DILLON CONSULTING

Environmental Summary and Analysis

Northwest Smelting and Refining Ltd,
Winnipeg, Manitoba

2015 January Final Report – 10-3834 R.1
(May, 2015)

(In reply, please refer to)
Our File: 10-3834

May 6, 2015

Northwest Smelting and Refining Ltd.
c/o/ Thompson Dorfman Sweatman LLP
Canwest Place, 2201-201 Portage Avenue
Winnipeg, Manitoba R3B 3L3

Attention: Ms. Sheryl Rosenberg

RE: Environmental Summary and Analysis
Northwest Smelting and Refining, Winnipeg, Manitoba

Dear Ms. Rosenberg:

Please find enclosed one (1) digital copy of the above mentioned report.

This report contains a review of potential remediation methods for the various environmental issues identified at the Site.

If you have any questions or comments, please feel free to contact Douglas Bell, M.Sc., P.Geo., or Indra Kalinovich, Ph.D., C.Chem., E.I.T., at 204-453-2301.

Yours sincerely,

DILLON CONSULTING LIMITED

Douglas Bell, M.Sc., P.Geo., FGC
Partner

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Encl.
Summary Tables
Figures

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Executive Summary

Dillon Consulting Limited (Dillon) was contracted by Thompson Dorfman Sweatman (TDS) on behalf of their client Northwest Smelting and Refining Ltd. (NWSR) to conduct an Environmental Site Investigation on the NWSR property located at 2185 Logan Avenue (the Site). The purpose of the assessment was to conduct exploratory investigations to assess horizontal and vertical impacts at the subject property.

Previous in-depth investigations have been conducted at the site by IDS (1991 and 1993) and at adjoining properties to evaluate off-site impacts related to 2185 Logan Avenue (IDE, 1993). Results from two previous investigations from an adjacent property to the west of 2185 Logan Avenue were made available. Review of these investigations indicated that horizontal and vertical impacts for lead in soil were likely associated with previous on-site activities at 2185 Logan Avenue. Areas of Potential Environmental Concern (APECs) were identified as:

- APEC 1 - Historical dump at north end of Site.
- APEC 2 - Metal-impacted surficial soils at the southern end of the Site.
- APEC 3 - Metal impacts in groundwater.

Off-site migration related to APECs 1 and 3 were also identified as a potential environmental concern.

Dillon was on-site in 2012 to evaluate the extent of buried waste and assess site impacts prior to building demolition activities. Test pit and borehole investigations conducted by Dillon in July/November 2012 revealed a preliminary subsurface stratigraphy with both lateral and vertical delineation of impacts. Buried waste composition at the northern portion of the Site was found to be relatively homogeneous in composition. Given the observed average thickness of waste of 1.1 m (ranging in depth from 0.3 to 1.8 m below the soil cap), the approximate volume of waste material buried in the northern portion of the Site is 10,500 m^3. The buried waste is overlain by approximately 3,100 m^3 of fill material, taken from the Site. The soil cover appeared to be non-engineered and remained intact, with a minimum observed thickness of 0.10 m, and an average observed thickness of 0.45 m.

Upon Site building demolition in 2012, a waste inventory showed the presence of additional potential contaminants of concern. Over 200 kg of suspected polychlorinated biphenyl waste was inventoried and removed from the Site. In 2013, Dillon conducted a shallow borehole investigation spanning the Site to evaluate horizontal delineation of lead in soil. Building footprint and selected samples were analysed for the detection of potential contaminants (such as polychlorinated biphenyls and mercury) identified during the waste inventory and building demolition. Site impacts were found to be limited to metals in soil and groundwater.

Lead concentrations in soil were found to exceed federal soil quality guidelines (600 mg/kg) to depths greater than 2 m. No Tier II criteria exceedances were noted in 2012/2013 for lead concentrations in soil. Tier II criteria exceedances (soil ingestion exposure pathway) were observed at depths of 2.8 mbgs at TP-01-02 for arsenic in soil (31.9 mg/kg). Lead concentrations in soil decreased by three orders of magnitude from the surface to a depth greater than 2 mbgs (metres below ground surface) for the same sample locations. These results indicate that although downward vertical migration of lead has occurred, mobility appears to be reduced by interactions with the soil substrate. The greatest observed impacts are associated with the northern section of the Site (APEC 1).

Monitoring wells were installed within discrete stratigraphic layers on site to assess site groundwater flow, and potential impacts to groundwater. Lead and cadmium in groundwater were observed in each stratigraphic unit (fill, clay/silt, till). The greatest impacts in groundwater were found at the greatest depths, along the eastern boundary of the Site property. Shallow groundwater flow direction, based on observed water levels, was observed to flow in a north-easterly direction, with an overall horizontal hydraulic gradient of 0.004 in 2013 and 0.006 in 2014. A downwards vertical hydraulic gradient was observed in 2014 in all stratigraphies and nested monitoring well locations. Historically, off-site impacts in groundwater have not been observed to the east of the Site property.

Contaminants of concern (lead, cadmium) have been identified at the Site in soils and groundwater. A second groundwater monitoring event was conducted in June 2014 to confirm observed impacts following the initial sampling event and were used to evaluate risk exposure pathways. Elevated concentrations of lead in deep groundwater may be attributable to nearby buried waste in APEC 1 and downwards vertical hydraulic gradients.

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1.0 INTRODUCTION

Dillon Consulting Limited (Dillon) was retained by Thompson Dorfman Sweatman (TDS) on behalf of Northwest Smelting and Refining Ltd. (NWSR) to conduct a site investigation, and ultimately develop a site management plan for the property located at 2185 Logan Avenue in Winnipeg, Manitoba. The objective of the investigation was to identify and evaluate the presence/absence of petroleum hydrocarbon, lead and polychlorinated biphenyl impacts on the property as a basis for the development of future site management and remedial planning.

1.1 Site Description

The Site is located at 2185 Logan Avenue in a northwest industrial area of Winnipeg (Figure 1) in Omand's Creek Industrial Park. Historically, the property was used to house a smelting facility and subsequently, a battery recycling operation. The battery recycling operation was housed on the south end of the property in a complex of buildings, formerly used as a refinery. Storage areas filled with metal and plastic battery case debris were identified (IDE, 1993) to the north of the buildings. The northern portion of the property is grass covered and was previously covered with a clay cap overlying refinery and battery recycling debris. In October of 2012, the buildings were demolished by Western Specialty Contracting Ltd., with oversight by Dillon. The results of the demolition work are not presented in this report.

During demolition activities, site access was restricted by paneled chain-linked fencing, with a gate at Logan Avenue.

1.2 Background

1.2.1 Investigation into Lead Contamination, I.D. Systems (IDS) Ltd., 1991

On January 21, 1991 Manitoba Environment issued an order (Order# 0457) to NWSR to perform an investigation to determine the degree and extent of lead contamination in the soil, the leachability of the lead in the soil, and if the groundwater has been contaminated with lead.

An initial Environmental Site Assessment was conducted in 1991 by IDS for NWSR. In total, nine (9) piezometers and eight (8) shallow test holes were installed on the property and a total of sixty-six (66) soil samples were analyzed for total lead and leachate (concentration in extract) concentrations. Lead concentrations in soil varied from 197,000 to 30 µg/g. Results from lead leachability in soil tests showed leachate concentrations that varied from 166 mg/L to < 0.04 mg/L. Vertical delineation was conducted to a depth of 5.2 m, across nine (9) intervals. Test holes were found to be impacted with lead contamination, and the lead concentration varied with depth. With increasing depth, lead impacts were more localized to the northern half of the property. Vertical delineation was not completed, as it was anticipated that the contamination had not migrated below the undisturbed overburden (IDS, 1991).

Groundwater sample analyses from the nine (9) piezometers that were found to contain dissolved lead concentrations in excess of the Guidelines for Canadian Drinking Water Quality (0.01 mg/L), and ranged from 0.055 to 3.0 mg/L. Shallow groundwater was encountered in seven (7) of the seventeen (17) test holes. Groundwater table elevations indicated that the shallow groundwater tended to flow towards the northwest corner of the property. Other low areas on-site include ditches containing cattails at the northwestern corner of the property.

1.2.2 Off-Site Environmental Site Assessment, I.D. Engineering Canada, Inc. (IDE), 1993

An off-site subsurface investigation at NWSR was conducted by IDE in 1993 for NWSR. Six (6) boreholes were advanced on neighbouring properties to the east and west and completed as monitoring wells. Soil samples from one (1) and three (3) metre depths were taken from each borehole, and a two (2) metre borehole sample was taken borehole BH202 and submitted to a laboratory for analyses. One (1) off-site soil sample exceeded the criteria cited by Manitoba Environment of 1,000 µg/g total lead and 5 mg/L lead leachate at 165 Ryan Street. Dissolved lead in groundwater concentrations were reported to be below or within the Guidelines for Freshwater Aquatic Life of 0.001 to 0.007 mg/L, and the Guidelines for Canadian Drinking Water Quality of 0.01 mg/L.

Observed groundwater elevations indicated that the direction of shallow groundwater flowed towards the west/southwest, differing from the previous investigation in 1991. The report concluded that the dissolved lead concentrations in the off-site groundwater samples confirmed that that presence of lead in the on-site soils had minimal impact on the groundwater regime.

1.2.3 Phase II Environmental Site Assessment, 2201 Logan Avenue, KGS Group, 2005

An off-site environmental assessment was conducted at a property to the west of NWSR for Pa D'or Holdings. A total of seven (7) testpits were excavated along the east boundary of the subject site, with two (2) soil samples collected from each. An additional ten (10) surface soil samples were collected throughout the property. Laboratory results from the samples analyzed indicated that lead in soil concentrations were above the Canadian Council of Ministers of the Environment (CCME) Tier I criteria for industrial land use (600 mg/kg) along shared boundary with NWSR. One other exceedance occurred in a surface sample taken from the central area of the Site. Lead impacts noted at the subject site during the investigation were in surficial soils at depths of less than 1 m below grade.

1.2.4 180 and 123/125 Ryan Street and 2095 Logan Avenue Subsurface Investigation, Dillon Consulting Limited, 2009

A subsurface investigation program was conducted in 2009 to assess closure following excavation of polycyclic aromatic hydrocarbon (PAH) impacted soils. The objective of the investigation was to assess both surface and subsurface impacts related to the storage of petroleum hydrocarbons. Based on analytical results and field observations, no further investigation or actions were recommended for the subject properties. Potential metal impacts in soil and/or groundwater were not investigated as part of these investigations.

1.2.5 Phase II Environmental Site Assessment, 2201 Logan Avenue, M.P. Wiebe Environmental Engineering, 2013

An off-site environmental assessment at a property to the west of NWSR was commissioned by 2925924 Manitoba Ltd. Two (2) boreholes were drilled on the western boundary of the subject site, with two (2) soil samples taken from each borehole. Laboratory results from the samples analyzed, indicated that lead in soil concentrations were above the selected criteria of 600 mg/kg for environmental contact on industrial sites. The results complied with the soil quality guidelines of 8,200 mg/kg for human health ingestion on industrial sites. Impacts in soil were found to be shallow, and confined to the upper fill layer.

A summary of the previous site investigation activities is shown in Figure 3.

1.2.6 Objectives

The main objectives of this Environmental Summary Report were to:

- Summarize historical and recent data collected for the Site, to provide a more comprehensive understanding of subsurface physical conditions and the distribution of impacts at the site (e.g., Conceptual Site Model).
- Using the Conceptual Site Model, identify data gaps requiring further investigation.
- Using the Conceptual Site Model as the base, screen the potentially applicable remediation and risk management options for the protection of the environment and human health.

1.2.7 Biophysical Environment

The subject property is located near the corner of Logan Avenue and Ryan Street. The northeastern portion of the property is bounded by Ryan Street, and the southern portion of the property is bounded by Logan Avenue. Bayco Industries Ltd. (task lighting manufacturer) and Cadorath Plating (metal) occupy the properties on the southern side of Logan Avenue. Several companies (trucking, lumber storage) rent the spaced owned by 2925924 Manitoba Ltd. that bounds the property to the west; the property has recently been sold. A metal recycling facility, Chisick Metal Ltd bounds the property to the southeast side. The northern edge of the subject property is adjacent to Prendiville Industries Ltd., located at 165/180 Ryan Street. A site plan showing the area at the former buildings and on-site buried debris is illustrated in Figure 2.

The closest surface water body or sensitive ecological habitat is located approximately 3.0 km south of the Site (Assiniboine River). There are two ponds within 1 km from the site: a stormwater retention pond to the northwest and a pond at Woodsworth Park across Highway 90 to the northeast.

1.3 Land Use and Surface Topography

Site and surrounding land use is industrial. The Site hosted a former Smelter and Lead Acid Battery Recycling Facility. The Site was serviced by municipally supplied potable water and sewers. A historic landfill containing debris from the acid battery recycling facility is situated in the northern portion of the Site property. The southern portion of the Site contained the Smelter and associated buildings, which were demolished in 2012.

The topographical survey conducted in 2012 showed surface drainage patterns that ran to the edges of the Site. The property is graded to a greater elevation towards the center of the Site, promoting run-off patterns to the property edges. There are surface water ditches along the western and northern property boundaries; however, surface water was not observed in the drainage ditches during field investigations. Erosion potential is minimal for the southern portion of the Site. However, there is greater erosional potential for the northern portion of the Site due to steeper slope profiles.

The Site is bounded by the following properties:

- The northeastern portion of the property is bounded by Ryan Street.
- The southern portion of the property is bounded by Logan Avenue. Both Bayco Industries Ltd. (task lighting manufacturer) and Cadorath Plating (metal) occupy the properties on the southern side of Logan Avenue. Production wells installed for industrial use were identified at 2150 Logan Avenue (Cadorath Plating).

- The western portion of the property is bounded by several companies (trucking, lumber storage) who rent the spaced owned by 2925924 Manitoba Ltd. at 2201 Logan Avenue. (Note: this property has recently been sold).
- The southeastern portion of the property is bounded by a metal recycling facility, Chisick Metal Ltd 2141 Logan Avenue.
- The northern edge of the subject property is adjacent to Prendiville Industries Ltd., located at 165/180 Ryan Street.

1.4 Site Hydrogeology

1.4.1 Regional Hydrogeology

To describe the regional physiography and expected hydrogeologic conditions beneath the property, the following documents were reviewed:

- Province of Manitoba, Groundwater Availability Maps, Bedrock Geology and Drift Thickness maps, 1980.
- Render, F.W. Geohydrology of the Metropolitan Winnipeg area as related to groundwater supply and construction. Canadian Geotechnical Journal, Vol. 7, No. 3, 1970.

The general geology of the Winnipeg area consists of glaciolacustrine deposits including sands, silts and clays of the late Wisconsian glaciation (Province of Manitoba, Groundwater Availability Maps, Surface Deposits map, 1980). Bedrock geology mapping for the area indicates the Site is underlain by the Red River formation, which consists of Ordovician dolomitic limestones and dolomite (Province of Manitoba, Groundwater Availability Maps, Bedrock Geology map, 1980). The carbonate bedrock serves as a regional aquifer, with an estimated piezometric groundwater level located at approximately 12 metres below ground surface (mbgs) in the area of the Site (University of Manitoba Department of Engineering, 1983). This unit serves as a groundwater drinking source obtained through wells for rural communities surrounding Winnipeg.

1.4.2 Local Hydrogeology

The subsurface soil conditions observed during the investigation consisted of surficial sand and gravel fill materials, underlain by layers of silt, clay and glacial till to the maximum depth drilled of 7.4 m below ground.

The depth to groundwater measured within the monitoring wells during the May 2013 Dillon groundwater monitoring visit ranged between 0.55 (13-03, Fill layer) and 2.60 (13-10, Till layer) mbgs. Shallow groundwater flow direction (fill and clay wells only) was observed to be primarily towards the northeast. Depth to groundwater measured during the June 2014 visit ranged between 0.35 (13-13, Fill layer) and 2.49 (13-10, Till layer) mbgs.

Greater hydraulic conductivity was seen in the upper layers in the following order:

- MW 13-13 (fill/silty clay, 3.02 $x10^{-4}$ cm/s).
- MW 13-11 (silty clay, 5.14 $x10^{-6}$ cm/s).
- MW 13-10 (tight till, 1.7 x 10^{-7} cm/s).

The local shallow groundwater flow direction below the Site may vary from the Regional context and be influenced by industrial groundwater extraction, surface drainage ditches, underground structures and utilities which may be present in the vicinity of the Site. Such features are typically backfilled with coarse grain materials which may provide a more permeable conduit for groundwater flow when compared to the lower permeability of the native soils.

1.5 Soil, Fill and Waste

The northern portion of the property consists of grass growing in stony topsoil overlying the 0.5 m of clayey fill with stones, which overlies 1 m of fill consisting of foundry debris, plastic battery case debris and clayey soils. This fill overlays the original black organics and clayey till. Undisturbed till was encountered at a depth of 2-3 m.

The southern portion of the property consists of 1 m of gravel road fill, overlying approximately 2 m of grey clay, overlying the till, which extends to the bottom of the test holes.

1.6 Areas of Potential Environmental Concern (APEC)

APEC refers to means the area on, in or under a property where one (1) or more contaminants are potentially present, as determined through previous environmental site assessments, including:

- Identification of past or present uses on, in or under the phase one (1) property.
- Identification of potentially contaminating activity.

1.6.1 APEC 1 – North End Historical Landfill

A historical landfill at the northern portion of the property contains foundry debris associated with battery breaking/recycling activities mixed with clayey soil. Grass grows on top of the soil cap that covers the landfill. Contaminants of Concern identified at the North End Historical Landfill are related to the battery and foundry debris within the historic landfill. These include:

- Metals (lead, cadmium, copper, zinc).

1.6.2 APEC 2 – Surficial Impacts – Southern Portion of Site

Surficial impacts are associated with previous site activities as a foundry for metal smelting and refinery. Impacts have been identified in the surrounding fill and underlying layers. Contaminants of concern identified at the southern portion of the Site include:

- Metals (lead, cadmium, copper, zinc).

1.6.3 APEC 3 – Site-Wide Groundwater

Groundwater impacts associated with leachable metals have been observed at the site in surrounding monitoring wells (IDE, 1991). Contaminants of concern identified in groundwater include:

- Metals (lead, cadmium).

1.7 Environmental Standards and Criteria

As NWSR's property and surrounding areas are zoned as industrial, and groundwater is not used as a drinking water supply, pathways protective of potable and agricultural water uses are eliminated.

The closest surface water body or sensitive ecological habitat is located less than 1 km to the northwest of the Site (pond at Woodsworth Park). The Assiniboine River lies approximately 3 km to the south. Applicable criteria for soil and groundwater were selected based on land use, groundwater use and proximity to nearby receptors and are discussed in the following sections.

1.7.1 Soil

For the assessment of benzene, toluene, ethylbenzene, and xylenes (BTEX) concentrations in the soil samples, the 2004 CCME Canadian Environmental Quality Guidelines for Environmental Health, Industrial Land Use, Fine-Grained Subsoil, Environmental Health check values. Assessment criteria from the 2008 CCME Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil, Industrial Land Use, Fine-Grained Subsoil, Management Limit were also applied to the Site for the four (4) hydrocarbon fractions (F1 - F4).

For PHC fractions F1 – F4, Dillon selected values from the Canada-Wide Standard for PHC in Soil Technical Supplement dates January 2008. Tier I levels for PHCs for fine-grained soils, industrial land use, terrestrial ecological pathway were applied. The selected assessment criteria are summarized as follows:

Parameter	Criteria (mg/kg)
F1 (C6-C10)	320
F2 (>C10-C16)	260
F3 (>C16-C34)	2,500
F4 (>C34)	6,600

For BTEX, Dillon selected the CCME Canadian Soil Quality Guidelines for the Protection of Environmental Health (2004), surface soil, industrial land use, fine-grained soil, environmental health guidelines/check values were applied. Soil quality guidelines for the protection of human health assumed direct soil contact. For benzene specifically, the lower human health criteria for indoor air quality (slab on grade) was used (2004), based on an incremental lifetime cancer risk of 1 in 100,000 (10^{-5}). The selected assessment criteria for BTEX are as follows:

Parameter	Criteria (mg/kg)
Benzene	2.8
Toluene	330
Ethylbenzene	430
Xylenes	230

For PAHs, Dillon selected the CCME Canadian Soil Quality Guidelines and other Polycyclic Aromatic Hydrocarbons (2010) Criteria, industrial land use and fine grained soil, environmental health. Soil quality guidelines for the protection of human health assumed direct soil contact, based on an incremental lifetime cancer risk of 1 in 100,000 (10^{-5}). The selected assessment criteria for PAHs in soil are as follows:

Parameter	Criteria (mg/kg)
Anthracene	32
Benzo(a)anthracene	10
Benzo(a)pyrene	72
Benzo(b&j)fluoranthene	10
Benzo(b)fluoranthene	10
Benzo(b+j+k)fluoranthene	10
Benzo(k)fluoranthene	10
Dibenzo(a,h)anthracene	10
Fluoranthene	180
Indeno(1,2,3-cd)pyrene	10
Naphthalene	22
Phenanthrene	50
Pyrene	100
B(a)P Total Potency Equivalent	5.3
IACR (CCME)	<1.8

Based on present and future proposed Site land use and potential receptors to the Site, Dillon selected the CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (2008), industrial land use and fine grained soil. The selected assessment criteria for metals in soil are as follows:

Parameter	Criteria (mg/kg)
Antimony (Sb)	40[1]
Arsenic (As)	12[1,2]
Barium (Ba)	2,000
Cadmium (Cd)	22[1], 2,090[2]
Chromium (Cr)	87
Copper (Cu)	91
Lead (Pb)	600[1], 8,200[2]
Nickel (Ni)	50
Selenium (Se)	2.9
Thallium (Tl)	1
Tin (Sn)	300
Uranium (U)	300
Vanadium (V)	130
Zinc (Zn)	360

The values provided above (denoted by [1])are the generic guidelines provided by CCME as Tier I criteria. These values are conservative, using the lowest, recommended value that protects both environmental and human health. Where provided by CCME, pathway-specific Tier II criteria (denoted by [2]) may be applied. The off-site migration check value is typically recommended by the CCME for industrial land as a more applicable, conservative value than eco-soil contact. The off-site migration check was developed to address the possibility of subsequent movement from a commercial or industrial property to a more sensitive adjacent property (CCME, 2006). Given the surrounding industrial land uses (metal recycling facility, lumber yard, plating facility, etc.) and known soil migration patterns, protection of human health by the soil ingestion exposure pathway is considered more appropriate to the Site's present and proposed future land use (compared to eco-soil contact and the off-site migration check). Both Tier I and Tier II values are provided for comparison.

1.7.2 Groundwater

Assessment guidelines for groundwater and surface water depend on the potential uses of the water. Canadian Council of Ministers of the Environment document (CCME, 1999), and more recently, Manitoba Conservation and Water Stewardship (MC, 2000) have developed guidelines for several end use categories for both groundwater and surface waters, although Manitoba Conservation and Water Stewardship has no guidelines for assessing non-potable groundwater outside of agricultural use. Manitoba has accepted the applicability of Environment Canada's *Federal Interim Groundwater Quality Guidelines* for Commercial and Industrial Land Uses, Table 3: Non-Potable Ground Water Condition, Fine Grain Soils, May 2012, as acceptable Tier I Criteria.

It is noted that the FIGQG for metals are generally based on the surface water guidelines (i.e., for protection of freshwater aquatic life) with no allowance for attenuation processes. These values are considered to be overly conservative and not necessarily indicative of potential risks to aquatic receptors. The use of criteria established by Ontario Ministry of Environment, *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act*, Table 3: Full Depth Generic Site Conditions in a Non-Potable Ground Water Condition, All Types of Property Use, April 2011 is acceptable in Manitoba as Tier II Criteria.

Tier I Criteria (indicated by [1]) considers direct contact between ecological and human receptors and the impacted groundwater (FIGQ, 2012). These values can be overly conservative and are not applicable to industrial sites where there are no identified human and/or ecological receptors. In these cases, the less-conservative Tier II values (MOE, 2011) are used for data comparisons (indicated by [2]). Selected groundwater criteria are presented in Table 1-1:

PHCs		PAHs		Metals	
Parameter	Criteria (mg/L)	Parameter	Criteria (mg/L)	Parameter	Criteria (mg/L)
F1 (C6-C10)	9.9 [1]	Anthracene	0.0024 [2]	Aluminum (Al)	-
F2 (>C10-	3.1 [1]	Benzo(a)anthracene	0.0047 [2]	Antimony (Sb)	20 [2]
F3 (>C16-	0.5 [2]	Benzo(a)pyrene	0.00081 [2]	Arsenic (As)	1.9 [2]
F4 (>C34)	0.5 [2]	Benzo(b&j)fluoranthene	0.00075 [2]	Barium (Ba)	29 [2]
Benzene	19 [1]	Benzo(b)fluoranthene	0.00075 [2]	Beryllium (Be)	0.067 [2]
Toluene	240 [1]	Benzo(b+j+k)fluorant	0.00075 [2]	Boron (Bo)	45 [2]
Ethylbenzene	150 [1]	Benzo(k)fluoranthene	0.0004 [2]	Cadmium (Cd)	0.0027 [2]

PHCs		PAHs		Metals	
Parameter	Criteria (mg/L)	Parameter	Criteria (mg/L)	Parameter	Criteria (mg/L)
Xylenes	74 [1]	Dibenzo(a,h)anthracene	0.00052 [2]	Chromium (Cr)	0.81[2]
		Fluoranthene	0.13 [2]	Copper (Cu)	0.087 [2]
		Indeno(1,2,3-cd)pyrene	0.0002 [2]	Iron (Fe)	-
		Naphthalene	6.4 [2]	Lead (Pb)	0.025 [2]
		Phenanthrene	0.58 [2]	Mercury (Hg)	0.0028 [2]
		Pyrene	0.068 [2]	Molybdenum	9.2 [2]
				Nickel (Ni)	0.49 [2]
				Selenium (Se)	0.063 [2]
				Silver (Ag)	0.0015 [2]
				Thallium (Tl)	0.51 [2]
				Uranium (U)	0.42 [2]
				Vanadium (V)	0.25 [2]
				Zinc (Zn)	1.1 [2]

TABLE 1-1: CRITERIA FOR NON-POTABLE INDUSTRIAL LAND USE GROUNDWATER

1.7.3 Waste Classification

For waste classification and disposal evaluation, Dillon selected the Man. Reg. 282/87 the Dangerous Goods Handling and Transportation Act Criteria. The selected assessment criteria for leachable metals in soil are as follows:

Parameter	Criteria (mg/L)
Arsenic (As)	5
Barium (Ba)	100
Boron (Bo)	500
Cadmium (Cd)	0.5
Chromium (Cr)	5.0
Lead (Pb)	5.0
Selenium (Se)	1.0
Silver (Ag)	5.0
Uranium (U)	2.0

2.0 SITE INVESTIGATIONS

Surface and subsurface soil investigations were conducted on July 12, 2012, November 16, 2012 and May 13-17, 2013. On-site supervision was conducted by Mr. Cam Brown, P.Eng. and Ms. Nanci Beaupre, C.E.T., of Dillon. Maple Leaf Drilling completed the boring and monitoring well installations. Prior to drilling, Dillon coordinated public underground utility clearances (i.e., telephone, hydro, gas, sewer and water) within the areas of investigation. Drilling services were conducted using a track-mounted Acker MP8 drill rig.

An off-site subsurface investigation was conducted on September 6, 2013. Letters of notification were delivered to the affected properties prior to off-site drill work. Permission by the off-site property owners was received prior to off-site drill work. Off-site shallow boreholes were drilled to a depth of 1.5 m and were overseen by Ms. Nanci Beaupre, from Dillon.

A second groundwater monitoring event was conducted on June 17, 2014.

The methodology used for the field investigation was based upon the suggested methods described in *Subsurface Assessment Handbook for Contaminated Sites, CCME, March 1994* (CCME, 1994); and, Dillon's standard environmental field procedures. Table 2-1 summarizes the methodologies used in this investigation.

Procedure	Instrument Used	Notes
Drilling	• Track-mounted rig • 1.5 m solid stem augers	• Provided by Paddock Drilling Ltd. (2012) • Provided by Maple Leaf Drilling Ltd. (2013) • Augers withdrawn every 1.5 m for sampling at 0.75 m intervals.
Test Pitting	• Excavator	• Provided by Western Specialty Contracting ULC • Sampling intervals at 0-0.15m.
Monitoring Well Development	• Peristaltic Pump • Bailers	• 24 hours after drilled, purged minimum of three (3) times borehole casing volume. Wells were purged a second time prior to sampling.
Soil sample recovery for headspace test	• Hand tools	• Soil samples removed from auger with sterile nitrile gloves. • Samples trimmed to remove soil in contact with borehole wall or auger flights, placed in re-sealable plastic bags and allowed to reach ambient temperature.
Hydrocarbon vapours in soil (headspace test)	• RKI Eagle (with methane elimination mode on)	• Soil in bags broken up, massaged. • Sample probe inserted in bag, bag resealed around sample probe. • Instrument reading recorded on borehole log.
Soil sample recovery for laboratory analysis	• Hand tools • 125 ml glass jars • Teflon-lined lids	• Trimmed soil sample placed in jar using sterile nitrile gloves, gloves disposed of after one use. • Samples sealed in jar and stored at approximately 4ºC.
Geological description	• Hand tools • Visual and other observations	• Lithology and observations recorded on borehole logs. • Observations confirmed with particle size analysis

TABLE 2-1: SUMMARY OF METHODOLGY – SUBSURFACE INVESTIGATION

A topographical site survey was conducted by Dillon on July 6-9 2012 using a Total Station Leicas Data Logger and 40-449 Level. Co-ordinates were tied in on the NAD83 co-ordinate system. 2013 boreholes and monitoring well vertical survey and GPS locations were tied in with the 2012 topographical site survey. Figure 3 details the topographical contours and slopes.

2.1 Test-Pitting to Evaluate Soil Cap and Debris Waste

A test pitting investigation was conducted at the northern portion of the property to evaluate soil cap thickness and integrity, and debris waste thickness, as shown on Figure 3. A total of nineteen (19) test pits (approximately 2 x 5 m) were advanced on the property to a depth of 1.4 - 2.9 m. Test pit stratigraphy was logged and is shown in Appendix A.

2.2 Borehole Investigation and Monitoring Well Installations

A total of fifteen (15) boreholes were advanced on the property using solid stem methods. Boreholes were drilled to a depth of 1.1 – 7.3 m and were overseen by Mr. Cameron Brown and Ms. Nanci Beaupre, from Dillon. Seven (7) of the borehole locations were completed as monitoring wells (Figure 3), with three (3) of the locations as nested monitoring wells. Nested monitoring wells were installed with 0.6 m screen length in the shallow fill layer and 1.5 m screen lengths in the underlying middle clay and deep fill layers. Soils collected from the auger flights were screened for hydrocarbon vapour concentrations using a RKI Eagle prior to submission to the laboratory. All boreholes were backfilled with auger cuttings and bentonite.

2.3 Groundwater Monitoring

Sampling of groundwater was conducted on July 31 and August 1, 2013, and again on June 17, 2014 by Ms. Nanci Beaupre of Dillon. Groundwater was purged prior to sampling. Field measurements were recorded to evaluate purge water stability. Sampling was conducted using a low-flow peristaltic pump and a multimeter to measure field parameters (temperature, dissolved oxygen, conductivity, and pH). An in-line filter (0.45 µm) was used for inorganics and dissolved metals sample collection. Ground water samples were taken from each well and submitted for laboratory analysis of dissolved metals, major ions, turbidity, dissolved oxygen, conductivity and pH.

2.4 Summary

Soil and groundwater samples were submitted for analysis to ALS Laboratories in Winnipeg, Manitoba. Sample locations and sample types are summarized below.

2.4.1 Soil Samples

Select soil samples were submitted for analysis to ALS Laboratories in Winnipeg, Manitoba, based on screening results and visual and olfactory observations. A total of fifty-two (52) samples were submitted for metals, leachate, BTEX, PAH, PCBs and PHC fractions F1 – F4 analyses. The samples were stored on ice in coolers during shipment to the laboratory. Table 2-2 summarizes Soil Sample Numbers, Sample Depths and Laboratory Analyses.

Soil Sample	Sample Date	Sample Depth (m)	Analysis					
			Metals	Leachate	PCBs	PAH	BTEX	PHC (F1-F4)
12-01-01	7/12/2012	0-0.15	X					
12-02-02	7/12/2012	0.61-0.76	X					
12-02-06	12-02-02 FD	0.61-0.76	X					
12-02-03	7/12/2012	1.37-1.52	X					
12-03-01	7/12/2012	0-0.15	X					
12-04-01	7/12/2012	0-0.15	X					
12-04-03	7/12/2012	1.37-1.52	X					
12-05-02	7/12/2012	0.61-0.76	X				X	X
12-05-05	7/12/2012	2.9-3.0	X					
TP-01-02	11/13/2012	2.8	X					
TP-04-03	11/13/2012	1.8	X					
TP-05-03	11/13/2012	2.3	X					
TP-07-03	11/13/2012	2.4	X					
TP-08-02	11/13/2012	1.3		X				
TP-08-03	11/13/2012	2.8				X		
TP-09-03	11/13/2012	2.8				X		
TP-10-02	11/13/2012	1.1		X				
TP-10-03	11/13/2012	2.8	X					
TP-11-03	11/13/2012	2.4				X		
TP-13-02	11/13/2012	2.3	X					
TP-15-02	11/14/2012	1.5		X				
TP-15-03	11/14/2012	2.4	X					
TP-16-03	11/14/2012	2.6	X					
TP-18-03	11/14/2012	2.5	X					
TP-18-04	TP-18-03 FD	2.5	X					
TP-21-03	11/14/2012	1.8	X					
13-01-5.2	13/05/2013	3.5-4.2	X	X				
13-02-1.8	13/05/2013	1.5-2.0	X	X				
13-03-1.1	13/05/2013	0.8-1.3	X	X				
13-04-1.1	13/05/2013	0.8-1.3	X	X				
13-05-1.5	13/05/2013	0.8-1.3	X	X				
13-06-7.3	13/05/2013	0.5-1.0	X	X				
13-07-2.4	13/05/2013	0.5-1.0	X	X				
13-08-1.5	13/05/2013	0.5-1.0	X	X				
13-09-1.1	13/05/2013	0.5-1.0	X	X				
13-10-7.3	13/05/2013	1.2-1.8	X	X				
13-10-7.3 FD	13/05/2013	1.2-1.8	X	X				
13-11-3.7	13/05/2013	0.5-1.0	X	X				

Soil Sample	Sample Date	Sample Depth (m)	Analysis					
			Metals	Leachate	PCBs	PAH	BTEX	PHC (F1-F4)
13-12-1.1	13/05/2013	0.5-1.0	X	X				
13-13-2.0	14/05/2013	0.5-1.0	X		X		X	X
13-14-1.8	14/05/2013	0.5-1.0	X		X		X	X
13-15-1.8	14/05/2013	0.0-0.5	X		X		X	X
13-16-1.8	14/05/2013	0.5-1.0	X		X		X	X
13-17-1.8	14/05/2013	0.5-1.0	X		X		X	X
13-18-1.8	14/05/2013	0.5-1.0	X		X		X	X
13-19-1.8	14/05/2013	1.2-1.8	X		X		X	X
13-19-1.8 FD	14/05/2013	1.2-1.8	X		X		X	X
13-20-1.8	14/05/2013	1.2-1.8	X		X		X	X
13-21-1.8	14/05/2013	1.2-1.8	X		X		X	X
13-22-0.9	9/6/2013	0.3-0.5	X (lead)					
13-23-0.9	9/6/2013	0.3-0.5	X (lead)					
13-24-0.9	9/6/2013	0.3-0.5	X (lead)					

TABLE 2-2: SOIL SAMPLES SUBMITTED FOR LABORATORY ANALYSES

2.4.2 Groundwater Samples

Groundwater samples were submitted from three (3) nested monitoring well locations, and four (4) perched groundwater monitoring wells, to evaluate the lateral and vertical extent of metal impacts in groundwater.

2.5 Quality Assurance/Quality Control Program

Dillon field personnel followed pre-defined field procedures for quality control so that representative samples were collected and that risk of cross-contamination was alleviated.

Blind field duplicate soil and water samples were submitted for laboratory analysis for quality assurance. Field duplicates are collected to evaluate if the data is reproducible within certain limits and provides the precision of the field quality control program. Reproducibility is quantified by calculating the relative percent difference (RPD) defined by the following equation:

$$\text{Field Duplicate RPD (\%)} = \frac{|(C1-C2)|}{(C1+C2)/2} \times 100$$

Where: RPD = relative percent difference

C1 = 'parent' observed values from the field duplicate analysis

C2 = 'duplicate' observed values from the field duplicate analysis

In order for a valid Field Duplicate RPD to be calculated, both results must be > 5 x the Method Detection Limit (MDL). If one or both of the analytical results for the matrix duplicates are < 5 x the MDL for an analyte, then it is not possible to calculate a valid Field Duplicate RPD.

3.0 FINDINGS

3.1 Field Observations

Observations made during the drilling program are recorded on the borehole logs provided in Appendix A of this report, including the hydrocarbon vapour screening results and the depth of each sample collected. The location of the boreholes, monitoring wells and test pits are presented in Figure 4 (attached). Surface elevations were observed to be highest in the center, draining outwards to the edges of the property. Ditches surrounded the north and northwestern portions of the property.

3.1.1 Borehole and Testpit Investigations

The subsurface soil conditions observed during the investigation consisted of surficial sand and gravel fill materials, underlain by layers of silt, clay and glacial till to the maximum depth drilled of 7.4 mbgs. The detailed stratigraphy is illustrated in the borehole and test pit logs attached (Appendix A) and in Cross-Section Fence Diagrams (Figures 5-6). Petroleum hydrocarbon vapours were low, from 0 to 40 ppm, in measured soil samples. Detailed vapour screening results are illustrated in the borehole logs attached (Appendix A).

3.1.2 Soil Cap Thickness, Integrity and Debris Waste Thickness

A test-pitting program was conducted on November 13-14, 2012 to investigate the integrity of the soil cap, soil cap thickness and debris thickness at the northern end of the property (APEC 1, Figures 8 and 9). Test pit logs are shown in Appendix A. Average soil cap thickness was found to be 0.45 m, with a maximum of 0.7 m (TP-08) and a minimum of 0.1 m (TP-13). Based on the observed thickness and geometry, the approximate fill volume overlaying the debris waste layer is 3,100 m^3. No observed buried debris had breached the soil cap to the surface.

The debris waste layer was found to be comprised of building materials and battery casing parts, averaging a thickness of 1.09 m, with a maximum of 1.8 m (TP-17) and a minimum of 0.3 m (TP-21).

Based on the observed thickness and geometry, the approximate buried waste volume is 10,500 m^3. The clay layer underlying the debris was observed to be firm and moist.

3.1.3 Site Topography and Drainage Patterns

The topographical survey conducted in 2012 showed surface drainage patterns that ran to the edges of the Site. The property is graded to a greater elevation towards the center of the Site, promoting run-off patterns to the property edges. Drainage patterns and associated percent slopes are shown in Figure 3. The arrows denote drainage direction, and erosion potential (e.g., thin arrow, less erosion potential, thick arrow, more run-off and erosion potential). Erosion potential is minimal for the southern portion of the Site, as evidenced by the low slopes in Figure 3. However, there is greater erosional potential for the northern portion of the Site.

3.2 Soil Analytical Results

3.2.1 Test Pitting Program

Select soil samples were submitted for analysis to ALS Laboratories in Winnipeg, Manitoba, based on screening results and visual and olfactory observations. A total of seventeen (17) samples, including one (1) field duplicate, were submitted for metals, metal leachate or PAH analyses. Sample locations are noted in Figure 4 and the borehole logs, which are appended to this report. Laboratory analytical results for soil samples are summarized in Appendix B, Table B-1, along with the selected assessment criteria. Sample results for PAHs were below laboratory method detection limits. Soil pH was measured to be neutral to slightly alkaline, ranging from 7.74 – 8.87. Full laboratory data sheets are included as Appendix C. Values exceeding the applicable criteria are shown below on Table 3-1.

Sample ID	Sample Depth (m)	Sample Exceedances (mg/kg)					Leachate Exceedance (mg/L)
		Antimony	Arsenic	Lead	Copper	Nickel	
Criteria		40	12[1,2]	600[1], 8,200[2]	91	50	5.0
TP-01-02	2.8	58.6	31.9	5,860	b.c.	50.5	n.a.
TP-04-03	1.8	56.8	25.2	4,780	182	b.c.	n.a.
TP-05-03	2.3	b.c.	b.c.	1,010	b.c.	b.c.	n.a.
TP-08-02	1.3	n.a.	n.a.	n.a.	n.a.	n.a.	120
TP-10-02	1.1	n.a.	n.a.	n.a.	n.a.	n.a.	179
TP-15-02	1.5	n.a.	n.a.	n.a.	n.a.	n.a.	168
TP-15-03	2.4	b.c.	12.8	4,430	b.c.	b.c.	n.a.
TP-16-03	2.6	b.c.	12.3	1,490	b.c.	b.c.	n.a.
TP-18-03	2.5	b.c.	b.c.	b.c.	b.c.	51.6 *	n.a.

[1]Tier I Criteria
[2]Tier II Criteria
*Reported value is the average with field duplicate.
Bold indicates exceedances of Tier II Criteria.
b.c. denotes below criteria
n.a. denotes not analyzed for parameter

TABLE 3-1: SAMPLE ANALYTICAL EXCEEDANCES OF SOIL CRITERIA

Soil samples were taken near the bottom debris-soil interface. Results indicate some vertical impacts associated with lead migration in the debris area. Leachate test results indicate that the form of lead present at Site can be mobilized by decreasing pH. However, lead mobility may be mitigated by the native, slightly alkaline soil pH. Further impacts related to vertical migration were assessed in the 2013 borehole investigation and are discussed in the following section.

3.2.2 2012 Borehole Investigation – APEC 2

Borehole investigations were initiated in 2012, with five (5) boreholes drilled along the southeastern edge of the former building locations (Figure 3). A total of nine (9) samples at varying depths were taken from boreholes and submitted for metals, BTEX, and PHC fractions F1 – F4 analyses. Borehole logs can be found in Appendix A. Soil samples with concentrations of metals that exceed the applicable criteria are shown below on Table 3-2. Full laboratory analyses are summarized in Appendix B.

Sample ID	Sample Depth (m)	Sample Exceedances (mg/kg)							
		Sb	As	Cd	Cu	Pb	Ni	Se	Zn
Criteria		40	12[1,2]	22[1], 2,090[2]	91	600[1], 8,200[2]	50	2.9	360
12-01-01	0-0.15	1,060	368	25.7	4,680	53,400	71.7	9.08	750
12-02-02	0.61-0.76	111*	31.5*	b.c.	94.7*	4,431*	48.9*	b.c.	b.c.
12-02-03	1.37-1.52	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.
12-03-01	0-0.15	517	226	b.c.	1,000	46,200	76.4	5.18	740
12-04-01	0-0.15	525	132	b.c.	560	33,700	b.c.	3.51	b.c.
12-04-03	1.37-1.52	b.c.	b.c.	b.c.	b.c.	b.c.	50.6	b.c.	b.c.
12-05-02	0.61-0.76	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.
12-05-05	2.9-3.0	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.	b.c.

[1]Tier I Criteria
[2]Tier II Criteria
*Reported value is the average with field duplicate.
Bold indicates exceedances of Tier II Criteria.
b.c. denotes below criteria
n.a. denotes not analyzed for parameter

TABLE 3-2: SAMPLE ANALYTICAL EXCEEDANCES OF SOIL CRITERIA – 2012 BOREHOLE INVESTIGATION

Results indicate that metal impacts are limited to the upper fill layers and are not observed in the underlying clay layers in this region of the property. Downwards vertical migration in soils does not appear to have occurred in this region of the property below the fill layer, consistent with findings by IDS, in 1991.

3.2.3 2013 Borehole Investigation

Based on results from the 2012 test pitting and borehole program (shown in Figure 3), further site investigations were conducted to evaluate potential horizontal and downwards vertical impacts, and potential groundwater impacts. Waste records from building demolition initiated in 2012 by Dillon listed potential PCB and mercury wastes. After the building was demolished, Dillon initiated a shallow borehole investigation to evaluate the extent of impacts on the southern end of the Site in May 2013 (APEC 2). In total, twenty-one (21) boreholes were drilled on the property. Fifteen (15) shallow boreholes were drilled to a maximum depth of 1.5 m to evaluate the extent of impacts across the fill layer of the Site (APEC 2). Borehole logs can be found in Appendix A. Soil sample exceedances are shown below on Table 3-3. Full laboratory analyses are summarized in Appendix B.

Sample ID	Sample Depth (m)	Sample Exceedances (mg/kg)										
		Sb	As	Cd	Cr	Cu	Pb	Ni	Se	Th	Sn	Zn
Criteria		40	12[1,2]	22[1], 2,090[2]	87	91	600[1], 8,200[2]	50	2.9	1	300	360
13-03-1.1	1.1	636	280	b.c.	b.c.	667	17,300	52.7	b.c.	b.c.	304	395
13-04-1.1	1.1	97.5	75.5	b.c.	b.c.	367	9,250	b.c.	b.c.	b.c.	b.c.	b.c.
13-05-1.5	0.8	552	227	b.c.	b.c.	252	25,700	b.c.	3.00	b.c.	b.c.	b.c.
13-06-7.3	0.8	441	251	33.9	b.c.	1,300	24,200	b.c.	5.20	b.c.	b.c.	b.c.
13-07-2.4	0.8	389	238	43.7	b.c.	307	25,200	b.c.	5.12	b.c.	b.c.	b.c.
13-08-1.5	0.8	1370	653	108	b.c.	391	47,200	b.c.	18.3	1.98	364	b.c.
13-10-7.3	1.2	982*	516*	b.c.	b.c.	695*	33,900*	69.1*	2.95*	1.18*	1,010*	550*
13-11-3.7	0.8	1420	858	b.c.	100	1150	37,200	92.9	3.06	1.33	1160	570
13-12-1.1	0.8	959	523	b.c.	b.c.	730	27,600	74.7	b.c.	1.06	930	770
13-13-2.0	0.8	b.c.	22.1	b.c.	b.c.	158	1,640	b.c.	b.c.	b.c.	b.c.	b.c.
13-15-1.8	0.01	186	64.2	b.c.	b.c.	b.c.	9,310	b.c.	5.79	b.c.	b.c.	b.c.
13-16-1.5	0.8	1,720	1,200	30.6	b.c.	200	30,300	54.8	2.93	b.c.	b.c.	b.c.
13-17-1.8	0.8	205	64.4	b.c.	b.c.	1,390	14,200	72.7	3.56	b.c.	1,000	2,100
13-18-1.8	0.8	50	80.9	b.c.	b.c.	b.c.	5,110	b.c.	b.c.	b.c.	b.c.	b.c.

[1]Tier I Criteria
[2]Tier II Criteria
*Reported value is the average with field duplicate.
Bold indicates exceedances of Tier II Criteria.
b.c. denotes below criteria
n.a. denotes not analyzed for parameter

TABLE 3-3: SAMPLE ANALYTICAL EXCEEDANCES OF SOIL CRITERIA – 2013 BOREHOLE INVESTIGATION

Sample data sets were combined from 1991 to 2013 to evaluate the horizontal and vertical limits of lead in soil. Lead in soil concentration contours at varying depth intervals are presented in Figures 10-13.

Lead concentrations in soil were found to exceed federal soil quality guidelines (600 mg/kg) to depths greater than 2 m (in both APECs 1 and 2). No lead concentrations in soil were observed to exceed Tier II criteria at depths greater than 3 m. Lead concentrations in soil decrease in orders of magnitude from approximately 100,000 mg/kg at the surface (TH15, TH16, IDS 1991) to approximately 1,600 and 400 mg/kg at a depth greater than 2 mbgs for the same sample locations. These results indicate that although downward vertical migration of lead has occurred, mobility appears to be reduced by interactions with the soil substrate. The volume of soil that exceeds the Tier I Soil Quality Guideline (SQG) (600 mg/kg) on the southern portion of the property is estimated to be approximately 8,000 m^3.

Lead concentrations that exceeded the Tier II guideline for soil were not observed to extend to depths greater than 1.5 m during historical or Dillon's 2012 and 2013 investigations in the southern portion of the property. The volume of impacts that exceed SQG for lead on industrial sites for human health ingestion is much reduced (3,240 m^3), assuming an aerial extent of 2,160 m^2 and an observed depth to impacts of 1.5 mbgs.

3.2.4 TCLP Analyses

Leachate tests were conducted on soil to evaluate lead mobility in soil and waste classification. These tests evaluate leachability under acidic conditions. There appears to be some linear correlation between lead concentrations in soil and leachate, as approximately 74% of the variance in concentrations in soil can be explained by concentrations of leachate (n = 13, r2 = 0.7438, 2013 data). This correlation indicates that for this Site, as lead in soil concentrations increase, leachable lead concentrations also increase. Some lead remains 'unbound' from the soil and is able to be mobilized in an aqueous form with decreasing pH, as evidenced by TCLP analytical results. Samples that contain debris materials are highly heterogeneous in composition and were observed to contain elevated levels of lead. Lead associated with debris materials and not bound up in a soil matrix are likely to be present be in a more leachable form. Leachate concentrations exceeding SQG for both cadmium and lead were observed, and are detailed below on Table 3-4.

Sample ID	Sample Depth (m)	Sample Exceedances (mg/L)	
		Cd	Pb
Criteria		0.5	5
13-03-1.1	1.1	b.c.	43.5
13-04-1.1	1.1	b.c.	25.7
13-05-1.5	0.8	b.c.	101
13-06-7.3	0.8	b.c.	155
13-07-2.4	0.8	b.c.	89.7
13-08-1.5	0.8	1.38	82.7
13-10-7.3	1.2	b.c.	89.3*
13-11-3.7	0.8	b.c.	238
13-12-1.1	0.8	b.c.	104

*Reported value is the average with field duplicate.
b.c. denotes below criteria

TABLE 3-4: SAMPLE ANALYTICAL EXCEEDANCES OF TCLP CRITERIA – 2013 BOREHOLE INVESTIGATION

3.2.5 Off-Site Impacts

West of the Site

Dillon reviewed previous reports for the neighbouring property adjacent to the western border of the Site (2201 Logan Avenue). Historical sampling locations and off-site investigations are summarized in Figure 4. Impacts were found at 2201 Logan Avenue at a depth of less than 1 m. Three (3) samples were found to contain analytical concentrations of lead in soil that exceeded applicable SQG criteria (KGS, 2005). Two (2) of these sample locations were taken from an area adjacent to the Site property (KGS, 2005). A Phase II ESA conducted by Wiebe in 2013 observed that lead impacts were surficial (restricted to the upper 0.30 m of soil), and did not exceed the Tier II SQG of 8,200 mg/kg for lead on industrial sites for human health ingestion. Two (2) samples were observed to exceed SQG for the protection of environmental health (600 mg/kg, soil ecological contact pathway).

Previous ESAs conducted at 2201 Logan Avenue noted lead impacts in surficial soil at depths less than 1 m. The most significant impacts were observed along the east boundary of the site, along the property line shared with Northwest Smelting and Refining property (KGS, 2005). One soil sample in 2005 was observed to have concentrations exceeding the Tier II SQG Criteria (TP2-1, sample depth 0.25 – 0.3 m). More recently, Phase II ESA results at 2201 Logan Avenue (Wiebe, 2013) observed lead concentrations in soil to exceed Tier I SQG Criteria. Soil concentrations were observed to be below Tier II SQG Criteria. The total estimate volume of lead impacted soil exceeding Tier I SQG Criteria is 390 m^3, based on an estimated area of impacts of 1,300 m^2 and an assumed depth of impacts to 0.3 m.

North of the Site

Based on the current site observations, Dillon conducted a shallow drilling program on the neighbouring property adjacent to the northern property line. Samples were observed to contain elevated analytical concentrations of lead in soil; however, concentrations were found to be below the applicable SQG criteria for both environmental and human health.

East of the Site

Off-site investigations were not pursued in the property immediately east of the southern portion of the property (2141 Logan Avenue). Historical investigations have observed surficial lead impacts in soil and shallow ground water in two (2) boreholes (BH202 and BH203) at the 165 Ryan St. property. Lead concentrations in soil were observed to exceed Tier I Criteria (2,530 mg/kg) at BH202 at a depth of 1 m. No exceedances of Tier II Criteria were observed. Dissolved lead in groundwater concentrations were reported to be below or within the Guidelines for Freshwater Aquatic Life of 0.001 to 0.007 mg/L, and the Guidelines for Canadian Drinking Water Quality of 0.01 mg/L. Off-site impacts do not appear to extend east of Ryan Street.

3.3 Groundwater Monitoring

Monitoring wells were completed during the 2013 subsurface investigations. In total, thirteen (13) of these boreholes were completed as monitoring wells, as depicted on Figure 3. Six (6) shallow boreholes were completed as monitoring wells. Three (3) locations were completed as a cluster of monitoring wells, evaluating groundwater flow and potential impacts in the three stratigraphic layers (fill, native silt/clay and till). Monitoring well construction details are presented in Appendix A with borehole log data. Results from groundwater monitoring will be discussed in the following section.

3.3.1 Field Observations

In May 2013 and June 2014, Dillon measured groundwater elevations. Measured groundwater below ground surface were observed to range between 1.35 (13-13, Fill layer) and 3.61 (13-10, Till layer). Water level measurements at metres below ground surface (mbgs) are shown on Table 3-5.

Monitoring Well ID	Screened Stratigraphy	Water Level Measured 2013 (mbgs)	Water Level Measured 2014 (mbgs)
13-01	Till	Dry	1.51
13-02	Clay	Dry	0.70
13-03	Fill	0.55	0.09
13-04	Fill	0.60	0.27
13-05	Fill	Dry	Damaged
13-06	Till	2.07	1.51
13-07	Clay	1.47	1.35
13-08	Fill	1.49	1.37
13-09	Clay	0.47	Dry
13-10	Till	2.60	2.49
13-11	Clay	1.69	1.52
13-12	Fill	Dry	Dry
13-13	Fill	0.59	0.35

TABLE 3-5: WATER LEVELS MEASURED (MBGS) MAY 2013 AND JUNE 2014

Field pH and redox measurements were taken from monitoring well locations where sampling conditions permitted (i.e., ample well water during in-line flow sampling). Due to sampling volume limitations, pH and redox measurements were not taken at all monitoring well sample locations in 2013. Field observations are shown below on Table 3-6. In comparing field measured parameters to laboratory-derived measurements, stability is noted between field and laboratory measurements, with the exception of sample 13-07. Measured pH values were observed to increase in samples between field and laboratory sampling. Increased turbidity in the laboratory was noted for sample 13-07, indicating that precipitate may have formed during sample storage prior to analysis. Some differences between field-measured parameters and laboratory measured parameters are to be expected, associated with temperature and redox changes during storage prior to analysis.

Monitoring Well ID	Screened Stratigraphy	Field pH		Field Oxidation Reduction Potential (mV)		Turbidity (NTU)	Specific Conductance (µS/cm)	Dissolved Oxygen	
		2013	2014	2013	2014	2013	2014	2013	2014
13-01	Till	7.09	7.52	-40.1	-42.1	6.79	14,140	0.00	1.55
13-02	Clay	n.m.	7.37	n.m.	-44.2	n.m.	8,372	n.m.	2.00
13-03	Fill	n.m.	7.11	n.m.	-42.2	n.m.	3,250	n.m.	1.52
13-04	Fill	n.m.	7.36	n.m.	n.m.	n.m.	2,404	n.m.	2.27
13-06	Till	7.05	7.68	-11.8	n.m.	4.70	9,695	0.00	1.56
13-07	Clay	6.94	7.62	-48.0	n.m.	1.89	2,843	0.53	2.14
13-08	Fill	n.m.	7.56	n.m.	n.m.	n.m.	2,997	n.m.	4.65
13-10	Till	6.65	7.07	-7.6	n.m.	3.62	6,205	0.00	1.33
13-11	Clay	n.m.	7.42	n.m.	n.m.	n.m.	3,534	n.m.	2.46
13-13	Fill	n.m.	7.39	n.m.	-66.3	n.m.	1,592	n.m.	4.60

n.m. denotes not measured.

TABLE 3-6: FIELD PARAMETERS MEASURED MAY 2013 AND JUNE 2014.

3.3.2 Hydraulic Conductivity Testing and Groundwater Flow

Field slug tests were conducted in the fill, clay and till layers in 2013. Hydraulic conductivity was calculated using the Bouwer and Rice method. Greater hydraulic conductivity was seen in the upper layers in the following order:

- MW 13-13 (fill/silty clay, 3.02 x10^{-4} cm/s).
- MW 13-11 (silty clay, 5.14 x10^{-6} cm/s).
- MW 13-10 (tight till, 1.7 x 10^{-7} cm/s).

A local vertical survey was conducted for monitoring wells to enable the calculation of horizontal and vertical gradients and evaluate groundwater flow direction. Calculated hydraulic gradients based on observed groundwater elevations and flow direction are summarized on Table 3-7. Most notable are the differences between measured calculated gradients and velocities in the clay unit, between 2013 and 2014, likely attributable to well recovery between installation and monitoring.

The observed shallow groundwater flow direction is depicted in Figure 7. Groundwater in the fill stratigraphy appears to flow outwards from the site, following site topography, although the dominant calculated flow direction is to the northwest, matching the till groundwater flow direction observed in 2014.

Vertical gradients were calculated for the available data from nested monitoring well locations. Greater downwards gradients were observed in nested monitoring well locations 13-01,-02,-03 and in 13-10,-11, ranging from 0.23 to 0.88. The downwards vertical gradient of 0.88 was noted between the fill and clay units at 13-02/13-03. Lesser downwards gradients were observed at nested monitoring well location 13-06,-07,-08, ranging from 0.002 to 0.12.

Screened Stratigraphy	Hydraulic Gradient		Flow Direction		Calculated Average Velocity (x 10^{-8} m/s)	
	2013	2014	2013	2014	2013	2014
Fill	0.002	0.008	NW	NW	2.7	9.0
Clay	0.01	0.0001	NE	NE	6.5	0.09
Till	n.c.	0.01	n.c.	NW	n.c.	18

n.c. denotes not calculated.
NE denotes Northeast
NW denotes Northwest
Porosities used for Calculated Average Velocity (Fill = 0.3, Clay = 0.5, Till = 0.2).

TABLE 3-7: GROUNDWATER FLOW OBSERVATIONS

3.3.3 Analytical Results

Dillon collected groundwater samples on July 31 and August 1, 2013 from seven (7) of the thirteen (13) monitoring wells. The remaining six (6) monitoring wells were too dry for sampling at the time of site visit. Groundwater samples with concentrations exceeding the applicable criteria are shown on Table 3-8. Full laboratory analyses are summarized in Appendix B. Groundwater impacts were observed in each stratigraphic unit at this Site (fill, silt/clay, till). The greatest concentrations of lead in groundwater were observed in the till layer (the deepest stratigraphic layer, adjacent to limestone bedrock). The source and extent of vertical migration is unclear, as impacts were not observed in corresponding soil samples at the same depth. Analytical concentrations of lead in groundwater

sampled from nested monitoring wells (13-01 Till, 13-02 Clay; 13-10 Till, 13-11 Clay) indicate that there may be downwards vertical migration from on-Site impacts, or off-site impacts that affect the deep groundwater.

Monitoring Well ID	Screened Stratigraphy	Cadmium (mg/L)		Lead (mg/L)	
		2013	2014	2013	2014
Criteria		0.0027		0.025	
13-01	Till	b.c.	n.d.	0.0755	0.109
13-02	Clay	b.c.	0.005	0.0462	0.317
13-03	Fill	n.a.	0.008	n.a.	0.155
13-04	Fill	n.a.	b.c.	n.a.	0.163
13-05	Fill	n.a.	n.a.	n.a.	n.a.
13-06	Till	0.005 *	0.005 *	0.114 *	0.113 *
13-07	Clay	0.010	0.011	0.445	0.196
13-08	Fill	n.a.	n.a.	n.a.	n.a.
13-09	Clay	n.a.	n.a.	n.a.	n.a.
13-10	Till	0.0041	0.003	0.636	0.650
13-11	Clay	0.0028	0.006	0.435	0.305
13-12	Fill	n.a.	n.a.	n.a.	n.a.
13-13	Fill	b.c.	b.c.	b.c.	0.044

*Reported value is the average with field duplicate.
b.c. denotes below criteria
n.a. denotes not available
n.d. denotes not detected (i.e., below analytical detection limits)

TABLE 3-8: SAMPLE ANALYTICAL EXCEEDANCES OF GROUNDWATER CRITERIA

Based on available field observations and laboratory analytical data, groundwater chemistry was observed to be consistent between 2013 and 2014, as evidenced by similar measured analyte concentrations and specific conductance (overall dissolved analytes). Minor shifts in pH, and concentrations are anticipated between the two (2) sampling periods. Greater concentrations of lead in groundwater were observed at 13-02 during the 2014 monitoring period. The overall groundwater chemistry remains similar between 2013 and 2014 for 13-02. This discrepancy may be attributable to changing groundwater flow conditions in the shallow groundwater (i.e. sampling in 2014 conducted shortly after precipitation event), or potential field filtration sampling issues. All samples submitted for metals were field filtered. The 2014 groundwater monitoring program re-affirmed observed concentrations in 2013 and enabled data collection from previously unavailable monitoring wells.

Groundwater impacts were observed to be greatest at depth in the clay and till in two locations: 13-11/13-12 to the southeast of the northern portion of the Site, and 13-06/13-07, to the northwest of the northern portion of the Site. Both locations are adjacent to the APEC 1, the North End Dump Site.

3.4 QA/QC Data

Duplicate samples were submitted for analysis of PAHs, BTEX, PHC Fractions F1 to F4 and metals. The blind duplicate was prepared in the field by the sampler. The purpose of this sample was to determine if any unintentional contamination occurred from atmospheric effects, equipment or sampler effects.

The results of the RPD calculations for the blind field duplicates are presented on summary tables A-16 to A-20 in Appendix A. RPD analysis of the blind field duplicate samples indicated the laboratory analysis for hydrocarbon, metals and PAH parameters were within the acceptable RPD range (0-30% for soil, 0-25% for water) where valid RPD values were calculable. High variability was seen in soil field duplicates that contained debris material. The variability is attributable to the highly heterogeneous nature of the debris and soil matrix.

Laboratory quality assurance testing such as matrix spike, spike blanks, method blanks and RPD were within acceptable laboratory limits for analyses conducted in soil and surface water samples. Results of laboratory QA/QC analyses are included in the laboratory certificates of analysis in Appendix D. Laboratory quality control results satisfied laboratory acceptance criteria. The laboratory's QA/QC program showed an acceptable (not applicable) relative percent difference. The laboratory's surrogate spike recovery sample results were also within the acceptable range for soil samples analyzed.

4.0 DISCUSSION OF RESULTS

4.1 Metals-Impacted Soils

Lead concentrations in soil were found to exceed federal soil quality guidelines (600 mg/kg) to depths greater than 2 m. Lead concentrations in soil were observed to exceed Tier I criteria at depths greater than 2 mbgs (Dillon 2012 - TP-01-02, 2.8 mbgs, 5,860 mg/kg; IDS 1991 - 1R8, 2.9-3.2 mbgs, 13,100 mg/kg). No Tier II criteria exceedances were noted at depths below 3 m in 2012/2013 for lead concentrations in soil. Tier II criteria exceedances were observed at depths of 2.8 m at TP-01-02 for arsenic (31.9 mg/kg). Tier I criteria exceedances were noted at the same sampling location for both nickel and antimony. In areas containing buried waste, such as in the northern portion of the Site, elevated concentrations of metals in soil are anticipated.

The Tier I guidelines for the protection of human health for arsenic in soil is protective of human health (soil ingestion). This exposure pathway is not relevant at 2.8 mbgs. The ecological soil contact pathway is not the most applicable criteria given site and surrounding land use. The next most applicable soil criteria for the protection of environmental health is the off-site migration check (arsenic, 140 mg/kg), which is greater than the arsenic concentrations observed in soil at 2.8 mbgs. As discussed above in Section 1.7, the off-site migration check criteria was designed to protect sensitive neighbouring properties, which is not the scenario for this site location.

Nickel concentrations in soil were observed to exceed Tier I guidelines. There is no soil ingestion pathway guideline for this metal, nor is there an off-site migration check guideline for the protection of environmental health. The next most applicable guideline is the nutrient and cycling check at 182 mg/kg for nickel in soil. The values observed in soil do not exceed this guideline.

There is no additional criteria for antimony in soil provided by the CCME, however the depth to impacts is 2.8 mbgs, effectively cutting off most applicable exposure pathways.

The volume of soil that exceeds the SQG on the southern portion of the property is approximately 10,000 m^3. Lead concentrations that exceeded the Tier II guideline for soil were not observed to extend to depths greater than 1.5 m during historical or Dillon's 2012 and 2013 investigations in the southern portion of the property. The volume of impacts that exceed SQG for lead on industrial sites for human health ingestion is much reduced (3,240 m^3), assuming an aerial extent of 2,160 m^2 and an observed depth to impacts of 1.5 mbgs.

Despite the high metal concentrations in soil samples, mobility of metals are likely to be attenuated in the native soils. Mobility of lead and cadmium at this Site is reduced by two factors:

- the native soils capacity for cation adsorption.
- the increased pH associated with high carbonate content.

Soluble lead added to soil reacts with clays, phosphates, sulphates, carbonates, hydroxides and organic matter, greatly reducing lead solubility. At pH values greater than six (6), such as found at this Site, lead is adsorbed on clay surfaces or forms carbonates. Competing cations limit sorption of lead to soils and surfaces; however, clays in the Winnipeg region tend to be dominated by montmorillonite-illite (Quigley, 1968) and have a greater ability to adsorb cations, such as lead.

Location	Exceedance of Applicable Guidelines	Total Volume of Soil Exceeding CCME SQG Tier I Criteria m^3	Volume of metals impacted soil exceeding CCME SQG Tier II Criteria m^3	Comments
APEC 1	Metals in Soil	3,100	0	Exceeds Man. Reg. 282/87. If disposed off-site, must be transported and disposed in a hazardous waste facility.
APEC 2	Metals in soil	10,000	3,240	Exceeds Man. Reg. 282/87. If disposed off-site, must be transported and disposed in a hazardous waste facility.

TABLE 4-1: SUMMARY OF IMPACTED SOILS AT NWSR

Leachate tests were conducted on soil to evaluate lead mobility in soil. There appears to be some correlation between lead concentrations in soil and leachate ($n = 13$, $r^2 = 0.7438$, 2013 data). This correlation indicates that for this Site, as lead in soil concentrations increase, leachable lead concentrations also increase. Some lead remains 'unbound' from the soil and is able to be mobilized in an aqueous form with decreasing pH, as evidenced by TCLP analytical results. Samples that contain debris materials are highly heterogeneous in composition and can contain elevated levels of lead. Debris materials would not be bound up in a soil matrix, and would be in a leachable form. Observed analytical exceedances, with the exception of samples 13-03-1.1 and 13-04-1.1, were taken near debris/potentially containing debris. Values shown on Table 4-2 represent maximum soil concentrations observed, with the average value given in parenthesis ().

Parameter	Soil Concentrations		Comparative Criteria	
	Extractable (mg/L)	Total (mg/kg)	Extractable[1] (mg/L)	Total[2] (mg/kg)
Antimony (Sb)	0.65 (<0.50)	1,720 (278)	5.0	40
Arsenic (As)	<0.20	1,200 (146)	100	26[3]
Barium (Ba)	0.77 (<0.50)	1,550 (260)	-	2,000
Beryllium (Be)	<0.50	1.3 (0.7)	500	8
Bismuth (Bi)	n.v.	5.4 (1.0)	0.5	-
Boron (B)	<5.0	157 (38)		
Cadmium (Cd)	1.4 (0.4)	108 (8.3)	-	22; 2,090[4]
Chromium (Cr)	<0.5	100 (31)	-	87
Cobalt (Co)	<0.20	79 (25)	-	300
Copper (Cu)	<0.50	1390 (197)	-	91
Lead (Pb)	238 (119)	47,200 (17,167)	5.0	600; 8,200[4]
Molybdenum (Mo)	<0.050	620 (197)	-	40
Nickel (Ni)	<0.50	93 (25)	1.0	50
Selenium (Se)	<0.20	6,110 (1600)	1.0	2.9
Silver (Ag)	<0.50	45 (5.3)	5.0	40
Thallium (Tl)	<0.10	4,470 (582)	-	3.6[3]
Tin (Sn)	<0.050	1,160 (251)	2.0	300

Uranium (U)	< 0.050	2.8 (1.0)	-	300
Vanadium (V)	< 0.50	258 (54)	-	130
Zinc (Zn)	51.7 (< 0.50)	2,100 (284)	-	360

[1]Manitoba Regulation 282/87, the Dangerous Goods Handling and Transportation Act (C.C.S.M. c. D12)
[2]Canadian Council of the Ministers of the Environment Soil Environmental Quality Guidelines for the Protection of Environmental and Human Health (1999), Industrial Land Use.
[3]Manitoba Conservation and Water Stewardship Guideline: Criteria for Acceptance of Contaminated Soil at Licensed Waste Disposal Grounds (2002). Guideline 2002-02E.
n.v. denotes no value.
Where two values are presented: maximum concentration observed (average concentration observed)
[4]Canadian Council of the Ministers of the Environment Soil Environmental Quality Guidelines for the Protection of Environmental and Human Health (1999), Industrial Land Use, Soil-Ingestion Pathway.

TABLE 4-2: SUMMARY OF SELECTED COMPARATIVE CRITERIA

Soils that are identified as being regulated will be managed following applicable regulations. In cases where co-contamination of soils is present, the most conservative management option that addresses both contaminants should be applied.

4.1.1 APEC 1 – North End Dump

The North End Dump area was sampled extensively by IDE in 1991. Waste mixed with soil samples were submitted separately from soils for laboratory analysis of lead and leachable lead. Based on the observed concentrations in sample results, it can be assumed that the volume of waste debris estimated at 10,500 m^3 exceeds applicable SQG for both environmental and human health. The estimated volume of impacts associated with lead concentrations in soil exceeding applicable criteria are shown below:

Exceedance of Applicable Guidelines	Total volume of soil and waste exceeding CCME SQG Tier I Criteria m^3	Volume of metals impacted soils and waste exceeding CCME SQG Tier II Criteria m^3	Comments
Metals in Soil & Waste	13,600	10,500	Exceeds Man. Reg. 282/87. If disposed off-site, must be transported and disposed in a hazardous waste facility.

TABLE 4-3: SUMMARY OF IMPACTS IN APEC-1

4.1.2 APEC 2 – Surficial Impacts, Southern Portion of Site

The Southern portion of the Site has been sampled extensively. Soil samples were submitted for laboratory analysis of metals and leachable metals. Based on the observed concentrations in sample results, it can be assumed that the volume of soil estimated at 10,000 m^3 (assuming an aerial extent of 10,000 m^2, accounting for foundation flooring with an observed depth to impacts of 1.5 mbgs) exceeds applicable Tier I SQG for the protection of environmental health. Bulk metal

impacts above CCME SQG Tier II Criteria (for the protection of human health) are estimated to be 2,500 m^3, assuming an aerial extent of 2,160 m^2 and an observed depth to impacts of 1.5 mbgs. The estimated volume of impacts associated with lead concentrations in soil exceeding applicable criteria are shown below:

Exceedance of Applicable Guidelines	Total volume of soil and waste exceeding CCME SQG Tier I Criteria m^3	Volume of metals impacted soils and waste exceeding CCME SQG Tier II Criteria m^3	Comments
Metals in Soil	10,000	3,240	Exceeds Man. Reg. 282/87. If disposed off-site, must be transported and disposed in a hazardous waste facility.

