Lab-Dup

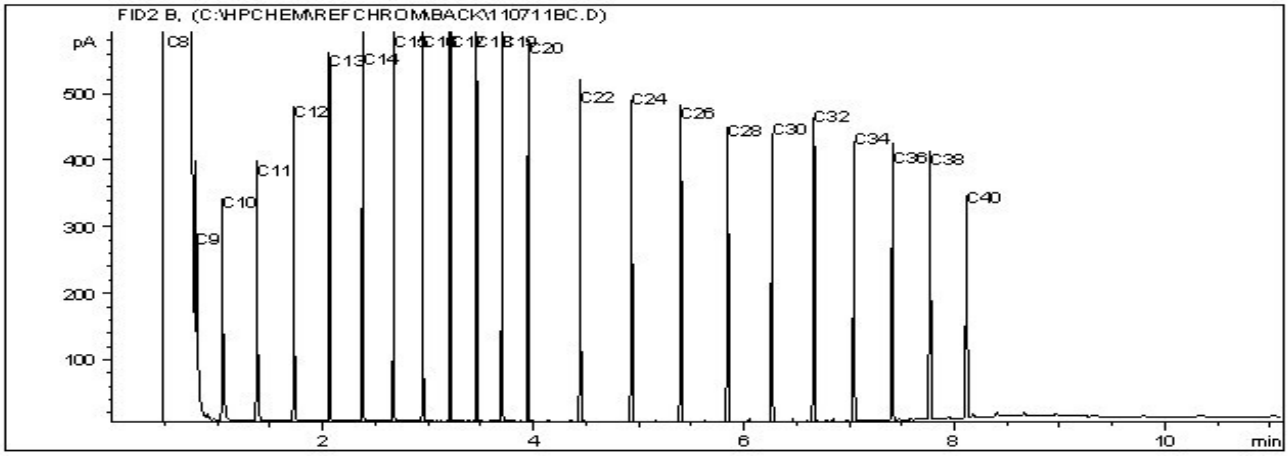
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Client ID: SITE 3-A-2-BASE

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 - C60+
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

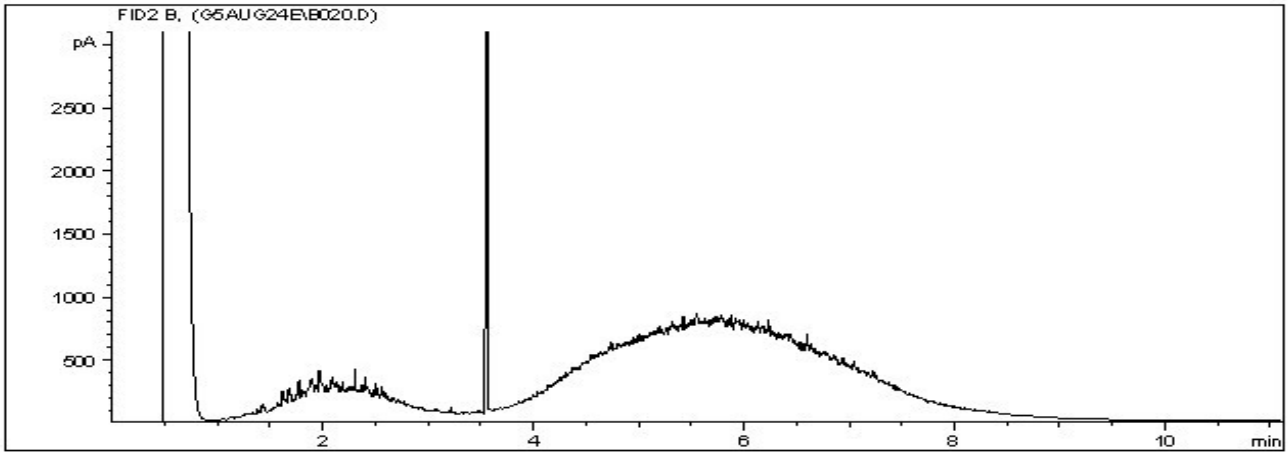
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Report Date: 2011/08/30
Maxxam Job #: B178176
Maxxam Sample: BI1990

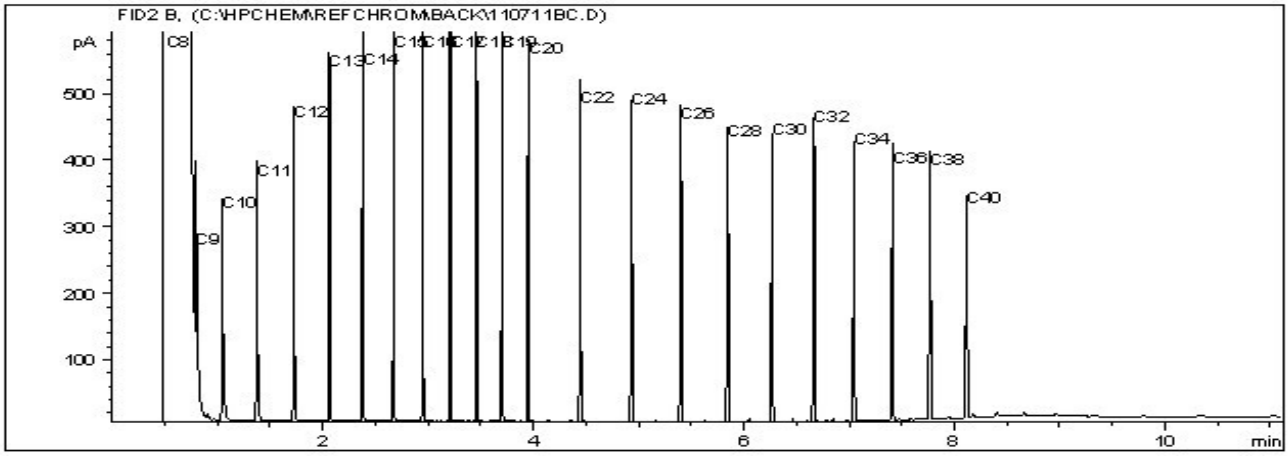
ACCESS CONSULTING GROUP
Client Project #: TEK-11-02

Client ID: SITE 3-D

BC Hydrocarbons in Soil by GC/FID Chromatogram



Carbon Range Distribution - Reference Chromatogram



TYPICAL PRODUCT CARBON NUMBER RANGES

Gasoline:	C4 - C12	Diesel:	C8 - C22
Varsol:	C8 - C12	Lubricating Oils:	C20 -
Kerosene:	C7 - C16	Crude Oils:	C3 - C60+

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

3 Calcite Business Centre, 151 Industrial Road
Whitehorse, Yukon Y1A 2V3
Phone (867) 668-6463 Fax (867) 667-6680
www.accessconsulting.ca

Technical Memorandum

To:	Dave Ryder, Senior Environmental Coordinator, Teck Resources Limited Michelle Unger, Teck Resources Limited
From:	Janelle Langlais, Environmental Scientist, Access Consulting Group Kurt Neunherz, Contaminated Site Remediation Manager, Access Consulting Group
Date:	December 18, 2012
Re:	Reclamation Progress Report

INTRODUCTION

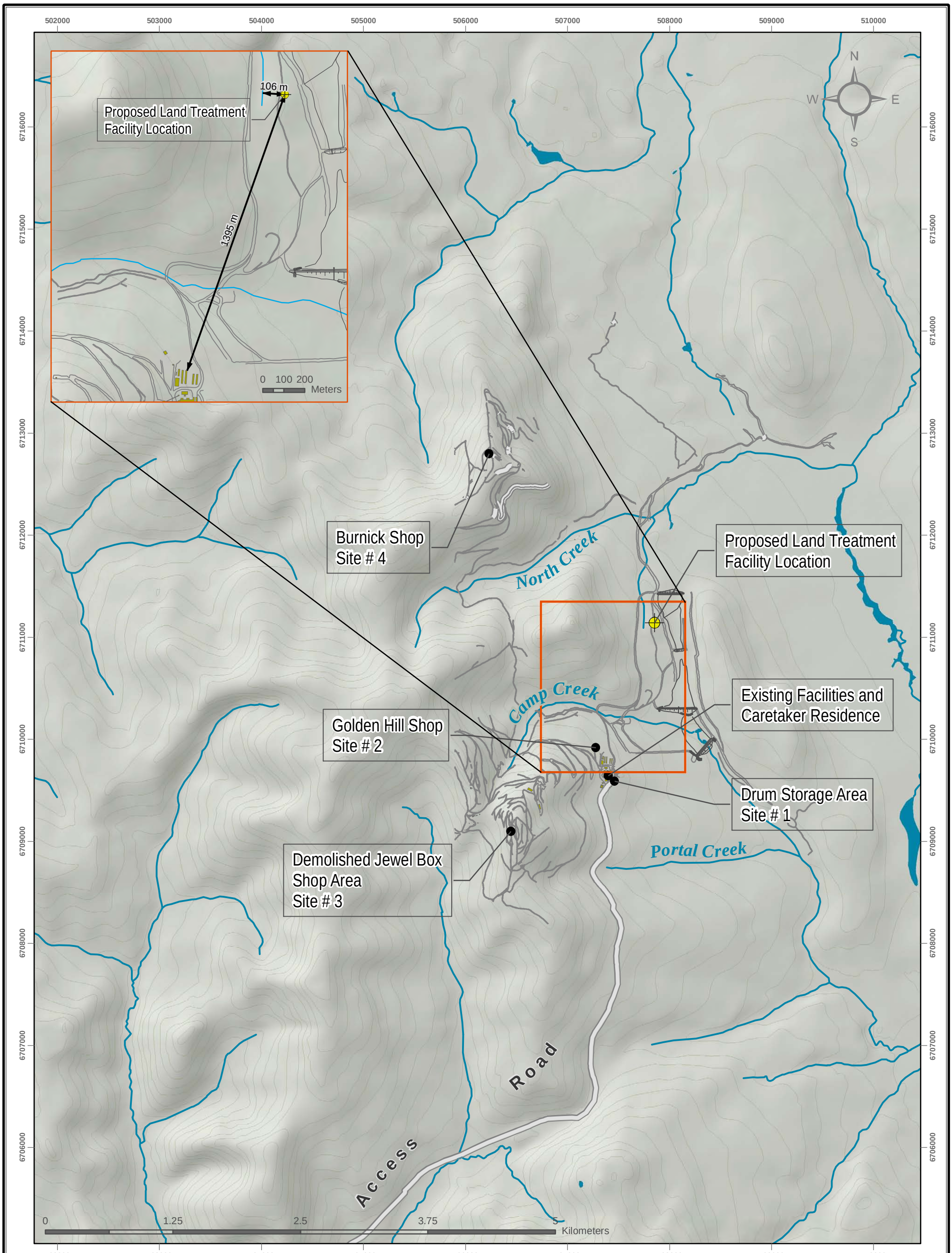
This technical memorandum is an update on remedial activities that were undertaken on behalf of Teck Resources Limited (TECK) by Access Consulting Group (ACG) in September and October 2012 at the Sa Dena Hes mine site north of Watson Lake, Yukon. Various areas of hydrocarbon contamination have been identified on-site in recent years as a result of servicing mining vehicles and improper storage of drums and/or liquid waste during historical mining operations and care and maintenance activities. TECK retained ACG to provide environmental services for the reclamation of four areas of potential environmental concern (APECs). These areas are: Site 1 Drum Storage, Site 2 Golden Hill Shop, Site 3 Jewel Box and Site 4 Burnick Shop, see Figure 1 below.

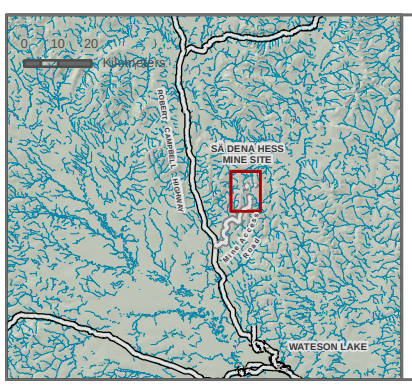
Remedial activities began in August 2011 while the Sa Dena Hes mine site was in a state of care and maintenance. A summary report, *Site Investigation & Remedial Soil Excavation*, was completed on April 23, 2012 by ACG.

A continuation of the remedial activities occurred September 4th – 7th, 2012, in which ACG completed a modified Phase II Environmental Site Assessment (ESA) at Site 2 Golden Hill Shop and Site 3 Jewel Box. The purpose of the investigation was to determine the horizontal and vertical extents of the contaminant plumes at each site and provide a volume estimate of contaminated materials.

On October 9th - 11th 2012, ACG proceeded with a Phase III Remedial Soil Excavation and relocated contaminated materials from Site 3 Jewel Box to Tervita's Northern Rockies Landfill in Fort Nelson B.C.

Selected photographs have been provided in Attachment A – Photolog.





