



PROJECT: **Limited Phase II Environmental Site Assessment
Caswell Transit Operations Site
Saskatoon, Saskatchewan**

PREPARED FOR: **The City of Saskatoon**





29 August 2014

File: 14-1544-2

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The City of Saskatoon
Major Projects Division, Transportation and Utilities
202 Fourth Avenue North
Saskatoon, SK S7K 0K1

Attention: Mr. Rob Tomiyama; Project Manager

**Subject: Limited Phase II Environmental Site Assessment
Caswell Transit Operations Site
Saskatoon, Saskatchewan**

Please find attached one (1) copy of our Limited Phase II Environmental Site Assessment report for the above mentioned property located in Saskatoon, Saskatchewan.

If you have any questions, concerns or further direction, please call the undersigned at (306) 244-1710.

Yours Sincerely,
PINTER & Associates Ltd.



Lawrence Pinter, P.Eng.
Senior Engineer

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**LIMITED PHASE II ENVIRONMENTAL SITE ASSESSMENT
CASWELL TRANSIT OPERATIONS SITE
SASKATOON, SASKATCHEWAN**

**Prepared For:
THE CITY OF SASKATOON**

**Prepared By:
PINTER & ASSOCIATES LTD.**

**29 August 2014
File: 14-1544-2**



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Executive Summary

The City of Saskatoon retained PINTER & Associates Ltd. (PINTER) to provide a Limited Phase II Environmental Site Assessment (ESA) on the City of Saskatoon Transit properties located at 301 24th Street West, 232 Avenue C North, 316 Avenue C North, and 321 Avenue C North (collectively referred to as the Subject Property) in the City of Saskatoon, Saskatchewan (SK).

The Limited Phase II ESA activities included drilling forty-two boreholes with sixteen of the boreholes completed as monitoring wells. Soil and groundwater samples were collected and submitted for laboratory analysis to establish current environmental conditions. The Limited Phase II ESA is designed to provide the best probability of detecting contaminants of concern if they exist. It does not delineate or map out (horizontally or vertically) the extent of the impact if detected.

Site geology was relatively consistent amongst the borehole locations and was generally comprised of inter-bedded layers of silt, sand, and clay overlaying clay till. Grain size analysis determined soils at the Subject Property governing groundwater flow to be coarse-grained.

Soil samples collected from boreholes located at 301 24th Street West and 232 Avenue C North submitted for laboratory analysis of benzene, toluene, ethylbenzene, xylenes (BTEX), petroleum hydrocarbon (PHC) Fractions F1 to F4, and lead were below applicable guidelines.

Soil samples submitted from boreholes located at 321 Avenue C North for laboratory analysis contained concentrations of ethylbenzene, and PHC Fractions F1 to F4 that exceeded applicable Saskatchewan Ministry of Environment (SMOE) guidelines. A soil sample submitted from borehole 14-2 also contained concentrations of lead above applicable Canadian Council of Ministers of the Environment (CCME) guidelines.

Groundwater samples collected from monitoring well 14-23, located in the loading area of 321 Avenue C North, contained concentrations of PHC Fractions F1 and F2

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above applicable Government of Canada guidelines. All other groundwater samples were below applicable guidelines.

Laboratory analysis of paint samples collected from surfaces in the building located at 321 Avenue C North confirmed the presence of lead-based paint.

Swab samples collected from surfaces within the building located at 301 24th Street West for diesel particulate analysis confirmed the presence of PHC Fractions F2 to F4.

A detailed Phase II is recommended to delineate and determine the extent of the soil and groundwater impacts on the property located at 321 Avenue C North.

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1.0 INTRODUCTION

The City of Saskatoon (the City) retained PINTER & Associates Ltd. (PINTER) to provide a Limited Phase II Environmental Site Assessment (ESA) on the City of Saskatoon Transit properties located at 301 24th Street West, 232 Avenue C North, 316 Avenue C North, and 321 Avenue C North (collectively referred to as the Subject Property) in the city of Saskatoon, Saskatchewan (SK). Figure 1, Appendix A presents the location of the Subject Property.

Appendix B presents a Glossary of Terms and Abbreviations to aid in the interpretation of this report.

A Phase I ESA, completed by PINTER in April 2014, identified six (6) areas of potential environmental concern for the Subject Property:

- 1) The 301 24th Street West property is currently the City of Saskatoon Transit administration building and bus storage barn. A previously completed remediation report detailed that during the replacement of underground fuel storage tanks (USTs), hydrocarbon impacted soil was left in place beneath the northwest parking lot. This surficial hydrocarbon staining was also noted throughout the bus storage barn and adjacent to the exterior of the building, on Avenue D North. Diesel particulate staining was observed on the walls of the administration portion of the building and on the exposed fiberglass insulation and surfaces on the ceiling of the bus storage barns.
- 2) The property located at 232 Avenue C North is currently used for City of Saskatoon Transit staff parking. Sufficient information was not available to confirm or refute the presence of a UST on the 232 Avenue C North property.
- 3) The property located at 316 Avenue C North is currently used for the City of Saskatoon Transit staff parking. Oily substances and stains were noted on the City of Saskatoon Transit maintenance parking lot located west of this property. Impacts from the maintenance operation to the west could potentially migrate to the property via surface water flow. USTs were reported to have been operated at the City of Saskatoon maintenance site. Interview evidence also indicated that engine parts were placed in the former mechanic's pits of the original transit

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building when it was demolished. A potential exists for subsurface environmental impacts migrating east (assumed direction of groundwater flow) to 316 Avenue C North.

- 4) The property located at 321 Avenue C North is currently used as a City of Saskatoon Transit maintenance building. Interview evidence and available historical information was unable to determine if all historical fuel and oil tanks and related impacts were removed from the property. Hydraulic hoists are currently located in the maintenance building. Figure 11, Appendix A presents a reference drawing of the two (2) types of hoists present on the property. Hydraulic hoists can leak hydraulic fluid into the ground; however the probability of this occurring cannot be determined with the information available. Interview evidence also indicated that engine parts were placed in the former mechanic's pits of the original transit building when it was demolished.
- 5) Due to the age of the building located at 321 Avenue C North, lead-based paint may have been used during the early construction and maintenance. Analysis of samples collected from the painted surfaces in the older portions of the building is required to confirm or refute the presence of lead containing paint.
- 6) Potential asbestos containing materials (ACM) were identified in the buildings located at 301 24th Street West and 321 Avenue C North. A consultant was retained by the City of Saskatoon to conduct detailed phase II asbestos audits on the buildings.

1.1. SCOPE OF WORK

The scope of work included the following:

- Locate underground utilities and service connections.
- Advance 42 boreholes to a maximum depth of 6.0 metres (m) below ground surface (bgs).
- Collect soil samples for field screening and potential laboratory analysis.
- Log the geology in each borehole.
- Install 16 groundwater monitoring wells.
- Survey each monitoring well to a common geodetic datum.

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- Submit select soil samples for laboratory analysis of benzene, toluene, ethylbenzene, xylenes, (BTEX), petroleum hydrocarbon (PHC) Fractions F1 (C₆ to C₁₀) to F4 (C_{>34} to C₅₀), and lead.
- Monitor wells for depth to groundwater, depth to bottom, depth to light non-aqueous phase liquids (LNAPL) (if present), and well headspace vapour concentration readings (WVCRs).
- Analyze groundwater samples from each new monitoring well and for three (3) existing monitoring wells for BTEX, PHC Fractions F1(C₆ to C₁₀) and F2 (C_{>10} to C₁₆), and lead.
- Collect bulk samples of paint from the building located at 321 Avenue C North that test positive for lead and submit for analysis.
- Collect swab samples from the administration and bus storage portions of the building located at 301 23rd Street West and submit for diesel particulate analysis.
- Prepare a report documenting the Phase II ESA activities.

1.2. SUBJECT PROPERTY DESCRIPTION

The Subject Property is a group of properties owned by the City located at 301 24th Street West and 232, 316, and 321 Avenue C North in the city of Saskatoon. Adjacent land use to the Subject Property includes a mixture of commercial, residential, and industrial properties.

Figures 2 and 3, Appendix A, present the Subject Property layout. Appendix C presents selected site photographs.

1.2.1. Zoning

The Site is zoned Limited Intensity Light Industrial District, IL1 (City of Saskatoon, 2014). Table A presents a summary of adjacent land uses.

TABLE A – Summary of Current Land Use

Direction from Subject Property	Present Land Use
North	Residential and Commercial (Residential houses)
East	Residential, Commercial, and Heavy Industrial (Residential houses, Fleet Guide Truck & Trailer Repair Ltd., Saskatoon Station Place, Holiday Inn Express Hotel & Suites, Canadian Pacific Railway line)
South	Commercial and Mixed Use (Olson Auto Body (vacant), ADI Auto Inc., Darcy's 23 rd Street Service, Railway Gas & Convenience, Atomic Auto Service, Canadian Pacific Railway line)
West	Residential and Mixed Use (AODBT Architecture, Residential condominiums, Residential houses)

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1.2.2. Surface Water and Topography

The nearest surficial water body is the South Saskatchewan River, approximately 1,000 m south of the Subject Property. The topography of the Subject Property is generally flat though the area north does rise in elevation toward 33rd Street. The property located at 316 Avenue C North also had a gentle slope to the west towards Avenue C North.

2.0 METHODOLOGY

Phase II investigation activities were completed on 15, and 20 to 24 May 2014, with follow-up groundwater well development, monitoring, and sampling on 17 June 2014 and 26 June 2014. Lead paint and diesel particulate investigations were carried out on 05 June 2014.

2.1. SITE SPECIFIC HEALTH AND SAFETY

Prior to the commencement of the daily activities on the Subject Property, PINTER completed a Site-Specific Health and Safety assessment to identify on-site hazards and project health and safety requirements. Daily safe work permits were completed and discussed with on-site personnel at daily tailgate meetings.

2.2. WATER WELL SEARCH

A water well search was conducted on 03 April 2014 by reviewing the Saskatchewan Water Security Agency (SWSA) online water well database (SWSA, 2014). The search includes all registered groundwater wells and test holes potentially located within 1,000 m of the Subject Property; however, not all well records may be included in the database. The current status of the registered wells was not field-verified under the scope of this investigation.

2.3. BOREHOLE ADVANCEMENT

PINTER personnel supervised the advancement of 42 environmental boreholes on 15, and 20 to 24 May 2014 to establish soil and groundwater conditions on the Subject Property.

Prior to the initiation of ground disturbance activities, underground utility locates were requested from Saskatchewan 1st Call which included SaskTel and SaskEnergy. Saskatoon Light and Power, City of Saskatoon Sewer and Water, and Shaw Cable were also contacted to confirm they were devoid of any underground utilities on-site. Magna Electric Corporation of Saskatoon, SK was commissioned to locate private underground utilities. All proposed borehole locations were identified to be clear of underground utilities.

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Western Heritage provided ground penetrating radar (GPR) survey of all proposed borehole locations to confirm that locations were devoid of underground conduits and fuel tanks (Photos 1 and 2, Appendix C). GPR was also used in the northwest storage yard located north of the building at 321 Avenue C North to determine the approximate location of the historic mechanic's pits and to locate any buried objects that could interfere with drilling activities.

Delta Coring and Cutting was commissioned to core through the concrete floor overlying the 24 test hole locations in the maintenance garage located at 321 Avenue C North. This was required to allow the drilling rig access to the subsurface soils.

Advantage Probe & Injection Corp. (APIC) of Saskatoon, SK provided a Geoprobe 6600 direct push rig with a Macro-core® sampler to advance the test holes and to recover soil samples from borehole locations. The soil samples were visually logged on site and selected soil samples were submitted for laboratory analysis. A Macro-core® soil sampler with a 0.038 m open-ended polyvinyl chloride (PVC) liner was used to core boreholes and to obtain soil samples. The direct push rig advanced the core sampler the full length of the borehole or to the depth of the desired sample. The open end allowed the soil to enter the chamber of the sampler and PVC liner. Once the desired soil sample was obtained, the sampler was withdrawn from the probe hole. The PVC liner was removed and opened with a Macro-core® liner cutter, revealing the soil sample. Portions of the soil sample were removed from the PVC liner for potential laboratory analysis. Boreholes not completed as monitoring wells were backfilled with bentonite to reduce the potential of creating a pathway for possible contaminants.

2.4. MONITORING WELL INSTALLATION

Sixteen (16) boreholes were completed as groundwater monitoring wells, each constructed with a 0.038 m diameter Schedule 40 polyvinyl PVC slot well screen and a 0.038 m diameter Schedule 40 PVC solid riser pipe to the ground surface. Monitoring well screen lengths varied between wells. Environmental filter sand was placed around the borehole annulus from the bottom of the well to approximately 0.5 m above the top of the well screen. Bentonite chips were placed above the sand

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to near the ground surface. Monitoring wells were completed with flush mount road boxes as the wells were in areas of heavy traffic.

Groundwater monitoring wells were developed by removing three (3) equivalent well volumes of water or until dry using dedicated single use disposable bailers. Monitoring well development facilitates the removal of fine material from the screen resulting from installation and ensuring proper hydraulic connection with the surrounding groundwater.

2.5. SOIL LOGGING AND SAMPLING METHODOLOGY

Soil encountered during borehole advancement was visually logged using the Unified Soil Classification System with respect to soil type, colour, texture, consistency, moisture, and potential hydrocarbon. Appendix D presents the borehole logs.

Representative soil samples were collected at approximate 0.75 m depth intervals from the soil cores, unless an increased sampling frequency was warranted based on visual observations and/or changes in stratigraphy. Duplicate portions of the recovered soil sample were placed in laboratory supplied 125 millilitre (mL) glass jars equipped with Teflon[®] lids with zero headspace for potential laboratory analysis. The sample jars were labeled according to a pre-determined sample identification protocol and were kept cool until they were transferred to the laboratory.