TABLE 4-4: SUMMARY OF IMPACTS IN APEC-2

4.2 APEC 3 - Groundwater

Discerning between Site impacts in groundwater and the surrounding properties may prove to be difficult as several properties adjacent to and within the immediate vicinity of the Site have current or historic industrial uses that involved metals handling and processing. Elevated concentrations of lead and cadmium were observed in both shallow and deep groundwater throughout the Site, including locations up-gradient from impacted soil (13-13), or observed on-site potential sources.

The greatest impacts were seen at an area that is slightly south of the debris pile. In 2013, greater laboratory-measured turbidity was observed in samples 13-07 and 13-11, potentially contributing to a positive associated with metals in groundwater concentration. Based on the observed concentrations in field-filtered 2014 groundwater samples, it can be concluded that the increased turbidity is associated with the handling times and storage conditions, as the samples were field-filtered and preserved.

Monitoring Well ID	Laboratory pH	Field pH
13-01	7.67	7.09
13-06	8.10	7.05
13-07	7.69	6.94
13-10	7.30	6.65

TABLE 4-5: COMPARISON OF FIELD-MEASURED TO LABORATORY-MEASURED PH (2013 DATA)

As noted previously, the greatest impacts were noted at the northern portion of the Site, adjacent to APEC 1. Proximity to concentrated waste and potential for metals leaching into groundwater may contribute to elevated cadmium and lead concentrations at greater depths. The observed downwards direction of the vertical hydraulic gradient at all stratigraphies at the Site in 2014 support this finding.

The installation/shut down of a pumping well in the nearby vicinity could impact groundwater flow direction. Production wells for industrial use were identified at the following locations (GWDrill, 2013):

- 2150 Logan Avenue, SW Corner of Building, installed 1979; Cadorath Plating.

- 2150 Logan Avenue, SW Corner of Building, installed 1998; Cadorath Plating.
- 1860 King Edward Street, NW Corner of Plant, installed 1992; Perth's Services.

The proximity of 2150 Logan Avenue to the Site indicates that a production well for industrial use at this location could impact interpretations of groundwater flow direction. The well's location could offer an explanation to the 'radial' groundwater flow pattern – pulling water towards the south west of the Site. The presence of an industrial use production well at 2150 Logan Avenue does not appear to impact the lead in groundwater concentration gradient observed at the Site.

Lead concentrations in groundwater do not appear to be correlated with the soil leachate results taken from the screened intervals ($n=7$, $r^2=0.3422$, 2013 data). However, there does appear to be a weak correlation with lead concentrations in soil ($n=7$, $r^2=0.7681$, 2013 data). These results are indicative that in some areas on site, the soil matrix is heterogeneous and contains debris. The debris corresponds with high lead in 'soil' concentrations and contains unbound, readily mobilized lead. The metals antimony, cadmium, calcium, copper, molybdenum, nickel and uranium have weak correlations with lead concentrations in groundwater ($n=8$, $r^2=0.5$ to 0.6), indicating that these may have originated from a similar source.

Lead is the least mobile of the heavy metals (Kabata-Pendias and Pendias, 1992) and accumulates in the surface horizons of soils and is not usually leached (Davies, 1990). Lead is most available under soft, acidic conditions and precipitates as hydroxides, phosphates and carbonates as pH increases. In association with manganese oxides, the solubility of lead decreases as divalent lead (Pb^{2+}) is oxidized to Pb^{4+}. There is limited availability of lead in all soils unless the cation exchange capacity is saturated and lead is present in soluble organic complexes (NRCC, 1978).

Geochemical analyses (using AQUACHEM and PHREEQCi) of the groundwater concentrations indicate active carbonate and dolomite (source rock) weathering, a process that rapidly immobilizes Pb^{2+} from aqueous solutions. However, organics present in solutions and natural waters can mobilize Pb^{2+} from Pb^{2+}-calcite phases.

The geochemical analyses, observed concentrations in soil and groundwater, and observed groundwater flow conditions (downwards vertical gradient) support the hypothesis that the greater concentrations in groundwater at the northern portion of the Site are associated with the buried waste materials in APEC 1.

As noted in Section 3.2.5, off-site impacts in groundwater were not observed to the east of Ryan Street.

4.3 Data Gaps and Recommendations for Future Data Collection

4.3.1 APEC 1 – North End Dump Site

No further data gaps were identified for the North End Dump Site. The waste debris volume, thickness and composition are known. The soil cap integrity, thickness and composition are known. Contaminants of concern have been identified and delineation has been achieved both horizontally and vertically. Further work associated may follow, as recommended by a site-specific risk assessment and/or management program. Based on the results from field investigations in 2013, minimal off-site impacts were observed to the north of this APEC. All off-site results were observed to be below the applicable criteria.

4.3.2 APEC 2 – Surficial Impacts, Southern Portion of Site

No further data gaps were identified for the surficial impacts at the southern end of the Site. Soil stratigraphy has been identified for the area, with the exception of the property to the east of the southern end of the site. Contaminants of concern have been identified and delineation has been achieved both horizontally and vertically. Based on results from field investigations conducted in 2013, off-site impacts were observed to the west of the subject site. Further work may follow, as recommended by a site-specific risk assessment and/or management program.

4.3.3 APEC 3 – Groundwater

At the end of the 2013 groundwater monitoring investigation, data gaps were identified for understanding the site conceptual model with respect to groundwater impacts. Groundwater gradients and flow direction were confirmed in a subsequent groundwater monitoring program (in 2014).

Contaminants of concern have been identified at the Site. A second groundwater monitoring event was conducted to confirm observed impacts following the initial sampling event. Downwards vertical gradients were observed within all measured stratigraphic units. The proximity to buried waste combined with the downwards vertical gradient support the hypothesis that the greater concentrations in groundwater at the northern portion of the Site are associated with the buried waste materials in APEC 1. The stabilization or removal of materials in APEC 1 will likely improve impacts in the deep groundwater.

Further investigations may be required to identify impacts associated in the deep groundwater at the northeastern section of the property. Groundwater samples submitted for isotope analysis may help to differentiate between on-site and off-site impacts.

Human health and ecological receptors were not identified for the Site. Regional groundwater is non-potable and the nearest surface water body or sensitive ecological habitat is located less than 1 km to the northwest of the site (storm water pond at Woodsworth Park). Lead in groundwater concentration exceedances were noted at a significant distance away from any possible fish habitats. Given that there are no observed immediate ecological or human receptors, a site-specific Tier III Criteria or risk management strategy may be more appropriate.

5.0 SUMMARY

Fifteen (15) shallow boreholes were drilled to a maximum depth of 1.5 m to evaluate the extent of impacts across the fill layer of the Site. Lead concentrations in soil were found to exceed federal soil quality guidelines protective of both environmental and human health (600 mg/kg) to depths greater than 2 m.

In the North End, the average soil cap thickness was found to be 0.45 m, with a maximum of 0.7 m (TP-08) and a minimum of 0.1 m (TP-13). Based on the observed thickness and geometry, the approximate fill volume overlaying the debris waste layer is 3,100 m^3. No observed buried debris had breached the soil cap to the surface.

The debris waste layer was found to be comprised of building materials and battery packaging parts, averaging a thickness of 1.1 m, with a maximum of 1.8 m (TP-17) and a minimum of 0.3 m (TP-21). Based on the observed thickness and geometry, the approximate buried waste volume is 10,500 m^3. Firm and moist clay underlie the debris layer.

The property is graded to a greater elevation towards the center of the Site, promoting run-off patterns to the property edges. Erosion potential is minimal for the southern portion of the Site, with greater erosion potential in the northern portion of the Site.

Samples that contain debris materials are highly heterogeneous in composition and likely contain elevated levels of lead. Debris materials would not be bound up in a soil matrix, and the lead would likely be present in a leachable form.

Lead concentrations in soil decrease by three orders of magnitude from the surface to a depth greater than 2 mbgs for the same sample locations. These results indicate that although downward vertical migration of lead is occurring, mobility appears to be reduced by interactions with the soil substrate.

Previous Site investigations on the neighbouring property to the west of the Site found that lead impacts were surficial (restricted to the upper 0.30 m of soil), and did not exceed the SQG of 8,200 mg/kg for lead on industrial sites for human health ingestion. Full delineation of off-site impacts to the east has not been achieved; however, concentrations in soil and groundwater were below criteria for the protection of environmental and human health. Off-site impacts were minimally observed to the north. Soil samples contained elevated analytical concentrations of lead, however, concentrations were found to be below the applicable SQG criteria for both environmental and human health.

The greatest concentrations of lead in groundwater were found in the till layer (stratigraphic layer adjacent to limestone bedrock). Monitoring wells were installed within discrete stratigraphic layers on site, to assess site groundwater flow, and potential impacts to groundwater. Lead and cadmium in groundwater were observed in each stratigraphic unit (fill, clay/silt, till). Greater concentrations of lead and cadmium in groundwater were found in the deeper stratigraphies, along the eastern boundary of the Site property. Shallow groundwater flow direction, based on observed water levels, was observed to flow in a north-easterly direction, with an overall horizontal hydraulic gradient of 0.004 in 2013 and 0.006 in 2014. A downwards vertical hydraulic gradient was observed in 2014 in the three stratigraphies and nested monitoring well locations. Historically, off-site impacts in groundwater have not been observed to the east of the Site property.

Contaminants of concern (lead, cadmium) have been identified at the Site in soils and groundwater. A second groundwater monitoring event was conducted in June 2014 to confirm observed impacts following the initial sampling event and may be used to evaluate risk exposure pathways. Elevated concentrations of lead in deep groundwater may be attributable to nearby buried waste in APEC 1 and downwards vertical hydraulic gradients.

Further investigations may be required to further identify impacts associated in the deep groundwater at the northeastern section of the property. No information is known to the southeast (2141 Logan Avenue). Isotope analysis of analytes in groundwater may help to differentiate between on-site and off-site impacts.

6.0 LIMITATIONS

This report was prepared exclusively for the purposes, project and site location(s) outlined in the report. The report is based on information provided to, or obtained by Dillon as indicated in the report, and applies solely to site conditions existing at the time of the site investigation(s). Dillon's report represents a reasonable review of available information within an agreed work scope, schedule and budget. It is therefore possible that currently unrecognized contamination or potentially hazardous materials may exist at the site(s), and that the levels of contamination or hazardous materials may vary across the site(s). Further review and updating of the report may be required as local and site conditions, and the regulatory and planning frameworks, change over time.

This report was prepared by Dillon for the sole benefit of our Client (Thompson Dorfman Sweatman). The material in the report reflects Dillon's judgment in light of the information available to Dillon at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibilities of such third parties. Dillon accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

PROVINCE OF MANITOBA
May 6/15
D. D. BELL
Member
20503G
REGISTERED PROFESSIONAL GEOSCIENTIST

Respectfully Submitted:

DILLON CONSULTING LIMITED

Indra Kalinovich, Ph.D., C.Chem., E.I.T.

Doug Bell, MSc, P.Geo.,FGC

IKK/knh

APEGM
Certificate of Authorization
Dillon Consulting Limited (EB)
No. 1789 Date: May 6, 2015

7.0 REFERENCES

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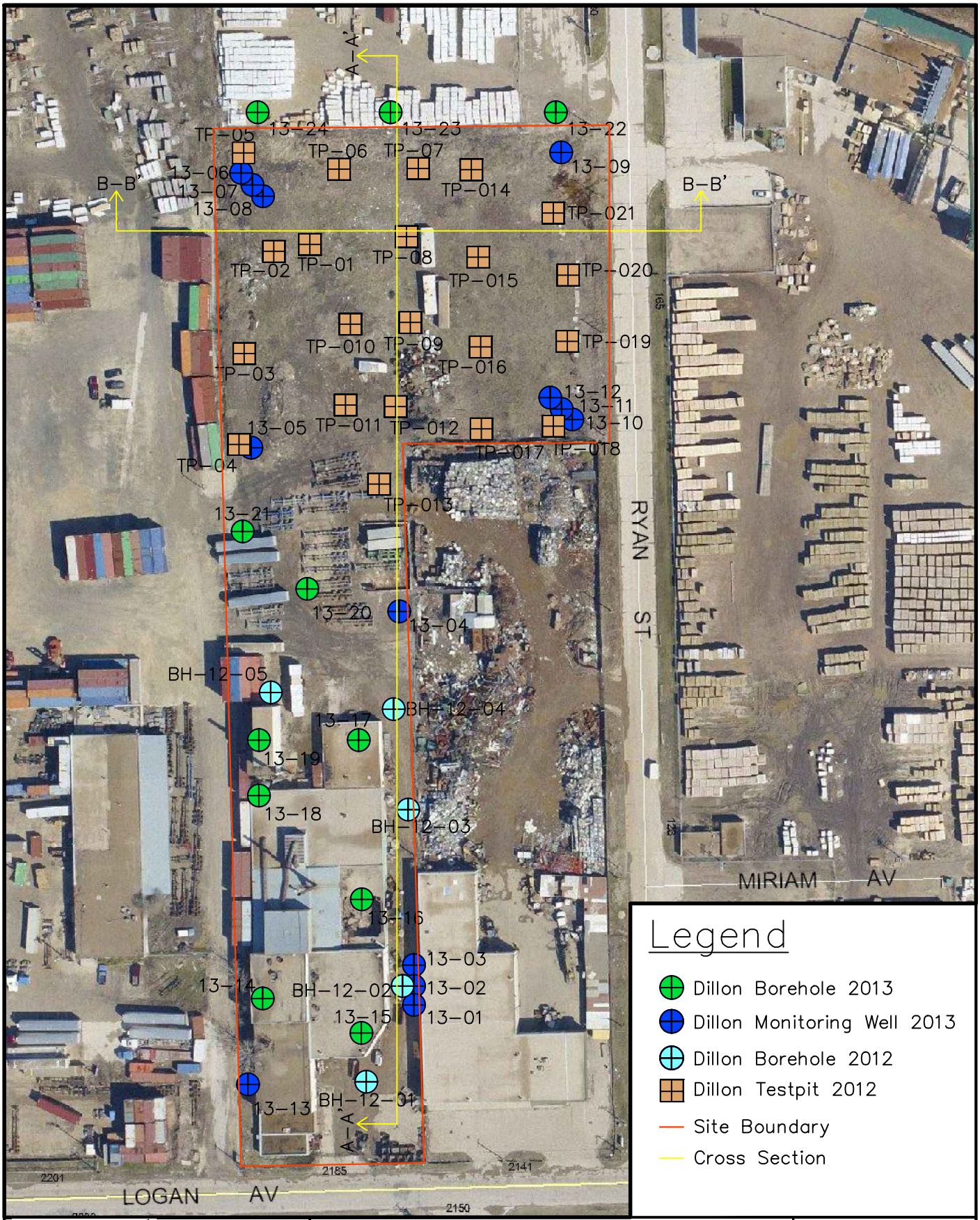
Figures



DILLON CONSULTING

PROJECT: North West Smelting and Refining		PROJECT NO.: 10-3834
TITLE: Site Location		FIGURE NO.: 1
DATE: October 2013		

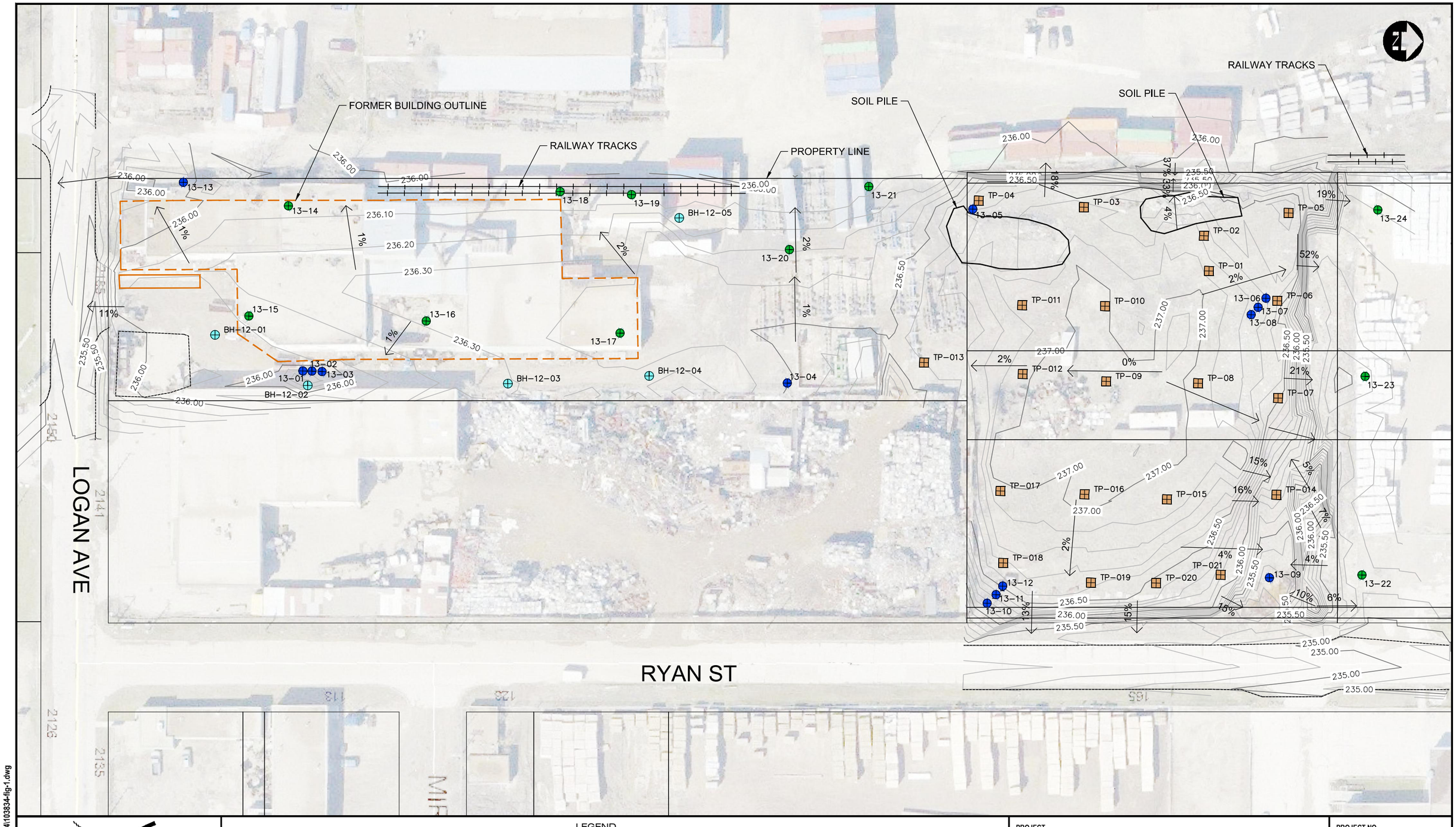
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DILLON CONSULTING

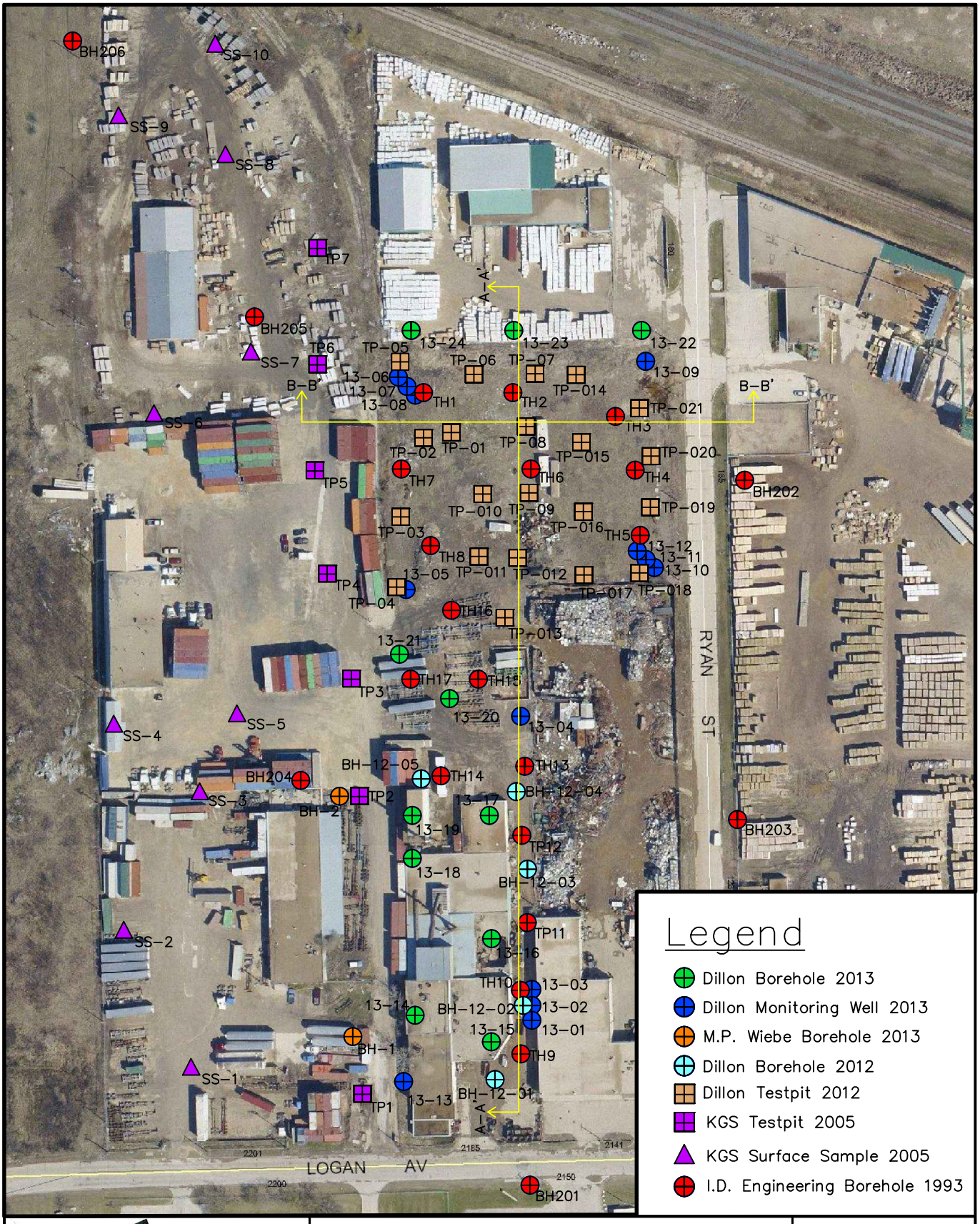
DATE: October 2013	PROJECT: North West Smelting and Refining	PROJECT NO.: 10-3834
	TITLE: Site Plan	FIGURE NO.: 2

FileName:c:\users\40ilk\desktop\nwsr_ilk.dwg



DILLON CONSULTING	LEGEND	PROJECT: North West Smelting and Refining	PROJECT NO.: 10-3834
DATE: October 2013	DILLON TEST PITS 2012 DILLON BORE HOLES 2012 DILLON BORE HOLES 2013 DILLON MONITORING WELLS 2013	TITLE: Site Topography	FIGURE NO.: 3

FileName:g:\cad\103834\103834-fig-1.dwg



FileName:c:\users\40ik\desktop\nwsr_ik.dwg

DILLON CONSULTING

DATE October 2013

PROJECT **North West Smelting and Refining**

PROJECT NO. **10-3834**

TITLE **Sampling Locations from 1993 to 2013**

FIGURE NO. **4**

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba

SUBSURFACE DIAGRAM
Stratigraphic Cross-Section A-A'

CLIENT Northwest Smelting & Refinery

PROJECT NAME 2013 Environmental Site Assessment

PROJECT NUMBER 10-3834

PROJECT LOCATION 2185 Logan Ave

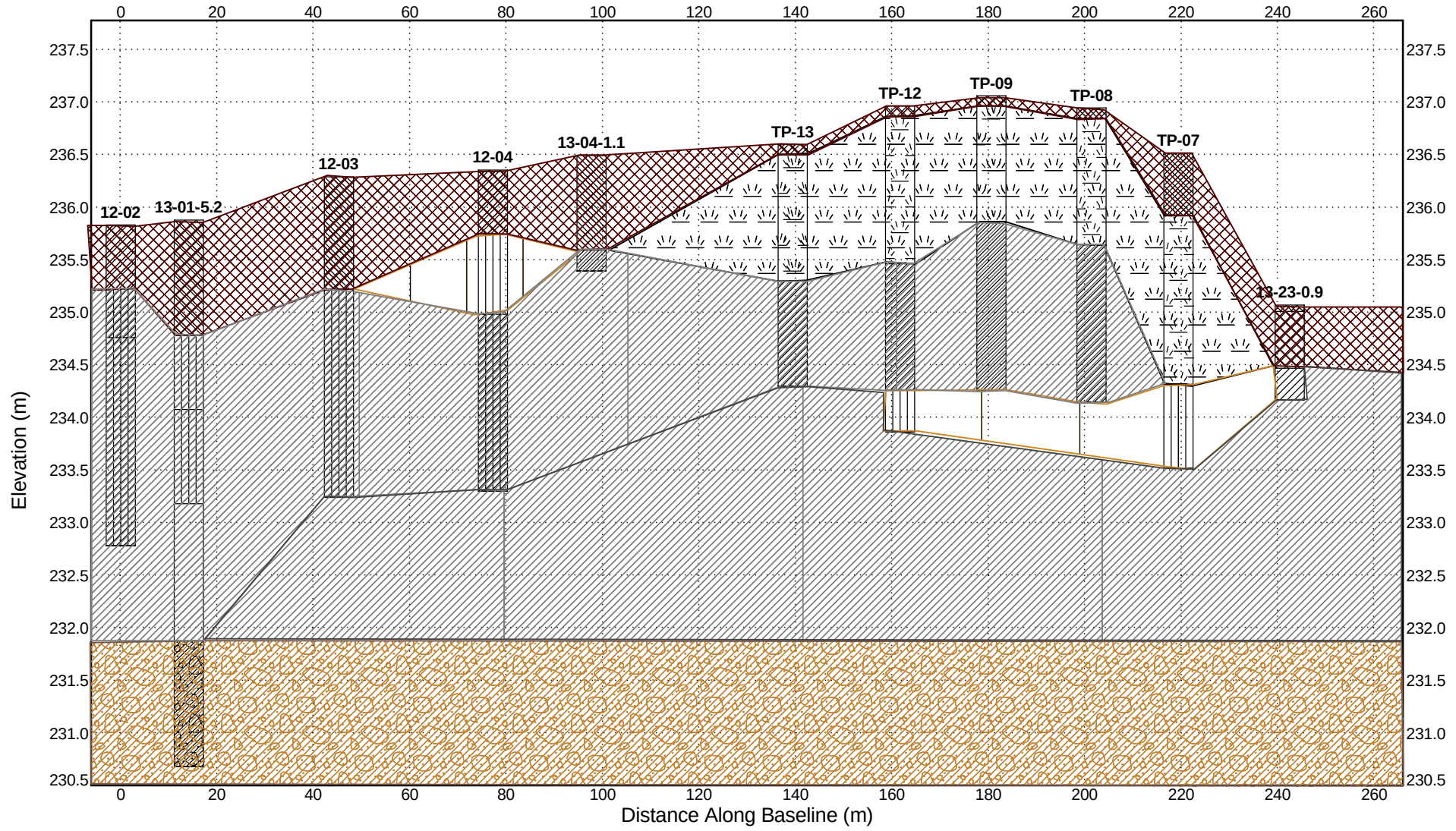
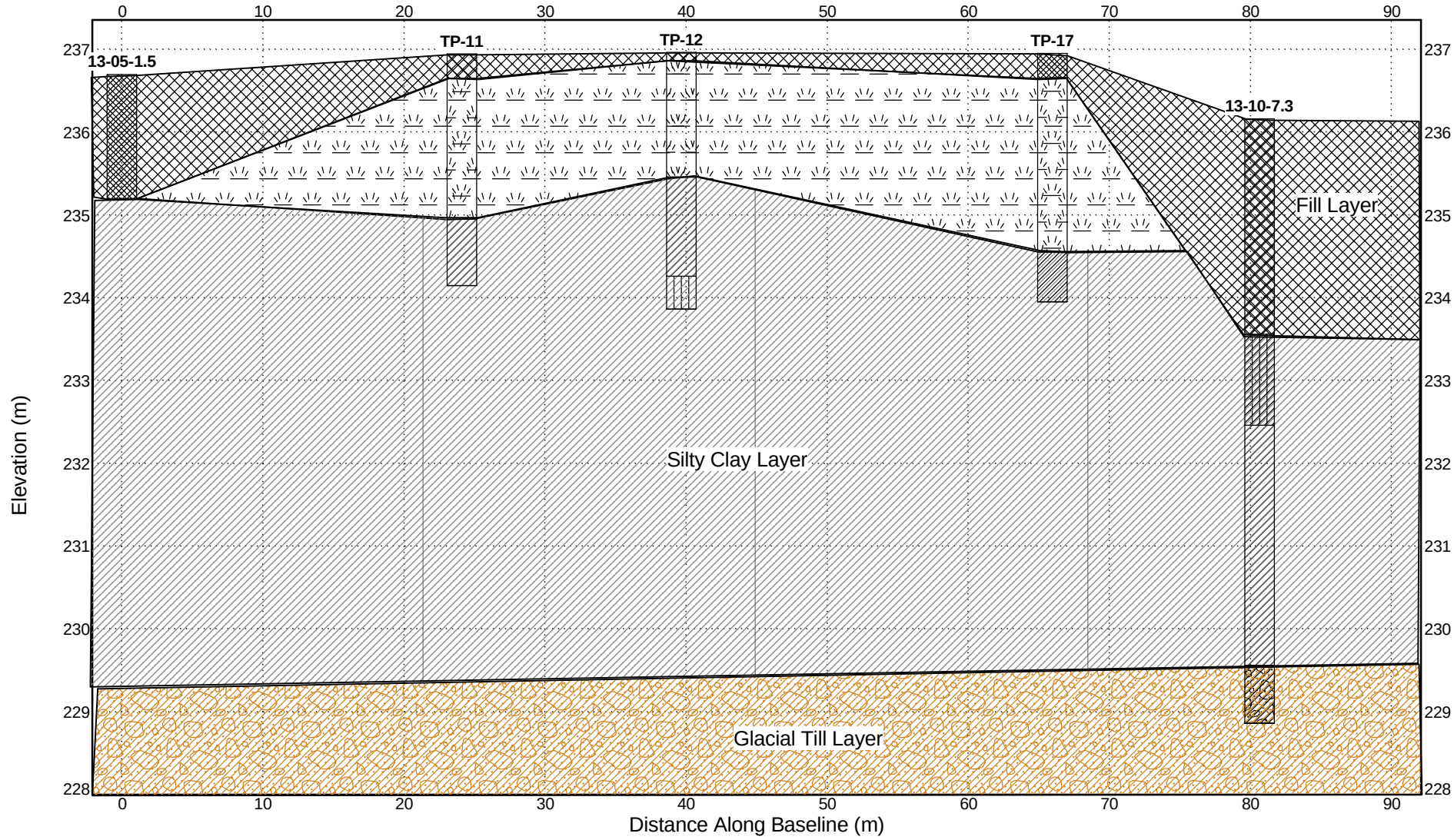


Figure 5

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba

SUBSURFACE DIAGRAM
Stratigraphic Cross-Section B-B'

CLIENT Northwest Smelting & Refinery
PROJECT NAME 2013 Environmental Site Assessment
PROJECT NUMBER 10-3834
PROJECT LOCATION 2185 Logan Ave



Fill (made ground) | Silt / Clay | Clay | Glacial Till | Waste | Silt

Figure 6



LEGEND

Arrows Indicate Observed Groundwater Flow Direction

Monitoring Well

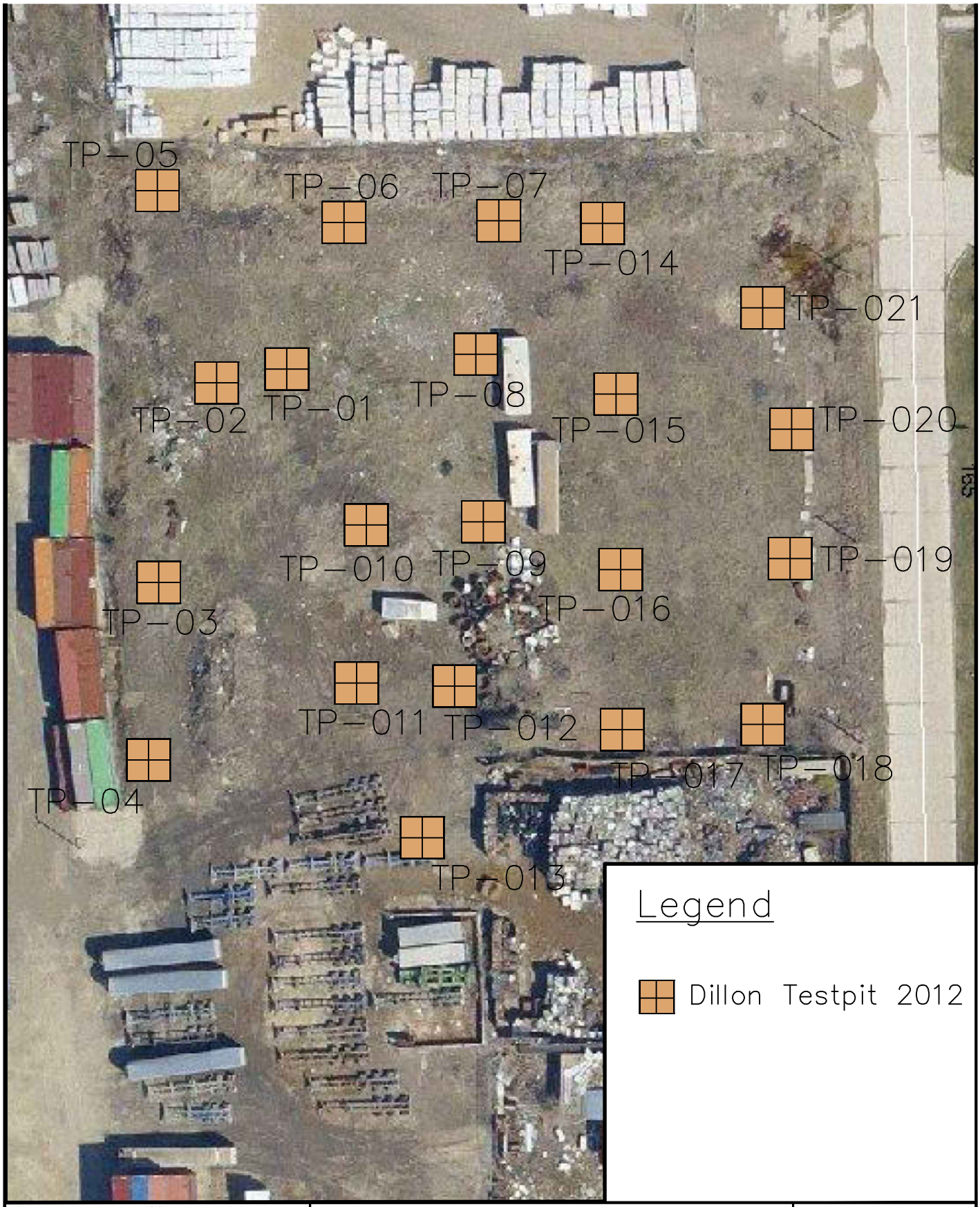
DILLON CONSULTING

OCT 2013

TITLE
Shallow Groundwater Levels and
Indicated Shallow Groundwater Flow Direction, May 2013
2185 Logan Ave, Winnipeg Manitoba

PROJ. NO.
10-3834

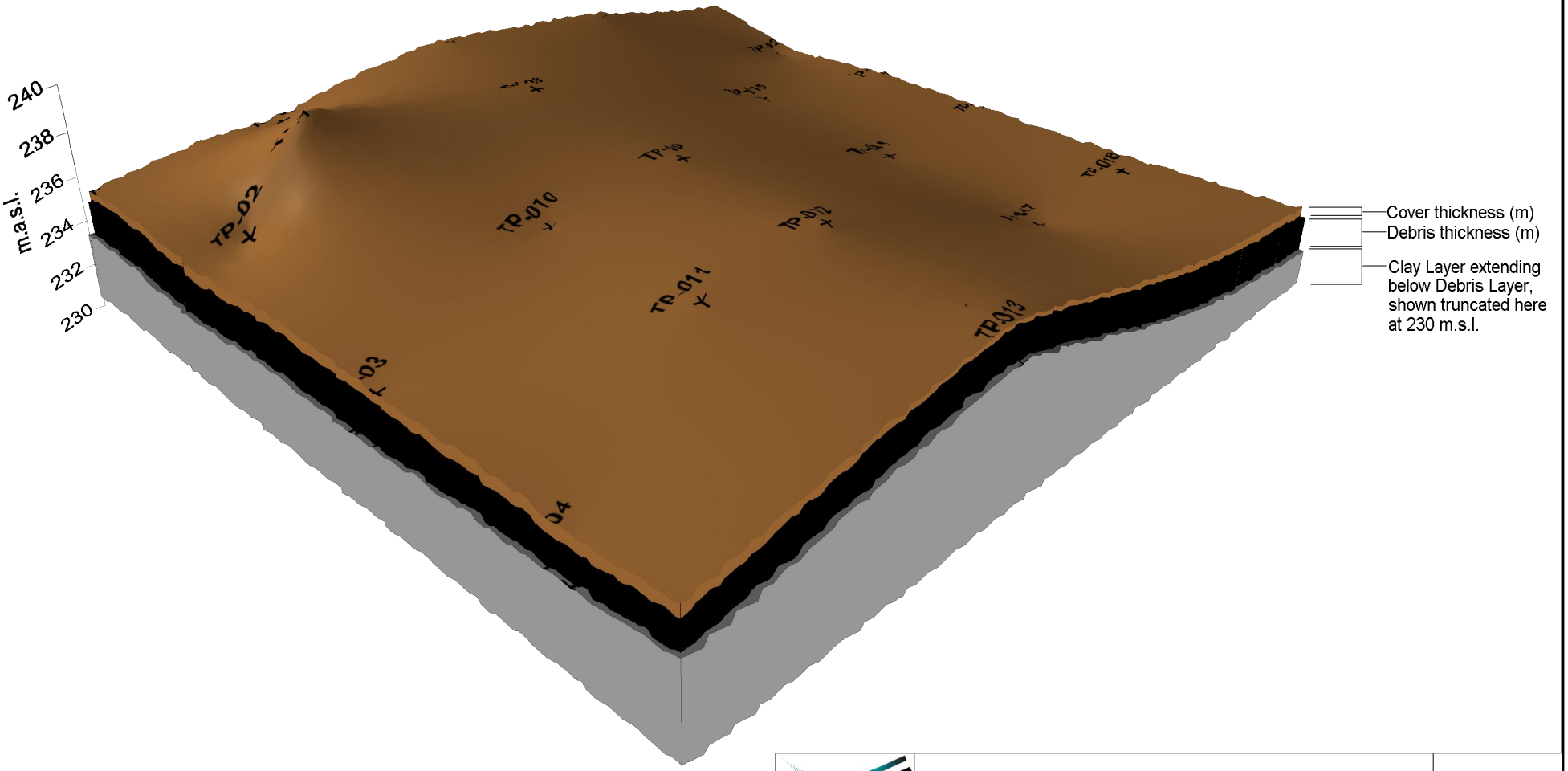
FIG. NO.
7



DILLON CONSULTING

PROJECT: North West Smelting and Refining		PROJECT NO.: 10-3834
TITLE: APEC #1 (North End) Test Pitting Locations		FIGURE NO.: 8
DATE: October 2013		

FileName: c:\users\40ilk\desktop\nwsr_ilk.dwg



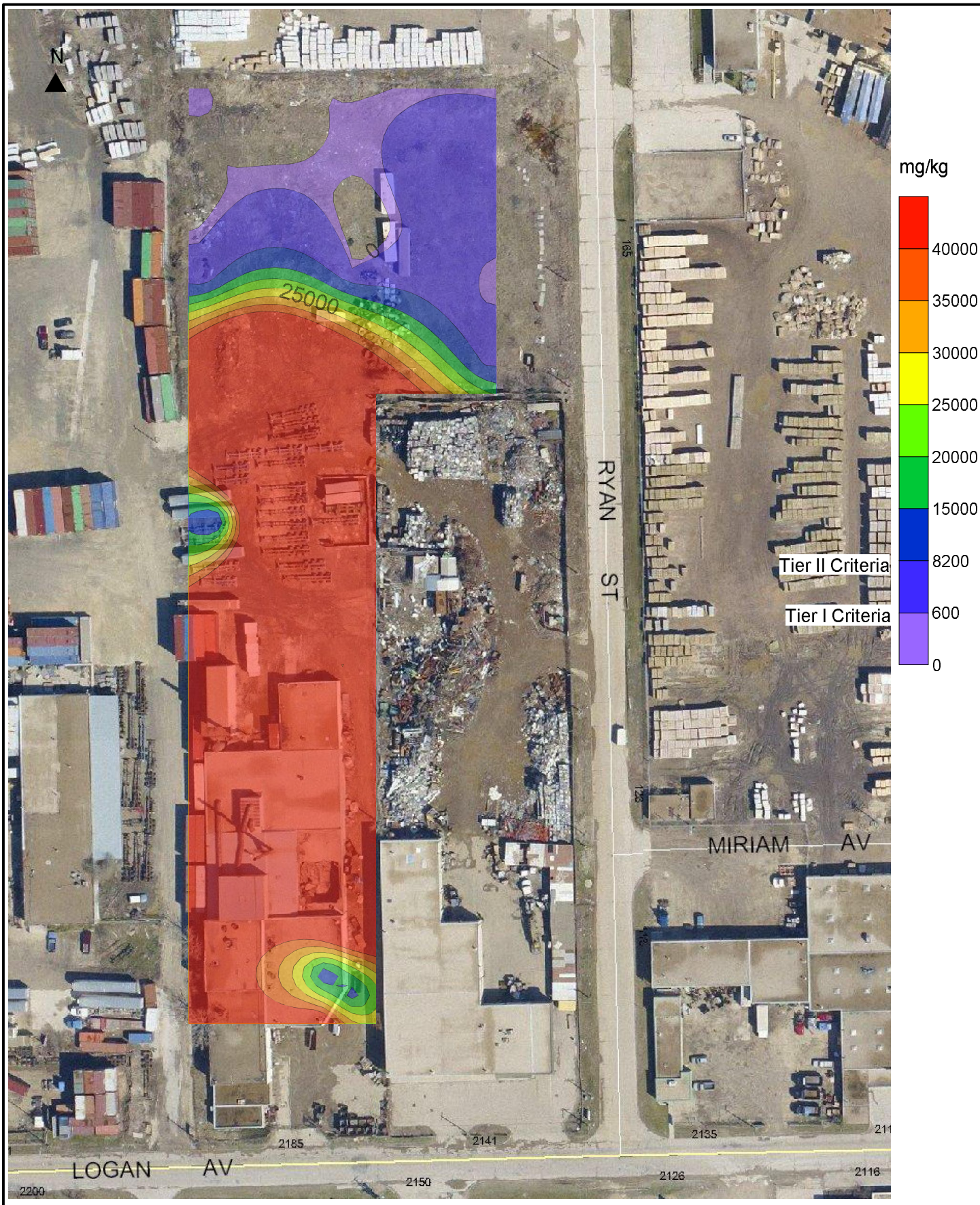
DILLON CONSULTING

OCT 2013

TITLE
Soil Cap and Debris Layer Thickness (m), November 2012
2185 Logan Ave, Winnipeg Manitoba

PROJ. NO.
10-3834

FIG. NO.
9



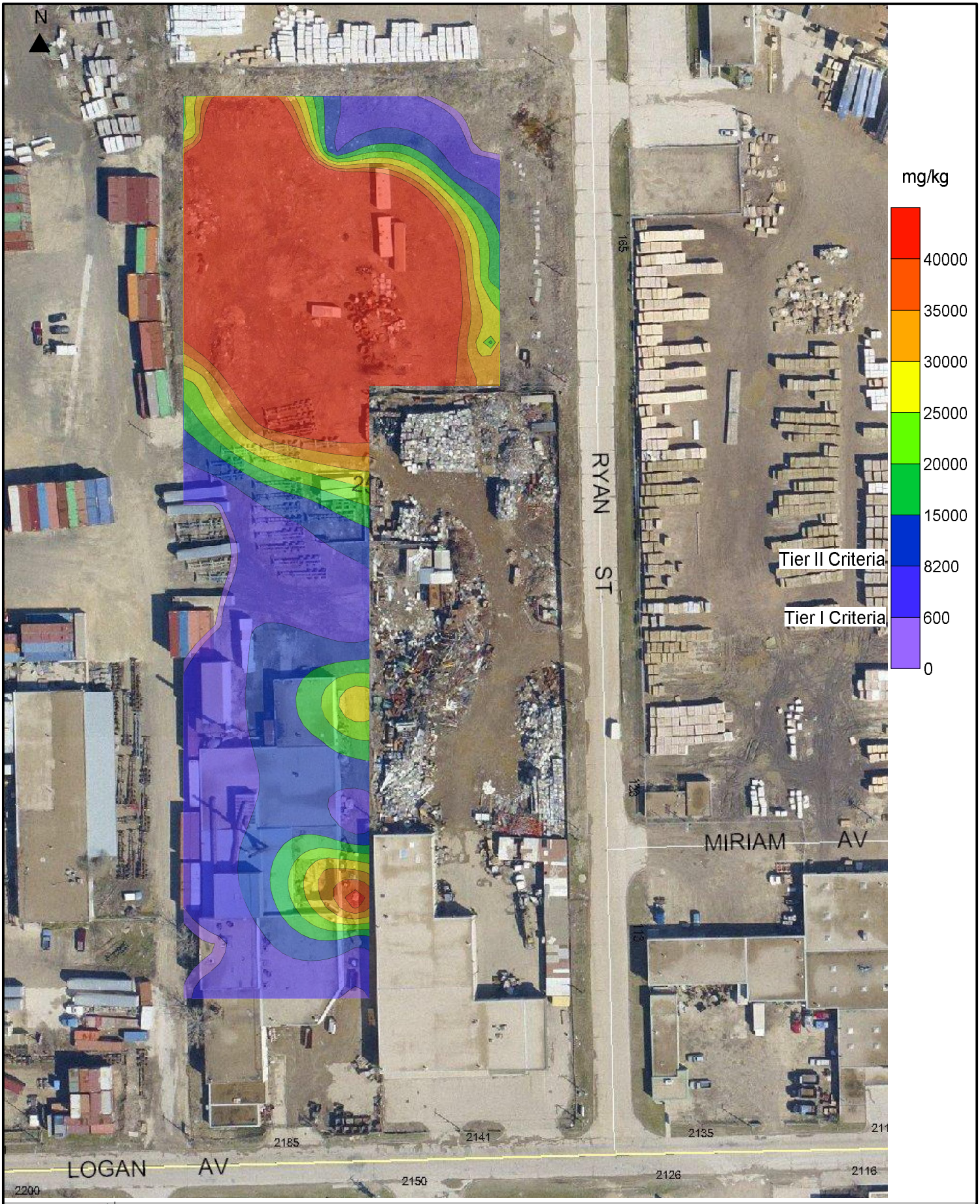
DILLON CONSULTING

AUG 2014

TITLE
Lead Concentration Contours in Soil, 1991-2013.
Soil Depths 0 - 0.5 m
2185 Logan Ave, Winnipeg Manitoba

PROJ. NO.
10-3834

FIG. NO.
10



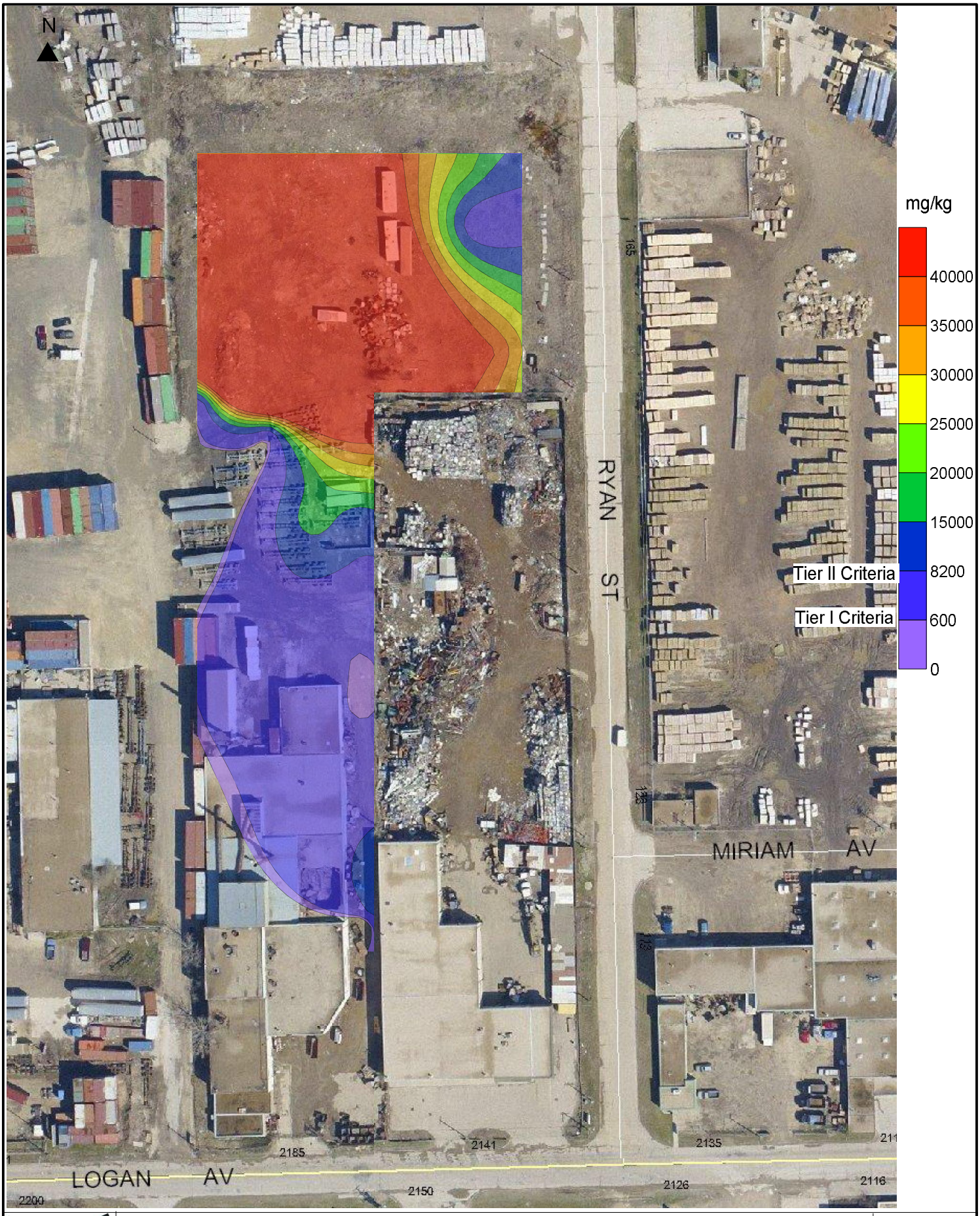
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AUG 2014

TITLE
Lead Concentration Contours in Soil, 1991-2013.
Soil Depths 0.5 - 1.0 m
2185 Logan Ave, Winnipeg Manitoba

PROJ. NO.
10-3834

FIG. NO.
11



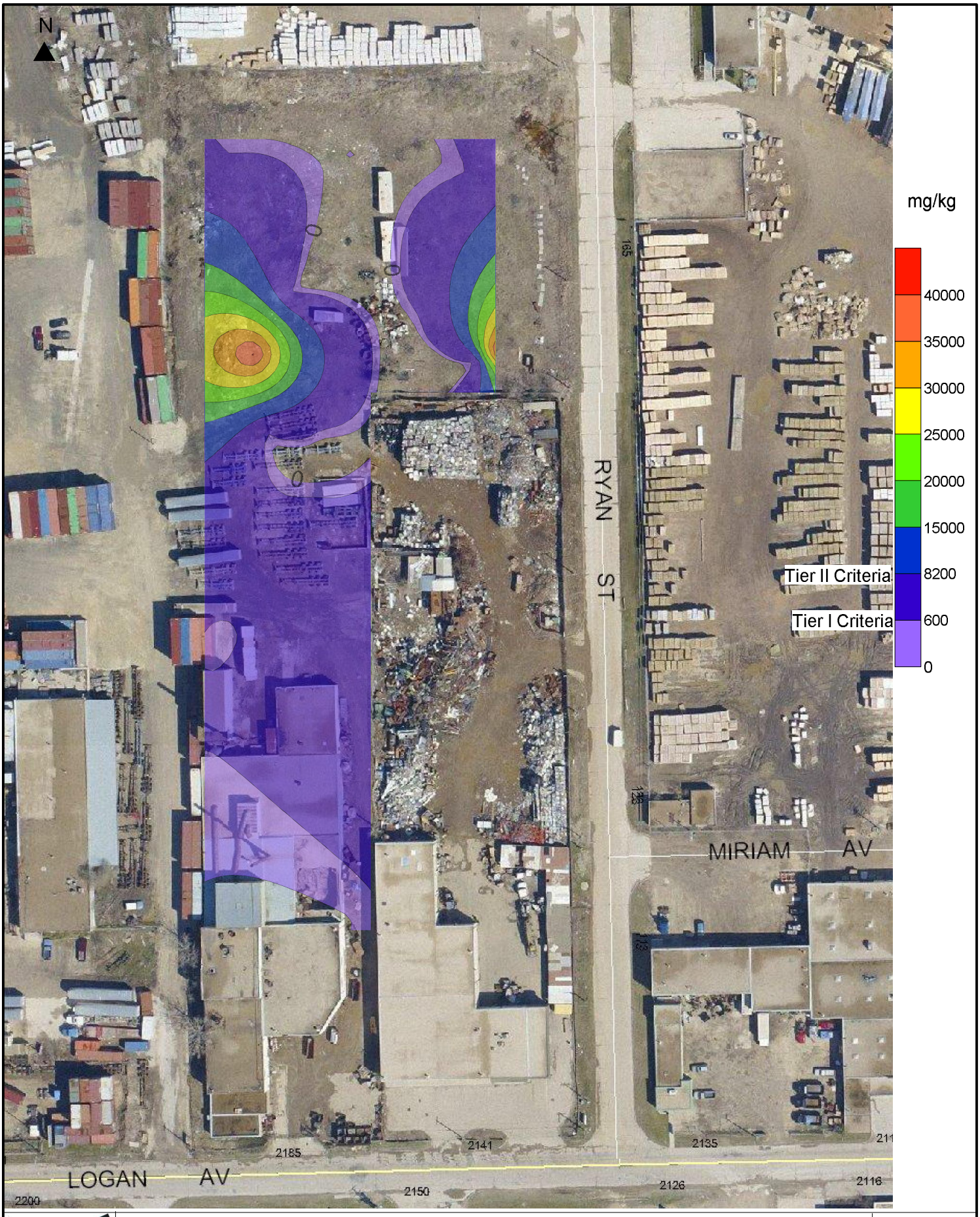
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AUG 2014

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Lead Concentration Contours in Soil, 1991-2013.
Soil Depths1.0 - 2.0 m
2185 Logan Ave, Winnipeg Manitoba

PROJ. NO.
10-3834

FIG. NO.
12



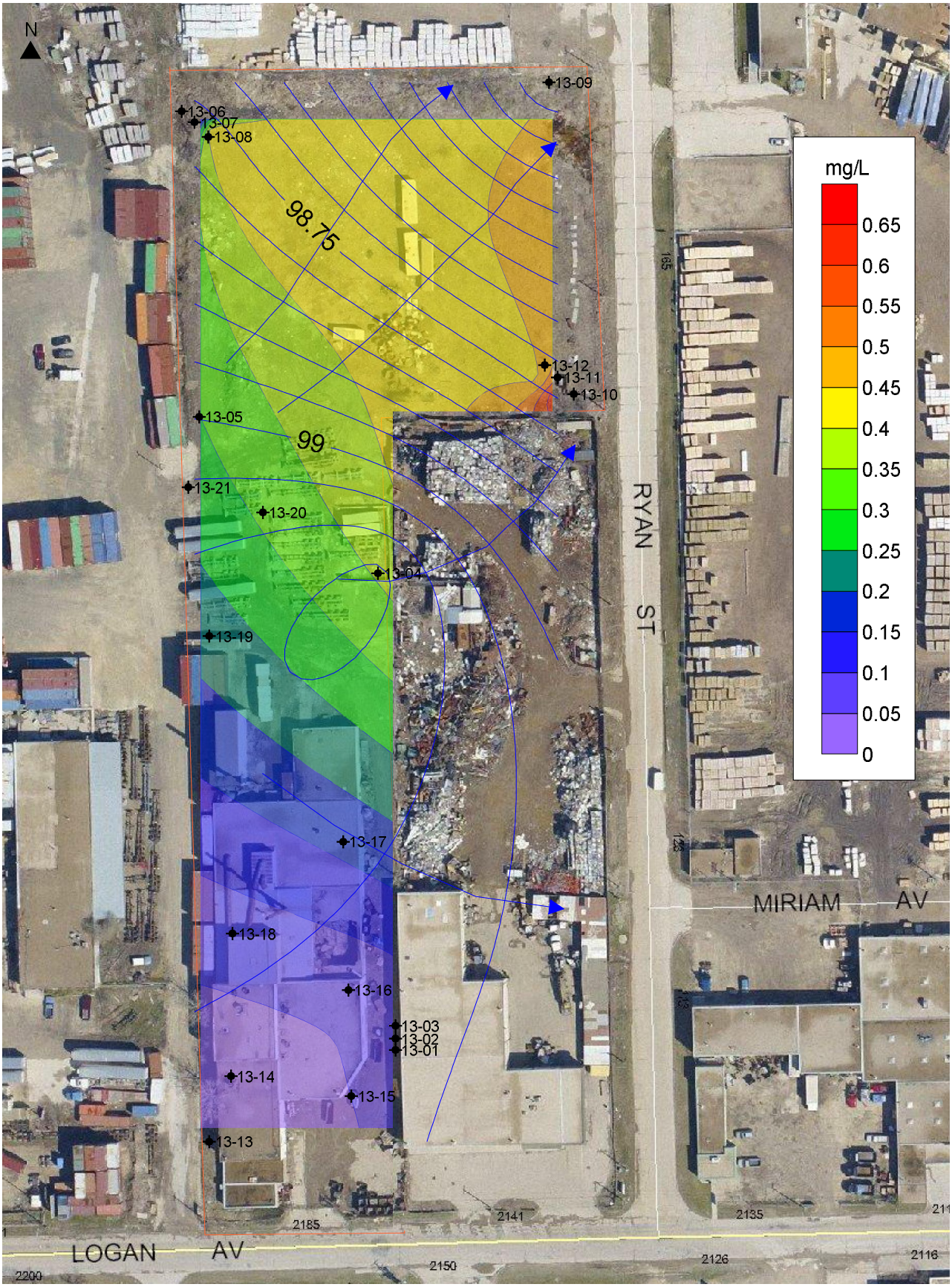
DILLON CONSULTING

AUG 2014

TITLE
Lead Concentration Contours in Soil, 1991-2013.
Soil Depths >2 m
2185 Logan Ave, Winnipeg Manitoba

PROJ. NO.
10-3834

FIG. NO.
13



LEGEND

Arrows Indicate Observed Groundwater Flow Direction

Monitoring Well

DILLON CONSULTING

OCT 2013

TITLE
Concentration Contours of Lead in Groundwater, July-August 2013
2185 Logan Ave, Winnipeg Manitoba

PROJ. NO.
10-3834

FIG. NO.
14

Appendix A

Borehole Logs

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-01

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0	Loose, Brown Sand & Gravel Fill	Fill								0
	Silty, black, organic topsoil	Fill	0.3							
0.5	Debris	Waste	0.5							0.5
1.0										1.0
1.5										1.5
2.0					TP-01-01					2.0
2.5	Firm, moist, grey clay	Clay	2.4							2.5
3.0					TP-01-02					3.0
			3							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-02

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Rec %	VOC (ppm or %LEL)	Depth Scale (m)
0.5	Clay Topsoil with organics	Fill (made ground)			TP-02-01					0.5
1.0	Debris	Waste	0.6							1.0
1.5					TP-02-03					1.5
2.0										2.0
2.5	Grey Clay	Clay	2.1		TP-02-02					2.5
			2.6							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-03

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0	Clay Topsoil	Fill (made ground)			TP-03-01					0
0.5	Debris	Waste	0.5							0.5
1.0										1.0
1.5					TP-03-02					1.5
2.0	Grey Clay (Layer of black at interface)	Clay	2							2.0
2.5					TP-03-03					2.5
			2.8							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-04

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.5	Clay Topsoil	Fill (made ground)			TP-04-01					0.5
1.0	Debris	Waste	0.6		TP-04-02					1.0
1.5	Black Clay	Clay	1.6							1.5
2.0					TP-04-03					2.0
2.5	Grey Clay	Clay	2.2							2.5
			2.8							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-05

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0	Clay Topsoil				TP-05-01					0
0.5	Debris		0.3							0.5
1.0										1.0
1.5					TP-05-02					1.5
2.0	Grey Clay		1.9							2.0
2.5			2.5		TP-05-03					2.5

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-06

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
	Silty Clay Topsoil				TP-06-01					
0.5	Debris		0.4							0.5
1.0										1.0
1.5					TP-06-02					1.5
2.0										2.0
2.5	Grey Clay		2.4		TP-06-03					2.5
			2.9							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-07

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample: Method	Sample: Number	Sample: N Value	Sample: Rec %	Sample: VOC (ppm or %LEL)	Depth Scale (m)
0.5	Silty Clay Topsoil				TP-07-01					0.5
	Debris		0.6							
1.0										1.0
1.5					TP-07-01					1.5
2.0										2.0
	Brown Silt (Black at interface)		2.2							
2.5					TP-07-01					2.5
3.0			3							3.0

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Silt

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-08

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Surface Elevation (m): 99.36

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.5	Silty Clay Topsoil	Fill (made ground)			TP-08-01					0.5
			0.7							
1.0	Debris	Waste								1.0
1.5					TP-08-02					1.5
2.0										2.0
			2.2							
2.5	Grey Clay	USCS Low Plasticity Clay								2.5
			2.9		TP-08-03					

LITHOLOGY SYMBOLS: Fill (made ground); Waste; USCS Low Plasticity Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-09

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
	Surface Elevation (m): 99.39									
0	Silty Clay Topsoil	Fill (made ground)			TP-09-01					0
0.5										0.5
	Debris	Waste	0.6							
1.0										1.0
1.5					TP-09-02					1.5
2.0										2.0
			2.3							
2.5										2.5
	Grey Clay		2.9		TP-09-03					

LITHOLOGY SYMBOLS: Fill (made ground); Waste
SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-10

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.5	Silty Clay Topsoil				TP-10-01					0.5
	Debris		0.6							
1.0					TP-10-02					1.0
1.5										1.5
2.0										2.0
	Grey Clay		2.2							
2.5					TP-10-03					2.5
			3							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-11

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
	Silty Clay Topsoil				TP-11-1-01					
	Debris		0.3							
0.5										0.5
1.0					TP-11-02					1.0
1.5										1.5
2.0	Grey Clay		2							2.0
			2.8		TP-11-03					

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-12

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	N Value	Rec %	VOC (ppm or %LEL)	Depth Scale (m)
	Surface Elevation (m): 99.31									
	Silty Clay Topsoil									
	Debris		0.1			TP-12-01				
0.5										0.5
1.0										1.0
1.5	Grey Clay		1.5			TP-12-02				1.5
2.0										2.0
2.5										2.5
			2.7			TP-12-03				

LITHOLOGY SYMBOLS: Fill (made ground); Waste; USCS Low Plasticity Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-13

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/13/12 Date Completed: 11/13/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0	Gravel Fill	Fill								0
	Debris		0.1							
0.5					TP-13-01					0.5
1.0										1.0
	Grey Clay	Clay	1.3							
1.5										1.5
2.0										2.0
			2.3		TP-13-02					

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-14

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/14/12 Date Completed: 11/14/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
	Brown Silty Clay				TP-14-01					
0.5	Black Silty Clay with Organics		0.4							0.5
1.0					TP-14-02					1.0
1.5										1.5
2.0	Brown Silt		1.7							2.0
			2.1							

LITHOLOGY SYMBOLS: Silt / Clay; Silt

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-15

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/14/12 Date Completed: 11/14/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
	Silty Clay Topsoil					TP-15-01				
0.5	Debris		0.4							0.5
1.0										1.0
1.5						TP-15-02				1.5
2.0										2.0
	Grey clay & brown silt		2.1			TP-15-03				
2.5										2.5
			2.8							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Silt / Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-16

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/14/12 Date Completed: 11/14/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0	Silty Clay Topsoil				TP-16-01					0
0.5	Debris		0.4							0.5
1.0					TP-16-02					1.0
1.5										1.5
2.0										2.0
2.5	Grey Clay		2.3		TP-16-03					2.5
3.0			3							3.0

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-17

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/14/12 Date Completed: 11/14/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0	Silty Clay Topsoil				TP-17-01					0
0.5	Debris		0.3							0.5
1.0										1.0
1.5										1.5
2.0					TP-17-02					2.0
2.5	Grey Clay		2.4							2.5
3.0					TP-17-03					3.0

3

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-18

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/14/12 Date Completed: 11/14/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
	Silty Clay Topsoil				TP-18-01					
0.5	Debris		0.4							0.5
1.0					TP-18-02					1.0
1.5										1.5
2.0										2.0
	Grey clay & brown silt		2.2							
2.5					TP-18-03					2.5
			2.9							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Silt / Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-19

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/14/12 Date Completed: 11/14/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
	Silty Clay Topsoil									
0.5	Debris		0.4							0.5
1.0					TP-196-02					1.0
1.5										1.5
2.0										2.0
	Grey clay & brown silt		2.2							
2.5										2.5
			2.9							

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Silt / Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
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Telephone: 204-453-2301

TP-20

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/14/12 Date Completed: 11/14/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.0	Silty Clay Topsoil									0.0
0.5	Debris		0.5							0.5
1.0						TP20-02				1.0
1.5										1.5
1.8	Black, grey clay & brown silt		1.8							
2.0										2.0
2.5										2.5
3.0			3							3.0

LITHOLOGY SYMBOLS: Fill (made ground); Waste; Silt / Clay

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

TP-21

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Western
Drilling Method: Excavator
Supervised by: CWB
Date Started: 11/14/12 Date Completed: 11/14/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample: Method	Sample: Number	Sample: N Value	Sample: Rec %	Sample: VOC (ppm or %LEL)	Depth Scale (m)
	Silty Clay Topsoil									
0.5	Silty Clay & Gravel, fill with concrete & rebar.		0.4							0.5
1.0										1.0
	Brown Silt, black and clayey @ interface.		1.1							
1.5										1.5
			1.9		TP-21-03					

LITHOLOGY SYMBOLS: Fill (made ground); Silty Clay and Gravel; Silt

SAMPLE TYPE: Grab Sample

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001 - A TO A'.GPJ DILLON TEMPLATE.GDT 4/10/14

Dillon Consulting Ltd.
1558 Willson Place
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Telephone: 204-453-2301

12-01

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Paddock Drilling
Drilling Method: Solid Stem Auger
Supervised by: CWB
Date Started: 7/12/12 Date Completed: 7/12/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.0	SILT/GRAVEL FILL - Brown, loose, dry	Fill (made ground)			Auger	1		*	0	0.0
0.5										0.5
	SILT - Black, loose, wet	Silt	0.61		Auger	2			0	
1.0										1.0
	SILTY CLAY - Grey, firm, moist Mottled with gypsum inclusions below 8'	Silt / Clay	1.07		Auger	3			0	
1.5										1.5
2.0										2.0
					Auger	4			0	
2.5										2.5
3.0					Auger	5			0	3.0
			3.05							

LITHOLOGY SYMBOLS: Fill (made ground); Silt; Silt / Clay
SAMPLE TYPE: Auger

* Indicates sample submitted for analysis

DILLON BH 10-3834-3001.GPJ DILLON TEMPLATE.GDT 7/30/12

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

12-02

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Paddock Drilling
Drilling Method: Solid Stem Auger
Supervised by: CWB
Date Started: 7/12/12 Date Completed: 7/12/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.0	SILT/GRAVEL FILL - Brown, loose, dry Becomes black with depth	Fill (made ground)				1			0	0.0
0.5										0.5
	SILTY CLAY - Black, firm, moist Bricks and debris noted	Silt / Clay	0.61			2		*	0	
1.0										1.0
	SILTY CLAY - Grey, firm, moist Mottled with gypsum inclusions below 7'		1.07			3		*	0	
1.5										1.5
2.0						4			0	2.0
2.5										2.5
3.0						5			0	3.0
			3.05							

DILLON BH 10-3834-3001.GPJ DILLON TEMPLATE.GDT 7/30/12

LITHOLOGY SYMBOLS: Fill (made ground); Silt / Clay

SAMPLE TYPE: Auger

* Indicates sample submitted for analysis

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

12-03

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Paddock Drilling
Drilling Method: Solid Stem Auger
Supervised by: CWB
Date Started: 7/12/12 Date Completed: 7/12/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.5	CLAY FILL - Brown, some gravel, soft, moist Bricks and debris noted Becomes black with depth Wet 0.08m silt seam at 0.91m	Fill (made ground)				1		*	0	0.5
						2			5	
1.0										1.0
	SILTY CLAY - Grey, firm, moist Mottled with gypsum inclusions below 8'	Silt / Clay	1.07			3			0	
1.5										1.5
2.0										2.0
						4			5	
2.5										2.5
3.0						5			0	3.0
			3.05							

DILLON BH 10-3834-3001.GPJ DILLON TEMPLATE.GDT 7/30/12

LITHOLOGY SYMBOLS: Fill (made ground); Silt / Clay

SAMPLE TYPE: Auger

* Indicates sample submitted for analysis

Dillon Consulting Ltd.
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Telephone: 204-453-2301

12-04

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Paddock Drilling
Drilling Method: Solid Stem Auger
Supervised by: CWB
Date Started: 7/12/12 Date Completed: 7/12/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.0	SILT/GRAVEL FILL - Brown, loose, dry	Fill (made ground)				1		*	0	0.0
0.5										0.5
	SILT - Black, soft, wet	Silt	0.61			2			0	
1.0										1.0
1.5	SILTY CLAY - Grey, firm, moist Mottled with gypsum inclusions below 8'	Silt / Clay	1.37			3		*	0	1.5
2.0										2.0
						4			0	
2.5										2.5
3.0						5			0	3.0
			3.05							

DILLON BH 10-3834-3001.GPJ DILLON TEMPLATE.GDT 7/30/12

LITHOLOGY SYMBOLS: Fill (made ground); Silt; Silt / Clay

SAMPLE TYPE: Auger

* Indicates sample submitted for analysis

Dillon Consulting Ltd.
1558 Willson Place
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Telephone: 204-453-2301

12-05

Client: North West Smelting & Refining
Project: Environmental Investigation
Project No.: 10-3834-3001
Location: See Siteplan
Drilling Co.: Paddock Drilling
Drilling Method: Solid Stem Auger
Supervised by: CWB
Date Started: 7/12/12 Date Completed: 7/12/12

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Notes	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC (ppm or %LEL)	Depth Scale (m)
0.5	SILT/GRAVEL/CLAY FILL - Brown, firm, moist	Fill (made ground)				1			0	0.5
1.0	SILT - Black, soft, wet Wood debris and petroleum hydrocarbon odour noted	Silt	0.61			2		*	0	1.0
1.5	SILTY CLAY - Grey, firm, moist Mottled with gypsum inclusions below 6'	Silt / Clay	1.22			3			0	1.5
2.0						4			0	2.0
2.5										2.5
3.0						5		*	0	3.0
			3.05							

DILLON BH 10-3834-3001.GPJ DILLON TEMPLATE.GDT 7/30/12

LITHOLOGY SYMBOLS: Fill (made ground); Silt; Silt / Clay
SAMPLE TYPE: Auger

* Indicates sample submitted for analysis

Dillon Consulting Limited
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Tel. 204-453-2301
Fax. 204-452-4412