1:35,000 When map measurments equal 11 by 17 inches

National Topographic Data Base (NTDB) compiled by Natural Resources Canada at a scale of 1:50,000. Cadastral datacompiled by Natural Resources Canada. Reproduced underlicense from © Her Majesty the Queen in Right of Canada,Department of Natural Resources Canada. All rights reserved. Points collected by GPS or manually placed by JOL.

Datum: NAD 83 Proj.: UTM Zone 9N

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- Acess Road
- Mine Road
- Mine Feature
- Contour (100 ft; 30.5 m)
- Watercourse
- Waterbody
- Structures

Teck

ACCESS

SÄ DENA HES MINE

PROPOSED LAND TREATMENT FACILITY LOCATION AND CONTAMINATED SOIL LOCATIONS

DRAWN BY JML	APRIL 2012	VERIFIED BY JOL

D:\Project\AllProjects\Sa_Dena_Hess\GIS\Maps\Permitting\Waste_Permit_2011\ContaminatedSitesAndLTF_20111128.mxd
(*Last edited by: jlindeman;13/04/2012/13:57 PM*)

METHODOLOGY

Regulatory Guidelines and Criteria

Phase II Site assessments, remedial excavations and soil sampling was undertaken as per the Yukon Contaminated Sites Regulation (CSR) of The Yukon Environment Act with particular attention to Part 3 Restoration of Contaminated Sites, specifically Protocol No. 2 *Analysis of Samples taken in relation to the Contaminated Sites Regulations*, Protocol No. 3 *Soil Sampling Procedures at Contaminated Sites*, and Protocol No. 5 *Petroleum Hydrocarbon Analytical Methods.*

Analyzed soil parameters were compared to the CSR "*Schedule 1 - Generic Numerical Soil Standards*" and *"Schedule 2 – Matrix Numerical Soil Standards"* under the Industrial Land Use listing, here on in, referred to as CSR Industrial Land Use Standards (CSR IL Standards). CSR Industrial Land Use Standards were applied to excavations in 2011, as the mine site was in a state of care and maintenance. The Sa Dena Hes mine site is now going into closure; however TECK plans on retaining existing surface leases and/or quartz licenses near the mill and mine adits. All four sites are located within these leases and/or licenses and CSR IL Standards will continue to be applied. All sites were within 1.0 km of surface water and therefore CSR Aquatic Life Standards or most stringent standards applicable have been applied to soil sample results. In addition, the following site-specific factors (specified in applicable matrixes) have been applied: human intake of contaminated soil and toxicity to soil invertebrates and plants. Laboratory results were not compared to the CSR Groundwater Used for Drinking Water Standards as there were no drinking water sources within 1.5 km of the sites; drinking water is trucked in for onsite consumption.

Special Waste Criteria

Characterization and confirmatory sample results were compared to *Schedule 6, Hazardous Constituents Controlled Under Leachate Test and Regulated Limits*, of the Export and Import of Hazardous Waste and Hazardous Recyclable Material Regulations (SOR/2005-149), Department of Justice, Canada, here on in, referred to as Schedule 6, Leachate Test and Regulated Limits. Any metal parameter that exceeds these limits is classified as special waste. In addition, if the total level of petroleum hydrocarbons (TPHC) in soil is equal to or greater than 30,000 parts per million (ppm) or mg/kg, the soil is classified as special waste. To determine this, hydrocarbon levels in all fractions (volatile, light and heavy) must be added together; if the sum is greater than 30,000 mg/kg, the material is classified as special waste.

Field Screening and Soil Sampling Procedure

A photoionization detector (PID) meter (Photovac 2020 Combo Pro) was used during the Phase II Site Assessments and Phase III Remedial Soil Excavations to obtain field screening results of volatile organic compounds (VOCs) produced by grab samples of potentially contaminated soil. In accordance to standard industry practices, ACG uses a field parameter of 50 parts per million (ppm) to indicate the presence of hydrocarbon contaminated soils. An area was considered potentially contaminated if samples indicated the presence of VOC vapours above 50 ppm or confirmed by visual and/or olfactory field observations.

Predicted Volume Estimates

Each site was divided into sections in which assumed measurements were applied to calculate detailed total volume estimates. Length and width approximations of each section were recorded during site assessments

or determined by field and visual observations of the sites. Assumed depths of additional contaminated soils to be excavated were based on average or deepest depths encountered at each site, and/or test pits advanced during Phase II ESAs. The following measurements (length x width x depth) have been used to predict the volume of additional contaminated soils to be removed from each site:

- Site 1 Drum Storage - contaminated area approximation: 1m x 1m x 0.6m (*estimate based on field and visual observations of the site*)
- Site 2 Golden Hill Shop – contaminated area approximations: 4m x 3.5m x 1.0m & 3m x 3m x 1.0m
- Site 3 Jewel Box - contaminated area approximations: 5m x 5m x 2.5m & 25m x 18m x 1m
- Site 4 Burnick Shop – contaminated area approximations: 13.5m x 0.5m x 0.4m; 29.05m x 2m x 0.4m; 40m x 2m x 0.4m & 13.5 m x 9.55 m x 0.4 (*estimate based on field and visual observations of the site*)

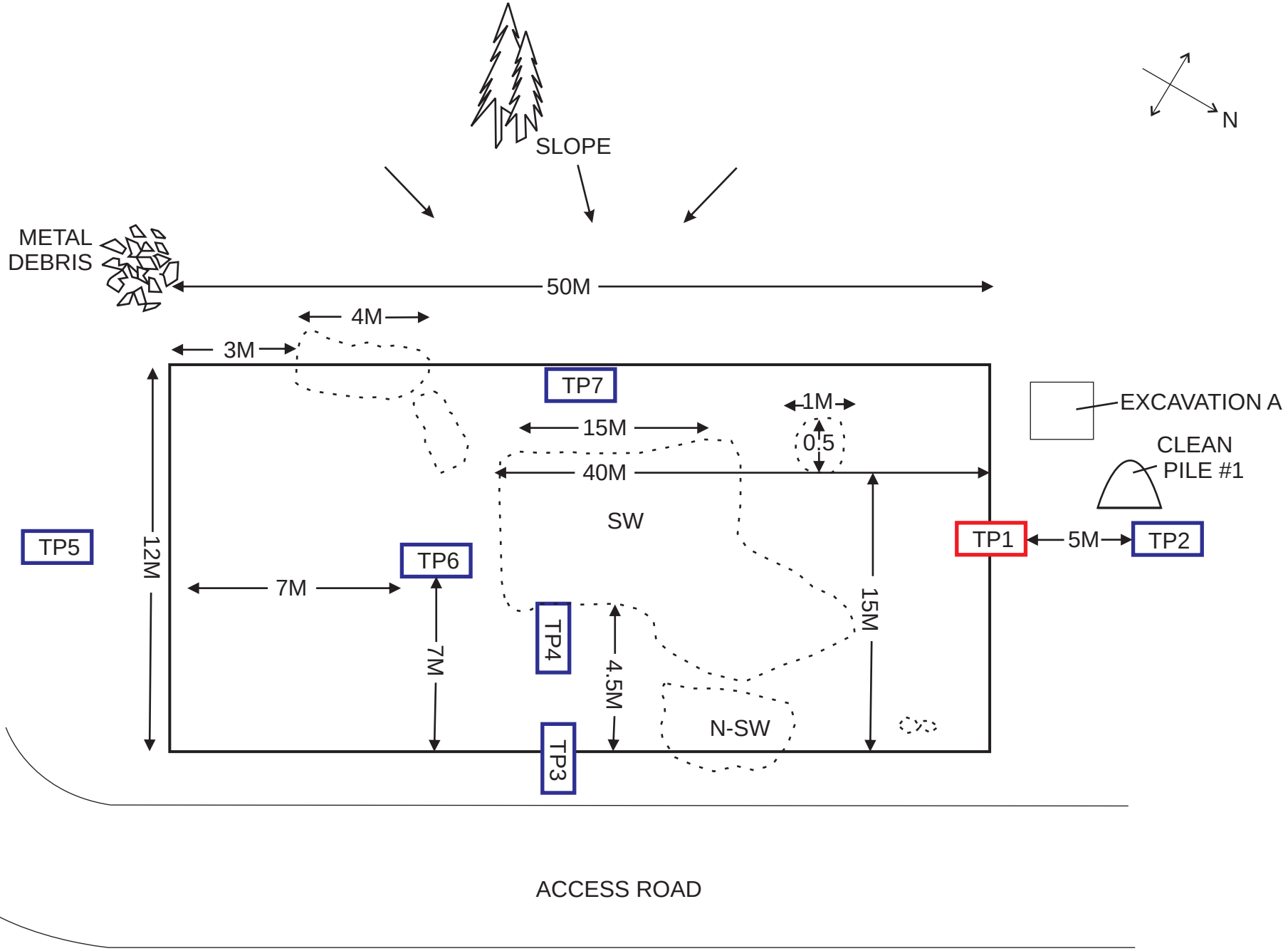
Excavations are to be made to the nearest clean confirmatory sample and measurement estimates have accounted for this. Total volume results are presented in Results/Discussion section.

RESULTS/DISCUSSION

A Phase II ESA was completed on September 4th - 7th to determine the horizontal and vertical extents of the contamination plumes at Site 2 Golden Hills Shop and Site 3 Jewel Box. Volume estimates presented above have been based on measurements and results collected during the Phase II ESA. Figures 2 and 3 below show test pit locations and laboratory results of soil samples collected. Analyses of sample results and borehole logs are available in Attachment B.

Based on information and data obtained in the Phase II ESA, a Phase III Remedial Soil Excavation was undertaken at Site 3 Jewel Box on October 9th - 11th, 2012. Approximately, 339 m^3 of special waste leachable lead & petroleum hydrocarbon materials were excavated. All contaminated materials were not removed and additional excavations will be required to remediate the site. Additional characterization and confirmatory samples are still required in terms of identified contaminants of concerns: petroleum hydrocarbons, metal concentrations and leachable metals. Excavation extents and laboratory soil sample results are presented in Figure 4. Analytical sample results and PID field screening results are available in Attachment C.

Based on the Phase II ESA and Phase III Remedial Soil Excavation, volume estimates have been presented in the following section.



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BASED ON CONTAMINATED SITES REGULATIONS AND INDUSTRIAL LANDUSE STANDARDS
CONCEPTUAL DRAWING ONLY; FEATURES ARE NOT TO SCALE

TP# TEST PITS

VISUAL & OLEFACTORY CONFIRMATION OF HYDROCARBONS

LAB SAMPLE ABOVE LEPHS & HEPHS CSR INDUSTRIAL STANDARDS

LAB SAMPLE BELOW LEPHS & HEPHS CSR INDUSTRIAL STANDARDS

Teck

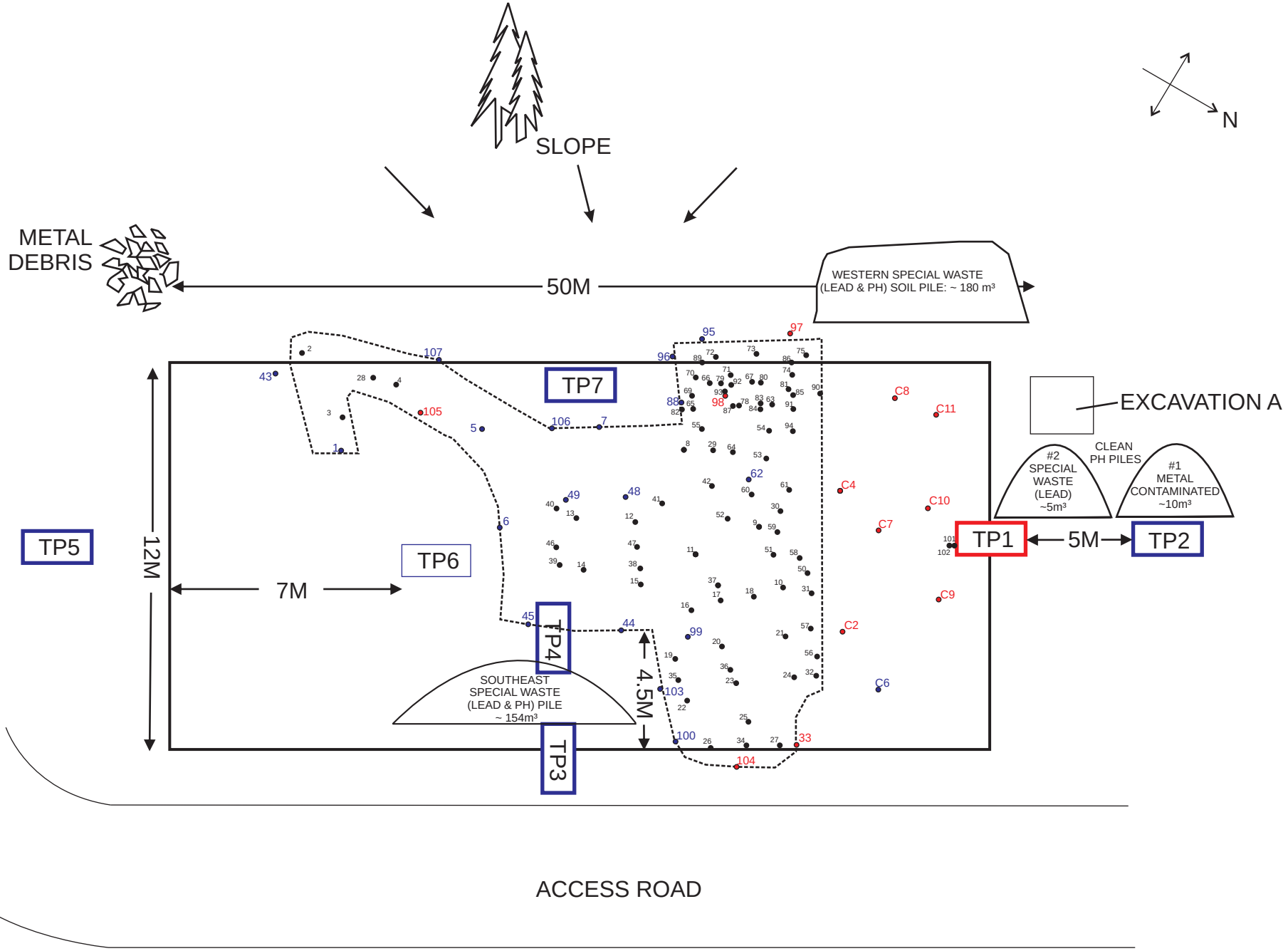
ACCESS

SA DENA HES MINE

FIGURE 2
SITE 3 - JEWEL BOX
SEPT.5, 2012

DECEMBER 2012

I:\Sa_Dena_Hes\Cone\IndustrialStandard\Site3_JewelBox20121217IND.pdf



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BASED ON CONTAMINATED SITES REGULATIONS AND INDUSTRIAL LANDUSE STANDARDS CONCEPTUAL DRAWING ONLY; FEATURES ARE NOT TO SCALE