The remaining portion of the soil sample was placed and sealed in a polyethylene laboratory grade soil bag with equal volume headspace for combustible vapour concentration (CVC) screening. The bagged samples were warmed to approximately 15 degrees Celsius (°C) prior to CVC analysis. The ambient headspace inside the bags was then analyzed with an RKI Eagle vapour analyzer operating in methane elimination mode and calibrated to a known hexane standard. Instrument calibration was completed daily prior to the commencement of work with a known calibration gas concentration of 40% Lower Explosive Limit (LEL) until the reading was within 10% of the known concentration. All CVCs were recorded in the corresponding field borehole logs.

CONFIDENTIAL**2.6. SURVEY DATA**

Exterior borehole locations were surveyed horizontally and vertically with a Hemisphere S320 GNSS GPS Survey Receiver system. Major site features were also surveyed to aid in the development of site drawings. Interior borehole locations were vertically surveyed with a Sokkia C32 level, relative to temporary benchmarks (fire hydrants) set to 100.00 m, located on Avenue C North, as indicated in Figure 2, Appendix A.

2.7. GROUNDWATER MONITORING AND SAMPLING

PINTER completed follow-up groundwater monitoring and sampling of monitoring wells on 27 June 2014.

During the monitoring events, each monitoring well was monitored for depth to water, depth to bottom, depth to LNAPL (if present), and well headspace vapour concentration readings (WVCRs). Monitoring well headspace WVCRs were measured with an RKI Eagle vapour analyzer operating in methane elimination mode and calibrated to a known hexane standard.

Groundwater samples were collected in clean laboratory-supplied sample bottles specific to the type of analysis required and preserved according to the laboratory's requirements. The sample bottles were labeled according to a pre-determined sample identification protocol and kept cool in an ice-chilled cooler until they were transferred to the laboratory.

2.8. LEAD SAMPLING

Painted surfaces in the building located at 321 Avenue C North were screened and sampled for lead-based paint. Initial screening consisted of scraping painted surfaces with a utility knife and using 3M™ LeadCheck™ Swabs to indicate the presence of lead. Approximately 5 grams (g) of sample were collected in laboratory supplied plastic bags using a utility knife from locations that tested positive for lead. The sample bags were labeled and kept cool until they were transferred to the laboratory.

2.9. DIESEL PARTICULATE SAMPLING

Diesel particulate samples were collected from various locations in the bus storage barn and in the stationery room of the administration building located at

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301 24th Street West. Samples were collected in duplicate by swabbing an area of approximately 0.1 m x 0.1 m with gauze swabs dipped in methanol. Swabs were immediately transferred to laboratory supplied 125 mL glass jars equipped with Teflon[®] lids. The sample jars were labeled and kept cool until they were transferred to the laboratory.

2.10. ASBESTOS

The City of Saskatoon retained Bersch & Associates (Bersch) to conduct asbestos audits on the buildings located at 301 24th Street West and 321 Avenue C North. The audits included an asbestos survey and hazard assessment which consisted of the inspection of all accessible areas of the facilities. Bersch collected a total of 35 bulk samples of suspected Asbestos Containing Material (ACM) within the building located at 301 24th Street West and 18 bulk samples from the building located at 321 Avenue C North. The samples were analyzed by Bersch & Associates Ltd. laboratory for asbestos in building materials.

2.11. QUALITY ASSURANCE AND QUALITY CONTROL

A QA/QC program was implemented during soil and groundwater sampling to minimize and quantify potential impacts introduced during sample collection, handling, shipping and analysis.

As part of the QA/QC program, sampling protocols included; minimizing sample handling, using dedicated clean sampling equipment, sample specific identification and labeling procedures and utilizing laboratory provided Chain-of-Custody (COC) records.

Blind duplicate samples of soil and groundwater were submitted for laboratory analysis to assess potential sampling or laboratory error. For duplicate samples, the Relative Percent Difference (RPD) is calculated to assess the closeness of the results from the two (2) samples. RPDs are calculated as follows:

$$\text{Where, } \text{RPD (\%)} = 100\% \times \text{ABS (X - Y)} / [(X + Y)/2]$$

X = the concentration of the original sample

Y = the concentration of the blind field duplicate sample

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Laboratory QA/QC measures included analysis of laboratory blank, spiked blank, duplicate, matrix spike, and laboratory control samples.

Acceptable RPD values for various parameters are presented in Table B.

TABLE B: Relative Percent Difference Reference Values

Parameter Category	Acceptable Relative Percent Difference (Applicable at Concentrations > 5x MDL)
Organics in Soil and Sediment	
Polycyclic Aromatic Hydrocarbons (PAH)	75%
Volatile organics (including BTEX and VH)	60%
Extractable Petroleum Hydrocarbons (EPH)	60%
Most Other Typical Organic Parameters	60%
Organics in Water	
Volatile Organics (including BTEX and VH)	45%
Most other Typical organic Parameters	45%
Metals in Soil and Sediment	
High variability metals: Ag, Al, Ba, Hg, K, Mo, Na, Pb, Sn, Sr, Ti	60%
Other metals	45%
Metals in Water	30%
General Inorganics in Soil and Sediment	45%
General Inorganics in Water	30%

2.12. LABORATORY ANALYSIS

2.12.1. Applicable Regulatory Guidelines

Industrial guidelines are applicable to the Subject Property, however due to the proximity of residential properties to the west of 301 23rd Street West and 321 Avenue C North; a 30 m buffer along the western portion of the Subject Property was compared to residential guidelines. Due to the proximity of residential properties to the north and east of 321 Avenue C North, 30 m residential buffers along the northern and eastern portions of the Subject Property were compared to residential guidelines. Provincial guidelines do not exist for PHC Fractions F1 and F2 in groundwater, therefore Government of Canada (2012) federal interim water quality guidelines applied.

The guidelines used to compare the results of the laboratory analyses included the following:

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- Saskatchewan Ministry of Environment (SMOE) Risk-Based Corrective Actions for Petroleum Hydrocarbon Impacted Sites, March 2009, Tier 1 soil guidelines for coarse-grained soil, residential and industrial land uses (SMOE, 2009).
- Canadian Council of Ministers of the Environment (CCME). Canadian Soil Quality Guidelines (CEQG) for the Protection of Environmental and Human Health: Lead for coarse-grained soil, residential and industrial land uses (CCME 2014).

Groundwater Criteria

- SMOE 2009, Tier 1 groundwater guidelines protective of Potable Groundwater and Freshwater Aquatic Life (SMOE, 2009).
- Government of Canada 2012, Federal interim groundwater quality guidelines for federal contaminated sites (GC, 2012).
- Health Canada (HC) Guidelines for Canadian Drinking Water Quality – Summary Table, Lead (HC, 2012).

2.12.2. Soil

Based on field screening results and visual observation, a total of 81 soil samples including six (6) blind duplicates for quality assurance/quality control (QA/QC) purposes were selected and submitted for laboratory analysis of BTEX, PHC Fractions F1 to F4, and lead. Ten (10) soil samples were submitted for particle size determination. All samples were submitted to ALS Canada Limited (ALS) Laboratories located in Saskatoon, SK. ALS's Saskatoon laboratory is accredited by the Canadian Association for Laboratory Accreditation (CALA).

2.12.3. Groundwater

Twenty (20) groundwater samples including two (2) blind duplicates for QA/QC purposes were submitted to ALS for laboratory analysis of BTEX, PHC Fractions F1 and F2. Four (4) of the twenty (20) samples were also submitted for laboratory analysis of dissolved lead.

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2.12.4. Bulk Paint Samples

Based on field screening results, two (2) paint samples were submitted to ALS for laboratory analysis of lead in paint. The samples submitted for analysis were collected from the ceiling of the steam bay (Photo 12, Appendix C) located in the southwest portion of 321 Avenue C North and the doorframe of the stockroom located in the northwest portion of the gas garage (Photo 14, Appendix C).

2.12.5. Diesel Particulate Swabs

Eight (8) diesel particulate swabs including one (1) blind duplicate for QA/QC purposes were submitted to ALS laboratory for analysis of PHC Fractions F1 to F4.

2.13. NATIONAL CLASSIFICATION SYSTEM FOR CONTAMINATED SITES (NCSCS) REVIEW

A National Classification System for Contaminated Sites (NCSCS) pre-screening checklist and score sheet was completed for all of the information gathered on the Subject Property including past investigation activities.

2.14. GROUND PENETRATING RADAR

Western Heritage provided GPR equipment and personnel to assist in locating potential USTs, buried utilities, and conduits within areas of proposed borehole locations on the Subject Property. GPR was also used throughout the storage yard of 321 Avenue C North to locate historical mechanic's pits and buried objects that could interfere with drilling activities.

GPR surveys were conducted using a Sensors and Software SmartCart Nogginplus system with a 250 megahertz (MHz) antenna. When possible, grids of data were collected. In areas of limited access, such as the interior of the building located at 321 Avenue C North, single lines of data were collected.

3.0 RESULTS

3.1. WATER WELL SEARCH

A total of eleven (11) water well records were identified within the search area: one (1) for domestic withdrawal, six (6) for industrial withdrawal, three (3) research test holes, and one (1) domestic test hole. The completion dates for the wells ranged from 1929 to 1987. The water well completion depths ranged between 7.9 to 118.3 m bgs. Static water levels were reported in six (6) wells and ranged from 1.8 to 17.4 m bgs. Table 1, Appendix E presents a summary of the water well search results. Appendix F presents copies of the water well driller reports.

3.2. SITE STRATIGRAPHY

The stratigraphy observed during the soil investigation was visually logged and is summarized in the borehole logs presented in Appendix D. The geology was relatively consistent among the borehole locations and generally consisted of gravel fill in the top 0.2 m overlying intermixed beds of silt and clay with some sand extending to depths of approximately 2.0 to 4.0 m bgs. The silt and clay with some sand units overlaid clay till that is comprised of traces of sand and silt sized particles extending to 6.0 m bgs, the maximum depth of the investigation.

A borehole advanced in the northwestern storage yard of 321 Avenue C North penetrated the former mechanic's pits (Photo 4, Appendix C). The soil core from this test hole contained a layer of concrete and wood (Photo 5, Appendix C). The borehole location was relocated approximately 1 m south of the original location.

3.3. LABORATORY ANALYTICAL RESULTS – SOIL

Appendix G presents the Certificates of Analysis from ALS for the soil samples.

3.3.1. Petroleum Hydrocarbons

Table 2, Appendix E, and Figures 4 to 7, Appendix A present laboratory analytical results for soil samples submitted for BTEX and PHC Fractions F1 to F4. Table C presents the exceedances detected for samples collected from the property located at 321 Avenue C North. Soil samples collected from the remaining properties were below SMOE 2009 guidelines.

CONFIDENTIAL**TABLE C: 321 Avenue C North Soil Sample Exceedances**

Sample Location	Borehole	Depth (m)	PHC Contaminant								
			B	T	E	X	F1	F2	F3	F4	
Northwest storage lot	14-2	0.75								●	
Northeast parking lot	Surface sample	-								●	●
Southwest loading area	14-23	2.25					●	●			
Southwest loading area	14-24	3.0						●			
Southwest loading area	14-40	3.0						●			
Shop B east	14-17	2.25								●	
Shop B east	14-26	2.25							●	●	
Shop B west	14-34	2.25								●	
Shop B west	14-35	2.25			●				●	●	
Shop B west	14-36	2.25			●				●	●	
Shop B west	14-37	2.1							●	●	
South maintenance	14-21	1.5								●	
South maintenance	14-22	1.5								●	

● Indicates that the soil sample exceeded the applicable criteria for the specified contaminant

All other soil samples submitted for laboratory analysis of BTEX, and PHC Fractions F1 to F4 were below the applicable SMOE 2009 guidelines.

3.3.2. Lead

Table 2, Appendix E, and Figures 4 to 7, Appendix A present analytical results for soil samples submitted for analysis of lead.

Soil samples collected from borehole 14-2 contained concentrations of lead at a depth of 0.75 m bgs above the applicable criteria. All soil other samples submitted for laboratory analysis of lead were below the applicable CCME CEQG 2014 guidelines.

3.3.3. Particle Size Analysis

Table 3, Appendix E, presents the analytical results of the ten (10) soil samples submitted for particle size analysis. The particle size analysis was used to confirm the visual borehole logging and the borehole logs.

Six (6) of the ten (10) soil samples submitted were classified as coarse-grained. The coarse-grained soils will govern contaminant migration on the Subject Property within

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the saturated zone; consequently the coarse-grained guidelines were applied to the Subject Property.

3.4. LABORATORY ANALYTICAL RESULTS – GROUNDWATER

Appendix G presents the Certificate of Analysis from ALS for the groundwater samples.

3.4.1. Petroleum Hydrocarbons

Table 4, Appendix E, and Figures 8 to 10, Appendix A present the analytical results from groundwater samples for BTEX and PHC Fractions F1 and F2.

All groundwater samples submitted were below the applicable SMOE 2009 guidelines for BTEX and the Health Canada 2012 guidelines for lead. Groundwater samples submitted for monitoring well 14-23 had concentrations of PHC Fraction F1 PHC Fraction F2 that exceeded the Government of Canada federal interim groundwater quality guidelines for commercial and industrial land uses (GC, 2012). All other groundwater samples were below applicable Government of Canada 2012 guidelines.

3.4.2. Lead

Table 4, Appendix E, and Figures 8 to 10, Appendix A present the analytical results from groundwater samples for lead.

All groundwater samples submitted were below the applicable guidelines for lead.