13-01-5.2

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, loose, some sand and trace gravel, moist	Fill (made ground)		Bentonite Riser PVC pipe from 0.9 m above grade to 4.6 m below grade					ND	1.0
	Silty clay, dark brown and gray, moist	Silty Clay	1.1						ND	
2.0	Dense	Clay	1.8						ND	2.0
	Slight fracturing	Clay	2.7						ND	
3.0										3.0
4.0	Light brown, medium grain size, damp, sand with traces of gravel.	Till	4					*	5	4.0
									10	
5.0			5.2	Slotted PVC pipe from 4.6 m below grade to 5.2 m Silica Sand						5.0

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

LITHOLOGY SYMBOLS: Fill (made ground), Clay, Silty Clay, Till

SAMPLE TYPE

* Indicates sample submitted for analysis

Dillon Consulting Limited
1558 Willson Place
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Tel. 204-453-2301
Fax. 204-452-4412

13-02-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, some sand, trace gravel, moist			Bentonite Riser PVC pipe from 0.9 m above ground to 1.2 m below grade					ND	1.0
	Silty clay, dark black and gray, moist.		1.1	Slotted PVC pipe from 1.2 m below grade 1.8 m Silica Sand					ND	
			1.8					*	10	

LITHOLOGY SYMBOLS: Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
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Tel. 204-453-2301
Fax. 204-452-4412

13-03-1.1

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, some sand, trace gravel, moist, metals appeared in fill		1.1	Bentonite Riser PVC pipe from 0.9m above grade to 0.5 m below grade Slotted PVC pipe from 0.5 m below grade to 1.1 m Silica sand				*	ND 5	1.0

LITHOLOGY SYMBOLS: Fill (made ground)

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-04-1.1

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	Fill, dark brown, medium grain size, moist			Bentonite Riser PVC pipe from 0.9 m above ground to 0.5 m below grade						
				Slotted PVC pipe from 0.5 m below grade to 1.1 m Silica Sand					35	
1.0	Clay, dark black and gray, some silt, moist		0.9					*	40	1.0
			1.1							

LITHOLOGY SYMBOLS: Fill (made ground); Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
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Tel. 204-453-2301
Fax. 204-452-4412

13-05-1.5

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, some sand, trace gravel, moist		1.5	Bentonite Riser PVC pipe from 0.9 m above ground to 0.9 m below grade Slotted PVC pipe 0.9 m below grade to 1.5 m Silica sand				*	10 ND	1.0

LITHOLOGY SYMBOLS: Fill (made ground)

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

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Fax. 204-452-4412

13-06-7.3

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, some sand, trace gravel, moist	Fill (made ground)						*	30	1.0
									10	
	Silty clay, dark gray, trace sand, moist	Silty Clay	1.5							
2.0										2.0
									15	
3.0				Bentonite					20	3.0
	Olive brown		3.4						ND	
4.0	Some sand, trace gravel	Till	4							4.0
									ND	
5.0									10	5.0

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

LITHOLOGY SYMBOLS: Fill (made ground); Silty Clay; Till

SAMPLE TYPE

* Indicates sample submitted for analysis

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-06-7.3

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample: Method	Sample: Number	Sample: N Value	Sample: Rec %	Sample: VOC(ppm or %LEL)	Depth Scale (m)
	(continued)									
	Some sand, trace gravel *(Continued)*			Bentonite Riser PVC pipe from 0.9 m above grade to 6.7 m below grade					20	
	Till, light brown, sandy, trace gravel, soft, moist		6.4	Riser PVC pipe from 0.9 m above grade to 6.7 m below grade Slotted PVC pipe from 6.7 m below grade to 7.3 m Silica Sand					25	
7.0										7.0
			7.3							

LITHOLOGY SYMBOLS: Fill (made ground); Till; Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

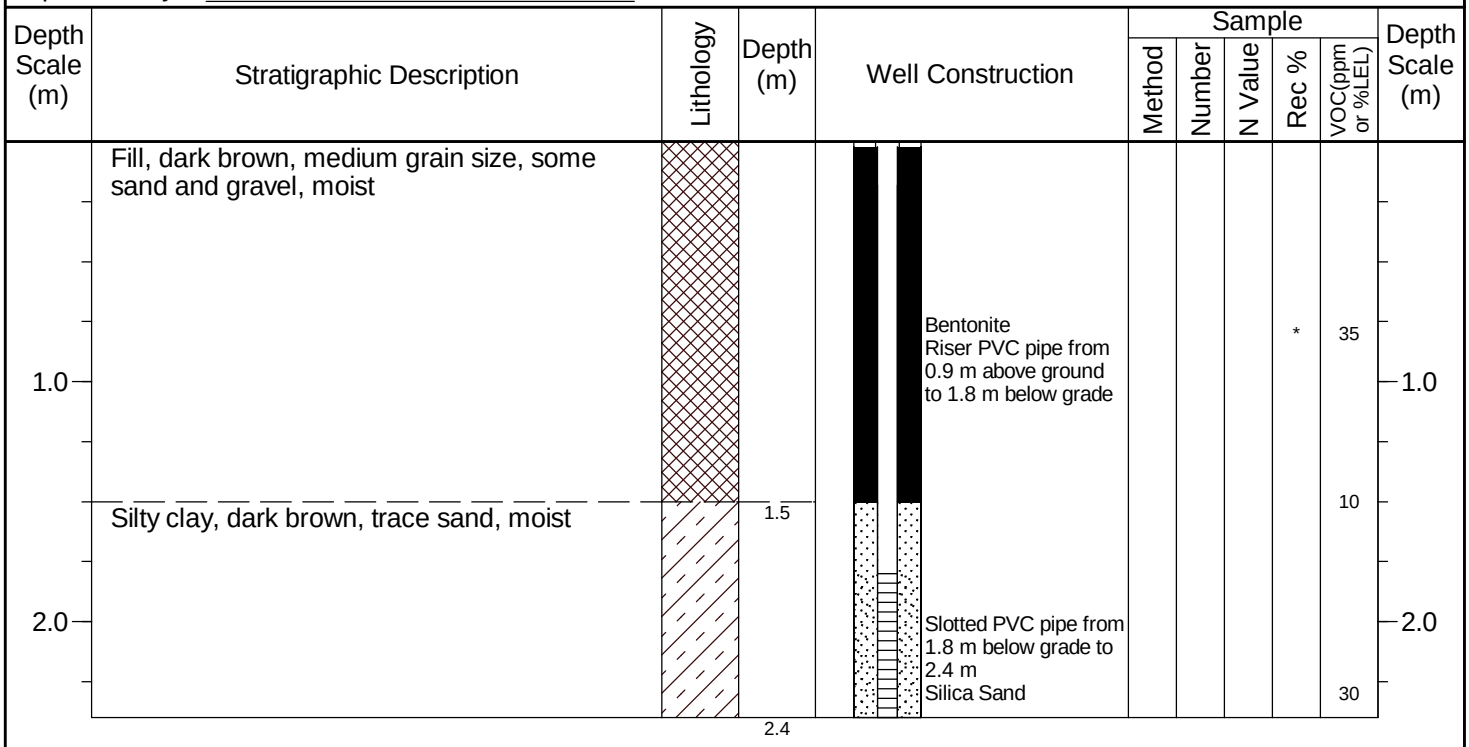
DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-07-2.4

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13



DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

LITHOLOGY SYMBOLS: Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-08-1.5

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, some sand, trace gravel, moist	Fill (made ground)	1.5	Bentonite Riser PVC pipe from 0.9 m above grade to 0.9 m below grade Slotted PVC pipe from 0.9 m below grade to 1.5 m Silica Sand				*	20 20	1.0

LITHOLOGY SYMBOLS: Fill (made ground)

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-09-1.1

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	Fill, dark brown, medium grain size, some sand and gravel, moist			Bentonite Riser PVC pipe from 0.9 m above grade to 0.5 m below grade						
	Clay, dark brown, trace sand, dense, moist, some fracturing		0.4	Slotted PVC pipe from 0.5 m below grade to 1.1 m Silica Sand				*	15	
1.0										1.0
			1.5						10	

LITHOLOGY SYMBOLS: Fill (made ground); Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-10-7.3

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, sandy, some gravel, moist								5	1.0
								*	10	
2.0									ND	2.0
	Silty clay, dark brown, trace sand, moist		2.6	Bentonite					10	
3.0										3.0
	Clay, olive brown, some sand, trace silt, moist		3.7						10	
4.0										4.0
									5	
5.0										5.0
									10	

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

LITHOLOGY SYMBOLS: Fill (made ground); Clay; Silty Clay; Till

SAMPLE TYPE

* Indicates sample submitted for analysis

Dillon Consulting Limited
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Tel. 204-453-2301
Fax. 204-452-4412

13-10-7.3

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	(continued)									
	Clay, olive brown, some sand, trace silt, moist*(Continued)*			Bentonite Riser PVC pipe from 0.9 m above grade to 6.7 m below grade Riser PVC pipe from 0.9 m above grade to 6.7 m below grade					ND	
	Till, light brown, medium grain size, sandy with some gravel, moist		6.6	Slotted PVC pipe from 6.7 m below grade to 7.3 m Silica Sand					ND	
7.0			7.3							7.0

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

LITHOLOGY SYMBOLS: Fill (made ground); Clay; Silty Clay; Till

SAMPLE TYPE

* Indicates sample submitted for analysis

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-11-3.7

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, sandy with some gravel, moist	Fill (made ground)		Bentonite Riser PVC pipe from 0.9 m above grade to 3.0 m below grade				*	20	1.0
									ND	
2.0										2.0
									ND	
	Silty clay, dark brown, trace sand, moist	Silty Clay	2.6							
3.0				Slotted PVC pipe from 3.0 m below grade to 3.7 m Silica Sand					ND	3.0
			3.7						5	

LITHOLOGY SYMBOLS: Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-12-1.1

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/13/13 Date Completed: 5/13/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, sandy, trace gravel, moist		1.1	Bentonite Riser PVC pipe from 0.9 m above grade to 0.5 m below grade Slotted PVC pipe from 0.5 m below grade to 1.1 m Silica Sand				*	ND ND	1.0

LITHOLOGY SYMBOLS: Fill (made ground)

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-13-2.0

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, sandy, trace gravel, moist			Bentonite Riser PVC pipe from 0.9 m above grade to 0.5 m below grade				*	ND	1.0
	Silty clay, dark brown, trace sand, moist		1.1	Silica Sand Slotted PVC pipe from 0.5 m below grade to 2.0 m					ND	
2.0			2							2.0

LITHOLOGY SYMBOLS: Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 9/24/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-14-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	Concrete slab 1.2 m above grade to surface		0.01							
	Fill, dark brown, medium grain size, sandy, gravel, moist							*	15	
1.0	Silty clay, dark brown, trace sand, moist, fracturing		0.8							1.0
									ND	
			1.8						ND	

LITHOLOGY SYMBOLS: Concrete; Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-15-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample: Method	Sample: Number	Sample: N Value	Sample: Rec %	Sample: VOC(ppm or %LEL)	Depth Scale (m)
	Concrete slab 1.2 m above grade to surface		0.01					*	25	
	Fill, dark brown, medium grain size, sandy, trace gravel, moist									
									5	
1.0	Silty clay, dark brown, trace sand, moist		0.8							1.0
			1.8						5	

LITHOLOGY SYMBOLS: Concrete; Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-16-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	Concrete slab 0.5 m above grade to surface		0.01							
	Fill, dark brown, medium grain size, some sand, trace gravel, moist							*	15	
1.0	Silty clay, dark brown, trace sand, moist		0.8							1.0
									25	
			1.8						10	

LITHOLOGY SYMBOLS: Concrete; Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-17-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample: Method	Sample: Number	Sample: N Value	Sample: Rec %	Sample: VOC(ppm or %LEL)	Depth Scale (m)
	Concrete slab 0.5 m above grade to surface		0.01							
	Fill, dark brown, medium grain size, moist									
								*	15	
1.0	Silty clay, dark brown, trace sand, moist		0.8							1.0
									25	
			1.8						10	

LITHOLOGY SYMBOLS: Concrete; Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
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Tel. 204-453-2301
Fax. 204-452-4412

13-18-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample					Depth Scale (m)
					Method	Number	N Value	Rec %	VOC(ppm or %LEL)	
	Concrete slab 0.5 m above grade to surface		0.01							
	Fill, dark brown, medium grain size, sandy, trace gravel, moist									
								*	35	
	Clay, dark brown, trace silt, dense, moist		0.8							
1.0										1.0
									30	
			1.8						5	

LITHOLOGY SYMBOLS: Concrete; Fill (made ground); Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-19-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	Concrete slab 0.5 m above grade to surface		0.01							
	Fill, dark brown, medium grain size, sandy, some gravel, moist									
	Traces of coal fragments		0.6						5	
1.0	Silty clay, dark brown, trace sand, moist		0.9					*	50	1.0
			1.8						20	

LITHOLOGY SYMBOLS: Concrete; Fill (made ground); Silty Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-20-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, sandy, some gravel, moist	Fill (made ground)							ND	1.0
	Clay, dark brown, trace silt, dense, moist, fracturing	Clay	1.4					*	30	
			1.8						ND	

LITHOLOGY SYMBOLS: Fill (made ground); Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-21-1.8

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf Drilling
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 2185 Logan Avenue
Drilling Method: Solid Stem
Date Started: 5/14/13 Date Completed: 5/14/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
1.0	Fill, dark brown, medium grain size, sandy, gravel, moist								ND	1.0
	Clay, dark brown, some silt, trace sand, moist		1.4					*	20	
			1.8						ND	

LITHOLOGY SYMBOLS: Fill (made ground); Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 8/13/13

Dillon Consulting Limited
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Tel. 204-453-2301
Fax. 204-452-4412

13-22-0.9

Client: North West Smelting and Refining
Project No.: 10-3834
Drilling Co.: Maple Leaf
Supervised by: NLB

Project: Environmental Subsurface Investigation
Location: 180 Ryan Street
Drilling Method: Solid Stem
Date Started: 9/6/13 Date Completed: 9/6/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	0.06 m of gray asphalt, dry		0.06							
	Fill, light brown, medium grain size, gravel with some sand, moist							*	ND	
	Clay, dark brown, trace gravel, moist		0.5							
			0.9						ND	

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 9/24/13

LITHOLOGY SYMBOLS: Asphalt; Clay; Fill (made ground)

SAMPLE TYPE

* Indicates sample submitted for analysis

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-23-0.9

Client: North West Smelting and Refining
Project: Environmental Subsurface Investigation
Project No.: 10-3834
Location: 180 Ryan Street
Drilling Co.: Maple Leaf
Drilling Method: Solid Stem
Supervised by: NLB
Date Started: 9/6/13 Date Completed: 9/6/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	Fill, light brown, medium grain size, gravel, some sand, dry Moist		0.06					*	ND	
	Clay, dark brown, some sand, trace silt, moist		0.6						ND	
			0.9							

LITHOLOGY SYMBOLS: Fill (made ground); Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 9/24/13

Dillon Consulting Limited
1558 Willson Place
Winnipeg, Manitoba R3T 0Y4
Tel. 204-453-2301
Fax. 204-452-4412

13-24-0.9

Client: North West Smelting and Refining
Project: Environmental Subsurface Investigation
Project No.: 10-3834
Location: 180 Ryan Street
Drilling Co.: Maple Leaf
Drilling Method: Solid Stem
Supervised by: NLB
Date Started: 9/6/13 Date Completed: 9/6/13

Depth Scale (m)	Stratigraphic Description	Lithology	Depth (m)	Well Construction	Sample Method	Sample Number	Sample N Value	Sample Rec %	Sample VOC(ppm or %LEL)	Depth Scale (m)
	Fill, light brown, medium grain size, gravel, some sand, moist		0.06							
	Fill, light gray, medium grain size, gravel, some sand, trace silt, moist							*	ND	
	Clay, dark gray, some silt, trace sand, moist		0.6						ND	
			0.9							

LITHOLOGY SYMBOLS: Fill (made ground); Clay

SAMPLE TYPE

* Indicates sample submitted for analysis

DILLON MW 10-3834.GPJ DILLON TEMPLATE.GDT 9/24/13

Appendix B

Summary Data Tables

Table B-1 - Summary of Soil Analytical Data - Metals

Parameter	Units	Assessment Criteria	Sample ID	13-01-5.2	13-02-1.8	13-03-1.1	13-04-1.1	13-05-1.5	13-06-7.3	13-07-2.4
			Sample Date	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13
			Sample Depth	3.5 - 4.2 m	1.5 - 2.0 m	0.8 - 1.3 m	0.8 - 1.3 m	0.5 - 1.0 m	0.5 - 1.0 m	0.5 - 1.0 m
			RDL							
Metals										
Aluminum (Al)	mg/kg	-	50	10700	25000	21500	17600	10600	14500	10300
Antimony (Sb)	mg/kg	40 [1]	0.10	5.31	2.10	**636**	**97.5**	**552**	**441**	**389**
Arsenic (As)	mg/kg	12 [2]	0.10	6.03	9.18	**280**	**75.5**	**227**	**251**	**238**
Barium (Ba)	mg/kg	2000 [6]	0.50	105	245	367	327	287	235	203
Beryllium (Be)	mg/kg	8 [1]	0.10	0.57	1.10	1.07	0.72	0.59	0.58	0.48
Bismuth (Bi)	mg/kg	-	0.020	0.162	0.303	0.758	0.670	1.24	1.68	1.96
Boron (B)	mg/kg	-	10	15	21	132	36	37	57	30
Cadmium(Cd)	mg/kg	22 [3]	0.020	0.227	0.384	4.53	2.89	10.2	**33.9**	**43.7**
Calcium (Ca)	mg/kg	-	1000	105000	28800	68600	45500	83400	62900	81300
Chromium (Cr)	mg/kg	87 [2]	1.0	24.4	46.0	46.4	46.1	27.9	38.0	39.1
Cobalt (Co)	mg/kg	300 [1]	0.020	6.87	16.0	14.8	11.2	7.04	8.86	7.39
Copper (Cu)	mg/kg	91 [3]	1.0	20.0	35.1	**667**	**367**	**252**	**1300**	**307**
Iron (Fe)	mg/kg	-	25	17900	33600	49000	36900	23100	25500	27600
Lead (Pb)	mg/kg	600 [3]	0.20	148	156	**17300**	**9250**	**25700**	**24200**	**25200**
Magnesium (Mg)	mg/kg	-	10	46800	18400	31900	20400	35600	23700	29300
Manganese (Mn)	mg/kg	-	0.50	287	508	551	687	310	387	350
Molybdenum (Mo)	mg/kg	40 [1]	0.020	2.74	3.32	7.28	3.85	3.46	3.36	4.34
Nickel (Ni)	mg/kg	50 [3]	0.50	20.5	43.1	**52.7**	38.0	31.0	38.9	42.5
Phosphorus (P)	mg/kg	-	100	430	520	900	700	580	660	500
Potassium (K)	mg/kg	-	25	2340	4290	3240	4300	2370	3440	2240
Selenium (Se)	mg/kg	2.9 [5]	0.50	0.76	0.88	1.50	1.45	**3.00**	**5.20**	**5.12**
Silver (Ag)	mg/kg	40 [1]	0.10	0.12	0.18	0.54	0.35	0.43	0.51	0.60
Sodium (Na)	mg/kg	-	10	1690	2930	2960	1120	974	752	586
Strontium (Sr)	mg/kg	-	0.10	69.7	82.3	518	164	154	113	148
Thallium (Tl)	mg/kg	1 [3]	0.10	0.18	0.34	0.40	0.36	0.77	0.83	0.86
Tin (Sn)	mg/kg	300 [1]	5.0	<5.0	<5.0	**304**	133	131	136	112
Titanium (Ti)	mg/kg	-	0.50	159	129	499	201	225	237	239
Uranium (U)	mg/kg	300 [4]	0.020	1.48	2.12	2.79	1.63	1.29	1.36	1.05
Vanadium (V)	mg/kg	130 [2]	0.50	33.1	75.1	53.9	55.7	32.6	45.2	31.8
Zinc (Zn)	mg/kg	360 [3]	10	43	82	**395**	250	180	236	299

NOTES

'-' - no criteria available

1 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1991), Industrial Land Use.

2 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1997), Industrial Land Use.

3 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1999), Industrial Land Use.

4 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2007), Industrial Land Use.

5 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2009), Industrial Land Use.

6 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2013), Industrial Land Use.

20 exceeds criteria

RDL - Reportable Detection Limit

* RDL adjusted, matrix interferences

Table B-1 - Summary of Soil Analytical Data - Metals

Parameter	Units	Assessment Criteria	Sample ID	13-08-1.5	13-09-1.1	13-10-7.3	FD1	13-11-3.7	13-12-1.1	13-13-1.1
			Sample Date	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	14-May-13
			Sample Depth	0.5 - 1.0 m	0.5 - 1.0 m	1.2 - 1.8 m	1.2 - 1.8 m	0.5 - 1.0 m	0.5 - 1.0 m	0.5 - 1.0 m
			RDL							
Metals										
Aluminum (Al)	mg/kg	-	50	4890	24300	17800	16500	17100	13700	11500
Antimony (Sb)	mg/kg	40 [1]	0.10	**1370**	1.20	**1080**	**883**	**1420**	**959**	35.7
Arsenic (As)	mg/kg	12 [2]	0.10	**653**	8.65	**538**	**493**	**858**	**523**	**22.1**
Barium (Ba)	mg/kg	2000 [6]	0.50	95.6	214	355	236	148	211	447
Beryllium (Be)	mg/kg	8 [1]	0.10	0.20	1.14	0.93	0.98	1.14	0.91	0.62
Bismuth (Bi)	mg/kg	-	0.020	5.44	0.306	2.41	3.02	4.32	3.60	0.231
Boron (B)	mg/kg	-	10	27	23	36	37	50	34	37
Cadmium(Cd)	mg/kg	22 [3]	0.020	**108**	0.254	8.55	11.2	14.9	12.6	1.36
Calcium (Ca)	mg/kg	-	1000	80500	29600	55500	50000	63000	62000	82000
Chromium (Cr)	mg/kg	87 [2]	1.0	17.4	55.5	70.4	69.5	**100**	78.3	26.7
Cobalt (Co)	mg/kg	300 [1]	0.020	4.61	17.0	17.4	20.1	23.0	20.0	7.18
Copper (Cu)	mg/kg	91 [3]	1.0	**391**	36.3	**639**	**750**	**1150**	**730**	**158**
Iron (Fe)	mg/kg	-	25	16000	35300	72700	79300	102000	86900	17200
Lead (Pb)	mg/kg	600 [3]	0.20	**47200**	40.6	**28400**	**39400**	**37200**	**27600**	**1640**
Magnesium (Mg)	mg/kg	-	10	16500	17300	19500	17100	18800	19100	33700
Manganese (Mn)	mg/kg	-	0.50	225	488	679	648	697	672	338
Molybdenum (Mo)	mg/kg	40 [1]	0.020	2.64	2.14	7.78	7.21	10.2	8.94	1.14
Nickel (Ni)	mg/kg	50 [3]	0.50	43.8	47.8	**65.9**	**72.3**	**92.9**	**74.7**	25.8
Phosphorus (P)	mg/kg	-	100	310	580	880	1010	1130	940	760
Potassium (K)	mg/kg	-	25	1010	7000	3510	3450	2300	2140	2420
Selenium (Se)	mg/kg	2.9 [5]	0.50	**18.3**	<0.50	**3.47**	2.43	**3.06**	1.72	0.70
Silver (Ag)	mg/kg	40 [1]	0.10	1.42	0.18	0.98	0.89	1.14	1.08	1.04
Sodium (Na)	mg/kg	-	10	310	1990	2610	2010	2910	1890	620
Strontium (Sr)	mg/kg	-	0.10	97.4	74.3	140	107	127	112	197
Thallium (Tl)	mg/kg	1 [3]	0.10	**1.98**	0.34	0.89	**1.03**	**1.33**	**1.06**	0.18
Tin (Sn)	mg/kg	300 [1]	5.0	**364**	<5.0	**563**	**860**	**1160**	**930**	41.5
Titanium (Ti)	mg/kg	-	0.50	211	221	353	336	502	324	240
Uranium (U)	mg/kg	300 [4]	0.020	0.583	1.71	1.82	1.77	1.67	1.41	1.33
Vanadium (V)	mg/kg	130 [2]	0.50	15.4	89.3	58.5	58.9	59.9	52.1	32.2
Zinc (Zn)	mg/kg	360 [3]	10	260	83	**620**	**530**	**570**	**770**	250

NOTES

'-' - no criteria available

1 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1991), Industrial Land Use.

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3 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1999), Industrial Land Use.

4 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2007), Industrial Land Use.

5 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2009), Industrial Land Use.

6 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2013), Industrial Land Use.

20 exceeds criteria

RDL - Reportable Detection Limit

* RDL adjusted, matrix interferences

Table B-1 - Summary of Soil Analytical Data - Metals

Parameter	Units	Assessment Criteria	Sample ID	13-14-1.8	13-15-1.8	13-16-1.5	13-17-1.8	13-18-1.8	13-19.18	FD 2
			Sample Date	14-May-13	14-May-13	14-May-13	14-May-13	14-May-13	14-May-13	14-May-13
			Sample Depth	0.5 - 1.0 m	0.0 - 0.5 m	0.5 - 1.0 m	0.5 - 1.0 m	0.5 - 1.0 m	1.2 - 1.8 m	1.2 - 1.8 m
			RDL							
Metals										
Aluminum (Al)	mg/kg	-	50	26800	5510	13200	16200	3950	23100	23100
Antimony (Sb)	mg/kg	40 [1]	0.10	1.08	**186**	**1720**	**205**	**50**	0.67	0.59
Arsenic (As)	mg/kg	12 [2]	0.10	8.09	**64.2**	**1200**	**64.4**	**80.9**	8.97	8.86
Barium (Ba)	mg/kg	2000 [6]	0.50	234	130	320	305	66.3	234	231
Beryllium (Be)	mg/kg	8 [1]	0.10	1.24	0.28	0.73	0.73	0.19	1.24	1.32
Bismuth (Bi)	mg/kg	-	0.020	0.292	0.609	2.05	0.537	0.188	0.369	0.367
Boron (B)	mg/kg	-	10	31	24	52	157	23	18	17
Cadmium(Cd)	mg/kg	22 [3]	0.020	0.518	3.67	**30.6**	1.53	21.2	0.305	0.304
Calcium (Ca)	mg/kg	-	1000	44400	95000	65000	54000	121000	27700	31500
Chromium (Cr)	mg/kg	87 [2]	1.0	50.0	18.7	29.7	46.0	9.9	45.0	45.3
Cobalt (Co)	mg/kg	300 [1]	0.020	15.6	4.65	10.3	15	2.87	16.9	17.6
Copper (Cu)	mg/kg	91 [3]	1.0	32.6	58.0	**200**	**1390**	23.2	36.9	35.0
Iron (Fe)	mg/kg	-	25	29700	17400	22900	62900	7700	31500	32300
Lead (Pb)	mg/kg	600 [3]	0.20	61.2	**9310**	**30300**	**14200**	**5110**	28.2	24.9
Magnesium (Mg)	mg/kg	-	10	15800	39900	25500	30800	48800	16000	15500
Manganese (Mn)	mg/kg	-	0.50	444	225	331	575	166	478	512
Molybdenum (Mo)	mg/kg	40 [1]	0.020	0.567	1.43	1.45	4.41	0.342	1.82	1.77
Nickel (Ni)	mg/kg	50 [3]	0.50	43.7	16.8	**54.8**	**72.7**	11.5	**50.4**	48.5
Phosphorus (P)	mg/kg	-	100	570	340	690	750	370	580	590
Potassium (K)	mg/kg	-	25	5150	1280	3300	3260	975	3980	3950
Selenium (Se)	mg/kg	2.9 [5]	0.50	0.95	0.67	**5.79**	**2.93**	**3.56**	0.94	<0.50
Silver (Ag)	mg/kg	40 [1]	0.10	0.18	0.21	0.76	1.05	<0.10	0.17	0.17
Sodium (Na)	mg/kg	-	10	647	529	752	2530	266	1250	1220
Strontium (Sr)	mg/kg	-	0.10	108	78.3	194	190	71.1	77.7	82.3
Thallium (Tl)	mg/kg	1 [3]	0.10	0.35	0.24	0.87	0.51	0.45	0.35	0.35
Tin (Sn)	mg/kg	300 [1]	5.0	<5.0	64.5	147	**1000**	32.2	<5.0	<5.0
Titanium (Ti)	mg/kg	-	0.50	197	197	220	263	207	115	99.8
Uranium (U)	mg/kg	300 [4]	0.020	2.68	0.727	1.47	1.65	0.52	2.53	2.51
Vanadium (V)	mg/kg	130 [2]	0.50	89.5	18.9	42.3	57.9	13.8	71.3	73.1
Zinc (Zn)	mg/kg	360 [3]	10	87	54	223	**2100**	64	88	88

NOTES

'-' - no criteria available

1 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1991), Industrial Land Use.

2 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1997), Industrial Land Use.

3 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1999), Industrial Land Use.

4 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2007), Industrial Land Use.

5 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2009), Industrial Land Use.

6 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2013), Industrial Land Use.

20 exceeds criteria

RDL - Reportable Detection Limit

* RDL adjusted, matrix interferences

Table B-1 - Summary of Soil Analytical Data - Metals

Parameter	Units	Assessment Criteria	Sample ID	13-20-1.8	13-21-1.8	13-22-0.9	13-23-0.9	FD 1	13-24-0.9
			Sample Date	14-May-13	14-May-13	6-Sep-13	6-Sep-13	6-Sep-13	6-Sep-13
			Sample Depth	1.2 - 1.8 m	1.2 - 1.8 m	0.3 - 0.5 m	0.3 - 0.5 m	0.3 - 0.5 m	0.3 - 0.5 m
			RDL						
Metals									
Aluminum (Al)	mg/kg	-	50	30200	27900	-	-	-	-
Antimony (Sb)	mg/kg	40 [1]	0.10	1.88	0.96	-	-	-	-
Arsenic (As)	mg/kg	12 [2]	0.10	8.40	10.7	-	-	-	-
Barium (Ba)	mg/kg	2000 [6]	0.50	170	221	-	-	-	-
Beryllium (Be)	mg/kg	8 [1]	0.10	1.20	1.14	-	-	-	-
Bismuth (Bi)	mg/kg	-	0.020	0.316	0.302	-	-	-	-
Boron (B)	mg/kg	-	10	61	52	-	-	-	-
Cadmium(Cd)	mg/kg	22 [3]	0.020	0.411	0.330	-	-	-	-
Calcium (Ca)	mg/kg	-	1000	15200	36400	-	-	-	-
Chromium (Cr)	mg/kg	87 [2]	1.0	53.9	51.1	-	-	-	-
Cobalt (Co)	mg/kg	300 [1]	0.020	16.7	15.9	-	-	-	-
Copper (Cu)	mg/kg	91 [3]	1.0	35.8	33.6	-	-	-	-
Iron (Fe)	mg/kg	-	25	32100	31800	-	-	-	-
Lead (Pb)	mg/kg	600 [3]	0.20	168	38.2	209	13.9	33.7	412
Magnesium (Mg)	mg/kg	-	10	12200	15100	-	-	-	-
Manganese (Mn)	mg/kg	-	0.50	478	416	-	-	-	-
Molybdenum (Mo)	mg/kg	40 [1]	0.020	0.494	0.627	-	-	-	-
Nickel (Ni)	mg/kg	50 [3]	0.50	46.8	45.4	-	-	-	-
Phosphorus (P)	mg/kg	-	100	550	550	-	-	-	-
Potassium (K)	mg/kg	-	25	6100	5580	-	-	-	-
Selenium (Se)	mg/kg	2.9 [5]	0.50	0.82	<0.50	-	-	-	-
Silver (Ag)	mg/kg	40 [1]	0.10	0.24	0.20	-	-	-	-
Sodium (Na)	mg/kg	-	10	2240	1170	-	-	-	-
Strontium (Sr)	mg/kg	-	0.10	85.7	124	-	-	-	-
Thallium (Tl)	mg/kg	1 [3]	0.10	0.39	0.37	-	-	-	-
Tin (Sn)	mg/kg	300 [1]	5.0	<5.0	<5.0	-	-	-	-
Titanium (Ti)	mg/kg	-	0.50	170	246	-	-	-	-
Uranium (U)	mg/kg	300 [4]	0.020	1.47	2.09	-	-	-	-
Vanadium (V)	mg/kg	130 [2]	0.50	89.2	89.1	-	-	-	-
Zinc (Zn)	mg/kg	360 [3]	10	104	95	-	-	-	-

NOTES

'-' - no criteria available

1 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1991), Industrial Land Use.

2 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1997), Industrial Land Use.

3 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1999), Industrial Land Use.

4 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2007), Industrial Land Use.

5 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2009), Industrial Land Use.

6 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2013), Industrial Land Use.

20 exceeds criteria

RDL - Reportable Detection Limit

* RDL adjusted, matrix interferences

Table B-1 - Summary of Soil Analytical Data - Metals

Parameter	Units	Assessment Criteria	Sample ID	12-01-01	12-02-02	12-02-06	12-02-03	12-03-01	12-04-01	12-04-03
			Sample Date	7/12/2012	7/12/2012	7/12/2012	7/12/2012	7/12/2012	7/12/2012	7/12/2012
			Sample Depth	0 - 0.15 m	0.61 - 0.76 m	12-02-02 FD	1.37 - 1.52 m	0 - 0.15 m	0 - 0.15 m	1.37 - 1.52 m
			MDL							
Metals										
Aluminum (Al)	mg/kg	-	5	7780	17100	16000	<5.0	9030	3410	32300
Antimony (Sb)	mg/kg	40 [1]	0.1	**1060 ***	1.17	**221**	<0.10	**517**	**414**	2.18
Arsenic (As)	mg/kg	12 [2]	0.1	**368**	5.11	**57.9**	<0.10	**226**	**132**	10.3
Barium (Ba)	mg/kg	2000 [6]	0.5	261	212	935	<0.50	222	130	199
Beryllium (Be)	mg/kg	8 [1]	0.1	0.23	0.6	0.71	<0.10	0.2	0.14	0.97
Bismuth (Bi)	mg/kg	-	0.02	3.87	0.19	0.389	<0.020	2.92	2.15	0.283
Boron (B)	mg/kg	-	10	45	39	67	<10	57	37	49
Cadmium (Cd)	mg/kg	22 [3]	0.02	**25.7**	0.341	1.44	<0.020	16.8	8.99	0.372
Calcium (Ca)	mg/kg	-	100	126000 *	76000	89800	<100	158000 *	215000 *	26300
Cesium (Cs)	mg/kg	-	0.02	0.544	1.26	0.783	<0.020	0.449	0.242	1.83
Chromium (Cr)	mg/kg	87 [2]	1	64.9	79.2	25.9	<1.0	57	32.9	52.7
Cobalt (Co)	mg/kg	300 [1]	0.02	7.41	9.08	7.74	<0.020	7.48	3.97	13.2
Copper (Cu)	mg/kg	91 [3]	1	**4680 ***	35.3	**154**	<1.0	**1000 ***	**560**	43.4
Iron (Fe)	mg/kg	-	25	39300	25700	26700	<25	28100	19000	33300
Lead (Pb)	mg/kg	600 [3]	0.2	**53400 ***	92.1	**8770 ***	0.32	**46200 ***	**33700 ***	170
Magnesium (Mg)	mg/kg	-	10	50500	26200	29500	<10	62000	103000 *	13200
Manganese (Mn)	mg/kg	-	0.5	461	511	353	<0.50	454	515	524
Molybdenum (Mo)	mg/kg	40 [1]	0.02	6.15	4.69	2.55	<0.020	7.32	17.4	1.1
Nickel (Ni)	mg/kg	50 [3]	0.5	**71.7**	**69.6**	28.1	<0.50	**76.4**	35.3	**50.6**
Phosphorus (P)	mg/kg	-	100	510	490	720	<100	460	260	650
Potassium (K)	mg/kg	-	25	1400	3670	2400	<25	1260	709	6010
Rubidium (Rb)	mg/kg	-	0.02	8.78	26.1	15.8	<0.020	8.3	3.78	44.8
Selenium (Se)	mg/kg	2.9 [5]	0.5	**9.08**	0.52	0.99	<0.50	**5.18**	**3.51**	0.87
Silver (Ag)	mg/kg	40 [1]	0.1	1.17	0.22	0.47	<0.10	1	0.51	0.59
Sodium (Na)	mg/kg	-	10	800	624	1910	<10	491	538	2410
Strontium (Sr)	mg/kg	-	0.1	85.9	187	552	<0.10	77.6	82.9	127
Tellurium (Te)	mg/kg	-	0.1	0.56	<0.10	<0.10	<0.10	0.31	0.16	<0.10
Thallium (Tl)	mg/kg	1 [3]	0.1	0.97	0.2	0.29	<0.10	0.64	0.62	0.35
Tin (Sn)	mg/kg	300 [1]	5	258	<5.0	95.7	<5.0	147	94.3	<5.0
Titanium (Ti)	mg/kg	-	0.5	185	321	525	<0.50	155	122	244
Tungsten (W)	mg/kg	-	0.05	0.95	0.173	0.409	<0.050	1.77	0.66	0.08
Uranium (U)	mg/kg	300 [4]	0.02	0.699	0.96	2.02	<0.020	0.556	0.521	1.52
Vanadium (V)	mg/kg	130 [2]	0.5	19.5	49.2	36.1	<0.50	17.8	9.75	90.9
Zinc (Zn)	mg/kg	360 [3]	10	**750 ***	200	170	<10	**740 ***	163	101
Zirconium (Zr)	mg/kg	-	0.1	2.6	10.7	15.5	<0.10	2.3	3.77	12.3
Other Parameters										
pH (1:2 soil:water)	pH		0.1	-	9.23	8.32	8.48	7.94	-	-

NOTES

'-' - no criteria available

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6 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2013), Industrial Land Use.

20 exceeds criteria

RDL - Reportable Detection Limit

* RDL adjusted, matrix interferences

Table B-1 - Summary of Soil Analytical Data - Metals

Parameter	Units	Assessment Criteria	Sample ID	12-05-02	12-05-05	TP-01-02	TP-04-03	TP-05-03	TP-07-03	TP-10-03
			Sample Date	7/12/2012	7/12/2012	11/13/2012	11/13/2012	11/13/2012	11/13/2012	11/13/2012
			Sample Depth	0.61 - 0.76 m	2.9 - 3.0 m	2.8 m	1.8 m	2.3 m	2.4 m	2.8 m
			MDL							
Metals										
Aluminum (Al)	mg/kg	-	5	21600	20300	25700 *	7960	21500 *	5970	28300 *
Antimony (Sb)	mg/kg	40 [1]	0.1	33.1	0.36	**58.6**	**56.8**	11.9	0.89	3.07
Arsenic (As)	mg/kg	12 [2]	0.1	7.43	7.64	**31.9**	**25.2**	11.2	2.39	7.63
Barium (Ba)	mg/kg	2000 [6]	0.5	1550	406	345	234	200	52	323
Beryllium (Be)	mg/kg	8 [1]	0.1	0.82	0.93	1.02	0.42	1.04	0.16	1.09
Bismuth (Bi)	mg/kg	-	0.02	0.147	0.259	1.04	0.324	0.331	0.079	0.277
Boron (B)	mg/kg	-	10	138	16	16	40	22	12	16
Cadmium (Cd)	mg/kg	22 [3]	0.02	0.609	0.307	0.818	1.81	0.811	0.137	0.249
Calcium (Ca)	mg/kg	-	100	79900	59300	36400	76900	45000	88100 *	35400
Cesium (Cs)	mg/kg	-	0.02	0.821	1.6	-	-	-	-	-
Chromium (Cr)	mg/kg	87 [2]	1	21.1	38.5	54.9	16.6	48.8	15.8	53
Cobalt (Co)	mg/kg	300 [1]	0.02	7.27	14.1	16.4	5.64	15.4	4.39	17.4
Copper (Cu)	mg/kg	91 [3]	1	54.4	30	78.6	**182**	40.7	11.3	38
Iron (Fe)	mg/kg	-	25	19500	27500	34600	13200	30000	9540	32000
Lead (Pb)	mg/kg	600 [3]	0.2	499	15.9	**5860 ***	**4780 ***	**1010 ***	75	272
Magnesium (Mg)	mg/kg	-	10	23600	24900	17100	24900	16800	52300	14900
Manganese (Mn)	mg/kg	-	0.5	439	620	498	295	494	256	584
Molybdenum (Mo)	mg/kg	40 [1]	0.02	3.15	1.2	1.46	1.07	1.28	0.466	0.684
Nickel (Ni)	mg/kg	50 [3]	0.5	25.2	45.3	**50.5**	19	48.7	14.1	48.8
Phosphorus (P)	mg/kg	-	100	1480	540	570	570	600	410	500
Potassium (K)	mg/kg	-	25	2780	3790	4270	1450	3730	1470	4480
Rubidium (Rb)	mg/kg	-	0.02	15.1	30.3	-	-	-	-	-
Selenium (Se)	mg/kg	2.9 [5]	0.5	0.9	0.63	0.5	0.79	<0.50	<0.50	<0.50
Silver (Ag)	mg/kg	40 [1]	0.1	0.29	0.19	0.22	0.15	0.19	<0.10	0.15
Sodium (Na)	mg/kg	-	10	4470	1190	1930	479	1670	523	1370
Strontium (Sr)	mg/kg	-	0.1	1110	76.7	97.1	151	88.6	42.2	90.3
Tellurium (Te)	mg/kg	-	0.1	<0.10	<0.10	-	-	-	-	-
Thallium (Tl)	mg/kg	1 [3]	0.1	0.14	0.26	0.39	0.2	0.34	0.11	0.34
Tin (Sn)	mg/kg	300 [1]	5	12.6	<5.0	41.1	26.6	<5.0	<5.0	<5.0
Titanium (Ti)	mg/kg	-	0.5	574	93.9	155	202	162	279	144
Tungsten (W)	mg/kg	-	0.05	0.478	<0.050	-	-	-	-	-
Uranium (U)	mg/kg	300 [4]	0.02	3.11	2.21	2.28	0.935	1.97	0.715	1.81
Vanadium (V)	mg/kg	130 [2]	0.5	31.2	59.2	88.1	23.9	73.2	21.6	89.6
Zinc (Zn)	mg/kg	360 [3]	10	106	77	99	170	81	24	85
Zirconium (Zr)	mg/kg	-	0.1	14.9	13.4	-	-	-	-	-
Other Parameters										
pH (1:2 soil:water)	pH		0.1	-	-	8.01	7.74	8.28	8.87	8.34

NOTES

'-' - no criteria available

1 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1991), Industrial Land Use.

2 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1997), Industrial Land Use.

3 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1999), Industrial Land Use.

4 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2007), Industrial Land Use.

5 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2009), Industrial Land Use.

6 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2013), Industrial Land Use.

20 exceeds criteria

RDL - Reportable Detection Limit

* RDL adjusted, matrix interferences

Table B-1 - Summary of Soil Analytical Data - Metals

Parameter	Units	Assessment Criteria	Sample ID	TP-13-02	TP-15-03	TP-16-03	TP-18-03	TP-18-04	TP-21-03
			Sample Date	11/13/2012	11/14/2012	11/14/2012	11/14/2012	11/14/2012	11/14/2012
			Sample Depth	2.3 m	2.4 m	2.6 m	2.5 m	TP-18-04 FD	1.8 m
			MDL						
Metals									
Aluminum (Al)	mg/kg	-	5	25000 *	18600 *	23200 *	28500 *	28000 *	6580
Antimony (Sb)	mg/kg	40 [1]	0.1	21.8	31.7	20.2	1.03	1.68	6.05
Arsenic (As)	mg/kg	12 [2]	0.1	10.3	**12.8**	**12.3**	7.6	7.53	3.86
Barium (Ba)	mg/kg	2000 [6]	0.5	349	164	224	249	193	57.4
Beryllium (Be)	mg/kg	8 [1]	0.1	0.98	0.54	0.69	0.91	0.9	0.2
Bismuth (Bi)	mg/kg	-	0.02	0.302	0.337	0.249	0.28	0.27	0.084
Boron (B)	mg/kg	-	10	16	17	18	17	17	13
Cadmium (Cd)	mg/kg	22 [3]	0.02	0.358	0.454	0.542	0.272	0.254	0.239
Calcium (Ca)	mg/kg	-	100	37500	77900	53100	37000	34400	89600 *
Cesium (Cs)	mg/kg	-	0.02	-	-	-	-	-	-
Chromium (Cr)	mg/kg	87 [2]	1	51.3	45.3	47.6	59.2	59.1	16.6
Cobalt (Co)	mg/kg	300 [1]	0.02	16	13.4	11.9	18.8	17.2	4.69
Copper (Cu)	mg/kg	91 [3]	1	43.8	44.1	46.4	36.5	37.5	13.8
Iron (Fe)	mg/kg	-	25	31200	25400	26300	33000	33400	10100
Lead (Pb)	mg/kg	600 [3]	0.2	565	**4430 ***	**1490 ***	110	202	188
Magnesium (Mg)	mg/kg	-	10	17000	29000	16200	16400	16200	48400
Manganese (Mn)	mg/kg	-	0.5	500	493	498	556	499	244
Molybdenum (Mo)	mg/kg	40 [1]	0.02	0.789	0.731	0.455	0.61	0.619	0.56
Nickel (Ni)	mg/kg	50 [3]	0.5	46.5	41.7	39	**52**	**51.1**	14.8
Phosphorus (P)	mg/kg	-	100	550	620	700	600	600	410
Potassium (K)	mg/kg	-	25	4370	4360	6110	5180	5210	1310
Rubidium (Rb)	mg/kg	-	0.02	-	-	-	-	-	-
Selenium (Se)	mg/kg	2.9 [5]	0.5	<0.50	<0.50	<0.50	0.88	<0.50	0.88
Silver (Ag)	mg/kg	40 [1]	0.1	0.16	0.15	0.13	0.18	0.18	<0.10
Sodium (Na)	mg/kg	-	10	1650	873	1960	1440	1500	353
Strontium (Sr)	mg/kg	-	0.1	97.3	111	107	90.2	83.8	52.8
Tellurium (Te)	mg/kg	-	0.1	-	-	-	-	-	-
Thallium (Tl)	mg/kg	1 [3]	0.1	0.34	0.39	0.31	0.38	0.38	0.12
Tin (Sn)	mg/kg	300 [1]	5	11.3	11.9	11	<5.0	<5.0	<5.0
Titanium (Ti)	mg/kg	-	0.5	182	664	367	310	323	260
Tungsten (W)	mg/kg	-	0.05	-	-	-	-	-	-
Uranium (U)	mg/kg	300 [4]	0.02	2.61	1.42	1.07	1.39	1.37	0.744
Vanadium (V)	mg/kg	130 [2]	0.5	83.9	66.6	78.4	92.6	92.6	24
Zinc (Zn)	mg/kg	360 [3]	10	86	67	85	89	91	27
Zirconium (Zr)	mg/kg	-	0.1	-	-	-	-	-	-
Other Parameters									
pH (1:2 soil:water)	pH		0.1	8.66	8.4	8.73	8.46	8.6	8.66

NOTES

'-' - no criteria available

1 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1991), Industrial Land Use.

2 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1997), Industrial Land Use.

3 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1999), Industrial Land Use.

4 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2007), Industrial Land Use.

5 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2009), Industrial Land Use.

6 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 2013), Industrial Land Use.

20 exceeds criteria

RDL - Reportable Detection Limit

* RDL adjusted, matrix interferences

Table B-2 - Summary of Soil Analytical Data - Leachate

Parameter	Units	Assessment Criteria	Sample ID	13-01-5.2	13-02-1.8	13-03-1.1	13-04-1.1	13-05-1.5	13-06-7.3	13-07-2.4
			Sample Date	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13
			Sample Depth	3.5 - 4.2 m	1.5 - 2.0 m	0.8 - 1.3 m	0.8 - 1.3 m	0.5 - 1.0 m	0.5 - 1.0 m	0.5 - 1.0 m
			RDL							
Leachate										
Antimony (Sb)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	0.65	<0.50
Arsenic (As)-Dissolved	mg/L	5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium (Ba)-Dissolved	mg/L	100	0.50	<0.50	<0.50	<0.50	0.77	<0.50	<0.50	<0.50
Beryllium (Be)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Boron (B)-Dissolved	mg/L	500	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd)-Dissolved	mg/L	0.5	0.050	<0.050	<0.050	<0.050	<0.050	0.091	0.427	0.355
Calcium (Ca)-Dissolved	mg/L	-	5.0	779	530	498	361	606	765	953
Chromium (Cr)-Dissolved	mg/L	5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	mg/L	-	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Copper (Cu)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Iron (Fe)-Dissolved	mg/L	-	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead (Pb)-Dissolved	mg/L	5	0.50	<0.50	<0.50	**43.5**	**25.7**	**101**	**155**	**89.7**
Magnesium (Mg)-Dissolved	mg/L	-	5.0	106	168	123	84.1	50.7	39.7	30.8
Manganese (Mn)-Dissolved	mg/L	-	0.050	2.14	6.07	4.37	9.18	0.059	0.472	1.55
Molybdenum (Mo)-Dissolved	mg/L	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nickel (Ni)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Potassium (K)-Dissolved	mg/L	-	5.0	6.1	<5.0	14.8	12.1	11.3	7.7	7.7
Selenium (Se)-Dissolved	mg/L	1	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag)-Dissolved	mg/L	5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Strontium (Sr)-Dissolved	mg/L	-	0.010	0.935	1.21	3.35	2.00	1.36	1.22	1.25
Thallium (Tl)-Dissolved	mg/L	-	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin (Sn)-Dissolved	mg/L	-	0.050	0.430	0.433	0.430	0.438	0.427	0.429	0.445
Uranium (U)-Dissolved	mg/L	2	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vanadium (V)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc (Zn)-Dissolved	mg/L	-	1.0	<1.0	<1.0	<1.0	<1.0	51.7	<1.0	<1.0
Zirconium (Zr)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

NOTES

'-' - no criteria available

1 - Manitoba Regulation 282/87, Classification Critieria for Products, Substances and Organisms, Table 1 - Leachate Quality Criteria

20 exceeds criteria

RDL - Reportable Detection Limit

Table B-2 - Summary of Soil Analytical Data - Leachate

Parameter	Units	Assessment Criteria	Sample ID	13-08-1.5	13-09-1.1	13-10-7.3	FD1	13-11-3.7	13-12-1.1
			Sample Date	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13
			Sample Depth	0.5 - 1.0 m	0.5 - 1.0 m	1.2 - 1.8 m	1.2 - 1.8 m	0.5 - 1.0 m	0.5 - 1.0 m
			RDL						
Leachate									
Antimony (Sb)-Dissolved	mg/L	-	0.50	0.66	<0.50	<0.50	<0.50	<0.50	<0.50
Arsenic (As)-Dissolved	mg/L	5	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Barium (Ba)-Dissolved	mg/L	100	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Beryllium (Be)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Boron (B)-Dissolved	mg/L	500	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Cadmium (Cd)-Dissolved	mg/L	0.5	0.050	**1.38**	<0.050	<0.050	0.083	0.073	0.071
Calcium (Ca)-Dissolved	mg/L	-	5.0	1190	279	483	480	505	646
Chromium (Cr)-Dissolved	mg/L	5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	mg/L	-	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Copper (Cu)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Iron (Fe)-Dissolved	mg/L	-	5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead (Pb)-Dissolved	mg/L	5	0.50	**82.7**	<0.50	**55.6**	**126**	**238**	**104**
Magnesium (Mg)-Dissolved	mg/L	-	5.0	25.0	108	54.6	37.7	29.2	39.6
Manganese (Mn)-Dissolved	mg/L	-	0.050	0.186	0.342	0.145	1.22	0.189	1.41
Molybdenum (Mo)-Dissolved	mg/L	-	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Nickel (Ni)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Potassium (K)-Dissolved	mg/L	-	5.0	7.1	23.2	9.1	10.3	7.9	10.0
Selenium (Se)-Dissolved	mg/L	1	0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Silver (Ag)-Dissolved	mg/L	5	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Strontium (Sr)-Dissolved	mg/L	-	0.010	0.586	0.715	1.08	1.14	1.01	1.21
Thallium (Tl)-Dissolved	mg/L	-	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Tin (Sn)-Dissolved	mg/L	-	0.050	0.423	0.407	0.412	0.423	0.399	0.443
Uranium (U)-Dissolved	mg/L	2	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Vanadium (V)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc (Zn)-Dissolved	mg/L	-	1.0	<1.0	<1.0	<1.0	5.6	2.2	25.6
Zirconium (Zr)-Dissolved	mg/L	-	0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

NOTES

'-' - no criteria available

Manitoba Regulation 282/87, Classification Critieria for Products, Substances and Organisms, Table 1 - Leachate Quality Criteria

20 exceeds criteria

RDL - Reportable Detection Limit

Table B-2 - Summary of Soil Analytical Data - Leachate

Parameter	Units	Assessment Criteria	Sample ID	12-05-02	TP-08-03	TP-09-03	TP-11-03
			Sample Date	7/12/2012	11/13/2012	11/13/2012	11/13/2012
			Sample Depth	0.61 - 0.76 m	2.8 m	2.8 m	2.4 m
			MDL				
Petroleum Hydrocarbons							
Benzene	mg/kg	0.0068 [2]	0.005	<0.0050	-	-	-
Ethyl Benzene	mg/kg	0.018 [2]	0.015	<0.015	-	-	-
Toluene	mg/kg	0.08 [2]	0.05	<0.050	-	-	-
Xylenes	mg/kg	2.4 [2]	0.1	<0.10	-	-	-
F1 (C6-C10)	mg/kg	320 [1]	10	<10	-	-	-
F2 (C10-C16)	mg/kg	260 [1]	10	16	-	-	-
F3 (C16-C34)	mg/kg	2500 [1]	50	95	-	-	-
F4 (C34-C50)	mg/kg	3300 [1]	50	64			
PAHs							
Acenaphthene	mg/kg	-	0.005	-	<0.0050	<0.0050	<0.0050
Acenaphthylene	mg/kg	-	0.005	-	<0.0050	<0.0050	<0.0050
Acridine	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
Anthracene	mg/kg	32 [3]	0.004	-	<0.0040	<0.0040	<0.0040
Benzo(a)anthracene	mg/kg	0.33 [4]	0.01	-	<0.010	<0.010	<0.010
Benzo(a)pyrene	mg/kg	0.16 [4]	0.01	-	<0.010	<0.010	<0.010
Benzo(b&j)fluoranthene	mg/kg	0.33 [4]	0.01	-	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	mg/kg	-	0.014	-	<0.014	<0.014	<0.014
Benzo(g,h,i)perylene	mg/kg	6.8 [4]	0.01	-	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	mg/kg	0.034 [4]	0.01	-	<0.010	<0.010	<0.010
Chrysene	mg/kg	2.1 [4]	0.01	-	<0.010	<0.010	<0.010
Dibenzo(a,h)anthracene	mg/kg	0.23 [4]	0.005	-	<0.0050	<0.0050	<0.0050
Fluoranthene	mg/kg	180 [3]	0.01	-	<0.010	<0.010	<0.010
Fluorene	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
Indeno(1,2,3-cd)pyrene	mg/kg	2.7 [4]	0.01	-	<0.010	<0.010	<0.010
1-Methyl Naphthalene	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
2-Methyl Naphthalene	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
Naphthalene	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
Phenanthrene	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
Pyrene	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
Quinoline	mg/kg	-	0.01	-	<0.010	<0.010	<0.010
B(a)P Total Potency Equivalent	mg/kg	0.6 [4,5]	0.02	-	<0.020	<0.020	<0.020
IACR (CCME)	mg/kg	1.0 [4]	0.15	-	<0.15	<0.15	<0.15

NOTES

'-' - no criteria available
1 - Canadian Council of Ministers of the Environment (2008), Canada Wide Standards for Petroleum Hydrocarbons in Soil (Fine-Grained)
2 - Canadian Council of Ministers of the Environment SQGs (2004), Industrial Land Use
3 - Canadian SQGs for Carcinogenic and other Polycyclic Aromatic Hydrocarbons Environmental Health Guidelines/Check Values
4 - Canadian SQGs for Carcinogenic and other Polycyclic Aromatic Hydrocarbons Human Health Guideline/Check Values
5 - Canadian SQGs for Carcinogenic and other Polycyclic Aromatic Hydrocarbons Human Health Guideline/Check Values 10^{-6} B(a) P Total Potency Equivalents
20 exceeds criteria
MDL - Method Detection Limit

Table B-3 - Summary of Soil Analytical Data - Mercury and pH

Parameter	Units	Assessment Criteria	Sample ID	13-01-5.2	13-02-1.8	13-03-1.1	13-04-1.1	13-05-1.5	13-06-7.3	13-07-2.4
			Sample Date	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13
			Sample Depth	3.5 - 4.2 m	1.5 - 2.0 m	0.8 - 1.3 m	0.8 - 1.3 m	0.5 - 1.0 m	0.5 - 1.0 m	0.5 - 1.0 m
			RDL							
Mercury	mg/kg	50	0.050	<0.050	<0.050	0.067	0.174	0.102	0.209	0.194
pH	-	6 to 8	0.10	**8.14**	**8.40**	**8.22**	**8.05**	7.81	7.69	7.64

Parameter	Units	Assessment Criteria	Sample ID	13-08-1.5	13-09-1.1	13-10-7.3	FD1	13-11-3.7	13-12-1.1
			Sample Date	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13	13-May-13
			Sample Depth	0.5 - 1.0 m	0.5 - 1.0 m	1.2 - 1.8 m	1.2 - 1.8 m	0.5 - 1.0 m	0.5 - 1.0 m
			RDL						
Mercury	mg/kg	50	0.050	0.200	<0.050	0.272	0.224	0.196	0.351
pH	-	6 to 8	0.10	7.61	**8.20**	7.73	7.66	7.61	7.60

NOTES

1 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1991), Industrial Land Use.
2 - Canadian Council of Ministers of the Environment, Canadian Soil Quality Guildelines (update 1999), Industrial Land Use.
20 exceeds criteria

Table B-4 - Summary of Soil Analytical Data - Polycyclic Aromatic Hydrocarbons, Petroleum Hydrocarbons and Polychlorinated Biphenyls

Parameter	Units	Assessment Criteria	Sample ID	13-13-1.1	13-14-1.8	13-15-1.8	13-16-1.5	13-17-1.8	13-18-1.8	13-19.18	FD 2
			Sample Date	14-May-13	14-May-13	14-May-13	14-May-13	14-May-13	14-May-13	14-May-13	14-May-13
			Sample Depth	0.5 - 1.0 m	0.5 - 1.0 m	0.0 - 0.05 m	0.5 - 1.0 m	0.5 - 1.0 m	0.5 - 1.0 m	1.2 - 1.8 m	1.2 - 1.8 m
			RDL								
Petroleum Hydrocarbons											
Benzene	mg/kg	0.28 [2]	0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0098	0.0079
Toluene	mg/kg	430 [3]	0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Ethyl Benzene	mg/kg	330 [3]	0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015	<0.015
Total Xylenes	mg/kg	230 [3]	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
F1 (C6-C10)	mg/kg	320	10	<10	<10	<10	<10	<10	<10	<10	<10
F2 (C10-C16)	mg/kg	260	25	<25	86	<25	<25	<25	<25	<25	<25
F3 (C16-C34)	mg/kg	2500	50	65	51	84	371	<50	<50	<50	<50
F4 (C34-C50)	mg/kg	6600	50	60	<50	<50	270	<50	<50	<50	<50
PCBs											
Total Polychlorinated Biphenyls	mg/kg	33	0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30	<0.30

NOTES

1 - CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (2004), coarse grained surface soil (Table 1a), commercial land use, Tier II ecological guidelines/check values for eco-soil contact.

2 - CCME Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health (2004), coarse grained surface soil (Table 1a), commercial land use, Tier II ecological guidelines/check values for eco-soil contact.

3 - CCME Canada-Wide Standards for Petroleum Hydrocarbons (PHC) in Soil technical Supplement (January 2008) Tier II, coarse grained surface soil (Table 2), commercial land use, Eco Soil Contact.

20 exceeds criteria

RDL - Reportable Detection Limit

Table B-4 - Summary of Soil Analytical Data - Polycyclic Aromatic Hydrocarbons, Petroleum Hydrocarbons and Polychlorinated Biphenyls

Parameter	Units	Assessment Criteria	Sample ID	13-20-1.8	13-21-1.8	12-05-02	TP-08-03	TP-09-03	TP-11-03
			Sample Date	14-May-13	14-May-13	7/12/2012	11/13/2012	11/13/2012	11/13/2012
			Sample Depth	1.2 - 1.8 m	1.2 - 1.8 m	0.61 - 0.76 m	2.8 m	2.8 m	2.4 m
			MDL						
Petroleum Hydrocarbons									
Benzene	mg/kg	0.0068 [2]	0.005	<0.0050	<0.0050	<0.0050	-	-	-
Ethyl Benzene	mg/kg	0.018 [2]	0.015	<0.050	<0.050	<0.015	-	-	-
Toluene	mg/kg	0.08 [2]	0.05	<0.015	<0.015	<0.050	-	-	-
Xylenes	mg/kg	2.4 [2]	0.1	<0.10	<0.10	<0.10	-	-	-
F1 (C6-C10)	mg/kg	320 [1]	10	<10	<10	<10	-	-	-
F2 (C10-C16)	mg/kg	260 [1]	10	<25	<25	16	-	-	-
F3 (C16-C34)	mg/kg	2500 [1]	50	<50	<50	95	-	-	-
F4 (C34-C50)	mg/kg	3300 [1]	50	<50	<50	64			
PAHs									
Acenaphthene	mg/kg	-	0.005	-	-	-	<0.0050	<0.0050	<0.0050
Acenaphthylene	mg/kg	-	0.005	-	-	-	<0.0050	<0.0050	<0.0050
Acridine	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
Anthracene	mg/kg	32 [3]	0.004	-	-	-	<0.0040	<0.0040	<0.0040
Benzo(a)anthracene	mg/kg	0.33 [4]	0.01	-	-	-	<0.010	<0.010	<0.010
Benzo(a)pyrene	mg/kg	0.16 [4]	0.01	-	-	-	<0.010	<0.010	<0.010
Benzo(b&j)fluoranthene	mg/kg	0.33 [4]	0.01	-	-	-	<0.010	<0.010	<0.010
Benzo(b)fluoranthene	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
Benzo(b+j+k)fluoranthene	mg/kg	-	0.014	-	-	-	<0.014	<0.014	<0.014
Benzo(g,h,i)perylene	mg/kg	6.8 [4]	0.01	-	-	-	<0.010	<0.010	<0.010
Benzo(k)fluoranthene	mg/kg	0.034 [4]	0.01	-	-	-	<0.010	<0.010	<0.010
Chrysene	mg/kg	2.1 [4]	0.01	-	-	-	<0.010	<0.010	<0.010
Dibenzo(a,h)anthracene	mg/kg	0.23 [4]	0.005	-	-	-	<0.0050	<0.0050	<0.0050
Fluoranthene	mg/kg	180 [3]	0.01	-	-	-	<0.010	<0.010	<0.010
Fluorene	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
Indeno(1,2,3-cd)pyrene	mg/kg	2.7 [4]	0.01	-	-	-	<0.010	<0.010	<0.010
1-Methyl Naphthalene	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
2-Methyl Naphthalene	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
Naphthalene	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
Phenanthrene	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
Pyrene	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
Quinoline	mg/kg	-	0.01	-	-	-	<0.010	<0.010	<0.010
B(a)P Total Potency Equivalent	mg/kg	0.6 [4,5]	0.02	-	-	-	<0.020	<0.020	<0.020
IACR (CCME)	mg/kg	1.0 [4]	0.15	-	-	-	<0.15	<0.15	<0.15
PCBs									
Total Polychlorinated Biphenyls	mg/kg	33	0.30	<0.30	<0.30	-	-	-	-

'-' - no criteria available
1 - Canadian Council of Ministers of the Environment (2008), Canada Wide Standards for Petroleum Hydrocarbons in Soil (Fine-Grained)
2 - Canadian Council of Ministers of the Environment SQGs (2004), Industrial Land Use
3 - Canadian SQGs for Carcinogenic and other Polycyclic Aromatic Hydrocarbons Environmental Health Guidelines/Check Values
4 - Canadian SQGs for Carcinogenic and other Polycyclic Aromatic Hydrocarbons Human Health Guideline/Check Values
5 - Canadian SQGs for Carcinogenic and other Polycyclic Aromatic Hydrocarbons Human Health Guideline/Check Values 10^{-6} B(a) P Total Potency Equivalents
20 exceeds criteria
RDL - Reportable Detection Limit

Table B-5 - Summary of Soil Analytical Data - Grain Size

Sample Identifier:		Date (dd/mm/yy):	% Sand	% Silt	% Clay	Texture
Borehole ID	Depth (mbgs)					
13-01-5.2	0.8	13/05/13	47.1	50.1	2.8	Clay
	1.5	13/05/13	11.9	9.6	78.5	Clay
	4.6	13/05/13	42.9	38.7	18.4	Loam

Notes:
mbgs - metres below ground surface.

Table B-6 - Summary of the Groundwater Analytical Data

Parameter / Location / Date	Unit	FIGWQ Guidelines	MOE Industrial (Table 3)	13-01	13-01 FD1	13-01-5.2	13-02	13-02-1.8	13-03	13-04	13-06-7.3	13-06-7.3 FD	13-06	13-06 FD2	13-07-2.4	13-07
				17-Jun-14	17-Jun-14	1-Aug-13	17-Jun-14	21-Aug-13	17-Jun-14	17-Jun-14	31-Jul-13	31-Jul-13	17-Jun-14	17-Jun-14	21-Aug-13	17-Jun-14
Conductivity	umhos/cm	-	-	>10000	>10000	13100	-	10000	2780	1580	9010	9250	9920	9950	4020	2780
Oxygen, Dissolved	mg/L	-	-	0.10	0.20	0.6	0.40	0.1	2.10	<0.10	0.6	0.3	0.50	0.80	0.1	0.50
pH	-	-	-	8.10	7.90	7.67	-	7.32	7.71	7.86	8.09	8.1	7.72	7.76	7.69	7.90
Turbidity	NTU	-	-	>4000	>4000	2.37	-	157	459	2760	4	3.41	143	178	<4000	510
Alkalinity, Total (as CaCO3)	mg/L	-	-	1970	1990	627	-	1010	92	158	549	550	515	517	602	317
Bicarbonate (HCO3)	mg/L	-	-	2330	2430	765	-	1230	113	193	670	671	628	631	735	386
Carbonate (CO3)	mg/L	-	-	34	<12	<12	-	<12	<12	<12	<12	<12	<12	<12	<12	<12
Chloride	mg/L	-	-	1410	1380	2310	-	83.7	97.9	68.1	1560	1580	1640	1640	58.8	59.8
Hydroxide (OH)	mg/L	-	-	<6.8	<6.8	<6.8	-	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8	<6.8
Sulphide	mg/L	-	-	8090	7960	0.036	-	<0.020	1730	691	<0.020	<0.020	3910	3880	<0.020	1580
Aluminum (Al)-Dissolved	mg/L	0.1‡	-	*<0.20*	*<0.20*	<0.020	<0.020	<0.020	<0.0020	0.0027	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0020
Antimony (Sb)-Dissolved	mg/L	2	20	0.065	0.068	0.0734	0.191	0.0393	0.172	0.138	0.0297	0.0313	0.0375	0.0359	0.574	0.806
Arsenic (As)-Dissolved	mg/L	0.0005	1.9	*<0.020*	*<0.020*	0.0107	0.0107	0.0269	0.00465	0.0315	0.0067	0.0073	0.0063	0.0064	0.238	0.0280
Barium (Ba)-Dissolved	mg/L	0.5	290	<0.020	<0.020	0.0208	0.0209	0.0309	0.0337	0.0366	0.0176	0.0184	0.0158	0.0173	0.0565	0.0672
Beryllium (Be)-Dissolved	mg/L	0.0053	0.067	*<0.020*	*<0.020*	<0.0010	<0.0020	<0.0010	<0.00020	<0.00020	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010	<0.00020
Bismuth (Bi)-Dissolved	mg/L	-	-	<0.020	<0.020	<0.00050	<0.0020	<0.00050	<0.00020	<0.00020	<0.00050	<0.00050	<0.0020	<0.0020	<0.00050	<0.00020
Boron (B)-Dissolved	mg/L	5	45	<1.0	<1.0	1.37	6.35	6.22	3.51	1.99	1.12	1.11	1.09	0.91	18.2	8.03
Cadmium (Cd)-Dissolved	mg/L	0.000017	0.0027	*<0.0010*	0.0011	0.00131	0.00539	0.00112	0.00760	0.00219	0.00486	0.00529	0.00497	0.00459	0.00963	0.0114
Calcium (Ca)-Dissolved	mg/L	-	-	388	380	524	453	495	487	210	475	461	475	468	454	498
Cesium (Cs)-Dissolved	mg/L	-	-	<0.010	<0.010	<0.00050	<0.0010	<0.00050	<0.00010	<0.00010	<0.00050	<0.00050	<0.0010	<0.0010	<0.00050	<0.00010
Chromium (Cr)-Dissolved	mg/L	0.0089	0.81	<0.20	<0.20	0.0021	<0.020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.020	<0.020	<0.0020	<0.0020
Cobalt (Co)-Dissolved	mg/L	-	0.066	<0.020	<0.020	0.00503	0.0128	0.0148	0.00386	0.00172	0.00401	0.00392	0.0035	0.0034	0.00937	0.00108
Copper (Cu)-Dissolved	mg/L	0.004‡	0.087	0.037	0.038	0.015	0.0260	<0.0020	0.0117	0.00434	0.0059	0.006	0.0124	0.0129	0.0121	0.00957
Iron (Fe)-Dissolved	mg/L	0.3	-	<10	<10	<0.10	<1.0	0.79	<0.10	0.15	<0.10	<0.10	<1.0	<1.0	13.5	<0.10
Lead (Pb)-Dissolved	mg/L	0.007‡	0.025	0.109	0.107	0.0755	0.317	0.0462	0.155	0.163	0.113	0.115	0.113	0.112	0.445	0.196
Lithium (Li)-Dissolved	mg/L	-	-	1.05	1.06	0.794	0.351	0.331	0.0791	0.0549	0.547	0.541	0.492	0.476	0.182	0.0972
Magnesium (Mg)-Dissolved	mg/L	-	-	795	810	1070	1100	1020	195	88.2	649	643	653	636	202	141
Manganese (Mn)-Dissolved	mg/L	-	-	0.292	0.292	0.18	4.26	7.04	1.32	0.779	0.276	0.275	0.255	0.252	1.4	0.0810
Molybdenum (Mo)-Dissolved	mg/L	0.073	9.2	0.021	0.021	0.0165	0.0169	0.0195	0.00633	0.00633	0.014	0.014	0.0062	0.0060	0.0215	0.0124
Nickel (Ni)-Dissolved	mg/L	0.15	0.49	<0.10	<0.10	0.0317	0.038	0.0361	0.0154	0.0090	0.018	0.0176	0.015	0.014	0.0308	0.0213
Phosphorus (P)-Dissolved	mg/L	-	-	<3.0	<3.0	<0.50	<0.30	<0.50	<0.030	<0.030	<0.50	<0.50	<0.30	<0.30	<0.50	0.086
Potassium (K)-Dissolved	mg/L	-	-	20.9	21.4	33.5	4.94	7.27	42.2	14.5	14.4	14.5	12.9	12.8	8.49	13.2
Rubidium (Rb)-Dissolved	mg/L	-	-	<0.020	<0.020	0.0112	0.0037	0.00378	0.0168	0.00499	0.00809	0.00829	0.0042	0.0041	0.00329	0.00335
Selenium (Se)-Dissolved	mg/L	0.001	0.063	*<0.10*	*<0.10*	0.0235	*<0.010*	*<0.0050*	0.0068	<0.0010	0.0094	0.0056	*<0.010*	*<0.010*	0.0472	0.0673
Silicon (Si)-Dissolved	mg/L	-	-	<10	10	8.52	5.0	7.56	4.49	4.49	11.8	11.8	10.6	9.8	10.3	11.5
Silver (Ag)-Dissolved	mg/L	0.0001	0.0015	*<0.010*	*<0.010*	*<0.0010*	*<0.0010*	*<0.0010*	<0.00010	<0.00010	*<0.0010*	*<0.0010*	*<0.0010*	*<0.0010*	*<0.0010*	<0.00010
Sodium (Na)-Dissolved	mg/L		-	3180	3250	2470	1040	1370	147	135	1470	1490	1490	1470	480	160
Strontium (Sr)-Dissolved	mg/L		-	5.59	5.42	4.64	5.25	5.21	2.06	1.03	3.97	3.86	3.88	3.77	1.66	1.47
Tellurium (Te)-Dissolved	mg/L	-	-	<0.020	<0.020	<0.0010	<0.0020	<0.0010	<0.00020	<0.00020	<0.0010	<0.0010	<0.0020	<0.0020	<0.0010	<0.00020
Thallium (Tl)-Dissolved	mg/L	0.0008	0.51	*<0.010*	*<0.010*	*<0.0050*	*<0.0010*	*<0.0050*	0.00040	0.00025	*<0.0050*	*<0.0050*	*<0.0010*	*<0.0010*	*<0.0050*	0.00018
Thorium (Th)-Dissolved	mg/L		-	<0.010	<0.010	<0.0010	<0.0010	<0.0010	<0.00010	<0.00010	<0.0010	<0.0010	<0.0010	<0.0010	<0.0010	<0.00010
Tin (Sn)-Dissolved	mg/L	-	-	<0.020	<0.020	0.102	<0.0020	0.00825	0.00081	<0.00020	0.0631	0.0643	<0.0020	<0.0020	0.00442	0.00095
Titanium (Ti)-Dissolved	mg/L	-	-	<0.050	<0.050	0.135	<0.0050	0.125	<0.00050	<0.00050	0.0706	0.0713	<0.0050	<0.0050	0.0423	<0.00050
Tungsten (W)-Dissolved	mg/L	-	-	<0.010	<0.010	<0.0020	<0.0010	<0.0020	<0.00010	<0.00010	<0.0020	<0.0020	<0.0010	<0.0010	<0.0020	0.00026
Uranium (U)-Dissolved	mg/L	0.015	0.42	0.275	0.270	0.112	0.0920	0.0631	0.00286	0.00169	0.127	0.127	0.102	0.0979	0.0168	0.00694
Vanadium (V)-Dissolved	mg/L	-	0.25	<0.020	<0.020	0.0024	0.0022	<0.0020	<0.00020	<0.00020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	0.00088
Zinc (Zn)-Dissolved	mg/L	0.01	1.1	*<0.20*	*<0.20*	*<0.020*	0.035	*<0.020*	0.0222	0.0143	*<0.020*	*<0.020*	*<0.020*	*<0.020*	0.07	0.0484
Zirconium (Zr)-Dissolved	mg/L	-	-	<0.040	<0.040	0.0026	0.0062	0.0062	<0.00040	<0.00040	<0.0010	<0.0010	<0.0040	<0.0040	0.0012	<0.00040

NOTES

FIGWQ Federal Interim Groundwater Quality Guidelines for Commercial and Industrial Land Uses, Table 3: Non-Potable Ground Water Condition, Inhalation Pathway, Fine Grain Soils, May 2012

‡ Values from CCME CEQG Water Quality for the Protection of Aquatic Life, water hardness assumed greater than 180 mg/L, pH ≥6.5.