TP# TEST PITS

\# FIELD SAMPLE

LAB SAMPLE ABOVE LEPHS & HEPHS CSR INDUSTRIAL LANDUSE STANDARDS

LAB SAMPLE BELOW LEPHS & HEPHS CSR INDUSTRIAL STANDARDS

Teck

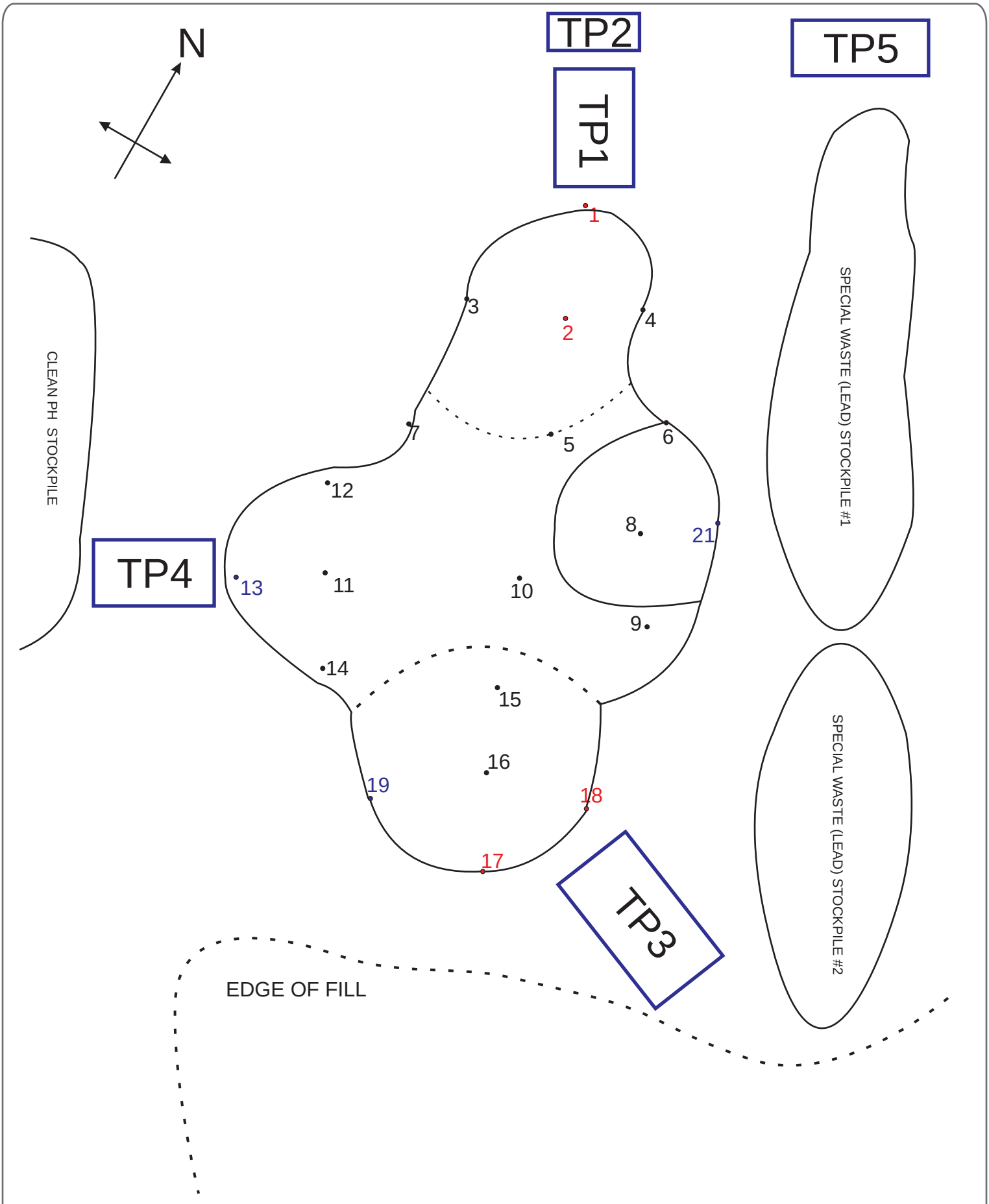
ACCESS

SA DENA HES MINE

FIGURE 3
SITE 3 - JEWEL BOX EXCAVATION
OCTOBER 9TH, 2012

DECEMBER 2012

I:\Sa_Dena_Hes\Cone\IndustrialStandard\Site3_JewelBox\FIG3_20121217IND.pdf



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FIELD SAMPLE — LAB SAMPLE ABOVE LEPHS & HEPHS CSR INDUSTRIAL STANDARDS

TP# TEST PITS — LAB SAMPLE BELOW LEPHS &HEPHS CSR INDUSTRIAL STANDARDS

Teck

ACCESS

SA DENA HES MINE

FIGURE 4

SITE 2 - GOLDEN HILL SHOP

SEPT. 6th & 7th, 2012

DECEMBER 2012

I:\Sa_Dena_Hes\Core\Industrial Standard\Site2_GoldenHillShop\FIG4_20121217.cdr

On-Site Stockpile Volume Estimates

Estimated volume of contaminated soils currently stockpiled on-site:

- Site 1 Drum Storage - 60 m^3 *(50 m^3 special waste leachable lead & petroleum hydrocarbons)*
- Site 2 Golden Hills Shop - 20 m^3 (*special waste leachable lead)*
- Site 3 Jewel Box - 349 m^3 *(339 m^3 special waste leachable lead & petroleum hydrocarbons)*
- Site 4 Burnick Shop - 40 m^3 (*non-special waste, metals and petroleum hydrocarbon concentrations above CSR IL Standards)*

Approximately 469 m^3 of impacted soil is estimated to be stockpiled at the mine site. Stockpiled material has been placed on and covered with a 6 mil poly liner, and appropriate signage can be viewed from all four compass directions. Special waste permit 41-247 is available in Attachment D. It is not known if clean petroleum hydrocarbon stockpiles at Sites 1 and 2 contain elevated metal concentrations and/or may potentially be classified as special waste materials. Metal or leachate test samples were not collected during 2011 excavations. These analyses are recommended to fully characterize stockpiles. As such, the above estimate does not include clean petroleum hydrocarbon stockpile volumes from Sites 1 and 2.

Additional Soils Volume Estimates

Based on Contaminated Sites Regulation Industrial Land Use Generic Numerical Soil Standards, the following volume of contaminated soils remains to be excavated:

- Site 1 Drum Storage - 1m^3 *(potentially special waste leachable lead)*
- Site 2 Golden Hills Shop - 23 m^3 (*likely special* waste *leachable lead)*
- Site 3 Jewel Box - 513 m^3 (*likely special* waste *leachable lead)*
- Site 4 Burnick Shop - 172 m^3 *(likely non-special waste, metals and petroleum hydrocarbon concentrations likely above CSR IL Standards)*

Total volume estimate of impacted soil to be excavated is approximately 709 m^3. Estimates are based on assumed vertical and horizontal extents presented in the Methodology section of this report. Due to the nature of these sites, volume estimates are highly likely to change. An increase in volume may occur due to unidentified field circumstances encountered, such as existing pockets of contamination found at depth (a contaminant plume having migrated to a depth of 1.0 m below grade or greater).

Relocation of Contaminated Materials

On October 10, 2012, 164.92 tonnes, 130m^3 of special waste materials (leachable lead & petroleum hydrocarbons) was transported to Tervita's Northern Rockies Landfill, Fort Nelson B.C. under Relocation Permit 45-033. This permit and Tervita's approval authorization is available in Attachment E. The transportation company utilized during the relocation of contaminated materials was Muskwa Valley Ventures Ltd. This company was licensed to transport special waste materials in the Yukon and B.C. Tervita's Summary of Total Tonnage is also available in Attachment E.

The poly liner in which contaminated materials were stored on did not appear perforated or damaged during removal. In addition, contaminated material or runoff was not suspected to have impacted areas outside stockpile footprints. As such, ACG personnel did not collect confirmatory soil samples from beneath the poly liners for analysis.

Summary of volume totals

A summary list has been provided presenting the overall total volumes of contaminated materials:

- *Stockpiled on site:* 469 m^3
- *To be excavated:* 709 m^3.
- *Removed:* 130 m^3
- *Total:* 1,308 m^3

Summary of Works to be completed

The following summary below specifically addresses each site regarding recommendations and additional work required for remediation:

Site 1: Drum Storage Area

One small area of petroleum hydrocarbon contaminated soils requires excavation, approximately 1 m^3. A decommissioned hydro pole has prevented this area from being excavated. It may be feasible to utilize a small kabota that could safely remove the contaminated material without jeopardizing the stability of the hydro pole. An additional 11 confirmatory samples are still required to confirm all contaminated materials have been completely removed as outlined in CSR Protocol No. 3. Metal and leachate test sample analysis are recommended to fully characterize "Clean Petroleum Hydrocarbon" stockpile.

Site 2: Golden Hill Shop

An additional 23 m^3 of contaminated material is predicted to be excavated. Material will likely be classified as special waste leachable lead. As per CSR Protocol No. 3, additional confirmatory and characterization samples will be required in terms of identified contaminants of concern: petroleum hydrocarbons, metal concentrations and leachable metals. Total numbers will be determined upon completion of the excavation. Metal and leachate test analysis are recommended to fully characterize "Clean Petroleum Hydrocarbon" stockpile.

Site 3: Jewel Box

An additional 513 m^3 of contaminated material is predicted to be excavated. Material will likely be classified as special waste leachable lead. As per CSR Protocol No. 3, additional confirmatory and characterization samples will be required in terms of identified contaminants of concern: petroleum hydrocarbons, metal concentrations and leachable metals. Total numbers will be determined upon final completion of the excavation.

Site 4: Burnick Shop

An additional 172 m^3 of contaminated material is predicted to be excavated. Material will likely be non-special waste; however, metals and petroleum hydrocarbon concentrations will likely be above CSR IL Standards. Final remedial excavations will be complete once the Burinick Shop has been removed. As per CSR Protocol No. 3, additional confirmatory and characterization samples will be required in terms of identified contaminants of concern: petroleum hydrocarbons, metal concentrations and leachable metals. Total numbers will be determined upon final completion of the excavation.

RECOMMENDATIONS/CONCLUSION

This technical memorandum has been completed to describe reclamation activities that were undertaken by Access Consulting Group, at the Sa Dena Hes mine site north of Watson Lake, on behalf of Teck Resources Limited. A modified Phase II Environmental Site Assessment, Phase III Remedial Soil Excavation and the relocation of contaminated materials were completed in September and October 2012 as a continuation of remediating four contaminated sites.

A total of 164.92 tonnes, 130 m^3 of special waste materials (petroleum hydrocarbon & leachable lead) was transported to Tervita's Northern Rockies Landfill, Fort Nelson B.C. on October 10, 2012.

A total of 469 m^3 of contaminated material is estimated to be currently stockpiled on-site.

A total estimate of 709 m^3 of contaminated soils remains to be excavated. However, as unidentified pockets of deep contamination cannot be accounted for, this estimate is highly likely to change.