3.5. GROUNDWATER MONITORING RESULTS

The results of the 26 June 2014 groundwater monitoring events are presented in the Site Monitoring Report in Appendix H. The depth to groundwater ranged between 1.83 to 3.19 m bgs. Groundwater flow was determined to be flowing in a southerly direction, towards the South Saskatchewan River. Figure 12, Appendix A presents the groundwater flow contour map.

3.6. LABORATORY ANALYTICAL RESULTS – LEAD IN PAINT

Table 5, Appendix E presents the analytical results from the paint sampling completed 05 June 2014 for lead in paint. The sample collected from the ceiling in the steam bay located in the southwest portion of 321 Avenue C North had a lead

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concentration of 2,090 mg/kg and the sample collected from the stockroom doorframe located in the northwest portion of the gas garage contained a lead concentration of 1,410 mg/kg.

3.7. LABORATORY ANALYTICAL RESULTS – DIESEL PARTICULATE

Table 6, Appendix E presents the analytical results from the diesel particulate swabbing. The analysis results for PHC Fraction F1 were all below the laboratory MDL. PHC Fraction F2 results ranged from 170 to 260 micrograms (µg) and PHC Fraction F3 ranged from 450 to 15,600 µg. PHC Fraction F4 results ranged from 250 to 830 µg. As the swabs were collected from areas approximately of 0.01 m² in area, Table 6, Appendix E also presents the results as grams per m².

3.8. ASBESTOS

Appendix I presents the asbestos audit reports completed by Bersch & Associates Ltd. The results of the asbestos audits completed by Bersch are as follows:

3.8.1. 301 24th Street West

The presence of ACM was confirmed in the building located at 301 24th Street West. Vinyl asbestos floor tile was confirmed in storage rooms #103 and #244. The presence of transite roof drain pipe was also confirmed in rooms #114, #119, #120, #201, #202, #203, #204, #208, and #209. The transite drain pipe has been labeled with an “ASBESTOS” stencil. Bersch has also installed labels on the doorjambes of the rooms containing asbestos. Tests carried out on the cinder block wall cavities, for vermiculite, did not detect vermiculite.

3.8.2. 321 Avenue C North

The presence of ACM was confirmed in the building located at 321 Avenue C North. Transite roof drain pipe was confirmed in rooms #104 (west portion of Shop B), #105 (east portion of Shop B), #108 (men’s locker room), #109 (men’s washroom), #111 (east portion of south maintenance garage), and #117 (maintenance office). The transite drain pipe has been labeled with an “ASBESTOS” stencil. Bersch has also installed labels on the doorjambes of the rooms containing asbestos. Bersch also tested the cinder block wall cavities for vermiculite, however no vermiculite was found.

CONFIDENTIAL**3.9. QUALITY ASSURANCE AND QUALITY CONTROL****3.9.1. RPDs for Soil**

RPDs for soil were calculated for soil samples DUP D (duplicate of soil sample 14-17-3), DUP E (duplicate of soil sample 14-23-3), and DUP F (duplicate of soil sample 14-35-3) for BTEX and PHC Fractions F1 to F4 where measured concentrations were greater than five times the laboratory method detection limit (MDL). The RPDs for QA/QC were within acceptable limits with the exception of PHC Fraction F3 in sample DUP E (duplicate of 14-23-3) with a result of 159.3 and PHC Fraction F4 in sample DUP F (duplicate of 14-35-3) with a result of 172.6. The elevated RPDs could be attributed to sample heterogeneity when the soil is divided into multiple jars. The results are considered reliable.

3.9.2. RPDs for Groundwater

RPDs for groundwater were not calculated for benzene, toluene, ethylbenzene, xylene, or PHC Fractions F1 and F2 as concentrations of duplicate samples were less than five times the laboratory MDL.

3.9.3. Certificate of Analysis (COA) Qualifiers – Soil and Groundwater

One (1) soil sample was given a Detection Limit Adjusted (DLA) qualifier as the MDLs were adjusted to account for sample dilution during analysis.

Several soil and groundwater samples were given a Surrogate Recovery Outside Acceptable Limits Due to Matrix Interference (SOL:MI). Known amounts of surrogate compounds are added to the sample at the beginning of the analysis to ensure that the sample extraction is effective. The surrogate results will appear higher than expected should the matrix contain compounds that elute at the same time as the surrogate compounds.

The integrity of the data was not comprised as a result of the qualifiers.

Individual sample MDLs are presented in the COAs in Appendix G.

3.10. NATIONAL CLASSIFICATION SYSTEM FOR CONTAMINATED SITES (NCSCS) REVIEW

Appendix J presents the NCSCS pre-screening checklists completed for the properties located at 301 24th Street West and 232 Avenue C North. No exceedances

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of criteria were found, therefore it was not necessary to complete the NCSCS score sheets for these properties.

Appendix J presents the NCSCS pre-screening checklist and score sheet completed for the site investigation activities on 321 Avenue C North. The score obtained is 35.2 which categorizes the property located at 321 Avenue C North as “not a priority for action”.

3.11. GROUND PENETRATING RADAR**3.11.1. Parking Lot 232 Avenue C North**

No evidence of a UST was identified in the area scanned. An anomaly, unrelated to buried utilities, was noted towards the west end of the grid. The GPR technologist identified this anomaly as a potential rock or buried debris.

3.11.2. Parking Lot 301 24th Street West

Two (2) areas occupied by current and former USTs were scanned. Structures associated with the current fuel tanks were identified.

3.11.3. Parking Lot 321 Avenue C North

An area located in the northeast portion of the staff parking area was scanned. Subsurface disturbances up to 1.5 m deep were noted immediately north of the building. The technologist noted that this area may have previously been excavated. The area of disturbance was marked with spray paint.

An area of the northwest storage yard that was formerly the location of the original transit maintenance and repair shop was also scanned. Buried rail tracks ran in an east west direction through the lot. Areas of buried concrete and debris were also noted. An area of disturbance associated with the former mechanic’s pits was marked with spray paint.

3.11.4. Maintenance Garage 321 Avenue C North

The majority of the GPR transects indicated rebar within the concrete. Thick concrete was identified and layers of concrete separated by layers of sand were also noted. No conduits or voids were detected near the proposed borehole locations.

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4.0 DISCUSSION

301 24th Street West

The soil and groundwater samples collected from the southwest parking lot of the administration building did not provide evidence of residual PHC contamination from historic tank leakages.

The presence of PHC contaminants on the interior surfaces of the bus barns and administration building presents a potential contamination issue should the building be demolished. Once in a landfill, the potential exists for PHC contaminants to be leached from the building materials and into the surrounding environment. There is also a possibility of vapours generated by these deposits impacting workers. However, these vapours would be much less than those generated by running diesel engines in the facility. Furthermore, the indoor air quality testing completed on a regular basis at the facility incorporate vapours coming off of the diesel impacted surfaces. To date no issues have been reported with respect to the air quality. Based on this information no further work is required on this matter at this time.

232 Avenue C North

No evidence of a historic UST was uncovered during the Phase II activities. Based on available information no further work is required on this matter at this time.

321 Avenue C North

Based on the available information, it appears that all historic USTs are removed from this location.

Soil PHC concentrations above applicable criteria were detected in the northeast parking lot of 321 Avenue C North. The source of this contamination is believed to be from a one-time spill or leak. The potential of these surface contaminants migrating via surface water, to the City property located at 316 Avenue C North is low due to the intervening presence of Avenue C North. It is unlikely for this contamination to travel to depths greater than 1.0 m bgs, however the potential exists for these contaminants to migrate via surface water to the storm sewer system. In order to prevent the migration of these contaminants, it is recommended to remove the stained and PHC affected surface soils from this area.

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Concentrations of PHC contaminants that exceeded regulatory criteria were detected in soil and groundwater samples collected throughout the property. The locations included areas around certain hoists and the northeast area of the building, and the southwest corner of the building near the boiler room. The movement of groundwater provides the potential for these contaminants to travel throughout the site and beyond in the direction of groundwater flow. Delineation of the horizontal and vertical extents of this contamination is recommended. In addition, a monitoring program should be developed to allow for the detection of the movement of the contaminants to the surrounding area and adjacent City of Saskatoon properties.

A surface soil sample collected in the northwest storage yard also contained concentrations of PHC (oil) and lead above applicable criteria. The PHC affected soil in the stained areas should be removed from the site and disposed of appropriately.

The presence of lead-based paint in the southwestern portion of 321 Avenue C North presents a potential human health concern. Proper management and disposal procedures are required to ensure that lead-containing painted materials are handled appropriately if encountered during maintenance and renovation activities. Steps should be taken to ensure that this material is not ingested or fine particles inhaled.

Asbestos containing materials were identified and labeled by Bersch. These types of materials pose little to no concern when undisturbed, however in order to eliminate or reduce the exposure of workers and occupants to asbestos fibers, special precautions must be taken during maintenance, alterations, renovation, and demolition activities that may disturb these materials.

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5.0 CONCLUSIONS & RECOMMENDATIONS

The results of the Phase II ESA are summarized below:

- The Subject Property is used for the City of Saskatoon Transit Operations. A 30 m residential buffer zone was applied to the northern, western, and eastern portions of the property located at 321 Avenue C North. A 30 m residential buffer was also applied to the northern and eastern portions of 240 Avenue C North, and the eastern portions of 232 and 230 Avenue C North.
- Grain size analysis determined coarse-grained soils (sands and gravels) located on the Subject Property will govern contaminant migration.
- Soil concentrations of PHC contaminants exceeded the applicable SMOE 2009 guidelines in samples collected at 321 Avenue C North. All other soil samples submitted for PHC analysis were below laboratory MDL and/or applicable guidelines.
- Soil concentrations of lead exceeded the CCME CEQG 2014 guidelines for industrial and residential land uses in sample location 14-2, located in the northwest storage yard of 321 Avenue C North. All other soil samples submitted for lead analysis were below laboratory MDL and/or applicable guidelines.
- Groundwater concentrations of PHC Fractions F1 and F2 exceeded the Government of Canada 2012 guidelines in monitoring well 14-23, located in the northwest loading area of 321 Avenue C North. All other groundwater samples submitted for analysis were below laboratory MDL and/or applicable guidelines.
- The asbestos audits conducted by Bersch & Associates on 301 24th Street West and 321 Avenue C North confirmed the presence of asbestos containing materials. Proper asbestos management and disposal procedures are required to prevent the exposure of workers and occupants to asbestos fibres during maintenance, alterations, renovation, and demolition activities that cause potential asbestos fibres to be released or entrained into occupied space.
- A review of QA/QC measures determined that data quality was reliable.

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- The NCSCS score for the property located at 321 Avenue C North was 35.2, which places it in the category of “not a priority for action”.
- The removal of PHC affected surface soils from the northeast parking lot of 321 Avenue C North is recommended.
- A Phase II Delineation and the development of a monitoring plan is recommended for the property located at 321 Avenue C North.

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6.0 REFERENCES

Canadian Council for Ministers of the Environment. 2013. Canadian Environmental Quality Guidelines. *Soil Quality Guidelines for the Protection of Environmental and Human Health: Lead – Residential and Industrial Land Uses*. Available at: <http://st-ts.ccme.ca/> [accessed July, 2014]

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Health Canada. 2012. *Guidelines for Canadian Drinking Water Quality Summary Table: Lead*. Dated August 2012. Available at: http://www.hc-sc.gc.ca/ewh-semt/alt_formats/pdf/pubs/water-eau/2012-sum_guide-res_recom/2012-sum_guide-res_recom-eng.pdf [accessed July 10, 2014]

Saskatchewan Ministry of Environment. 2009. *Risk-Based Corrective Actions for Petroleum Hydrocarbon Contaminated Sites*. March 2009.

Saskatchewan Water Security Agency. 2013. Online Water Well Information Database. Available at: <https://gis.wsask.ca/> [accessed 03 April 2014]

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7.0 LIMITATIONS

In conducting this investigation on Subject Property and in rendering our findings and conclusions on the presence and/or level of impacts present, PINTER & Associates Ltd. gives the benefit of its best judgment based on its experience and in accordance with generally accepted professional standards for this type of assessment. Our conclusions are limited by the following:

- The agreed scope of work requested to be undertaken;
- It was not feasible to sample or test for chemical constituents at each and every location on the site. Site-specific criteria were used during sampling and testing and are thought to be representative of present site conditions;
- Our conclusions are drawn from the information provided to PINTER & Associates Ltd., in whole or in part, during the course of this environmental site investigation and have been included in this report.

Performance of a standardized environmental site assessment is intended to reduce, but not wholly eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the property, given reasonable limits of time and cost.

PINTER will not be responsible or held liable for any existing contamination or adverse impacts on the study area that have not been caused by its activities. Actions at the Subject Property without PINTER's knowledge may influence the environmental status of the property. No warranty, expressed or implied is given concerning the current environmental condition of the Subject Property following the submission of the original report dated 29 August 2014.

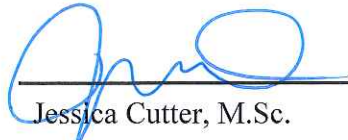
No warranty, expressed or implied, is given concerning chemicals of concern at the Subject Property. This report has been prepared for the exclusive use of *The City of Saskatoon*. Without any mitigation or remediation the contaminant conditions on the Subject Property can change from that described in this report. Any use that a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. PINTER & Associates Ltd. accepts no responsibility for damages, if any suffered by any third party, as a result of decisions made or actions based on this report.

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8.0 CLOSURE

This report has been prepared by PINTER for the exclusive use of The City of Saskatoon pursuant to the Limitations presented in Section 6.0.

PINTER & Associates Ltd.