MOE Ontario Ministry of Environment, *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* , Table 3: Full Depth Generic Site Conditions in a Non-Potable Ground Water Condition, All Types of Property Use, April 2011

25 Exceeds Ontario MOE Groundwater Standards under Table 3, Industrial Use

25 Exceeds FIGWQ Tier I Criteria

25 Exceeds both Criteria

italics Detection limit exceeds criteria

"-" No guideline; calculated guideline excees solubility limit

"<" less than laboratory detection limit

FD Field Duplicate

RDL Reportable Detection Limit

Parameter / Location / Date	Unit	FIGWQ Guidelines	MOE Industrial (Table 3)	13-10-7.3 1-Aug-13	13-10 17-Jun-14	13-11-3.7 21-Aug-13	13-11 17-Jun-14	13-13-1.1 21-Aug-13	13-13 17-Jun-14	TRIP BLANK 21-Aug-13	EQUIPMENT BLANK 21-Aug-13	EQUIPMENT BLANK 17-Jun-14
Conductivity	umhos/cm	-	-	6400	-	3980	3180	1800	1660	<1.0	<1.0	2.7
Oxygen, Dissolved	mg/L	-	-	0.7	1.30	1	1.20	1.6	2.60	0.1	3.1	5.00
pH	-	-	-	7.3	-	7.54	7.68	7.31	8.31	5.95	6.15	6.35
Turbidity	NTU	-	-	19	-	<4000	530	1180	115	0.25	0.11	1.02
Alkalinity, Total (as CaCO3)	mg/L	-	-	503	-	172	122	334	275	1.3	1.8	2.6
Bicarbonate (HCO3)	mg/L	-	-	614	-	210	148	408	331	2	2.2	3.1
Carbonate (CO3)	mg/L	-	-	<12	-	<12	<12	<12	<12	<0.60	<0.60	<0.60
Chloride	mg/L	-	-	472	-	49.9	37.4	85.1	53.7	N/A	N/A	<0.50
Hydroxide (OH)	mg/L	-	-	<6.8	-	<6.8	<6.8	<6.8	<6.8	<0.34	<0.34	<0.34
Sulphide	mg/L	-	-	0.036	-	<0.020	2060	<0.020	460	<0.20	<0.20	<0.50
Aluminum (Al)-Dissolved	mg/L	0.1‡	-	*<0.020*	0.023	0.065	<0.0020	*<0.020*	0.0214	*<0.020*	*<0.020*	<0.0020
Antimony (Sb)-Dissolved	mg/L	2	20	0.139	0.336	0.118	0.147	0.0487	0.191	<0.0010	<0.0010	<0.00020
Arsenic (As)-Dissolved	mg/L	0.0005	1.9	**0.0063**	**0.0141**	**0.0218**	**0.0112**	**0.0064**	**0.00251**	*<0.0010*	*<0.0010*	<0.00020
Barium (Ba)-Dissolved	mg/L	0.5	290	0.0637	0.0342	0.054	0.0296	0.102	0.0837	<0.00050	<0.00050	<0.00020
Beryllium (Be)-Dissolved	mg/L	0.0053	0.067	<0.0010	<0.0020	<0.0010	<0.00020	<0.0010	<0.00020	<0.0010	<0.0010	<0.00020
Bismuth (Bi)-Dissolved	mg/L	-	-	0.00096	<0.0020	<0.00050	<0.00020	<0.00050	<0.00020	<0.00050	<0.00050	<0.00020
Boron (B)-Dissolved	mg/L	5	45	1.2	0.85	1.58	1.73	1.51	1.09	<0.030	<0.030	<0.010
Cadmium (Cd)-Dissolved	mg/L	0.000017	0.0027	**0.0041**	**0.00339**	**0.0028**	**0.00588**	0.00021	0.000170	<0.00020	<0.00020	<0.000010
Calcium (Ca)-Dissolved	mg/L	-	-	575	498	519	498	165	115	<0.20	<0.20	<0.050
Cesium (Cs)-Dissolved	mg/L	-	-	<0.00050	<0.0010	<0.00050	<0.00010	<0.00050	<0.00010	<0.00050	<0.00050	<0.00010
Chromium (Cr)-Dissolved	mg/L	0.0089	0.81	<0.0020	<0.020	<0.0020	<0.0020	0.0022	<0.0020	<0.0020	<0.0020	<0.0020
Cobalt (Co)-Dissolved	mg/L	-	0.066	0.00516	0.0032	0.00433	0.00705	0.00273	0.00033	<0.00050	<0.00050	<0.00020
Copper (Cu)-Dissolved	mg/L	0.004‡	0.087	**0.0189**	**0.0269**	**0.0062**	**0.0142**	**0.0065**	**0.0188**	<0.0020	<0.0020	<0.00020
Iron (Fe)-Dissolved	mg/L	0.3	-	<0.10	<1.0	0.32	<0.10	1.13	<0.10	<0.10	<0.10	<0.10
Lead (Pb)-Dissolved	mg/L	0.007‡	0.025	**0.636**	**0.650**	**0.435**	**0.305**	0.0067	**0.0438**	<0.0010	<0.0010	<0.000090
Lithium (Li)-Dissolved	mg/L	-	-	0.291	0.592	0.119	0.140	0.102	0.0782	<0.010	<0.010	<0.0020
Magnesium (Mg)-Dissolved	mg/L	-	-	449	711	188	157	74.5	54.1	<0.050	<0.050	<0.010
Manganese (Mn)-Dissolved	mg/L	-	-	0.0064	0.0642	0.0508	0.0901	0.496	0.0131	<0.0010	<0.0010	<0.00010
Molybdenum (Mo)-Dissolved	mg/L	0.073	9.2	0.00283	0.0034	0.00179	0.00140	0.0109	0.00368	<0.00050	<0.00050	<0.00010
Nickel (Ni)-Dissolved	mg/L	0.15	0.49	0.0382	0.061	0.038	0.0830	0.0054	0.0070	<0.0020	<0.0020	<0.0010
Phosphorus (P)-Dissolved	mg/L	-	-	<0.50	<0.30	<0.50	<0.030	<0.50	<0.030	<0.50	<0.50	<0.030
Potassium (K)-Dissolved	mg/L	-	-	17	16.1	13.1	13.2	18.4	32.5	<0.10	<0.10	<0.020
Rubidium (Rb)-Dissolved	mg/L	-	-	0.00449	0.0042	0.00275	0.00178	0.00346	0.00329	<0.00050	<0.00050	<0.00020
Selenium (Se)-Dissolved	mg/L	0.001	0.063	**0.0095**	*<0.010*	*<0.0050*	<0.0010	*<0.0050*	**0.0044**	*<0.0050*	*<0.0050*	<0.0010
Silicon (Si)-Dissolved	mg/L	-	-	10.5	11.6	7.86	8.37	8.64	7.37	<0.30	<0.30	<0.10
Silver (Ag)-Dissolved	mg/L	0.0001	0.0015	*<0.0010*	*<0.0010*	*<0.0010*	<0.00010	*<0.0010*	<0.00010	*<0.0010*	*<0.0010*	<0.00010
Sodium (Na)-Dissolved	mg/L		-	733	1320	256	222	153	133	<0.050	<0.050	<0.020
Strontium (Sr)-Dissolved	mg/L		-	3.01	2.80	1.94	1.49	1.11	0.675	<0.00050	<0.00050	<0.00010
Tellurium (Te)-Dissolved	mg/L	-	-	<0.0010	<0.0020	<0.0010	<0.00020	<0.0010	<0.00020	<0.0010	<0.0010	<0.00020
Thallium (Tl)-Dissolved	mg/L	0.0008	0.51	*<0.0050*	*<0.0010*	*<0.0050*	0.00017	*<0.0050*	<0.00010	*<0.0050*	*<0.0050*	<0.00010
Thorium (Th)-Dissolved	mg/L		-	<0.0010	<0.0010	<0.0010	<0.00010	<0.0010	<0.00010	<0.0010	<0.0010	<0.00010
Tin (Sn)-Dissolved	mg/L	-	-	0.0939	<0.0020	0.00319	0.00066	0.00679	0.00033	<0.00060	<0.00060	<0.00020
Titanium (Ti)-Dissolved	mg/L	-	-	0.0673	<0.0050	0.041	<0.00050	0.0093	<0.00050	<0.0010	<0.0010	<0.00050
Tungsten (W)-Dissolved	mg/L	-	-	<0.0020	<0.0010	<0.0020	<0.00010	<0.0020	<0.00010	<0.0020	<0.0020	<0.00010
Uranium (U)-Dissolved	mg/L	0.015	0.42	**0.0284**	**0.0736**	0.00185	0.00079	0.0081	0.00328	<0.00050	<0.00050	<0.00010
Vanadium (V)-Dissolved	mg/L	-	0.25	<0.0020	<0.0020	<0.0020	<0.00020	<0.0020	0.00042	<0.0020	<0.0020	<0.00020
Zinc (Zn)-Dissolved	mg/L	0.01	1.1	**0.064**	**0.078**	**0.076**	**0.0820**	*<0.020*	0.0086	*<0.020*	*<0.020*	<0.0020
Zirconium (Zr)-Dissolved	mg/L	-	-	<0.0010	<0.0040	<0.0010	<0.00040	<0.0010	<0.00040	<0.0010	<0.0010	<0.00040

NOTES

FIGWQ Federal Interim Groundwater Quality Guidelines for Commercial and Industrial Land Uses, Table 3: Non-Potable Ground Water Condition, Inhalation Pathway, Fine Grain Soils, May 2012

‡ Values from CCME CEQG Water Quality for the Protection of Aquatic Life, water hardness assumed greater than 180 mg/L, pH ≥6.5.

MOE Ontario Ministry of Environment, *Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act* , Table 3: Full Depth Generic Site Conditions in a Non-Potable Ground Water Condition, All Types of Property Use, April 2011

25 Exceeds Ontario MOE Groundwater Standards under Table 3, Industrial Use

25 Exceeds FIGWQ Tier I Criteria

25 Exceeds both Criteria

italics Detection limit exceeds criteria

"-" No guideline; calculated guideline excees solubility limit

"<" less than laboratory detection limit

FD Field Duplicate

RDL Reportable Detection Limit

Table B-7 Metals and Inorganics in Soil RPD

Parameter	Units	Sample ID	13-10-7.3	FD1	RPD	13-19.18	FD 2	RPD	13-23-0.9	FD 1	RPD	12-02-02	12-02-06	RPD	12-02-02	12-02-06	RPD	TP-18-03	TP-18-04	RPD
		Sample Date	13-May-13	13-May-13		14-May-13	14-May-13		6-Sep-13	6-Sep-13		7/12/2012	7/12/2012		7/12/2012	7/12/2012		11/14/2012	11/14/2012	
		Sample Depth	1.2 - 1.8 m	1.2 - 1.8 m		1.2 - 1.8 m	1.2 - 1.8 m		0.3 - 0.5 m	0.3 - 0.5 m		0.61 - 0.76 m	12-02-02 FD		0.61 - 0.76 m	12-02-02 FD		2.5 m	TP-18-04 FD	
		RDL																		
Metals																				
pH	-	0.1	7.73	7.66	0.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Aluminum (Al)	mg/kg	50	17800	16500	8	23100	23100	0.0	-	-	-	10600	14500	31	17100	16000	6.6	28500 *	28000 *	1.8
Antimony (Sb)	mg/kg	0.10	**1080**	**883**	20	0.67	0.59	13	-	-	-	**552**	**441**	22	1.17	**221**	198	1.03	1.68	48
Arsenic (As)	mg/kg	0.10	**538**	**493**	9	8.97	8.86	1.2	-	-	-	**227**	**251**	10	5.11	**57.9**	168	7.6	7.53	1
Barium (Ba)	mg/kg	0.50	355	236	40	234	231	1.3	-	-	-	287	235	20	212	935	126	249	193	25
Beryllium (Be)	mg/kg	0.10	0.93	0.98	5	1.24	1.32	6	-	-	-	0.59	0.58	1.7	0.6	0.71	17	0.91	0.9	1
Bismuth (Bi)	mg/kg	0.020	2.41	3.02	22	0.369	0.367	0.5	-	-	-	1.24	1.68	30	0.19	0.389	69	0.28	0.27	4
Boron (B)	mg/kg	10	36	37	3	18	17	5.7	-	-	-	37	57	43	39	67	53	17	17	0
Cadmium(Cd)	mg/kg	0.020	8.55	11.2	27	0.305	0.304	0.3	-	-	-	10.2	**33.9**	107	0.341	1.44	123	0.272	0.254	7
Calcium (Ca)	mg/kg	1000	55500	50000	10	27700	31500	-13	-	-	-	83400	62900	28	76000	89800	17	37000	34400	7
Cesium (Cs)	mg/kg	0.02	-	-	-	-	-	-	-	-	-	-	-	-	1.26	0.783	47	-	-	-
Chromium (Cr)	mg/kg	1.0	70.4	69.5	1	45.0	45.3	1	-	-	-	27.9	38.0	31	79.2	25.9	101	59.2	59.1	0
Cobalt (Co)	mg/kg	0.020	17.4	20.1	14	16.9	17.6	4	-	-	-	7.04	8.86	23	9.08	7.74	15.9	18.8	17.2	9
Copper (Cu)	mg/kg	1.0	**639**	**750**	16	36.9	35.0	5	-	-	-	**252**	**1300**	135	35.3	**154**	125	36.5	37.5	3
Iron (Fe)	mg/kg	25	72700	79300	9	31500	32300	3	-	-	-	23100	25500	10	25700	26700	4	33000	33400	1
Lead (Pb)	mg/kg	0.20	**28400**	**39400**	32	28.2	24.9	12	13.9	33.7	-83	**25700**	**24200**	6.0	92.1	**8770 ***	196	110	202	59
Magnesium (Mg)	mg/kg	10	19500	17100	13	16000	15500	3	-	-	-	35600	23700	40	26200	29500	12	16400	16200	1
Manganese (Mn)	mg/kg	0.50	679	648	5	478	512	7	-	-	-	310	387	22	511	353	37	556	499	11
Mercury	mg/kg	0.05	0.272	0.224	19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum (Mo)	mg/kg	0.020	7.78	7.21	8	1.82	1.77	2.8	-	-	-	3.46	3.36	2.9	4.69	2.55	59	0.61	0.619	1
Nickel (Ni)	mg/kg	0.50	**65.9**	**72.3**	9	**50.4**	48.5	3.8	-	-	-	31.0	38.9	23	**69.6**	28.1	85	**52**	**51.1**	2
Phosphorus (P)	mg/kg	100	880	1010	14	580	590	2	-	-	-	580	660	13	490	720	38	600	600	0
Potassium (K)	mg/kg	25	3510	3450	2	3980	3950	0.8	-	-	-	2370	3440	37	3670	2400	42	5180	5210	1
Rubidium (Rb)	mg/kg	0	-	-	-	-	-	-	-	-	-	-	-	-	26.1	15.8	49	-	-	-
Selenium (Se)	mg/kg	0.50	**3.47**	2.43	35	0.94	<0.50	n.c.	-	-	-	**3.00**	**5.20**	54	0.52	0.99	62	0.88	<0.50	n.c.
Silver (Ag)	mg/kg	0.10	0.98	0.89	10	0.17	0.17	0.0	-	-	-	0.43	0.51	17	0.22	0.47	72	0.18	0.18	0
Sodium (Na)	mg/kg	10	2610	2010	26	1250	1220	2.4	-	-	-	974	752	26	624	1910	101	1440	1500	4
Strontium (Sr)	mg/kg	0.10	140	107	27	77.7	82.3	6	-	-	-	154	113	31	187	552	99	90.2	83.8	7
Tellurium (Te)	mg/kg	0.10	-	-	-	-	-	-	-	-	-	-	-	-	<0.10	<0.10	n.c.	-	-	-
Thallium (Tl)	mg/kg	0.10	0.89	**1.03**	15	0.35	0.35	0.0	-	-	-	0.77	0.83	7	0.2	0.29	37	0.38	0.38	0
Tin (Sn)	mg/kg	5.0	**563**	**860**	42	<5.0	<5.0	n.c.	-	-	-	131	136	4	<5.0	95.7	n.c.	<5.0	<5.0	n.c.
Titanium (Ti)	mg/kg	0.50	353	336	5	115	99.8	14	-	-	-	225	237	5	321	525	48	310	323	4
Tungsten (W)	mg/kg	0.050	-	-	-	-	-	-	-	-	-	-	-	-	0.173	0.409	81	-	-	-
Uranium (U)	mg/kg	0.020	1.82	1.77	3	2.53	2.51	0.8	-	-	-	1.29	1.36	5	0.96	2.02	71	1.39	1.37	1
Vanadium (V)	mg/kg	0.50	58.5	58.9	1	71.3	73.1	2	-	-	-	32.6	45.2	32	49.2	36.1	31	92.6	92.6	0
Zinc (Zn)	mg/kg	10	**620**	**530**	16	88	88	0.0	-	-	-	180	236	27	200	170	16	89	91	2
Zirconium (Zr)	mg/kg	0.10	-	-	-	-	-	-	-	-	-	-	-	-	10.7	15.5	37	-	-	-

NOTES

"-" Not analyzed
n.c. Not calculable (i.e., values are less than 5x the RDL)
RDL Reportable Detection Limit
RPD Relative Percent Difference

Northwest Smelting Refining
10-3834
March 2014

Table B-8 Polycyclic Aromatic Hydrocarbons, Petroleum Hydrocarbons Polychlorinated Biphenyls in Soil RPD

Parameter	Units	Sample ID	13-19.18	FD 2	RPD
		Sample Date	14-May-13	14-May-13	
		Sample Depth	1.2 - 1.8 m	1.2 - 1.8 m	
		MDL			
Petroleum Hydrocarbons					
Benzene	mg/kg	0.0050	0.0098	0.0079	21
Toluene	mg/kg	0.050	<0.050	<0.050	n.c.
Ethyl Benzene	mg/kg	0.015	<0.015	<0.015	n.c.
Total Xylenes	mg/kg	0.10	<0.10	<0.10	n.c.
F1 (C6-C10)	mg/kg	10	<10	<10	n.c.
F2 (C10-C16)	mg/kg	25	<25	<25	n.c.
F3 (C16-C34)	mg/kg	50	<50	<50	n.c.
F4 (C34-C50)	mg/kg	50	<50	<50	n.c.
PCBs					
Total Polychlorinated Biphenyls	mg/kg	0.30	<0.30	<0.30	n.c.
PAHs					
Acenaphthene	mg/kg	0.005	-	-	-
Acenaphthylene	mg/kg	0.005	-	-	-
Acridine	mg/kg	0.01	-	-	-
Anthracene	mg/kg	0.004	-	-	-
Benzo(a)anthracene	mg/kg	0.01	-	-	-
Benzo(a)pyrene	mg/kg	0.01	-	-	-
Benzo(b&j)fluoranthene	mg/kg	0.01	-	-	-
Benzo(b)fluoranthene	mg/kg	0.01	-	-	-
Benzo(b+j+k)fluoranthene	mg/kg	0.014	-	-	-
Benzo(g,h,i)perylene	mg/kg	0.01	-	-	-
Benzo(k)fluoranthene	mg/kg	0.01	-	-	-
Chrysene	mg/kg	0.01	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.005	-	-	-
Fluoranthene	mg/kg	0.01	-	-	-
Fluorene	mg/kg	0.01	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.01	-	-	-
1-Methyl Naphthalene	mg/kg	0.01	-	-	-
2-Methyl Naphthalene	mg/kg	0.01	-	-	-
Naphthalene	mg/kg	0.01	-	-	-
Phenanthrene	mg/kg	0.01	-	-	-
Pyrene	mg/kg	0.01	-	-	-
Quinoline	mg/kg	0.01	-	-	-
B(a)P Total Potency Equivalent	mg/kg	0.02	-	-	-
IACR (CCME)	mg/kg	0.15	-	-	-

NOTES

"-" Not analyzed
n.c. Not calculable (i.e., values are less than 5x the RDL)
RDL Reportable Detection Limit
RPD Relative Percent Difference

Table B-9 Metals and Inorganics in Groundwater RPD

Parameter / Location / Date	Unit	RDL	13-06-7.3 31-Jul-13	13-06-7.3 FD 31-Jul-13	RPD
Conductivity	umhos/cm	20	9010	9250	3
Oxygen, Dissolved	mg/L	0.10	0.6	0.3	n.c.
pH	-	0.1	8.09	8.1	0.1
Turbidity	NTU	4000	4	3.41	n.c.
Alkalinity, Total (as CaCO3)	mg/L	20	549	550	0.2
Bicarbonate (HCO3)	mg/L	24	670	671	0.1
Carbonate (CO3)	mg/L	12	<12	<12	n.c.
Chloride	mg/L	5	1560	1580	1
Hydroxide (OH)	mg/L	6.8	<6.8	<6.8	n.c.
Sulphide	mg/L	0.02	<0.020	<0.020	n.c.
Aluminum (Al)-Dissolved	mg/L	0.02	<0.020	<0.020	n.c.
Antimony (Sb)-Dissolved	mg/L	0.001	0.0297	0.0313	5
Arsenic (As)-Dissolved	mg/L	0.001	0.0067	0.0073	9
Barium (Ba)-Dissolved	mg/L	0.0005	0.0176	0.0184	4
Beryllium (Be)-Dissolved	mg/L	0.001	<0.0010	<0.0010	n.c.
Bismuth (Bi)-Dissolved	mg/L	0.001	<0.00050	<0.00050	n.c.
Boron (B)-Dissolved	mg/L	0.03	1.12	1.11	1
Cadmium (Cd)-Dissolved	mg/L	0.0002	**0.00486**	**0.00529**	8
Calcium (Ca)-Dissolved	mg/L	0.20	475	461	3
Cesium (Cs)-Dissolved	mg/L	0.0005	<0.00050	<0.00050	n.c.
Chromium (Cr)-Dissolved	mg/L	0.002	<0.0020	<0.0020	n.c.
Cobalt (Co)-Dissolved	mg/L	0.0005	0.00401	0.00392	2
Copper (Cu)-Dissolved	mg/L	0.002	**0.0059**	**0.006**	2
Iron (Fe)-Dissolved	mg/L	0.1	<0.10	<0.10	n.c.
Lead (Pb)-Dissolved	mg/L	0.001	**0.113**	**0.115**	2
Lithium (Li)-Dissolved	mg/L	0.01	0.547	0.541	1
Magnesium (Mg)-Dissolved	mg/L	0.5	649	643	1
Manganese (Mn)-Dissolved	mg/L	0.001	0.276	0.275	0
Molybdenum (Mo)-Dissolved	mg/L	0.0005	0.014	0.014	0
Nickel (Ni)-Dissolved	mg/L	0.002	0.018	0.0176	2
Phosphorus (P)-Dissolved	mg/L	0.5	<0.50	<0.50	n.c.
Potassium (K)-Dissolved	mg/L	0.1	14.4	14.5	1
Rubidium (Rb)-Dissolved	mg/L	0.0005	0.00809	0.00829	2
Selenium (Se)-Dissolved	mg/L	0.005	0.0094	0.0056	n.c.
Silicon (Si)-Dissolved	mg/L	0.3	11.8	11.8	0
Silver (Ag)-Dissolved	mg/L	0.001	<0.0010	<0.0010	n.c.
Sodium (Na)-Dissolved	mg/L	0.5	1470	1490	1
Strontium (Sr)-Dissolved	mg/L	0.0005	3.97	3.86	3
Tellurium (Te)-Dissolved	mg/L	0.001	<0.0010	<0.0010	n.c.
Thallium (Tl)-Dissolved	mg/L	0.005	<0.0050	<0.0050	n.c.
Thorium (Th)-Dissolved	mg/L	0.001	<0.0010	<0.0010	n.c.
Tin (Sn)-Dissolved	mg/L	0.0006	0.0631	0.0643	2
Titanium (Ti)-Dissolved	mg/L	0.001	0.0706	0.0713	1
Tungsten (W)-Dissolved	mg/L	0.002	<0.0020	<0.0020	n.c.
Uranium (U)-Dissolved	mg/L	0.0005	0.127	0.127	0
Vanadium (V)-Dissolved	mg/L	0.002	<0.0020	<0.0020	n.c.
Zinc (Zn)-Dissolved	mg/L	0.02	<0.020	<0.020	n.c.
Zirconium (Zr)-Dissolved	mg/L	0.001	<0.0010	<0.0010	n.c.

NOTES

"-" No value
n.c. Not calculable (i.e., values are less than 5x the RDL)
RDL Reportable Detection Limit
RPD Relative Percent Difference

Table B-10 Metals and Inorganics in Groundwater RPD

Parameter / Location / Date	Unit	RDL	13-01	13-01 FD1	RPD
			17-Jun-14	17-Jun-14	
Conductivity	umhos/cm	20	>10000	>10000	n.c.
Oxygen, Dissolved	mg/L	0.1	0.10	0.20	n.c.
pH	-	0.1	8.10	7.90	2
Turbidity	NTU	4000	>4000	>4000	n.c.
Alkalinity, Total (as CaCO3)	mg/L	20	1970	1990	1
Bicarbonate (HCO3)	mg/L	24	2330	2430	4
Carbonate (CO3)	mg/L	12	34	<12	n.c.
Chloride	mg/L	5	1410	1380	2
Hydroxide (OH)	mg/L	6.8	<6.8	<6.8	n.c.
Sulphide	mg/L	0.02	8090	7960	n.c.
Aluminum (Al)-Dissolved	mg/L	0.02	<0.20	<0.20	n.c.
Antimony (Sb)-Dissolved	mg/L	0.001	0.065	0.068	5
Arsenic (As)-Dissolved	mg/L	0.001	<0.020	<0.020	n.c.
Barium (Ba)-Dissolved	mg/L	0.0005	<0.020	<0.020	n.c.
Beryllium (Be)-Dissolved	mg/L	0.001	<0.020	<0.020	n.c.
Bismuth (Bi)-Dissolved	mg/L	0.001	<0.020	<0.020	n.c.
Boron (B)-Dissolved	mg/L	0.03	<1.0	<1.0	n.c.
Cadmium (Cd)-Dissolved	mg/L	0.0002	<0.0010	0.0011	n.c.
Calcium (Ca)-Dissolved	mg/L	0.20	388	380	2
Cesium (Cs)-Dissolved	mg/L	0.0005	<0.010	<0.010	n.c.
Chromium (Cr)-Dissolved	mg/L	0.002	<0.20	<0.20	n.c.
Cobalt (Co)-Dissolved	mg/L	0.0005	<0.020	<0.020	n.c.
Copper (Cu)-Dissolved	mg/L	0.002	0.037	0.038	3
Iron (Fe)-Dissolved	mg/L	0.1	<10	<10	n.c.
Lead (Pb)-Dissolved	mg/L	0.001	0.109	0.107	2
Lithium (Li)-Dissolved	mg/L	0.01	1.05	1.06	1
Magnesium (Mg)-Dissolved	mg/L	0.5	795	810	2
Manganese (Mn)-Dissolved	mg/L	0.001	0.292	0.292	0
Molybdenum (Mo)-Dissolved	mg/L	0.0005	0.021	0.021	0
Nickel (Ni)-Dissolved	mg/L	0.002	<0.10	<0.10	n.c.
Phosphorus (P)-Dissolved	mg/L	0.5	<3.0	<3.0	n.c.
Potassium (K)-Dissolved	mg/L	0.1	20.9	21.4	2
Rubidium (Rb)-Dissolved	mg/L	0.0005	<0.020	<0.020	n.c.
Selenium (Se)-Dissolved	mg/L	0.005	<0.10	<0.10	n.c.
Silicon (Si)-Dissolved	mg/L	0.3	<10	10	n.c.
Silver (Ag)-Dissolved	mg/L	0.001	<0.010	<0.010	n.c.
Sodium (Na)-Dissolved	mg/L	0.5	3180	3250	2
Strontium (Sr)-Dissolved	mg/L	0.0005	5.59	5.42	3
Tellurium (Te)-Dissolved	mg/L	0.001	<0.020	<0.020	n.c.
Thallium (Tl)-Dissolved	mg/L	0.005	<0.010	<0.010	n.c.
Thorium (Th)-Dissolved	mg/L	0.001	<0.010	<0.010	n.c.
Tin (Sn)-Dissolved	mg/L	0.0006	<0.020	<0.020	n.c.
Titanium (Ti)-Dissolved	mg/L	0.001	<0.050	<0.050	n.c.
Tungsten (W)-Dissolved	mg/L	0.002	<0.010	<0.010	n.c.
Uranium (U)-Dissolved	mg/L	0.0005	0.275	0.270	2
Vanadium (V)-Dissolved	mg/L	0.002	<0.020	<0.020	n.c.
Zinc (Zn)-Dissolved	mg/L	0.02	<0.20	<0.20	n.c.
Zirconium (Zr)-Dissolved	mg/L	0.001	<0.040	<0.040	n.c.

NOTES

"-" No value
n.c. Not calculable (i.e., values are less than 5x the RDL)
RDL Reportable Detection Limit
RPD Relative Percent Difference

Table B-11 Metals and Inorganics in Groundwater RPD

Parameter / Location / Date	Unit	RDL	13-06	13-06 FD2	RPD
			17-Jun-14	17-Jun-14	
Conductivity	umhos/cm	20	9920	9950	n.c.
Oxygen, Dissolved	mg/L	0.10	0.50	0.80	n.c.
pH	-	0.1	7.72	7.76	1
Turbidity	NTU	4000	143	178	n.c.
Alkalinity, Total (as CaCO3)	mg/L	20	515	517	0
Bicarbonate (HCO3)	mg/L	24	628	631	0
Carbonate (CO3)	mg/L	12	<12	<12	n.c.
Chloride	mg/L	5	1640	1640	0
Hydroxide (OH)	mg/L	6.8	<6.8	<6.8	n.c.
Sulphide	mg/L	0.02	3910	3880	n.c.
Aluminum (Al)-Dissolved	mg/L	0.02	<0.020	<0.020	n.c.
Antimony (Sb)-Dissolved	mg/L	0.001	0.0375	0.0359	4
Arsenic (As)-Dissolved	mg/L	0.001	**0.0063**	**0.0064**	n.c.
Barium (Ba)-Dissolved	mg/L	0.0005	0.0158	0.0173	n.c.
Beryllium (Be)-Dissolved	mg/L	0.001	<0.0020	<0.0020	n.c.
Bismuth (Bi)-Dissolved	mg/L	0.001	<0.0020	<0.0020	n.c.
Boron (B)-Dissolved	mg/L	0.03	1.09	0.91	n.c.
Cadmium (Cd)-Dissolved	mg/L	0.0002	**0.00497**	**0.00459**	n.c.
Calcium (Ca)-Dissolved	mg/L	0.20	475	468	1
Cesium (Cs)-Dissolved	mg/L	0.0005	<0.0010	<0.0010	n.c.
Chromium (Cr)-Dissolved	mg/L	0.002	<0.020	<0.020	n.c.
Cobalt (Co)-Dissolved	mg/L	0.0005	0.0035	0.0034	n.c.
Copper (Cu)-Dissolved	mg/L	0.002	**0.0124**	**0.0129**	4
Iron (Fe)-Dissolved	mg/L	0.1	<1.0	<1.0	n.c.
Lead (Pb)-Dissolved	mg/L	0.001	**0.113**	**0.112**	1
Lithium (Li)-Dissolved	mg/L	0.01	0.492	0.476	3
Magnesium (Mg)-Dissolved	mg/L	0.5	653	636	3
Manganese (Mn)-Dissolved	mg/L	0.001	0.255	0.252	1
Molybdenum (Mo)-Dissolved	mg/L	0.0005	0.0062	0.0060	3
Nickel (Ni)-Dissolved	mg/L	0.002	0.015	0.014	n.c.
Phosphorus (P)-Dissolved	mg/L	0.5	<0.30	<0.30	n.c.
Potassium (K)-Dissolved	mg/L	0.1	12.9	12.8	1
Rubidium (Rb)-Dissolved	mg/L	0.0005	0.0042	0.0041	n.c.
Selenium (Se)-Dissolved	mg/L	0.005	<0.010	<0.010	n.c.
Silicon (Si)-Dissolved	mg/L	0.3	10.6	9.8	n.c.
Silver (Ag)-Dissolved	mg/L	0.001	<0.0010	<0.0010	n.c.
Sodium (Na)-Dissolved	mg/L	0.5	1490	1470	1
Strontium (Sr)-Dissolved	mg/L	0.0005	3.88	3.77	3
Tellurium (Te)-Dissolved	mg/L	0.001	<0.0020	<0.0020	n.c.
Thallium (Tl)-Dissolved	mg/L	0.005	<0.0010	<0.0010	n.c.
Thorium (Th)-Dissolved	mg/L	0.001	<0.0010	<0.0010	n.c.
Tin (Sn)-Dissolved	mg/L	0.0006	<0.0020	<0.0020	n.c.
Titanium (Ti)-Dissolved	mg/L	0.001	<0.0050	<0.0050	n.c.
Tungsten (W)-Dissolved	mg/L	0.002	<0.0010	<0.0010	n.c.
Uranium (U)-Dissolved	mg/L	0.0005	**0.102**	**0.0979**	4
Vanadium (V)-Dissolved	mg/L	0.002	<0.0020	<0.0020	n.c.
Zinc (Zn)-Dissolved	mg/L	0.02	<0.020	<0.020	n.c.
Zirconium (Zr)-Dissolved	mg/L	0.001	<0.0040	<0.0040	n.c.

NOTES

"-" No value
n.c. Not calculable (i.e., values are less than 5x the RDL)
RDL Reportable Detection Limit
RPD Relative Percent Difference

Appendix C

Laboratory Results and COC

DILLON CONSULTING ENGINEERS
ATTN: Cameron Brown
1558 Willson Place
WINNIPEG MB R3T 0Y4

Date Received: 12-JUL-12
Report Date: 21-JUL-12 12:41 (MT)
Version: FINAL

Client Phone: 204-453-2301

Certificate of Analysis

Lab Work Order #: L1177562

Project P.O. #: NOT SUBMITTED
Job Reference: 10-3834-3001
C of C Numbers:
Legal Site Desc:

Gail Hill
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-1 12-01-01							
Sampled By: CWB on 12-JUL-12 @ 09:20							
Matrix: SOIL							
Metals							
Aluminum (Al)	7780		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	1060	DLA	1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Arsenic (As)	368		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	261		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	0.23		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Bismuth (Bi)	3.87		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	45		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	25.7		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Calcium (Ca)	126000	DLA	1000	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	0.544		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	64.9		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cobalt (Co)	7.41		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	4680	DLA	10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	39300		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	53400	DLA	2.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	50500		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	461		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	6.15		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	71.7		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	510		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	1400		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	8.78		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Selenium (Se)	9.08		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	1.17		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Sodium (Na)	800		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	85.9		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	0.56		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	0.97		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	258		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	185		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	0.950		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	0.699		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	19.5		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zinc (Zn)	750	DLA	100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	2.60		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
L1177562-7 12-02-02							
Sampled By: CWB on 12-JUL-12 @ 10:05							
Matrix: SOIL							
Total Organic Carbon -Inorg & Total C							
Inorganic and Organic Carbon							
Inorganic Carbon	2.42		0.10	%	18-JUL-12	18-JUL-12	R2402246
Total Organic Carbon	1.18		0.10	%	18-JUL-12	18-JUL-12	R2402246
CaCO3 Equivalent	20.2		0.80	%	18-JUL-12	18-JUL-12	R2402246
Total Carbon by combustion method							
Total Carbon by Combustion	3.6		0.1	%	18-JUL-12	18-JUL-12	R2402245
Miscellaneous Parameters							
pH (1:2 soil:water)	9.23		0.10	pH	18-JUL-12	18-JUL-12	R2400560
Metals							
Aluminum (Al)	17100		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	1.17		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-7 12-02-02							
Sampled By: CWB on 12-JUL-12 @ 10:05							
Matrix: SOIL							
Metals							
Arsenic (As)	5.11		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	212		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	0.60		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Bismuth (Bi)	0.190		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	39		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	0.341		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Calcium (Ca)	76000		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	1.26		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	79.2		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cobalt (Co)	9.08		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	35.3		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	25700		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	92.1		0.20	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	26200		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	511		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	4.69		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	69.6		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	490		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	3670		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	26.1		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Selenium (Se)	0.52		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	0.22		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Sodium (Na)	624		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	187		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	0.20		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	<5.0		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	321		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	0.173		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	0.960		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	49.2		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zinc (Zn)	200		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	10.7		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
L1177562-8 12-02-03							
Sampled By: CWB on 12-JUL-12 @ 10:05							
Matrix: SOIL							
Total Organic Carbon -Inorg & Total C							
Inorganic and Organic Carbon							
Inorganic Carbon	0.99		0.10	%	18-JUL-12	18-JUL-12	R2402246
Total Organic Carbon	0.98		0.10	%	18-JUL-12	18-JUL-12	R2402246
CaCO3 Equivalent	8.25		0.80	%	18-JUL-12	18-JUL-12	R2402246
Total Carbon by combustion method							
Total Carbon by Combustion	2.0		0.1	%	18-JUL-12	18-JUL-12	R2402245
Miscellaneous Parameters							
pH (1:2 soil:water)	8.48		0.10	pH	18-JUL-12	18-JUL-12	R2400560
Metals							
Aluminum (Al)	<5.0		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Arsenic (As)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	<0.50		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-8 12-02-03							
Sampled By: CWB on 12-JUL-12 @ 10:05							
Matrix: SOIL							
Metals							
Bismuth (Bi)	<0.020		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	<10		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	<0.020		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Calcium (Ca)	<100		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	<0.020		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	<1.0		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cobalt (Co)	<0.020		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	<1.0		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	<25		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	0.32		0.20	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	<10		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	<0.50		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	<0.020		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	<0.50		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	<100		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	<25		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	<0.020		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Selenium (Se)	<0.50		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Sodium (Na)	<10		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	<5.0		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	<0.50		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	<0.050		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	<0.020		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	<0.50		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zinc (Zn)	<10		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
L1177562-11 12-02-06							
Sampled By: CWB on 12-JUL-12 @ 10:05							
Matrix: SOIL							
Total Organic Carbon -Inorg & Total C							
Inorganic and Organic Carbon							
Inorganic Carbon	7.46		0.10	%	18-JUL-12	18-JUL-12	R2402246
Total Organic Carbon	4.35		0.10	%	18-JUL-12	18-JUL-12	R2402246
CaCO3 Equivalent	62.2		0.80	%	18-JUL-12	18-JUL-12	R2402246
Total Carbon by combustion method							
Total Carbon by Combustion	11.8		0.1	%	18-JUL-12	18-JUL-12	R2402245
Miscellaneous Parameters							
pH (1:2 soil:water)	8.32		0.10	pH	18-JUL-12	18-JUL-12	R2400643
Metals							
Aluminum (Al)	16000		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	221		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Arsenic (As)	57.9		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	935		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	0.71		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Bismuth (Bi)	0.389		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	67		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	1.44		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-11 12-02-06							
Sampled By: CWB on 12-JUL-12 @ 10:05							
Matrix: SOIL							
Metals							
Calcium (Ca)	89800		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	0.783		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	25.9		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cobalt (Co)	7.74		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	154		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	26700		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	8770	DLA	2.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	29500		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	353		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	2.55		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	28.1		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	720		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	2400		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	15.8		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Selenium (Se)	0.99		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	0.47		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Sodium (Na)	1910		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	552		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	0.29		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	95.7		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	525		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	0.409		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	2.02		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	36.1		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zinc (Zn)	170		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	15.5		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
L1177562-12 12-03-01							
Sampled By: CWB on 12-JUL-12 @ 10:40							
Matrix: SOIL							
Total Organic Carbon -Inorg & Total C							
Inorganic and Organic Carbon							
Inorganic Carbon	7.50		0.10	%	18-JUL-12	18-JUL-12	R2402246
Total Organic Carbon	4.14		0.10	%	18-JUL-12	18-JUL-12	R2402246
CaCO3 Equivalent	62.5		0.80	%	18-JUL-12	18-JUL-12	R2402246
Total Carbon by combustion method							
Total Carbon by Combustion	11.6		0.1	%	18-JUL-12	18-JUL-12	R2402245
Miscellaneous Parameters							
pH (1:2 soil:water)	7.94		0.10	pH	18-JUL-12	18-JUL-12	R2400560
Metals							
Aluminum (Al)	9030		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	517		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Arsenic (As)	226		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	222		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	0.20		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Bismuth (Bi)	2.92		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	57		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	16.8		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Calcium (Ca)	158000	DLA	1000	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	0.449		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	57.0		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-12 12-03-01							
Sampled By: CWB on 12-JUL-12 @ 10:40							
Matrix: SOIL							
Metals							
Cobalt (Co)	7.48		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	1000	DLA	10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	28100		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	46200	DLA	2.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	62000		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	454		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	7.32		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	76.4		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	460		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	1260		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	8.30		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Selenium (Se)	5.18		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	1.00		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Sodium (Na)	491		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	77.6		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	0.31		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	0.64		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	147		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	155		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	1.77		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	0.556		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	17.8		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zinc (Zn)	740	DLA	100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	2.30		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
L1177562-17 12-04-01							
Sampled By: CWB on 12-JUL-12 @ 11:15							
Matrix: SOIL							
Metals							
Aluminum (Al)	3410		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	414		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Arsenic (As)	132		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	130		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	0.14		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Bismuth (Bi)	2.15		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	37		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	8.99		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Calcium (Ca)	215000	DLA	1000	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	0.242		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	32.9		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cobalt (Co)	3.97		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	560		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	19000		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	33700	DLA	2.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	103000	DLA	100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	515		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	17.4		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	35.3		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	260		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	709		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	3.78		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-17 12-04-01							
Sampled By: CWB on 12-JUL-12 @ 11:15							
Matrix: SOIL							
Metals							
Selenium (Se)	3.51		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	0.51		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Sodium (Na)	538		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	82.9		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	0.16		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	0.62		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	94.3		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	122		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	0.660		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	0.521		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	9.75		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zinc (Zn)	163		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	3.77		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
L1177562-19 12-04-03							
Sampled By: CWB on 12-JUL-12 @ 11:15							
Matrix: SOIL							
Metals							
Aluminum (Al)	32300		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	2.18		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Arsenic (As)	10.3		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	199		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	0.97		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Bismuth (Bi)	0.283		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	49		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	0.372		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Calcium (Ca)	26300		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	1.83		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	52.7		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cobalt (Co)	13.2		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	43.4		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	33300		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	170		0.20	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	13200		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	524		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	1.10		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	50.6		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	650		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	6010		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	44.8		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Selenium (Se)	0.87		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	0.59		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Sodium (Na)	2410		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	127		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	0.35		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	<5.0		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	244		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	0.080		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	1.52		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	90.9		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-19 12-04-03							
Sampled By: CWB on 12-JUL-12 @ 11:15							
Matrix: SOIL							
Metals							
Zinc (Zn)	101		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	12.3		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
L1177562-23 12-05-02							
Sampled By: CWB on 12-JUL-12 @ 12:00							
Matrix: SOIL							
BTEX plus F1-F4							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	13-JUL-12	21-JUL-12	R2401785
Toluene	<0.050		0.050	mg/kg	13-JUL-12	21-JUL-12	R2401785
Ethyl benzene	<0.015		0.015	mg/kg	13-JUL-12	21-JUL-12	R2401785
o-Xylene	<0.050		0.050	mg/kg	13-JUL-12	21-JUL-12	R2401785
m+p-Xylenes	<0.050		0.050	mg/kg	13-JUL-12	21-JUL-12	R2401785
Xylenes	<0.10		0.10	mg/kg	13-JUL-12	21-JUL-12	R2401785
Surrogate: 4-Bromofluorobenzene (SS)	81.5		70-130	%	13-JUL-12	21-JUL-12	R2401785
CCME Total Extractable Hydrocarbons							
Chrom. to baseline at nC50	YES				17-JUL-12	17-JUL-12	R2399716
Prep/Analysis Dates					17-JUL-12	17-JUL-12	R2399716
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-JUL-12	
F1-BTEX	<10		10	mg/kg		21-JUL-12	
F2 (C10-C16)	16		10	mg/kg		21-JUL-12	
F3 (C16-C34)	95		50	mg/kg		21-JUL-12	
F4 (C34-C50)	64		50	mg/kg		21-JUL-12	
Total Hydrocarbons (C6-C50)	175		50	mg/kg		21-JUL-12	
Miscellaneous Parameters							
% Moisture	27		0.10	%	13-JUL-12	13-JUL-12	R2398059
Metals							
Aluminum (Al)	21600		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	33.1		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Arsenic (As)	7.43		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	1550		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	0.82		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Bismuth (Bi)	0.147		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	138		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	0.609		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Calcium (Ca)	79900		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	0.821		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	21.1		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cobalt (Co)	7.27		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	54.4		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	19500		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	499		0.20	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	23600		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	439		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	3.15		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	25.2		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	1480		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	2780		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	15.1		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Selenium (Se)	0.90		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	0.29		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-23 12-05-02							
Sampled By: CWB on 12-JUL-12 @ 12:00							
Matrix: SOIL							
Metals							
Sodium (Na)	4470		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	1110		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	0.14		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	12.6		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	574		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	0.478		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	3.11		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	31.2		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zinc (Zn)	106		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	14.9		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
L1177562-26 12-05-05							
Sampled By: CWB on 12-JUL-12 @ 12:00							
Matrix: SOIL							
Metals							
Aluminum (Al)	20300		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Antimony (Sb)	0.36		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Arsenic (As)	7.64		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Barium (Ba)	406		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Beryllium (Be)	0.93		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Bismuth (Bi)	0.259		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Boron (B)	16		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cadmium (Cd)	0.307		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Calcium (Ca)	59300		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cesium (Cs)	1.60		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Chromium (Cr)	38.5		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Cobalt (Co)	14.1		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Copper (Cu)	30.0		1.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Iron (Fe)	27500		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Lead (Pb)	15.9		0.20	mg/kg	17-JUL-12	17-JUL-12	R2400142
Magnesium (Mg)	24900		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Manganese (Mn)	620		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Molybdenum (Mo)	1.20		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Nickel (Ni)	45.3		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Phosphorus (P)	540		100	mg/kg	17-JUL-12	17-JUL-12	R2400142
Potassium (K)	3790		25	mg/kg	17-JUL-12	17-JUL-12	R2400142
Rubidium (Rb)	30.3		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Selenium (Se)	0.63		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Silver (Ag)	0.19		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Sodium (Na)	1190		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Strontium (Sr)	76.7		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tellurium (Te)	<0.10		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Thallium (Tl)	0.26		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tin (Sn)	<5.0		5.0	mg/kg	17-JUL-12	17-JUL-12	R2400142
Titanium (Ti)	93.9		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Tungsten (W)	<0.050		0.050	mg/kg	17-JUL-12	17-JUL-12	R2400142
Uranium (U)	2.21		0.020	mg/kg	17-JUL-12	17-JUL-12	R2400142
Vanadium (V)	59.2		0.50	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zinc (Zn)	77		10	mg/kg	17-JUL-12	17-JUL-12	R2400142
Zirconium (Zr)	13.4		0.10	mg/kg	17-JUL-12	17-JUL-12	R2400142

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1177562-26 12-05-05 Sampled By: CWB on 12-JUL-12 @ 12:00 Matrix: SOIL							

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTEXS+F1-HSMS-WP	Soil	BTX plus F1 by GCMS	EPA SW846 8260B REV 2

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

C-INORG-ORG-SK	Soil	Inorganic and Organic Carbon	SSSA (1996) P455-456

When carbonates are decomposed with acid in an open system, carbon dioxide is released to the atmosphere. The decrease in sample weight resulting from CO2 loss is proportional to the carbonate content of the soil.

Reference:
Loeppert, R.H. and Suarez, D.L. 1996. Gravimetric Method for Loss of Carbon Dioxide. P. 455-456 In: J.M. Bartels et al. (ed.) Methods of soil analysis: Part 3 Chemical methods. (3rd ed.) ASA and SSSA, Madison, WI. Book series no. 5

C-TOT-LECO-SK	Soil	Total Carbon by combustion method	SSSA (1996) P. 973-974

The sample is ignited in a combustion analyzer where carbon in the reduced CO2 gas is determined using a thermal conductivity detector.

ETL-TEH-CCME-WP	Soil	CCME Total Extractable Hydrocarbons	CCME CWS-PHC Dec-2000 - Pub# 1310

A soil or sediment sample weight of ~10g is extracted with 1:1 hexane/acetone by either soxhlet or automated extraction procedures. Half the extract is used for gravimetric determination of heavy hydrocarbons and the other half is used for GC analysis. Both extracts are cleaned-up with silica gel to facilitate separation of the hydrocarbons from other polar extractables. An aliquot of the remaining solvent is analyzed using a gas chromatograph equipped with a flame-ionization detector.

ETL-TVH,TEH-CCME-WP	Soil	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB# 1310-S

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

Hydrocarbon results are expressed on a dry weight basis.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

MET-200.2-MS-WP	Soil	Metals	EPA 200.8/200.2 /BCMOE-S

This analysis is carried out using procedures adapted from US EPA method 200.2. Sample preparation procedure for spectrochemical determination of total recoverable elements . Soil samples are dried (<60 C) and homogenized and a representative subsample of the dry material is digested. The digested samples are analyzed by ICPMS.

The results are reported as mg/Kg dry weight or mg/Kg wet weight this is equivalent to ug/g dry weight or ug/g wet weight.

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 maybe environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not mobile in the environment. This method has known stability issues for determining Silicon.

PH-1:2-SK	Soil	pH (1:2 Soil:Water Extraction)	CSSC 3.13

1 part dry soil and 2 parts de-ionized water (by volume) is mixed. The slurry is allowed to stand with occasional stirring for 30 - 60 minutes. After equilibration, pH of the slurry is measured using a pH meter.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1177562 Report Date: 21-JUL-12

Client: DILLON CONSULTING ENGINEERS
1558 Willson Place
WINNIPEG MB R3T 0Y4
Contact: Cameron Brown

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	**Soil**							
Batch R2401785								
WG1508248-2 LCS								
Benzene			85.5		%		70-130	21-JUL-12
Toluene			85.9		%		70-130	21-JUL-12
Ethyl benzene			88.1		%		70-130	21-JUL-12
o-Xylene			87.5		%		70-130	21-JUL-12
m+p-Xylenes			84.7		%		70-130	21-JUL-12
WG1508248-1 MB								
Benzene			<0.0050		mg/kg		0.005	20-JUL-12
Toluene			<0.050		mg/kg		0.05	20-JUL-12
Ethyl benzene			<0.015		mg/kg		0.015	20-JUL-12
o-Xylene			<0.050		mg/kg		0.05	20-JUL-12
m+p-Xylenes			<0.050		mg/kg		0.05	20-JUL-12
Surrogate: 4-Bromofluorobenzene (SS)			87.5		%		70-130	20-JUL-12
C-INORG-ORG-SK	**Soil**							
Batch R2402246								
WG1509628-1 DUP		**L1177562-8**						
Inorganic Carbon		0.99	0.94		%	4.8	20	18-JUL-12
CaCO3 Equivalent		8.25	7.86		%	4.8	25	18-JUL-12
WG1509628-2 IRM		**0.1%IC**						
Inorganic Carbon			130.8		%		60-140	18-JUL-12
CaCO3 Equivalent			131.4		%		60-140	18-JUL-12
WG1509628-3 IRM		**0.4%IC**						
Inorganic Carbon			103.1		%		80-120	18-JUL-12
CaCO3 Equivalent			103.3		%		80-120	18-JUL-12
WG1509628-4 MB								
Inorganic Carbon			<0.10		%		0.1	18-JUL-12
CaCO3 Equivalent			<0.80		%		0.8	18-JUL-12
C-TOT-LECO-SK	**Soil**							
Batch R2402245								
WG1509550-1 DUP		**L1177778-4**						
Total Carbon by Combustion		43.0	42.4		%	1.5	20	18-JUL-12
WG1509550-2 IRM		**08-109_SOIL**						
Total Carbon by Combustion			109.7		%		80-120	18-JUL-12
WG1509550-3 MB								
Total Carbon by Combustion			<0.1		%		0.1	18-JUL-12
ETL-TEH-CCME-WP	**Soil**							

Quality Control Report

Client: DILLON CONSULTING ENGINEERS
1558 Willson Place
WINNIPEG MB R3T 0Y4
Contact: Cameron Brown

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ETL-TEH-CCME-WP	**Soil**							
Batch R2399716								
WG1509101-3 DUP		**L1177915-5**						
F2 (C10-C16)		<10	<10	RPD-NA	mg/kg	N/A	50	17-JUL-12
F3 (C16-C34)		<50	<50	RPD-NA	mg/kg	N/A	50	17-JUL-12
F4 (C34-C50)		<50	<50	RPD-NA	mg/kg	N/A	50	17-JUL-12
WG1509101-2 LCS								
F2 (C10-C16)			104.1		%		70-130	17-JUL-12
F3 (C16-C34)			104.5		%		70-130	17-JUL-12
F4 (C34-C50)			99.6		%		70-130	17-JUL-12
WG1509101-1 MB								
F2 (C10-C16)			<10		mg/kg		10	17-JUL-12
F3 (C16-C34)			<50		mg/kg		50	17-JUL-12
F4 (C34-C50)			<50		mg/kg		50	17-JUL-12
MET-200.2-MS-WP	**Soil**							
Batch R2400142								
WG1508919-2 CRM		**NRC PACS-2**						
Aluminum (Al)			104		%		70-130	17-JUL-12
Antimony (Sb)			129		%		70-130	17-JUL-12
Arsenic (As)			109		%		70-130	17-JUL-12
Barium (Ba)			95		%		70-130	17-JUL-12
Beryllium (Be)			76		%		70-130	17-JUL-12
Boron (B)			105		%		70-130	17-JUL-12
Cadmium (Cd)			103		%		70-130	17-JUL-12
Calcium (Ca)			106		%		70-130	17-JUL-12
Chromium (Cr)			109		%		70-130	17-JUL-12
Cobalt (Co)			104		%		70-130	17-JUL-12
Copper (Cu)			109		%		70-130	17-JUL-12
Iron (Fe)			105		%		70-130	17-JUL-12
Lead (Pb)			108		%		70-130	17-JUL-12
Magnesium (Mg)			91		%		70-130	17-JUL-12
Manganese (Mn)			115		%		70-130	17-JUL-12
Molybdenum (Mo)			116		%		70-130	17-JUL-12
Nickel (Ni)			110		%		70-130	17-JUL-12
Phosphorus (P)			109		%		70-130	17-JUL-12
Potassium (K)			98		%		70-130	17-JUL-12
Silver (Ag)			104		%		70-130	17-JUL-12

Quality Control Report

Client: DILLON CONSULTING ENGINEERS
1558 Willson Place
WINNIPEG MB R3T 0Y4
Contact: Cameron Brown

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2400142								
WG1508919-2 CRM		**NRC PACS-2**						
Sodium (Na)			101		%		70-130	17-JUL-12
Strontium (Sr)			109		%		70-130	17-JUL-12
Thallium (Tl)			100		%		70-130	17-JUL-12
Tin (Sn)			129		%		70-130	17-JUL-12
Titanium (Ti)			116		%		70-130	17-JUL-12
Uranium (U)			91		%		70-130	17-JUL-12
Vanadium (V)			108		%		70-130	17-JUL-12
Zinc (Zn)			104		%		70-130	17-JUL-12
WG1508919-3 CRM		**NRC MESS-3**						
Aluminum (Al)			82		%		70-130	17-JUL-12
Antimony (Sb)			107		%		70-130	17-JUL-12
Arsenic (As)			101		%		70-130	17-JUL-12
Beryllium (Be)			74		%		70-130	17-JUL-12
Cadmium (Cd)			98		%		70-130	17-JUL-12
Calcium (Ca)			117		%		70-130	17-JUL-12
Chromium (Cr)			92		%		70-130	17-JUL-12
Cobalt (Co)			114		%		70-130	17-JUL-12
Iron (Fe)			116		%		70-130	17-JUL-12
Lead (Pb)			109		%		70-130	17-JUL-12
Magnesium (Mg)			99		%		70-130	17-JUL-12
Molybdenum (Mo)			112		%		70-130	17-JUL-12
Potassium (K)			76		%		70-130	17-JUL-12
Silver (Ag)			106		%		70-130	17-JUL-12
Strontium (Sr)			101		%		70-130	17-JUL-12
Uranium (U)			97		%		70-130	17-JUL-12
Vanadium (V)			80		%		70-130	17-JUL-12
Zinc (Zn)			111		%		70-130	17-JUL-12
WG1508919-5 DUP		**WG1508919-4**						
Aluminum (Al)		1010	883		mg/kg	13	40	17-JUL-12
Antimony (Sb)		0.21	0.22		mg/kg	3.0	30	17-JUL-12
Arsenic (As)		0.98	0.97		mg/kg	1.1	30	17-JUL-12
Barium (Ba)		36.8	33.3		mg/kg	9.9	40	17-JUL-12
Beryllium (Be)		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	17-JUL-12
Bismuth (Bi)		0.022	<0.020	RPD-NA	mg/kg	N/A	30	17-JUL-12

Quality Control Report

Client: DILLON CONSULTING ENGINEERS
1558 Willson Place
WINNIPEG MB R3T 0Y4
Contact: Cameron Brown

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2400142								
WG1508919-5 DUP		**WG1508919-4**						
Boron (B)		<10	<10	RPD-NA	mg/kg	N/A	30	17-JUL-12
Cadmium (Cd)		0.217	0.200		mg/kg	8.1	30	17-JUL-12
Calcium (Ca)		36900	29900		mg/kg	21	30	17-JUL-12
Cesium (Cs)		0.120	0.110		mg/kg	8.5	30	17-JUL-12
Chromium (Cr)		23.5	21.1		mg/kg	11	30	17-JUL-12
Cobalt (Co)		1.39	1.26		mg/kg	9.8	30	17-JUL-12
Copper (Cu)		124	118		mg/kg	4.9	30	17-JUL-12
Iron (Fe)		16400	16500		mg/kg	0.6	30	17-JUL-12
Lead (Pb)		3.76	3.45		mg/kg	8.4	40	17-JUL-12
Magnesium (Mg)		8440	8390		mg/kg	0.6	30	17-JUL-12
Manganese (Mn)		303	267		mg/kg	12	30	17-JUL-12
Molybdenum (Mo)		2.74	2.48		mg/kg	10	40	17-JUL-12
Nickel (Ni)		10.3	9.12		mg/kg	12	30	17-JUL-12
Phosphorus (P)		17100	15500		mg/kg	9.7	30	17-JUL-12
Potassium (K)		6280	5960		mg/kg	5.2	40	17-JUL-12
Rubidium (Rb)		6.92	6.26		mg/kg	10	30	17-JUL-12
Selenium (Se)		1.61	1.59		mg/kg	1.1	30	17-JUL-12
Silver (Ag)		<0.10	<0.10	RPD-NA	mg/kg	N/A	40	17-JUL-12
Sodium (Na)		2780	2660		mg/kg	4.4	40	17-JUL-12
Strontium (Sr)		37.1	32.2		mg/kg	14	40	17-JUL-12
Tellurium (Te)		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	17-JUL-12
Thallium (Tl)		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	17-JUL-12
Tin (Sn)		<5.0	<5.0	RPD-NA	mg/kg	N/A	40	17-JUL-12
Titanium (Ti)		30.0	28.3		mg/kg	5.7	40	17-JUL-12
Tungsten (W)		0.227	0.202		mg/kg	11	30	17-JUL-12
Uranium (U)		0.870	0.810		mg/kg	7.1	30	17-JUL-12
Vanadium (V)		5.29	5.17		mg/kg	2.5	30	17-JUL-12
Zinc (Zn)		370	361		mg/kg	2.5	30	17-JUL-12
Zirconium (Zr)		2.50	2.25		mg/kg	10	30	17-JUL-12
WG1508919-7 DUP		**WG1508919-6**						
Aluminum (Al)		7780	7280		mg/kg	6.6	40	17-JUL-12
Antimony (Sb)		1070	960		mg/kg	11	30	17-JUL-12
Arsenic (As)		373	376		mg/kg	0.9	30	17-JUL-12

Quality Control Report

Client: DILLON CONSULTING ENGINEERS
1558 Willson Place
WINNIPEG MB R3T 0Y4
Contact: Cameron Brown

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2400142								
WG1508919-7 DUP		**WG1508919-6**						
Barium (Ba)		261	246		mg/kg	6.2	40	17-JUL-12
Beryllium (Be)		0.23	0.18		mg/kg	22	30	17-JUL-12
Bismuth (Bi)		3.87	3.65		mg/kg	5.9	30	17-JUL-12
Boron (B)		45	44		mg/kg	3.5	30	17-JUL-12
Cadmium (Cd)		25.7	21.9		mg/kg	16	30	17-JUL-12
Calcium (Ca)		124000	125000		mg/kg	0.6	30	17-JUL-12
Cesium (Cs)		0.544	0.493		mg/kg	9.7	30	17-JUL-12
Chromium (Cr)		64.9	70.3		mg/kg	7.9	30	17-JUL-12
Cobalt (Co)		7.41	6.39		mg/kg	15	30	17-JUL-12
Copper (Cu)		4650	4500		mg/kg	3.2	30	17-JUL-12
Iron (Fe)		39300	38900		mg/kg	0.9	30	17-JUL-12
Lead (Pb)		50700	57600		mg/kg	13	40	17-JUL-12
Magnesium (Mg)		50500	48800		mg/kg	3.4	30	17-JUL-12
Manganese (Mn)		461	431		mg/kg	6.7	30	17-JUL-12
Molybdenum (Mo)		6.15	6.44		mg/kg	4.6	40	17-JUL-12
Nickel (Ni)		71.7	74.8		mg/kg	4.3	30	17-JUL-12
Phosphorus (P)		510	450		mg/kg	11	30	17-JUL-12
Potassium (K)		1400	1320		mg/kg	6.3	40	17-JUL-12
Rubidium (Rb)		8.78	8.03		mg/kg	9.0	30	17-JUL-12
Selenium (Se)		9.08	9.44		mg/kg	3.9	30	17-JUL-12
Silver (Ag)		1.17	1.07		mg/kg	9.4	40	17-JUL-12
Sodium (Na)		800	776		mg/kg	3.0	40	17-JUL-12
Strontium (Sr)		85.9	90.1		mg/kg	4.8	40	17-JUL-12
Tellurium (Te)		0.56	0.51		mg/kg	8.9	30	17-JUL-12
Thallium (Tl)		0.97	0.91		mg/kg	6.3	30	17-JUL-12
Tin (Sn)		258	206		mg/kg	22	40	17-JUL-12
Titanium (Ti)		185	180		mg/kg	2.9	40	17-JUL-12
Tungsten (W)		0.950	1.00		mg/kg	5.6	30	17-JUL-12
Uranium (U)		0.699	0.670		mg/kg	4.2	30	17-JUL-12
Vanadium (V)		19.5	18.0		mg/kg	7.9	30	17-JUL-12
Zinc (Zn)		641	590		mg/kg	8.3	30	17-JUL-12
Zirconium (Zr)		2.60	2.70		mg/kg	3.7	30	17-JUL-12
WG1508919-1 MB								

Quality Control Report

Client: DILLON CONSULTING ENGINEERS
1558 Willson Place
WINNIPEG MB R3T 0Y4
Contact: Cameron Brown

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2400142								
WG1508919-1 MB								
Aluminum (Al)			<5.0		mg/kg		5	17-JUL-12
Antimony (Sb)			<0.10		mg/kg		0.1	17-JUL-12
Arsenic (As)			<0.10		mg/kg		0.1	17-JUL-12
Barium (Ba)			<0.50		mg/kg		0.5	17-JUL-12
Beryllium (Be)			<0.10		mg/kg		0.1	17-JUL-12
Bismuth (Bi)			<0.020		mg/kg		0.02	17-JUL-12
Boron (B)			<10		mg/kg		10	17-JUL-12
Cadmium (Cd)			<0.020		mg/kg		0.02	17-JUL-12
Calcium (Ca)			<100		mg/kg		100	17-JUL-12
Cesium (Cs)			<0.020		mg/kg		0.02	17-JUL-12
Chromium (Cr)			<1.0		mg/kg		1	17-JUL-12
Cobalt (Co)			<0.020		mg/kg		0.02	17-JUL-12
Copper (Cu)			<1.0		mg/kg		1	17-JUL-12
Iron (Fe)			<25		mg/kg		25	17-JUL-12
Lead (Pb)			<0.20		mg/kg		0.2	17-JUL-12
Magnesium (Mg)			<10		mg/kg		10	17-JUL-12
Manganese (Mn)			<0.50		mg/kg		0.5	17-JUL-12
Molybdenum (Mo)			<0.020		mg/kg		0.02	17-JUL-12
Nickel (Ni)			<0.50		mg/kg		0.5	17-JUL-12
Phosphorus (P)			<100		mg/kg		100	17-JUL-12
Potassium (K)			<25		mg/kg		25	17-JUL-12
Rubidium (Rb)			<0.020		mg/kg		0.02	17-JUL-12
Selenium (Se)			<0.50		mg/kg		0.5	17-JUL-12
Silver (Ag)			<0.10		mg/kg		0.1	17-JUL-12
Sodium (Na)			<10		mg/kg		10	17-JUL-12
Strontium (Sr)			<0.10		mg/kg		0.1	17-JUL-12
Tellurium (Te)			<0.10		mg/kg		0.1	17-JUL-12
Thallium (Tl)			<0.10		mg/kg		0.1	17-JUL-12
Tin (Sn)			<5.0		mg/kg		5	17-JUL-12
Titanium (Ti)			<0.50		mg/kg		0.5	17-JUL-12
Tungsten (W)			<0.050		mg/kg		0.05	17-JUL-12
Uranium (U)			<0.020		mg/kg		0.02	17-JUL-12
Vanadium (V)			<0.50		mg/kg		0.5	17-JUL-12

Quality Control Report

Client: DILLON CONSULTING ENGINEERS
1558 Willson Place
WINNIPEG MB R3T 0Y4
Contact: Cameron Brown

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2400142								
WG1508919-1 MB								
Zinc (Zn)			<10		mg/kg		10	17-JUL-12
Zirconium (Zr)			<0.10		mg/kg		0.1	17-JUL-12
MOISTURE-WP	**Soil**							
Batch R2398059								
WG1507443-1 DUP		**L1177279-3**						
% Moisture		34	33		%	2.7	50	13-JUL-12
PH-1:2-SK	**Soil**							
Batch R2400560								
WG1508614-1 DUP		**L1177562-12**						
pH (1:2 soil:water)		7.94	7.96		pH	0.3	25	18-JUL-12
WG1508614-3 IRM		**SAL814**						
pH (1:2 soil:water)			8.05		pH		7.7-8.3	18-JUL-12
Batch R2400643								
WG1509496-1 DUP		**L1177291-8**						
pH (1:2 soil:water)		5.05	5.08		pH	0.6	25	18-JUL-12
WG1509496-3 IRM		**SAL814**						
pH (1:2 soil:water)			8.06		pH		7.7-8.3	18-JUL-12

Quality Control Report

Workorder: L1177562 Report Date: 21-JUL-12

Client: DILLON CONSULTING ENGINEERS
1558 Willson Place
WINNIPEG MB R3T 0Y4
Contact: Cameron Brown

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
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.