All four sites require additional soil excavations as well as the collection of characterization and confirmatory samples in terms of identified contaminants of concerns: petroleum hydrocarbons, metal concentrations and leachable metals. After all impacted soils have been removed a final remediation report will be completed and submitted to Yukon Territorial Government, Environmental Programs Branch.

Based on analytical soil sample results, a majority of impacted soils at the site are classified as special waste in terms of leachable lead and petroleum hydrocarbons. Limited options exist for proper disposal of metals contaminated soils in the Yukon. As such, various options need to be assessed to determine the most feasible disposal option or treatment solution. There are several potential remediation options that may be feasible at the site and are:

- Risk Assessment;
- Relocation (may require less characterization samples)
- Encapsulation (with concrete);
- Solidification/Stabilization (addition of phosphate amendments);
- Engineered containment cell and/or capping the soil, and;
- Depositing soils at a site with similar naturally-occurring metals concentrations (such as an adit or tailings pond).

Please note that this is not an exhaustive list. Options considered will be dependent on regulators familiarity and if it is a proven technology in the north.

LIMITATIONS

This summary letter was prepared for the exclusive use of Teck Resources Limited Access Consulting Group has attempted to exercise professional procedures while providing reclamation services to prepare the contents of this report. The material in the report reflects Access Consulting Group's best judgment in light of the information available at the time of the preparation of this report. Any use that a third party makes of this report, or any reliance on decisions to be made based on it, is the responsibility of the third parties. Access Consulting Group accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report. Access Consulting Group believes that the contents of this report are substantively correct.

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CLOSURE

On behalf of Access Consulting Group we would like to thank you for the opportunity to provide you with this technical memorandum. Should you have any questions regarding this report, or if you require further information, please contact the undersigned at (867) 668-6463.

Prepared by:

ACCESS CONSULTING GROUP



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Reviewed by:

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Kurt Neunherz, BIE
Contaminated Sites Manager

LIST OF ATTACHMENTS

Attachment A - Photolog

Attachment B - Table 1 Analytical Soil Results and Borehole Logs of Phase II ESA

Attachment C - Tables 2, 3, 4, 5, 6 and 7 Analytical Soil Results and PID field screening results of Phase III Remedial Soil Excavation, Site 3 Jewel Box

Attachment D - Special Waste Permit 41-247

Attachment E - Relocation Permit 45-032, Tervita's Approval Authorization and Tervita's Summary of Total Tonnage

ATTACHMENT A

PHOTOLOG



Photo 1: Site 2 Golden Hills Shop – Site overview



Photo 2: Site 2 Golden Hills Shop – Site overview, contaminated soil stockpiles shown by red arrow



Photo 3: Site 2 Golden Hills Shop – Excavation of test-pit 4 during Phase II ESA, Sept. 4 – 7, 2012



Photo 4: Site 2 Golden Hills Shop – Excavation of test-pit 5 during Phase II ESA, Sept. 4 – 7, 2012



Photo 5: Site 3 Jewel Box – Example of Visible oil staining



Photo 6: Site 3 Jewel Box – Example of Visible oil staining



Photo 7: Site 3 Jewel Box – Excavation of test-pit 2 during Phase II ESA, Sept. 4 -7, 2012. Test-pit 1 shown by red arrow



Photo 8: Site 3 Jewel Box – Excavation of test-pit 5 during Phase II ESA, Sept. 4 – 7, 2012



Photo 9: Site 3 Jewel Box – Start of excavation, Oct. 9 – 12, 2012



Photo 10: Site 3 Jewel Box – Soil stockpiled on 6 mil poly liner, Oct. 9 – 12, 2012



Photo 11: Site 3 Jewel Box – Excavation extents, Oct. 9 – 12, 2012



Photo 12: Site 3 Jewel Box – Field sample collection, Oct. 9 – 12, 2012



Photo 13: Site 3 Jewel Box – Field sample collection, Oct. 9 – 12, 2012



Photo 14: Site 3 Jewel Box – Covered soil stockpile with 6 mil poly liner, approximately 154 m³



Photo 15: Site 3 Jewel Box – Covered soil stockpile with 6 mil poly liner, approximately 180 m³

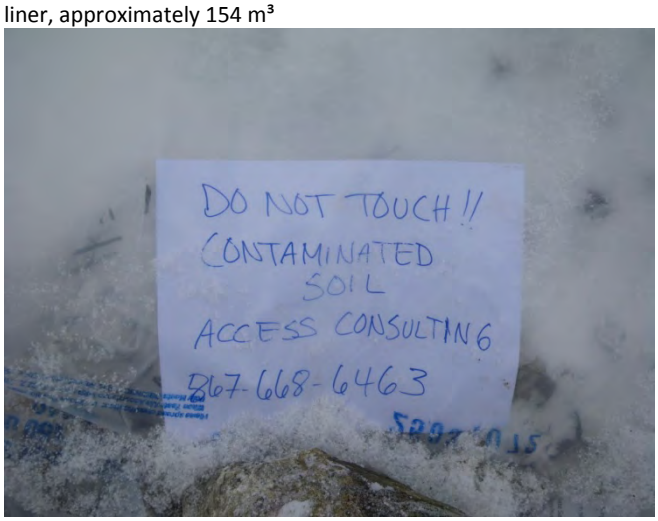


Photo 16: Site 3 Jewel Box – Signage



Photo 17: Site 3 Jewel Box – Site overview, petroleum hydrocarbon clean pile 1 shown by orange arrow, petroleum hydrocarbon clean pile 2 shown by red arrow. Note these piles are still contaminated in terms of elevated metal concentrations



Photo 18: Site 3 Jewel Box – Field sample collection, Oct. 9 – 12, 2012



Photo 19: Site 3 Jewel Box – Relocation of contaminated soils, Oct. 10, 2012



Photo 20: Relocation of contaminated soils, Oct. 10, 2012. Note poly liner shown by red arrow

ATTACHMENT B

TABLE 1 ANALYTICAL SOIL RESULTS OF PHASE II ESA & BOREHOLE LOGS

TABLE 1 SOIL SAMPLE RESULTS - PETROLEUM HYDROCARBON ANALYSIS

TECK RESOURCES LIMITED
PHASE II ESA
September 6 & 7, 2012

	UNITS	SITE3-TP4@0.5M	SITE3-TP2@0.5M	SITE3-TP1@0.25M	SITE2-TP1@1.0M	SITE2-TP2@0.5M	SITE2-TP5@0.5M	SCHEDULE 1 - SOIL STANDARDS	TOXICITY TO SOIL INVERTEBRATES AND PLANTS	GROUNDWATER FLOW TO SURFACE WATER USED BY AQUATIC LIFE
Volatiles - Soil										
Date:	mm/dd/yy	9/6/2012	9/6/2012	9/6/2012	9/6/2012	9/7/2012	9/7/2012	-	-	-
VPHs (VHs6-10 minus BTEX)	mg/kg	80	<10	80	63	<10	<10	**200**	-	-
Methyl t-Butyl Ether	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	**150**	**10**
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	-	**25.0**	**40**
Ethylbenzene	mg/kg	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	-	**20**	**6,000**
m & p-Xylene	mg/kg	<0.040	<0.040	<0.040	0.055	<0.040	<0.040	-	-	-
o-Xylene	mg/kg	<0.040	<0.040	<0.040	<0.040	<0.040	<0.040	-	-	-
Styrene	mg/kg	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**50**	-	-
Total Xylenes (m,p,o)	mg/kg	<0.040	<0.040	<0.040	0.055	<0.040	<0.040	-	**50**	-
VHs C6-C10	mg/kg	80	<10	80	64	<10	<10	-	-	-
Polycyclic Aromatic Hydrocarbons - Soil										
Naphthalene	mg/kg	<0.050	<0.050	<0.050	0.19	<0.050	<0.050	**50**	-	-
2-Methylnaphthalene	mg/kg	0.61	<0.050	<0.25 (1)	1.1	<0.050	<0.050	-	-	-
Acenaphthylene	mg/kg	<0.070 (1)	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Acenaphthene	mg/kg	<0.060 (1)	<0.050	<0.060 (1)	<0.050	<0.050	<0.050	-	-	-
Fluorene	mg/kg	<0.050	<0.050	<0.050	0.083	<0.050	<0.050	-	-	-
Phenanthrene	mg/kg	0.11	<0.050	<0.050	0.072	<0.050	<0.050	**50**	-	-
Anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Pyrene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**100**	-	-
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**10**	-	-
Chrysene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	**-**	-
Benzo(b&j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**10**	-	-
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	**10**	-
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**10**	-	-
Dibenzo(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**10**	-	-
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Low Molecular Weight PAH`s	mg/kg	0.73	<0.050	<0.25	1.5	<0.050	<0.050	-	-	-
High Molecular Weight PAH`s	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Total PAH	mg/kg	0.73	<0.050	<0.25	1.5	<0.050	<0.050	-	-	-
Extractable Petroleum Hydrocarbons - Soil										
LEPHs	mg/kg	1950	<100	4760	920	<100	<100	**2000**	-	-
HEPHs	mg/kg	347	<100	197	624	<100	<100	**5000**	-	-
Ext. Pet. Hydrocarbons-Soil										
EPH (C10-C19)	mg/kg	1950	<100	4760	920	<100	<100	**-**	-	-
EPH (C19-C32)	mg/kg	347	<100	197	624	<100	<100	**-**	-	-

Orange Highlighted Data - Result above CSR Standards
Red Highlighted Data - Result classified as Special Waste
Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Standards (Industrial Land Use) &
Schedule 2 Matrix Numerical Soil Standards (Industrial Land Use)
Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Site is within 1 km of surface water and subject to aquatic life standards or most stringent Parkland Standard applicable.
* Standards based on pH
RDL: Reportable Detection Limit
- : Not Specified
(1): RDL raised due to sample matrix interference.
(2): RDL raised due to sample matrix interference.
N/A: Not Available

Field Log

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Project Information

BH / PH / TP #	SITE 2 - TP1	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.20 m
Project #		Date Drilled (mm/dd/yy)	09/06/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)	1206	Sheet	1 of 5
Site Name/Location		Top of Pipe Elevation (m)		Logged By	J.L
Contractor (full)	KPI	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy clay Loam	clayey	Fine grand		olive gray	damp	very soft	Slight HC odour
0.5	Sandy clay Loam	"	"		"	"	very soft	Slight HC odour
1.0	Sandy clay Loam	"	"		"	"	"	Slight HC odour
1.20	Sandy clay Loam	"	"		"	"	"	no HC odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	51.1	
0.5	36.3	
1.0	177	
1.20	7.3	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

Project Information

BH / PH / TP #	SITE2 - TP2	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.0
Project #		Date Drilled (mm/dd/yy)	09/07/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	2 of 5
Site Name/Location	SITE2 - GOLDEN HILL	Top of Pipe Elevation (m)		Logged By	J.L
Contractor (full)	KPI	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

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Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy Loam	Sandy	Fine gravel	Course gravel & organics	Light Brown & Yellowish orange	damp	very loose	no odour
0.5	Sandy Loam	Sandy	Course gravel	Fine gravel	"	"	"	no odour
1.0	Sandy Loam	"	"	"	"	"	"	no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	0.0	
0.5	0.0	
1.0	0.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

Project Information

BH / PH / TP #	SITE2-TP3	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.0
Project #		Date Drilled (mm/dd/yy)	09/07/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	3 of 5
Site Name/Location	SITE 2 - GOLDEN HILL	Top of Pipe Elevation (m)		Logged By	J.L
Contractor (full)	KPI CONTRACTING	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

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Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy clay loam	Sandy	Fine gravel	course gravel & organics	light Brown	damp	very loose	no odour
0.5	Sandy clay loam	"	silt	Fine gravel & organics	"	"	"	no odour
1.0	silty clay loam	clayey	silt	course gravel	"	"	very soft	no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	0.0	
0.5	0.0	
1.0	0.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

Project Information

BH / PH / TP #	SITE2-TP4	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.0m
Project #		Date Drilled (mm/dd/yy)	09/07/12	Pipe Diameter (mm)	\
Client Company (full)	TECK	Ground Elevation (m)		Sheet	4 of 5
Site Name/Location	SITE2 - GOLDEN HILL	Top of Pipe Elevation (m)	\	Logged By	JL
Contractor (full)	KPI CONTRACTING	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

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Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy loam	Sandy	Fine gravel	\	olive & gray Light Brown	damp	very loose	no odour
0.5	Sandy loam	sandy	Fine gravel	course gravel	Light Brown	damp	very loose	no odour
1.0	Sandy clay loam	Sandy	Fine gravel	\	Yellow orange	damp	very loose	no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	0.0	
0.5	0.0	
1.0	0.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing	\		Concrete	\		Cuttings	\	
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

Project Information

BH / PH / TP #	SITE2 - TP5	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.0 m
Project #	TEK	Date Drilled (mm/dd/yy)	07/07/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	5 of 5
Site Name/Location	SITE2-GOLDEN HILL	Top of Pipe Elevation (m)		Logged By	JANELLE
Contractor (full)	KPI CONTRACTING	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