Jessica Cutter, M.Sc.
Project Scientist



Lawrence Pinter, P.Eng.
Senior Engineer

Date: 29 August 2014

h:\projects\1544 city of saskatoon civic operations centre\1544-2 caswell transit site phs ii esa\1544-2 report\drafts\1544-2 cswll ltd ph ii esa-final-28aug 14_vw_jc_tw_lp.docx



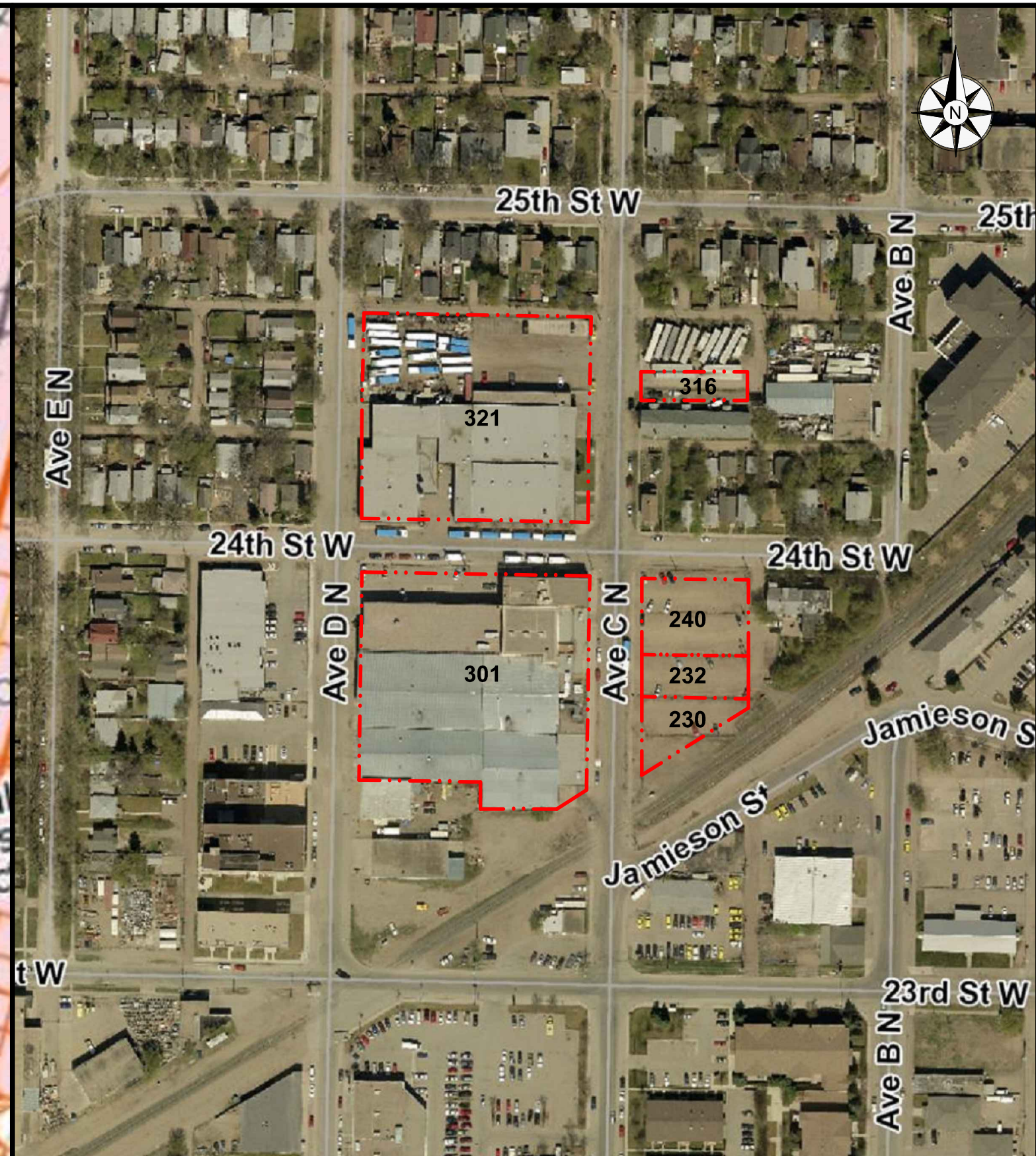
Association of Professional Engineers & Geoscientists of Saskatchewan		
CERTIFICATE OF AUTHORIZATION PINTER & Associates Ltd.		
Number C1232		
Permission to Consult held by:		
Discipline	Sk. Reg. No.	Signature
Municipal	6565	
Environmental	6565	
Geotechnical	6565	



PINTER
& ASSOCIATES LTD

Appendix A

Figures



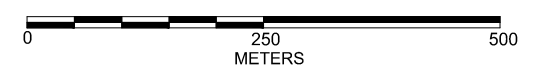
710A-48TH STREET EAST
SASKATOON SK S7K 5B4
306.244.1710
pintermain@pinter.ca

NOTES:

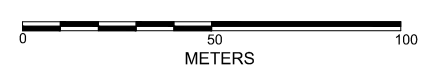
1. IMAGE SOURCE FROM CITY OF SASKATOON IMAPS, IMAGE DATED 2011 (ACCESSED APRIL 2014).
2. MAP FROM NATURAL RESOURCES CANADA GEOGRATIS, PUBLISHED 19 JULY 2013.
3. THIS DRAWING IS PREPARED FOR ILLUSTRATIVE PURPOSES ONLY.

LEGEND

SUBJECT PROPERTY - APPROXIMATE LOCATION - - - - -



SCALE: 1: 8,000



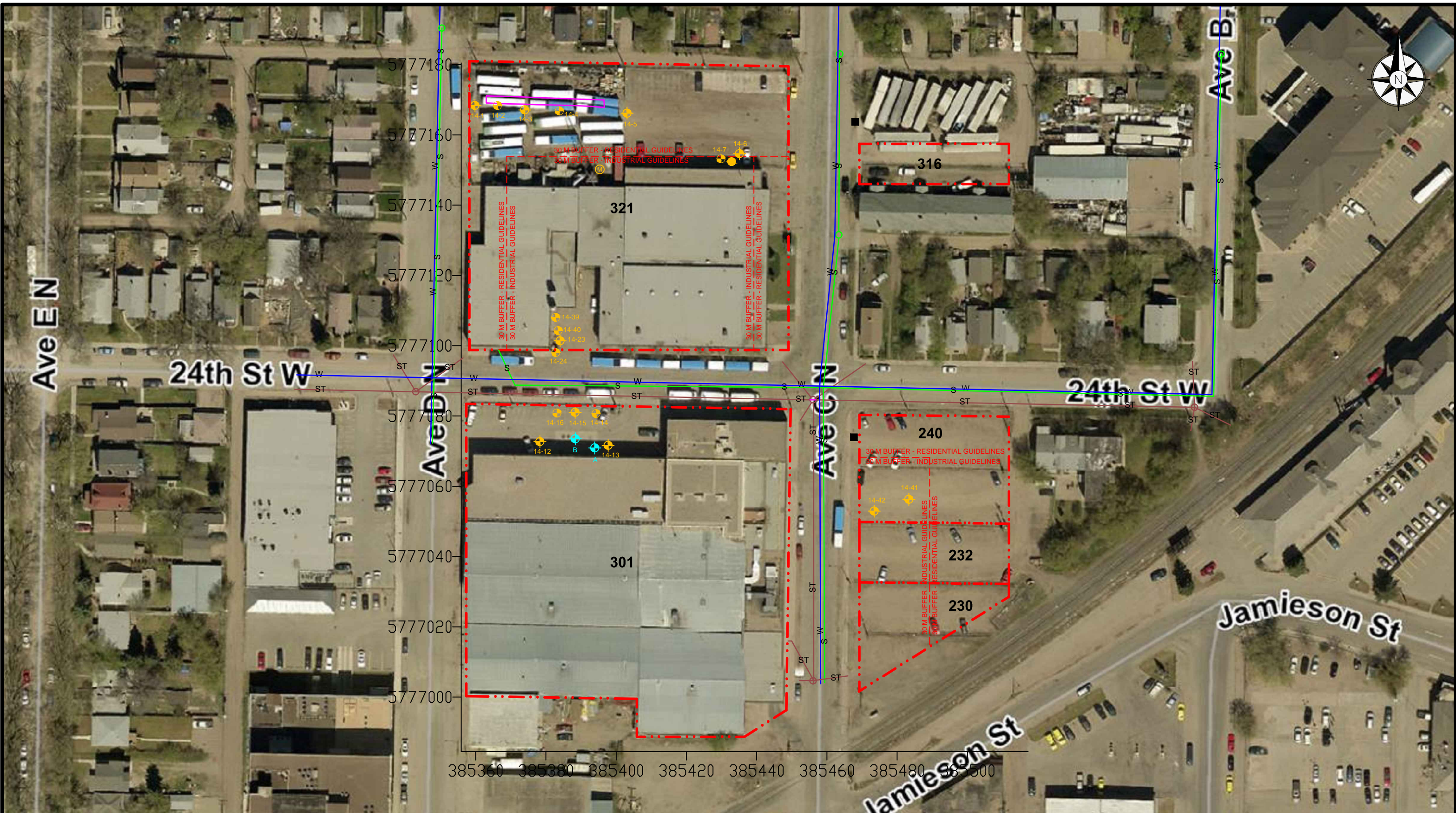
SCALE: 1: 2,000

FILE: H:\PROJECTS\1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK.\1544-2 DRAWINGS

FIGURE 1
SUBJECT PROPERTY LOCATION

23 JULY 2014
1544-2 PHS II ESA, CASWELL TRANSIT SITE,
SASKATOON, SK.

DRAWN BY: NA
CHECKED BY: JC



710A-48TH STREET EAST
SASKATOON SK S7K 5B4
306.244.1710
pintermain@pinter.ca

- NOTES:**
1. IMAGE SOURCE FROM CITY OF SASKATOON IMAPS, IMAGE DATED 2011 (ACCESSED JUNE 2014).
 2. THIS DRAWING IS PREPARED FOR ILLUSTRATIVE PURPOSES ONLY.
 3. THIS IS NOT A LEGAL SURVEY.
 4. ALL MEASUREMENTS ARE IN METRES.
 5. LOCATIONS OF ALL MARKED UTILITIES ARE APPROXIMATE.
 6. SURVEY INFORMATION COLLECTED BY HEMISPHERE S320 GPS.

- LEGEND**
- SUBJECT PROPERTY - APPROXIMATE LOCATION
 - STORM SEWER
 - SEWER
 - WATER
 - HISTORICAL MECHANIC'S PITS
 - TEMPORARY BENCHMARK

- TEST HOLE
- MONITORING WELL
- PRE-EXISTING MONITORING WELL

- SURFACE SAMPLE
- MANHOLE



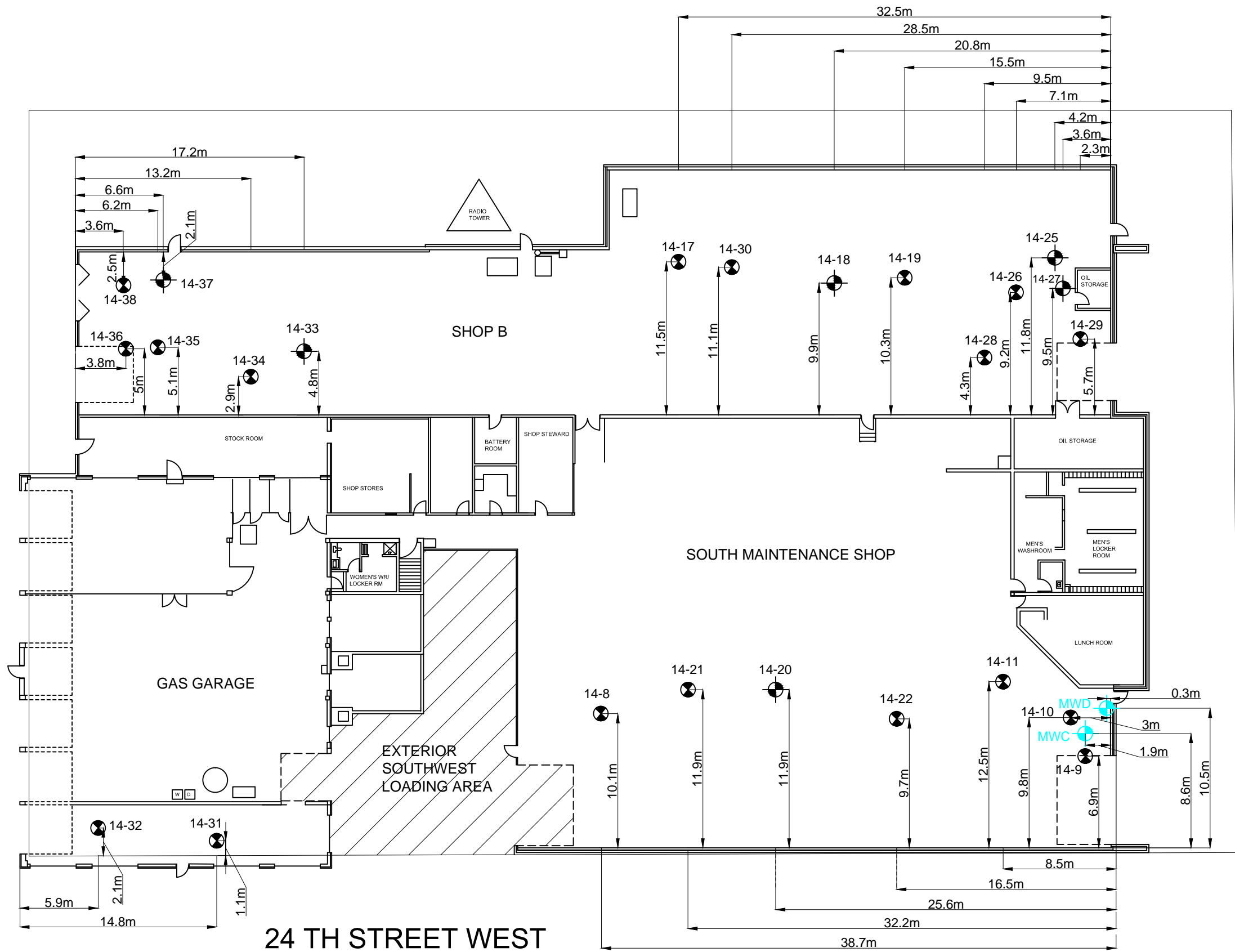
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FILE: H:\PROJECTS\1544-2 PHS II ESA, CASWELL TRANSIT SITE SASKATOON, SK.\1544-2 DRAWINGS