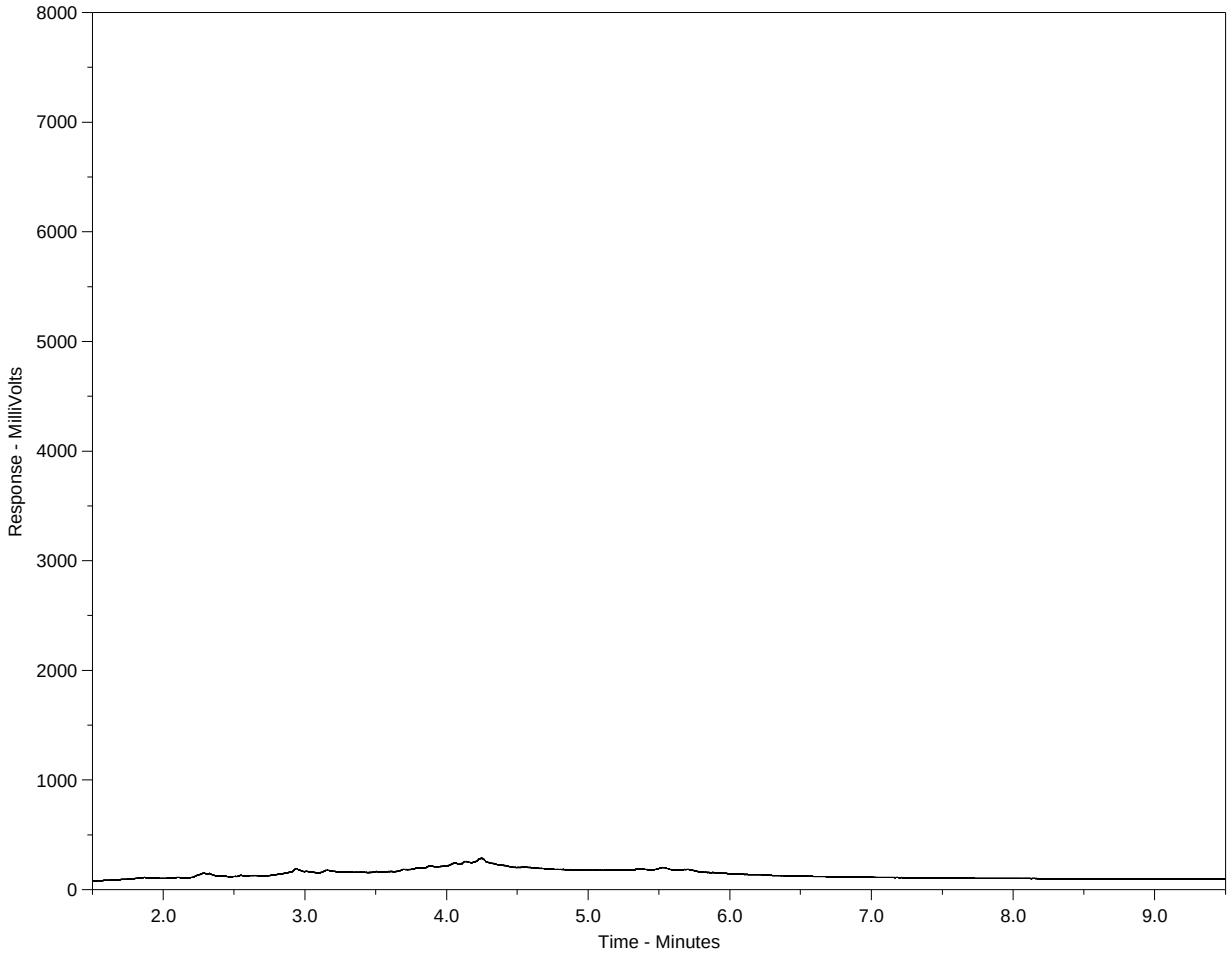
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where 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: **L1177562-23**
Client ID: **12-05-02**



<-nC10---------nC16------------------------nC34-----------------nC50------------------------------>
<-------nC11---------------------nC30-->
<----Gasoline-------------> <------------------Heavy Oils--->
|--------------Diesel----------------|

The Canada Wide Standard Hydrocarbon Distribution Report is intended to assist you in characterizing hydrocarbon products that may be present in your sample. The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products as well as a number of specified n-alkane hydrocarbon marker compounds. Comparison of this report with those of reference standards may also assist in characterizing hydrocarbons present in the sample.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced with a high temperature GC method that is specific to the Canada-Wide Standard method (December 2007 version). Note that retention times and distribution profiles from reports produced using different GC programs will differ.

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Environmental Division

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L1177562

10-023816

Page 1 of 3

Report To		Report Format / Distribution	
Company:	Dillon Consulting	Standard: ✓ Other (specify):	
Contact:	Cameron Brown	Select: PDF ✓ Excel Digital Fax	
Address:	1558 Willson Place, Winnipeg, MB R3T 0Y4	Email 1: cbrown@dillon.ca	
		Email 2:	
Phone:	204-453-2301 Fax: 204-452-4412		
Invoice To	Same as Report ? (circle) (Yes) or No (if No, provide details)	**Client / Project Information**	
	Copy of Invoice with Report? (circle) Yes or No	Job #:	10-3834-3001
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #:	Q28363
Lab Work Order # (lab use only)		ALS Contact:	Judy
		Sampler:	CWB

L1177562-COFC

Service: X Regular; Priority; Emergency; For

Analysis Request

(Indicate Filtered or Preserved, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	Organic Carbon	pH	Hold	Number of Containers
1	12-01-01	12-Jul-12	9:20	Soil	X	F/P	F/P		3
2	12-01-02							X	3
3	12-01-03							X	3
4	12-01-04							X	3
5	12-01-05							X	3
6	12-02-01		10:05					X	3
7	12-02-02				X	X	X		3
8	12-02-03				X	X	X		3
9	12-02-04							X	3
10	12-02-05							X	3
11	12-02-06				X	X	X		2
12	12-03-01		10:40		X	X	X		3

Special Instructions / Regulations / 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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
CB	July 12/12	3:45pm	LC	12-JUL-12	15:40	19 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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GENF 18.01 Front

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Page 2 of 3

Report To		Report Format / Distribution		Service
Company:	Dillon Consulting	Standard: ✓	Other (specify):	X Regul
Contact:	Cameron Brown	Select: PDF ✓	Excel Digital Fax	Priorit
Address:	1558 Willson Place, Winnipeg, MB R3T 0Y4	Email 1:	Cbrown@dillon.ca	Emerg
		Email 2:		For E
Phone:	204-453-2301 Fax: 204-452-4412			

L1177562-COFC

Invoice To	Same as Report ? (circle) Yes or No (if No, provide details)	Client / Project Information	
	Copy of Invoice with Report? (circle) Yes or No	Job #:	10-3834-3001
Company:		PO / AFE:	
Contact:		LSD:	
Address:			
Phone:	Fax:	Quote #:	Q28363

Lab Work Order # (lab use only)		ALS Contact:	Judy	Sampler:	CWB

Analysis Request
(Indicate Filtered or Preserved, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	BTEX, F1-F4							Hold			Number of Containers
13	12-03-02	12-Jul-12	10:40	Soil									X			3
14	12-03-03												X			3
15	12-03-04												X			3
16	12-03-05												X			3
17	12-04-01		11:15		X											3
18	12-04-02												X			3
19	12-04-03				X											3
20	12-04-04												X			3
21	12-04-05												X			3
22	12-05-01		12:00										X			3
23	12-05-02				X	X										3
24	12-05-03												X			3

Special Instructions / Regulations / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
CWB	July 12/12	3:45pm	LC	12-JUL-12	15:40	19 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY | GENF 18.01 Front

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10-023815

Page 3 of 3

Report To	Report Format / Distribution	Service
Company: Dillon Consulting	Standard: ✓ Other (specify):	X Regula
Contact: Cameron Brown	Select: PDF ✓ Excel Digital Fax	Priority
Address: 1558 Willson Place, Winnipeg, MB R3T 0Y4	Email 1: cbrown@dillon.ca	Emerge
	Email 2:	For Em
Phone: 204-453-2301 Fax: 204-452-4412		
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	
Copy of Invoice with Report? (circle) Yes or No	Job #: 10-3834-3001	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: Q 28363	
Lab Work Order # (lab use only):	**ALS Contact:** Judy **Sampler:** CWB	

L1177562-COFC

Analysis Request
(Indicate Filtered or Preserved, F/P)

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	Hold	Number of Containers
01	12-05-04	12-Jul-12	12:00	Soil		X	3
02	12-05-05	12-Jul-12	12:30	Soil	X		3

Special Instructions / Regulations / Hazardous Details

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SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
CSB	July 12/12	3:45 pm	LC	12-JUL-12	15:40	19 °C				

Dillon Consulting Engineers
ATTN: INDRA KALINOVICH
1558 Willson Place
Winnipeg MB R3T 0Y4

Date Received: 15-MAY-13
Report Date: 24-SEP-13 13:15 (MT)
Version: FINAL REV. 2

Client Phone: 204-453-2301

Certificate of Analysis

Lab Work Order #: L1301827

Project P.O. #: NOT SUBMITTED
Job Reference: 10-3834
C of C Numbers:
Legal Site Desc:

Comments:

24-SEP-13: Revised report - ID's

Craig Riddell
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-1 13-01-5.2 @ 12.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 09:15							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	9.36		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	2.53		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	800		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.04		0.10	g		21-MAY-13	R2614209
Final pH	6.52		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	779		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Lead (Pb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	106		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	2.14		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	6.1		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	0.935		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.430		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	<0.050		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	8.14		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	10700	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	5.31		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	6.03		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	105		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	0.57		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	0.162		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	15		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	0.227		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-1 13-01-5.2 @ 12.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 09:15							
Matrix: Soil							
Metals							
Calcium (Ca)	105000	DLA	1000	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	24.4		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	6.87		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	20.0		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	17900		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	148		0.20	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	46800		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	287		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	2.74		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	20.5		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	430		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	2340		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	0.76		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.12		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	1690		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	69.7		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.18		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	<5.0		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	159		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	1.48		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	33.1		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	43		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
L1301827-2 13-02-1.8 @ 6 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 09:30							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	9.38		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	2.27		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	810		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.65		0.10	g		21-MAY-13	R2614209
Final pH	6.10		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	530		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-2 13-02-1.8 @ 6 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 09:30							
Matrix: Soil							
Total Metals by ICP-MS							
Lead (Pb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	168		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	6.07		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	1.21		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.433		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	<0.050		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	8.40		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	25000	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	2.10		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	9.18		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	245		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	1.10		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	0.303		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	21		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	0.384		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Calcium (Ca)	28800		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	46.0		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	16.0		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	35.1		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	33600		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	156		0.20	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	18400		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	508	DLA	5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	3.32		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	43.1		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	520		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	4290		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	0.88		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.18		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	2930		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	82.3		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.34		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	<5.0		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	129		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	2.12		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	75.1		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	82		10	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-3 13-03-1.1 @ 3.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 10:00							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	8.70		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	3.84		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	810		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.74		0.10	g		21-MAY-13	R2614209
Final pH	5.55		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	498		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Lead (Pb)-Leachable	43.5		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	123		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	4.37		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	14.8		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	3.35		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.430		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	0.067		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	8.22		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	21500	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	636	DLA	1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	280		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	367		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	1.07		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	0.758		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	132		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	4.53		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-3 13-03-1.1 @ 3.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 10:00							
Matrix: Soil							
Metals							
Calcium (Ca)	68600	DLA	1000	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	46.4		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	14.8		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	667	DLA	10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	49000		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	17300	DLA	2.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	31900		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	551	DLA	5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	7.28		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	52.7		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	900		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	3240		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	1.50		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.54		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	2960		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	518	DLA	1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.40		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	304		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	499	DLA	5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	2.79		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	53.9		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	395		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
L1301827-4 13-04-1.1 @ 3.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 10:30							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	8.98		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	1.84		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	810		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.19		0.10	g		21-MAY-13	R2614209
Final pH	5.45		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	0.77		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	361		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-4 13-04-1.1 @ 3.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 10:30							
Matrix: Soil							
Total Metals by ICP-MS							
Lead (Pb)-Leachable	25.7		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	84.1		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	9.18		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	12.1		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	2.00		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.438		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	0.174		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	8.05		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	17600	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	97.5		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	75.5		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	327		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	0.72		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	0.670		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	36		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	2.89		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Calcium (Ca)	45500		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	46.1		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	11.2		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	367		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	36900		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	9250	DLA	2.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	20400		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	687	DLA	5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	3.85		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	38.0		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	700		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	4300		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	1.45		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.35		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	1120		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	164		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.36		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	133		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	201		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	1.63		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	55.7		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	250		10	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-5 13-05-1.5 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 11:00							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	8.58		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	2.46		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	800		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.11		0.10	g		21-MAY-13	R2614209
Final pH	5.69		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	0.091		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	606		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Lead (Pb)-Leachable	101		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	50.7		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	0.059		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	11.3		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	1.36		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.427		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	51.7		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	0.102		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	7.81		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	10600	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	552	DLA	1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	227		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	287		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	0.59		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	1.24		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	37		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	10.2		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-5 13-05-1.5 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 11:00							
Matrix: Soil							
Metals							
Calcium (Ca)	83400	DLA	1000	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	27.9		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	7.04		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	252		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	23100		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	25700	DLA	2.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	35600		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	310		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	3.46		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	31.0		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	580		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	2370		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	3.00		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.43		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	974		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	154		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.77		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	131		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	225		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	1.29		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	32.6		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	180		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
L1301827-6 13-06-7.3 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 11:30							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	8.28		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	1.93		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	810		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.67		0.10	g		21-MAY-13	R2614209
Final pH	5.55		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	0.65		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	0.427		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	765		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-6 13-06-7.3 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 11:30							
Matrix: Soil							
Total Metals by ICP-MS							
Lead (Pb)-Leachable	155		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	39.7		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	0.472		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	7.7		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	1.22		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.429		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	0.209		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	7.69		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	14500	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	441		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	251		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	235		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	0.58		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	1.68		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	57		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	33.9		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Calcium (Ca)	62900	DLA	1000	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	38.0		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	8.86		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	1300	DLA	10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	25500		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	24200	DLA	2.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	23700		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	387		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	3.36		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	38.9		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	660		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	3440		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	5.20		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.51		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	752		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	113		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.83		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	136		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	237		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	1.36		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	45.2		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	236		10	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-7 13-07-2.4 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 12:00							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	7.56		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	3.66		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	800		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.06		0.10	g		21-MAY-13	R2614209
Final pH	5.72		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	0.355		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	953		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Lead (Pb)-Leachable	89.7		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	30.8		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	1.55		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	7.7		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	1.25		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.445		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	0.194		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	7.64		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	10300	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	389		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	238		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	203		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	0.48		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	1.96		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	30		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	43.7		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-7 13-07-2.4 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 12:00							
Matrix: Soil							
Metals							
Calcium (Ca)	81300	DLA	1000	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	39.1		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	7.39		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	307		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	27600		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	25200	DLA	2.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	29300		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	350		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	4.34		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	42.5		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	500		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	2240		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	5.12		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.60		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	586		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	148		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.86		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	112		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	239		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	1.05		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	31.8		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	299		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
L1301827-8 13-08-1.5 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 12:30							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	7.52		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	2.56		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	800		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.13		0.10	g		21-MAY-13	R2614209
Final pH	5.57		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	0.66		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	1.38		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	1190		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-8 13-08-1.5 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 12:30							
Matrix: Soil							
Total Metals by ICP-MS							
Lead (Pb)-Leachable	82.7		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	25.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	0.186		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	7.1		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	0.586		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.423		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	0.200		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	7.61		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	4890	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	1370	DLA	1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	653	DLA	1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	95.6		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	0.20		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	5.44		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	27		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	108		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Calcium (Ca)	80500	DLA	1000	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	17.4		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	4.61		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	391		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	16000		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	47200	DLA	2.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	16500		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	225		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	2.64		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	43.8		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	310		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	1010		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	18.3		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	1.42		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	310		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	97.4		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	1.98		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	364		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	211		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	0.583		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	15.4		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	260		10	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-9 13-09-1.1 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 13:00							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					22-MAY-13	R2615717
Percent Solids	100		0.010	%		22-MAY-13	R2615717
Initial pH	9.11		0.10	pH units		22-MAY-13	R2615717
If pH>5 dilute HCl added and heated	YES					22-MAY-13	R2615717
Intermediate pH	2.75		0.10	pH units		22-MAY-13	R2615717
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					22-MAY-13	R2615717
Extraction Volume	800		1	mL		22-MAY-13	R2615717
Percent Solids For Dry Wt Equiv	Not Applicable					22-MAY-13	R2615717
Sample Weight	40.00		0.10	g		22-MAY-13	R2615717
Final pH	5.84		0.10	pH units		22-MAY-13	R2615717
Solution Blank pH	4.97		0.10	pH units		22-MAY-13	R2615717
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Arsenic (As)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Barium (Ba)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Boron (B)-Leachable	<5.0		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Cadmium (Cd)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Calcium (Ca)-Leachable	279		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Copper (Cu)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Iron (Fe)-Leachable	<5.0		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Lead (Pb)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Magnesium (Mg)-Leachable	108		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Manganese (Mn)-Leachable	0.342		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Potassium (K)-Leachable	23.2		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Selenium (Se)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Silver (Ag)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Strontium (Sr)-Leachable	0.715		0.010	mg/L	24-MAY-13	24-MAY-13	R2617181
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	24-MAY-13	24-MAY-13	R2617181
Tin (Sn)-Leachable	0.407		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Uranium (U)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Vanadium (V)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Miscellaneous Parameters							
Mercury (Hg)-Total	<0.050		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	8.20		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	24300	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	1.20		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	8.65		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	214		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	1.14		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	0.306		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	23		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	0.254		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-9 13-09-1.1 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 13:00							
Matrix: Soil							
Metals							
Calcium (Ca)	29600		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	55.5		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	17.0		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	36.3		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	35300		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	40.6		0.20	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	17300		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	488	DLA	5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	2.14		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	47.8		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	580		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	7000		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	<0.50		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.18		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	1990		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	74.3		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.34		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	<5.0		5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	221		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	1.71		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	89.3		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	83		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
L1301827-10 13-10-7.3 @ 5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 13:30							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					22-MAY-13	R2615717
Percent Solids	100		0.010	%		22-MAY-13	R2615717
Initial pH	8.27		0.10	pH units		22-MAY-13	R2615717
If pH>5 dilute HCl added and heated	YES					22-MAY-13	R2615717
Intermediate pH	2.43		0.10	pH units		22-MAY-13	R2615717
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					22-MAY-13	R2615717
Extraction Volume	810		1	mL		22-MAY-13	R2615717
Percent Solids For Dry Wt Equiv	Not Applicable					22-MAY-13	R2615717
Sample Weight	40.07		0.10	g		22-MAY-13	R2615717
Final pH	5.79		0.10	pH units		22-MAY-13	R2615717
Solution Blank pH	4.97		0.10	pH units		22-MAY-13	R2615717
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Arsenic (As)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Barium (Ba)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Boron (B)-Leachable	<5.0		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Cadmium (Cd)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Calcium (Ca)-Leachable	483		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Copper (Cu)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Iron (Fe)-Leachable	<5.0		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-10 13-10-7.3 @ 5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 13:30							
Matrix: Soil							
Total Metals by ICP-MS							
Lead (Pb)-Leachable	55.6		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Magnesium (Mg)-Leachable	54.6		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Manganese (Mn)-Leachable	0.145		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Potassium (K)-Leachable	9.1		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Selenium (Se)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Silver (Ag)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Strontium (Sr)-Leachable	1.08		0.010	mg/L	24-MAY-13	24-MAY-13	R2617181
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	24-MAY-13	24-MAY-13	R2617181
Tin (Sn)-Leachable	0.412		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Uranium (U)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Vanadium (V)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Zinc (Zn)-Leachable	<1.0		1.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Miscellaneous Parameters							
Mercury (Hg)-Total	0.272		0.050	mg/kg	17-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	7.73		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	17800	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Antimony (Sb)	1080	DLA	1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Arsenic (As)	538	DLA	1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Barium (Ba)	355		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Beryllium (Be)	0.93		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Bismuth (Bi)	2.41		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Boron (B)	36		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cadmium (Cd)	8.55		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Calcium (Ca)	55500	DLA	1000	mg/kg	17-MAY-13	21-MAY-13	R2612657
Chromium (Cr)	70.4		1.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Cobalt (Co)	17.4		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Copper (Cu)	639	DLA	10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Iron (Fe)	72700	DLA	250	mg/kg	17-MAY-13	21-MAY-13	R2612657
Lead (Pb)	28400	DLA	2.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Magnesium (Mg)	19500		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Manganese (Mn)	679	DLA	5.0	mg/kg	17-MAY-13	21-MAY-13	R2612657
Molybdenum (Mo)	7.78		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Nickel (Ni)	65.9		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Phosphorus (P)	880		100	mg/kg	17-MAY-13	21-MAY-13	R2612657
Potassium (K)	3510		25	mg/kg	17-MAY-13	21-MAY-13	R2612657
Selenium (Se)	3.47		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Silver (Ag)	0.98		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Sodium (Na)	2610		10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Strontium (Sr)	140		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Thallium (Tl)	0.89		0.10	mg/kg	17-MAY-13	21-MAY-13	R2612657
Tin (Sn)	563	DLA	50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Titanium (Ti)	353		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Uranium (U)	1.82		0.020	mg/kg	17-MAY-13	21-MAY-13	R2612657
Vanadium (V)	58.5		0.50	mg/kg	17-MAY-13	21-MAY-13	R2612657
Zinc (Zn)	620	DLA	100	mg/kg	17-MAY-13	21-MAY-13	R2612657

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-11 FD1							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 13:30							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					22-MAY-13	R2615717
Percent Solids	100		0.010	%		22-MAY-13	R2615717
Initial pH	7.76		0.10	pH units		22-MAY-13	R2615717
If pH>5 dilute HCl added and heated	YES					22-MAY-13	R2615717
Intermediate pH	1.76		0.10	pH units		22-MAY-13	R2615717
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					22-MAY-13	R2615717
Extraction Volume	810		1	mL		22-MAY-13	R2615717
Percent Solids For Dry Wt Equiv	Not Applicable					22-MAY-13	R2615717
Sample Weight	40.42		0.10	g		22-MAY-13	R2615717
Final pH	5.63		0.10	pH units		22-MAY-13	R2615717
Solution Blank pH	4.97		0.10	pH units		22-MAY-13	R2615717
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Arsenic (As)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Barium (Ba)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Boron (B)-Leachable	<5.0		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Cadmium (Cd)-Leachable	0.083		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Calcium (Ca)-Leachable	480		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Copper (Cu)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Iron (Fe)-Leachable	<5.0		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Lead (Pb)-Leachable	126		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Magnesium (Mg)-Leachable	37.7		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Manganese (Mn)-Leachable	1.22		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Potassium (K)-Leachable	10.3		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Selenium (Se)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Silver (Ag)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Strontium (Sr)-Leachable	1.14		0.010	mg/L	24-MAY-13	24-MAY-13	R2617181
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	24-MAY-13	24-MAY-13	R2617181
Tin (Sn)-Leachable	0.423		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Uranium (U)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Vanadium (V)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Zinc (Zn)-Leachable	5.6		1.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Miscellaneous Parameters							
Mercury (Hg)-Total	0.224		0.050	mg/kg	21-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	7.66		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	16500	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	883	DLA	10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	493		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	236		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	0.98		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	3.02		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	37		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	11.2		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-11 FD1							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 13:30							
Matrix: Soil							
Metals							
Calcium (Ca)	50000	DLA	10000	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	69.5		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	20.1		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	750	DLA	100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	79300	DLA	2500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	39400	DLA	20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	17100		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	648	DLA	50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	7.21		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	72.3		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	1010		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	3450		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	2.43		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	0.89		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	2010		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	107		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	1.03		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	860	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	336		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	1.77		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	58.9		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	530	DLA	100	mg/kg	22-MAY-13	24-MAY-13	R2617181
L1301827-12 13-11-3.7 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 14:00							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					22-MAY-13	R2615717
Percent Solids	100		0.010	%		22-MAY-13	R2615717
Initial pH	7.44		0.10	pH units		22-MAY-13	R2615717
If pH>5 dilute HCl added and heated	YES					22-MAY-13	R2615717
Intermediate pH	1.90		0.10	pH units		22-MAY-13	R2615717
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					22-MAY-13	R2615717
Extraction Volume	800		1	mL		22-MAY-13	R2615717
Percent Solids For Dry Wt Equiv	Not Applicable					22-MAY-13	R2615717
Sample Weight	40.32		0.10	g		22-MAY-13	R2615717
Final pH	5.46		0.10	pH units		22-MAY-13	R2615717
Solution Blank pH	4.97		0.10	pH units		22-MAY-13	R2615717
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Arsenic (As)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Barium (Ba)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Boron (B)-Leachable	<5.0		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Cadmium (Cd)-Leachable	0.073		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Calcium (Ca)-Leachable	505		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Copper (Cu)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Iron (Fe)-Leachable	<5.0		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-12 13-11-3.7 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 14:00							
Matrix: Soil							
Total Metals by ICP-MS							
Lead (Pb)-Leachable	238		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Magnesium (Mg)-Leachable	29.2		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Manganese (Mn)-Leachable	0.189		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Potassium (K)-Leachable	7.9		5.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Selenium (Se)-Leachable	<0.20		0.20	mg/L	24-MAY-13	24-MAY-13	R2617181
Silver (Ag)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Strontium (Sr)-Leachable	1.01		0.010	mg/L	24-MAY-13	24-MAY-13	R2617181
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	24-MAY-13	24-MAY-13	R2617181
Tin (Sn)-Leachable	0.399		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Uranium (U)-Leachable	<0.050		0.050	mg/L	24-MAY-13	24-MAY-13	R2617181
Vanadium (V)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Zinc (Zn)-Leachable	2.2		1.0	mg/L	24-MAY-13	24-MAY-13	R2617181
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	24-MAY-13	24-MAY-13	R2617181
Miscellaneous Parameters							
Mercury (Hg)-Total	0.196		0.050	mg/kg	21-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	7.61		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	17100	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	1420	DLA	10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	858		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	148		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	1.14		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	4.32		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	50		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	14.9		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	63000	DLA	10000	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	100		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	23.0		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	1150	DLA	100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	102000	DLA	2500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	37200	DLA	20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	18800		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	697	DLA	50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	10.2		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	92.9		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	1130		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	2300		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	3.06		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	1.14		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	2910		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	127		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	1.33		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	1160	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	502		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	1.67		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	59.9		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	570	DLA	100	mg/kg	22-MAY-13	24-MAY-13	R2617181

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-13 13-12-1.1 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 14:00							
Matrix: Soil							
Leachate metals by TCLP							
Leachate prep TCLP							
Prep/Analysis Dates	By ALS					21-MAY-13	R2614209
Percent Solids	100		0.010	%		21-MAY-13	R2614209
Initial pH	7.96		0.10	pH units		21-MAY-13	R2614209
If pH>5 dilute HCl added and heated	YES					21-MAY-13	R2614209
Intermediate pH	1.78		0.10	pH units		21-MAY-13	R2614209
Extraction Solution	Acetic Acid-NaOH Soln pH 4.93+/-.05					21-MAY-13	R2614209
Extraction Volume	800		1	mL		21-MAY-13	R2614209
Percent Solids For Dry Wt Equiv	Not Applicable					21-MAY-13	R2614209
Sample Weight	40.28		0.10	g		21-MAY-13	R2614209
Final pH	5.61		0.10	pH units		21-MAY-13	R2614209
Solution Blank pH	4.92		0.10	pH units		21-MAY-13	R2614209
Total Metals by ICP-MS							
Antimony (Sb)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Arsenic (As)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Barium (Ba)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Beryllium (Be)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Boron (B)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Cadmium (Cd)-Leachable	0.071		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Calcium (Ca)-Leachable	646		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Chromium (Cr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Cobalt (Co)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Copper (Cu)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Iron (Fe)-Leachable	<5.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Lead (Pb)-Leachable	104		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Magnesium (Mg)-Leachable	39.6		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Manganese (Mn)-Leachable	1.41		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Molybdenum (Mo)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Nickel (Ni)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Potassium (K)-Leachable	10.0		5.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Selenium (Se)-Leachable	<0.20		0.20	mg/L	23-MAY-13	23-MAY-13	R2615483
Silver (Ag)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Strontium (Sr)-Leachable	1.21		0.010	mg/L	23-MAY-13	23-MAY-13	R2615483
Thallium (Tl)-Leachable	<0.10		0.10	mg/L	23-MAY-13	23-MAY-13	R2615483
Tin (Sn)-Leachable	0.443		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Uranium (U)-Leachable	<0.050		0.050	mg/L	23-MAY-13	23-MAY-13	R2615483
Vanadium (V)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Zinc (Zn)-Leachable	25.6		1.0	mg/L	23-MAY-13	23-MAY-13	R2615483
Zirconium (Zr)-Leachable	<0.50		0.50	mg/L	23-MAY-13	23-MAY-13	R2615483
Miscellaneous Parameters							
Mercury (Hg)-Total	0.351		0.050	mg/kg	21-MAY-13	23-MAY-13	R2616073
pH (1:2 soil:water)	7.60		0.10	pH	21-MAY-13	21-MAY-13	R2611817
Metals							
Aluminum (Al)	13700	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	959	DLA	10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	523		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	211		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	0.91		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	3.60		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	34		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	12.6		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-13 13-12-1.1 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 14:00							
Matrix: Soil							
Metals							
Calcium (Ca)	62000	DLA	10000	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	78.3		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	20.0		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	730	DLA	100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	86900	DLA	2500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	27600	DLA	20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	19100		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	672	DLA	50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	8.94		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	74.7		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	940		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	2140		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	1.72		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	1.08		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	1890		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	112		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	1.06		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	930	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	324		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	1.41		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	52.1		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	770	DLA	100	mg/kg	22-MAY-13	24-MAY-13	R2617181
L1301827-14 13-13-2.0 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 09:30							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	98.0		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	65		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	60		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	126		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	22		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	11500	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	35.7		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	22.1		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	447		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-14 13-13-2.0 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 09:30							
Matrix: Soil							
Metals							
Beryllium (Be)	0.62		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.231		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	37		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	1.36		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	82000	DLA	10000	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	26.7		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	7.18		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	158		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	17200		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	1640	DLA	20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	33700		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	338		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	1.14		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	25.8		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	760		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	2420		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	0.70		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	1.04		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	620		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	197		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.18		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	41.5		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	240		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	1.33		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	32.2		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	250		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	116.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-15 13-14-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 09:50							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	102.5		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-15 13-14-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 09:50							
Matrix: Soil							
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	86		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	51		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	137		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	29		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	26800	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	1.08		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	8.09		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	234		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	1.24		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.292		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	31		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	0.518		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	44400		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	50.0		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	15.6		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	32.6		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	29700		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	61.2		0.20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	15800		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	444		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	0.567		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	43.7		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	570		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	5150		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	0.95		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	0.18		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	647		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	108		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.35		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	<5.0		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	197		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	2.68		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	89.5		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	87		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-15 13-14-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 09:50							
Matrix: Soil							
PCB							
Surrogate: Decachlorobiphenyl	122.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-16 13-15-1.8 @ 0 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 10:10							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	93.0		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	84		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	84		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	10		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	5510	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	186		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	64.2		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	130		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	0.28		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.609		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	24		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	3.67		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	95000	DLA	10000	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	18.7		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	4.65		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	58.0		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	17400		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	9310	DLA	20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	39900		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	225		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	1.43		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	16.8		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	340		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	1280		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	0.67		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	0.21		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	529		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	78.3		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.24		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-16 13-15-1.8 @ 0 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 10:10							
Matrix: Soil							
Metals							
Tin (Sn)	64.5		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	197		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	0.727		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	18.9		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	54		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	109.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-17 13-16-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 10:30							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	100.5		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	371		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	270		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	641		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	26		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	13200	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	1720	DLA	10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	1200		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	320		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	0.73		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	2.05		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	52		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	30.6		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	65000	DLA	10000	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	29.7		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-17 13-16-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 10:30							
Matrix: Soil							
Metals							
Cobalt (Co)	10.3		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	200		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	22900		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	30300	DLA	20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	25500		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	331		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	1.45		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	54.8		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	690		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	3300		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	5.79		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	0.76		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	752		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	194		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.87		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	147		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	220		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	1.47		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	42.3		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	223		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	87.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-18 13-17-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 10:50							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	98.0		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	

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

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Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-18 13-17-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 10:50							
Matrix: Soil							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	28		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	16200	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	205		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	64.4		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	305		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	0.73		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.537		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	157		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	1.53		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	54000	DLA	10000	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	46.0		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	15.0		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	1390	DLA	100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	62900	DLA	2500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	14200	DLA	20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	30800		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	575	DLA	50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	4.41		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	72.7		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	750		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	3260		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	2.93		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	1.05		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	2530		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	190		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.51		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	1000	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	263		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	1.65		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	57.9		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	2100	DLA	1000	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	119.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-19 13-18-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:10							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-19 13-18-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:10							
Matrix: Soil							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	90.5		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	18		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	3950		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	50.0		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	80.9		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	66.3		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	0.19		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.188		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	23		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	21.2		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	121000	DLA	10000	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	9.9		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	2.87		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	23.3		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	7700		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	5110	DLA	20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	48800		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	166		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	0.342		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	11.5		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	370		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	975		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	3.56		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	<0.10		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	266		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	71.1		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.45		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	32.2		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	207		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	0.521		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	13.8		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	64		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-19 13-18-1.8 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:10							
Matrix: Soil							
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	90.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-20 13-19-1.8 @ 5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:30							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	0.0098		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	104.0		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	27		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	23100	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	0.67		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	8.97		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	234		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	1.24		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.369		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	18		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	0.305		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	27700		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	45.0		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	16.9		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	36.9		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	31500		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	28.2		0.20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	16000		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	478		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-20 13-19-1.8 @ 5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:30							
Matrix: Soil							
Metals							
Molybdenum (Mo)	1.82		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	50.4		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	580		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	3980		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	0.94		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	0.17		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	1250		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	77.7		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.35		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	<5.0		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	115		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	2.53		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	71.3		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	88		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	119.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-21 FD2							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:30							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	0.0079		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	95.0		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	28		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	23100	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-21 FD2							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:30							
Matrix: Soil							
Metals							
Antimony (Sb)	0.59		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	8.86		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	231		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	1.32		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.367		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	17		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	0.304		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	31500		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	45.3		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	17.6		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	35.0		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	32300		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	24.9		0.20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	15500		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	512		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	1.77		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	48.5		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	590		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	3950		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	<0.50		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	0.17		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	1220		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	82.3		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.35		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	<5.0		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	99.8		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	2.51		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	73.1		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	88		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	126.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-22 13-20-1.8 @ 5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:50							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	29-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	29-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	29-MAY-13	R2619251

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-22 13-20-1.8 @ 5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:50							
Matrix: Soil							
BTX plus F1 by GCMS							
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	29-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	96.0		70-130	%	16-MAY-13	29-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	22		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	30200	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	1.88		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	8.40		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	170		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	1.20		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.316		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	61		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	0.411		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	15200		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	53.9		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	16.7		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	35.8		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	32100		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	168		0.20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	12200		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	478		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	0.494		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	46.8		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	550		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	6100	DLA	2500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	0.82		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	0.24		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Sodium (Na)	2240		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	85.7		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.39		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	<5.0		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	170		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	1.47		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	89.2		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	104		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-22 13-20-1.8 @ 5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 11:50							
Matrix: Soil							
PCB							
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	136.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-23 13-21-1.8 @ 5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 12:15							
Matrix: Soil							
BTEX and F1-F4 by Tumbler Method							
BTX plus F1 by GCMS							
Benzene	<0.0050		0.0050	mg/kg	16-MAY-13	30-MAY-13	R2619251
Toluene	<0.050		0.050	mg/kg	16-MAY-13	30-MAY-13	R2619251
Ethyl benzene	<0.015		0.015	mg/kg	16-MAY-13	30-MAY-13	R2619251
o-Xylene	<0.050		0.050	mg/kg	16-MAY-13	30-MAY-13	R2619251
m+p-Xylenes	<0.050		0.050	mg/kg	16-MAY-13	30-MAY-13	R2619251
Xylenes	<0.10		0.10	mg/kg	16-MAY-13	30-MAY-13	R2619251
F1 (C6-C10)	<10		10	mg/kg	16-MAY-13	30-MAY-13	R2619251
Surrogate: 4-Bromofluorobenzene (SS)	86.5		70-130	%	16-MAY-13	30-MAY-13	R2619251
CCME Total Extractable Hydrocarbons							
F2 (C10-C16)	<25		25	mg/kg	27-MAY-13	27-MAY-13	R2620286
F3 (C16-C34)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
F4 (C34-C50)	<50		50	mg/kg	27-MAY-13	27-MAY-13	R2620286
Chrom. to baseline at nC50	YES				27-MAY-13	27-MAY-13	R2620286
CCME Total Hydrocarbons							
F1-BTEX	<10		10	mg/kg		30-MAY-13	
Total Hydrocarbons (C6-C50)	<76		76	mg/kg		30-MAY-13	
Miscellaneous Parameters							
% Moisture	28		0.10	%	17-MAY-13	18-MAY-13	R2610633
Total Polychlorinated Biphenyls	<0.30		0.30	mg/kg		30-MAY-13	
Metals							
Aluminum (Al)	27900	DLA	500	mg/kg	22-MAY-13	22-MAY-13	R2614104
Antimony (Sb)	0.96		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Arsenic (As)	10.7		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Barium (Ba)	221		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Beryllium (Be)	1.14		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Bismuth (Bi)	0.302		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Boron (B)	52		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cadmium (Cd)	0.330		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Calcium (Ca)	36400		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Chromium (Cr)	51.1		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Cobalt (Co)	15.9		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Copper (Cu)	33.6		1.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Iron (Fe)	31800		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Lead (Pb)	38.2		0.20	mg/kg	22-MAY-13	22-MAY-13	R2614104
Magnesium (Mg)	15100		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Manganese (Mn)	416		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Molybdenum (Mo)	0.627		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Nickel (Ni)	45.4		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Phosphorus (P)	550		100	mg/kg	22-MAY-13	22-MAY-13	R2614104
Potassium (K)	5580		25	mg/kg	22-MAY-13	22-MAY-13	R2614104
Selenium (Se)	<0.50		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Silver (Ag)	0.20		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1301827-23 13-21-1.8 @ 5 FEET							
Sampled By: Nanci Beaupre on 14-MAY-13 @ 12:15							
Matrix: Soil							
Metals							
Sodium (Na)	1170		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Strontium (Sr)	124		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Thallium (Tl)	0.37		0.10	mg/kg	22-MAY-13	22-MAY-13	R2614104
Tin (Sn)	<5.0		5.0	mg/kg	22-MAY-13	22-MAY-13	R2614104
Titanium (Ti)	246		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Uranium (U)	2.09		0.020	mg/kg	22-MAY-13	22-MAY-13	R2614104
Vanadium (V)	89.1		0.50	mg/kg	22-MAY-13	22-MAY-13	R2614104
Zinc (Zn)	95		10	mg/kg	22-MAY-13	22-MAY-13	R2614104
PCB							
Aroclor 1016	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1221	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1232	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1242	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1248	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1254	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1260	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1262	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Aroclor 1268	<0.10		0.10	mg/kg	21-MAY-13	23-MAY-13	R2621268
Surrogate: Decachlorobiphenyl	122.0		50-150	%	21-MAY-13	23-MAY-13	R2621268
L1301827-24 13-01-5.2 @ 2.5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 09:00							
Matrix: Soil							
Particle Size Analysis:Mini-Pipet Method							
% Sand (2.0mm - 0.05mm)	47.1		0.10	%	23-MAY-13	24-MAY-13	R2616388
% Silt (0.05mm - 2um)	50.1		0.10	%	23-MAY-13	24-MAY-13	R2616388
% Clay (<2um)	2.76		0.10	%	23-MAY-13	24-MAY-13	R2616388
Texture	Silt loam				23-MAY-13	24-MAY-13	R2616388
L1301827-25 13-01-5.2 @ 5 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 09:05							
Matrix: Soil							
Particle Size Analysis:Mini-Pipet Method							
% Sand (2.0mm - 0.05mm)	11.9		0.10	%	23-MAY-13	24-MAY-13	R2616388
% Silt (0.05mm - 2um)	9.63		0.10	%	23-MAY-13	24-MAY-13	R2616388
% Clay (<2um)	78.5		0.10	%	23-MAY-13	24-MAY-13	R2616388
Texture	Clay				23-MAY-13	24-MAY-13	R2616388
L1301827-26 13-01-5.2 @ 15 FEET							
Sampled By: Nanci Beaupre on 13-MAY-13 @ 09:10							
Matrix: Soil							
Particle Size Analysis:Mini-Pipet Method							
% Sand (2.0mm - 0.05mm)	42.9		0.10	%	23-MAY-13	24-MAY-13	R2616388
% Silt (0.05mm - 2um)	38.7		0.10	%	23-MAY-13	24-MAY-13	R2616388
% Clay (<2um)	18.4		0.10	%	23-MAY-13	24-MAY-13	R2616388
Texture	Loam				23-MAY-13	24-MAY-13	R2616388

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTEXS+F1-HSMS-WP	Soil	BTX plus F1 by GCMS	EPA SW846 8260B REV 2

The soil methanol extract is added to water and reagents, then heated in a sealed vial to equilibrium. The headspace from the vial is transferred into a gas chromatograph. Target compound concentrations are measured using mass spectrometry detection.

F1-F4-CALC-WP	Soil	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB# 1310-L

Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.

In cases where results for both F4 and F4G are reported, the greater of the two results must be used in any application of the CWS PHC guidelines and the gravimetric heavy hydrocarbons cannot be added to the C6 to C50 hydrocarbons.
In samples where BTEX and F1 were analyzed , F1-BTEX represents a value where the sum of Benzene, Toluene, Ethylbenzene and total Xylenes has been subtracted from F1.

In samples where PAHs, F2 and F3 were analyzed, F2-Naphth represents the result where Naphthalene has been subtracted from F2. F3-PAH represents a result where the sum of Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Dibenzo(a,h)anthracene, Fluoranthene, Indeno(1,2,3-cd)pyrene, Phenanthrene, and Pyrene has been subtracted from F3.

Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:
1. All extraction and analysis holding times were met.
2. Instrument performance showing response factors for C6 and C10 within 30% of the response factor for toluene.
3. Linearity of gasoline response within 15% throughout the calibration range.

Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:
1. All extraction and analysis holding times were met.
2. Instrument performance showing C10, C16 and C34 response factors within 10% of their average.
3. Instrument performance showing the C50 response factor within 30% of the average of the C10, C16 and C34 response factors.
4. Linearity of diesel or motor oil response within 15% throughout the calibration range.

F2-F4-TMB-FID-WP	Soil	CCME Total Extractable Hydrocarbons	CCME CWS-PHC Dec-2000 - Pub# 1310

A soil or sediment sample is extracted with 1:1 hexane/acetone in a tumbler, followed by a silica gel clean up to facilitate separation of the hydrocarbons from other polar extractions. An aliquot of the solvent is analyzed using a gas chromatograph equipped with a flame -ionization detector.

HG-200.2-CVAF-WP	Soil	Mercury Total	EPA 7470A Rev 1,1994

A hydrochloric acid/nitric acid and potassium persulphate block digestion is employed to oxidize the organomercury to inorganic mercury. After digestion, samples are analyzed using cold vapour techniques.

MET-200.2-MS-WP	Soil	Metals	EPA 200.8/200.2 /BCMOE-S

This analysis is carried out using procedures adapted from US EPA method 200.2. Sample preparation procedure for spectrochemical determination of total recoverable elements . Soil samples are dried (<60 C) and homogenized and a representative subsample of the dry material is digested. The digested samples are analyzed by ICPMS.

The results are reported as mg/Kg dry weight or mg/Kg wet weight this is equivalent to ug/g dry weight or ug/g wet weight.

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 maybe environmentally available. By design, elements bound in silicate structures are not normally dissolved by this procedure as they are not mobile in the environment. This method has known stability issues for determining Silicon.

MET-TCLP-MS-WP	Waste	Total Metals by ICP-MS	U.S. EPA 200.8-T

Total Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the examination of Water and Wastewater Method 3030E and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.

PCB-SUM-CALC-WP	Soil	Total Polychlorinated Biphenyls (PCBs)	Calculation

Total Polychlorinated Biphenyls (PCBs) represents the sum of all PCB analytes analyzed for in a given sample. For the purpose of calculation, results less than the detection limit (DL) are treated as zero.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
PCB-WP	Soil	PCB	EPA 8082A (modified)

A 10 gram aliquot of soil sample is extracted with 25 mLs of 50% acetone/hexane using a shaker followed by sonication. An aliquot of the extract is solvent exchanged into hexane, cleaned with sulphuric acid and analyzed by gas chromatography/electron capture detection. The sample is quantitated against commercial Arochlor standards.

PH-1:2-SK	Soil	pH (1:2 Soil:Water Extraction)	CSSC 3.13

1 part dry soil and 2 parts de-ionized water (by volume) is mixed. The slurry is allowed to stand with occasional stirring for 30 - 60 minutes. After equilibration, pH of the slurry is measured using a pH meter.

PSA-1-SK	Soil	Particle Size Analysis:Mini-Pipet Method	SSIR-51 Method 3.2.1

Dry, < 2 mm soil is treated with sodium hexametaphosphate to ensure complete dispersion of primary soil particles. The homogenized suspension is allowed to settle in accordance with Stoke's Law so that only clay particles remain in suspension.To determine the clay fraction, an aliquot of the clay suspension is removed, then dried and weighed. The sand fraction is determined by wet sieving the remaining suspension, then drying and weighing the sand retained on the sieve. The silt fraction is determined by calculation where % Silt = 100 - (%Sand+%Clay)

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.

Kalra, Y.P., Maynard, D.G. 1991. Methods manual for forest soil and plant analysis. Forestry Canada. p. 42-45.

** 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
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1301827 Report Date: 24-SEP-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
BTEXS+F1-HSMS-WP	**Soil**							
Batch R2619251								
WG1673048-3 LCS								
F1 (C6-C10)			81.7		%		80-120	29-MAY-13
WG1673048-1 MB								
Benzene			<0.0050		mg/kg		0.005	29-MAY-13
Toluene			<0.050		mg/kg		0.05	29-MAY-13
Ethyl benzene			<0.015		mg/kg		0.015	29-MAY-13
o-Xylene			<0.050		mg/kg		0.05	29-MAY-13
m+p-Xylenes			<0.050		mg/kg		0.05	29-MAY-13
F1 (C6-C10)			<10		mg/kg		10	29-MAY-13
Surrogate: 4-Bromofluorobenzene (SS)			88.5		%		70-130	29-MAY-13
F2-F4-TMB-FID-WP	**Soil**							
Batch R2620286								
WG1677477-3 DUP		**L1302667-2**						
F2 (C10-C16)		<25	<25	RPD-NA	mg/kg	N/A	40	27-MAY-13
F3 (C16-C34)		167	183		mg/kg	9.4	40	27-MAY-13
F4 (C34-C50)		90	139	J	mg/kg	49	100	27-MAY-13
WG1677477-4 IRM		**ALS PHC2 IRM**						
F2 (C10-C16)			92.4		%		70-130	27-MAY-13
F3 (C16-C34)			93.8		%		70-130	27-MAY-13
F4 (C34-C50)			89.2		%		70-130	27-MAY-13
WG1677477-2 LCS								
F2 (C10-C16)			112.7		%		80-120	27-MAY-13
F3 (C16-C34)			102.7		%		80-120	27-MAY-13
F4 (C34-C50)			99.6		%		80-120	27-MAY-13
WG1677477-1 MB								
F2 (C10-C16)			<25		mg/kg		25	27-MAY-13
F3 (C16-C34)			<50		mg/kg		50	27-MAY-13
F4 (C34-C50)			<50		mg/kg		50	27-MAY-13
HG-200.2-CVAF-WP	**Soil**							
Batch R2616073								
WG1675683-2 CRM		**NRC PACS-2**						
Mercury (Hg)-Total			109.7		%		70-130	23-MAY-13
WG1675683-3 CRM		**CANMET TILL-1**						
Mercury (Hg)-Total			0.095		mg/kg		0.042-0.142	23-MAY-13
WG1675687-2 CRM		**NRC PACS-2**						
Mercury (Hg)-Total			104.8		%		70-130	23-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
HG-200.2-CVAF-WP	**Soil**							
Batch R2616073								
WG1675687-3 CRM		**CANMET TILL-1**						
Mercury (Hg)-Total			0.095		mg/kg		0.042-0.142	23-MAY-13
WG1675683-4 DUP		**L1301827-2**						
Mercury (Hg)-Total		<0.050	<0.050	RPD-NA	mg/kg	N/A	40	23-MAY-13
WG1675687-4 DUP		**L1302752-11**						
Mercury (Hg)-Total		<0.050	<0.050	RPD-NA	mg/kg	N/A	40	23-MAY-13
WG1675687-5 DUP		**L1301827-13**						
Mercury (Hg)-Total		0.351	0.348		mg/kg	0.8	40	23-MAY-13
WG1675683-1 MB								
Mercury (Hg)-Total			<0.050		mg/kg		0.05	23-MAY-13
WG1675687-1 MB								
Mercury (Hg)-Total			<0.050		mg/kg		0.05	23-MAY-13
MET-200.2-MS-WP	**Soil**							
Batch R2612657								
WG1673371-2 CRM		**NRC PACS-2**						
Aluminum (Al)			98.0		%		70-130	21-MAY-13
Antimony (Sb)			123.3		%		70-130	21-MAY-13
Arsenic (As)			109.8		%		70-130	21-MAY-13
Barium (Ba)			75.2		%		70-130	21-MAY-13
Beryllium (Be)			90.2		%		70-130	21-MAY-13
Boron (B)			107.5		%		70-130	21-MAY-13
Cadmium (Cd)			108.6		%		70-130	21-MAY-13
Calcium (Ca)			104.1		%		70-130	21-MAY-13
Chromium (Cr)			100.6		%		70-130	21-MAY-13
Cobalt (Co)			93.0		%		70-130	21-MAY-13
Copper (Cu)			107.6		%		70-130	21-MAY-13
Iron (Fe)			104.4		%		70-130	21-MAY-13
Lead (Pb)			106.3		%		70-130	21-MAY-13
Magnesium (Mg)			103.4		%		70-130	21-MAY-13
Manganese (Mn)			98.7		%		70-130	21-MAY-13
Nickel (Ni)			93.8		%		70-130	21-MAY-13
Phosphorus (P)			104.9		%		70-130	21-MAY-13
Potassium (K)			90.4		%		70-130	21-MAY-13
Selenium (Se)			114.3		%		70-130	21-MAY-13
Silver (Ag)			107.5		%		70-130	21-MAY-13
Sodium (Na)			106.4		%		70-130	21-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2612657								
WG1673371-2 CRM		**NRC PACS-2**						
Strontium (Sr)			105.0		%		70-130	21-MAY-13
Thallium (Tl)			104.5		%		70-130	21-MAY-13
Tin (Sn)			95.8		%		70-130	21-MAY-13
Titanium (Ti)			99.5		%		70-130	21-MAY-13
Uranium (U)			105.6		%		70-130	21-MAY-13
Vanadium (V)			104.9		%		70-130	21-MAY-13
Zinc (Zn)			91.9		%		70-130	21-MAY-13
WG1673371-3 CRM		**NRC MESS-3**						
Aluminum (Al)			70.1		%		70-130	21-MAY-13
Antimony (Sb)			104.7		%		70-130	21-MAY-13
Arsenic (As)			99.8		%		70-130	21-MAY-13
Barium (Ba)			100.1		%		70-130	21-MAY-13
Beryllium (Be)			73.8		%		70-130	21-MAY-13
Cadmium (Cd)			94.4		%		70-130	21-MAY-13
Calcium (Ca)			113.1		%		70-130	21-MAY-13
Chromium (Cr)			84.6		%		70-130	21-MAY-13
Cobalt (Co)			97.5		%		70-130	21-MAY-13
Copper (Cu)			109.6		%		70-130	21-MAY-13
Iron (Fe)			111.1		%		70-130	21-MAY-13
Lead (Pb)			105.1		%		70-130	21-MAY-13
Magnesium (Mg)			101.5		%		70-130	21-MAY-13
Manganese (Mn)			114.1		%		70-130	21-MAY-13
Nickel (Ni)			98.2		%		70-130	21-MAY-13
Phosphorus (P)			103.2		%		70-130	21-MAY-13
Selenium (Se)			120.0		%		70-130	21-MAY-13
Silver (Ag)			103.5		%		70-130	21-MAY-13
Sodium (Na)			122.7		%		70-130	21-MAY-13
Strontium (Sr)			98.7		%		70-130	21-MAY-13
Tin (Sn)			79.0		%		70-130	21-MAY-13
Titanium (Ti)			95.2		%		70-130	21-MAY-13
Uranium (U)			105.3		%		70-130	21-MAY-13
Vanadium (V)			74.3		%		70-130	21-MAY-13
Zinc (Zn)			96.7		%		70-130	21-MAY-13
WG1673371-4 CRM		**OGGEO08**						

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2612657								
WG1673371-4 CRM		**OGGEO08**						
Aluminum (Al)			95.2		%		70-130	21-MAY-13
Antimony (Sb)			95.2		%		70-130	21-MAY-13
Arsenic (As)			105.5		%		70-130	21-MAY-13
Barium (Ba)			82.3		%		70-130	21-MAY-13
Beryllium (Be)			118.0		%		70-130	21-MAY-13
Bismuth (Bi)			107.4		%		70-130	21-MAY-13
Boron (B)			118.4		%		50-150	21-MAY-13
Cadmium (Cd)			95.0		%		70-130	21-MAY-13
Calcium (Ca)			101.4		%		70-130	21-MAY-13
Chromium (Cr)			94.1		%		70-130	21-MAY-13
Cobalt (Co)			91.8		%		70-130	21-MAY-13
Copper (Cu)			92.0		%		70-130	21-MAY-13
Iron (Fe)			105.8		%		70-130	21-MAY-13
Lead (Pb)			99.0		%		70-130	21-MAY-13
Magnesium (Mg)			100.2		%		70-130	21-MAY-13
Manganese (Mn)			95.5		%		70-130	21-MAY-13
Molybdenum (Mo)			104.4		%		70-130	21-MAY-13
Nickel (Ni)			96.8		%		70-130	21-MAY-13
Phosphorus (P)			96.1		%		70-130	21-MAY-13
Potassium (K)			100.4		%		70-130	21-MAY-13
Selenium (Se)			89.2		%		70-130	21-MAY-13
Silver (Ag)			101.2		%		70-130	21-MAY-13
Sodium (Na)			116.6		%		70-130	21-MAY-13
Strontium (Sr)			98.1		%		70-130	21-MAY-13
Thallium (Tl)			103.8		%		70-130	21-MAY-13
Tin (Sn)			92.4		%		70-130	21-MAY-13
Titanium (Ti)			100.9		%		70-130	21-MAY-13
Uranium (U)			112.8		%		70-130	21-MAY-13
Vanadium (V)			92.9		%		70-130	21-MAY-13
Zinc (Zn)			95.6		%		70-130	21-MAY-13
WG1673371-6 DUP		**WG1673371-5**						
Aluminum (Al)		25300	28000		mg/kg	10	40	21-MAY-13
Antimony (Sb)		2.10	1.90		mg/kg	9.6	30	21-MAY-13
Arsenic (As)		9.23	9.39		mg/kg			21-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2612657								
WG1673371-6 DUP		**WG1673371-5**						
Arsenic (As)		9.23	9.39		mg/kg	1.7	30	21-MAY-13
Barium (Ba)		245	265		mg/kg	7.6	40	21-MAY-13
Beryllium (Be)		1.10	1.17		mg/kg	6.7	30	21-MAY-13
Bismuth (Bi)		0.303	0.307		mg/kg	1.2	30	21-MAY-13
Boron (B)		21	25		mg/kg	16	30	21-MAY-13
Cadmium (Cd)		0.384	0.337		mg/kg	13	30	21-MAY-13
Calcium (Ca)		28800	28400		mg/kg	1.2	30	21-MAY-13
Chromium (Cr)		46.2	49.7		mg/kg	7.2	30	21-MAY-13
Cobalt (Co)		16.0	16.1		mg/kg	0.4	30	21-MAY-13
Copper (Cu)		38.2	36.5		mg/kg	4.7	30	21-MAY-13
Iron (Fe)		33700	35400		mg/kg	4.9	30	21-MAY-13
Lead (Pb)		156	149		mg/kg	4.7	40	21-MAY-13
Magnesium (Mg)		18400	18400		mg/kg	0.2	30	21-MAY-13
Manganese (Mn)		502	517		mg/kg	2.9	30	21-MAY-13
Molybdenum (Mo)		3.32	3.09		mg/kg	7.3	40	21-MAY-13
Nickel (Ni)		43.1	44.2		mg/kg	2.5	30	21-MAY-13
Phosphorus (P)		520	550		mg/kg	5.6	30	21-MAY-13
Potassium (K)		4290	4800		mg/kg	11	40	21-MAY-13
Selenium (Se)		<0.50	<0.50	RPD-NA	mg/kg	N/A	30	21-MAY-13
Silver (Ag)		0.18	0.18		mg/kg	0.8	40	21-MAY-13
Sodium (Na)		2930	3030		mg/kg	3.4	40	21-MAY-13
Strontium (Sr)		82.3	84.5		mg/kg	2.7	40	21-MAY-13
Thallium (Tl)		0.34	0.35		mg/kg	4.6	30	21-MAY-13
Tin (Sn)		<5.0	<5.0	RPD-NA	mg/kg	N/A	40	21-MAY-13
Titanium (Ti)		129	126		mg/kg	2.2	40	21-MAY-13
Uranium (U)		2.12	2.14		mg/kg	0.8	30	21-MAY-13
Vanadium (V)		75.1	77.9		mg/kg	3.7	30	21-MAY-13
Zinc (Zn)		82	85		mg/kg	3.3	30	21-MAY-13
WG1673371-1 MB								
Aluminum (Al)			<5.0		mg/kg		5	21-MAY-13
Antimony (Sb)			<0.10		mg/kg		0.1	21-MAY-13
Arsenic (As)			<0.10		mg/kg		0.1	21-MAY-13
Barium (Ba)			<0.50		mg/kg		0.5	21-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2612657								
WG1673371-1 MB								
Beryllium (Be)			<0.10		mg/kg		0.1	21-MAY-13
Bismuth (Bi)			<0.020		mg/kg		0.02	21-MAY-13
Boron (B)			<10		mg/kg		10	21-MAY-13
Cadmium (Cd)			<0.020		mg/kg		0.02	21-MAY-13
Calcium (Ca)			<100		mg/kg		100	21-MAY-13
Chromium (Cr)			<1.0		mg/kg		1	21-MAY-13
Cobalt (Co)			<0.020		mg/kg		0.02	21-MAY-13
Copper (Cu)			<1.0		mg/kg		1	21-MAY-13
Iron (Fe)			<25		mg/kg		25	21-MAY-13
Lead (Pb)			<0.20		mg/kg		0.2	21-MAY-13
Magnesium (Mg)			<10		mg/kg		10	21-MAY-13
Manganese (Mn)			<0.50		mg/kg		0.5	21-MAY-13
Molybdenum (Mo)			<0.020		mg/kg		0.02	21-MAY-13
Nickel (Ni)			<0.50		mg/kg		0.5	21-MAY-13
Phosphorus (P)			<100		mg/kg		100	21-MAY-13
Potassium (K)			<25		mg/kg		25	21-MAY-13
Selenium (Se)			<0.50		mg/kg		0.5	21-MAY-13
Silver (Ag)			<0.10		mg/kg		0.1	21-MAY-13
Sodium (Na)			<10		mg/kg		10	21-MAY-13
Strontium (Sr)			<0.10		mg/kg		0.1	21-MAY-13
Thallium (Tl)			<0.10		mg/kg		0.1	21-MAY-13
Tin (Sn)			<5.0		mg/kg		5	21-MAY-13
Titanium (Ti)			<0.50		mg/kg		0.5	21-MAY-13
Uranium (U)			<0.020		mg/kg		0.02	21-MAY-13
Vanadium (V)			<0.50		mg/kg		0.5	21-MAY-13
Zinc (Zn)			<10		mg/kg		10	21-MAY-13
Batch R2614104								
WG1674342-2 CRM		**NRC PACS-2**						
Aluminum (Al)			91.0		%		70-130	22-MAY-13
Arsenic (As)			102.5		%		70-130	22-MAY-13
Barium (Ba)			76.1		%		70-130	22-MAY-13
Beryllium (Be)			99.7		%		70-130	22-MAY-13
Boron (B)			119.5		%		70-130	22-MAY-13
Cadmium (Cd)			111.1		%		70-130	22-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2614104								
WG1674342-2 CRM		**NRC PACS-2**						
Calcium (Ca)			101.0		%		70-130	22-MAY-13
Chromium (Cr)			98.4		%		70-130	22-MAY-13
Cobalt (Co)			101.0		%		70-130	22-MAY-13
Copper (Cu)			90.4		%		70-130	22-MAY-13
Iron (Fe)			99.3		%		70-130	22-MAY-13
Lead (Pb)			96.1		%		70-130	22-MAY-13
Magnesium (Mg)			99.9		%		70-130	22-MAY-13
Manganese (Mn)			99.4		%		70-130	22-MAY-13
Molybdenum (Mo)			109.0		%		70-130	22-MAY-13
Nickel (Ni)			99.1		%		70-130	22-MAY-13
Phosphorus (P)			111.0		%		70-130	22-MAY-13
Potassium (K)			94.2		%		70-130	22-MAY-13
Silver (Ag)			108.3		%		70-130	22-MAY-13
Sodium (Na)			98.1		%		70-130	22-MAY-13
Strontium (Sr)			97.0		%		70-130	22-MAY-13
Thallium (Tl)			103.8		%		70-130	22-MAY-13
Tin (Sn)			102.0		%		70-130	22-MAY-13
Titanium (Ti)			85.0		%		70-130	22-MAY-13
Uranium (U)			102.5		%		70-130	22-MAY-13
Vanadium (V)			96.9		%		70-130	22-MAY-13
Zinc (Zn)			96.8		%		70-130	22-MAY-13
WG1674342-3 CRM		**NRC MESS-3**						
Aluminum (Al)			72.8		%		70-130	22-MAY-13
Antimony (Sb)			117.5		%		70-130	22-MAY-13
Arsenic (As)			101.6		%		70-130	22-MAY-13
Barium (Ba)			94.9		%		70-130	22-MAY-13
Beryllium (Be)			87.0		%		70-130	22-MAY-13
Cadmium (Cd)			92.6		%		70-130	22-MAY-13
Calcium (Ca)			114.7		%		70-130	22-MAY-13
Chromium (Cr)			84.6		%		70-130	22-MAY-13
Cobalt (Co)			114.9		%		70-130	22-MAY-13
Copper (Cu)			113.4		%		70-130	22-MAY-13
Iron (Fe)			113.8		%		70-130	22-MAY-13
Lead (Pb)			104.4		%		70-130	22-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2614104								
WG1674342-3 CRM		**NRC MESS-3**						
Magnesium (Mg)			103.5		%		70-130	22-MAY-13
Manganese (Mn)			122.0		%		70-130	22-MAY-13
Molybdenum (Mo)			105.4		%		70-130	22-MAY-13
Nickel (Ni)			107.8		%		70-130	22-MAY-13
Phosphorus (P)			110.2		%		70-130	22-MAY-13
Potassium (K)			73.2		%		70-130	22-MAY-13
Selenium (Se)			118.5		%		70-130	22-MAY-13
Silver (Ag)			102.6		%		70-130	22-MAY-13
Sodium (Na)			116.4		%		70-130	22-MAY-13
Strontium (Sr)			95.6		%		70-130	22-MAY-13
Tin (Sn)			78.2		%		70-130	22-MAY-13
Uranium (U)			102.1		%		70-130	22-MAY-13
Vanadium (V)			73.4		%		70-130	22-MAY-13
Zinc (Zn)			109.1		%		70-130	22-MAY-13
WG1674342-4 CRM		**OGGEO08**						
Aluminum (Al)			96.5		%		70-130	22-MAY-13
Antimony (Sb)			98.1		%		70-130	22-MAY-13
Arsenic (As)			114.9		%		70-130	22-MAY-13
Barium (Ba)			85.1		%		70-130	22-MAY-13
Beryllium (Be)			110.2		%		70-130	22-MAY-13
Bismuth (Bi)			108.2		%		70-130	22-MAY-13
Boron (B)			118.5		%		50-150	22-MAY-13
Cadmium (Cd)			97.8		%		70-130	22-MAY-13
Calcium (Ca)			109.9		%		70-130	22-MAY-13
Chromium (Cr)			108.0		%		70-130	22-MAY-13
Cobalt (Co)			109.3		%		70-130	22-MAY-13
Copper (Cu)			104.6		%		70-130	22-MAY-13
Iron (Fe)			110.4		%		70-130	22-MAY-13
Lead (Pb)			99.6		%		70-130	22-MAY-13
Magnesium (Mg)			103.1		%		70-130	22-MAY-13
Manganese (Mn)			110.1		%		70-130	22-MAY-13
Molybdenum (Mo)			106.8		%		70-130	22-MAY-13
Nickel (Ni)			109.8		%		70-130	22-MAY-13
Phosphorus (P)			120.2		%		70-130	22-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2614104								
WG1674342-4 CRM		**OGGEO08**						
Potassium (K)			123.0		%		70-130	22-MAY-13
Selenium (Se)			112.5		%		70-130	22-MAY-13
Silver (Ag)			96.3		%		70-130	22-MAY-13
Sodium (Na)			115.7		%		70-130	22-MAY-13
Strontium (Sr)			106.2		%		70-130	22-MAY-13
Thallium (Tl)			107.5		%		70-130	22-MAY-13
Tin (Sn)			99.6		%		70-130	22-MAY-13
Titanium (Ti)			93.4		%		70-130	22-MAY-13
Uranium (U)			107.5		%		70-130	22-MAY-13
Vanadium (V)			103.1		%		70-130	22-MAY-13
Zinc (Zn)			113.3		%		70-130	22-MAY-13
WG1674342-6 DUP		**WG1674342-5**						
Aluminum (Al)		5610	5720		mg/kg	1.8	40	22-MAY-13
Antimony (Sb)		0.12	0.13		mg/kg	9.3	30	22-MAY-13
Arsenic (As)		2.05	2.01		mg/kg	2.0	30	22-MAY-13
Beryllium (Be)		0.25	0.23		mg/kg	9.4	30	22-MAY-13
Bismuth (Bi)		0.075	0.070		mg/kg	6.8	30	22-MAY-13
Boron (B)		14	15		mg/kg	2.1	30	22-MAY-13
Cadmium (Cd)		0.077	0.076		mg/kg	1.5	30	22-MAY-13
Calcium (Ca)		125000	124000		mg/kg	0.2	30	22-MAY-13
Chromium (Cr)		13.7	14.5		mg/kg	6.2	30	22-MAY-13
Cobalt (Co)		4.06	4.57		mg/kg	12	30	22-MAY-13
Iron (Fe)		9540	12800		mg/kg	29	30	22-MAY-13
Lead (Pb)		5.50	6.64		mg/kg	19	40	22-MAY-13
Magnesium (Mg)		46500	47500		mg/kg	2.3	30	22-MAY-13
Manganese (Mn)		215	237		mg/kg	9.9	30	22-MAY-13
Molybdenum (Mo)		0.402	0.490		mg/kg	20	40	22-MAY-13
Nickel (Ni)		11.0	11.7		mg/kg	6.9	30	22-MAY-13
Phosphorus (P)		370	450		mg/kg	21	30	22-MAY-13
Potassium (K)		1440	1380		mg/kg	3.9	40	22-MAY-13
Selenium (Se)		0.76	0.75		mg/kg	1.8	30	22-MAY-13
Silver (Ag)		<0.10	<0.10	RPD-NA	mg/kg	N/A	40	22-MAY-13
Sodium (Na)		188	195		mg/kg	3.6	40	22-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2614104								
WG1674342-6 DUP		**WG1674342-5**						
Strontium (Sr)		61.7	65.7		mg/kg	6.3	40	22-MAY-13
Thallium (Tl)		<0.10	<0.10	RPD-NA	mg/kg	N/A	30	22-MAY-13
Tin (Sn)		<5.0	<5.0	RPD-NA	mg/kg	N/A	40	22-MAY-13
Titanium (Ti)		232	217		mg/kg	6.5	40	22-MAY-13
Uranium (U)		0.582	0.591		mg/kg	1.7	30	22-MAY-13
Vanadium (V)		18.5	19.7		mg/kg	6.3	30	22-MAY-13
Zinc (Zn)		22	25		mg/kg	14	30	22-MAY-13
WG1674342-8 DUP		**WG1674342-7**						
Arsenic (As)		523	557		mg/kg	6.2	30	22-MAY-13
Barium (Ba)		211	200		mg/kg	5.6	40	22-MAY-13
Beryllium (Be)		0.91	1.04		mg/kg	13	30	22-MAY-13
Bismuth (Bi)		3.60	3.58		mg/kg	0.6	30	22-MAY-13
Boron (B)		34	38		mg/kg	10	30	22-MAY-13
Cadmium (Cd)		12.6	12.6		mg/kg	0.3	30	22-MAY-13
Chromium (Cr)		78.3	91.3		mg/kg	15	30	22-MAY-13
Cobalt (Co)		20.0	23.2		mg/kg	15	30	22-MAY-13
Magnesium (Mg)		19100	17900		mg/kg	6.3	30	22-MAY-13
Molybdenum (Mo)		8.94	9.69		mg/kg	8.0	40	22-MAY-13
Nickel (Ni)		74.7	86.3		mg/kg	14	30	22-MAY-13
Phosphorus (P)		940	1040		mg/kg	10	30	22-MAY-13
Potassium (K)		2140	2330		mg/kg	8.5	40	22-MAY-13
Selenium (Se)		1.72	1.47		mg/kg	16	30	22-MAY-13
Silver (Ag)		1.08	1.09		mg/kg	1.1	40	22-MAY-13
Sodium (Na)		1890	2320		mg/kg	21	40	22-MAY-13
Strontium (Sr)		112	120		mg/kg	6.8	40	22-MAY-13
Thallium (Tl)		1.06	1.04		mg/kg	1.6	30	22-MAY-13
Titanium (Ti)		324	371		mg/kg	13	40	22-MAY-13
Uranium (U)		1.41	1.49		mg/kg	5.1	30	22-MAY-13
Vanadium (V)		52.1	57.5		mg/kg	9.9	30	22-MAY-13
WG1674342-1 MB								
Aluminum (Al)			<5.0		mg/kg		5	22-MAY-13
Antimony (Sb)			<0.10		mg/kg		0.1	22-MAY-13
Arsenic (As)			<0.10		mg/kg		0.1	22-MAY-13