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GPS COORDS:

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy clay Loam	sandy	sand	Fine Gravel	Light Brown & olive gray	damp	very soft	no odour moderately course
0.5	Sandy clay Loam	sandy	sand	Fine Gravel	Light Brow	moist	very soft	no odour moderately course Found tree stump
1.0	Sandy clay Loam	"	"	"	Light Brown	moist	very soft	no odour moderately course

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	0.0	
0.5	2.7	
1.0	0.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

ACCESS CONSULTING GROUP

Project Information

BH / PH / TP #	SITE3 - TP1	Drilling/Excavation Method		Total Depth (m)	
Project #	SA DENA HES-PHASE II	Date Drilled (mm/dd/yy)	09/06/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	1 of 7
Site Name/Location	SITE3 - JEWEL BOX	Top of Pipe Elevation (m)		Logged By	J.L
Contractor (full)	KPI CONTRACTING	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

GPS COORDS: 0506730 6709363 (09V UTM)

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.1	Black Shale	\	\	\	Dark gray	damp	very loose	Black shale Rock
0.25	Sandy Loam	clayey	Fine gravel	\	Light Brown with mixed white crush rock	damp	very loose	Slight HC odour white crush rock layer at 0.30m
0.5	Sandy Loam	"	course gravel	Fine gravel	Light Brown	damp	very loose	no odour
1.0	Sandy Loam	"	"	"	"	"	"	no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.10	0.0	
0.25	28	
0.5	19.5	
1.0	2.8	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

Project Information

BH / PH / TP #	SITE3-TP-2	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.0
Project #		Date Drilled (mm/dd/yy)	09/06/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	2 of 7
Site Name/Location	SITE3- JEWEL BOX	Top of Pipe Elevation (m)		Logged By	J.L
Contractor (full)	KPI	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

ACCESS CONSULTING GROUP

GPS COORDS: 0506728 6709373 (09V UTM)

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy Loam	Sandy	Fine gravel	Course gravel	light Brown & olive gray	dry	very loose	White crush layer at 0.1m no odour
0.5	Sandy Loam	"	"	"	olive gray	damp	"	no odour
1.0	sandy Loam	"	"	"	light Brown & olive gray	"	"	no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	15.7	
0.5	15.8	
1.0	13.9	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

ACCESS CONSULTING GROUP

Project Information

BH / PH / TP #	SITE3 - TP 3	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.0 m
Project #		Date Drilled (mm/dd/yy)	09/06/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	3 of 7
Site Name/Location	SITE3 - JEWEL BOX	Top of Pipe Elevation (m)		Logged By	J.L
Contractor (full)	KPI	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

GPS COORDS: 6566749 6709330 (09V UTM)

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy Loam	clayey	course Gravel	Fine gravel	Light Brown	Dry	very loose	white crush layer at 0.1 m no odour
0.5	"	"	"	"	Light Brown & olive gray	Dry	"	no odour
1.0	Sandy Loam	"	"	"	"	"	"	no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	0.0	
0.5	0.0	
1.0	0.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

ACCESS CONSULTING GROUP

Project Information

BH / PH / TP #	SITE 3- TP 4	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.0
Project #		Date Drilled (mm/dd/yy)	09/06/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	4 of 7
Site Name/Location	SITE 3- JEWEL BOX	Top of Pipe Elevation (m)		Logged By	J.L
Contractor (full)	KPI	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

GPS COORDS: 0506742 6709329 (09V UTM)

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	gravel Fill	gravelly	course gravel	\	olive gray	damp	very loose	slight HC odour
0.5	Gravel Fill	sandy	Fine gravel	\	dark gray	"	"	slight HC odour
1.0	silty clay Loam	clayey	Fine gravel	\	Light Brown	damp	very soft	no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	213	
0.5	224	
1.0	4.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

Project Information

BH / PH / TP #	SITE3 - TP5	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	1.0
Project #		Date Drilled (mm/dd/yy)	09/06/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	5 of 7
Site Name/Location	SITE3 - JEWEL BOX	Top of Pipe Elevation (m)		Logged By	
Contractor (full)	KPI	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

GPS COORDS: 0506747 6709305 (09V UTM)

ACCESS CONSULTING GROUP

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Black Shale	clayey	\	\	Dark gray	dry	very loose	Black Shale
0.5	Sandy clay Loam	Clayey	course gravel	Fine gravel	Light Brown	damp	very soft	no odour
1.0	Sandy Loam	"	"	"	olive gray	damp	"	no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	0.0	
0.5	0.0	
1.0	0.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

Project Information

BH / PH / TP #	SITE3- TP6	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	0.75
Project #		Date Drilled (mm/dd/yy)	09/06/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	6 of 7
Site Name/Location	SITE3- JEWEL BOX	Top of Pipe Elevation (m)		Logged By	J.L
Contractor (full)	KPI	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

ACCESS CONSULTING GROUP

GPS COORDS: 0506742 6709319 (09V UTM)

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy Loam	clayey	course gravel	organics	Dark gray	damp	very loose	metal Debris, Old wooden boards, etc. no odour
0.5	sandy Loam	"	"	"	"	"	"	no odour
0.75	Black Shale				Dark gray			Hit hard rock Black Shale no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	0.0	
0.5	0.0	
0.75	0.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

Field Log

Project Information

BH / PH / TP #	SITE3-TP7	Drilling/Excavation Method	EXCAVATOR	Total Depth (m)	0.88m
Project #		Date Drilled (mm/dd/yy)	09/06/12	Pipe Diameter (mm)	
Client Company (full)	TECK	Ground Elevation (m)		Sheet	7 of 7
Site Name/Location	SITE 3 - JEWEL BOX	Top of Pipe Elevation (m)		Logged By	
Contractor (full)	KPI	Water Table Depth (m)		Checked By	
Ticket #		Water Table Date (mm/dd/yy)			

GPS COORDINATES: 0506736 6709322 (09V UTM)

ACCESS CONSULTING GROUP

Description

Depth (m)	Major	Modifier	Some	Trace	Colour	Moisture	Consistency	Comments
0.25	Sandy Loam	Sandy	Fine Gravel		Dark Gray	damp	very loose	no odour
0.5	Shattered Bedrock				Light Brown	dry	very loose	Shattered rock likely due to dynamite no odour
0.88	Shattered Bedrock				light Brown	dry	very loose	Hit bedrock no odour

Sample Interval (m)	Vapours (ppm or % LEL)	Field EC (dS/m)
0.25	0.0	
0.5	0.0	
0.88	0.0	

Well Construction

Description	From:	To:	Description	From:	To:	Description	From:	To:
Casing			Concrete			Cuttings		
Solid Pipe			Bentonite			Slough		
Slotted Pipe			Sand			Grout		

ATTACHMENT C

TABLES 2, 3, 4, 5, 6 AND 7 ANALYTICAL SOIL RESULTS & PID FIELD SCREENING RESULTS OF PHASE III REMEDIAL SOIL EXCAVATION, SITE 3 JEWEL BOX

ACCESS

TABLE 2 SOIL CHARACTERIZATION SAMPLE RESULTS - PETROLEUM HYDROCARBON ANALYSIS

TECK RESOURCES LIMITED OCTOBER 12, 2012	UNITS	SITE3-CHRTR-2	SITE3-CHRTR-4	SITE3-CHRTR-6	SITE3-CHRTR-7	SITE3-CHRTR-8	SITE3-CHRTR-9	SITE3-CHRTR-10	SITE3-CHRTR-11	SITE3-CHRTR-14	SITE3-CHRTR-29	SCHEDULE 1 - SOIL STANDARDS	TOXICITY TO SOIL INVERTEBRATES AND PLANTS	GROUNDWATER FLOW TO SURFACE WATER USED BY AQUATIC LIFE
Volatiles - Soil														
Date:	mm/dd/yy	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	-	-	-
VPHs (VHs6-10 minus BTEX)	mg/kg							<10		<10	<10	**200**	-	-
Methyl t-Butyl Ether	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	**150**	**10**
Toluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	**25.0**	**40**
Ethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	**20**	**6,000**
m & p-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	-	-	-	-	-	-	-	-	-	-	**50**	-	-
Total Xylenes (m,p,o)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	**50**	-
VHs C6-C10	mg/kg	-	-	-	-	-	-	<10	-	<10	<10	-	-	-
Extractable Petroleum Hydrocarbons - Soil														
LEPHs	mg/kg	-	-	-	-	-	-	-	-	-	-	**2000**	-	-
HEPHs	mg/kg	-	-	-	-	-	-	-	-	-	-	**5000**	-	-
Ext. Pet. Hydrocarbons-Soil														
EPH (C10-C19)	mg/kg	344	358	<100	1480	508	1580	1440	2340	664	114	**2000**	-	-
EPH (C19-C32)	mg/kg	11900	5990	505	33000	5210	36600	29600	24000	296	5300	**5000**	-	-

Orange Highlighted Data - Result above CSR Standards

Red Highlighted Data - Result classified as Special Waste

Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Standards (Industrial Land Use) &
Schedule 2 Matrix Numerical Soil Standards (Industrial Land Use)

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Site is within 1 km of surface water and subject to aquatic life standards or most stringent Parkland Standard applicable.

* Standards based on pH

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

ACCESS

TABLE 3 SOIL CONFIRMATORY SAMPLE RESULTS - PETROLEUM HYDROCARBON ANALYSIS

TECK RESOURCES LIMITED
OCTOBER 11, 2012

	UNITS	SITE3-1	SITE3-5	SITE3-6	SITE3-7	SITE3-33	SITE3-43	SITE3-44	SITE3-45	SITE3-48	SITE3-49	SITE3-62	SITE3-88	SCHEDULE 1 - SOIL STANDARDS	TOXICITY TO SOIL INVERTEBRATES AND PLANTS	GROUNDWATER FLOW TO SURFACE WATER USED BY AQUATIC LIFE
Volatiles - Soil																
Date:	mm/dd/yy	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	-	-	-
VPHs (VHs6-10 minus BTEX)	mg/kg	<10	<10	<10	<10	<10	<10	11	<10	<10	<10	<10	<10	**200**	-	-
Methyl t-Butyl Ether	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	**150**	**10**
Toluene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	**25.0**	**40**
Ethylbenzene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	**20**	**6,000**
m & p-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Styrene	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	**50**	-	-
Total Xylenes (m,p,o)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	**50**	-
VHs C6-C10	mg/kg	<10	<10	<10	<10	<10	<10	11	<10	<10	<10	<10	<10	-	-	-
Extractable Petroleum Hydrocarbons - So																
LEPHs	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	**2000**	-	-
HEPHs	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	**5000**	-	-
Ext. Pet. Hydrocarbons-Soil																
EPH (C10-C19)	mg/kg	<100	196	165	<100	187	<100	1660	<100	<100	<100	<100	227	**2000**	-	-
EPH (C19-C32)	mg/kg	2030	4970	4210	<100	9180	722	136	210	215	698	118	244	**5000**	-	-

Orange Highlighted Data - Result above CSR Standards
Red Highlighted Data - Result classified as Special Waste

Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Standards (Industrial Land Use) & Schedule 2 Matrix Numerical Soil Standards (Industrial Land Use)

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Site is within 1 km of surface water and subject to aquatic life standards or most stringent Parkland Standard applicable.

* Standards based on pH

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 4 SOIL CONFIRMATORY SAMPLE RESULTS - PETROLEUM HYDROCARBON ANALYSIS

TECK RESOURCES LIMITED
OCTOBER 11, 2012

	UNITS	SITE3-95	SITE3-96	SITE3-99	SITE3-100	SITE3-104	SCHEDULE 1 - SOIL STANDARDS	TOXICITY TO SOIL INVERTEBRATES AND PLANTS	GROUNDWATER FLOW TO SURFACE WATER USED BY AQUATIC LIFE
Volatiles - Soil									
Date:	mm/dd/yy	10/11/2012	10/11/2012	10/11/2012	10/11/2012	10/11/2012	-	-	-
VPHs (VHs6-10 minus BTEX)	mg/kg	<10	<10	<10	<10	<10	**200**	-	-
Methyl t-Butyl Ether	mg/kg	-	-	-	-	-	-	-	-
Benzene	mg/kg	-	-	-	-	-	-	**150**	**10**
Toluene	mg/kg	-	-	-	-	-	-	**25.0**	**40**
Ethylbenzene	mg/kg	-	-	-	-	-	-	**20**	**6,000**
m & p-Xylene	mg/kg	-	-	-	-	-	-	-	-
o-Xylene	mg/kg	-	-	-	-	-	-	-	-
Styrene	mg/kg	-	-	-	-	-	**50**	-	-
Total Xylenes (m,p,o)	mg/kg	-	-	-	-	-	-	**50**	-
VHs C6-C10	mg/kg	<10	<10	<10	<10	<10	-	-	-
Extractable Petroleum Hydrocarbons - Soil									
LEPHs	mg/kg	-	-	-	-	-	**2000**	-	-
HEPHs	mg/kg	-	-	-	-	-	**5000**	-	-
Ext. Pet. Hydrocarbons-Soil									
EPH (C10-C19)	mg/kg	268	854	<100	<100	172	**2000**	-	-
EPH (C19-C32)	mg/kg	<100	102	1110	942	6810	**5000**	-	-

Orange Highlighted Data - Result above CSR Standards
Red Highlighted Data - Result classified as Special Waste

Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Standards (Industrial Land Use) & Schedule 2 Matrix Numerical Soil Standards (Industrial Land Use)
Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Site is within 1 km of surface water and subject to aquatic life standards or most stringent Parkland Standard applicable.