FIGURE 2
SUBJECT PROPERTY LAYOUT
EXTERIOR BOREHOLE LOCATIONS
10 JUNE 2014
1544-2 PHS II ESA, CASWELL TRANSIT SITE,
SASKATOON, SK.
DRAWN BY: NA
CHECKED BY: JC



AVENUE D NORTH

AVENUE C NORTH



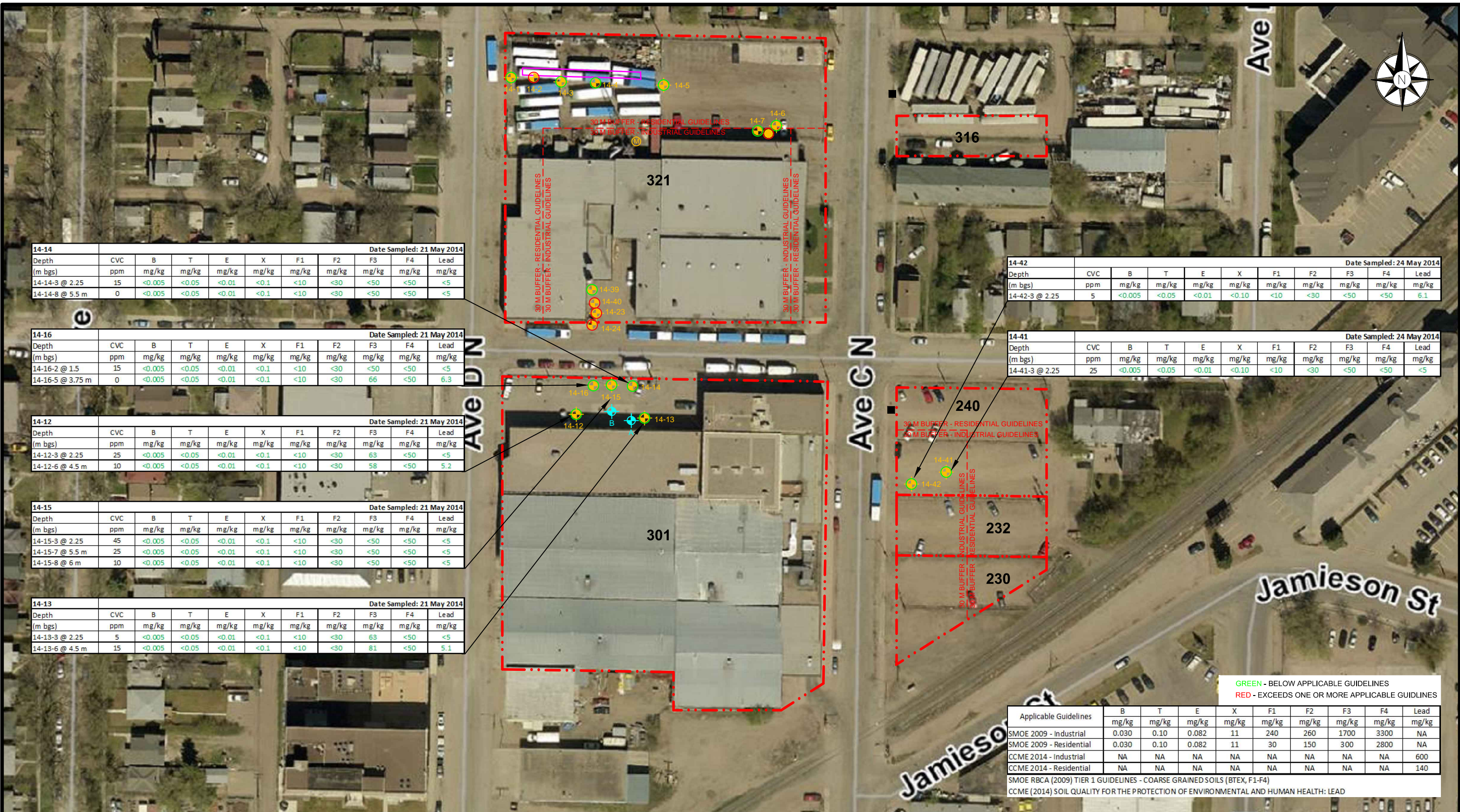
NOTES:
 1. MW C AND D ARE PRE-EXISTING MONITORING WELLS
 2. THIS DRAWING IS PREPARED FOR ILLUSTRATIVE PURPOSES ONLY.

LEGEND
 TEST HOLE
 MONITORING WELL
 PRE-EXISTING MONITORING WELL

FIGURE 3
 321 AVENUE C NORTH
 INTERIOR BOREHOLE LOCATIONS
 25 JULY 2014
 1544-2 PHS II ESA, CASWELL TRANSIT SITE,
 SASKATOON, SK.
 DRAWN BY: NA
 CHECKED BY: JC

PINTER & ASSOCIATES LTD
 710A-48TH STREET EAST
 SASKATOON SK S7K 5B4
 306.244.1710
 pintermain@pinter.ca

SCALE: NTS
 FILE: H:\PROJECTS\1544-2 PHS II ESA, CASWELL TRANSIT SITE,
 SASKATOON, SK.\1544-2 DRAWINGS



14-14 Date Sampled: 21 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-14-3 @ 2.25	15	<0.005	<0.05	<0.01	<0.1	<10	<30	<50	<50	<5
14-14-8 @ 5.5 m	0	<0.005	<0.05	<0.01	<0.1	<10	<30	<50	<50	<5

14-16 Date Sampled: 21 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-16-2 @ 1.5	15	<0.005	<0.05	<0.01	<0.1	<10	<30	<50	<50	<5
14-16-5 @ 3.75 m	0	<0.005	<0.05	<0.01	<0.1	<10	<30	66	<50	6.3

14-12 Date Sampled: 21 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-12-3 @ 2.25	25	<0.005	<0.05	<0.01	<0.1	<10	<30	63	<50	<5
14-12-6 @ 4.5 m	10	<0.005	<0.05	<0.01	<0.1	<10	<30	58	<50	5.2

14-15 Date Sampled: 21 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-15-3 @ 2.25	45	<0.005	<0.05	<0.01	<0.1	<10	<30	<50	<50	<5
14-15-7 @ 5.5 m	25	<0.005	<0.05	<0.01	<0.1	<10	<30	<50	<50	<5
14-15-8 @ 6 m	10	<0.005	<0.05	<0.01	<0.1	<10	<30	<50	<50	<5

14-13 Date Sampled: 21 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-13-3 @ 2.25	5	<0.005	<0.05	<0.01	<0.1	<10	<30	63	<50	<5
14-13-6 @ 4.5 m	15	<0.005	<0.05	<0.01	<0.1	<10	<30	81	<50	5.1

14-42 Date Sampled: 24 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-42-3 @ 2.25	5	<0.005	<0.05	<0.01	<0.10	<10	<30	<50	<50	6.1

14-41 Date Sampled: 24 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-41-3 @ 2.25	25	<0.005	<0.05	<0.01	<0.10	<10	<30	<50	<50	<5

Applicable Guidelines	B	T	E	X	F1	F2	F3	F4	Lead
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SMOE 2009 - Industrial	0.030	0.10	0.082	11	240	260	1700	3300	NA
SMOE 2009 - Residential	0.030	0.10	0.082	11	30	150	300	2800	NA
CCME 2014 - Industrial	NA	NA	NA	NA	NA	NA	NA	NA	600
CCME 2014 - Residential	NA	NA	NA	NA	NA	NA	NA	NA	140

SMOE RBCA (2009) TIER 1 GUIDELINES - COARSE GRAINED SOILS (BTEX, F1-F4)
 CCME (2014) SOIL QUALITY FOR THE PROTECTION OF ENVIRONMENTAL AND HUMAN HEALTH: LEAD

GREEN - BELOW APPLICABLE GUIDELINES
 RED - EXCEEDS ONE OR MORE APPLICABLE GUIDELINES

25th St W



Date Sampled: 15 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-2-1 @ 0.75 m	0	0.0053	<0.050	<0.010	<0.10	<10	<30	487	137	2450
14-2-3 @ 2.25 m	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	67	<50	6

Date Sampled: 15 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-1-4 @ 3 m	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0

Date Sampled: 15 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-3-3 @ 2.25m	65	<0.0050	<0.050	<0.010	<0.10	<10	<30	99	118	5.2

Date Sampled: 15 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-4-3 @ 2.25m	110	<0.0050	<0.050	<0.010	<0.10	<10	<30	169	<50	<5.0

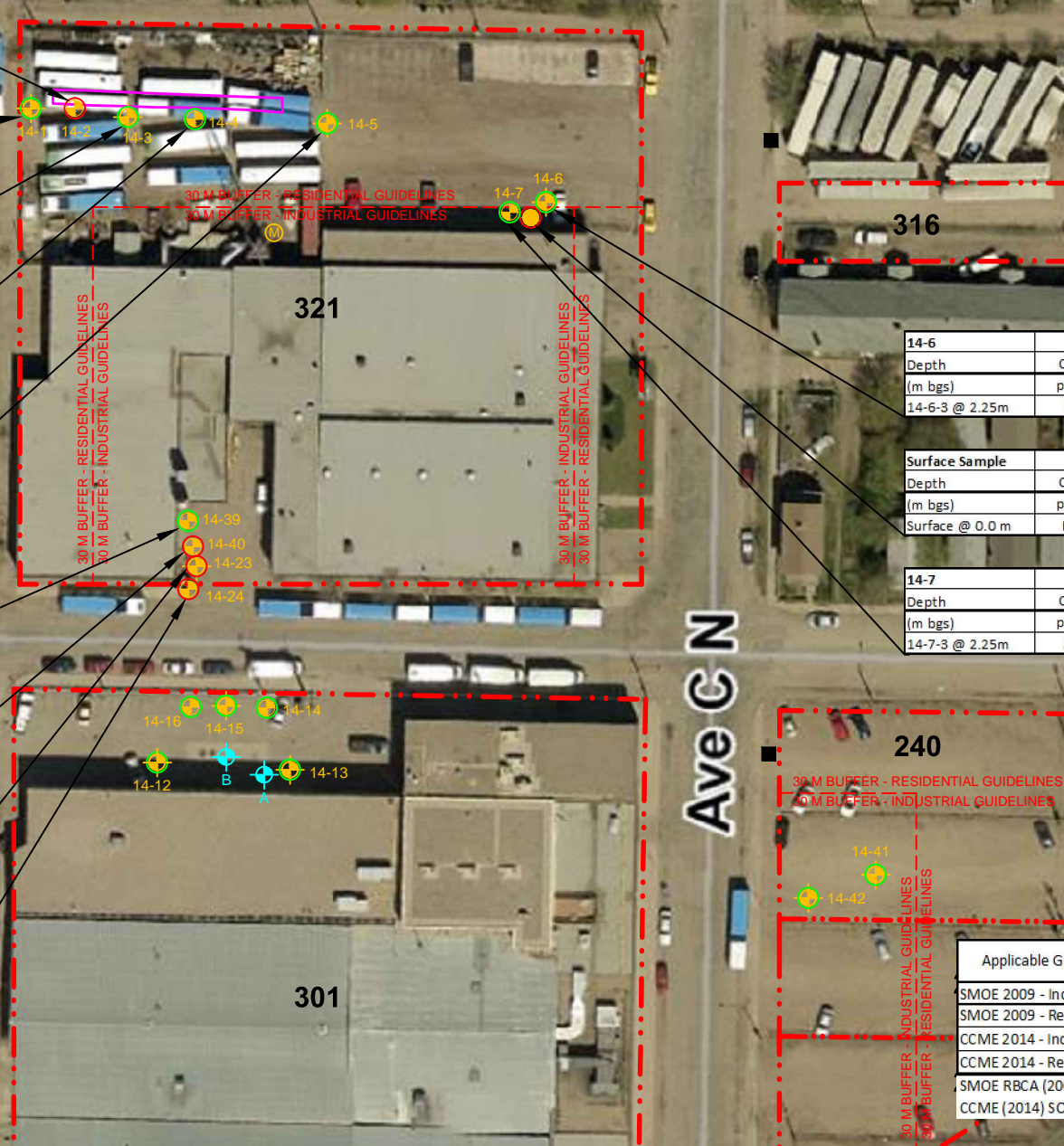
Date Sampled: 15 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-5-1 @ 0.75 m	30	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	65	5.7
14-5-3 @ 2.25	40	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	5.7

Date Sampled: 24 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-39-2 @ 1.5 m	0	<0.005	<0.05	<0.01	<0.1	<10	<30	<50	<50	<5
14-39-4 @ 3.0 m	0	<0.005	<0.05	<0.01	<0.1	<10	<30	274	125	5.3

Date Sampled: 24 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-40-4 @ 3.0	280	<0.005	<0.05	<0.01	<0.1	147	1750	543	<50	<5
14-40-6 @ 4.5 m	0	<0.005	<0.05	<0.01	<0.1	<10	<30	77	<50	5

Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-23-3 @ 2.25 m	190	<0.005	<0.05	0.065	<0.1	351	7040	1360	<50	10.6
14-23-5 @ 3.75 m	0	<0.005	<0.05	<0.01	<0.1	<10	<30	144	<50	5.3

Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-24-4 @ 3.0 m	1250	<0.005	<0.05	0.022	<0.1	31	545	155	<50	<5
14-24-6 @ 3.75 m	25	<0.005	<0.05	<0.01	<0.1	<10	52	91	56	5.1



Date Sampled: 20 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-6-3 @ 2.25m	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0

Date Sampled: 20 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Surface @ 0.0 m	NA	<0.0050	<0.050	<0.010	<0.10	<10	<150	7170	10700	20.1

Date Sampled: 20 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-7-3 @ 2.25m	35	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<50

Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-12	0	<0.005	<0.05	<0.01	<0.1	<10	<30	77	<50	5

Applicable Guidelines	B	T	E	X	F1	F2	F3	F4	Lead
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SMOE 2009 - Industrial	0.030	0.10	0.082	11	240	260	1700	3300	NA
SMOE 2009 - Residential	0.030	0.10	0.082	11	30	150	300	2800	NA
CCME 2014 - Industrial	NA	NA	NA	NA	NA	NA	NA	NA	600
CCME 2014 - Residential	NA	NA	NA	NA	NA	NA	NA	NA	140

SMOE RBCA (2009) TIER 1 GUIDELINES - COARSE GRAINED SOILS (BTEX, F1-F4)
 CCME (2014) SOIL QUALITY FOR THE PROTECTION OF ENVIRONMENTAL AND HUMAN HEALTH: LEAD

GREEN - BELOW APPLICABLE GUIDELINES
 RED - EXCEEDS ONE OR MORE APPLICABLE GUIDELINES

- NOTES:**
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 - SURVEY INFORMATION COLLECTED BY HEMISPHERE S320 GPS.
 - LOCATIONS OF ALL MARKED UTILITIES ARE APPROXIMATE.
 - SASKATCHEWAN MINISTRY OF ENVIRONMENT (SMOE) RISK-BASED CORRECTIVE ACTIONS FOR PETROLEUM HYDROCARBON IMPACTED SITES, MARCH 2009 TIER 1 SOIL GUIDELINES FOR COARSE-GRAINED SOIL, RESIDENTIAL AND INDUSTRIAL LAND USES. (SMOE, 2009)
 - CANADIAN COUNCIL OF MINISTERS OF THE ENVIRONMENT (CCME), CANADIAN SOIL QUALITY GUIDELINES (CSQG) FOR THE PROTECTION OF ENVIRONMENTAL AND HUMAN HEALTH: LEAD FOR COARSE-GRAINED SOIL, RESIDENTIAL AND INDUSTRIAL LAND USES (CCME 1999).
 - BTEX: B=BENZENE, T=TOLUENE, E=ETHYLBENZENE, X=XYLENES
 F1 TO F4 = PETROLEUM HYDROCARBON FRACTIONS F1 TO F4
 - M BGS = METERS BELOW GROUND SURFACE
 - MG/KG = MILLIGRAMS PER KILOGRAM
 - CVC = COMBUSTIBLE VAPOUR CONCENTRATION

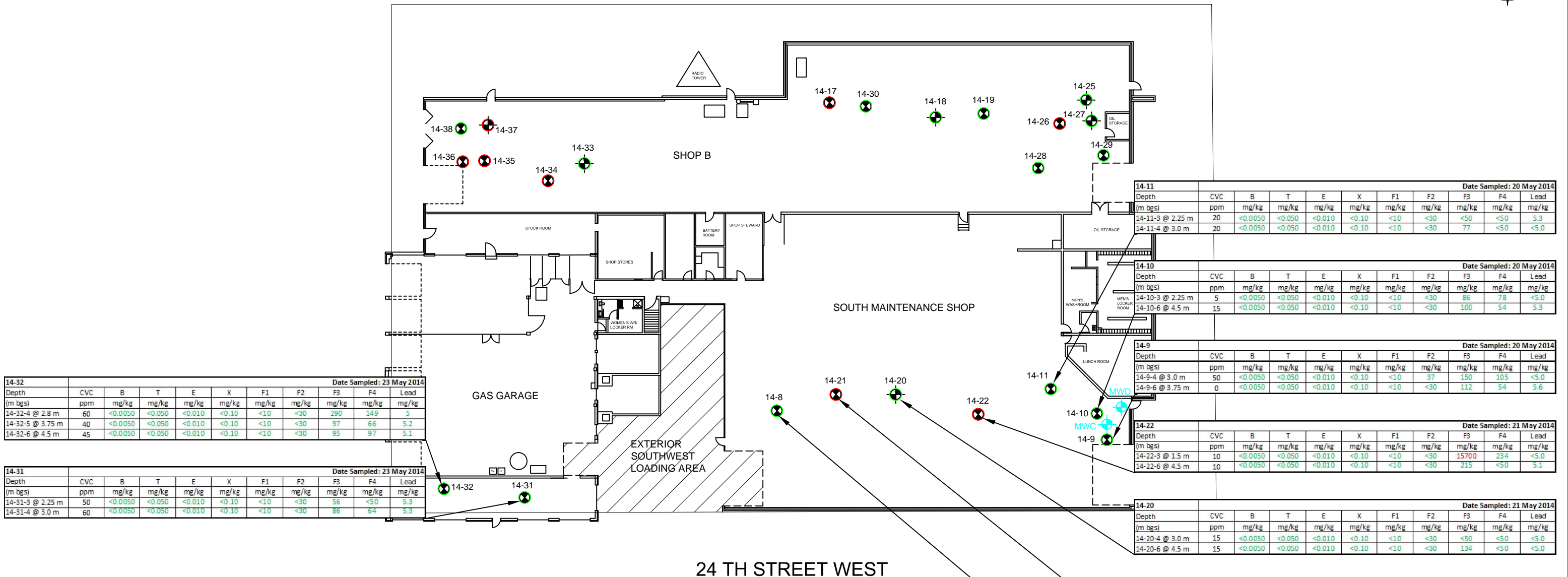
LEGEND

- SUBJECT PROPERTY - APPROXIMATE LOCATION
- HISTORICAL MECHANIC'S PITS
- TEMPORARY BENCHMARK
- TEST HOLE
- MONITORING WELL
- PRE-EXISTING MONITORING WELL
- SURFACE SAMPLE
- MANHOLE

SCALE: 1: 1000
 FILE: H:\PROJECTS\1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK. 1544-2 DRAWINGS

FIGURE 5
 DETAILED SOIL ANALYTICAL RESULTS
 NORTH HALF OF SUBJECT PROPERTY
 23 JULY 2014
 1544-2 PHS II ESA, CASWELL TRANSIT SITE,
 SASKATOON, SK.

DRAWN BY: NA
 CHECKED BY: JC



14-32 Date Sampled: 23 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-32-4 @ 2.8 m	60	<0.0050	<0.050	<0.010	<0.10	<10	<30	290	149	5
14-32-5 @ 3.75 m	40	<0.0050	<0.050	<0.010	<0.10	<10	<30	97	66	5.2
14-32-6 @ 4.5 m	45	<0.0050	<0.050	<0.010	<0.10	<10	<30	95	97	5.1

14-31 Date Sampled: 23 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-31-3 @ 2.25 m	50	<0.0050	<0.050	<0.010	<0.10	<10	<30	56	<50	5.3
14-31-4 @ 3.0 m	60	<0.0050	<0.050	<0.010	<0.10	<10	<30	86	64	5.3

14-11 Date Sampled: 20 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-11-3 @ 2.25 m	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	5.3
14-11-4 @ 3.0 m	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	77	<50	<5.0

14-10 Date Sampled: 20 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-10-3 @ 2.25 m	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	86	78	<5.0
14-10-6 @ 4.5 m	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	100	54	5.3

14-9 Date Sampled: 20 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-9-4 @ 3.0 m	50	<0.0050	<0.050	<0.010	<0.10	<10	<30	150	105	<5.0
14-9-6 @ 3.75 m	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	112	54	5.6

14-22 Date Sampled: 21 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-22-3 @ 1.5 m	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	15700	234	<5.0
14-22-6 @ 4.5 m	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	215	<50	5.1

14-20 Date Sampled: 21 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-20-4 @ 3.0 m	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-20-6 @ 4.5 m	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	134	<50	<5.0

14-21 Date Sampled: 21 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-21-2 @ 1.5 m	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	89	17700	268
14-21-6 @ 4.5 m	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	124	<50	5.2

14-8 Date Sampled: 20 May 2014

Depth (m bgs)	CVC	B	T	E	X	F1	F2	F3	F4	Lead
14-8-3 @ 2.25 m	45	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-8-6 @ 4.5 m	35	<0.0050	<0.050	<0.010	<0.10	<10	<30	94	57	<5.0

GREEN - BELOW APPLICABLE GUIDELINES
 RED - EXCEEDS ONE OR MORE APPLICABLE GUIDELINES

Applicable Guidelines	B	T	E	X	F1	F2	F3	F4	Lead
SMOE 2009 - Industrial	0.030	0.10	0.082	11	240	260	1700	3300	NA
SMOE 2009 - Residential	0.030	0.10	0.082	11	30	150	300	2800	NA
CCME 2014 - Industrial	NA	NA	NA	NA	NA	NA	NA	NA	600
CCME 2014 - Residential	NA	NA	NA	NA	NA	NA	NA	NA	140

SMOE RBCA (2009) TIER 1 GUIDELINES - COARSE GRAINED SOILS (BTEX, F1-F4)
 CCME (2014) SOIL QUALITY FOR THE PROTECTION OF ENVIRONMENTAL AND HUMAN HEALTH: LEAD

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 - BTEX: B=BENZENE, T=TOLUENE, E=ETHYLBENZENE, X=XYLENES
F1 TO F4 = PETROLEUM HYDROCARBON FRACTIONS F1 TO F4
 - M BGS = METERS BELOW GROUND SURFACE
 - MG/KG = MILLIGRAMS PER KILOGRAM
 - CVC = COMBUSTIBLE VAPOUR CONCENTRATION

- LEGEND**
- TEST HOLE
 - MONITORING WELL
 - PRE-EXISTING MONITORING WELL

SCALE: NTS
 FILE: H:\PROJECTS\ 1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK, \ 1544-2 DRAWINGS

FIGURE 6
 DETAILED SOIL ANALYTICAL RESULTS - SOUTH HALF OF 321 AVE C NORTH INTERIOR BOREHOLES
 25 JULY 2014
 1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK.
 DRAWN BY: NA
 CHECKED BY: JC



Date Sampled: 23 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-33-3 @ 1.5 m	35	<0.0050	<0.050	<0.010	<0.10	<10	<30	93	<50	<5.0

Date Sampled: 23 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-37-3 @ 2.1 m	90	<0.0050	<0.050	0.022	<0.10	88	10200	2950	<50	<5.0
14-37-5 @ 3.75 m	NA	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0

Date Sampled: 23 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-38-3 @ 2.25 m	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	6.8

Date Sampled: 23 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-36-1 @ 0.75 m	30	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-36-3 @ 2.25 m	130	<0.0050	<0.050	0.11	0.61	111	12900	3850	<50	<5.0
14-36-6 @ 4.5 m	40	<0.0050	<0.050	<0.010	<0.10	<10	<30	140	<50	5.4

Date Sampled: 23 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-35-3 @ 2.25 m	40	<0.0050	<0.050	0.245	0.77	149	4000	21500	388	5.4
14-35-6 @ 4.5 m	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	105	<50	5.1

Date Sampled: 23 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-34-1 @ 0.75 m	30	<0.0050	<0.050	<0.010	<0.10	<10	<30	139	64	42.8
14-34-3 @ 2.25 m	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	3480	582	<5.0

Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-25-2 @ 1.5 m	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	5.1
14-25-3 @ 2.25 m	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	480	104	<5.0
14-25-6 @ 4.5 m	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	67	<50	5.3

Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-27-3 @ 2.25 m	35	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-27-6 @ 4.5 m	30	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0

Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-29-2 @ 1.5 m	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	5.0
14-29-6 @ 4.5 m	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	95	<50	5.0

Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-26-3 @ 2.25 m	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	315	3050	770
14-26-4 @ 3.0 m	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	84	<50	<5.0