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Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-MS-WP	**Soil**							
Batch R2614104								
WG1674342-1 MB								
Barium (Ba)			<0.50		mg/kg		0.5	22-MAY-13
Beryllium (Be)			<0.10		mg/kg		0.1	22-MAY-13
Bismuth (Bi)			<0.020		mg/kg		0.02	22-MAY-13
Boron (B)			<10		mg/kg		10	22-MAY-13
Cadmium (Cd)			<0.020		mg/kg		0.02	22-MAY-13
Calcium (Ca)			<100		mg/kg		100	22-MAY-13
Chromium (Cr)			<1.0		mg/kg		1	22-MAY-13
Cobalt (Co)			<0.020		mg/kg		0.02	22-MAY-13
Copper (Cu)			<1.0		mg/kg		1	22-MAY-13
Iron (Fe)			<25		mg/kg		25	22-MAY-13
Lead (Pb)			<0.20		mg/kg		0.2	22-MAY-13
Magnesium (Mg)			<10		mg/kg		10	22-MAY-13
Manganese (Mn)			<0.50		mg/kg		0.5	22-MAY-13
Molybdenum (Mo)			<0.020		mg/kg		0.02	22-MAY-13
Nickel (Ni)			<0.50		mg/kg		0.5	22-MAY-13
Phosphorus (P)			<100		mg/kg		100	22-MAY-13
Potassium (K)			<25		mg/kg		25	22-MAY-13
Selenium (Se)			<0.50		mg/kg		0.5	22-MAY-13
Silver (Ag)			<0.10		mg/kg		0.1	22-MAY-13
Sodium (Na)			<10		mg/kg		10	22-MAY-13
Strontium (Sr)			<0.10		mg/kg		0.1	22-MAY-13
Thallium (Tl)			<0.10		mg/kg		0.1	22-MAY-13
Tin (Sn)			<5.0		mg/kg		5	22-MAY-13
Titanium (Ti)			<0.50		mg/kg		0.5	22-MAY-13
Uranium (U)			<0.020		mg/kg		0.02	22-MAY-13
Vanadium (V)			<0.50		mg/kg		0.5	22-MAY-13
Zinc (Zn)			<10		mg/kg		10	22-MAY-13
PCB-WP	**Soil**							
Batch R2621268								
WG1678356-3 DUP		**L1301827-20**						
Aroclor 1016		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13
Aroclor 1221		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13
Aroclor 1232		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PCB-WP	**Soil**							
Batch R2621268								
WG1678356-3 DUP		**L1301827-20**						
Aroclor 1242		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13
Aroclor 1248		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13
Aroclor 1254		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13
Aroclor 1260		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13
Aroclor 1262		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13
Aroclor 1268		<0.10	<0.10	RPD-NA	mg/kg	N/A	50	23-MAY-13
WG1678356-2 LCS								
Aroclor 1260			100.3		%		65-130	23-MAY-13
WG1678356-1 MB								
Aroclor 1016			<0.10		mg/kg		0.1	23-MAY-13
Aroclor 1221			<0.10		mg/kg		0.1	23-MAY-13
Aroclor 1232			<0.10		mg/kg		0.1	23-MAY-13
Aroclor 1242			<0.10		mg/kg		0.1	23-MAY-13
Aroclor 1248			<0.10		mg/kg		0.1	23-MAY-13
Aroclor 1254			<0.10		mg/kg		0.1	23-MAY-13
Aroclor 1260			<0.10		mg/kg		0.1	23-MAY-13
Aroclor 1262			<0.10		mg/kg		0.1	23-MAY-13
Aroclor 1268			<0.10		mg/kg		0.1	23-MAY-13
Surrogate: Decachlorobiphenyl			107.0		%		50-150	23-MAY-13
PH-1:2-SK	**Soil**							
Batch R2611817								
WG1672997-1 DUP		**L1301827-5**						
pH (1:2 soil:water)		7.81	7.81		pH	0.0	25	21-MAY-13
WG1672997-2 IRM		**SAL814**						
pH (1:2 soil:water)			8.13		pH		7.7-8.3	21-MAY-13
PSA-1-SK	**Soil**							
Batch R2616388								
WG1672400-1 DUP		**L1301827-26**						
% Sand (2.0mm - 0.05mm)		42.9	44.1	J	%	1.21	5	24-MAY-13
% Silt (0.05mm - 2um)		38.7	36.6	J	%	2.18	5	24-MAY-13
% Clay (<2um)		18.4	19.4	J	%	0.96	5	24-MAY-13
WG1672400-2 IRM		**FARM2010**						
% Sand (2.0mm - 0.05mm)			38.4		%		34-44	24-MAY-13
% Silt (0.05mm - 2um)			36.9		%		33-43	24-MAY-13

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PSA-1-SK	**Soil**							
Batch R2616388								
WG1672400-2 IRM		**FARM2010**						
% Clay (<2um)			24.7		%		18-28	24-MAY-13
MET-TCLP-MS-WP	**Waste**							
Batch R2615483								
WG1674544-4 DUP		**WG1674544-3**						
Antimony (Sb)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Arsenic (As)-Leachable		<0.20	<0.20	RPD-NA	mg/L	N/A	30	23-MAY-13
Barium (Ba)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Beryllium (Be)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Boron (B)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	23-MAY-13
Cadmium (Cd)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	23-MAY-13
Calcium (Ca)-Leachable		5.3	5.5		mg/L	3.0	30	23-MAY-13
Chromium (Cr)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Cobalt (Co)-Leachable		<0.20	<0.20	RPD-NA	mg/L	N/A	30	23-MAY-13
Copper (Cu)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Iron (Fe)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	23-MAY-13
Lead (Pb)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Magnesium (Mg)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	23-MAY-13
Manganese (Mn)-Leachable		0.061	0.060		mg/L	1.2	30	23-MAY-13
Molybdenum (Mo)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	23-MAY-13
Nickel (Ni)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Potassium (K)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	23-MAY-13
Selenium (Se)-Leachable		<0.20	<0.20	RPD-NA	mg/L	N/A	30	23-MAY-13
Silver (Ag)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Strontium (Sr)-Leachable		0.012	0.012		mg/L	0.2	30	23-MAY-13
Thallium (Tl)-Leachable		<0.10	<0.10	RPD-NA	mg/L	N/A	30	23-MAY-13
Tin (Sn)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	23-MAY-13
Uranium (U)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	23-MAY-13
Vanadium (V)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
Zinc (Zn)-Leachable		<1.0	<1.0	RPD-NA	mg/L	N/A	30	23-MAY-13
Zirconium (Zr)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	23-MAY-13
WG1674544-2 LCS								
Antimony (Sb)-Leachable			107.4		%		80-120	23-MAY-13

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-MS-WP	**Waste**							
Batch R2615483								
WG1674544-2 LCS								
Arsenic (As)-Leachable			98.4		%		80-120	23-MAY-13
Barium (Ba)-Leachable			97.3		%		80-120	23-MAY-13
Beryllium (Be)-Leachable			95.9		%		80-120	23-MAY-13
Boron (B)-Leachable			101.5		%		80-120	23-MAY-13
Cadmium (Cd)-Leachable			107.5		%		80-120	23-MAY-13
Calcium (Ca)-Leachable			93.5		%		80-120	23-MAY-13
Chromium (Cr)-Leachable			96.0		%		80-120	23-MAY-13
Cobalt (Co)-Leachable			102.8		%		80-120	23-MAY-13
Copper (Cu)-Leachable			99.1		%		80-120	23-MAY-13
Iron (Fe)-Leachable			96.0		%		80-120	23-MAY-13
Lead (Pb)-Leachable			92.6		%		80-120	23-MAY-13
Magnesium (Mg)-Leachable			106.0		%		80-120	23-MAY-13
Manganese (Mn)-Leachable			98.2		%		80-120	23-MAY-13
Molybdenum (Mo)-Leachable			99.2		%		80-120	23-MAY-13
Nickel (Ni)-Leachable			100.4		%		80-120	23-MAY-13
Potassium (K)-Leachable			101.5		%		80-120	23-MAY-13
Selenium (Se)-Leachable			99.9		%		80-120	23-MAY-13
Silver (Ag)-Leachable			110.0		%		80-120	23-MAY-13
Strontium (Sr)-Leachable			95.0		%		80-120	23-MAY-13
Thallium (Tl)-Leachable			111.8		%		80-120	23-MAY-13
Tin (Sn)-Leachable			109.4		%		80-120	23-MAY-13
Uranium (U)-Leachable			109.3		%		80-120	23-MAY-13
Vanadium (V)-Leachable			98.5		%		80-120	23-MAY-13
Zinc (Zn)-Leachable			99.1		%		80-120	23-MAY-13
Zirconium (Zr)-Leachable			92.3		%		80-120	23-MAY-13
WG1674544-1 MB								
Antimony (Sb)-Leachable			<0.50		mg/L		0.5	23-MAY-13
Arsenic (As)-Leachable			<0.20		mg/L		0.2	23-MAY-13
Barium (Ba)-Leachable			<0.50		mg/L		0.5	23-MAY-13
Beryllium (Be)-Leachable			<0.50		mg/L		0.5	23-MAY-13
Boron (B)-Leachable			<5.0		mg/L		5	23-MAY-13
Cadmium (Cd)-Leachable			<0.050		mg/L		0.05	23-MAY-13
Calcium (Ca)-Leachable			<5.0		mg/L		5	23-MAY-13
Chromium (Cr)-Leachable			<0.50		mg/L		0.5	23-MAY-13

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-MS-WP	**Waste**							
Batch R2615483								
WG1674544-1 MB								
Cobalt (Co)-Leachable			<0.20		mg/L		0.2	23-MAY-13
Copper (Cu)-Leachable			<0.50		mg/L		0.5	23-MAY-13
Iron (Fe)-Leachable			<5.0		mg/L		5	23-MAY-13
Lead (Pb)-Leachable			<0.50		mg/L		0.5	23-MAY-13
Magnesium (Mg)-Leachable			<5.0		mg/L		5	23-MAY-13
Manganese (Mn)-Leachable			<0.050		mg/L		0.05	23-MAY-13
Molybdenum (Mo)-Leachable			<0.050		mg/L		0.05	23-MAY-13
Nickel (Ni)-Leachable			<0.50		mg/L		0.5	23-MAY-13
Potassium (K)-Leachable			<5.0		mg/L		5	23-MAY-13
Selenium (Se)-Leachable			<0.20		mg/L		0.2	23-MAY-13
Silver (Ag)-Leachable			<0.50		mg/L		0.5	23-MAY-13
Strontium (Sr)-Leachable			<0.010		mg/L		0.01	23-MAY-13
Thallium (Tl)-Leachable			<0.10		mg/L		0.1	23-MAY-13
Tin (Sn)-Leachable			<0.050		mg/L		0.05	23-MAY-13
Uranium (U)-Leachable			<0.050		mg/L		0.05	23-MAY-13
Vanadium (V)-Leachable			<0.50		mg/L		0.5	23-MAY-13
Zinc (Zn)-Leachable			<1.0		mg/L		1	23-MAY-13
Zirconium (Zr)-Leachable			<0.50		mg/L		0.5	23-MAY-13
WG1674544-6 MS		**WG1674544-5**						
Antimony (Sb)-Leachable			97.9		%		70-130	23-MAY-13
Arsenic (As)-Leachable			106.4		%		70-130	23-MAY-13
Barium (Ba)-Leachable			108.7		%		70-130	23-MAY-13
Beryllium (Be)-Leachable			102.4		%		70-130	23-MAY-13
Boron (B)-Leachable			116.1		%		70-130	23-MAY-13
Cadmium (Cd)-Leachable			98.9		%		70-130	23-MAY-13
Calcium (Ca)-Leachable			N/A	MS-B	%		-	23-MAY-13
Chromium (Cr)-Leachable			95.5		%		70-130	23-MAY-13
Cobalt (Co)-Leachable			100.6		%		70-130	23-MAY-13
Copper (Cu)-Leachable			98.9		%		70-130	23-MAY-13
Iron (Fe)-Leachable			94.5		%		70-130	23-MAY-13
Lead (Pb)-Leachable			92.6		%		70-130	23-MAY-13
Molybdenum (Mo)-Leachable			99.95		%		70-130	23-MAY-13
Nickel (Ni)-Leachable			101.5		%		70-130	23-MAY-13
Potassium (K)-Leachable			102.5		%		70-130	23-MAY-13

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Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-MS-WP	**Waste**							
Batch R2615483								
WG1674544-6 MS		**WG1674544-5**						
Selenium (Se)-Leachable			109.4		%		70-130	23-MAY-13
Silver (Ag)-Leachable			107.5		%		70-130	23-MAY-13
Thallium (Tl)-Leachable			99.1		%		70-130	23-MAY-13
Uranium (U)-Leachable			107.0		%		70-130	23-MAY-13
Vanadium (V)-Leachable			101.3		%		70-130	23-MAY-13
Zinc (Zn)-Leachable			95.5		%		70-130	23-MAY-13
Zirconium (Zr)-Leachable			98.4		%		70-130	23-MAY-13
Batch R2617181								
WG1675530-4 DUP		**WG1675530-3**						
Antimony (Sb)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
Arsenic (As)-Leachable		<0.20	<0.20	RPD-NA	mg/L	N/A	30	24-MAY-13
Barium (Ba)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
Beryllium (Be)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
Boron (B)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	24-MAY-13
Cadmium (Cd)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	24-MAY-13
Calcium (Ca)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	24-MAY-13
Chromium (Cr)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
Cobalt (Co)-Leachable		<0.20	<0.20	RPD-NA	mg/L	N/A	30	24-MAY-13
Copper (Cu)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
Iron (Fe)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	24-MAY-13
Lead (Pb)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
Magnesium (Mg)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	24-MAY-13
Manganese (Mn)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	24-MAY-13
Molybdenum (Mo)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	24-MAY-13
Nickel (Ni)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
Potassium (K)-Leachable		<5.0	<5.0	RPD-NA	mg/L	N/A	30	24-MAY-13
Selenium (Se)-Leachable		<0.20	<0.20	RPD-NA	mg/L	N/A	30	24-MAY-13
Silver (Ag)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
Strontium (Sr)-Leachable		<0.010	<0.010	RPD-NA	mg/L	N/A	30	24-MAY-13
Thallium (Tl)-Leachable		<0.10	<0.10	RPD-NA	mg/L	N/A	30	24-MAY-13
Tin (Sn)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	24-MAY-13
Uranium (U)-Leachable		<0.050	<0.050	RPD-NA	mg/L	N/A	30	24-MAY-13
Vanadium (V)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-MS-WP	**Waste**							
Batch R2617181								
WG1675530-4 DUP		**WG1675530-3**						
Zinc (Zn)-Leachable		<1.0	<1.0	RPD-NA	mg/L	N/A	30	24-MAY-13
Zirconium (Zr)-Leachable		<0.50	<0.50	RPD-NA	mg/L	N/A	30	24-MAY-13
WG1675530-2 LCS								
Antimony (Sb)-Leachable			98.1		%		80-120	24-MAY-13
Arsenic (As)-Leachable			100.5		%		80-120	24-MAY-13
Barium (Ba)-Leachable			93.9		%		80-120	24-MAY-13
Beryllium (Be)-Leachable			98.7		%		80-120	24-MAY-13
Boron (B)-Leachable			96.3		%		80-120	24-MAY-13
Cadmium (Cd)-Leachable			100.8		%		80-120	24-MAY-13
Calcium (Ca)-Leachable			99.8		%		80-120	24-MAY-13
Chromium (Cr)-Leachable			100.1		%		80-120	24-MAY-13
Cobalt (Co)-Leachable			99.9		%		80-120	24-MAY-13
Copper (Cu)-Leachable			97.6		%		80-120	24-MAY-13
Iron (Fe)-Leachable			101.6		%		80-120	24-MAY-13
Lead (Pb)-Leachable			103.2		%		80-120	24-MAY-13
Magnesium (Mg)-Leachable			105.7		%		80-120	24-MAY-13
Manganese (Mn)-Leachable			98.3		%		80-120	24-MAY-13
Molybdenum (Mo)-Leachable			102.1		%		80-120	24-MAY-13
Nickel (Ni)-Leachable			96.2		%		80-120	24-MAY-13
Potassium (K)-Leachable			101.1		%		80-120	24-MAY-13
Selenium (Se)-Leachable			100.3		%		80-120	24-MAY-13
Silver (Ag)-Leachable			101.9		%		80-120	24-MAY-13
Strontium (Sr)-Leachable			100.6		%		80-120	24-MAY-13
Thallium (Tl)-Leachable			98.2		%		80-120	24-MAY-13
Tin (Sn)-Leachable			104.4		%		80-120	24-MAY-13
Uranium (U)-Leachable			98.9		%		80-120	24-MAY-13
Vanadium (V)-Leachable			100.0		%		80-120	24-MAY-13
Zinc (Zn)-Leachable			99.1		%		80-120	24-MAY-13
Zirconium (Zr)-Leachable			102.0		%		80-120	24-MAY-13
WG1675530-1 MB								
Antimony (Sb)-Leachable			<0.50		mg/L		0.5	24-MAY-13
Arsenic (As)-Leachable			<0.20		mg/L		0.2	24-MAY-13
Barium (Ba)-Leachable			<0.50		mg/L		0.5	24-MAY-13
Beryllium (Be)-Leachable			<0.50		mg/L		0.5	24-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-MS-WP	**Waste**							
Batch R2617181								
WG1675530-1 MB								
Boron (B)-Leachable			<5.0		mg/L		5	24-MAY-13
Cadmium (Cd)-Leachable			<0.050		mg/L		0.05	24-MAY-13
Calcium (Ca)-Leachable			<5.0		mg/L		5	24-MAY-13
Chromium (Cr)-Leachable			<0.50		mg/L		0.5	24-MAY-13
Cobalt (Co)-Leachable			<0.20		mg/L		0.2	24-MAY-13
Copper (Cu)-Leachable			<0.50		mg/L		0.5	24-MAY-13
Iron (Fe)-Leachable			<5.0		mg/L		5	24-MAY-13
Lead (Pb)-Leachable			<0.50		mg/L		0.5	24-MAY-13
Magnesium (Mg)-Leachable			<5.0		mg/L		5	24-MAY-13
Manganese (Mn)-Leachable			<0.050		mg/L		0.05	24-MAY-13
Molybdenum (Mo)-Leachable			<0.050		mg/L		0.05	24-MAY-13
Nickel (Ni)-Leachable			<0.50		mg/L		0.5	24-MAY-13
Potassium (K)-Leachable			<5.0		mg/L		5	24-MAY-13
Selenium (Se)-Leachable			<0.20		mg/L		0.2	24-MAY-13
Silver (Ag)-Leachable			<0.50		mg/L		0.5	24-MAY-13
Strontium (Sr)-Leachable			<0.010		mg/L		0.01	24-MAY-13
Thallium (Tl)-Leachable			<0.10		mg/L		0.1	24-MAY-13
Tin (Sn)-Leachable			<0.050		mg/L		0.05	24-MAY-13
Uranium (U)-Leachable			<0.050		mg/L		0.05	24-MAY-13
Vanadium (V)-Leachable			<0.50		mg/L		0.5	24-MAY-13
Zinc (Zn)-Leachable			<1.0		mg/L		1	24-MAY-13
Zirconium (Zr)-Leachable			<0.50		mg/L		0.5	24-MAY-13
WG1675530-6 MS		**WG1675530-5**						
Antimony (Sb)-Leachable			106.3		%		70-130	24-MAY-13
Arsenic (As)-Leachable			101.2		%		70-130	24-MAY-13
Barium (Ba)-Leachable			109.8		%		70-130	24-MAY-13
Beryllium (Be)-Leachable			100.5		%		70-130	24-MAY-13
Boron (B)-Leachable			96.4		%		70-130	24-MAY-13
Cadmium (Cd)-Leachable			104.6		%		70-130	24-MAY-13
Chromium (Cr)-Leachable			80.5		%		70-130	24-MAY-13
Cobalt (Co)-Leachable			86.2		%		70-130	24-MAY-13
Copper (Cu)-Leachable			88.2		%		70-130	24-MAY-13
Iron (Fe)-Leachable			84.0		%		70-130	24-MAY-13
Lead (Pb)-Leachable			N/A	MS-B	%		-	24-MAY-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-TCLP-MS-WP	**Waste**							
Batch **R2617181**								
WG1675530-6 MS		**WG1675530-5**						
Manganese (Mn)-Leachable			89.0		%		70-130	24-MAY-13
Molybdenum (Mo)-Leachable			97.1		%		70-130	24-MAY-13
Nickel (Ni)-Leachable			86.6		%		70-130	24-MAY-13
Potassium (K)-Leachable			83.5		%		70-130	24-MAY-13
Selenium (Se)-Leachable			87.6		%		70-130	24-MAY-13
Silver (Ag)-Leachable			97.5		%		70-130	24-MAY-13
Strontium (Sr)-Leachable			94.3		%		70-130	24-MAY-13
Thallium (Tl)-Leachable			82.9		%		70-130	24-MAY-13
Tin (Sn)-Leachable			114.1		%		70-130	24-MAY-13
Uranium (U)-Leachable			94.2		%		70-130	24-MAY-13
Vanadium (V)-Leachable			85.6		%		70-130	24-MAY-13
Zinc (Zn)-Leachable			89.6		%		70-130	24-MAY-13
Zirconium (Zr)-Leachable			95.2		%		70-130	24-MAY-13
PREP-TCLP-INORG-WP	**Waste**							
Batch **R2614209**								
WG1674556-3 DUP		**L1301827-2**						
Percent Solids		100	100		%	0.0	25	21-MAY-13
Initial pH		9.38	9.39		pH units	0.1	25	21-MAY-13
Intermediate pH		2.27	2.06		pH units	9.7	25	21-MAY-13
Extraction Volume		810	810		mL	0.0	25	21-MAY-13
Sample Weight		40.65	40.68		g	0.1	25	21-MAY-13
Final pH		6.10	6.01		pH units	1.5	25	21-MAY-13
Solution Blank pH		4.92	4.92		pH units	0.0	25	21-MAY-13
Batch **R2615717**								
WG1675542-2 DUP		**L1301827-9**						
Percent Solids		100	100		%	0.0	25	22-MAY-13
Initial pH		9.11	9.03		pH units	0.9	25	22-MAY-13
Intermediate pH		2.75	2.15		pH units	24	25	22-MAY-13
Extraction Volume		800	800		mL	0.0	25	22-MAY-13
Sample Weight		40.00	40.00		g	0.0	25	22-MAY-13
Final pH		5.84	6.30		pH units	7.6	25	22-MAY-13
Solution Blank pH		4.97	4.97		pH units	0.0	25	22-MAY-13

Quality Control Report

Workorder: L1301827 Report Date: 24-SEP-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

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.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
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.

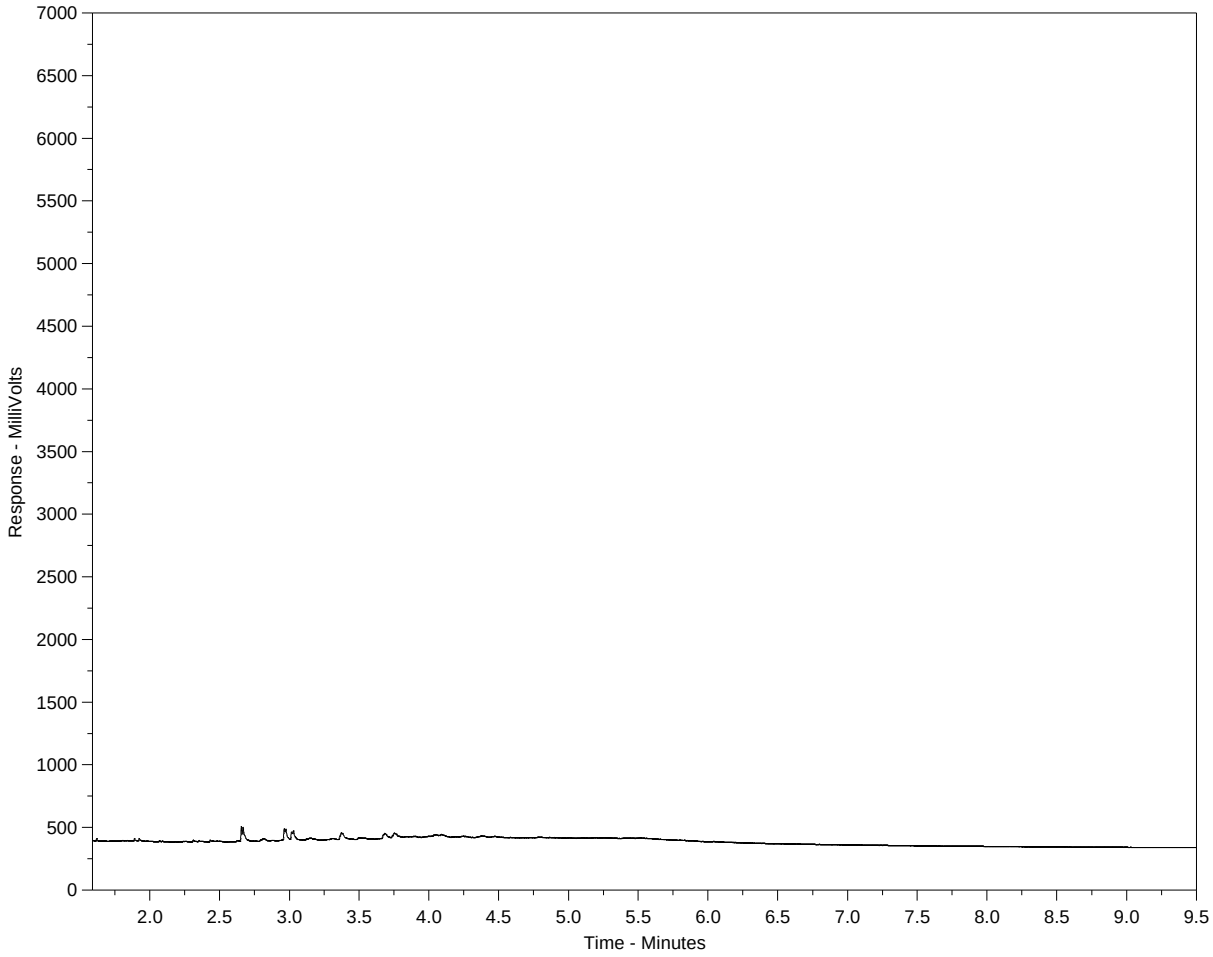
ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-14
Client Sample ID: 13-13-1.1 @ 2.5 FEET



F2		F3	F4	
nC10	nC16		nC34	nC50
174°C	287°C		481°C	575°C
346°F	549°F		898°F	1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →				

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

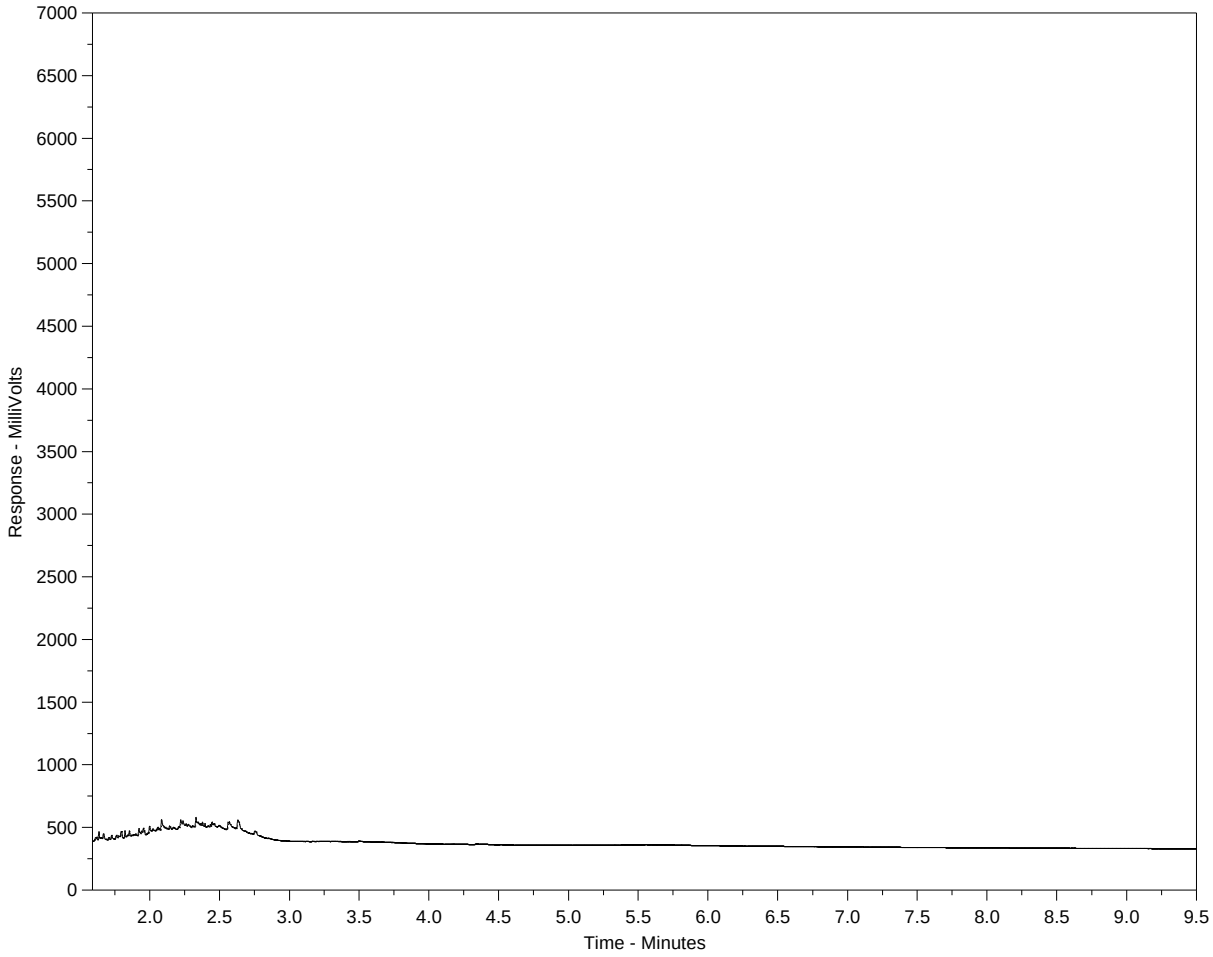
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-15
Client Sample ID: 13-14-1.8 @ 2.5 FEET



F2		F3	F4	
nC10	nC16		nC34	nC50
174°C	287°C		481°C	575°C
346°F	549°F		898°F	1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →				

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

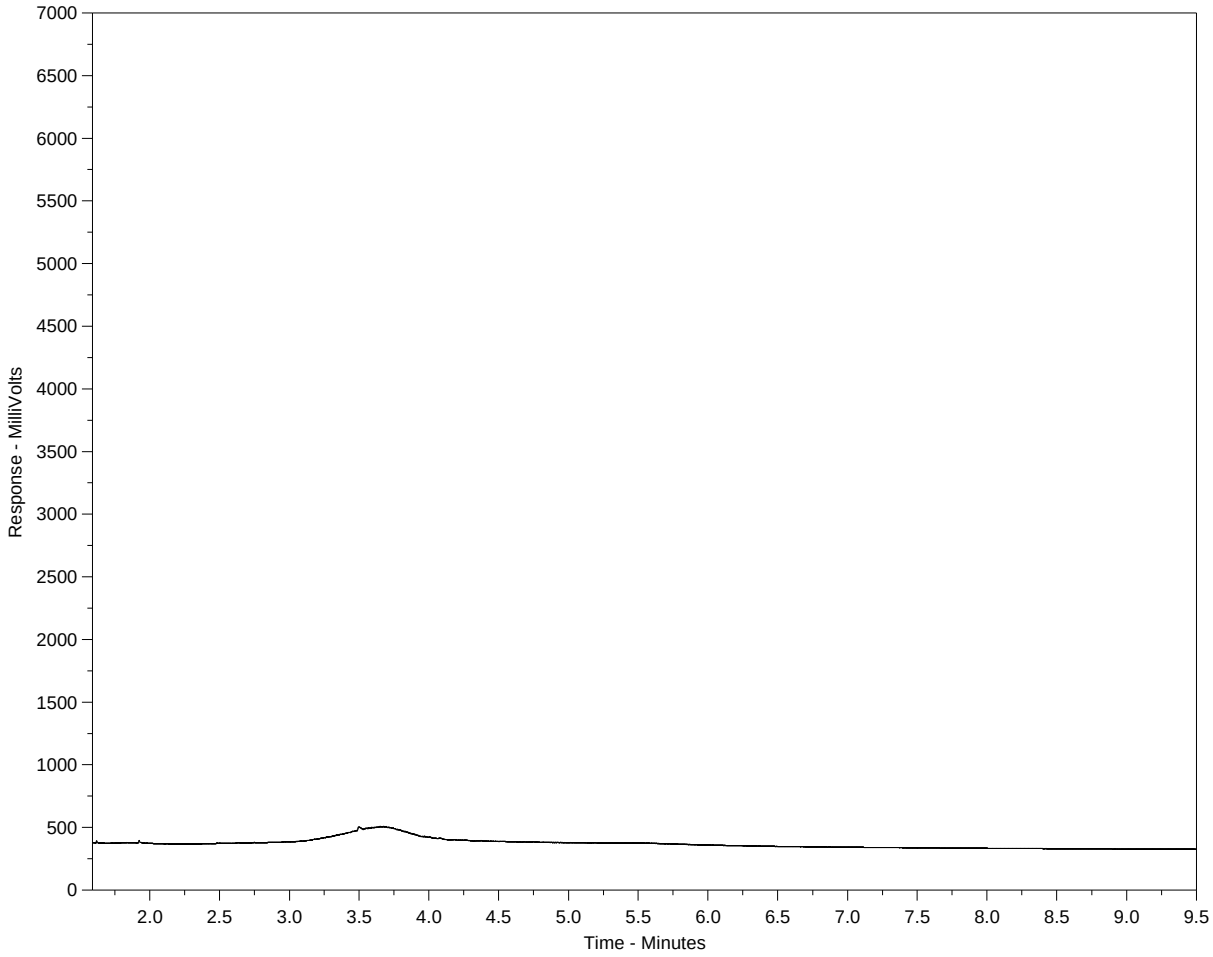
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-16
Client Sample ID: 13-15-1.8 @ 0 FEET



F2		F3	F4
nC10	nC16	nC34	nC50
174°C	287°C	481°C	575°C
346°F	549°F	898°F	1067°F
← Gasoline →		←	Motor Oils/ Lube Oils/ Grease →
← Diesel/ Jet Fuels →			

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

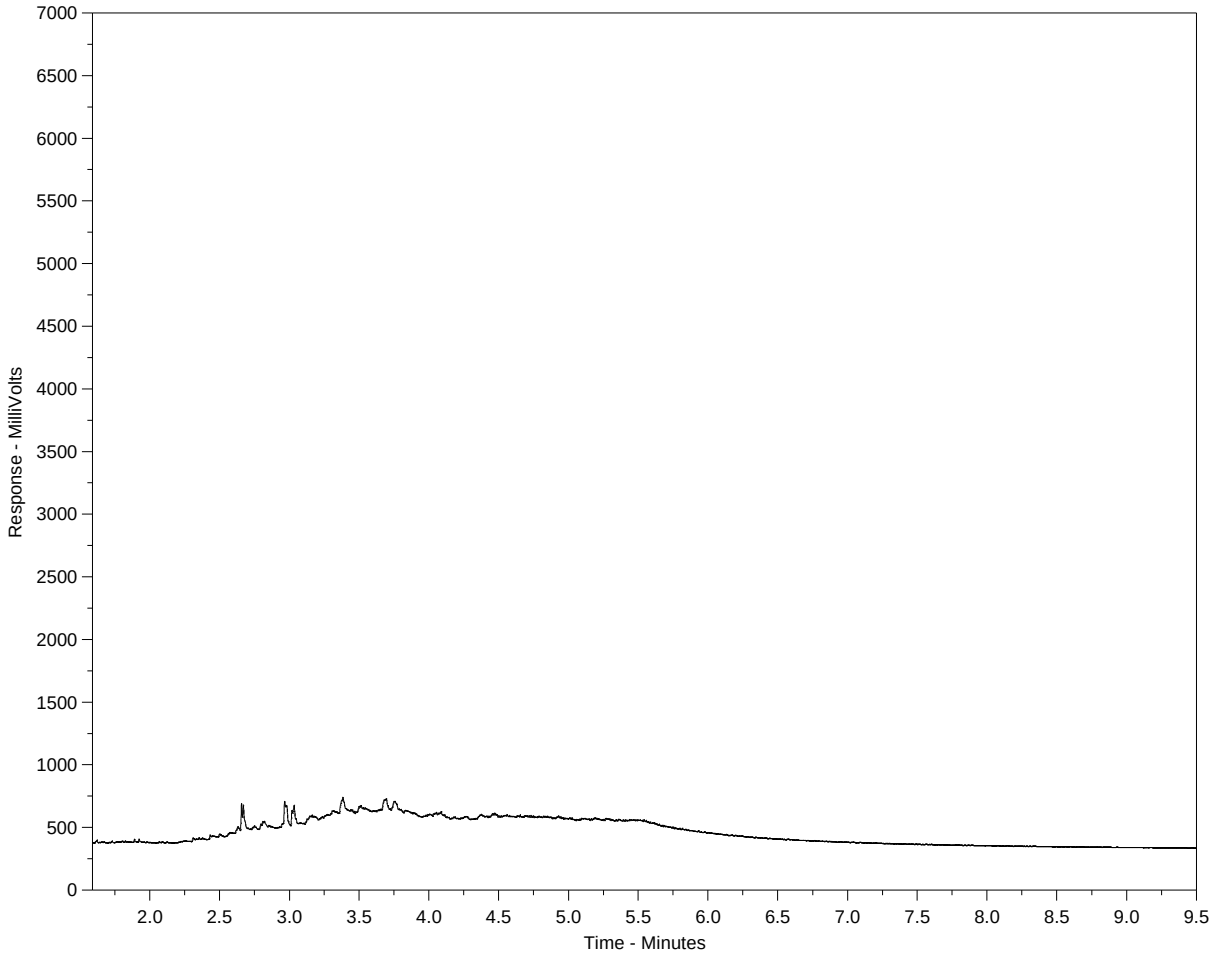
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-17
Client Sample ID: 13-16-1.5 @ 2.5 FEET



F2		F3	F4	
nC10	nC16		nC34	nC50
174°C	287°C		481°C	575°C
346°F	549°F		898°F	1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →				

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

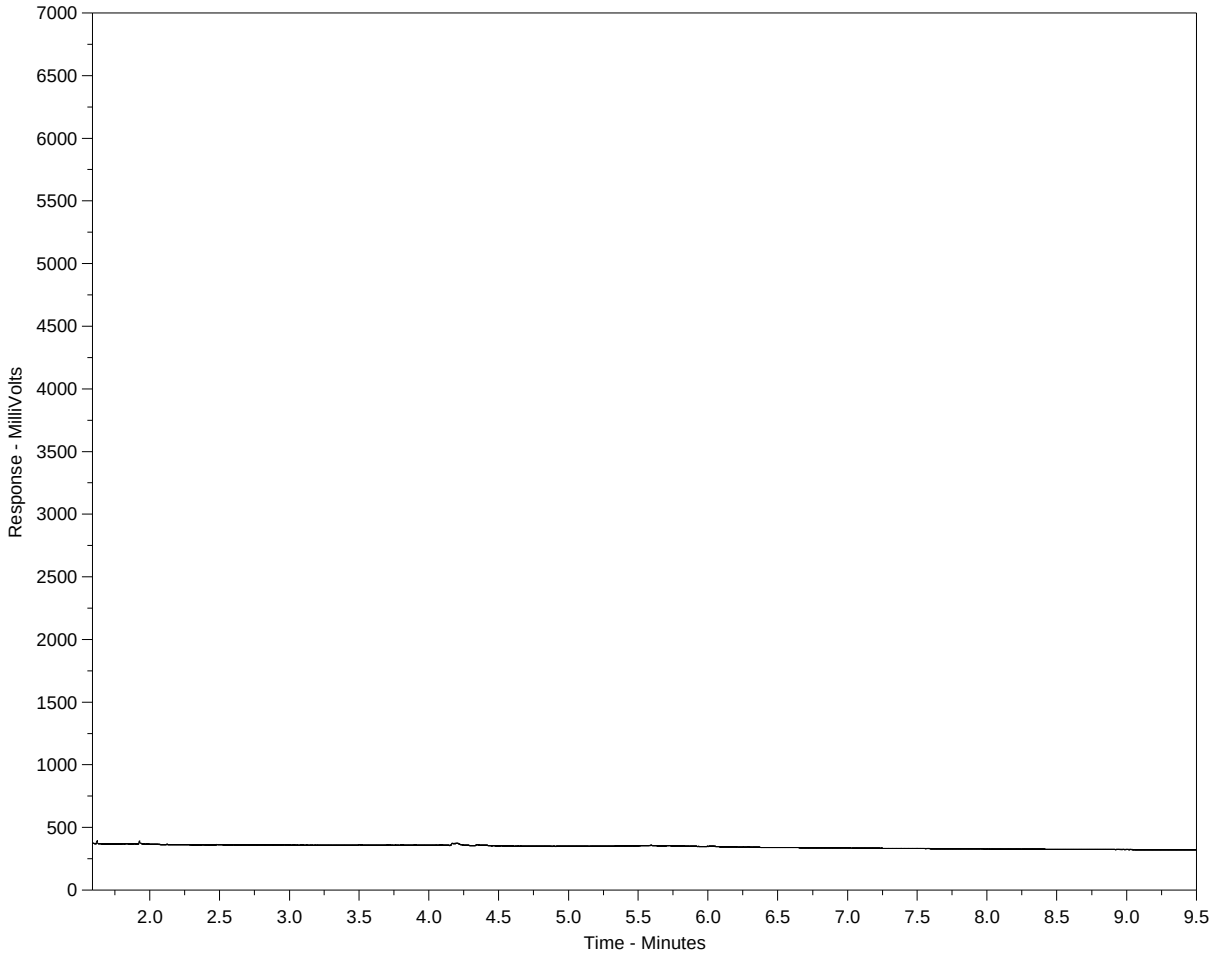
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-18
Client Sample ID: 13-17-1.8 @ 2.5 FEET



F2		F3	F4	
nC10	nC16		nC34	nC50
174°C	287°C		481°C	575°C
346°F	549°F		898°F	1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →				

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

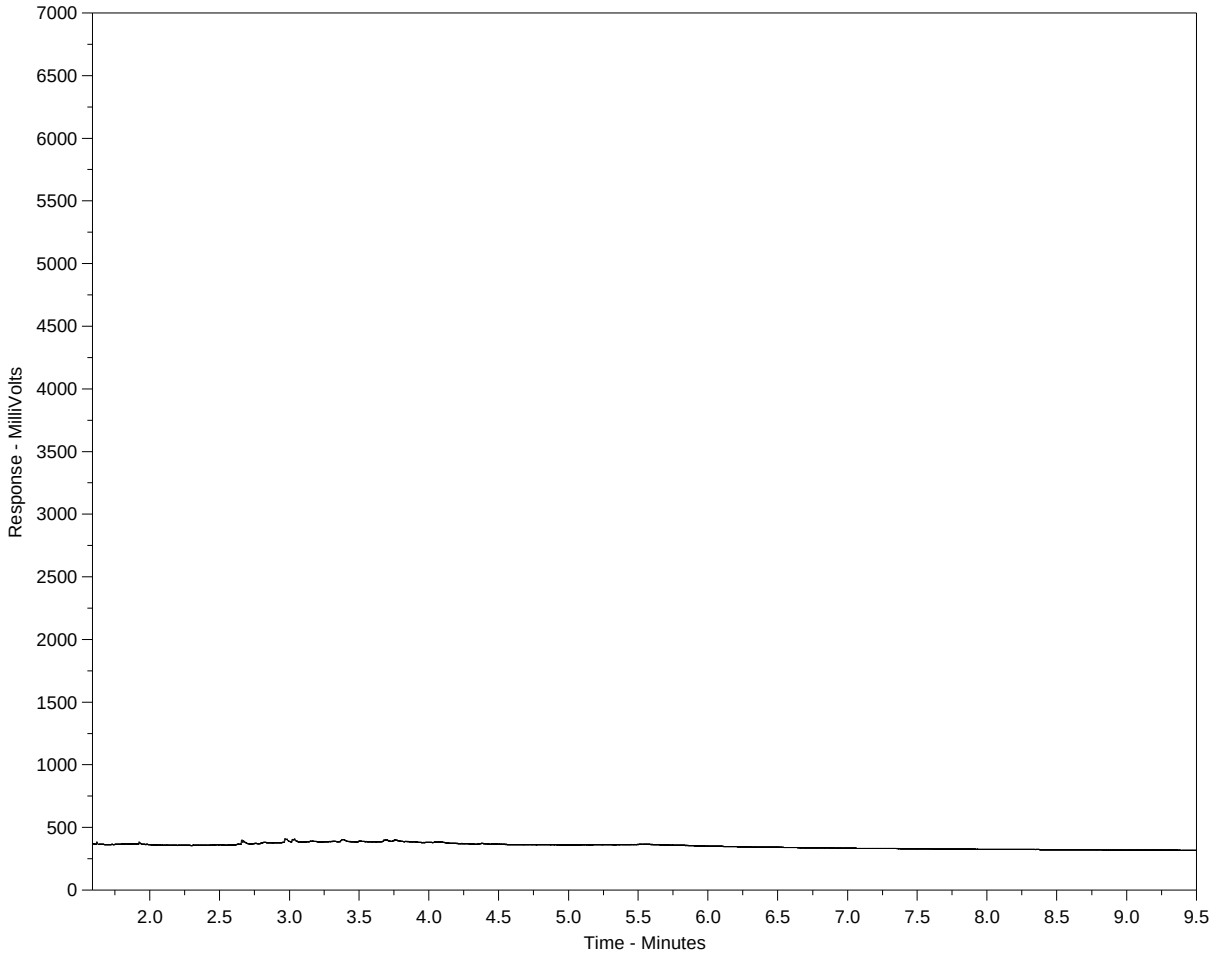
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-19
Client Sample ID: 13-18-1.8 @ 2.5 FEET



F2		F3	F4	
nC10	nC16		nC34	nC50
174°C	287°C		481°C	575°C
346°F	549°F		898°F	1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →				

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

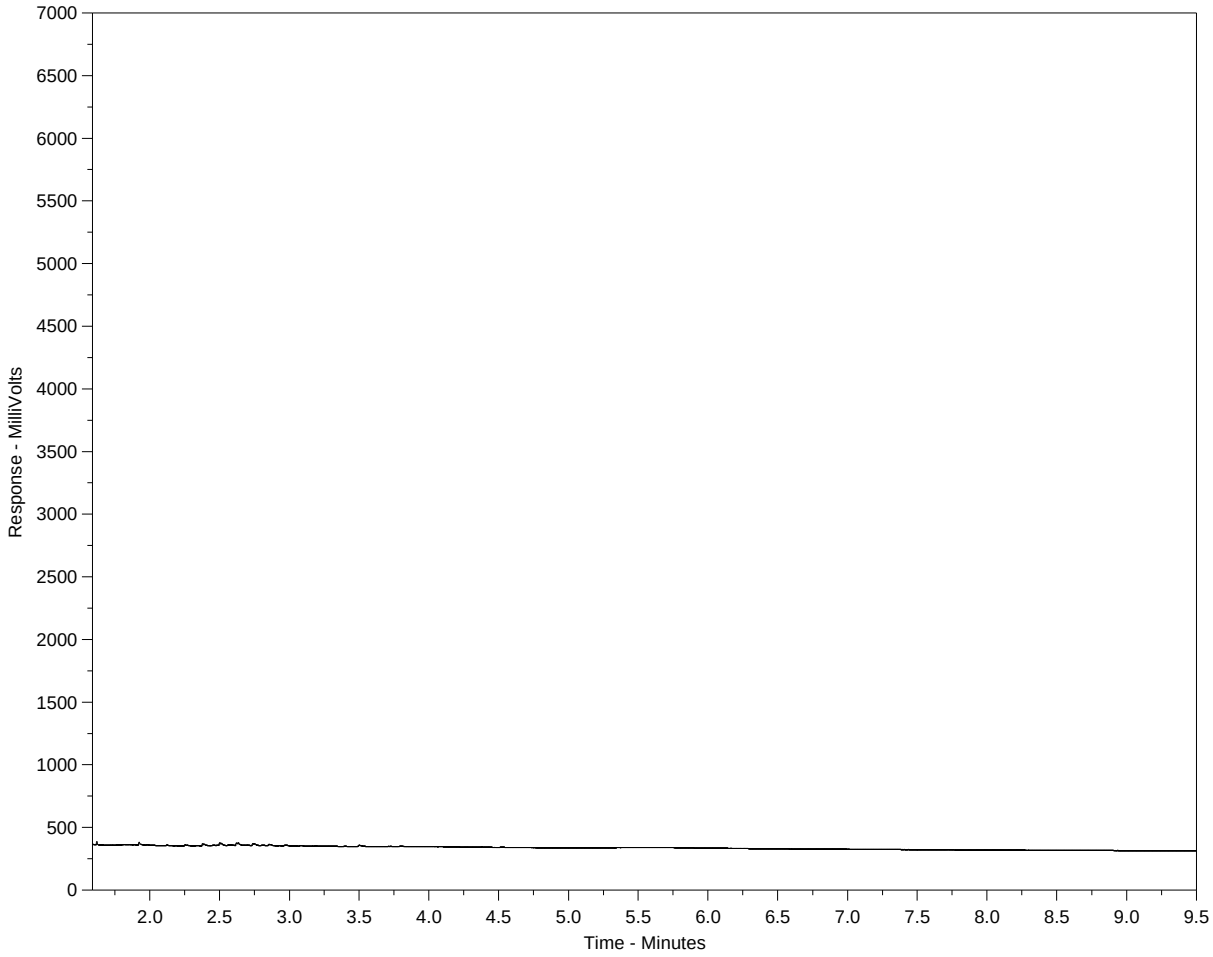
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-20
Client Sample ID: 13-19-1.8 @ 5 FEET



F2		F3	F4	
nC10	nC16		nC34	nC50
174°C	287°C		481°C	575°C
346°F	549°F		898°F	1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →				

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

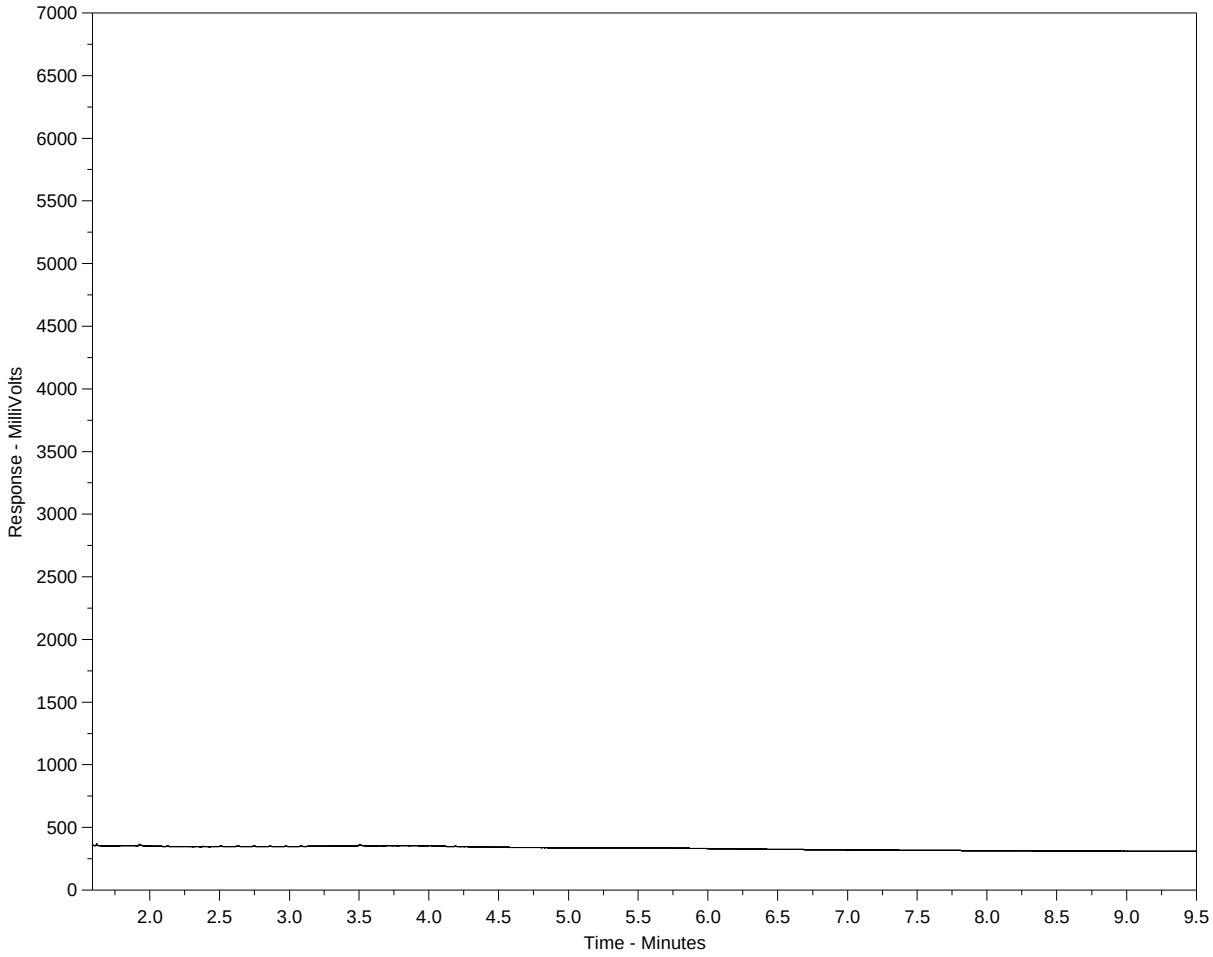
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

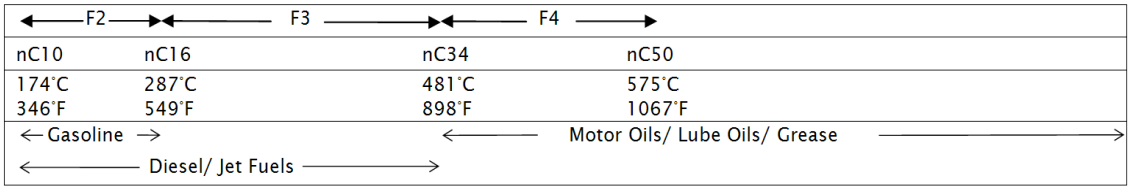
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-21
Client Sample ID: FD2





The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

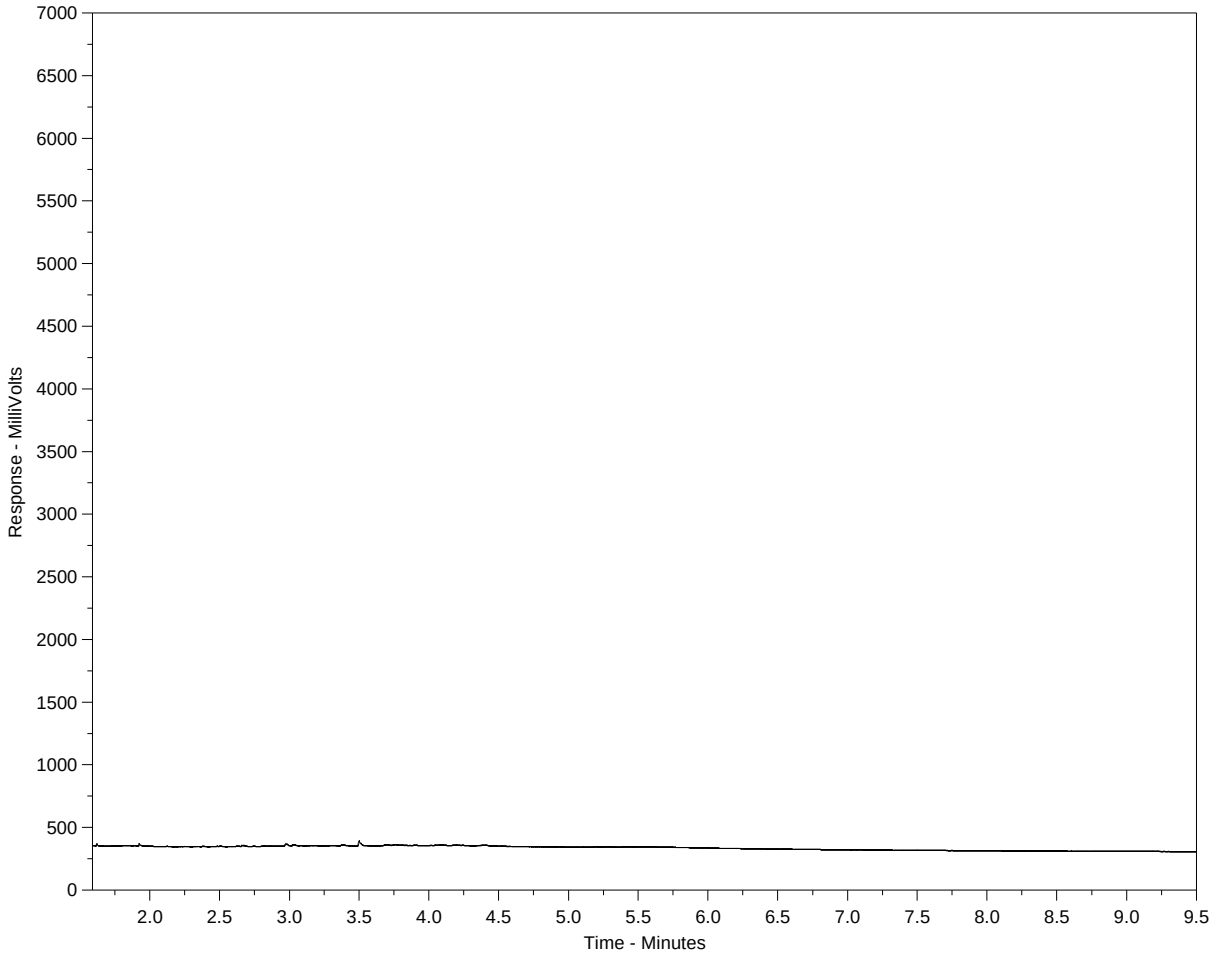
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-22
Client Sample ID: 13-20-1.8 @ 5 FEET



F2		F3	F4	
nC10	nC16		nC34	nC50
174°C	287°C		481°C	575°C
346°F	549°F		898°F	1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →				

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

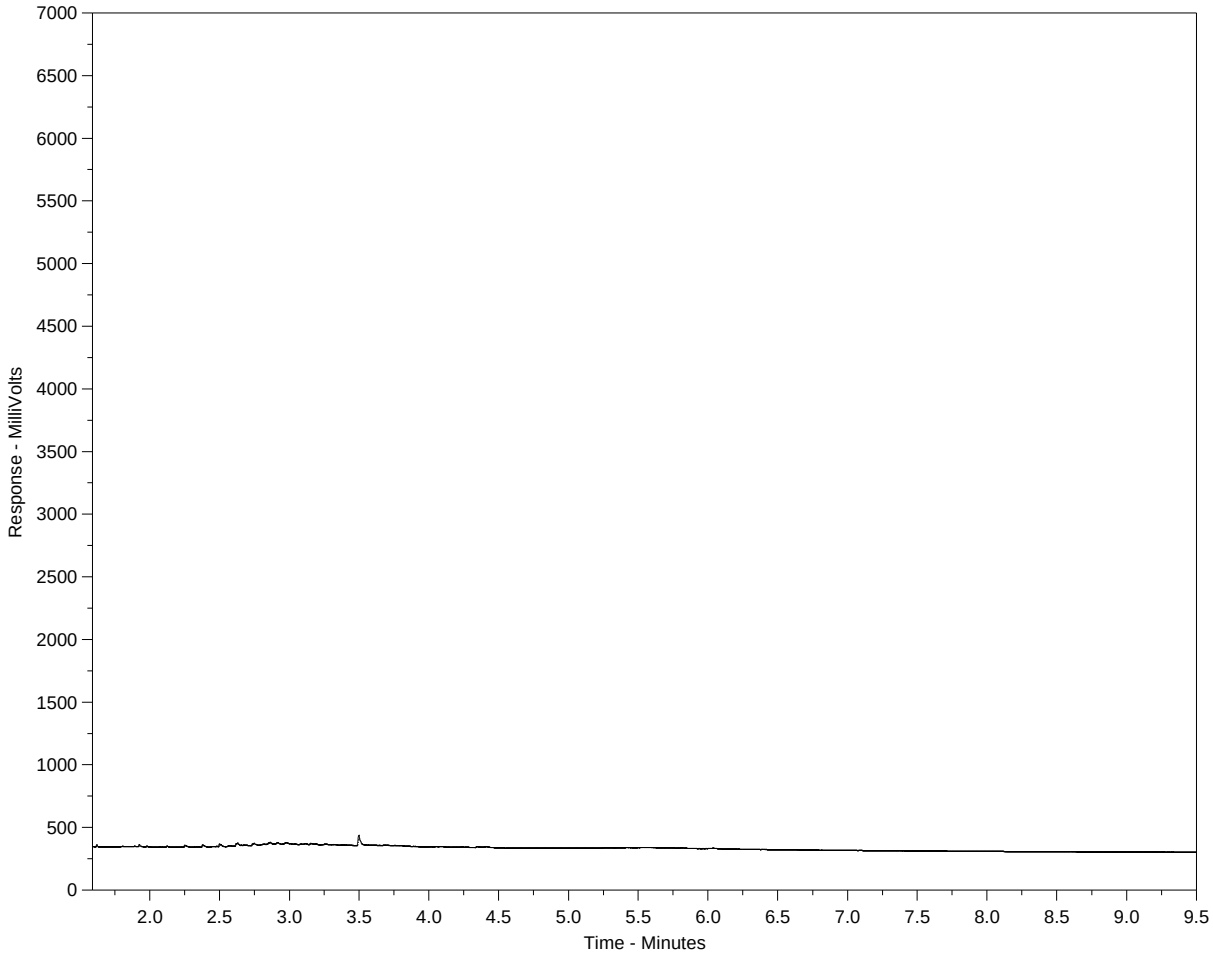
The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT

ALS Sample ID: L1301827-23
Client Sample ID: 13-21-1.8 @ 5 FEET



F2		F3	F4	
nC10	nC16		nC34	nC50
174°C	287°C		481°C	575°C
346°F	549°F		898°F	1067°F
← Gasoline →			← Motor Oils/ Lube Oils/ Grease →	
← Diesel/ Jet Fuels →				

The CCME F2-F4 Hydrocarbon Distribution Report (HDR) is intended to assist you in characterizing hydrocarbon products that may be present in your sample.

The scale at the bottom of the chromatogram indicates the approximate retention times of common petroleum products and four n-alkane hydrocarbon marker compounds. Retention times may vary between samples, but general patterns and distributions will remain similar.

Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

Note: This chromatogram was produced using GC conditions that are specific to ALS Canada CCME F2-F4 method. Refer to the ALS Canada CCME F2-F4 Hydrocarbon Library for a collection of chromatograms from common reference samples (fuels, oils, etc.). The HDR library can be found at www.alsglobal.com.