* Standards based on pH
RDL: Reportable Detection Limit
- : Not Specified
(1): RDL raised due to sample matrix interference.
(2): RDL raised due to sample matrix interference.
N/A: Not Available

TABLE 5 SOIL SAMPLE RESULTS - PETROLEUM HYDROCARBON ANALYSIS

TECK RESOURCES LIMITED OCTOBER 12, 2012	UNITS	SITE3-CLEAN-PILE	SITE3-97	SITE3-98	SITE3-103	SITE3-105	SITE3-106	SITE3-107	SCHEDULE 1 - SOIL STANDARDS	TOXICITY TO SOIL INVERTEBRATES AND PLANTS	GROUNDWATER FLOW TO SURFACE WATER USED BY AQUATIC LIFE
Volatiles - Soil											
Date:	mm/dd/yy	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	10/12/2012	-	-	-
VPHs (VHs6-10 minus BTEX)	mg/kg	14	30	<10	<10	<10	<10	<10	**200**	-	-
Methyl t-Butyl Ether	mg/kg	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	-	-	-
Benzene	mg/kg	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	-	**150**	**10**
Toluene	mg/kg	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	-	**25.0**	**40**
Ethylbenzene	mg/kg	<0.010	<0.010	0.05	<0.010	<0.010	<0.010	<0.010	-	**20**	**6,000**
m & p-Xylene	mg/kg	<0.040	<0.040	0.25	<0.040	<0.040	<0.040	<0.040	-	-	-
o-Xylene	mg/kg	<0.040	<0.040	0.11	<0.040	<0.040	<0.040	<0.040	-	-	-
Styrene	mg/kg	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	**50**	-	-
Total Xylenes (m,p,o)	mg/kg	<0.040	<0.040	0.36	<0.040	<0.040	<0.040	<0.040	-	**50**	-
VHs C6-C10	mg/kg	14	30	<10	<10	<10	<10	<10	-	-	-
Polycyclic Aromatic Hydrocarbons - Soil											
Naphthalene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**50**	-	-
2-Methylnaphthalene	mg/kg	0.066	0.16	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Acenaphthylene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Acenaphthene	mg/kg	<0.050	0.082	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Fluorene	mg/kg	<0.050	0.1	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Phenanthrene	mg/kg	<0.050	0.066	<0.050	<0.050	<0.050	<0.050	<0.050	**50**	-	-
Anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Pyrene	mg/kg	<0.050	<0.050	<0.050 (1)	<0.050	<0.050	<0.050	<0.050	**100**	-	-
Benzo(a)anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**10**	-	-
Chrysene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Benzo(b&j)fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Benzo(k)fluoranthene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**10**	-	-
Benzo(a)pyrene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	**10**	-
Indeno(1,2,3-c,d)pyrene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**10**	-	-
Dibenzo(a,h)anthracene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	**10**	-	-
Benzo(g,h,i)perylene	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Low Molecular Weight PAH`s	mg/kg	0.066	0.41	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
High Molecular Weight PAH`s	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Total PAH	mg/kg	0.066	0.41	<0.050	<0.050	<0.050	<0.050	<0.050	-	-	-
Extractable Petroleum Hydrocarbons - Soil											
LEPHs	mg/kg	1150	2090	1580	<100	223	<100	<100	**2000**	-	-
HEPHs	mg/kg	3850	492	19900	<100	5740	173	3340	**5000**	-	-
Ext. Pet. Hydrocarbons-Soil											
EPH (C10-C19)	mg/kg	1150	2090	1580	<100	223	<100	<100	-	-	-
EPH (C19-C32)	mg/kg	3850	492	19900	<100	5740	173	3340	-	-	-

Orange Highlighted Data - Result above CSR Standards

Red Highlighted Data - Result classified as Special Waste

Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Standards (Industrial Land Use) & Schedule 2 Matrix Numerical Soil Standards (Industrial Land Use)

Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Site is within 1 km of surface water and subject to aquatic life standards or most stringent Parkland Standard applicable.

* Standards based on pH

RDL: Reportable Detection Limit

- : Not Specified

(1): RDL raised due to sample matrix interference.

(2): RDL raised due to sample matrix interference.

N/A: Not Available

TABLE 6 CHARACTERIZATION SOIL SAMPLE RESULTS - METAL ANALYSIS

TECK RESOURCES LIMITED OCTOBER 12, 2012	UNITS	SITE3-CHRTR-2	SITE3-CHRTR-14	SITE3-CHRTR-18	SITE3-CHRTR-22	SITE3-CHRTR-25	SITE3-CHRTR-29	SITE3-CHRTR-33	CLEAN-PILE	SCHEDULE 1 - SOIL STANDARDS	TOXICITY TO SOIL INVERTEBRATES AND PLANTS	GROUNDWATER FLOW TO SURFACE WATER USED BY AQUATIC LIFE
Physical Properties												
Soluble (2:1) pH	pH Units	7.98	7.41	7.49	7.63	7.24	7.72	7.98	8.17	-	-	-
Total Metals by ICPMS												
Total Aluminum (Al)	mg/kg	12800	20700	24800	19900	24700	14500	15100	15300	-	-	-
Total Antimony (Sb)	mg/kg	13.6	10	9.7	10.7	13.5	12.5	12.2	7.63	**40**	-	-
Total Arsenic (As)	mg/kg	48	114	108	98.7	130	99.9	77.3	51.6	-	**100**	**20**
Total Barium (Ba)	mg/kg	79.8	170	201	144	118	101	108	73.9	**2,000**	-	-
Total Beryllium (Be)	mg/kg	0.9	3.87	4.49	1.71	2.22	1.41	1.24	1.13	**8**	-	-
Total Bismuth (Bi)	mg/kg	11.5	0.4	1.74	0.49	0.66	3.03	4.4	6.42	-	-	-
Total Cadmium (Cd)	mg/kg	231	9.05	40.5	78.5	1.63	40.5	49.3	161	-	**500**	***2 - 150**
Total Calcium (Ca)	mg/kg	57600	11200	15000	14900	9510	51700	42000	41000	-	-	-
Total Chromium (Cr)	mg/kg	23.5	37.3	42.3	33.3	49.8	27.6	28.3	23.6	-	**700**	**60**
Total Cobalt (Co)	mg/kg	21.6	27.5	33.8	37	26.9	17.3	19	21	**300**	-	-
Total Copper (Cu)	mg/kg	85.4	272	287	249	134	215	170	98.8	-	**250**	***90 - 30,000**
Total Iron (Fe)	mg/kg	33800	39900	43100	39700	31900	36100	33000	34900	-	-	-
Total Lead (Pb)	mg/kg	34800	923	3230	7260	102	4160	7780	13700	-	**2,000**	***150 - 40,000**
Total Lithium (Li)	mg/kg	26.5	36.9	37.7	37.6	41.5	24.7	28.2	31.9	-	-	-
Total Magnesium (Mg)	mg/kg	7330	12400	13100	8070	10300	7130	7750	9100	-	-	-
Total Manganese (Mn)	mg/kg	1000	1640	2050	1060	756	856	822	1310	-	-	-
Total Mercury (Hg)	mg/kg	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	-	**150**	-
Total Molybdenum (Mo)	mg/kg	11.5	11.6	10.5	9.29	9.1	27.7	17.5	11.1	**40**	-	-
Total Nickel (Ni)	mg/kg	39.6	107	127	89.5	81.2	60.5	53.4	50	**500**	-	-
Total Phosphorus (P)	mg/kg	625	1400	1290	1280	555	928	788	967	-	-	-
Total Potassium (K)	mg/kg	837	1190	1130	1310	2160	958	1010	792	-	-	-
Total Selenium (Se)	mg/kg	13.6	1.5	2.41	1.86	<0.50	3.33	5.46	9.51	**10**	-	-
Total Silver (Ag)	mg/kg	21.1	2.05	4.12	5.52	0.901	3.77	5.83	9.69	**40**	-	-
Total Sodium (Na)	mg/kg	<100	<100	<100	<100	<100	<100	<100	<100	-	-	-
Total Strontium (Sr)	mg/kg	77.6	48.6	61.4	45.8	49.7	76.4	64.5	68.3	-	-	-
Total Thallium (Tl)	mg/kg	0.359	0.897	1.05	0.865	0.721	0.635	0.731	0.361	-	-	-
Total Tin (Sn)	mg/kg	0.89	0.77	0.97	0.83	0.86	0.76	0.68	0.62	**300**	-	-
Total Titanium (Ti)	mg/kg	711	856	914	789	852	415	506	482	-	-	-
Total Uranium (U)	mg/kg	3.77	5.26	5.37	6.58	3.29	5.73	5.29	2.94	-	-	-
Total Vanadium (V)	mg/kg	77.3	208	221	198	237	145	131	55.7	-	-	-
Total Zinc (Zn)	mg/kg	44400	1840	7740	15300	272	7770	9830	33400	-	**600**	***150 - 3,000**
Total Zirconium (Zr)	mg/kg	4.87	1.52	1.61	2.03	7.75	0.69	0.79	2.84	-	-	-

Orange Highlighted Data - Result above CSR Standards
Contaminated Sites Regulations (CSR) of The Yukon Environment Act Schedule 1, Generic Numerical Soil Standards (Industrial Land Use) &
Schedule 2 Matrix Numerical Soil Standards (Industrial Land Use)
Site-specific factors of human intake of contaminated soil and toxicity to soil invertebrates and plants specified in applicable matrixes has been applied to all samples, Site is within 1 km of surface water and subject to aquatic life standards or most stringent Parkland standard applicable.
* Standards based on pH
RDL: Reportable Detection Limit
- : Not Specified
(1): RDL raised due to sample matrix interference.
(2): RDL raised due to sample matrix interference.
N/A: Not Available

ACCESS

TABLE 7 CHARACTERIZATION SOIL SAMPLE RESULTS - METAL ANALYSIS

TECK RESOURCES LIMITED
OCTOBER 11 & 12, 2012

	UNITS	SITE3-CLEAN-PILE	SITE3-7	SITE3-45	SITE3-96	*SCHEDULE 6 LEACHATE TEST AND REGULATED LIMITS
Metals	mg/L					-
LEACHATE Antimony (Sb)	mg/L	<0.10	<0.10	<0.10	<0.10	-
LEACHATE Arsenic (As)	mg/L	<0.10	<0.10	<0.10	<0.10	**2.5**
LEACHATE Barium (Ba)	mg/L	0.4	0.19	0.23	0.73	**100**
LEACHATE Beryllium (Be)	mg/L	<0.10	<0.10	<0.10	<0.10	-
LEACHATE Boron (B)	mg/L	<0.10	<0.10	<0.10	<0.10	**500**
LEACHATE Cadmium (Cd)	mg/L		<0.10	<0.10	0.29	**0.5**
LEACHATE Calcium (Ca)	mg/L	392				-
LEACHATE Chromium (Cr)	mg/L	<0.10	<0.10	<0.10	<0.10	**5**
LEACHATE Cobalt (Co)	mg/L	<0.10	<0.10	<0.10	<0.10	-
LEACHATE Copper (Cu)	mg/L	<0.10	<0.10	<0.10	<0.10	-
LEACHATE Iron (Fe)	mg/L	2.21	<0.50	<0.50	1.70	-
LEACHATE Lead (Pb)	mg/L	26.6	0.10	<0.10	24.4	**5**
LEACHATE Mercury (Hg)	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	**0.1**
LEACHATE Molybdenum (Mo)	mg/L	<0.10	<0.10	<0.10	<0.10	-
LEACHATE Nickel (Ni)	mg/L	<0.10	<0.10	<0.10	<0.10	-
LEACHATE Selenium (Se)	mg/L	<0.10	<0.10	<0.10	<0.10	**1**
LEACHATE Silver (Ag)	mg/L	<0.10	<0.10	<0.10	<0.10	-
LEACHATE Thallium (Tl)	mg/L	<0.10	<0.10	<0.10	<0.10	-
LEACHATE Uranium (U)	mg/L	<0.10	<0.10	<0.10	<0.10	**10**
LEACHATE Vanadium (V)	mg/L	<0.10	<0.10	<0.10	<0.10	**-**
LEACHATE Zinc (Zn)	mg/L	16.2	0.19	0.27	43.3	-
LEACHATE Zirconium (Zr)	mg/L	<0.10	<0.10	<0.10	<0.10	-