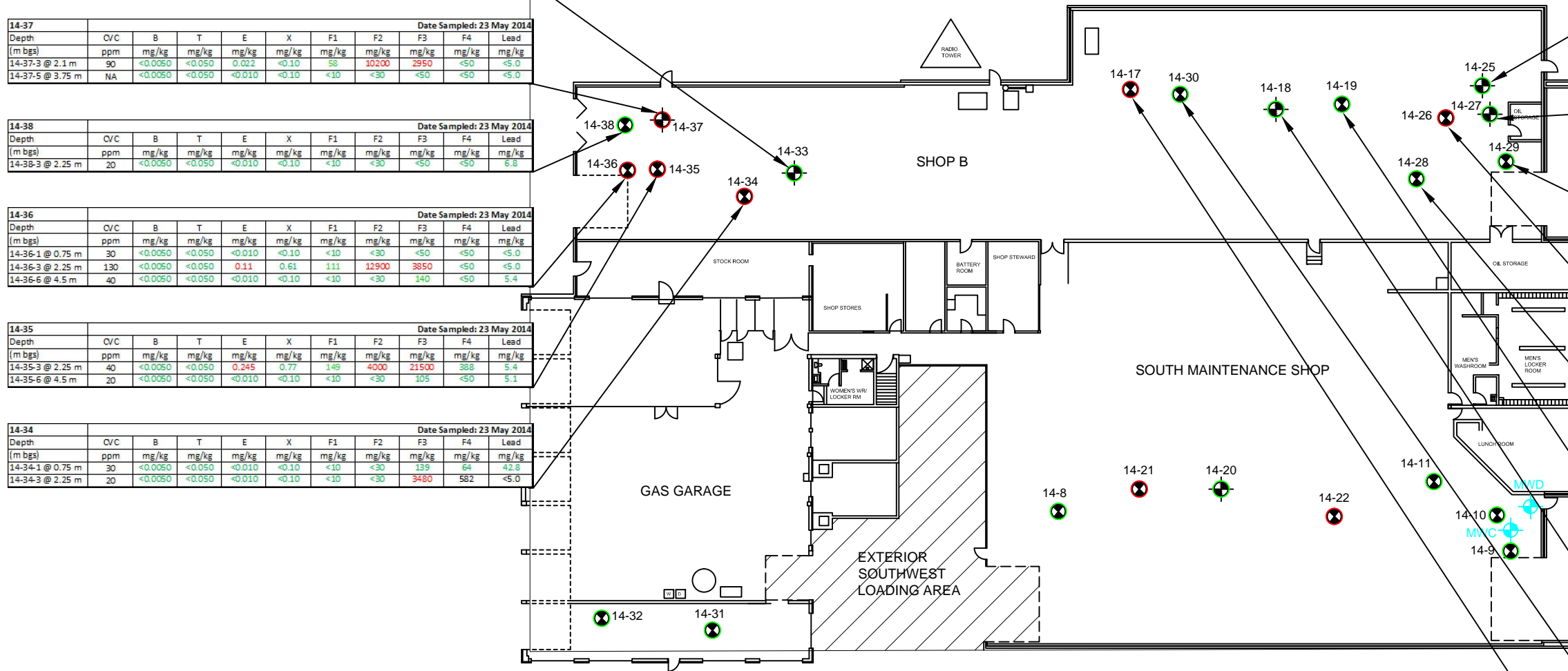
Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-28-3 @ 2.25 m	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-28-6 @ 4.5 m	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	318	252	5.6

Date Sampled: 21 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-19-3 @ 2.25 m	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	84	61	<5.0
14-19-4 @ 3.0 m	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0

Date Sampled: 21 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-18-5 @ 3.75 m	45	<0.0050	<0.050	<0.010	<0.10	<10	<30	65	51	<5.0
14-18-6 @ 4.5 m	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	98	74	5.6

Date Sampled: 22 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-30-3 @ 2.25 m	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-30-5 @ 3.75 m	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	85	62	<5.0

Date Sampled: 21 May 2014										
Depth	CVC	B	T	E	X	F1	F2	F3	F4	Lead
(m bgs)	ppm	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
14-17-3 @ 2.25 m	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	119	10700	3210
14-17-6 @ 4.5 m	25	<0.0050	<0.050	<0.010	<0.10	<10	<30	1650	455	<5.0
14-17-8 @ 6.0 m	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	80	53	<5.0



GREEN - BELOW APPLICABLE GUIDELINES
 RED - EXCEEDS ONE OR MORE APPLICABLE GUIDELINES

Applicable Guidelines	B	T	E	X	F1	F2	F3	F4	Lead
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
SMOE 2009 - Industrial	0.030	0.10	0.082	11	240	260	1700	3300	NA
SMOE 2009 - Residential	0.030	0.10	0.082	11	30	150	300	2800	NA
CCME 2014 - Industrial	NA	NA	NA	NA	NA	NA	NA	NA	600
CCME 2014 - Residential	NA	NA	NA	NA	NA	NA	NA	NA	140

SMOE RBCA (2009) TIER 1 GUIDELINES - COARSE GRAINED SOILS (BTEX, F1-F4)
 CCME (2014) SOIL QUALITY FOR THE PROTECTION OF ENVIRONMENTAL AND HUMAN HEALTH: LEAD

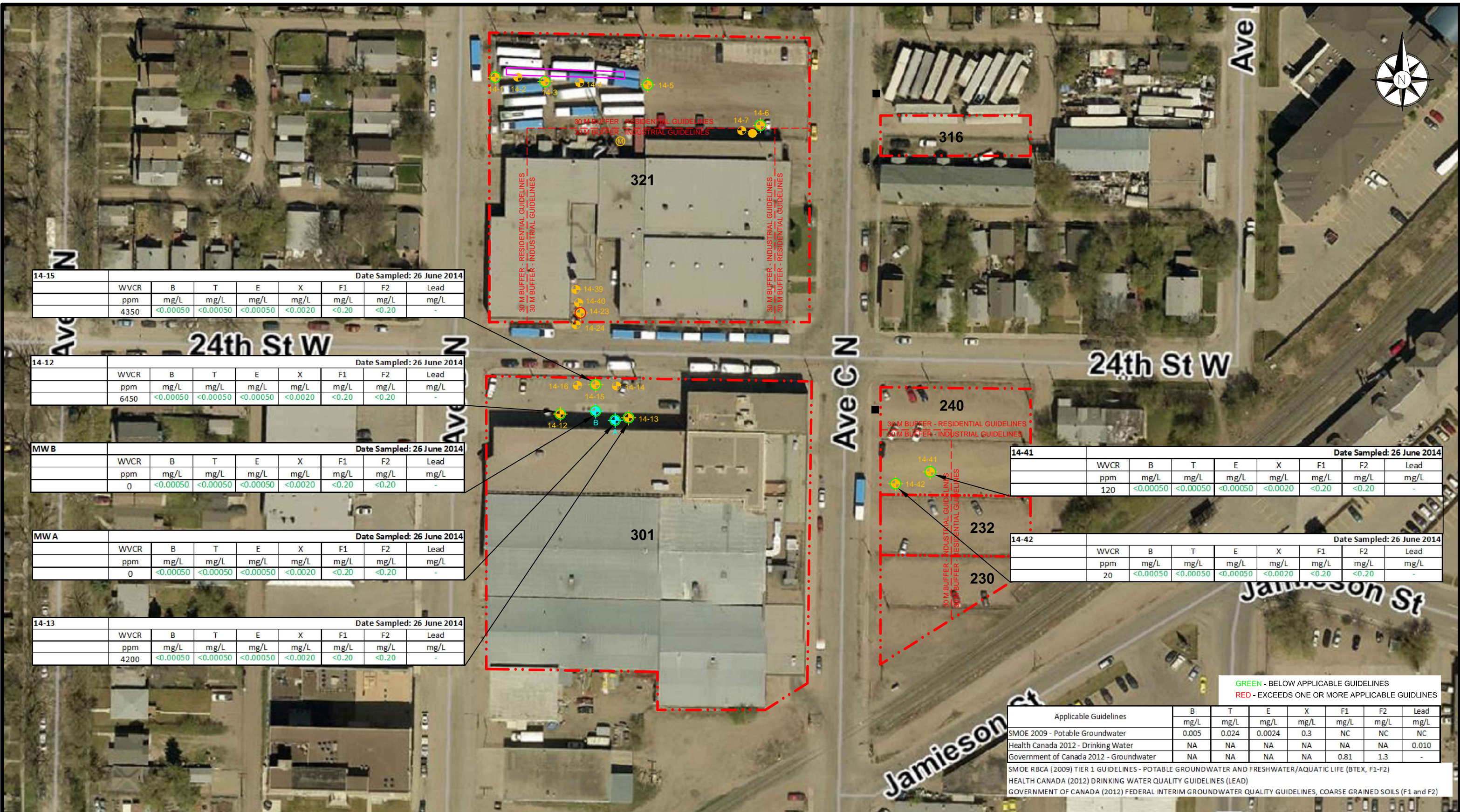
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 - M BGS = METERS BELOW GROUND SURFACE
 - MG/KG = MILLIGRAMS PER KILOGRAM
 - CVC = COMBUSTIBLE VAPOUR CONCENTRATION

- LEGEND**
- TEST HOLE
 - MONITORING WELL
 - PRE-EXISTING MONITORING WELL

SCALE: NTS
 FILE: H:\PROJECTS\ 1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK, \ 1544-2 DRAWINGS

FIGURE 7
 DETAILED SOIL ANALYTICAL RESULTS - NORTH HALF OF 321 AVE C NORTH INTERIOR BOREHOLES
 25 JULY 2014
 1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK.
 DRAWN BY: NA
 CHECKED BY: JC



14-15 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
4350	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-

14-12 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
6450	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-

MWB Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-

MWA Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
0	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-

14-13 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
4200	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-

14-41 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
120	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-

14-42 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
20	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-

GREEN - BELOW APPLICABLE GUIDELINES
 RED - EXCEEDS ONE OR MORE APPLICABLE GUIDELINES

Applicable Guidelines	B	T	E	X	F1	F2	Lead
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
SMOE 2009 - Potable Groundwater	0.005	0.024	0.0024	0.3	NC	NC	NC
Health Canada 2012 - Drinking Water	NA	NA	NA	NA	NA	NA	0.010
Government of Canada 2012 - Groundwater	NA	NA	NA	NA	0.81	1.3	-

SMOE RBCA (2009) TIER 1 GUIDELINES - POTABLE GROUNDWATER AND FRESHWATER/AQUATIC LIFE (BTEX, F1-F2)
 HEALTH CANADA (2012) DRINKING WATER QUALITY GUIDELINES (LEAD)
 GOVERNMENT OF CANADA (2012) FEDERAL INTERIM GROUNDWATER QUALITY GUIDELINES, COARSE GRAINED SOILS (F1 and F2)

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 9. HEALTH CANADA (HC) GUIDELINES FOR CANADIAN DRINKING WATER QUALITY- SUMMARY TABLE, LEAD (HC, 2012).
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 F1 TO F4 = PETROLEUM HYDROCARBON FRACTIONS F1 TO F4
 11. MG/L = MILLIGRAMS PER LITRE
 12. WVCR = WELL HEADSPACE VAPOUR READINGS

LEGEND
 SUBJECT PROPERTY - APPROXIMATE LOCATION
 HISTORICAL MECHANIC'S PITS
 TEMPORARY BENCHMARK
 TEST HOLE
 MONITORING WELL
 PRE-EXISTING MONITORING WELL
 SURFACE SAMPLE
 MANHOLE
 SCALE: 1: 1000
 FILE: H:\PROJECTS\ 1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK. \ 1544-2 DRAWINGS

FIGURE 8
 DETAILED GROUNDWATER ANALYTICAL RESULTS
 SOUTH HALF OF SUBJECT PROPERTY
 DATE: 23 JULY 2014
 1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK.
 DRAWN BY: NA
 CHECKED BY: JC

25th St W



Ave B, N

14-1 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
200	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	<0.000050

14-3 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
790	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	0.000067

14-23 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
65	<0.00050	<0.00050	<0.00050	<0.0020	3.52	136	0.000155

14-6 Date Sampled: 26 June 2014

WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
20	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	<0.000050

14-5 Date Sampled: 26 June 2014

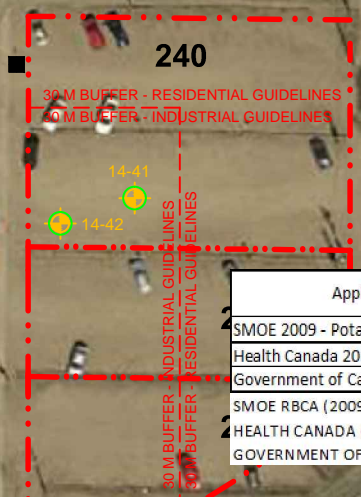
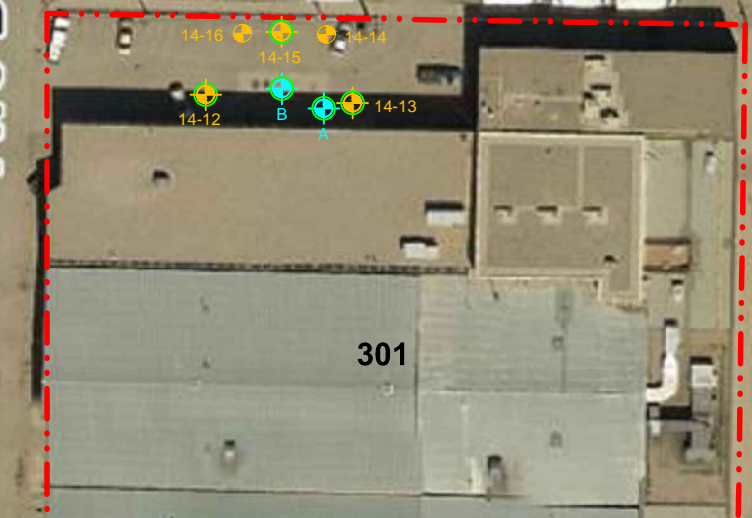
WVCR	B	T	E	X	F1	F2	Lead
ppm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
80	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	0.23	-

24th St W

Ave D, N

Ave C, N

24th St W



GREEN - BELOW APPLICABLE GUIDELINES
RED - EXCEEDS ONE OR MORE APPLICABLE GUIDELINES

Applicable Guidelines	B	T	E	X	F1	F2	Lead
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
SMOE 2009 - Potable Groundwater	0.005	0.024	0.0024	0.3	NC	NC	NC
Health Canada 2012 - Drinking Water	NA	NA	NA	NA	NA	NA	0.010
Government of Canada 2012 - Groundwater	NA	NA	NA	NA	0.81	1.3	-

SMOE RBCA (2009) TIER 1 GUIDELINES - POTABLE GROUNDWATER AND FRESHWATER/AQUATIC LIFE (BTEX, F1-F2)
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GOVERNMENT OF CANADA (2012) FEDERAL INTERIM GROUNDWATER QUALITY GUIDELINES, COARSE GRAINED SOILS (F1 and F2)