10- 220788

L1301827-COFC

ALS Environmental

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L1301827

Page 1 of 3

Report To	Report / Distribution	Service Request (Rush subject to availability - Contact ALS to confirm TAT)
Company: Dillon Consulting	Standard: ✓ Other (specify):	✓ Regular (Standard Turnaround Times - Business Days)
Contact: Indra Kalinovich	Select: PDF ✓ Excel ✓ Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 1558 Wilson Pl Winnipeg, MB	Email 1: IKalinovich@dillon.ca	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Email 2: nbeaupre@dillon.ca	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 204-453-2301 Fax:		
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	**Analysis Request**
Copy of Invoice with Report? (circle) Yes or No	Job #: 10-3834	(Indicate Filtered or Preserved, F/P)
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: NWSR	
Lab Work Order # (lab use only)	**ALS Contact:** Judy **Sampler:** Nanci Beaupré	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	Mercury	pH	Leachate								Number of Containers
1	13-01-5.2 @ 12.5 feet	13-05-13	0915	Soil	✓	✓	✓	✓								2
2	13-02-1.8 @ 6 feet		0930		✓	✓	–	✓								
3	13-03-1.1 @ 3.5 feet		1000		✓	✓	✓	–								
4	13-04-1.1 @ 3.5 feet		1030		✓	✓	✓	✓								
5	13-05-1.5 @ 2.5 feet		1100		✓	✓	✓	✓								
6	13-06-7.3 @ 2.5 feet		1130		✓	✓	✓	–								
7	13-07-2.4 @ 2.5 feet		1200		✓	–	–	–								
8	13-08-1.5 @ 2.5 feet		1230		✓	✓	✓	✓								
9	13-09-1.1 @ 2.5 feet		1300		✓	✓	✓	–								
10	13-10-7.3 @ 5 feet		1330		✓	✓	✓	✓								
11	FD1		1330		✓	✓	✓	✓								
12	13-11-3.7 @ 2.5 feet	↓	1400	↓	✓	✓	✓	✓								↓

Special Instructions / Regulation 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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
N. Beaupré	May14/13	1630	SA	May15/13	8:00AM	6.5 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY | GENF 18.01 Front

10-220789

L1301827-COFC

ALS Environment

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

Report To	Report Format / Distribution	Service Request:(Rush subject to availability - Contact ALS to confirm TAT)
Company: Dillon Consulting	Standard: ✓ Other (specify):	✓ Regular (Standard Turnaround Times - Business Days)
Contact: Indra Kalinovich	Select: PDF ✓ Excel ✓ Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 1558 Willson Pl Winnipeg, MB	Email 1: Ikalinovich@dillon.ca	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: 204-453-2301 Fax:	Email 2: nbeaupre@dillon.ca	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Invoice To Same as Report ? (circle) (Yes) or No (if No, provide details)	**Client / Project Information**	**Analysis Request**
Copy of Invoice with Report? (circle) (Yes) or No	Job #: 10-3834	(Indicate Filtered or Preserved, F/P)
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: NWSR	
Lab Work Order # (lab use only)	**ALS Contact:** Judy **Sampler** Nanci Beaupré	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Metals	Mercury	pH	Leachate	PCBs	F1-F4	grain size						Number of Containers
	13-12-1.1 @ 2.5 feet	13/05/13	~~0900~~ 1400	soil	✓	✓	✓	✓									2
	13-13-1.1 @ 2.5 feet	14/05/13	0930		✓				✓	✓							
	13-14-1.8 @ 2.5 feet		0950		✓				✓	✓							
	13-15-1.8 @ 0 feet		1010		✓				✓	✓							
	13-16-1.5 @ 2.5 feet		1030		✓				✓	✓							
	13-17-1.8 @ 2.5 feet		1050		✓				✓	✓							
	13-18-1.8 @ 2.5 feet		1110		✓				✓	✓							
	13-19-1.8 @ 5 feet		1130		✓				✓	✓							
	FD2		1130		✓				✓	✓							
	13-20-1.8 @ 5 feet		1150		✓				✓	✓							
	13-21-1.8 @ 5 feet		1215		✓				✓	✓							
	13-01-5.2 @ 2.5 feet	13/05/13	0900								✓						

Special Instructions / Regulation 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 specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: N. Beaupré	Date: 14/05/13	Time: 1630	Received by:	Date:	Time:	Temperature: °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

10 - 220790

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Page 3 of 3

Report To	Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: Dillon Consulting	Standard: ✓ Other (specify):	X Regular (Standard Turnaround Times - Business Days)
Contact: Indra Kalinovich	Select: PDF ✓ Excel ✓ Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 1558 Wilson Pl	Email 1: IKalinovich@dillon.ca	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Winnipeg, MB	Email 2: nbeaupre@dillon.ca.	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: 204-453-2301 Fax:		
Invoice To Same as Report ? (circle) (Yes) or No (If No, provide details)	**Client / Project Information**	**Analysis Request**
Copy of Invoice with Report? (circle) (Yes) or No	Job #: 10-3834	(Indicate Filtered or Preserved, F/P)
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #: NWSR	
Lab Work Order # (lab use only)	**ALS Contact:** Judy **Sampler:** Nanci Beaupre	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	grain size	Number of Containers
	13-01-5.2 @ 5 feet	13/05/13	0905	Soil	✓	2
	13-01-5.2 @ 15 feet.	13/05/13	0910	↓	✓	2

Special Instructions / Regulation 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: N. Beaupre	Date: 14/05/13	Time: 1630	Received by:	Date:	Time:	Temperature: °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

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Dillon Consulting Engineers
ATTN: INDRA KALINOVICH
1558 Willson Place
Winnipeg MB R3T 0Y4

Date Received: 31-JUL-13
Report Date: 07-AUG-13 15:27 (MT)
Version: FINAL

Client Phone: 204-229-3258

Certificate of Analysis

Lab Work Order #: L1340909

Project P.O. #: NOT SUBMITTED
Job Reference: 10-3834
C of C Numbers:
Legal Site Desc:

Paul Nicolas
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1340909-1 13-06-7.3							
Sampled By: Nanci Beaupre on 31-JUL-13 @ 12:45							
Matrix: GW							
Miscellaneous Parameters							
Chloride	1560		5.0	mg/L		01-AUG-13	R2667542
Conductivity	9010		20	umhos/cm		01-AUG-13	R2664133
Oxygen, Dissolved	0.60	RWHS	0.10	mg/L		31-JUL-13	R2663551
Sulphide	<0.020		0.020	mg/L	07-AUG-13	07-AUG-13	R2667333
Turbidity	4.00		0.10	NTU		01-AUG-13	R2664166
pH	8.09		0.10	pH units		01-AUG-13	R2664133
Alkalinity							
Alkalinity, Total (as CaCO3)	549		20	mg/L		01-AUG-13	R2664133
Bicarbonate (HCO3)	670		24	mg/L		01-AUG-13	R2664133
Carbonate (CO3)	<12		12	mg/L		01-AUG-13	R2664133
Hydroxide (OH)	<6.8		6.8	mg/L		01-AUG-13	R2664133
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	31-JUL-13	01-AUG-13	R2664117
Antimony (Sb)-Dissolved	0.0297		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Arsenic (As)-Dissolved	0.0067		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Barium (Ba)-Dissolved	0.0176		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Boron (B)-Dissolved	1.12		0.030	mg/L	31-JUL-13	01-AUG-13	R2664117
Cadmium (Cd)-Dissolved	0.00486		0.00020	mg/L	31-JUL-13	01-AUG-13	R2664117
Calcium (Ca)-Dissolved	475		0.20	mg/L	31-JUL-13	01-AUG-13	R2664117
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Cobalt (Co)-Dissolved	0.00401		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Copper (Cu)-Dissolved	0.0059		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	31-JUL-13	01-AUG-13	R2664117
Lead (Pb)-Dissolved	0.113		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Lithium (Li)-Dissolved	0.547		0.010	mg/L	31-JUL-13	01-AUG-13	R2664117
Magnesium (Mg)-Dissolved	649		0.050	mg/L	31-JUL-13	01-AUG-13	R2664117
Manganese (Mn)-Dissolved	0.276		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Molybdenum (Mo)-Dissolved	0.0140		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Nickel (Ni)-Dissolved	0.0180		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	31-JUL-13	01-AUG-13	R2664117
Potassium (K)-Dissolved	14.4		0.10	mg/L	31-JUL-13	01-AUG-13	R2664117
Rubidium (Rb)-Dissolved	0.00809		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Selenium (Se)-Dissolved	0.0094		0.0050	mg/L	31-JUL-13	01-AUG-13	R2664117
Silicon (Si)-Dissolved	11.8		0.30	mg/L	31-JUL-13	01-AUG-13	R2664117
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Sodium (Na)-Dissolved	1470	DLA	0.50	mg/L	31-JUL-13	02-AUG-13	R2665560
Strontium (Sr)-Dissolved	3.97		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	31-JUL-13	01-AUG-13	R2664117
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Tin (Sn)-Dissolved	0.0631		0.00060	mg/L	31-JUL-13	01-AUG-13	R2664117
Titanium (Ti)-Dissolved	0.0706		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Uranium (U)-Dissolved	0.127		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Zinc (Zn)-Dissolved	<0.020		0.020	mg/L	31-JUL-13	01-AUG-13	R2664117
Zirconium (Zr)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1340909-2 FD1							
Sampled By: Nanci Beaupre on 31-JUL-13 @ 12:45							
Matrix: GW							
Miscellaneous Parameters							
Chloride	1580		5.0	mg/L		01-AUG-13	R2667542
Conductivity	9250		20	umhos/cm		01-AUG-13	R2664133
Oxygen, Dissolved	0.30	RWHS	0.10	mg/L		31-JUL-13	R2663551
Sulphide	<0.020		0.020	mg/L	07-AUG-13	07-AUG-13	R2667333
Turbidity	3.41		0.10	NTU		01-AUG-13	R2664166
pH	8.10		0.10	pH units		01-AUG-13	R2664133
Alkalinity							
Alkalinity, Total (as CaCO3)	550		20	mg/L		01-AUG-13	R2664133
Bicarbonate (HCO3)	671		24	mg/L		01-AUG-13	R2664133
Carbonate (CO3)	<12		12	mg/L		01-AUG-13	R2664133
Hydroxide (OH)	<6.8		6.8	mg/L		01-AUG-13	R2664133
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	31-JUL-13	01-AUG-13	R2664117
Antimony (Sb)-Dissolved	0.0313		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Arsenic (As)-Dissolved	0.0073		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Barium (Ba)-Dissolved	0.0184		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Boron (B)-Dissolved	1.11		0.030	mg/L	31-JUL-13	01-AUG-13	R2664117
Cadmium (Cd)-Dissolved	0.00529		0.00020	mg/L	31-JUL-13	01-AUG-13	R2664117
Calcium (Ca)-Dissolved	461		0.20	mg/L	31-JUL-13	01-AUG-13	R2664117
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Cobalt (Co)-Dissolved	0.00392		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Copper (Cu)-Dissolved	0.0060		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	31-JUL-13	01-AUG-13	R2664117
Lead (Pb)-Dissolved	0.115		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Lithium (Li)-Dissolved	0.541		0.010	mg/L	31-JUL-13	01-AUG-13	R2664117
Magnesium (Mg)-Dissolved	643		0.050	mg/L	31-JUL-13	01-AUG-13	R2664117
Manganese (Mn)-Dissolved	0.275		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Molybdenum (Mo)-Dissolved	0.0140		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Nickel (Ni)-Dissolved	0.0176		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	31-JUL-13	01-AUG-13	R2664117
Potassium (K)-Dissolved	14.5		0.10	mg/L	31-JUL-13	01-AUG-13	R2664117
Rubidium (Rb)-Dissolved	0.00829		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Selenium (Se)-Dissolved	0.0056		0.0050	mg/L	31-JUL-13	01-AUG-13	R2664117
Silicon (Si)-Dissolved	11.8		0.30	mg/L	31-JUL-13	01-AUG-13	R2664117
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Sodium (Na)-Dissolved	1490	DLA	0.50	mg/L	31-JUL-13	02-AUG-13	R2665560
Strontium (Sr)-Dissolved	3.86		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	31-JUL-13	01-AUG-13	R2664117
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Tin (Sn)-Dissolved	0.0643		0.00060	mg/L	31-JUL-13	01-AUG-13	R2664117
Titanium (Ti)-Dissolved	0.0713		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Uranium (U)-Dissolved	0.127		0.00050	mg/L	31-JUL-13	01-AUG-13	R2664117
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	31-JUL-13	01-AUG-13	R2664117
Zinc (Zn)-Dissolved	<0.020		0.020	mg/L	31-JUL-13	01-AUG-13	R2664117
Zirconium (Zr)-Dissolved	<0.0010		0.0010	mg/L	31-JUL-13	01-AUG-13	R2664117

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RWHS	Samples Received With Headspace

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-WP	Water	Alkalinity	APHA 2320B
Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
CL-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
MET-D-MS-WP	Water	Dissolved Metals by ICP-MS	U.S. EPA 200.8-D
Dissolved Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the Examination of Water and Wastewater method 3030B for filtration through a 0.45 um filter and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.			
O2-DIS-WP	Water	Dissolved Oxygen	APHA 4500-O-C
Manganous sulphate reacts with potassium or sodium hydroxide to give a white precipitate of manganous hydroxide. In the presence of oxygen, brown manganic hydroxide is formed. Addition of sulfuric acid dissolves the manganic hydroxide, yielding manganic sulfate which reacts with iodide, releasing iodide in an amount equivalent to the original DO content. The iodide is then titrated with a standard solution of thiosulphate.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SULPHIDE-WT	Water	Sulphide	APHA 4500S2D
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
Turbidity in aqueous matrices is determined by the nephelometric method.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1340909 Report Date: 07-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TOT-WP	**Water**							
Batch R2664133								
WG1719322-5 DUP		**L1340773-5**						
Alkalinity, Total (as CaCO3)		99	99		mg/L	0.1	20	01-AUG-13
Bicarbonate (HCO3)		120	120		mg/L	0.1	20	01-AUG-13
Carbonate (CO3)		<12	<12	RPD-NA	mg/L	N/A	20	01-AUG-13
Hydroxide (OH)		<6.8	<6.8	RPD-NA	mg/L	N/A	20	01-AUG-13
WG1719322-6 DUP		**L1340801-1**						
Alkalinity, Total (as CaCO3)		49	47		mg/L	4.3	20	01-AUG-13
Bicarbonate (HCO3)		59	57		mg/L	4.3	20	01-AUG-13
Carbonate (CO3)		<12	<12	RPD-NA	mg/L	N/A	20	01-AUG-13
Hydroxide (OH)		<6.8	<6.8	RPD-NA	mg/L	N/A	20	01-AUG-13
WG1719322-2 LCS								
Alkalinity, Total (as CaCO3)			101.7		%		85-115	01-AUG-13
WG1719322-1 MB								
Alkalinity, Total (as CaCO3)			<20		mg/L		20	01-AUG-13
Bicarbonate (HCO3)			<24		mg/L		24	01-AUG-13
Carbonate (CO3)			<12		mg/L		12	01-AUG-13
Hydroxide (OH)			<6.8		mg/L		6.8	01-AUG-13
CL-IC-WP	**Water**							
Batch R2667542								
WG1719059-3 DUP		**L1340781-20**						
Chloride		<0.50	<0.50	RPD-NA	mg/L	N/A	20	01-AUG-13
WG1719059-2 LCS								
Chloride			101.8		%		90-110	01-AUG-13
WG1719059-1 MB								
Chloride			<0.50		mg/L		0.5	01-AUG-13
WG1719059-4 MS		**L1340781-20**						
Chloride			104.5		%		75-125	01-AUG-13
EC-WP	**Water**							
Batch R2664133								
WG1719322-5 DUP		**L1340773-5**						
Conductivity		219	219		umhos/cm	0.3	10	01-AUG-13
WG1719322-6 DUP		**L1340801-1**						
Conductivity		3280	3260		umhos/cm	0.6	10	01-AUG-13
WG1719322-4 LCS								
Conductivity			101.8		%		90-110	01-AUG-13
WG1719322-1 MB								

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WP	**Water**							
Batch R2664133								
WG1719322-1 MB								
Conductivity			<20		umhos/cm		20	01-AUG-13
MET-D-MS-WP	**Water**							
Batch R2664117								
WG1719272-6 DUP		**WG1719272-5**						
Aluminum (Al)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	01-AUG-13
Antimony (Sb)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-AUG-13
Arsenic (As)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-AUG-13
Barium (Ba)-Dissolved		0.0220	0.0220		mg/L	0.0	20	01-AUG-13
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-AUG-13
Bismuth (Bi)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-AUG-13
Boron (B)-Dissolved		<0.030	<0.030	RPD-NA	mg/L	N/A	20	01-AUG-13
Cadmium (Cd)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	01-AUG-13
Calcium (Ca)-Dissolved		19.3	18.7		mg/L	2.7	20	01-AUG-13
Cesium (Cs)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-AUG-13
Chromium (Cr)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	01-AUG-13
Cobalt (Co)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-AUG-13
Copper (Cu)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	01-AUG-13
Iron (Fe)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	01-AUG-13
Lead (Pb)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-AUG-13
Lithium (Li)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	01-AUG-13
Magnesium (Mg)-Dissolved		5.20	5.02		mg/L	3.6	20	01-AUG-13
Manganese (Mn)-Dissolved		0.0099	0.0091		mg/L	8.9	20	01-AUG-13
Molybdenum (Mo)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-AUG-13
Nickel (Ni)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	01-AUG-13
Phosphorus (P)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	01-AUG-13
Potassium (K)-Dissolved		0.91	0.87		mg/L	4.4	20	01-AUG-13
Rubidium (Rb)-Dissolved		0.00130	0.00128		mg/L	1.8	20	01-AUG-13
Selenium (Se)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	01-AUG-13
Silicon (Si)-Dissolved		1.81	1.74		mg/L	4.1	20	01-AUG-13
Silver (Ag)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-AUG-13
Strontium (Sr)-Dissolved		0.0285	0.0279		mg/L	2.3	20	01-AUG-13
Tellurium (Te)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2664117								
WG1719272-6 DUP		**WG1719272-5**						
Thallium (Tl)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	01-AUG-13
Thorium (Th)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	25	01-AUG-13
Tin (Sn)-Dissolved		<0.00060	<0.00060	RPD-NA	mg/L	N/A	20	01-AUG-13
Titanium (Ti)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-AUG-13
Tungsten (W)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	01-AUG-13
Uranium (U)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	01-AUG-13
Vanadium (V)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	01-AUG-13
Zinc (Zn)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	01-AUG-13
Zirconium (Zr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	01-AUG-13
WG1719272-2 LCS								
Aluminum (Al)-Dissolved			102.1		%		80-120	01-AUG-13
Antimony (Sb)-Dissolved			100.4		%		80-120	01-AUG-13
Arsenic (As)-Dissolved			103.9		%		80-120	01-AUG-13
Barium (Ba)-Dissolved			97.4		%		80-120	01-AUG-13
Beryllium (Be)-Dissolved			97.9		%		80-120	01-AUG-13
Bismuth (Bi)-Dissolved			101.8		%		80-120	01-AUG-13
Boron (B)-Dissolved			95.6		%		80-120	01-AUG-13
Cadmium (Cd)-Dissolved			100.0		%		80-120	01-AUG-13
Calcium (Ca)-Dissolved			98.9		%		80-120	01-AUG-13
Cesium (Cs)-Dissolved			98.7		%		80-120	01-AUG-13
Chromium (Cr)-Dissolved			100.9		%		80-120	01-AUG-13
Cobalt (Co)-Dissolved			100.8		%		80-120	01-AUG-13
Copper (Cu)-Dissolved			101.0		%		80-120	01-AUG-13
Iron (Fe)-Dissolved			96.4		%		80-120	01-AUG-13
Lead (Pb)-Dissolved			98.1		%		80-120	01-AUG-13
Lithium (Li)-Dissolved			97.4		%		80-120	01-AUG-13
Magnesium (Mg)-Dissolved			102.8		%		80-120	01-AUG-13
Manganese (Mn)-Dissolved			96.5		%		80-120	01-AUG-13
Molybdenum (Mo)-Dissolved			103.7		%		80-120	01-AUG-13
Nickel (Ni)-Dissolved			102.0		%		80-120	01-AUG-13
Phosphorus (P)-Dissolved			109.3		%		80-120	01-AUG-13
Potassium (K)-Dissolved			105.2		%		80-120	01-AUG-13
Rubidium (Rb)-Dissolved			103.1		%		80-120	01-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2664117								
WG1719272-2 LCS								
Selenium (Se)-Dissolved			102.8		%		80-120	01-AUG-13
Silicon (Si)-Dissolved			105.8		%		80-120	01-AUG-13
Silver (Ag)-Dissolved			101.9		%		80-120	01-AUG-13
Strontium (Sr)-Dissolved			105.3		%		80-120	01-AUG-13
Tellurium (Te)-Dissolved			100.9		%		80-120	01-AUG-13
Thallium (Tl)-Dissolved			96.7		%		80-120	01-AUG-13
Thorium (Th)-Dissolved			98.9		%		80-120	01-AUG-13
Tin (Sn)-Dissolved			101.1		%		80-120	01-AUG-13
Titanium (Ti)-Dissolved			99.4		%		80-120	01-AUG-13
Tungsten (W)-Dissolved			96.4		%		80-120	01-AUG-13
Uranium (U)-Dissolved			98.9		%		80-120	01-AUG-13
Vanadium (V)-Dissolved			99.2		%		80-120	01-AUG-13
Zinc (Zn)-Dissolved			101.8		%		80-120	01-AUG-13
Zirconium (Zr)-Dissolved			104.2		%		80-120	01-AUG-13
WG1719272-1 MB								
Aluminum (Al)-Dissolved			<0.020		mg/L		0.02	01-AUG-13
Antimony (Sb)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Arsenic (As)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Barium (Ba)-Dissolved			<0.00050		mg/L		0.0005	01-AUG-13
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Bismuth (Bi)-Dissolved			<0.00050		mg/L		0.0005	01-AUG-13
Boron (B)-Dissolved			<0.030		mg/L		0.03	01-AUG-13
Cadmium (Cd)-Dissolved			<0.00020		mg/L		0.0002	01-AUG-13
Calcium (Ca)-Dissolved			<0.20		mg/L		0.2	01-AUG-13
Cesium (Cs)-Dissolved			<0.00050		mg/L		0.0005	01-AUG-13
Chromium (Cr)-Dissolved			<0.0020		mg/L		0.002	01-AUG-13
Cobalt (Co)-Dissolved			<0.00050		mg/L		0.0005	01-AUG-13
Copper (Cu)-Dissolved			<0.0020		mg/L		0.002	01-AUG-13
Iron (Fe)-Dissolved			<0.10		mg/L		0.1	01-AUG-13
Lead (Pb)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Lithium (Li)-Dissolved			<0.010		mg/L		0.01	01-AUG-13
Magnesium (Mg)-Dissolved			<0.050		mg/L		0.05	01-AUG-13
Manganese (Mn)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Molybdenum (Mo)-Dissolved			<0.00050		mg/L		0.0005	01-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2664117								
WG1719272-1 MB								
Nickel (Ni)-Dissolved			<0.0020		mg/L		0.002	01-AUG-13
Phosphorus (P)-Dissolved			<0.50		mg/L		0.5	01-AUG-13
Potassium (K)-Dissolved			<0.10		mg/L		0.1	01-AUG-13
Rubidium (Rb)-Dissolved			<0.00050		mg/L		0.0005	01-AUG-13
Selenium (Se)-Dissolved			<0.0050		mg/L		0.005	01-AUG-13
Silicon (Si)-Dissolved			<0.30		mg/L		0.3	01-AUG-13
Silver (Ag)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Strontium (Sr)-Dissolved			<0.00050		mg/L		0.0005	01-AUG-13
Tellurium (Te)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Thallium (Tl)-Dissolved			<0.0050		mg/L		0.005	01-AUG-13
Thorium (Th)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Tin (Sn)-Dissolved			<0.00060		mg/L		0.0006	01-AUG-13
Titanium (Ti)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
Tungsten (W)-Dissolved			<0.0020		mg/L		0.002	01-AUG-13
Uranium (U)-Dissolved			<0.00050		mg/L		0.0005	01-AUG-13
Vanadium (V)-Dissolved			<0.0020		mg/L		0.002	01-AUG-13
Zinc (Zn)-Dissolved			<0.020		mg/L		0.02	01-AUG-13
Zirconium (Zr)-Dissolved			<0.0010		mg/L		0.001	01-AUG-13
WG1719272-4 MS		**WG1719272-3**						
Aluminum (Al)-Dissolved			98.7		%		70-130	01-AUG-13
Antimony (Sb)-Dissolved			92.2		%		70-130	01-AUG-13
Arsenic (As)-Dissolved			103.1		%		70-130	01-AUG-13
Barium (Ba)-Dissolved			N/A	MS-B	%		-	01-AUG-13
Beryllium (Be)-Dissolved			106.9		%		70-130	01-AUG-13
Bismuth (Bi)-Dissolved			93.7		%		70-130	01-AUG-13
Boron (B)-Dissolved			112.1		%		70-130	01-AUG-13
Cadmium (Cd)-Dissolved			96.8		%		70-130	01-AUG-13
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	01-AUG-13
Cesium (Cs)-Dissolved			86.3		%		70-130	01-AUG-13
Chromium (Cr)-Dissolved			96.2		%		70-130	01-AUG-13
Cobalt (Co)-Dissolved			94.0		%		70-130	01-AUG-13
Copper (Cu)-Dissolved			92.3		%		70-130	01-AUG-13
Iron (Fe)-Dissolved			98.3		%		70-130	01-AUG-13
Lead (Pb)-Dissolved			91.9		%		70-130	01-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2664117								
WG1719272-4 MS		**WG1719272-3**						
Lithium (Li)-Dissolved			103.4		%		70-130	01-AUG-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	01-AUG-13
Manganese (Mn)-Dissolved			94.2		%		70-130	01-AUG-13
Molybdenum (Mo)-Dissolved			89.9		%		70-130	01-AUG-13
Nickel (Ni)-Dissolved			95.3		%		70-130	01-AUG-13
Phosphorus (P)-Dissolved			103.4		%		70-130	01-AUG-13
Potassium (K)-Dissolved			99.7		%		70-130	01-AUG-13
Rubidium (Rb)-Dissolved			93.4		%		70-130	01-AUG-13
Selenium (Se)-Dissolved			90.1		%		70-130	01-AUG-13
Silicon (Si)-Dissolved			101.7		%		70-130	01-AUG-13
Silver (Ag)-Dissolved			101.5		%		70-130	01-AUG-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	01-AUG-13
Tellurium (Te)-Dissolved			97.2		%		70-130	01-AUG-13
Thallium (Tl)-Dissolved			91.8		%		70-130	01-AUG-13
Tin (Sn)-Dissolved			82.7		%		70-130	01-AUG-13
Titanium (Ti)-Dissolved			100.9		%		70-130	01-AUG-13
Tungsten (W)-Dissolved			91.3		%		70-130	01-AUG-13
Uranium (U)-Dissolved			96.6		%		70-130	01-AUG-13
Vanadium (V)-Dissolved			102.7		%		70-130	01-AUG-13
Zinc (Zn)-Dissolved			97.7		%		70-130	01-AUG-13
Zirconium (Zr)-Dissolved			89.9		%		70-130	01-AUG-13
O2-DIS-WP	**Water**							
Batch R2663551								
WG1718600-2 LCS								
Oxygen, Dissolved			101.1		%		85-115	31-JUL-13
WG1718600-1 MB								
Oxygen, Dissolved			<0.10		mg/L		0.1	31-JUL-13
PH-WP	**Water**							
Batch R2664133								
WG1719322-5 DUP		**L1340773-5**						
pH		7.49	7.49	J	pH units	0.01	0.2	01-AUG-13
WG1719322-6 DUP		**L1340801-1**						
pH		7.51	7.47	J	pH units	0.04	0.2	01-AUG-13
WG1719322-3 LCS								

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WP	**Water**							
Batch R2664133								
WG1719322-3 LCS								
pH			7.43		pH units		7.3-7.5	01-AUG-13
SULPHIDE-WT	**Water**							
Batch R2667333								
WG1721779-2 CVS								
Sulphide			94.9		%		75-125	07-AUG-13
WG1721779-3 DUP		**L1340416-1**						
Sulphide		0.037	0.034		mg/L	6.8	20	07-AUG-13
WG1721779-4 DUP		**L1342104-7**						
Sulphide		<0.020	<0.020	RPD-NA	mg/L	N/A	20	07-AUG-13
WG1721779-1 MB								
Sulphide			<0.020		mg/L		0.02	07-AUG-13
TURBIDITY-WP	**Water**							
Batch R2664166								
WG1719361-3 DUP		**L1340714-1**						
Turbidity		3.82	3.77		NTU	1.3	15	01-AUG-13
WG1719361-2 LCS								
Turbidity			96.0		%		85-115	01-AUG-13
WG1719361-1 MB								
Turbidity			<0.10		NTU		0.1	01-AUG-13

Quality Control Report

Workorder: L1340909 Report Date: 07-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

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.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L1340909 Report Date: 07-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	31-JUL-13 12:45	01-AUG-13 08:39	0.25	20	hours	EHTR-FM
	2	31-JUL-13 12:45	01-AUG-13 08:39	0.25	20	hours	EHTR-FM

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 L1340909 were received on 31-JUL-13 14:40.

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.

10-220406

ALS Environmental

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

LJ 1340909

Page 1 of 1

Report To	Report Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: Dillon Consulting	Standard: ✓ Other (specify):	X Regular (Standard Turnaround Times - Business Days)
Contact: Indra Kalinovich	Select: PDF ✓ Excel ✓ Digital Fax	Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 1558 Wilson Pl	Email 1: IKalinovich@dillon.ca	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Winnipeg, MB	Email 2: nbeaupre@dillon.ca	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: Fax:		**Analysis Request**
Invoice To Same as Report ? (circle) Yes or No (if No, provide details)	**Client / Project Information**	(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) Yes or No	Job #: 10-3834	
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only)	ALS Contact: Judy / Sampler: Nanci Beaupré	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Dissolved Metals	Turbidity	Dissolved Oxygen	Conductivity	pH	Alkalinity	Chloride	Sulfide	Number of Containers
	13-06-7.3	31/07/13	1245	GW	✓	✓	✓	✓	✓	✓	✓	✓	4
	FD1	31/07/13	1245	GW	✓	✓	✓	✓	✓	✓	✓	✓	4

L1340909-COFC

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

Dissolved metals field filtered and preserved.

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
N Beaupré	31/07/13	1438	GH	July 31/13	14:40	13.4 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — GENF 18.01 Front

Dillon Consulting Engineers
ATTN: INDRA KALINOVICH
1558 Willson Place
Winnipeg MB R3T 0Y4

Date Received: 01-AUG-13
Report Date: 07-AUG-13 13:14 (MT)
Version: FINAL

Client Phone: 204-229-3258

Certificate of Analysis

Lab Work Order #: L1341431

Project P.O. #: NOT SUBMITTED
Job Reference: 10-3834
C of C Numbers:
Legal Site Desc:

Paul Nicolas
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1341431-1 13-10-7.3							
Sampled By: NLB on 01-AUG-13 @ 09:30							
Matrix: GW							
Miscellaneous Parameters							
Chloride	472		5.0	mg/L		02-AUG-13	R2666791
Conductivity	6400		20	umhos/cm		02-AUG-13	R2665584
Oxygen, Dissolved	0.70		0.10	mg/L		01-AUG-13	R2664150
Sulphide	0.036		0.020	mg/L	07-AUG-13	07-AUG-13	R2667333
Turbidity	19.0		0.10	NTU		01-AUG-13	R2664166
pH	7.30		0.10	pH units		02-AUG-13	R2665584
Alkalinity							
Alkalinity, Total (as CaCO3)	503		20	mg/L		02-AUG-13	R2665584
Bicarbonate (HCO3)	614		24	mg/L		02-AUG-13	R2665584
Carbonate (CO3)	<12		12	mg/L		02-AUG-13	R2665584
Hydroxide (OH)	<6.8		6.8	mg/L		02-AUG-13	R2665584
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	01-AUG-13	02-AUG-13	R2665560
Antimony (Sb)-Dissolved	0.139		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Arsenic (As)-Dissolved	0.0063		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Barium (Ba)-Dissolved	0.0637		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Bismuth (Bi)-Dissolved	0.00096		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Boron (B)-Dissolved	1.20		0.030	mg/L	01-AUG-13	02-AUG-13	R2665560
Cadmium (Cd)-Dissolved	0.00410		0.00020	mg/L	01-AUG-13	02-AUG-13	R2665560
Calcium (Ca)-Dissolved	575		0.20	mg/L	01-AUG-13	02-AUG-13	R2665560
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Cobalt (Co)-Dissolved	0.00516		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Copper (Cu)-Dissolved	0.0189		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	01-AUG-13	02-AUG-13	R2665560
Lead (Pb)-Dissolved	0.636		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Lithium (Li)-Dissolved	0.291		0.010	mg/L	01-AUG-13	02-AUG-13	R2665560
Magnesium (Mg)-Dissolved	449		0.050	mg/L	01-AUG-13	02-AUG-13	R2665560
Manganese (Mn)-Dissolved	0.0064		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Molybdenum (Mo)-Dissolved	0.00283		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Nickel (Ni)-Dissolved	0.0382		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	01-AUG-13	02-AUG-13	R2665560
Potassium (K)-Dissolved	17.0		0.10	mg/L	01-AUG-13	02-AUG-13	R2665560
Rubidium (Rb)-Dissolved	0.00449		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Selenium (Se)-Dissolved	0.0095		0.0050	mg/L	01-AUG-13	02-AUG-13	R2665560
Silicon (Si)-Dissolved	10.5		0.30	mg/L	01-AUG-13	02-AUG-13	R2665560
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Sodium (Na)-Dissolved	733	DLA	5.0	mg/L	01-AUG-13	02-AUG-13	R2665560
Strontium (Sr)-Dissolved	3.01		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	01-AUG-13	02-AUG-13	R2665560
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Tin (Sn)-Dissolved	0.0939		0.00060	mg/L	01-AUG-13	02-AUG-13	R2665560
Titanium (Ti)-Dissolved	0.0673		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Uranium (U)-Dissolved	0.0284		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Zinc (Zn)-Dissolved	0.064		0.020	mg/L	01-AUG-13	02-AUG-13	R2665560
Zirconium (Zr)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1341431-2 13-01-5.2							
Sampled By: NLB on 01-AUG-13 @ 10:30							
Matrix: GW							
Miscellaneous Parameters							
Chloride	2310		10	mg/L		02-AUG-13	R2666791
Conductivity	13100		20	umhos/cm		02-AUG-13	R2665584
Oxygen, Dissolved	0.60		0.10	mg/L		01-AUG-13	R2664150
Sulphide	0.036		0.020	mg/L	07-AUG-13	07-AUG-13	R2667333
Turbidity	2.37		0.10	NTU		01-AUG-13	R2664166
pH	7.67		0.10	pH units		02-AUG-13	R2665584
Alkalinity							
Alkalinity, Total (as CaCO3)	627		20	mg/L		02-AUG-13	R2665584
Bicarbonate (HCO3)	765		24	mg/L		02-AUG-13	R2665584
Carbonate (CO3)	<12		12	mg/L		02-AUG-13	R2665584
Hydroxide (OH)	<6.8		6.8	mg/L		02-AUG-13	R2665584
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	01-AUG-13	02-AUG-13	R2665560
Antimony (Sb)-Dissolved	0.0734		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Arsenic (As)-Dissolved	0.0107		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Barium (Ba)-Dissolved	0.0208		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Boron (B)-Dissolved	1.37		0.030	mg/L	01-AUG-13	02-AUG-13	R2665560
Cadmium (Cd)-Dissolved	0.00131		0.00020	mg/L	01-AUG-13	02-AUG-13	R2665560
Calcium (Ca)-Dissolved	524		0.20	mg/L	01-AUG-13	02-AUG-13	R2665560
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Chromium (Cr)-Dissolved	0.0021		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Cobalt (Co)-Dissolved	0.00503		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Copper (Cu)-Dissolved	0.0150		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	01-AUG-13	02-AUG-13	R2665560
Lead (Pb)-Dissolved	0.0755		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Lithium (Li)-Dissolved	0.794		0.010	mg/L	01-AUG-13	02-AUG-13	R2665560
Magnesium (Mg)-Dissolved	1070	DLA	5.0	mg/L	01-AUG-13	02-AUG-13	R2665560
Manganese (Mn)-Dissolved	0.180		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Molybdenum (Mo)-Dissolved	0.0165		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Nickel (Ni)-Dissolved	0.0317		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	01-AUG-13	02-AUG-13	R2665560
Potassium (K)-Dissolved	33.5		0.10	mg/L	01-AUG-13	02-AUG-13	R2665560
Rubidium (Rb)-Dissolved	0.0112		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Selenium (Se)-Dissolved	0.0235		0.0050	mg/L	01-AUG-13	02-AUG-13	R2665560
Silicon (Si)-Dissolved	8.52		0.30	mg/L	01-AUG-13	02-AUG-13	R2665560
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Sodium (Na)-Dissolved	2470	DLA	5.0	mg/L	01-AUG-13	02-AUG-13	R2665560
Strontium (Sr)-Dissolved	4.64		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	01-AUG-13	02-AUG-13	R2665560
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Tin (Sn)-Dissolved	0.102		0.00060	mg/L	01-AUG-13	02-AUG-13	R2665560
Titanium (Ti)-Dissolved	0.135		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Uranium (U)-Dissolved	0.112		0.00050	mg/L	01-AUG-13	02-AUG-13	R2665560
Vanadium (V)-Dissolved	0.0024		0.0020	mg/L	01-AUG-13	02-AUG-13	R2665560
Zinc (Zn)-Dissolved	<0.020		0.020	mg/L	01-AUG-13	02-AUG-13	R2665560
Zirconium (Zr)-Dissolved	0.0026		0.0010	mg/L	01-AUG-13	02-AUG-13	R2665560

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-TOT-WP	Water	Alkalinity	APHA 2320B

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

CL-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

MET-D-MS-WP	Water	Dissolved Metals by ICP-MS	U.S. EPA 200.8-D

Dissolved Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the Examination of Water and Wastewater method 3030B for filtration through a 0.45 um filter and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.

O2-DIS-WP	Water	Dissolved Oxygen	APHA 4500-O-C

Manganous sulphate reacts with potassium or sodium hydroxide to give a white precipitate of manganous hydroxide. In the presence of oxygen, brown manganic hydroxide is formed. Addition of sulfuric acid dissolves the manganic hydroxide, yielding manganic sulfate which reacts with iodide, releasing iodide in an amount equivalent to the original DO content. The iodide is then titrated with a standard solution of thiosulphate.

PH-WP	Water	pH	APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

SULPHIDE-WT	Water	Sulphide	APHA 4500S2D
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)

Turbidity in aqueous matrices is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1341431 Report Date: 07-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-TOT-WP	**Water**							
Batch R2665584								
WG1720711-7 DUP		**L1341431-2**						
Alkalinity, Total (as CaCO3)		627	626		mg/L	0.2	20	02-AUG-13
Bicarbonate (HCO3)		765	763		mg/L	0.2	20	02-AUG-13
Carbonate (CO3)		<12	<12	RPD-NA	mg/L	N/A	20	02-AUG-13
Hydroxide (OH)		<6.8	<6.8	RPD-NA	mg/L	N/A	20	02-AUG-13
WG1720711-2 LCS								
Alkalinity, Total (as CaCO3)			102.1		%		85-115	02-AUG-13
WG1720711-1 MB								
Alkalinity, Total (as CaCO3)			<20		mg/L		20	02-AUG-13
Bicarbonate (HCO3)			<24		mg/L		24	02-AUG-13
Carbonate (CO3)			<12		mg/L		12	02-AUG-13
Hydroxide (OH)			<6.8		mg/L		6.8	02-AUG-13
CL-IC-WP	**Water**							
Batch R2666791								
WG1719903-2 LCS								
Chloride			100.5		%		90-110	02-AUG-13
WG1719903-1 MB								
Chloride			<0.50		mg/L		0.5	02-AUG-13
EC-WP	**Water**							
Batch R2665584								
WG1720711-5 DUP		**L1341687-1**						
Conductivity		2370	2360		umhos/cm	0.4	10	02-AUG-13
WG1720711-7 DUP		**L1341431-2**						
Conductivity		13100	13100		umhos/cm	0.0	10	02-AUG-13
WG1720711-4 LCS								
Conductivity			100.1		%		90-110	02-AUG-13
WG1720711-1 MB								
Conductivity			<20		umhos/cm		20	02-AUG-13
MET-D-MS-WP	**Water**							
Batch R2665560								
WG1720643-6 DUP		**WG1720643-5**						
Aluminum (Al)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	02-AUG-13
Antimony (Sb)-Dissolved		0.0073	0.0075		mg/L	2.4	20	02-AUG-13
Arsenic (As)-Dissolved		0.0012	0.0012		mg/L	3.9	20	02-AUG-13
Barium (Ba)-Dissolved		0.00208	0.00220		mg/L	5.3	20	02-AUG-13
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2665560								
WG1720643-6 DUP		**WG1720643-5**						
Bismuth (Bi)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-AUG-13
Boron (B)-Dissolved		0.137	0.142		mg/L	3.2	20	02-AUG-13
Cadmium (Cd)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	02-AUG-13
Calcium (Ca)-Dissolved		52.4	53.8		mg/L	2.5	20	02-AUG-13
Cesium (Cs)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	02-AUG-13
Chromium (Cr)-Dissolved		0.0043	0.0048		mg/L	11	20	02-AUG-13
Cobalt (Co)-Dissolved		0.00050	0.00052		mg/L	3.5	20	02-AUG-13
Copper (Cu)-Dissolved		0.0039	0.0039		mg/L	0.7	20	02-AUG-13
Iron (Fe)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	02-AUG-13
Lead (Pb)-Dissolved		0.0075	0.0073		mg/L	3.0	20	02-AUG-13
Lithium (Li)-Dissolved		0.079	0.080		mg/L	0.9	20	02-AUG-13
Magnesium (Mg)-Dissolved		111	113		mg/L	2.0	20	02-AUG-13
Manganese (Mn)-Dissolved		0.0180	0.0183		mg/L	1.6	20	02-AUG-13
Molybdenum (Mo)-Dissolved		0.00165	0.00161		mg/L	2.1	20	02-AUG-13
Nickel (Ni)-Dissolved		0.0032	0.0034		mg/L	6.9	20	02-AUG-13
Phosphorus (P)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	02-AUG-13
Potassium (K)-Dissolved		3.35	3.46		mg/L	3.4	20	02-AUG-13
Rubidium (Rb)-Dissolved		0.00112	0.00112		mg/L	0.1	20	02-AUG-13
Selenium (Se)-Dissolved		0.0057	0.0052		mg/L	9.2	20	02-AUG-13
Silicon (Si)-Dissolved		0.85	0.88		mg/L	3.2	20	02-AUG-13
Silver (Ag)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-AUG-13
Strontium (Sr)-Dissolved		0.464	0.466		mg/L	0.3	20	02-AUG-13
Tellurium (Te)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-AUG-13
Thallium (Tl)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	02-AUG-13
Thorium (Th)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	25	02-AUG-13
Tin (Sn)-Dissolved		0.0102	0.0106		mg/L	3.6	20	02-AUG-13
Titanium (Ti)-Dissolved		0.0135	0.0139		mg/L	2.7	20	02-AUG-13
Tungsten (W)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	02-AUG-13
Uranium (U)-Dissolved		0.0112	0.0113		mg/L	1.4	20	02-AUG-13
Vanadium (V)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	02-AUG-13
Zinc (Zn)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	02-AUG-13
Zirconium (Zr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	02-AUG-13
WG1720643-2 LCS								

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2665560								
WG1720643-2 LCS								
Aluminum (Al)-Dissolved			100.8		%		80-120	02-AUG-13
Antimony (Sb)-Dissolved			99.3		%		80-120	02-AUG-13
Arsenic (As)-Dissolved			104.5		%		80-120	02-AUG-13
Barium (Ba)-Dissolved			94.7		%		80-120	02-AUG-13
Beryllium (Be)-Dissolved			103.3		%		80-120	02-AUG-13
Bismuth (Bi)-Dissolved			100.4		%		80-120	02-AUG-13
Boron (B)-Dissolved			101.7		%		80-120	02-AUG-13
Cadmium (Cd)-Dissolved			102.5		%		80-120	02-AUG-13
Calcium (Ca)-Dissolved			104.4		%		80-120	02-AUG-13
Cesium (Cs)-Dissolved			98.6		%		80-120	02-AUG-13
Chromium (Cr)-Dissolved			101.8		%		80-120	02-AUG-13
Cobalt (Co)-Dissolved			103.0		%		80-120	02-AUG-13
Copper (Cu)-Dissolved			101.2		%		80-120	02-AUG-13
Iron (Fe)-Dissolved			101.2		%		80-120	02-AUG-13
Lead (Pb)-Dissolved			99.5		%		80-120	02-AUG-13
Lithium (Li)-Dissolved			97.7		%		80-120	02-AUG-13
Magnesium (Mg)-Dissolved			103.1		%		80-120	02-AUG-13
Manganese (Mn)-Dissolved			103.8		%		80-120	02-AUG-13
Molybdenum (Mo)-Dissolved			93.8		%		80-120	02-AUG-13
Nickel (Ni)-Dissolved			105.4		%		80-120	02-AUG-13
Phosphorus (P)-Dissolved			107.6		%		80-120	02-AUG-13
Potassium (K)-Dissolved			102.7		%		80-120	02-AUG-13
Rubidium (Rb)-Dissolved			103.2		%		80-120	02-AUG-13
Selenium (Se)-Dissolved			101.6		%		80-120	02-AUG-13
Silicon (Si)-Dissolved			115.2		%		80-120	02-AUG-13
Silver (Ag)-Dissolved			100.4		%		80-120	02-AUG-13
Sodium (Na)-Dissolved			103.1		%		80-120	02-AUG-13
Strontium (Sr)-Dissolved			96.3		%		80-120	02-AUG-13
Tellurium (Te)-Dissolved			99.4		%		80-120	02-AUG-13
Thallium (Tl)-Dissolved			103.8		%		80-120	02-AUG-13
Thorium (Th)-Dissolved			99.8		%		80-120	02-AUG-13
Tin (Sn)-Dissolved			98.6		%		80-120	02-AUG-13
Titanium (Ti)-Dissolved			107.0		%		80-120	02-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2665560								
WG1720643-2 LCS								
Tungsten (W)-Dissolved			101.3		%		80-120	02-AUG-13
Uranium (U)-Dissolved			99.8		%		80-120	02-AUG-13
Vanadium (V)-Dissolved			102.9		%		80-120	02-AUG-13
Zinc (Zn)-Dissolved			101.5		%		80-120	02-AUG-13
Zirconium (Zr)-Dissolved			100.0		%		80-120	02-AUG-13
WG1720643-1 MB								
Aluminum (Al)-Dissolved			<0.020		mg/L		0.02	02-AUG-13
Antimony (Sb)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Arsenic (As)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Barium (Ba)-Dissolved			<0.00050		mg/L		0.0005	02-AUG-13
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Bismuth (Bi)-Dissolved			<0.00050		mg/L		0.0005	02-AUG-13
Boron (B)-Dissolved			<0.030		mg/L		0.03	02-AUG-13
Cadmium (Cd)-Dissolved			<0.00020		mg/L		0.0002	02-AUG-13
Calcium (Ca)-Dissolved			<0.20		mg/L		0.2	02-AUG-13
Cesium (Cs)-Dissolved			<0.00050		mg/L		0.0005	02-AUG-13
Chromium (Cr)-Dissolved			<0.0020		mg/L		0.002	02-AUG-13
Cobalt (Co)-Dissolved			<0.00050		mg/L		0.0005	02-AUG-13
Copper (Cu)-Dissolved			<0.0020		mg/L		0.002	02-AUG-13
Iron (Fe)-Dissolved			<0.10		mg/L		0.1	02-AUG-13
Lead (Pb)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Lithium (Li)-Dissolved			<0.010		mg/L		0.01	02-AUG-13
Magnesium (Mg)-Dissolved			<0.050		mg/L		0.05	02-AUG-13
Manganese (Mn)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Molybdenum (Mo)-Dissolved			<0.00050		mg/L		0.0005	02-AUG-13
Nickel (Ni)-Dissolved			<0.0020		mg/L		0.002	02-AUG-13
Phosphorus (P)-Dissolved			<0.50		mg/L		0.5	02-AUG-13
Potassium (K)-Dissolved			<0.10		mg/L		0.1	02-AUG-13
Rubidium (Rb)-Dissolved			<0.00050		mg/L		0.0005	02-AUG-13
Selenium (Se)-Dissolved			<0.0050		mg/L		0.005	02-AUG-13
Silicon (Si)-Dissolved			<0.30		mg/L		0.3	02-AUG-13
Silver (Ag)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	02-AUG-13
Strontium (Sr)-Dissolved			<0.00050		mg/L		0.0005	02-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2665560								
WG1720643-1 MB								
Tellurium (Te)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Thallium (Tl)-Dissolved			<0.0050		mg/L		0.005	02-AUG-13
Thorium (Th)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Tin (Sn)-Dissolved			<0.00060		mg/L		0.0006	02-AUG-13
Titanium (Ti)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
Tungsten (W)-Dissolved			<0.0020		mg/L		0.002	02-AUG-13
Uranium (U)-Dissolved			<0.00050		mg/L		0.0005	02-AUG-13
Vanadium (V)-Dissolved			<0.0020		mg/L		0.002	02-AUG-13
Zinc (Zn)-Dissolved			<0.020		mg/L		0.02	02-AUG-13
Zirconium (Zr)-Dissolved			<0.0010		mg/L		0.001	02-AUG-13
WG1720643-4 MS		**WG1720643-3**						
Aluminum (Al)-Dissolved			101.7		%		70-130	02-AUG-13
Antimony (Sb)-Dissolved			94.4		%		70-130	02-AUG-13
Arsenic (As)-Dissolved			112.1		%		70-130	02-AUG-13
Barium (Ba)-Dissolved			86.8		%		70-130	02-AUG-13
Beryllium (Be)-Dissolved			106.4		%		70-130	02-AUG-13
Bismuth (Bi)-Dissolved			91.4		%		70-130	02-AUG-13
Boron (B)-Dissolved			N/A	MS-B	%		-	02-AUG-13
Cadmium (Cd)-Dissolved			100.9		%		70-130	02-AUG-13
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	02-AUG-13
Cesium (Cs)-Dissolved			87.5		%		70-130	02-AUG-13
Chromium (Cr)-Dissolved			96.2		%		70-130	02-AUG-13
Cobalt (Co)-Dissolved			98.0		%		70-130	02-AUG-13
Copper (Cu)-Dissolved			101.7		%		70-130	02-AUG-13
Iron (Fe)-Dissolved			103.9		%		70-130	02-AUG-13
Lead (Pb)-Dissolved			N/A	MS-B	%		-	02-AUG-13
Lithium (Li)-Dissolved			106.0		%		70-130	02-AUG-13
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	02-AUG-13
Manganese (Mn)-Dissolved			105.7		%		70-130	02-AUG-13
Molybdenum (Mo)-Dissolved			94.4		%		70-130	02-AUG-13
Nickel (Ni)-Dissolved			97.3		%		70-130	02-AUG-13
Phosphorus (P)-Dissolved			114.4		%		70-130	02-AUG-13
Potassium (K)-Dissolved			105.1		%		70-130	02-AUG-13
Rubidium (Rb)-Dissolved			102.0		%		70-130	02-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2665560								
WG1720643-4 MS		**WG1720643-3**						
Selenium (Se)-Dissolved			100.1		%		70-130	02-AUG-13
Silicon (Si)-Dissolved			104.1		%		70-130	02-AUG-13
Silver (Ag)-Dissolved			78.4		%		70-130	02-AUG-13
Sodium (Na)-Dissolved			N/A	MS-B	%		-	02-AUG-13
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	02-AUG-13
Tellurium (Te)-Dissolved			98.4		%		70-130	02-AUG-13
Thallium (Tl)-Dissolved			93.1		%		70-130	02-AUG-13
Tin (Sn)-Dissolved			95.6		%		70-130	02-AUG-13
Titanium (Ti)-Dissolved			104.5		%		70-130	02-AUG-13
Tungsten (W)-Dissolved			97.4		%		70-130	02-AUG-13
Uranium (U)-Dissolved			97.3		%		70-130	02-AUG-13
Vanadium (V)-Dissolved			107.2		%		70-130	02-AUG-13
Zinc (Zn)-Dissolved			105.3		%		70-130	02-AUG-13
Zirconium (Zr)-Dissolved			97.8		%		70-130	02-AUG-13
O2-DIS-WP	**Water**							
Batch R2664150								
WG1719349-2 LCS								
Oxygen, Dissolved			98.9		%		85-115	01-AUG-13
WG1719349-1 MB								
Oxygen, Dissolved			<0.10		mg/L		0.1	01-AUG-13
PH-WP	**Water**							
Batch R2665584								
WG1720711-5 DUP		**L1341687-1**						
pH		8.16	8.16	J	pH units	0.00	0.2	02-AUG-13
WG1720711-6 DUP		**L1341808-6**						
pH		8.76	8.74	J	pH units	0.02	0.2	02-AUG-13
WG1720711-7 DUP		**L1341431-2**						
pH		7.67	7.70	J	pH units	0.03	0.2	02-AUG-13
WG1720711-3 LCS								
pH			7.42		pH units		7.3-7.5	02-AUG-13
SULPHIDE-WT	**Water**							
Batch R2667333								
WG1721779-2 CVS								
Sulphide			94.9		%		75-125	07-AUG-13
WG1721779-3 DUP		**L1340416-1**						

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
SULPHIDE-WT	**Water**							
Batch R2667333								
WG1721779-3 DUP		**L1340416-1**						
Sulphide		0.037	0.034		mg/L	6.8	20	07-AUG-13
WG1721779-4 DUP		**L1342104-7**						
Sulphide		<0.020	<0.020	RPD-NA	mg/L	N/A	20	07-AUG-13
WG1721779-1 MB								
Sulphide			<0.020		mg/L		0.02	07-AUG-13
TURBIDITY-WP	**Water**							
Batch R2664166								
WG1719361-3 DUP		**L1340714-1**						
Turbidity		3.82	3.77		NTU	1.3	15	01-AUG-13
WG1719361-2 LCS								
Turbidity			96.0		%		85-115	01-AUG-13
WG1719361-1 MB								
Turbidity			<0.10		NTU		0.1	01-AUG-13

Quality Control Report

Workorder: L1341431 Report Date: 07-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

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.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Quality Control Report

Workorder: L1341431 Report Date: 07-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	01-AUG-13 09:30	02-AUG-13 09:05	0.25	24	hours	EHTR-FM
	2	01-AUG-13 10:30	02-AUG-13 09:05	0.25	23	hours	EHTR-FM

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 L1341431 were received on 01-AUG-13 11:30.

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.

10-225824

ALS Environmental

L1341431-COFC

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

L1341431

Page 1 of 1

Report To	Format / Distribution	Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: Dillon Consulting.	Standard: ✓ Other (specify):	X Regular (Standard Turnaround Times - Business Days)
Contact: India Kalinovich	Select: PDF ✓ Excel ✓ Digital Fax	Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 1558 Wilson Pl Winnipeg MB	Email 1: IKalinovich@dillon.ca	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
Phone: 204-453-2301 Fax:	Email 2: nbeaupre@dillon.ca	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Invoice To Same as Report ? (circle) (Yes) or No (if No, provide details)	**Client / Project Information**	**Analysis Request**
Copy of Invoice with Report? (circle) (Yes) or No	Job #: 10-3834	(Indicate Filtered or Preserved, F/P)
Company:	PO / AFE:	
Contact:	LSD:	
Address:		
Phone: Fax:	Quote #:	
Lab Work Order # (lab use only)	**ALS Contact:** Judy **Sampler:** NLB	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	pH	Dissolved Metals	Turbidity	Dissolved Oxygen	Conductivity	Alkalinity	Chloride	Sulfide	Number of Containers
	13-10-7.3	01/08/13	0930	GW	✓	✓	✓	✓	✓	✓	✓	✓	4
	13-01-5.2	01/08/13	1030	GW	✓	✓	✓	✓	✓	✓	✓	✓	4

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

Dissolved metals field filtered and preserved.

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
	Aug 1, 2013	1130	GH	Aug. 1/13	11:30	0.7 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY | GENF 18.01 Front

Dillon Consulting Engineers
ATTN: INDRA KALINOVICH
1558 Willson Place
Winnipeg MB R3T 0Y4

Date Received: 21-AUG-13
Report Date: 28-AUG-13 14:02 (MT)
Version: FINAL

Client Phone: 204-229-3258

Certificate of Analysis

Lab Work Order #: L1351068

Project P.O. #: NOT SUBMITTED
Job Reference: 10-3834
C of C Numbers:
Legal Site Desc:

Craig Riddell
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1351068-1 13-02-1.8							
Sampled By: Nanci Beaupre on 21-AUG-13 @ 09:00							
Matrix: GW							
Miscellaneous Parameters							
Chloride	83.7		5.0	mg/L		22-AUG-13	R2679780
Conductivity	10000		20	umhos/cm		22-AUG-13	R2678122
Oxygen, Dissolved	0.10	RWHS	0.10	mg/L		21-AUG-13	R2677039
Sulphide	<0.020		0.020	mg/L	23-AUG-13	23-AUG-13	R2678870
Turbidity	157		0.10	NTU		21-AUG-13	R2677608
pH	7.32		0.10	pH units		22-AUG-13	R2678122
Alkalinity							
Alkalinity, Total (as CaCO3)	1010		20	mg/L		22-AUG-13	R2678122
Bicarbonate (HCO3)	1230		24	mg/L		22-AUG-13	R2678122
Carbonate (CO3)	<12		12	mg/L		22-AUG-13	R2678122
Hydroxide (OH)	<6.8		6.8	mg/L		22-AUG-13	R2678122
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Antimony (Sb)-Dissolved	0.0393		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Arsenic (As)-Dissolved	0.0269		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Barium (Ba)-Dissolved	0.0309		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Boron (B)-Dissolved	6.22		0.030	mg/L	21-AUG-13	22-AUG-13	R2678078
Cadmium (Cd)-Dissolved	0.00112		0.00020	mg/L	21-AUG-13	22-AUG-13	R2678078
Calcium (Ca)-Dissolved	495		0.20	mg/L	21-AUG-13	22-AUG-13	R2678078
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Cobalt (Co)-Dissolved	0.0148		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Copper (Cu)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Iron (Fe)-Dissolved	0.79		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Lead (Pb)-Dissolved	0.0462		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Lithium (Li)-Dissolved	0.331		0.010	mg/L	21-AUG-13	22-AUG-13	R2678078
Magnesium (Mg)-Dissolved	1020	DLA	0.50	mg/L	21-AUG-13	23-AUG-13	R2679374
Manganese (Mn)-Dissolved	7.04		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Molybdenum (Mo)-Dissolved	0.0195		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Nickel (Ni)-Dissolved	0.0361		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	21-AUG-13	22-AUG-13	R2678078
Potassium (K)-Dissolved	7.27		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Rubidium (Rb)-Dissolved	0.00378		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Selenium (Se)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Silicon (Si)-Dissolved	7.56		0.30	mg/L	21-AUG-13	22-AUG-13	R2678078
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Sodium (Na)-Dissolved	1370	DLA	0.50	mg/L	21-AUG-13	23-AUG-13	R2679374
Strontium (Sr)-Dissolved	5.21		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tin (Sn)-Dissolved	0.00825		0.00060	mg/L	21-AUG-13	22-AUG-13	R2678078
Titanium (Ti)-Dissolved	0.125		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Uranium (U)-Dissolved	0.0631		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zinc (Zn)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zirconium (Zr)-Dissolved	0.0062		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1351068-2 13-13-1.1							
Sampled By: Nanci Beaupre on 21-AUG-13 @ 08:30							
Matrix: GW							
Miscellaneous Parameters							
Chloride	85.1		2.5	mg/L		22-AUG-13	R2679780
Conductivity	1800		20	umhos/cm		22-AUG-13	R2678122
Oxygen, Dissolved	1.60	RWHS	0.10	mg/L		21-AUG-13	R2677039
Sulphide	<0.020		0.020	mg/L	23-AUG-13	23-AUG-13	R2678870
Turbidity	1180		0.10	NTU		21-AUG-13	R2677608
pH	7.31		0.10	pH units		22-AUG-13	R2678122
Alkalinity							
Alkalinity, Total (as CaCO3)	334		20	mg/L		22-AUG-13	R2678122
Bicarbonate (HCO3)	408		24	mg/L		22-AUG-13	R2678122
Carbonate (CO3)	<12		12	mg/L		22-AUG-13	R2678122
Hydroxide (OH)	<6.8		6.8	mg/L		22-AUG-13	R2678122
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Antimony (Sb)-Dissolved	0.0487		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Arsenic (As)-Dissolved	0.0064		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Barium (Ba)-Dissolved	0.102		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Boron (B)-Dissolved	1.51		0.030	mg/L	21-AUG-13	22-AUG-13	R2678078
Cadmium (Cd)-Dissolved	0.00021		0.00020	mg/L	21-AUG-13	22-AUG-13	R2678078
Calcium (Ca)-Dissolved	165		0.20	mg/L	21-AUG-13	22-AUG-13	R2678078
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Chromium (Cr)-Dissolved	0.0022		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Cobalt (Co)-Dissolved	0.00273		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Copper (Cu)-Dissolved	0.0065		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Iron (Fe)-Dissolved	1.13		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Lead (Pb)-Dissolved	0.0067		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Lithium (Li)-Dissolved	0.102		0.010	mg/L	21-AUG-13	22-AUG-13	R2678078
Magnesium (Mg)-Dissolved	74.5		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Manganese (Mn)-Dissolved	0.496		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Molybdenum (Mo)-Dissolved	0.0109		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Nickel (Ni)-Dissolved	0.0054		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	21-AUG-13	22-AUG-13	R2678078
Potassium (K)-Dissolved	18.4		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Rubidium (Rb)-Dissolved	0.00346		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Selenium (Se)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Silicon (Si)-Dissolved	8.64		0.30	mg/L	21-AUG-13	22-AUG-13	R2678078
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Sodium (Na)-Dissolved	153		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Strontium (Sr)-Dissolved	1.11		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tin (Sn)-Dissolved	0.00679		0.00060	mg/L	21-AUG-13	22-AUG-13	R2678078
Titanium (Ti)-Dissolved	0.0093		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Uranium (U)-Dissolved	0.00810		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zinc (Zn)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zirconium (Zr)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1351068-3 13-07-2.4							
Sampled By: Nanci Beaupre on 21-AUG-13 @ 09:10							
Matrix: GW							
Miscellaneous Parameters							
Chloride	58.8		2.5	mg/L		22-AUG-13	R2679780
Conductivity	4020		20	umhos/cm		22-AUG-13	R2678122
Oxygen, Dissolved	0.10	RWHS	0.10	mg/L		21-AUG-13	R2677039
Sulphide	<0.020		0.020	mg/L	23-AUG-13	23-AUG-13	R2678870
Turbidity	<4000		0.10	NTU		21-AUG-13	R2677608
pH	7.69		0.10	pH units		22-AUG-13	R2678122
Alkalinity							
Alkalinity, Total (as CaCO3)	602		20	mg/L		22-AUG-13	R2678122
Bicarbonate (HCO3)	735		24	mg/L		22-AUG-13	R2678122
Carbonate (CO3)	<12		12	mg/L		22-AUG-13	R2678122
Hydroxide (OH)	<6.8		6.8	mg/L		22-AUG-13	R2678122
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Antimony (Sb)-Dissolved	0.574		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Arsenic (As)-Dissolved	0.238		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Barium (Ba)-Dissolved	0.0565		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Boron (B)-Dissolved	18.2		0.030	mg/L	21-AUG-13	22-AUG-13	R2678078
Cadmium (Cd)-Dissolved	0.00963		0.00020	mg/L	21-AUG-13	22-AUG-13	R2678078
Calcium (Ca)-Dissolved	454		0.20	mg/L	21-AUG-13	22-AUG-13	R2678078
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Cobalt (Co)-Dissolved	0.00937		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Copper (Cu)-Dissolved	0.0121		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Iron (Fe)-Dissolved	13.5		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Lead (Pb)-Dissolved	0.445		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Lithium (Li)-Dissolved	0.182		0.010	mg/L	21-AUG-13	22-AUG-13	R2678078
Magnesium (Mg)-Dissolved	202		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Manganese (Mn)-Dissolved	1.40		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Molybdenum (Mo)-Dissolved	0.0215		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Nickel (Ni)-Dissolved	0.0308		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	21-AUG-13	22-AUG-13	R2678078
Potassium (K)-Dissolved	8.49		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Rubidium (Rb)-Dissolved	0.00329		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Selenium (Se)-Dissolved	0.0472		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Silicon (Si)-Dissolved	10.3		0.30	mg/L	21-AUG-13	22-AUG-13	R2678078
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Sodium (Na)-Dissolved	480	DLA	0.50	mg/L	21-AUG-13	23-AUG-13	R2679374
Strontium (Sr)-Dissolved	1.66		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tin (Sn)-Dissolved	0.00442		0.00060	mg/L	21-AUG-13	22-AUG-13	R2678078
Titanium (Ti)-Dissolved	0.0423		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Uranium (U)-Dissolved	0.0168		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zinc (Zn)-Dissolved	0.070		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zirconium (Zr)-Dissolved	0.0012		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1351068-4 13-11-3.7							
Sampled By: Nanci Beaupre on 21-AUG-13 @ 09:30							
Matrix: GW							
Miscellaneous Parameters							
Chloride	49.9		2.5	mg/L		22-AUG-13	R2679780
Conductivity	3980		20	umhos/cm		22-AUG-13	R2678122
Oxygen, Dissolved	1.00	RWHS	0.10	mg/L		21-AUG-13	R2677039
Sulphide	<0.020		0.020	mg/L	23-AUG-13	23-AUG-13	R2678870
Turbidity	<4000		0.10	NTU		21-AUG-13	R2677608
pH	7.54		0.10	pH units		22-AUG-13	R2678122
Alkalinity							
Alkalinity, Total (as CaCO3)	172		20	mg/L		22-AUG-13	R2678122
Bicarbonate (HCO3)	210		24	mg/L		22-AUG-13	R2678122
Carbonate (CO3)	<12		12	mg/L		22-AUG-13	R2678122
Hydroxide (OH)	<6.8		6.8	mg/L		22-AUG-13	R2678122
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	0.065		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Antimony (Sb)-Dissolved	0.118		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Arsenic (As)-Dissolved	0.0218		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Barium (Ba)-Dissolved	0.0540		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Boron (B)-Dissolved	1.58		0.030	mg/L	21-AUG-13	22-AUG-13	R2678078
Cadmium (Cd)-Dissolved	0.00280		0.00020	mg/L	21-AUG-13	22-AUG-13	R2678078
Calcium (Ca)-Dissolved	519		0.20	mg/L	21-AUG-13	22-AUG-13	R2678078
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Cobalt (Co)-Dissolved	0.00433		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Copper (Cu)-Dissolved	0.0062		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Iron (Fe)-Dissolved	0.32		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Lead (Pb)-Dissolved	0.435		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Lithium (Li)-Dissolved	0.119		0.010	mg/L	21-AUG-13	22-AUG-13	R2678078
Magnesium (Mg)-Dissolved	188		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Manganese (Mn)-Dissolved	0.0508		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Molybdenum (Mo)-Dissolved	0.00179		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Nickel (Ni)-Dissolved	0.0380		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	21-AUG-13	22-AUG-13	R2678078
Potassium (K)-Dissolved	13.1		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Rubidium (Rb)-Dissolved	0.00275		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Selenium (Se)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Silicon (Si)-Dissolved	7.86		0.30	mg/L	21-AUG-13	22-AUG-13	R2678078
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Sodium (Na)-Dissolved	256		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Strontium (Sr)-Dissolved	1.94		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tin (Sn)-Dissolved	0.00319		0.00060	mg/L	21-AUG-13	22-AUG-13	R2678078
Titanium (Ti)-Dissolved	0.0410		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Uranium (U)-Dissolved	0.00185		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zinc (Zn)-Dissolved	0.076		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zirconium (Zr)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1351068-5 TRIP BLANK							
Sampled By: Nanci Beaupre on 21-AUG-13 @ 11:00							
Matrix: Other							
Miscellaneous Parameters							
Chloride	<0.50		0.50	mg/L		22-AUG-13	R2679780
Conductivity	<1.0		1.0	umhos/cm		27-AUG-13	R2681074
Oxygen, Dissolved	0.10	RWHS	0.10	mg/L		21-AUG-13	R2677039
Turbidity	0.25		0.10	NTU		21-AUG-13	R2677608
pH	5.95		0.10	pH units		22-AUG-13	R2678122
Alkalinity							
Alkalinity, Total (as CaCO3)	1.6		1.0	mg/L		27-AUG-13	R2681048
Bicarbonate (HCO3)	2.0		1.2	mg/L		27-AUG-13	R2681048
Carbonate (CO3)	<0.60		0.60	mg/L		27-AUG-13	R2681048
Hydroxide (OH)	<0.34		0.34	mg/L		27-AUG-13	R2681048
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Antimony (Sb)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Arsenic (As)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Barium (Ba)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Boron (B)-Dissolved	<0.030		0.030	mg/L	21-AUG-13	22-AUG-13	R2678078
Cadmium (Cd)-Dissolved	<0.00020		0.00020	mg/L	21-AUG-13	22-AUG-13	R2678078
Calcium (Ca)-Dissolved	<0.20		0.20	mg/L	21-AUG-13	22-AUG-13	R2678078
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Cobalt (Co)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Copper (Cu)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Lead (Pb)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Lithium (Li)-Dissolved	<0.010		0.010	mg/L	21-AUG-13	22-AUG-13	R2678078
Magnesium (Mg)-Dissolved	<0.050		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Manganese (Mn)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Molybdenum (Mo)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	21-AUG-13	22-AUG-13	R2678078
Potassium (K)-Dissolved	<0.10		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Rubidium (Rb)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Selenium (Se)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Silicon (Si)-Dissolved	<0.30		0.30	mg/L	21-AUG-13	22-AUG-13	R2678078
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Strontium (Sr)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tin (Sn)-Dissolved	<0.00060		0.00060	mg/L	21-AUG-13	22-AUG-13	R2678078
Titanium (Ti)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Uranium (U)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zinc (Zn)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zirconium (Zr)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1351068-6 EB							
Sampled By: Nanci Beaupre on 21-AUG-13 @ 10:30							
Matrix: Other							
Miscellaneous Parameters							
Chloride	<0.50		0.50	mg/L		22-AUG-13	R2679780
Conductivity	<1.0		1.0	umhos/cm		27-AUG-13	R2681074
Oxygen, Dissolved	3.10		0.10	mg/L		21-AUG-13	R2677039
Sulphide	<0.020		0.020	mg/L	23-AUG-13	23-AUG-13	R2678870
Turbidity	0.11		0.10	NTU		21-AUG-13	R2677608
pH	6.15		0.10	pH units		22-AUG-13	R2678122
Alkalinity							
Alkalinity, Total (as CaCO3)	1.8		1.0	mg/L		27-AUG-13	R2681048
Bicarbonate (HCO3)	2.2		1.2	mg/L		27-AUG-13	R2681048
Carbonate (CO3)	<0.60		0.60	mg/L		27-AUG-13	R2681048
Hydroxide (OH)	<0.34		0.34	mg/L		27-AUG-13	R2681048
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Antimony (Sb)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Arsenic (As)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Barium (Ba)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Beryllium (Be)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Bismuth (Bi)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Boron (B)-Dissolved	<0.030		0.030	mg/L	21-AUG-13	22-AUG-13	R2678078
Cadmium (Cd)-Dissolved	<0.00020		0.00020	mg/L	21-AUG-13	22-AUG-13	R2678078
Calcium (Ca)-Dissolved	<0.20		0.20	mg/L	21-AUG-13	22-AUG-13	R2678078
Cesium (Cs)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Cobalt (Co)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Copper (Cu)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Lead (Pb)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Lithium (Li)-Dissolved	<0.010		0.010	mg/L	21-AUG-13	22-AUG-13	R2678078
Magnesium (Mg)-Dissolved	<0.050		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Manganese (Mn)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Molybdenum (Mo)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Nickel (Ni)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Phosphorus (P)-Dissolved	<0.50		0.50	mg/L	21-AUG-13	22-AUG-13	R2678078
Potassium (K)-Dissolved	<0.10		0.10	mg/L	21-AUG-13	22-AUG-13	R2678078
Rubidium (Rb)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Selenium (Se)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Silicon (Si)-Dissolved	<0.30		0.30	mg/L	21-AUG-13	22-AUG-13	R2678078
Silver (Ag)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Sodium (Na)-Dissolved	<0.050		0.050	mg/L	21-AUG-13	22-AUG-13	R2678078
Strontium (Sr)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Tellurium (Te)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Thallium (Tl)-Dissolved	<0.0050		0.0050	mg/L	21-AUG-13	22-AUG-13	R2678078
Thorium (Th)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tin (Sn)-Dissolved	<0.00060		0.00060	mg/L	21-AUG-13	22-AUG-13	R2678078
Titanium (Ti)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078
Tungsten (W)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Uranium (U)-Dissolved	<0.00050		0.00050	mg/L	21-AUG-13	22-AUG-13	R2678078
Vanadium (V)-Dissolved	<0.0020		0.0020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zinc (Zn)-Dissolved	<0.020		0.020	mg/L	21-AUG-13	22-AUG-13	R2678078
Zirconium (Zr)-Dissolved	<0.0010		0.0010	mg/L	21-AUG-13	22-AUG-13	R2678078

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLA	Detection Limit Adjusted For required dilution
RWHS	Samples Received With Headspace

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-T-L-WP	Water	Alkalinity	APHA 2320B

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

ALK-TOT-WP	Water	Alkalinity	APHA 2320B

Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.

CL-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (modified)

Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.

EC-L-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

EC-WP	Water	Conductivity	APHA 2510B

Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.

MET-D-MS-WP	Water	Dissolved Metals by ICP-MS	U.S. EPA 200.8-D

Dissolved Metals by ICP-MS: This analysis is carried out using sample preparation procedures adapted from Standard Methods for the Examination of Water and Wastewater method 3030B for filtration through a 0.45 um filter and analytical procedures adapted from U.S EPA Method 200.8 for analyis of metals by inductively coupled-mass spectrometery.

O2-DIS-WP	Water	Dissolved Oxygen	APHA 4500-O-C

Manganous sulphate reacts with potassium or sodium hydroxide to give a white precipitate of manganous hydroxide. In the presence of oxygen, brown manganic hydroxide is formed. Addition of sulfuric acid dissolves the manganic hydroxide, yielding manganic sulfate which reacts with iodide, releasing iodide in an amount equivalent to the original DO content. The iodide is then titrated with a standard solution of thiosulphate.

PH-WP	Water	pH	APHA 4500H

The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.