Orange Highlighted Data - Result above Regulated Limits
**Department of Justice Canada, Export and Import of Hazardous Waste and Hazardous Recycable Material Regulations, Schedule 6, Hazardous Constituents Controlled Under Leachate Test and Regulated Limits*
RDL: Reportable Detection Limit
- : Not Specified
(1): RDL raised due to sample matrix interference.
(2): RDL raised due to sample matrix interference.
N/A: Not Available

Contaminated Soil Excavation Sheet

Project Number: TEK-12-04
Technicians: JANELLE. L
Location: SA DENA HES - JEWELBOX
Date: OCTOBER 9, 2012

ACCESS

Sample #	X (m)	Y (m)	Z (meters) Depth	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
1			.4	0.0	No	East wall	✓
2			.3	31.9 PETROFLAG = 375	Yes	South Wall	
3			.4	1.9	No	North wall	
4			.4	24.9	yes	Base	
5			.8	25.3	No	Base	✓
6			.2	0.0	No	South wall	✓
7			.2	1.6	No	West wall	✓
8			.2	49.9	Yes	Base	
9			.2	59.8	yes	North wall	
10			.2	187.2	Yes	North wall	
11			.3	14.8	No	Base	
12			.8	0.1	Yes	Base	
13			1.0	49.7	Yes	Base	
14			.35	62.1	yes	East wall	
15			.35	19.9	Yes	East wall	
16			.3	32.3	Yes	Base	
17			.3	39.2	yes	Base	
18			.3	37.8	Yes	Base	
19			.3	46.1	Yes	South wall	
20			.3	50.5	Yes	Base	
21			.3	52.1	yes	North wall	
22			.3	47.7	yes	South wall	
23			.3	2.2	Yes	Base	
24			.3	41.1	Yes	North wall	
25			.3	42.2	Yes	Base	
26			.3	47.1	yes	East wall	
27			.3	36.8	yes	North wall	
28			.45	0.8	No	Base	

Contaminated Soil Excavation Sheet

Project Number: TEK-12-04
Technicians: JANELLE. L
Location: SA DENA HES - JEWEL BOX
Date: OCTOBER 9, 2012

ACCESS

Sample #	X (m)	Y (m)	Z (meters) Depth	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
29			.3	134	yes	Base	
30			.3	58.1	yes	North wall	
31			.3	45.9	yes	North wall	
32			.4	4.0	No	North wall	
33			.4	4.1	No	North wall	
34			.4	6.6	No	Base	
35			.3	321	yes	South wall	
36			.4	6.0	No	Base	
37			.4	3.9	No	Base	
38			.44	20.7	yes	East wall	
39			.44	46.9	yes	East wall	
40			1.2	57.9	yes	Base	
41			.9	99.1	yes	Base	
42			.3	45.9	yes		
43			.4	3.9	No	South wall	
44			.55	0.0	No	East wall	
45			.55	0.0	No	East wall	
46			1.0	0.0	No	Base	
47			.55	0.0	No	Base	
48			1.0	15.1	No	Base	
49			1.3	8.2	No	Base	
50			.3	40.1	yes	North wall	
51			.3	54.3	yes	East WALL	
52			.4	44.6	yes	Base	
53			.3	38.8	yes	North wall	
54			.4	20.1	yes	North wall	
55			.3	32.4	yes	Base	

Contaminated Soil Excavation Sheet

Project Number: TEK-12-04
Technicians: JANELLE. L

Location: SA DENA HES - JEWEL BOX
Date: OCTOBER 10, 2012

ACCESS

Sample #	X (m)	Y (m)	Z (meters) Depth	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
78			1.0	30.9	yes	East wall	
79			1.0	50.0	yes	Base	
80			0.9	56.8	yes	North wall	
81			0.6	94.5	yes	Base	
82			0.8	42.3	yes	south wall	
83			1.2	27.1	No	East wall bottom dark soil	
84			0.7	17.8	No	East wall top light soil	
85			1.3	21.1	No	base (Northern side)	Bedrock
86			1.2	23.2	No	West wall	
87			1.1	24.2	No	South eastern wall	
88			1.2	17.6	No	South wall	
89			1.2	27.2	No	Western base	
90			1.2	24.6	No	North wall	
91			1.1	40.1	No	North eastern wall	
92			1.1	42.8	yes	base (south side)	
93			1.2	165.1	yes	base (south side below 92)	
94			0.4	28.3	No	base 1st upper Bench	
95			1.0	12.1	No	West wall	
96			0.8	12.2	No	South wall	
97			1.0	93.0	To Be Excavated	West Wall	
98			2.1	25.1	No	Base	
99			0.5	4.8	No	Far Eastern Base	
100			0.4	0.0	No	East wall	✓

Contaminated Soil Excavation Sheet

Project Number: TEK-12-04
Technicians: JANELLE. L

Location: SA DENA HES - JEWEL BOX
Date: OCTOBER 10, 2012

ACCESS

Sample #	X (m)	Y (m)	Z (meters) Depth	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
101				24.8		Base	
102				30.4 PETROFLAG =	937	Base	
56			.4	47.1	Yes	North wall	
57			.4	0.0	No	North wall	
58			.4	0.0	No	North wall	
59			.4	0.0	No	North wall	
60			.4	2.0	No	Base	
61			.4	0.0	No	Base	
62			.4	15.1	No	Base	
63			.4	127	Yes	Base	
64			.4	111	Yes	Base	
65			.4	140	Yes	South wall	
66			.4	119	Yes	Base	
67			.6	113	Yes	Base	
68			.5	9.2	No	South wall	
69			.5	83.1	Yes	West wall	
70			.7	111.1	Yes	South wall	
71			.7	57.5	Yes	Base	
72			.7	28.0	Yes	West wall	
73			.7	59.9	Yes	West wall	
74			.7	54.2	Yes	Base	
75			.7	65.5	Yes	West wall	

PILE #1 - 10m l x 6m w x 1.6 h = 96 m³
PILE #2 - 13 m l x 4.4m w x 1.9 h = 109 m³

Contaminated Soil Excavation Sheet

Project Number: TEK-12-04 **Location:** SA DENA HES - JEWEL BOX

Technicians: JANELLE. L **Date:** OCTOBER 10, 2012

ACCESS

Sample #	X (m)	Y (m)	Z (meters) Depth	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
103			.45	118	To be Excavated	South wall	Characterization Sample
104			.4	0.0	No	East wall	✓
105			.4	110	To be Excavated	East wall	Characterization Sample
106			.4	98.9	To be Excavated	West wall	Characterization Sample
107			.4	57.4	To be Excavated	West wall	Characterization Sample

Contaminated Soil Excavation Sheet

Project Number: TEK-12-04
Technicians: JANELLE, L
Location: SA DENA HES - JEWEL BOX
Date: OCTOBER 10, 2012

ACCESS

Sample #	X (m)	Y (m)	Z (meters) Depth	PID Reading (ppm)	Excavated (Y or N)	Location (North, South, East, or West)	Confirmatory Sample
C-1			.1	0.0	No	See Field Sketch	Characterization
C-2			.1	0.0	No	"	✓
C-3			.1	0.6	No	"	✓
C-4			.1	0.0	No	"	✓
C-5			.1	0.5	No	"	✓
C-6			.1	0.5	No	"	✓
C-7			.1	1.3	No	"	✓
C-8			.1	7.8	No	"	✓
C-9			.1	5.6	No	"	✓
C-10			.1	5.8	No	"	✓
C-11			.1	16.6	No	"	✓

ATTACHMENT D

SPECIAL WASTE PERMIT 41-247

Yukon
Environment

Permit No: 4201-41-247

ENVIRONMENT ACT PERMIT

Issued for the Relocation and Storage of Contaminated Material
Pursuant to the Environment Act,
the Contaminated Sites Regulation, and the Special Waste Regulations

Permittee: **Teck Resources Limited**

Mailing Address: **601 Knighton Road, Kimberley, BC V1A 1C7**

Site Location: **Sa Dena Hes Mine property**
Access road at Km 47 Robert Campbell

Phone/Fax: **(205) 427-8416 / (205) 427-8451**
Authorized Representative: **Dave Ryder**

Email: **Dave.Ryder@teck.com**

Effective Date: **Date of Director's signature**
Expiry Date: **December 31, 2013**

This permit replaces permit #4201-41-247 issued August 23, 2011.

Scope of Authorization:

In accordance with your application, you are authorized to temporarily store soil contaminated with petroleum hydrocarbons and metals in excess of special waste criteria, hereinafter referred to as "listed special wastes", as set out in the terms and conditions of this permit.

Dated this ____ day of _____, 2012

_____
Director, Environmental Programs Branch
Environment Yukon

PART 1. DEFINITIONS

1. In this permit,
   "Act" means the Environment Act, R.S.Y. 2002, c. 76;

   "associated personnel" means all employees, contractors and volunteers involved in the permitted activities;

   "Branch" means the Environmental Programs Branch, Environment Yukon;

   "environmental protection analyst" means an employee of the Branch so designated by the Minister of Environment under the Act;

   "environmental protection officer" means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

   "listed special waste" means soil contaminated with petroleum hydrocarbons and metals in excess of the special waste criteria;

   "Regulations" means the *Contaminated Sites Regulations*, O.I.C. 2002/171 and the *Special Waste Regulations*, O.I.C. 1995/047;

   "spill" means a spill in excess of the amounts specified in Schedule A of the *Spills Regulations*;

   "vehicle" has the same meaning as in the *Motor Vehicles Act*, R.S.Y. 2002, c. 153; and

   "waste manifest" means the shipping document required to be completed by the permittee as set out in this permit in the form approved by an environmental protection analyst.
2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

PART 2. GENERAL

1. No condition of this permit limits the applicability of any other law or bylaw.

2. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.

3. This permit is restricted to listed special wastes generated by the permittee.

4. The permittee shall ensure that all associated personnel:
   a) have access to a copy of this permit;
   b) are knowledgeable of the terms and conditions of this permit; and
   c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

5. The permittee shall provide notice in writing to an environmental protection analyst from the Branch prior to any significant change of circumstances at the site.

6. Where conflicts exist between this permit and the permit application, this permit shall prevail.

7. For clarity, all obligations of the permitee under this permit survive the expiry date.

PART 3. TEMPORARY STORAGE AND HANDLING OF CONTAMINATED MATERIAL

1. The permittee shall not handle special wastes other than listed special wastes.

2. The permittee shall ensure that the contaminated material remains entirely on an impermeable liner with a minimum thickness of 6 mil and is completely covered with an impermeable liner with a minimum thickness of 6 mil that is weighted down to prevent the escape of contaminated material and the infiltration of precipitation and surface water runoff.

3. The permittee shall ensure that signs are posted at the receiving location identifying the stockpiled material as contaminated and that it should not be moved or played on. The signs shall be visible from all four compass directions.

4. The permittee shall ensure that the site is securely fenced to prevent access by the public.

5. The permittee shall ensure that all contaminated material and listed special wastes covered by this permit is relocated from the site to a permitted treatment or disposal facility, or otherwise disposed of in a pre-approved manner, no later than June 28, 2013 in accordance with the terms of a permit issued for that relocation.

PART 4. INSPECTIONS, RECORD KEEPING & REPORTING

1. The permittee shall ensure that the stockpiled material is inspected at least once every two weeks to confirm that the containment required under Part 3 above is still in place, and shall immediately correct any deficiencies.

2. If an inspection reveals that the permittee is in any way not in compliance with this permit, the permittee shall take actions as required to bring the site into compliance.

3. The permittee shall keep records of all inspections and shall keep all analysis results (including raw analytical data), including those from in-situ, ex-situ, and confirmatory sampling, as applicable, for a minimum of 3 years and make them available for inspection by an environmental protection officer upon request. Records shall be kept in a format acceptable to the Branch.

4. The permittee shall submit to an environmental protection analyst a plan describing the final disposal option chosen for the stockpiled listed special wastes no later than January 31, 2013.

5. The analytical results required under Part 5.1 must be submitted to an environmental protection analyst no later than August 1, 2013.

PART 5. SAMPLING AND ANALYSIS

1. Following relocation of the stockpiled listed special wastes, the permittee shall ensure that the native soil beneath the temporary storage liner is grid-sampled and analyzed, in accordance with Protocol 11, *Sampling Procedures for Land Treatment Facilities*.

2. The permittee shall ensure that the native soil beneath the temporary storage liner is sampled and analyzed for metals, PAHs, petroleum hydrocarbons and any other contaminants of concern, and that this sampling and analysis is undertaken in accordance with all protocols pursuant to the *Contaminated Sites Regulation* that pertain to sampling and analysis.

3. All analyses performed in accordance with this Part must be acceptable to the Branch. In particular, the permittee shall ensure that the detection limit of the test method(s) used is lower than the standards in the *Contaminated Sites Regulation*.

PART 6. TRANSPORT AND TRANSFER OF SPECIAL WASTE

1. The permittee shall not transport or transfer listed special wastes other than within the site.

2. The permittee shall ensure that all listed special wastes are transported and transferred in such a manner as to prevent their release into the environment.