SULPHIDE-WT	Water	Sulphide	APHA 4500S2D
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)

Turbidity in aqueous matrices is determined by the nephelometric method.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Workorder: L1351068 Report Date: 28-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-T-L-WP	**Water**							
Batch R2681048								
WG1735571-2 DUP		**L1350942-2**						
Alkalinity, Total (as CaCO3)		17.1	17.2		mg/L	0.7	20	27-AUG-13
Bicarbonate (HCO3)		20.9	21.0		mg/L	0.7	25	27-AUG-13
Carbonate (CO3)		<0.60	<0.60	RPD-NA	mg/L	N/A	25	27-AUG-13
Hydroxide (OH)		<0.34	<0.34	RPD-NA	mg/L	N/A	25	27-AUG-13
WG1735571-1 LCS								
Alkalinity, Total (as CaCO3)			112.8		%		85-115	27-AUG-13
ALK-TOT-WP	**Water**							
Batch R2678122								
WG1732577-6 DUP		**L1351068-1**						
Alkalinity, Total (as CaCO3)		1010	1010		mg/L	0.1	20	22-AUG-13
Bicarbonate (HCO3)		1230	1230		mg/L	0.1	20	22-AUG-13
Carbonate (CO3)		<12	<12	RPD-NA	mg/L	N/A	20	22-AUG-13
Hydroxide (OH)		<6.8	<6.8	RPD-NA	mg/L	N/A	20	22-AUG-13
WG1732577-2 LCS								
Alkalinity, Total (as CaCO3)			102.3		%		85-115	22-AUG-13
WG1732577-1 MB								
Alkalinity, Total (as CaCO3)			<20		mg/L		20	22-AUG-13
Bicarbonate (HCO3)			<24		mg/L		24	22-AUG-13
Carbonate (CO3)			<12		mg/L		12	22-AUG-13
Hydroxide (OH)			<6.8		mg/L		6.8	22-AUG-13
CL-IC-WP	**Water**							
Batch R2679780								
WG1731854-3 DUP		**L1349549-6**						
Chloride		1.96	1.95		mg/L	0.3	20	22-AUG-13
WG1731854-2 LCS								
Chloride			99.1		%		90-110	22-AUG-13
WG1731854-1 MB								
Chloride			<0.50		mg/L		0.5	22-AUG-13
WG1731854-4 MS		**L1349549-6**						
Chloride			102.0		%		75-125	22-AUG-13
EC-L-WP	**Water**							
Batch R2681074								
WG1735608-3 DUP		**L1350863-7**						
Conductivity		<1.0	<1.0	RPD-NA	umhos/cm	N/A	10	27-AUG-13
WG1735608-2 LCS								

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-L-WP	**Water**							
Batch R2681074								
WG1735608-2 LCS								
Conductivity			100.5		%		90-110	27-AUG-13
WG1735608-1 MB								
Conductivity			<1.0		umhos/cm		1	27-AUG-13
EC-WP	**Water**							
Batch R2678122								
WG1732577-5 DUP		**L1351289-4**						
Conductivity		634	634		umhos/cm	0.0	10	22-AUG-13
WG1732577-6 DUP		**L1351068-1**						
Conductivity		10000	10000		umhos/cm	0.3	10	22-AUG-13
WG1732577-4 LCS								
Conductivity			100.1		%		90-110	22-AUG-13
WG1732577-1 MB								
Conductivity			<20		umhos/cm		20	22-AUG-13
MET-D-MS-WP	**Water**							
Batch R2678078								
WG1732498-6 DUP		**WG1732498-5**						
Aluminum (Al)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	22-AUG-13
Antimony (Sb)-Dissolved		0.0203	0.0212		mg/L	4.0	20	22-AUG-13
Arsenic (As)-Dissolved		0.177	0.179		mg/L	0.8	20	22-AUG-13
Barium (Ba)-Dissolved		0.00979	0.0104		mg/L	5.9	20	22-AUG-13
Beryllium (Be)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-AUG-13
Bismuth (Bi)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-AUG-13
Boron (B)-Dissolved		0.033	0.033		mg/L	2.3	20	22-AUG-13
Cadmium (Cd)-Dissolved		<0.00020	<0.00020	RPD-NA	mg/L	N/A	20	22-AUG-13
Calcium (Ca)-Dissolved		78.8	78.5		mg/L	0.3	20	22-AUG-13
Cesium (Cs)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-AUG-13
Chromium (Cr)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-AUG-13
Cobalt (Co)-Dissolved		0.00741	0.00753		mg/L	1.6	20	22-AUG-13
Copper (Cu)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-AUG-13
Iron (Fe)-Dissolved		<0.10	<0.10	RPD-NA	mg/L	N/A	20	22-AUG-13
Lead (Pb)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-AUG-13
Lithium (Li)-Dissolved		<0.010	<0.010	RPD-NA	mg/L	N/A	20	22-AUG-13
Magnesium (Mg)-Dissolved		7.12	7.09		mg/L	0.5	20	22-AUG-13
Manganese (Mn)-Dissolved		0.0166	0.0169		mg/L	2.2	20	22-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2678078								
WG1732498-6 DUP		**WG1732498-5**						
Molybdenum (Mo)-Dissolved		0.00468	0.00485		mg/L	3.5	20	22-AUG-13
Nickel (Ni)-Dissolved		0.0033	0.0034		mg/L	2.9	20	22-AUG-13
Phosphorus (P)-Dissolved		<0.50	<0.50	RPD-NA	mg/L	N/A	20	22-AUG-13
Potassium (K)-Dissolved		11.4	11.3		mg/L	0.6	20	22-AUG-13
Rubidium (Rb)-Dissolved		0.00396	0.00404		mg/L	1.8	20	22-AUG-13
Selenium (Se)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-AUG-13
Silicon (Si)-Dissolved		0.35	0.30		mg/L	13	20	22-AUG-13
Silver (Ag)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-AUG-13
Sodium (Na)-Dissolved		41.4	40.4		mg/L	2.3	20	22-AUG-13
Strontium (Sr)-Dissolved		0.348	0.351		mg/L	0.9	20	22-AUG-13
Tellurium (Te)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-AUG-13
Thallium (Tl)-Dissolved		<0.0050	<0.0050	RPD-NA	mg/L	N/A	20	22-AUG-13
Thorium (Th)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	25	22-AUG-13
Tin (Sn)-Dissolved		<0.00060	<0.00060	RPD-NA	mg/L	N/A	20	22-AUG-13
Titanium (Ti)-Dissolved		0.0127	0.0129		mg/L	0.8	20	22-AUG-13
Tungsten (W)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-AUG-13
Uranium (U)-Dissolved		<0.00050	<0.00050	RPD-NA	mg/L	N/A	20	22-AUG-13
Vanadium (V)-Dissolved		<0.0020	<0.0020	RPD-NA	mg/L	N/A	20	22-AUG-13
Zinc (Zn)-Dissolved		<0.020	<0.020	RPD-NA	mg/L	N/A	20	22-AUG-13
Zirconium (Zr)-Dissolved		<0.0010	<0.0010	RPD-NA	mg/L	N/A	20	22-AUG-13
WG1732498-2 LCS								
Aluminum (Al)-Dissolved			99.7		%		80-120	22-AUG-13
Antimony (Sb)-Dissolved			101.0		%		80-120	22-AUG-13
Arsenic (As)-Dissolved			101.8		%		80-120	22-AUG-13
Barium (Ba)-Dissolved			98.4		%		80-120	22-AUG-13
Beryllium (Be)-Dissolved			100.7		%		80-120	22-AUG-13
Bismuth (Bi)-Dissolved			101.1		%		80-120	22-AUG-13
Boron (B)-Dissolved			101.1		%		80-120	22-AUG-13
Cadmium (Cd)-Dissolved			101.2		%		80-120	22-AUG-13
Calcium (Ca)-Dissolved			102.8		%		80-120	22-AUG-13
Cesium (Cs)-Dissolved			100.8		%		80-120	22-AUG-13
Chromium (Cr)-Dissolved			106.0		%		80-120	22-AUG-13
Cobalt (Co)-Dissolved			105.2		%		80-120	22-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2678078								
WG1732498-2 LCS								
Copper (Cu)-Dissolved			105.2		%		80-120	22-AUG-13
Iron (Fe)-Dissolved			101.7		%		80-120	22-AUG-13
Lead (Pb)-Dissolved			100.9		%		80-120	22-AUG-13
Lithium (Li)-Dissolved			95.7		%		80-120	22-AUG-13
Magnesium (Mg)-Dissolved			99.1		%		80-120	22-AUG-13
Manganese (Mn)-Dissolved			104.6		%		80-120	22-AUG-13
Molybdenum (Mo)-Dissolved			102.2		%		80-120	22-AUG-13
Nickel (Ni)-Dissolved			102.7		%		80-120	22-AUG-13
Phosphorus (P)-Dissolved			103.3		%		80-120	22-AUG-13
Potassium (K)-Dissolved			103.0		%		80-120	22-AUG-13
Rubidium (Rb)-Dissolved			103.9		%		80-120	22-AUG-13
Selenium (Se)-Dissolved			99.9		%		80-120	22-AUG-13
Silicon (Si)-Dissolved			99.4		%		80-120	22-AUG-13
Silver (Ag)-Dissolved			101.2		%		80-120	22-AUG-13
Sodium (Na)-Dissolved			103.4		%		80-120	22-AUG-13
Strontium (Sr)-Dissolved			104.3		%		80-120	22-AUG-13
Tellurium (Te)-Dissolved			101.5		%		80-120	22-AUG-13
Thallium (Tl)-Dissolved			101.4		%		80-120	22-AUG-13
Thorium (Th)-Dissolved			101.3		%		80-120	22-AUG-13
Tin (Sn)-Dissolved			102.8		%		80-120	22-AUG-13
Titanium (Ti)-Dissolved			105.0		%		80-120	22-AUG-13
Tungsten (W)-Dissolved			101.1		%		80-120	22-AUG-13
Uranium (U)-Dissolved			101.1		%		80-120	22-AUG-13
Vanadium (V)-Dissolved			105.5		%		80-120	22-AUG-13
Zinc (Zn)-Dissolved			105.1		%		80-120	22-AUG-13
Zirconium (Zr)-Dissolved			104.4		%		80-120	22-AUG-13
WG1732498-1 MB								
Aluminum (Al)-Dissolved			<0.020		mg/L		0.02	22-AUG-13
Antimony (Sb)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Arsenic (As)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Barium (Ba)-Dissolved			<0.00050		mg/L		0.0005	22-AUG-13
Beryllium (Be)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Bismuth (Bi)-Dissolved			<0.00050		mg/L		0.0005	22-AUG-13
Boron (B)-Dissolved			<0.030		mg/L		0.03	22-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2678078								
WG1732498-1 MB								
Cadmium (Cd)-Dissolved			<0.00020		mg/L		0.0002	22-AUG-13
Calcium (Ca)-Dissolved			<0.20		mg/L		0.2	22-AUG-13
Cesium (Cs)-Dissolved			<0.00050		mg/L		0.0005	22-AUG-13
Chromium (Cr)-Dissolved			<0.0020		mg/L		0.002	22-AUG-13
Cobalt (Co)-Dissolved			<0.00050		mg/L		0.0005	22-AUG-13
Copper (Cu)-Dissolved			<0.0020		mg/L		0.002	22-AUG-13
Iron (Fe)-Dissolved			<0.10		mg/L		0.1	22-AUG-13
Lead (Pb)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Lithium (Li)-Dissolved			<0.010		mg/L		0.01	22-AUG-13
Magnesium (Mg)-Dissolved			<0.050		mg/L		0.05	22-AUG-13
Manganese (Mn)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Molybdenum (Mo)-Dissolved			<0.00050		mg/L		0.0005	22-AUG-13
Nickel (Ni)-Dissolved			<0.0020		mg/L		0.002	22-AUG-13
Phosphorus (P)-Dissolved			<0.50		mg/L		0.5	22-AUG-13
Potassium (K)-Dissolved			<0.10		mg/L		0.1	22-AUG-13
Rubidium (Rb)-Dissolved			<0.00050		mg/L		0.0005	22-AUG-13
Selenium (Se)-Dissolved			<0.0050		mg/L		0.005	22-AUG-13
Silicon (Si)-Dissolved			<0.30		mg/L		0.3	22-AUG-13
Silver (Ag)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Sodium (Na)-Dissolved			<0.050		mg/L		0.05	22-AUG-13
Strontium (Sr)-Dissolved			<0.00050		mg/L		0.0005	22-AUG-13
Tellurium (Te)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Thallium (Tl)-Dissolved			<0.0050		mg/L		0.005	22-AUG-13
Thorium (Th)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Tin (Sn)-Dissolved			<0.00060		mg/L		0.0006	22-AUG-13
Titanium (Ti)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
Tungsten (W)-Dissolved			<0.0020		mg/L		0.002	22-AUG-13
Uranium (U)-Dissolved			<0.00050		mg/L		0.0005	22-AUG-13
Vanadium (V)-Dissolved			<0.0020		mg/L		0.002	22-AUG-13
Zinc (Zn)-Dissolved			<0.020		mg/L		0.02	22-AUG-13
Zirconium (Zr)-Dissolved			<0.0010		mg/L		0.001	22-AUG-13
WG1732498-4 MS		**WG1732498-3**						
Aluminum (Al)-Dissolved			99.7		%		70-130	22-AUG-13
Antimony (Sb)-Dissolved			102.4		%		70-130	22-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2678078								
WG1732498-4 MS		**WG1732498-3**						
Arsenic (As)-Dissolved			107.7		%		70-130	22-AUG-13
Barium (Ba)-Dissolved			101.6		%		70-130	22-AUG-13
Beryllium (Be)-Dissolved			108.1		%		70-130	22-AUG-13
Bismuth (Bi)-Dissolved			102.8		%		70-130	22-AUG-13
Boron (B)-Dissolved			109.4		%		70-130	22-AUG-13
Cadmium (Cd)-Dissolved			106.4		%		70-130	22-AUG-13
Calcium (Ca)-Dissolved			106.7		%		70-130	22-AUG-13
Cesium (Cs)-Dissolved			100.3		%		70-130	22-AUG-13
Chromium (Cr)-Dissolved			101.1		%		70-130	22-AUG-13
Cobalt (Co)-Dissolved			103.3		%		70-130	22-AUG-13
Copper (Cu)-Dissolved			105.6		%		70-130	22-AUG-13
Iron (Fe)-Dissolved			102.9		%		70-130	22-AUG-13
Lead (Pb)-Dissolved			103.3		%		70-130	22-AUG-13
Lithium (Li)-Dissolved			103.9		%		70-130	22-AUG-13
Magnesium (Mg)-Dissolved			92.0		%		70-130	22-AUG-13
Manganese (Mn)-Dissolved			99.9		%		70-130	22-AUG-13
Molybdenum (Mo)-Dissolved			97.2		%		70-130	22-AUG-13
Nickel (Ni)-Dissolved			102.3		%		70-130	22-AUG-13
Phosphorus (P)-Dissolved			100.1		%		70-130	22-AUG-13
Potassium (K)-Dissolved			108.7		%		70-130	22-AUG-13
Rubidium (Rb)-Dissolved			98.1		%		70-130	22-AUG-13
Selenium (Se)-Dissolved			92.4		%		70-130	22-AUG-13
Silicon (Si)-Dissolved			97.1		%		70-130	22-AUG-13
Silver (Ag)-Dissolved			109.0		%		70-130	22-AUG-13
Sodium (Na)-Dissolved			109.1		%		70-130	22-AUG-13
Strontium (Sr)-Dissolved			99.1		%		70-130	22-AUG-13
Tellurium (Te)-Dissolved			110.4		%		70-130	22-AUG-13
Thallium (Tl)-Dissolved			104.6		%		70-130	22-AUG-13
Tin (Sn)-Dissolved			101.8		%		70-130	22-AUG-13
Titanium (Ti)-Dissolved			104.3		%		70-130	22-AUG-13
Tungsten (W)-Dissolved			104.7		%		70-130	22-AUG-13
Uranium (U)-Dissolved			102.8		%		70-130	22-AUG-13
Vanadium (V)-Dissolved			103.9		%		70-130	22-AUG-13

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-MS-WP	**Water**							
Batch R2678078								
WG1732498-4 MS		**WG1732498-3**						
Zinc (Zn)-Dissolved			107.9		%		70-130	22-AUG-13
Zirconium (Zr)-Dissolved			99.1		%		70-130	22-AUG-13
O2-DIS-WP	**Water**							
Batch R2677039								
WG1731254-2 LCS								
Oxygen, Dissolved			98.9		%		85-115	21-AUG-13
WG1731254-1 MB								
Oxygen, Dissolved			<0.10		mg/L		0.1	21-AUG-13
PH-WP	**Water**							
Batch R2678122								
WG1732577-5 DUP		**L1351289-4**						
pH		6.57	6.57	J	pH units	0.00	0.2	22-AUG-13
WG1732577-6 DUP		**L1351068-1**						
pH		7.32	7.39	J	pH units	0.07	0.2	22-AUG-13
WG1732577-3 LCS								
pH			7.43		pH units		7.3-7.5	22-AUG-13
SULPHIDE-WT	**Water**							
Batch R2678870								
WG1732952-2 CVS								
Sulphide			88.5		%		75-125	23-AUG-13
WG1732952-3 DUP		**L1351068-1**						
Sulphide		<0.020	<0.020	RPD-NA	mg/L	N/A	20	23-AUG-13
WG1732952-4 DUP		**L1351068-6**						
Sulphide		<0.020	<0.020	RPD-NA	mg/L	N/A	20	23-AUG-13
WG1732952-1 MB								
Sulphide			<0.020		mg/L		0.02	23-AUG-13
TURBIDITY-WP	**Water**							
Batch R2677608								
WG1732103-2 DUP		**L1350412-1**						
Turbidity		0.14	0.15		NTU	6.4	15	21-AUG-13
WG1732103-1 MB								
Turbidity			<0.10		NTU		0.1	21-AUG-13

Quality Control Report

Workorder: L1351068 Report Date: 28-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

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.

Quality Control Report

Workorder: L1351068 Report Date: 28-AUG-13

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	21-AUG-13 09:00	22-AUG-13 09:37	0.25	25	hours	EHTR-FM
	2	21-AUG-13 08:30	22-AUG-13 09:37	0.25	25	hours	EHTR-FM
	3	21-AUG-13 09:10	22-AUG-13 09:37	0.25	24	hours	EHTR-FM
	4	21-AUG-13 09:30	22-AUG-13 09:37	0.25	24	hours	EHTR-FM
	5	21-AUG-13 11:00	22-AUG-13 09:37	0.25	23	hours	EHTR-FM
	6	21-AUG-13 10:30	22-AUG-13 09:37	0.25	23	hours	EHTR-FM

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 L1351068 were received on 21-AUG-13 13:40.

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.

10-220791

ALS Environment

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

L1351068

Page 1 of 1

L1351068-COFC

Report To		Report Format / Distribution		Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company:	Dillon Consul	✓ Other (specify):		X Regular (Standard Turnaround Times - Business Days)
Contact:	Indra Kalinovic	✓ Excel ✓ Digital Fax		Priority (2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address:	1558 Wilson Pl	Email 1:	ikalinovic@dillon.ca	Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
	Winnipeg, MB	Email 2:	nbeaupre@dillon.ca.	Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone:	204-453-2301 Fax:			Analysis Request
Invoice To	Same as Report ? (circle) Yes or No (if No, provide details)	Client / Project Information		(Indicate Filtered or Preserved, F/P)
	Copy of Invoice with Report? (circle) Yes or No	Job #:	10-3834	
Company:		PO / AFE:		
Contact:		LSD:		
Address:				
Phone:	Fax:	Quote #:	NWSR	
Lab Work Order # (lab use only)		ALS Contact:	Judy	Sampler: Nanci Beaupre

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Dissolved Oxygen	pH	Dissolved Metals	Turbidity	Conductivity	Alkalinity	Chloride	Sulfide					Number of Containers
1	13-02-1.8	21/08/13	0900	GW	✓	✓	✓	✓	✓	✓	✓	✓					4
2	13-13-1.1		0830		✓	✓	✓	✓	✓	✓	✓	✓					4
3	13-07-2.4		0910		✓	✓	✓	✓	✓	✓	✓	✓					4
4	13-11-3.7		0930		✓	✓	✓	✓	✓	✓	✓	✓					4
5	Trip Blank		1100	other	✓	✓	✓	✓	✓	✓	✓						3
6	EB		1030		✓	✓	✓	✓	✓	✓	✓	✓					4

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

All Dissolved Metals were field filtered and preserved except for the Trip Blank. Trip Blank was left as is.

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
N Beaupre	21/08/13		GH	Aug. 21/13	13:40	12.8 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION | WHITE - LABORATORY COPY | YELLOW - CLIENT COPY | GENF 18.01 Front

Dillon Consulting Engineers
ATTN: INDRA KALINOVICH
1558 Willson Place
Winnipeg MB R3T 0Y4

Date Received: 17-JUN-14
Report Date: 30-JUN-14 16:17 (MT)
Version: FINAL

Client Phone: 204-229-3258

Certificate of Analysis

Lab Work Order #: L1471867

Project P.O. #: NOT SUBMITTED
Job Reference: 10-3834
C of C Numbers:
Legal Site Desc:

Craig Riddell
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-1 13-01							
Sampled By: NLB on 17-JUN-14 @ 08:45							
Matrix: GW							
Miscellaneous Parameters							
Chloride	1410		5.0	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	0.10	RWHS	0.10	mg/L		17-JUN-14	R2866449
Sulfate	8090		5.0	mg/L		17-JUN-14	R2867208
Turbidity	>4000		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.20	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.065	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	<1.0	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	388	DLM	5.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.20	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.037	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<10	DLM	10	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.109	DLM	0.0090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	1.05	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	795	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.292	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.021	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	<0.10	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<3.0	DLM	3.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	20.9	DLM	2.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.10	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	<10	DLM	10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	3180	DLM	2.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	5.59	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.050	DLM	0.050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.275	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	<0.20	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.040	DLM	0.040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	1970		20	mg/L		20-JUN-14	R2870127
Bicarbonate (HCO3)	2330		24	mg/L		20-JUN-14	R2870127
Carbonate (CO3)	34		12	mg/L		20-JUN-14	R2870127
Hydroxide (OH)	<6.8		6.8	mg/L		20-JUN-14	R2870127
Conductivity							
Conductivity	>10000		20	umhos/cm		19-JUN-14	R2869565

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-1 13-01							
Sampled By: NLB on 17-JUN-14 @ 08:45							
Matrix: GW							
pH							
pH	8.10		0.10	pH units		19-JUN-14	R2869565
L1471867-2 FD1							
Sampled By: NLB on 17-JUN-14 @ 08:45							
Matrix: GW							
Miscellaneous Parameters							
Chloride	1380		5.0	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	0.20	RWHS	0.10	mg/L		17-JUN-14	R2866449
Sulfate	7960		5.0	mg/L		17-JUN-14	R2867208
Turbidity	>4000		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.20	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.068	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	<1.0	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.0011	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	380	DLM	5.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.20	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.038	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<10	DLM	10	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.107	DLM	0.0090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	1.06	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	810	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.292	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.021	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	<0.10	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<3.0	DLM	3.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	21.4	DLM	2.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.10	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	10	DLM	10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	3250	DLM	2.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	5.42	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.050	DLM	0.050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.270	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	<0.20	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.040	DLM	0.040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	1990		20	mg/L		20-JUN-14	R2870127

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-2 FD1							
Sampled By: NLB on 17-JUN-14 @ 08:45							
Matrix: GW							
Alkalinity							
Bicarbonate (HCO3)	2430		24	mg/L		20-JUN-14	R2870127
Carbonate (CO3)	<12		12	mg/L		20-JUN-14	R2870127
Hydroxide (OH)	<6.8		6.8	mg/L		20-JUN-14	R2870127
Conductivity							
Conductivity	>10000		20	umhos/cm		18-JUN-14	R2868518
pH							
pH	7.90		0.10	pH units		18-JUN-14	R2868518
L1471867-3 13-02							
Sampled By: NLB on 17-JUN-14 @ 09:00							
Matrix: GW							
Miscellaneous Parameters							
Oxygen, Dissolved	0.40	RWHS	0.10	mg/L		17-JUN-14	R2866449
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.191	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.0107	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0209	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	6.35	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.00539	DLM	0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	453	DLM	0.50	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.0128	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.0260	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<1.0	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.317	DLM	0.00090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.351	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	1100	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	4.26	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.0169	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	0.038	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<0.30	DLM	0.30	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	4.94	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.0037	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	5.0	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	1040	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	5.25	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.0050	DLM	0.0050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.0920	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	0.0022	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	0.035	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	0.0062	DLM	0.0040	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-3 13-02							
Sampled By: NLB on 17-JUN-14 @ 09:00							
Matrix: GW							
L1471867-4 13-03							
Sampled By: NLB on 17-JUN-14 @ 09:15							
Matrix: GW							
Miscellaneous Parameters							
Chloride	97.9		2.5	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	2.10		0.10	mg/L		17-JUN-14	R2866449
Sulfate	1730		2.5	mg/L		17-JUN-14	R2867208
Turbidity	459		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.172		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.00465		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0337		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	3.51		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.00760		0.000010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	487		0.050	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.00386		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.0117		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.155		0.000090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.0791		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	195		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	1.32		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.00633		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	0.0154		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	42.2		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.0168		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	0.0068		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	4.49		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	147		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	2.06		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	0.00040		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	0.00081		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.00050		0.00050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.00286		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	0.0222		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.00040		0.00040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	92		20	mg/L		18-JUN-14	R2868518
Bicarbonate (HCO3)	113		24	mg/L		18-JUN-14	R2868518
Carbonate (CO3)	<12		12	mg/L		18-JUN-14	R2868518

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-4 13-03							
Sampled By: NLB on 17-JUN-14 @ 09:15							
Matrix: GW							
Alkalinity							
Hydroxide (OH)	<6.8		6.8	mg/L		18-JUN-14	R2868518
Conductivity							
Conductivity	2780		20	umhos/cm		18-JUN-14	R2868518
pH							
pH	7.71		0.10	pH units		18-JUN-14	R2868518
L1471867-5 13-04							
Sampled By: NLB on 17-JUN-14 @ 09:30							
Matrix: GW							
Miscellaneous Parameters							
Chloride	68.1		2.5	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	<0.10	RWHS	0.10	mg/L		17-JUN-14	R2866449
Sulfate	691		2.5	mg/L		17-JUN-14	R2867208
Turbidity	2760		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	0.0027		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.138		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.0315		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0366		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	1.99		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.00219		0.000010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	210		0.050	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.00172		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.00434		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	0.15		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.163		0.000090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.0549		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	88.2		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.779		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.00633		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	0.0090		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	14.5		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.00499		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.0010		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	4.49		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	135		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	1.03		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	0.00025		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.00050		0.00050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.00169		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	0.0148		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-5 13-04							
Sampled By: NLB on 17-JUN-14 @ 09:30							
Matrix: GW							
Dissolved Metals by ICP-MS							
Zirconium (Zr)-Dissolved	<0.00040		0.00040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	158		20	mg/L		18-JUN-14	R2868518
Bicarbonate (HCO3)	193		24	mg/L		18-JUN-14	R2868518
Carbonate (CO3)	<12		12	mg/L		18-JUN-14	R2868518
Hydroxide (OH)	<6.8		6.8	mg/L		18-JUN-14	R2868518
Conductivity							
Conductivity	1580		20	umhos/cm		18-JUN-14	R2868518
pH							
pH	7.86		0.10	pH units		18-JUN-14	R2868518
L1471867-6 13-06							
Sampled By: NLB on 17-JUN-14 @ 09:45							
Matrix: GW							
Miscellaneous Parameters							
Chloride	1640		5.0	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	0.50	RWHS	0.10	mg/L		17-JUN-14	R2866449
Sulfate	3910		5.0	mg/L		17-JUN-14	R2867208
Turbidity	143		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.0375	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.0063	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0158	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	1.09	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.00497	DLM	0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	475	DLM	0.50	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.0035	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.0124	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<1.0	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.113	DLM	0.00090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.492	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	653	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.255	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.0062	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	0.015	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<0.30	DLM	0.30	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	12.9	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.0042	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	10.6	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	1490	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	3.88	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-6 13-06							
Sampled By: NLB on 17-JUN-14 @ 09:45							
Matrix: GW							
Dissolved Metals by ICP-MS							
Tin (Sn)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.0050	DLM	0.0050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.102	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.0040	DLM	0.0040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	515		20	mg/L		18-JUN-14	R2868518
Bicarbonate (HCO3)	628		24	mg/L		18-JUN-14	R2868518
Carbonate (CO3)	<12		12	mg/L		18-JUN-14	R2868518
Hydroxide (OH)	<6.8		6.8	mg/L		18-JUN-14	R2868518
Conductivity							
Conductivity	9920		20	umhos/cm		18-JUN-14	R2868518
pH							
pH	7.72		0.10	pH units		18-JUN-14	R2868518
L1471867-7 FD2							
Sampled By: NLB on 17-JUN-14 @ 09:45							
Matrix: GW							
Miscellaneous Parameters							
Chloride	1640		5.0	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	0.80	RWHS	0.10	mg/L		17-JUN-14	R2866449
Sulfate	3880		5.0	mg/L		17-JUN-14	R2867208
Turbidity	178		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.0359	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.0064	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0173	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	0.91	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.00459	DLM	0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	468	DLM	0.50	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.0034	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.0129	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<1.0	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.112	DLM	0.00090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.476	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	636	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.252	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.0060	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	0.014	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<0.30	DLM	0.30	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	12.8	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.0041	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	9.8	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-7 FD2							
Sampled By: NLB on 17-JUN-14 @ 09:45							
Matrix: GW							
Dissolved Metals by ICP-MS							
Silver (Ag)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	1470	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	3.77	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.0050	DLM	0.0050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.0979	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.0040	DLM	0.0040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	517		20	mg/L		18-JUN-14	R2868518
Bicarbonate (HCO3)	631		24	mg/L		18-JUN-14	R2868518
Carbonate (CO3)	<12		12	mg/L		18-JUN-14	R2868518
Hydroxide (OH)	<6.8		6.8	mg/L		18-JUN-14	R2868518
Conductivity							
Conductivity	9950		20	umhos/cm		18-JUN-14	R2868518
pH							
pH	7.76		0.10	pH units		18-JUN-14	R2868518
L1471867-8 13-07							
Sampled By: NLB on 17-JUN-14 @ 10:00							
Matrix: GW							
Miscellaneous Parameters							
Chloride	59.8		2.5	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	0.50		0.10	mg/L		17-JUN-14	R2866449
Sulfate	1580		2.5	mg/L		17-JUN-14	R2867208
Turbidity	510		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.806		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.0280		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0672		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	8.03		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.0114		0.000010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	498		0.050	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.00108		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.00957		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.196		0.000090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.0972		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	141		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.0810		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.0124		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-8 13-07							
Sampled By: NLB on 17-JUN-14 @ 10:00							
Matrix: GW							
Dissolved Metals by ICP-MS							
Nickel (Ni)-Dissolved	0.0213		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	0.086		0.030	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	13.2		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.00335		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	0.0673		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	11.5		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	160		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	1.47		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	0.00018		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	0.00095		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.00050		0.00050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	0.00026		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.00694		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	0.00088		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	0.0484		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.00040		0.00040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	317		20	mg/L		18-JUN-14	R2868518
Bicarbonate (HCO3)	386		24	mg/L		18-JUN-14	R2868518
Carbonate (CO3)	<12		12	mg/L		18-JUN-14	R2868518
Hydroxide (OH)	<6.8		6.8	mg/L		18-JUN-14	R2868518
Conductivity							
Conductivity	2780		20	umhos/cm		18-JUN-14	R2868518
pH							
pH	7.90		0.10	pH units		18-JUN-14	R2868518
L1471867-9 13-10							
Sampled By: NLB on 17-JUN-14 @ 10:30							
Matrix: GW							
Miscellaneous Parameters							
Oxygen, Dissolved	1.30	RWHS	0.10	mg/L		17-JUN-14	R2866449
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	0.023	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.336	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.0141	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0342	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	0.85	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.00339	DLM	0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	498	DLM	0.50	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.020	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.0032	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.0269	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<1.0	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.650	DLM	0.00090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.592	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-9 13-10							
Sampled By: NLB on 17-JUN-14 @ 10:30							
Matrix: GW							
Dissolved Metals by ICP-MS							
Magnesium (Mg)-Dissolved	711	DLM	0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.0642	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.0034	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	0.061	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<0.30	DLM	0.30	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	16.1	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.0042	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.010	DLM	0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	11.6	DLM	1.0	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	1320	DLM	0.20	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	2.80	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.0050	DLM	0.0050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.0010	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.0736	DLM	0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.0020	DLM	0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	0.078	DLM	0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.0040	DLM	0.0040	mg/L	17-JUN-14	27-JUN-14	R2875508
L1471867-10 13-11							
Sampled By: NLB on 17-JUN-14 @ 10:45							
Matrix: GW							
Miscellaneous Parameters							
Chloride	37.4		2.5	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	1.20		0.10	mg/L		17-JUN-14	R2866449
Sulfate	2060		2.5	mg/L		17-JUN-14	R2867208
Turbidity	530		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.147		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.0112		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0296		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	1.73		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.00588		0.000010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	498		0.050	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.00705		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.0142		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.305		0.000090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.140		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	157		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.0901		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.00140		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	0.0830		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-10 13-11							
Sampled By: NLB on 17-JUN-14 @ 10:45							
Matrix: GW							
Dissolved Metals by ICP-MS							
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	13.2		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.00178		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.0010		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	8.37		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	222		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	1.49		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	0.00017		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	0.00066		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.00050		0.00050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.00079		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	0.0820		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.00040		0.00040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	122		20	mg/L		18-JUN-14	R2868518
Bicarbonate (HCO3)	148		24	mg/L		18-JUN-14	R2868518
Carbonate (CO3)	<12		12	mg/L		18-JUN-14	R2868518
Hydroxide (OH)	<6.8		6.8	mg/L		18-JUN-14	R2868518
Conductivity							
Conductivity	3180		20	umhos/cm		18-JUN-14	R2868518
pH							
pH	7.68		0.10	pH units		18-JUN-14	R2868518
L1471867-11 EB							
Sampled By: NLB on 17-JUN-14 @ 11:15							
Matrix: OTHER							
Miscellaneous Parameters							
Chloride	<0.50		0.50	mg/L		17-JUN-14	R2867208
Conductivity	2.7		1.0	umhos/cm		26-JUN-14	R2873673
Oxygen, Dissolved	5.00		0.10	mg/L		17-JUN-14	R2866449
Sulfate	<0.50		0.50	mg/L		17-JUN-14	R2867208
Turbidity	1.02		0.10	NTU		18-JUN-14	R2869904
Alkalinity							
Alkalinity, Total (as CaCO3)	2.6		1.0	mg/L		26-JUN-14	R2873783
Bicarbonate (HCO3)	3.1		1.2	mg/L		26-JUN-14	R2873783
Carbonate (CO3)	<0.60		0.60	mg/L		26-JUN-14	R2873783
Hydroxide (OH)	<0.34		0.34	mg/L		26-JUN-14	R2873783
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	<0.010		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	<0.000010		0.000010	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-11 EB							
Sampled By: NLB on 17-JUN-14 @ 11:15							
Matrix: OTHER							
Dissolved Metals by ICP-MS							
Calcium (Ca)-Dissolved	<0.050		0.050	mg/L	17-JUN-14	27-JUN-14	R2875508
Cesium (Cs)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	<0.000090		0.000090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	<0.010		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	<0.0010		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	<0.020		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	<0.0010		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	<0.10		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	<0.020		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.00050		0.00050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.00040		0.00040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
pH							
pH	6.35		0.10	pH units		18-JUN-14	R2868518
L1471867-12 13-13							
Sampled By: NLB on 17-JUN-14 @ 11:30							
Matrix: GW							
Miscellaneous Parameters							
Chloride	53.7		0.50	mg/L		17-JUN-14	R2867208
Oxygen, Dissolved	2.60		0.10	mg/L		17-JUN-14	R2866449
Sulfate	460		0.50	mg/L		17-JUN-14	R2867208
Turbidity	115		0.10	NTU		18-JUN-14	R2869904
Dissolved Metals by ICP-MS							
Aluminum (Al)-Dissolved	0.0214		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Antimony (Sb)-Dissolved	0.191		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Arsenic (As)-Dissolved	0.00251		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Barium (Ba)-Dissolved	0.0837		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Beryllium (Be)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Bismuth (Bi)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Boron (B)-Dissolved	1.09		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Cadmium (Cd)-Dissolved	0.000170		0.000010	mg/L	17-JUN-14	27-JUN-14	R2875508
Calcium (Ca)-Dissolved	115		0.050	mg/L	17-JUN-14	27-JUN-14	R2875508

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

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1471867-12 13-13							
Sampled By: NLB on 17-JUN-14 @ 11:30							
Matrix: GW							
Dissolved Metals by ICP-MS							
Cesium (Cs)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Chromium (Cr)-Dissolved	<0.0020		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Cobalt (Co)-Dissolved	0.00033		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Copper (Cu)-Dissolved	0.0188		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Iron (Fe)-Dissolved	<0.10		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Lead (Pb)-Dissolved	0.0438		0.000090	mg/L	17-JUN-14	27-JUN-14	R2875508
Lithium (Li)-Dissolved	0.0782		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Magnesium (Mg)-Dissolved	54.1		0.010	mg/L	17-JUN-14	27-JUN-14	R2875508
Manganese (Mn)-Dissolved	0.0131		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Molybdenum (Mo)-Dissolved	0.00368		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Nickel (Ni)-Dissolved	0.0070		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Phosphorus (P)-Dissolved	<0.030		0.030	mg/L	17-JUN-14	27-JUN-14	R2875508
Potassium (K)-Dissolved	32.5		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Rubidium (Rb)-Dissolved	0.00329		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Selenium (Se)-Dissolved	0.0044		0.0010	mg/L	17-JUN-14	27-JUN-14	R2875508
Silicon (Si)-Dissolved	7.37		0.10	mg/L	17-JUN-14	27-JUN-14	R2875508
Silver (Ag)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Sodium (Na)-Dissolved	133		0.020	mg/L	17-JUN-14	27-JUN-14	R2875508
Strontium (Sr)-Dissolved	0.675		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tellurium (Te)-Dissolved	<0.00020		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Thallium (Tl)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Thorium (Th)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Tin (Sn)-Dissolved	0.00033		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Titanium (Ti)-Dissolved	<0.00050		0.00050	mg/L	17-JUN-14	27-JUN-14	R2875508
Tungsten (W)-Dissolved	<0.00010		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Uranium (U)-Dissolved	0.00328		0.00010	mg/L	17-JUN-14	27-JUN-14	R2875508
Vanadium (V)-Dissolved	0.00042		0.00020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zinc (Zn)-Dissolved	0.0086		0.0020	mg/L	17-JUN-14	27-JUN-14	R2875508
Zirconium (Zr)-Dissolved	<0.00040		0.00040	mg/L	17-JUN-14	27-JUN-14	R2875508
pH, Conductivity and Total Alkalinity							
Alkalinity							
Alkalinity, Total (as CaCO3)	275		20	mg/L		18-JUN-14	R2868518
Bicarbonate (HCO3)	331		24	mg/L		18-JUN-14	R2868518
Carbonate (CO3)	<12		12	mg/L		18-JUN-14	R2868518
Hydroxide (OH)	<6.8		6.8	mg/L		18-JUN-14	R2868518
Conductivity							
Conductivity	1660		20	umhos/cm		18-JUN-14	R2868518
pH							
pH	8.31		0.10	pH units		18-JUN-14	R2868518

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

Reference Information

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RWHS	Samples Received With Headspace

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ALK-T-L-WP	Water	Alkalinity	APHA 2320B
Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
ALK-TOT-WP	Water	Alkalinity	APHA 2320B
Alkalinity of water is a measure of its acid neutralizing capacity. Alkalinity is imparted by bicarbonate, carbonate and hydroxide components of water. It is determined by titration with a standard solution of strong mineral acid to the successive HCO3- and H2CO3 endpoints indicated electrometrically.			
CL-IC-WP	Water	Chloride by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
EC-L-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
EC-WP	Water	Conductivity	APHA 2510B
Conductivity of an aqueous solution refers to its ability to carry an electric current. Conductance of a solution is measured between two spatially fixed and chemically inert electrodes.			
MET-D-L-MS-WP	Water	Dissolved Metals by ICP-MS	APHA 3030B/EPA 6020A -DL
This analysis involves filtration (APHA 3030B) and analysis by inductively coupled plasma - mass spectrometry (EPA Method 6020A).			
O2-DIS-WP	Water	Dissolved Oxygen	APHA 4500-O-C
Manganous sulphate reacts with potassium or sodium hydroxide to give a white precipitate of manganous hydroxide. In the presence of oxygen, brown manganic hydroxide is formed. Addition of sulfuric acid dissolves the manganic hydroxide, yielding manganic sulfate which reacts with iodide, releasing iodide in an amount equivalent to the original DO content. The iodide is then titrated with a standard solution of thiosulphate.			
PH-WP	Water	pH	APHA 4500H
The pH of a sample is the determination of the activity of the hydrogen ions by potentiometric measurement using a standard hydrogen electrode and a reference electrode.			
SO4-IC-WP	Water	Sulfate by Ion Chromatography	EPA 300.1 (Modified)
Anions in aqueous matrices are analyzed using ion chromatography with conductivity and/or UV absorbance detectors.			
TURBIDITY-WP	Water	Turbidity	APHA 2130B (modified)
Turbidity in aqueous matrices is determined by the nephelometric method.			

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WP	ALS ENVIRONMENTAL - WINNIPEG, MANITOBA, CANADA

Chain of Custody Numbers:

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.
mg/kg - milligrams per kilogram based on dry weight of sample
mg/kg wwt - milligrams per kilogram based on wet weight of sample
mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight
mg/L - unit of concentration based on volume, parts per million.
< - Less than.
D.L. - The reporting limit.
N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.
Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Quality Control Report

Client: Dillon Consulting Engineers
1558 Willson Place
Winnipeg MB R3T 0Y4
Contact: INDRA KALINOVICH

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
ALK-T-L-WP	**Water**							
Batch R2873783								
WG1900185-2 LCS								
Alkalinity, Total (as CaCO3)			108.8		%		85-115	26-JUN-14
ALK-TOT-WP	**Water**							
Batch R2868518								
WG1894796-2 LCS								
Alkalinity, Total (as CaCO3)			101.3		%		85-115	18-JUN-14
WG1894796-7 LCS								
Alkalinity, Total (as CaCO3)			100.2		%		85-115	18-JUN-14
WG1894796-1 MB								
Alkalinity, Total (as CaCO3)			<20		mg/L		20	18-JUN-14
Bicarbonate (HCO3)			<24		mg/L		24	18-JUN-14
Carbonate (CO3)			<12		mg/L		12	18-JUN-14
Hydroxide (OH)			<6.8		mg/L		6.8	18-JUN-14
WG1894796-6 MB								
Alkalinity, Total (as CaCO3)			<20		mg/L		20	18-JUN-14
Bicarbonate (HCO3)			<24		mg/L		24	18-JUN-14
Carbonate (CO3)			<12		mg/L		12	18-JUN-14
Hydroxide (OH)			<6.8		mg/L		6.8	18-JUN-14
Batch R2870127								
WG1896748-2 LCS								
Alkalinity, Total (as CaCO3)			98.8		%		85-115	20-JUN-14
WG1896748-7 LCS								
Alkalinity, Total (as CaCO3)			99.7		%		85-115	20-JUN-14
WG1896748-1 MB								
Alkalinity, Total (as CaCO3)			<20		mg/L		20	20-JUN-14
Bicarbonate (HCO3)			<24		mg/L		24	20-JUN-14
Carbonate (CO3)			<12		mg/L		12	20-JUN-14
Hydroxide (OH)			<6.8		mg/L		6.8	20-JUN-14
WG1896748-6 MB								
Alkalinity, Total (as CaCO3)			<20		mg/L		20	20-JUN-14
Bicarbonate (HCO3)			<24		mg/L		24	20-JUN-14
Carbonate (CO3)			<12		mg/L		12	20-JUN-14
Hydroxide (OH)			<6.8		mg/L		6.8	20-JUN-14
CL-IC-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CL-IC-WP	**Water**							
Batch R2867208								
WG1894044-16 DUP		**L1471867-12**						
Chloride		53.7	53.8		mg/L	0.2	20	17-JUN-14
WG1894044-10 LCS								
Chloride			100.8		%		90-110	17-JUN-14
WG1894044-14 LCS								
Chloride			101.4		%		90-110	17-JUN-14
WG1894044-18 LCS								
Chloride			101.7		%		90-110	17-JUN-14
WG1894044-2 LCS								
Chloride			100.4		%		90-110	17-JUN-14
WG1894044-6 LCS								
Chloride			100.8		%		90-110	17-JUN-14
WG1894044-1 MB								
Chloride			<0.50		mg/L		0.5	17-JUN-14
WG1894044-13 MB								
Chloride			<0.50		mg/L		0.5	17-JUN-14
WG1894044-17 MB								
Chloride			<0.50		mg/L		0.5	17-JUN-14
WG1894044-5 MB								
Chloride			<0.50		mg/L		0.5	17-JUN-14
WG1894044-9 MB								
Chloride			<0.50		mg/L		0.5	17-JUN-14
WG1894044-11 MS		**L1471762-1**						
Chloride			101.2		%		75-125	17-JUN-14
WG1894044-15 MS		**L1471867-12**						
Chloride			89.7		%		75-125	17-JUN-14
WG1894044-7 MS		**L1471687-3**						
Chloride			N/A	MS-B	%		-	17-JUN-14
EC-L-WP	**Water**							
Batch R2873673								
WG1899900-3 DUP		**L1471867-11**						
Conductivity		2.7	2.7		umhos/cm	0.7	10	26-JUN-14
WG1899900-2 LCS								
Conductivity			101.1		%		90-110	26-JUN-14
WG1899900-1 MB								
Conductivity			<1.0		umhos/cm		1	26-JUN-14
EC-WP	**Water**							

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
EC-WP	**Water**							
Batch R2868518								
WG1894796-4 LCS								
Conductivity			105.2		%		90-110	18-JUN-14
WG1894796-9 LCS								
Conductivity			103.0		%		90-110	18-JUN-14
WG1894796-1 MB								
Conductivity			<20		umhos/cm		20	18-JUN-14
WG1894796-6 MB								
Conductivity			<20		umhos/cm		20	18-JUN-14
Batch R2869565								
WG1895455-4 LCS								
Conductivity			102.5		%		90-110	19-JUN-14
WG1895455-9 LCS								
Conductivity			103.2		%		90-110	19-JUN-14
WG1895455-1 MB								
Conductivity			<20		umhos/cm		20	19-JUN-14
WG1895455-6 MB								
Conductivity			<20		umhos/cm		20	19-JUN-14
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-14 LCS								
Aluminum (Al)-Dissolved			102.1		%		80-120	27-JUN-14
Antimony (Sb)-Dissolved			98.2		%		80-120	27-JUN-14
Arsenic (As)-Dissolved			101.0		%		80-120	27-JUN-14
Barium (Ba)-Dissolved			99.7		%		80-120	27-JUN-14
Beryllium (Be)-Dissolved			98.9		%		80-120	27-JUN-14
Bismuth (Bi)-Dissolved			97.8		%		80-120	27-JUN-14
Boron (B)-Dissolved			98.4		%		80-120	27-JUN-14
Cadmium (Cd)-Dissolved			96.5		%		80-120	27-JUN-14
Calcium (Ca)-Dissolved			99.3		%		80-120	27-JUN-14
Cesium (Cs)-Dissolved			98.7		%		80-120	27-JUN-14
Chromium (Cr)-Dissolved			101.4		%		80-120	27-JUN-14
Cobalt (Co)-Dissolved			101.4		%		80-120	27-JUN-14
Copper (Cu)-Dissolved			93.7		%		80-120	27-JUN-14
Iron (Fe)-Dissolved			98.2		%		80-120	27-JUN-14
Lead (Pb)-Dissolved			98.9		%		80-120	27-JUN-14
Lithium (Li)-Dissolved			96.7		%		80-120	27-JUN-14
Magnesium (Mg)-Dissolved			100.3		%		80-120	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch	**R2875508**							
WG1901714-14 LCS								
Manganese (Mn)-Dissolved			104.0		%		80-120	27-JUN-14
Molybdenum (Mo)-Dissolved			96.8		%		80-120	27-JUN-14
Nickel (Ni)-Dissolved			97.8		%		80-120	27-JUN-14
Phosphorus (P)-Dissolved			108.7		%		80-120	27-JUN-14
Potassium (K)-Dissolved			102.8		%		80-120	27-JUN-14
Rubidium (Rb)-Dissolved			101.8		%		80-120	27-JUN-14
Selenium (Se)-Dissolved			99.0		%		80-120	27-JUN-14
Silicon (Si)-Dissolved			92.3		%		80-120	27-JUN-14
Silver (Ag)-Dissolved			98.3		%		80-120	27-JUN-14
Sodium (Na)-Dissolved			104.7		%		80-120	27-JUN-14
Strontium (Sr)-Dissolved			95.7		%		80-120	27-JUN-14
Tellurium (Te)-Dissolved			98.1		%		80-120	27-JUN-14
Thallium (Tl)-Dissolved			97.9		%		80-120	27-JUN-14
Thorium (Th)-Dissolved			98.5		%		80-120	27-JUN-14
Tin (Sn)-Dissolved			100.7		%		80-120	27-JUN-14
Titanium (Ti)-Dissolved			102.4		%		80-120	27-JUN-14
Tungsten (W)-Dissolved			98.9		%		80-120	27-JUN-14
Uranium (U)-Dissolved			99.7		%		80-120	27-JUN-14
Vanadium (V)-Dissolved			104.7		%		80-120	27-JUN-14
Zinc (Zn)-Dissolved			94.8		%		80-120	27-JUN-14
Zirconium (Zr)-Dissolved			98.5		%		80-120	27-JUN-14
WG1901714-20 LCS								
Aluminum (Al)-Dissolved			100.7		%		80-120	27-JUN-14
Antimony (Sb)-Dissolved			99.1		%		80-120	27-JUN-14
Arsenic (As)-Dissolved			102.4		%		80-120	27-JUN-14
Barium (Ba)-Dissolved			99.7		%		80-120	27-JUN-14
Beryllium (Be)-Dissolved			98.4		%		80-120	27-JUN-14
Bismuth (Bi)-Dissolved			98.7		%		80-120	27-JUN-14
Boron (B)-Dissolved			101.9		%		80-120	27-JUN-14
Cadmium (Cd)-Dissolved			97.6		%		80-120	27-JUN-14
Calcium (Ca)-Dissolved			101.0		%		80-120	27-JUN-14
Cesium (Cs)-Dissolved			99.1		%		80-120	27-JUN-14
Chromium (Cr)-Dissolved			98.9		%		80-120	27-JUN-14
Cobalt (Co)-Dissolved			95.0		%		80-120	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-20 LCS								
Copper (Cu)-Dissolved			95.8		%		80-120	27-JUN-14
Iron (Fe)-Dissolved			97.7		%		80-120	27-JUN-14
Lead (Pb)-Dissolved			98.9		%		80-120	27-JUN-14
Lithium (Li)-Dissolved			97.2		%		80-120	27-JUN-14
Magnesium (Mg)-Dissolved			97.2		%		80-120	27-JUN-14
Manganese (Mn)-Dissolved			100.6		%		80-120	27-JUN-14
Molybdenum (Mo)-Dissolved			95.9		%		80-120	27-JUN-14
Nickel (Ni)-Dissolved			97.3		%		80-120	27-JUN-14
Phosphorus (P)-Dissolved			107.0		%		80-120	27-JUN-14
Potassium (K)-Dissolved			99.4		%		80-120	27-JUN-14
Rubidium (Rb)-Dissolved			99.99		%		80-120	27-JUN-14
Selenium (Se)-Dissolved			99.0		%		80-120	27-JUN-14
Silicon (Si)-Dissolved			92.8		%		80-120	27-JUN-14
Silver (Ag)-Dissolved			99.3		%		80-120	27-JUN-14
Sodium (Na)-Dissolved			100.4		%		80-120	27-JUN-14
Strontium (Sr)-Dissolved			94.7		%		80-120	27-JUN-14
Tellurium (Te)-Dissolved			98.9		%		80-120	27-JUN-14
Thallium (Tl)-Dissolved			98.9		%		80-120	27-JUN-14
Thorium (Th)-Dissolved			97.4		%		80-120	27-JUN-14
Tin (Sn)-Dissolved			103.8		%		80-120	27-JUN-14
Titanium (Ti)-Dissolved			100.5		%		80-120	27-JUN-14
Tungsten (W)-Dissolved			96.2		%		80-120	27-JUN-14
Uranium (U)-Dissolved			99.2		%		80-120	27-JUN-14
Vanadium (V)-Dissolved			102.6		%		80-120	27-JUN-14
Zinc (Zn)-Dissolved			99.3		%		80-120	27-JUN-14
Zirconium (Zr)-Dissolved			99.3		%		80-120	27-JUN-14
WG1901714-32 LCS								
Aluminum (Al)-Dissolved			102.3		%		80-120	27-JUN-14
Antimony (Sb)-Dissolved			97.1		%		80-120	27-JUN-14
Arsenic (As)-Dissolved			98.3		%		80-120	27-JUN-14
Barium (Ba)-Dissolved			105.9		%		80-120	27-JUN-14
Beryllium (Be)-Dissolved			101.2		%		80-120	27-JUN-14
Bismuth (Bi)-Dissolved			99.9		%		80-120	27-JUN-14
Boron (B)-Dissolved			101.4		%		80-120	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-32 LCS								
Cadmium (Cd)-Dissolved			96.1		%		80-120	27-JUN-14
Calcium (Ca)-Dissolved			99.8		%		80-120	27-JUN-14
Cesium (Cs)-Dissolved			96.4		%		80-120	27-JUN-14
Chromium (Cr)-Dissolved			101.0		%		80-120	27-JUN-14
Cobalt (Co)-Dissolved			98.8		%		80-120	27-JUN-14
Copper (Cu)-Dissolved			96.9		%		80-120	27-JUN-14
Iron (Fe)-Dissolved			96.5		%		80-120	27-JUN-14
Lead (Pb)-Dissolved			99.2		%		80-120	27-JUN-14
Lithium (Li)-Dissolved			101.2		%		80-120	27-JUN-14
Magnesium (Mg)-Dissolved			98.9		%		80-120	27-JUN-14
Manganese (Mn)-Dissolved			100.2		%		80-120	27-JUN-14
Molybdenum (Mo)-Dissolved			94.6		%		80-120	27-JUN-14
Nickel (Ni)-Dissolved			97.5		%		80-120	27-JUN-14
Phosphorus (P)-Dissolved			108.4		%		80-120	27-JUN-14
Potassium (K)-Dissolved			103.4		%		80-120	27-JUN-14
Rubidium (Rb)-Dissolved			100.1		%		80-120	27-JUN-14
Selenium (Se)-Dissolved			97.8		%		80-120	27-JUN-14
Silicon (Si)-Dissolved			102.9		%		80-120	27-JUN-14
Silver (Ag)-Dissolved			105.5		%		80-120	27-JUN-14
Sodium (Na)-Dissolved			103.7		%		80-120	27-JUN-14
Strontium (Sr)-Dissolved			95.1		%		80-120	27-JUN-14
Tellurium (Te)-Dissolved			105.9		%		80-120	27-JUN-14
Thallium (Tl)-Dissolved			99.7		%		80-120	27-JUN-14
Thorium (Th)-Dissolved			100.7		%		80-120	27-JUN-14
Tin (Sn)-Dissolved			101.1		%		80-120	27-JUN-14
Titanium (Ti)-Dissolved			100.8		%		80-120	27-JUN-14
Tungsten (W)-Dissolved			94.6		%		80-120	27-JUN-14
Uranium (U)-Dissolved			97.8		%		80-120	27-JUN-14
Vanadium (V)-Dissolved			101.4		%		80-120	27-JUN-14
Zinc (Zn)-Dissolved			99.1		%		80-120	27-JUN-14
Zirconium (Zr)-Dissolved			92.6		%		80-120	27-JUN-14
WG1901714-13 MB								
Aluminum (Al)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Antimony (Sb)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-13 MB								
Arsenic (As)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Barium (Ba)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Beryllium (Be)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Bismuth (Bi)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	27-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	27-JUN-14
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	27-JUN-14
Cesium (Cs)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Chromium (Cr)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Cobalt (Co)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Iron (Fe)-Dissolved			<0.10		mg/L		0.1	27-JUN-14
Lead (Pb)-Dissolved			<0.000090		mg/L		0.00009	27-JUN-14
Lithium (Li)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Magnesium (Mg)-Dissolved			<0.010		mg/L		0.01	27-JUN-14
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Molybdenum (Mo)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	27-JUN-14
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	27-JUN-14
Potassium (K)-Dissolved			<0.020		mg/L		0.02	27-JUN-14
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	27-JUN-14
Silicon (Si)-Dissolved			<0.10		mg/L		0.1	27-JUN-14
Silver (Ag)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Sodium (Na)-Dissolved			<0.020		mg/L		0.02	27-JUN-14
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Thallium (Tl)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Tin (Sn)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Titanium (Ti)-Dissolved			<0.00050		mg/L		0.0005	27-JUN-14
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Uranium (U)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Vanadium (V)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-13 MB								
Zinc (Zn)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Zirconium (Zr)-Dissolved			<0.00040		mg/L		0.0004	27-JUN-14
WG1901714-19 MB								
Aluminum (Al)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Antimony (Sb)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Arsenic (As)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Barium (Ba)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Beryllium (Be)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Bismuth (Bi)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	27-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	27-JUN-14
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	27-JUN-14
Cesium (Cs)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Chromium (Cr)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Cobalt (Co)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Iron (Fe)-Dissolved			<0.10		mg/L		0.1	27-JUN-14
Lead (Pb)-Dissolved			<0.000090		mg/L		0.00009	27-JUN-14
Lithium (Li)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Magnesium (Mg)-Dissolved			<0.010		mg/L		0.01	27-JUN-14
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Molybdenum (Mo)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	27-JUN-14
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	27-JUN-14
Potassium (K)-Dissolved			<0.020		mg/L		0.02	27-JUN-14
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	27-JUN-14
Silicon (Si)-Dissolved			<0.10		mg/L		0.1	27-JUN-14
Silver (Ag)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Sodium (Na)-Dissolved			<0.020		mg/L		0.02	27-JUN-14
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Thallium (Tl)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-19 MB								
Tin (Sn)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Titanium (Ti)-Dissolved			<0.00050		mg/L		0.0005	27-JUN-14
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Uranium (U)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Vanadium (V)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Zinc (Zn)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Zirconium (Zr)-Dissolved			<0.00040		mg/L		0.0004	27-JUN-14
WG1901714-31 MB								
Aluminum (Al)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Antimony (Sb)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Arsenic (As)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Barium (Ba)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Beryllium (Be)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Bismuth (Bi)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Boron (B)-Dissolved			<0.010		mg/L		0.01	27-JUN-14
Cadmium (Cd)-Dissolved			<0.000010		mg/L		0.00001	27-JUN-14
Calcium (Ca)-Dissolved			<0.050		mg/L		0.05	27-JUN-14
Cesium (Cs)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Chromium (Cr)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Cobalt (Co)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Copper (Cu)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Iron (Fe)-Dissolved			<0.10		mg/L		0.1	27-JUN-14
Lead (Pb)-Dissolved			<0.000090		mg/L		0.00009	27-JUN-14
Lithium (Li)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Magnesium (Mg)-Dissolved			<0.010		mg/L		0.01	27-JUN-14
Manganese (Mn)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Molybdenum (Mo)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Nickel (Ni)-Dissolved			<0.0010		mg/L		0.001	27-JUN-14
Phosphorus (P)-Dissolved			<0.030		mg/L		0.03	27-JUN-14
Potassium (K)-Dissolved			<0.020		mg/L		0.02	27-JUN-14
Rubidium (Rb)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Selenium (Se)-Dissolved			<0.0010		mg/L		0.001	27-JUN-14
Silicon (Si)-Dissolved			<0.10		mg/L		0.1	27-JUN-14
Silver (Ag)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-31 MB								
Sodium (Na)-Dissolved			<0.020		mg/L		0.02	27-JUN-14
Strontium (Sr)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Tellurium (Te)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Thallium (Tl)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Thorium (Th)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Tin (Sn)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Titanium (Ti)-Dissolved			<0.00050		mg/L		0.0005	27-JUN-14
Tungsten (W)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Uranium (U)-Dissolved			<0.00010		mg/L		0.0001	27-JUN-14
Vanadium (V)-Dissolved			<0.00020		mg/L		0.0002	27-JUN-14
Zinc (Zn)-Dissolved			<0.0020		mg/L		0.002	27-JUN-14
Zirconium (Zr)-Dissolved			<0.00040		mg/L		0.0004	27-JUN-14
WG1901714-16 MS		**WG1901714-15**						
Aluminum (Al)-Dissolved			98.8		%		70-130	27-JUN-14
Antimony (Sb)-Dissolved			91.5		%		70-130	27-JUN-14
Arsenic (As)-Dissolved			99.5		%		70-130	27-JUN-14
Barium (Ba)-Dissolved			97.6		%		70-130	27-JUN-14
Beryllium (Be)-Dissolved			94.7		%		70-130	27-JUN-14
Bismuth (Bi)-Dissolved			83.8		%		70-130	27-JUN-14
Boron (B)-Dissolved			99.4		%		70-130	27-JUN-14
Cadmium (Cd)-Dissolved			104.4		%		70-130	27-JUN-14
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Cesium (Cs)-Dissolved			91.9		%		70-130	27-JUN-14
Chromium (Cr)-Dissolved			100.0		%		70-130	27-JUN-14
Cobalt (Co)-Dissolved			99.9		%		70-130	27-JUN-14
Copper (Cu)-Dissolved			99.3		%		70-130	27-JUN-14
Iron (Fe)-Dissolved			88.5		%		70-130	27-JUN-14
Lead (Pb)-Dissolved			89.5		%		70-130	27-JUN-14
Lithium (Li)-Dissolved			94.1		%		70-130	27-JUN-14
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Manganese (Mn)-Dissolved			98.5		%		70-130	27-JUN-14
Molybdenum (Mo)-Dissolved			88.0		%		70-130	27-JUN-14
Nickel (Ni)-Dissolved			99.6		%		70-130	27-JUN-14
Phosphorus (P)-Dissolved			102.6		%		70-130	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-16 MS		**WG1901714-15**						
Potassium (K)-Dissolved			98.1		%		70-130	27-JUN-14
Rubidium (Rb)-Dissolved			104.1		%		70-130	27-JUN-14
Selenium (Se)-Dissolved			93.0		%		70-130	27-JUN-14
Silicon (Si)-Dissolved			84.0		%		70-130	27-JUN-14
Silver (Ag)-Dissolved			91.2		%		70-130	27-JUN-14
Sodium (Na)-Dissolved			106.4		%		70-130	27-JUN-14
Strontium (Sr)-Dissolved			92.0		%		70-130	27-JUN-14
Tellurium (Te)-Dissolved			95.6		%		70-130	27-JUN-14
Thallium (Tl)-Dissolved			91.8		%		70-130	27-JUN-14
Tin (Sn)-Dissolved			93.2		%		70-130	27-JUN-14
Titanium (Ti)-Dissolved			99.1		%		70-130	27-JUN-14
Tungsten (W)-Dissolved			91.8		%		70-130	27-JUN-14
Uranium (U)-Dissolved			87.1		%		70-130	27-JUN-14
Vanadium (V)-Dissolved			98.3		%		70-130	27-JUN-14
Zinc (Zn)-Dissolved			98.6		%		70-130	27-JUN-14
Zirconium (Zr)-Dissolved			93.5		%		70-130	27-JUN-14
WG1901714-22 MS		**WG1901714-21**						
Aluminum (Al)-Dissolved			94.4		%		70-130	27-JUN-14
Antimony (Sb)-Dissolved			95.4		%		70-130	27-JUN-14
Arsenic (As)-Dissolved			102.6		%		70-130	27-JUN-14
Barium (Ba)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Beryllium (Be)-Dissolved			95.4		%		70-130	27-JUN-14
Bismuth (Bi)-Dissolved			81.1		%		70-130	27-JUN-14
Boron (B)-Dissolved			102.4		%		70-130	27-JUN-14
Cadmium (Cd)-Dissolved			99.4		%		70-130	27-JUN-14
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Cesium (Cs)-Dissolved			96.2		%		70-130	27-JUN-14
Chromium (Cr)-Dissolved			95.4		%		70-130	27-JUN-14
Cobalt (Co)-Dissolved			91.7		%		70-130	27-JUN-14
Copper (Cu)-Dissolved			88.1		%		70-130	27-JUN-14
Iron (Fe)-Dissolved			93.2		%		70-130	27-JUN-14
Lead (Pb)-Dissolved			92.5		%		70-130	27-JUN-14
Lithium (Li)-Dissolved			97.4		%		70-130	27-JUN-14
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch	**R2875508**							
WG1901714-22 MS		**WG1901714-21**						
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Molybdenum (Mo)-Dissolved			90.8		%		70-130	27-JUN-14
Nickel (Ni)-Dissolved			89.4		%		70-130	27-JUN-14
Phosphorus (P)-Dissolved			104.8		%		70-130	27-JUN-14
Potassium (K)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Rubidium (Rb)-Dissolved			100.9		%		70-130	27-JUN-14
Selenium (Se)-Dissolved			125.2		%		70-130	27-JUN-14
Silicon (Si)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Sodium (Na)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Tellurium (Te)-Dissolved			103.5		%		70-130	27-JUN-14
Thallium (Tl)-Dissolved			93.1		%		70-130	27-JUN-14
Tin (Sn)-Dissolved			97.7		%		70-130	27-JUN-14
Titanium (Ti)-Dissolved			97.1		%		70-130	27-JUN-14
Tungsten (W)-Dissolved			98.3		%		70-130	27-JUN-14
Uranium (U)-Dissolved			95.1		%		70-130	27-JUN-14
Vanadium (V)-Dissolved			96.2		%		70-130	27-JUN-14
Zinc (Zn)-Dissolved			90.5		%		70-130	27-JUN-14
Zirconium (Zr)-Dissolved			97.4		%		70-130	27-JUN-14
WG1901714-34 MS		**WG1901714-33**						
Aluminum (Al)-Dissolved			98.2		%		70-130	27-JUN-14
Antimony (Sb)-Dissolved			92.6		%		70-130	27-JUN-14
Arsenic (As)-Dissolved			100.1		%		70-130	27-JUN-14
Barium (Ba)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Beryllium (Be)-Dissolved			92.9		%		70-130	27-JUN-14
Bismuth (Bi)-Dissolved			74.6		%		70-130	27-JUN-14
Boron (B)-Dissolved			103.6		%		70-130	27-JUN-14
Cadmium (Cd)-Dissolved			94.6		%		70-130	27-JUN-14
Calcium (Ca)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Cesium (Cs)-Dissolved			90.0		%		70-130	27-JUN-14
Chromium (Cr)-Dissolved			97.6		%		70-130	27-JUN-14
Cobalt (Co)-Dissolved			96.4		%		70-130	27-JUN-14
Copper (Cu)-Dissolved			94.7		%		70-130	27-JUN-14
Iron (Fe)-Dissolved			95.8		%		70-130	27-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-L-MS-WP	**Water**							
Batch R2875508								
WG1901714-34 MS		**WG1901714-33**						
Lead (Pb)-Dissolved			92.7		%		70-130	27-JUN-14
Lithium (Li)-Dissolved			92.3		%		70-130	27-JUN-14
Magnesium (Mg)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Manganese (Mn)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Molybdenum (Mo)-Dissolved			89.0		%		70-130	27-JUN-14
Nickel (Ni)-Dissolved			95.2		%		70-130	27-JUN-14
Phosphorus (P)-Dissolved			103.6		%		70-130	27-JUN-14
Potassium (K)-Dissolved			99.2		%		70-130	27-JUN-14
Rubidium (Rb)-Dissolved			99.2		%		70-130	27-JUN-14
Selenium (Se)-Dissolved			100.2		%		70-130	27-JUN-14
Silicon (Si)-Dissolved			90.2		%		70-130	27-JUN-14
Silver (Ag)-Dissolved			89.5		%		70-130	27-JUN-14
Sodium (Na)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Strontium (Sr)-Dissolved			N/A	MS-B	%		-	27-JUN-14
Tellurium (Te)-Dissolved			98.7		%		70-130	27-JUN-14
Thallium (Tl)-Dissolved			94.3		%		70-130	27-JUN-14
Tin (Sn)-Dissolved			95.2		%		70-130	27-JUN-14
Titanium (Ti)-Dissolved			100.5		%		70-130	27-JUN-14
Tungsten (W)-Dissolved			93.0		%		70-130	27-JUN-14
Uranium (U)-Dissolved			95.5		%		70-130	27-JUN-14
Vanadium (V)-Dissolved			98.2		%		70-130	27-JUN-14
Zinc (Zn)-Dissolved			94.6		%		70-130	27-JUN-14
Zirconium (Zr)-Dissolved			93.5		%		70-130	27-JUN-14
O2-DIS-WP	**Water**							
Batch R2866449								
WG1893875-2 LCS								
Oxygen, Dissolved			104.5		%		85-115	17-JUN-14
WG1893875-1 MB								
Oxygen, Dissolved			<0.10		mg/L		0.1	17-JUN-14
PH-WP	**Water**							
Batch R2868518								
WG1894796-3 LCS								
pH			7.42		pH units		7.3-7.5	18-JUN-14
WG1894796-8 LCS								
pH			7.40		pH units		7.3-7.5	18-JUN-14

Quality Control Report

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PH-WP	**Water**							
Batch R2869565								
WG1895455-3 LCS								
pH			7.42		pH units		7.3-7.5	19-JUN-14
WG1895455-8 LCS								
pH			7.47		pH units		7.3-7.5	19-JUN-14
SO4-IC-WP	**Water**							
Batch R2867208								
WG1894044-16 DUP		**L1471867-12**						
Sulfate		460	460		mg/L	0.0	20	17-JUN-14
WG1894044-10 LCS								
Sulfate			100.5		%		90-110	17-JUN-14
WG1894044-14 LCS								
Sulfate			101.2		%		90-110	17-JUN-14
WG1894044-18 LCS								
Sulfate			101.6		%		90-110	17-JUN-14
WG1894044-2 LCS								
Sulfate			100.5		%		90-110	17-JUN-14
WG1894044-1 MB								
Sulfate			<0.50		mg/L		0.5	17-JUN-14
WG1894044-13 MB								
Sulfate			<0.50		mg/L		0.5	17-JUN-14
WG1894044-17 MB								
Sulfate			<0.50		mg/L		0.5	17-JUN-14
WG1894044-9 MB								
Sulfate			<0.50		mg/L		0.5	17-JUN-14
WG1894044-11 MS		**L1471762-1**						
Sulfate			91.3		%		75-125	17-JUN-14
WG1894044-15 MS		**L1471867-12**						
Sulfate			N/A	MS-B	%		-	17-JUN-14
WG1894044-19 MS		**L1472199-2**						
Sulfate			94.4		%		75-125	17-JUN-14
TURBIDITY-WP	**Water**							
Batch R2869904								
WG1896145-2 LCS								
Turbidity			102.0		%		85-115	18-JUN-14
WG1896145-1 MB								
Turbidity			<0.10		NTU		0.1	18-JUN-14

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.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

ALS Product Description	Sample ID	Sampling Date	Date Processed	Rec. HT	Actual HT	Units	Qualifier
Physical Tests							
pH							
	1	17-JUN-14 08:45	19-JUN-14 15:04	0.25	54	hours	EHTR-FM
	2	17-JUN-14 08:45	18-JUN-14 15:23	0.25	31	hours	EHTR-FM
	4	17-JUN-14 09:15	18-JUN-14 15:23	0.25	30	hours	EHTR-FM
	5	17-JUN-14 09:30	18-JUN-14 15:23	0.25	30	hours	EHTR-FM
	6	17-JUN-14 09:45	18-JUN-14 15:23	0.25	30	hours	EHTR-FM
	7	17-JUN-14 09:45	18-JUN-14 15:23	0.25	30	hours	EHTR-FM
	8	17-JUN-14 10:00	18-JUN-14 15:23	0.25	29	hours	EHTR-FM
	10	17-JUN-14 10:45	18-JUN-14 15:23	0.25	29	hours	EHTR-FM
	11	17-JUN-14 11:15	18-JUN-14 15:23	0.25	28	hours	EHTR-FM
	12	17-JUN-14 11:30	18-JUN-14 15:23	0.25	28	hours	EHTR-FM

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 L1471867 were received on 17-JUN-14 12:10.

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.

10- 221262

ALS Environmental

L1471867-COFC

Page 1 of 1

Report To		Report		Service Request: (Rush subject to availability - Contact ALS to confirm TAT)
Company: Dillon Consulting		Standard: ✓ Other (specify):		X Regular (Standard Turnaround Times - Business Days)
Contact: Indra Kalinovich		Select: PDF ✓ Excel ✓ Digital Fax		Priority(2-4 Business Days)-50% surcharge - Contact ALS to confirm TAT
Address: 1558 Wilson Pl Winnipeg MB		Email 1: IKalinovich@dillon.ca		Emergency (1-2 Business Days)-100% Surcharge - Contact ALS to confirm TAT
		Email 2: nbeaupre@dillon.ca		Same Day or Weekend Emergency - Contact ALS to confirm TAT
Phone: Fax:				Analysis Request
Invoice To Same as Report ? (circle) (Yes) or No (if No, provide details)		Client / Project Information		(Indicate Filtered or Preserved, F/P)
Copy of Invoice with Report? (circle) (Yes) or No		Job #: 10-3834.		
Company:		PO / AFE:		
Contact:		LSD:		
Address:				
Phone: Fax:		Quote #: NWSP		
Lab Work Order # (lab use only)		ALS Contact: Judy	Sampler: NLB	

Sample #	Sample Identification (This description will appear on the report)	Date (dd-mmm-yy)	Time (hh:mm)	Sample Type	Routine	Dissolved Metals	Dissolved Oxygen								Number of Containers
	13-01	17/06/14	0845	GW	✓	✓	✓							1	3
	FD1		0845		✓	✓	✓								3
	13-02		0900		✓	✓	✓								2
	13-03		0915		✓	✓	✓								3
	13-04		0930		✓	✓	✓								3
	13-06		0945		✓	✓	✓								3
	FD2		0945		✓	✓	✓								3
	13-07		1000		✓	✓	✓								3
	13-10		1030			✓	✓								2
	13-11		1045	↓	✓	✓	✓								3
	ER		1115	other	✓	✓	✓								3
	13-13	↓	1130	GW	✓	✓	✓								3

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

Excess sediment in most Samples. Please proceed with analysis. All dissolved metals filtered in field and preserved. Dissolved Oxygen preserved in field
13-01 and FD1 1 litre poly bottle has limited Sample. Please proceed with analyses.

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

By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by:	Date:	Time:	Received by:	Date:	Time:	Temperature:	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF
[signature]	17/06/13.	1210	PD	17/6/14	12:10	12.10 °C				

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION — WHITE - LABORATORY COPY — YELLOW - CLIENT COPY — GENF 18.01 Front

Appendix D

Letters Submitted for Off-Site Permission

(In reply, please refer to)
Our File: 10-3834

DILLON
CONSULTING

1558 Willson Place
Winnipeg
Manitoba
Canada
R3T 0Y4
Telephone
(204) 453-2301
Fax
(204) 452-4412

June 13, 2013

Pa D'or Manufacturing Inc.
2201 Logan Avenue
Winnipeg, Manitoba R2R 0J3

Attn: Doreen Demare

Off-Site Soil Investigations at 2185 Logan Avenue

Dear Ms. Demare:

As part of the environmental site work planned for the former Northwest Smelting & Refining property located at 2185 Logan Avenue, Winnipeg Manitoba, Dillon Consulting Limited (Dillon) will be conducting a subsurface investigation program along the borders of the neighbouring properties.

We would appreciate a letter from yourself (the property owner), granting permission to access your property for these activities at your earliest convenience. Manitoba Conservation, through Mr. Warren Rospad, has approved the investigation for potential off-site impacts. Drilling and sampling activity locations will run alongside the property line adjacent to 2185 Logan Ave, as shown in the attached Figure 1. Drilling will be carried out by Maple Leaf Drilling Ltd. (Maple Leaf) in late June/early July.

Representatives from Dillon will notify the occupants prior to arriving, inform the occupants when they first enter upon a property, and when they have completed their work on the property. Mr. Warren Rospad from Manitoba Conservation can address any questions or concerns you might have.

Dillon and Maple Leaf will proceed carefully to ensure minimal disruption and disturbance affects your property and workplace.

If you have any comments, questions or concerns regarding site activities, please do not hesitate to contact Doug Bell (Dillon) at (204) 453-2301.

Your cooperation and assistance is sincerely appreciated.

Yours sincerely,

DILLON CONSULTING LIMITED

Doug Bell, M.Sc., P.Geo
Project Manager

IKK/aqs

Encl. Figure 1

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DILLON CONSULTING

SCALE 1:1250

TITLE

PROPOSED BOREHOLE AND SAMPLING LOCATIONS
2201 LOGAN AVENUE, WINNIPEG MANITOBA

DRAWING NO.

1

Appendix E

Site Photographs



Photo 1: View looking north at 13-01, 13-02 and 13-03



Photo 2: View looking east at 13-01, 13-02 and 13-03



Photo 3: View looking east at 13-04



Photo 4: View looking north at 13-05

DILLON CONSULTING	SITE PHOTOGRAPHS	PROJECT NO. 10-3834
	NWSR Site Investigation	PHOTO NO.
May 2013	2185 Logan Avenue, Winnipeg, Manitoba	1-4



Photo 5: View looking north west at 13-06, 13-07 and 13-08



Photo 6: View looking north east at 13-09



Photo 7: View looking south east at 13-10, 13-11 and 13-12



Photo 8: View looking north at 13-13

DILLON CONSULTING	SITE PHOTOGRAPHS	PROJECT NO. 10-3834
	NWSR Site Investigation	PHOTO NO. 5-8
May 2013	2185 Logan Avenue, Winnipeg, Manitoba	



Photo 9: View looking south at 13-14 and 13-13



Photo 10: View looking north east at 13-15



Photo 11: View looking south west at 13-16



Photo 12: View looking west at 13-17

DILLON CONSULTING	SITE PHOTOGRAPHS	PROJECT NO. 10-3834
	NWSR Site Investigation	PHOTO NO. 9-12
May 2013	2185 Logan Avenue, Winnipeg, Manitoba	



Photo 13: View looking north at 13-18 and 13-19



Photo 14: View looking south at 13-20



Photo 15: View looking south west at 13-21



Photo 16: View looking south at 13-22 (offsite)

DILLON CONSULTING	SITE PHOTOGRAPHS	PROJECT NO. 10-3834
	NWSR Site Investigation	PHOTO NO.
May/Sept 2013	2185 Logan Avenue, Winnipeg, Manitoba	13-16



Photo 17: View looking west at 13-23 (offsite)



Photo 18: View looking north at 13-23 (offsite)



Photo 19: View looking west at 13-24 (offsite)



Photo 20: View looking north at 13-24 (offsite)

DILLON CONSULTING	SITE PHOTOGRAPHS	PROJECT NO. 10-3834
	NWSR Site Investigation	PHOTO NO.
September 2013	2185 Logan Avenue, Winnipeg, Manitoba	17-20