3. A waste manifest shall be completed to document each shipment of contaminated material considered to be special waste, and copies of the waste manifest shall be distributed in the manner described thereon.

4. The permit number **YG41-247**shall be used as the Provincial Identification Number on waste manifests used for the transport of the contaminated material.

5. The permittee shall ensure that all vehicles carrying any contaminated material considered to be special waste are secured to prevent access by unauthorized persons.

6. The permittee shall ensure that special wastes are transported to a special waste management facility in the Yukon or another jurisdiction that is permitted to receive the listed special wastes.

7. The permittee shall ensure that special wastes are transported by a carrier permitted in the Yukon to transport the listed special wastes.

PART 7. SPILLS

1. The permittee shall contact either an environmental protection officer, or the 24-hour Yukon Spill Report Centre (**867-667–7244**) as soon as possible under the circumstances in the event of a release, spill, unauthorized emission, discharge, or escape of any contaminated material.

2. The permittee shall ensure that appropriate clean-up equipment (such as sorbent, shovel, broom, bucket, gloves, boots, etc.) is in a readily available location at all locations where contaminated material is handled or stored and in all vehicles transporting contaminated material.

3. The permittee shall ensure that emergency spill procedures are posted at all locations where contaminated material is handled or stored and carried in all vehicles transporting contaminated material, and that all personnel (employees, contractors or volunteers) are familiar with those procedures.

ATTACHMENT E

RELOCATION PERMIT 45-032, TERVITA'S APPROVAL AUTHORIZATION AND SUMMARY OF TOTAL TONNAGE

Yukon
Environment

Permit No: 4201-45-033

SPECIAL WASTE RELOCATION PERMIT

Issued for the Relocation of Contaminated Material Pursuant to the Environment Act, the Contaminated Sites Regulation, and the Special Waste Regulations

Permittee: Teck Metals Ltd.

Mailing Address: Bag 2000, Kimberly BC V1A 3E1

Authorized Representative: Dave Ryder

Phone/Fax: (250) 427-8614 / (250) 427-8451

Email: dave.ryder@teck.com

Effective Date: Date of Director's signature
Expiry Date: December 31, 2012

Removal Location: Sa Dena Hes Mine Site

Receiving Location: Tervita Northern Rockies Landfill, Fort Nelson, BC

Scope of Authorization: In accordance with your application, **Teck Metals Ltd.**, represented by yourself, is hereby permitted to relocate soil contaminated with petroleum hydrocarbons and metals in excess of special waste criteria, hereinafter referred to as contaminated material, from the removal location to the receiving location, both as specified above, as set out in the terms and conditions of this permit.

Dated this 28th day of September, 2012

John Russell A/HDM

Director, Environmental Programs Branch
Environment Yukon

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: SEP 28 2012 Initials: JS

PART 1. DEFINITIONS

1. In this permit,
   "Act" means the *Environment Act*, R.S.Y. 2002, c. 76;
   "associated personnel" means all employees, contractors and volunteers involved in the permitted activities;

   "Branch" means the Environmental Programs Branch, Environment Yukon;

   "Duty to Mitigate letter" means a direction in writing from an environmental protection officer outlining the requirements to restore or rehabilitate the natural environment to a condition reasonably equivalent to the condition that existed immediately before the spill occurred;

   "environmental protection analyst" means an employee of the Branch so designated by the Minister of Environment under the Act;

   "environmental protection officer" means an employee of the Government of Yukon so designated by the Minister of Environment under the Act;

   "figure" means a drawing showing the three-dimensional boundaries of the excavation with the dimensions clearly marked, and the locations depicting where the confirmatory samples were taken, including the sample names as provided to the laboratory;

   "listed special waste" means soil contaminated with petroleum hydrocarbons or metals in excess of the special waste criteria;

   "Regulations" means the *Contaminated Sites Regulations*, O.I.C. 2002/171 and the *Special Waste Regulations*, O.I.C. 1995/047;

   "site" means the removal location, as noted above, that contains any contaminant with a concentration greater than the standards listed in Schedules 1, 2, or 3 of the *Contaminates Sites Regulation*;

   "vehicle" has the same meaning as in the *Motor Vehicles Act*, R.S.Y. 2002, c. 153; and

   "waste manifest" means the shipping document required to be completed by the permittee as set out in this permit in the form approved by an environmental protection analyst.

2. Any term not defined in this permit that is defined in the Act or the Regulations has the same meaning as in the Act or the Regulations.

PART 2. GENERAL

1. No condition of this permit limits the applicability of any other law or bylaw.

2. The permittee shall ensure that all activities authorized by this permit occur on property that the permittee has the right to enter upon and use for that purpose.

3. The permittee shall ensure that all associated personnel:
   a) have access to a copy of this permit;

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: SEP 28 2012 Initials:

b) are knowledgeable of the terms and conditions of this permit; and
c) receive the appropriate training for the purposes of carrying out the requirements of this permit.

4. The permittee shall provide notice in writing to an environmental protection analyst prior to any significant change of circumstances at the site, including without limitation:
   a) a change in the receiving location; or
   b) the relocation of material contaminated with substances other than those authorized by this permit.

5. Where conflicts exist between this permit, the permit application, or elements of any plan pertaining to any activity regulated under the Act, this permit shall prevail.

6. For clarity, all obligations of the permittee under this permit survive the expiry date.

7. The permittee shall make all documentation required by this permit available for inspection by an environmental protection officer upon request.

PART 3. RELOCATION OF CONTAMINATED MATERIAL

1. This permit is valid only for the one-time relocation of contaminated material from the removal location to the receiving location, as noted above.

2. The permittee shall ensure that all contaminated material is transported and transferred in such a manner as to prevent its release into the environment.

3. The maximum volume of contaminated material that may be relocated under this permit without undertaking an environmental screening pursuant to the *Yukon Environmental and Socio-economic Assessment Act* is 2,999m^3.

PART 4. SAMPLING AND ANALYSIS

1. The permittee shall ensure that all contaminated material covered by this permit is sampled and analyzed for all contaminants of concern, and that this sampling and analysis is undertaken in accordance with all protocols pursuant to the *Contaminated Sites Regulation* that pertain to sampling and analysis.

2. Following excavation of the contaminated material, the permittee shall ensure that confirmatory samples are taken and analyzed, in accordance with all protocols pursuant to the *Contaminated Sites Regulation* that pertain to sampling and analysis, in order to demonstrate that all contaminated material has been removed from the removal location or to identify any contaminated material remaining at the removal location.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: SEP 28 2012 Initials:

3. All analyses performed in accordance with this Part must be acceptable to the Branch. In particular, the permittee shall ensure that the detection limit of the test method(s) used is lower than the standards in the *Contaminated Sites Regulations.*

4. If the liner on which the stockpiled listed special wastes are stored appears perforated or otherwise damaged following removal of the contaminated material, the permittee shall sample the native soil for all contaminants of concern in the area where damage to the liner is observed.

5. If the permittee suspects contaminated material or runoff from the stockpile has impacted areas outside of the stockpile footprint, the permittee shall sample those areas for all contaminants of concern.

PART 5. INSPECTIONS, RECORD KEEPING & REPORTING

1. The permittee shall keep records of all analysis results (including raw analytical data), including those from in-situ, ex-situ, and confirmatory sampling, as applicable, for a minimum of 3 years and make them available for inspection by an environmental protection officer upon request. Records shall be kept in a format acceptable to the Branch.

2. If an inspection reveals that the permittee is in any way not in compliance with this permit, the permittee shall take actions as required to bring the site into compliance.

3. The permittee shall submit the following to the Branch:
   a) analytical results of the relocated material;
   b) analytical results of confirmatory samples from the removal location;
   c) actual volume of contaminated material relocated;
   d) a figure; and
   e) a document tracking form provided by the Branch accompanying items a) through d), submitted as instructed on that form.

4. The items submitted in 5.3 must be submitted on or before the latter of:
   f) 60 days following the date of issuance of this permit;
   g) the date outlined in a Duty to Mitigate letter provided by the Branch (if applicable); or
   h) as directed in writing by an environmental protection officer.

5. Failure to submit confirmatory sampling results and the accompanying figure may result in the site continuing to be identified as contaminated by the Environmental Programs Branch and inclusion of the site on the Public Registry of contaminated sites.

PART 6. TRANSPORT AND TRANSFER OF SPECIAL WASTE

1. The permittee shall ensure that all listed special wastes are transported and transferred in such a manner as to prevent their release into the environment.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
SEP 28 2012
Date: Initials:

2. A waste manifest shall be completed to document each shipment of contaminated material considered to be special waste, and copies of the waste manifest shall be distributed in the manner described thereon.

3. The permit number **YG45-033** shall be used as the Provincial Identification Number on waste manifests used for the transport of the contaminated material.

4. The permittee shall ensure that all vehicles carrying any contaminated material considered to be special waste are secured to prevent access by unauthorized persons.

5. The permittee shall ensure that special wastes are transported to a special waste management facility in the Yukon or another jurisdiction that is permitted to receive the listed special wastes.

6. The permittee shall ensure that special wastes are transported by a carrier permitted in the Yukon to transport the listed special wastes.

PART 8. SPILLS

1. The permittee shall contact either an environmental protection officer, or the 24-hour Yukon Spill Report Centre (**867-667–7244**) as soon as possible under the circumstances in the event of a release, spill, unauthorized emission, discharge, or escape of any contaminated material.

2. The permittee shall ensure that appropriate clean-up equipment (such as sorbent, shovel, broom, bucket, gloves, boots, etc.) is in a readily available location at all locations where contaminated material is handled or stored and in all vehicles transporting contaminated material.

3. The permittee shall ensure that emergency spill procedures are posted at all locations where contaminated material is handled or stored and carried in all vehicles transporting contaminated material, and that all personnel (employees, contractors or volunteers) are familiar with those procedures.

DEPARTMENT OF ENVIRONMENT
ENVIRONMENTAL PROGRAMS
Whitehorse, Yukon
Certified true copy of original
Date: SEP 28 2012 Initials:

WASTE CONFIRMATION FORM

1. GENERATOR INFORMATION

a) **Date:** Sept-27-2012
b) **Generator:** Teck Metals Ltd.
c) **Shipping Address or LSD:** Sa Dena Hes Mine
d) **WAA #:** 1351-12-0156-19-NHW
e) **Contact:** Dave Ryder 250-427-8416
f) **Tervita Initiator:** Daniel Poulin
g) **Disposal Location:** Northern Rockies Landfill

2. WASTE DESCRIPTION

19-Hydrocarbon Contaminated Material

3. RECOMMENDED MANAGEMENT

Include any special disposal procedures. Landfill, Standard PPE, goggles, gloves, coveralls

Acceptance Conditions: Acceptance subject to landfill fingerprinting procedures.
No free liquids.
Additional wastes other than described above must be preauthorized.
Waste must be stackable.
Landfill requires 24 hours notice prior to shipping of waste material.
Facility waste acceptance hours are 7AM-7PM
Tervita reserves the right to refuse any waste.

Additions:

Expiry Date: Sept 27/2013

Waste Stream Reviewed by: Name: Daniel Poulin

Title: Manager

Approval Authorization: Meredith White

Tervita WASTE CONFIRMATION CODE: 1351-12-0156-19-NHW

Landfill Ticket Summary - By Cell

For ticket from: 4/1/2012 7:00:00 AM
to: 10/19/2012 7:00:00 AM

Thursday, October 18, 2012 3:14:25 PM

Plant: Northern Rockies Landfill

Cell Cell 2

Job Date	Job Number	Location	Ticket	Manifest	Units	Grid Letter	Grid	Elevation
Produce	**Teck Metals Ltd.**							
11-Oct-12	S309161351	BCWI100SA DENA HES MINE00	7	ND 1084828	28.32 tonne	E	20	L-10
11-Oct-12	S309171351	BCWI100SA DENA HES MINE00	100	ND 1084825	27.54 tonne	E	20	L-10
11-Oct-12	S309181351	BCWI100SA DENA HES MINE00	34	ND 1084826	27.88 tonne	E	20	L-10
11-Oct-12	S309191351	BCWI100SA DENA HES MINE00	2	ND 1084829	28.06 tonne	G	12	L11
Total For:Teck Metals Ltd.			4		111.80 tonne			
Total For:Cell 2			4		111.80 tonne			

Cell Cell 4

Job Date	Job Number	Location	Ticket	Manifest	Units	Grid Letter	Grid	Elevation
Produce	**Teck Metals Ltd.**							
11-Oct-12	S309141351	BCWI100SA DENA HES MINE00	20	ND1084827	26.12 tonne	M	20	l5
11-Oct-12	S309151351	BCWI100SA DENA HES MINE00	01	ND1084824	27.00 tonne	M	20	l5
Total For:Teck Metals Ltd.			2		53.12 tonne			
Total For:Cell 4			2		53.12 tonne			
Total For:Northern Rockies Landfill			6		164.92 tonne			

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

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