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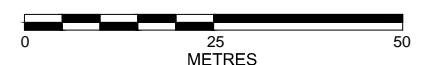
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- MG/L = MILLIGRAMS PER LITRE
- WVCR = WELL HEADSPACE VAPOUR READINGS

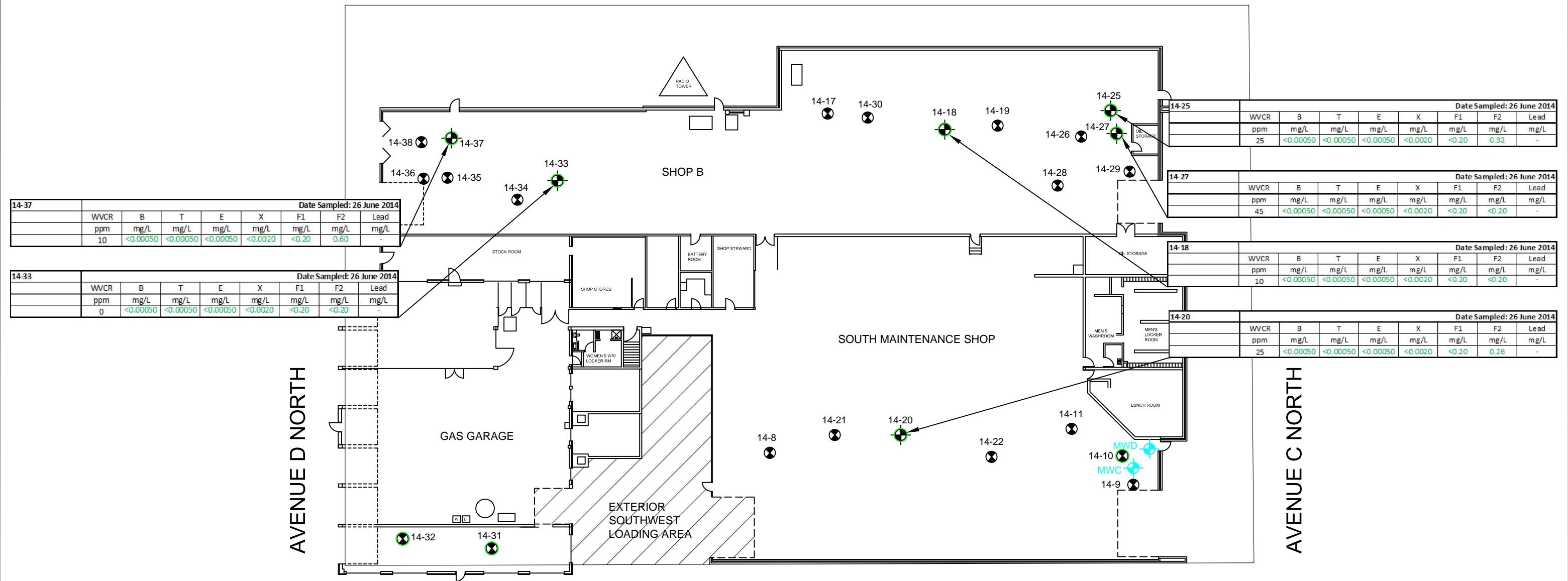
LEGEND

- SUBJECT PROPERTY - APPROXIMATE LOCATION
- HISTORICAL MECHANIC'S PITS
- TEMPORARY BENCHMARK
- TEST HOLE
- MONITORING WELL
- PRE-EXISTING MONITORING WELL
- SURFACE SAMPLE
- MANHOLE



SCALE: 1: 1000
FILE: H:\PROJECTS\1544-2 PHS II ESA, CASWELL TRANSIT SITE, SASKATOON, SK. \1544-2 DRAWINGS

FIGURE 9
DETAILED GROUNDWATER ANALYTICAL RESULTS
NORTH HALF OF SUBJECT PROPERTY
23 JULY 2014
1544-2 PHS II ESA, CASWELL TRANSIT SITE,
SASKATOON, SK.
DRAWN BY: NA
CHECKED BY: JC



GREEN - BELOW APPLICABLE GUIDELINES
 RED - EXCEEDS ONE OR MORE APPLICABLE GUIDELINES

Applicable Guide lines	B	T	E	X	F1	F2	Lead
	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
SMOE 2009 - Potable Groundwater	0.005	0.024	0.0024	0.3	NC	NC	NC
Health Canada 2012 - Drinking Water	NA	NA	NA	NA	NA	NA	0.010
Government of Canada 2012 - Groundwater	NA	NA	NA	NA	0.81	1.3	-

SMOE RBGA (2009) TIER 1 GUIDELINES - POTABLE GROUNDWATER AND FRESHWATER/AQUATIC LIFE (BTEX, F1-F2)
 HEALTH CANADA (2012) DRINKING WATER QUALITY GUIDELINES (LEAD)
 GOVERNMENT OF CANADA (2012) FEDERAL INTERIM GROUNDWATER QUALITY GUIDELINES, COARSE GRAINED SOILS (F1 and F2)

24 TH STREET WEST



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11. MG/L = MILLIGRAMS PER LITRE
12. WVCR = WELL HEADSPACE VAPOUR READINGS

LEGEND

- TEST HOLE
- MONITORING WELL
- PRE-EXISTING MONITORING WELL

SCALE: NTS

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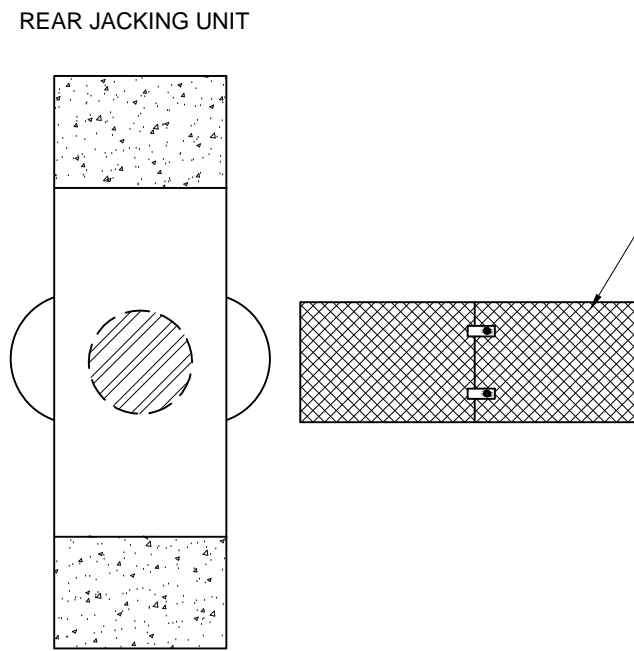
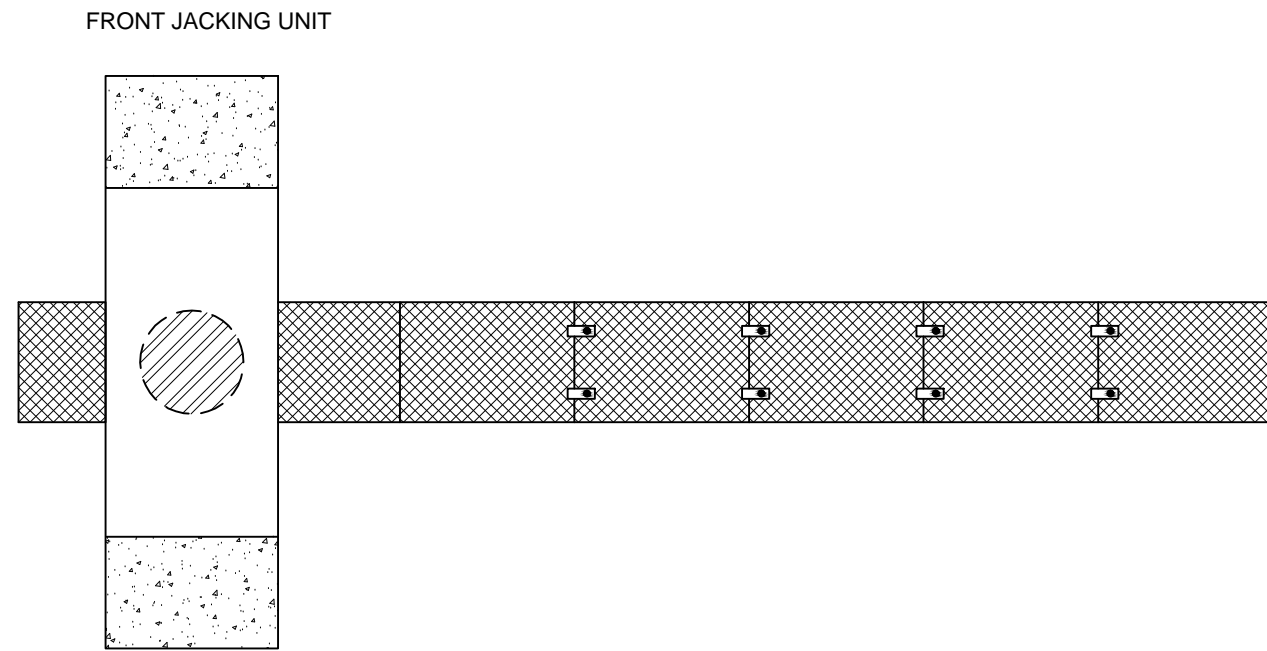
FIGURE 10

DETAILED GROUNDWATER ANALYTICAL RESULTS
 INTERIOR MONITORING WELLS

25 JULY 2014
 1544-2 PHS II ESA, CASWELL TRANSIT SITE,
 SASKATOON, SK.

DRAWN BY: NA

CHECKED BY: JC



ROTARY LIFT AND FORD SMITH
BOTH TYPES ARE VERY SIMILAR

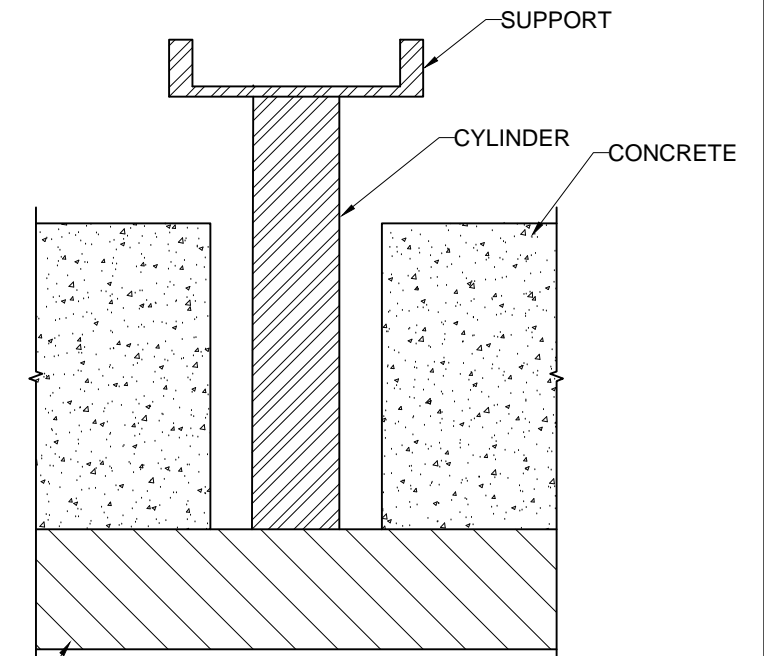
FIXED

PLAN VIEW

FRONT RAM SLIDES IN EITHER DIRECTION
TO ACCOMODATE DIFFERENT WHEEL BASES

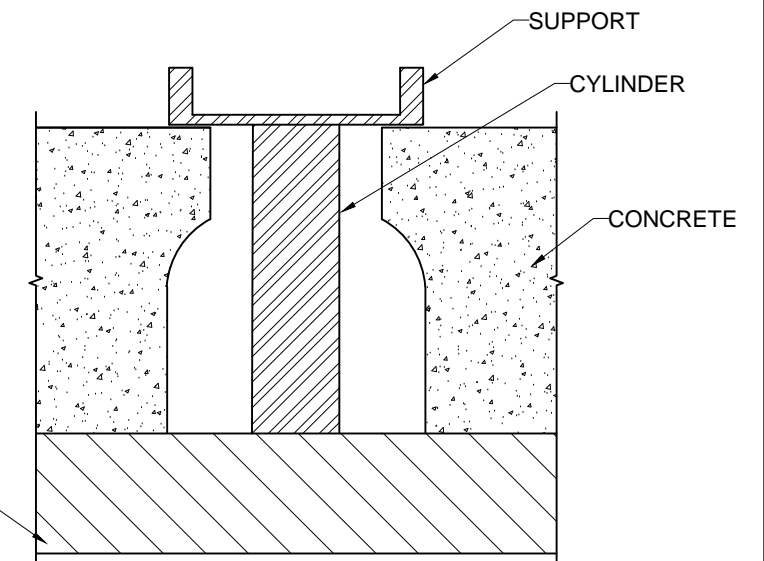
ACCESS PANELS

CONTACT MATERIAL
(SEE LEGEND *)



TYPE 1
ROTARY LIFT
ONE (1) ON SITE

CONTACT MATERIAL
(SEE LEGEND *)



TYPE 2
FORD SMITH
SEVEN (7) ON SITE

TYPES OF HOISTS



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NOTES

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LEGEND

* THE CONTACT MATERIAL TYPE IS UNKNOWN.
THIS MATERIAL MAY BE CONCRETE OR BARE GROUND.

DRAWING TITLE:

FIGURE 11

HYDRAULIC HOIST LAYOUT

DATE:
23 JULY, 2014

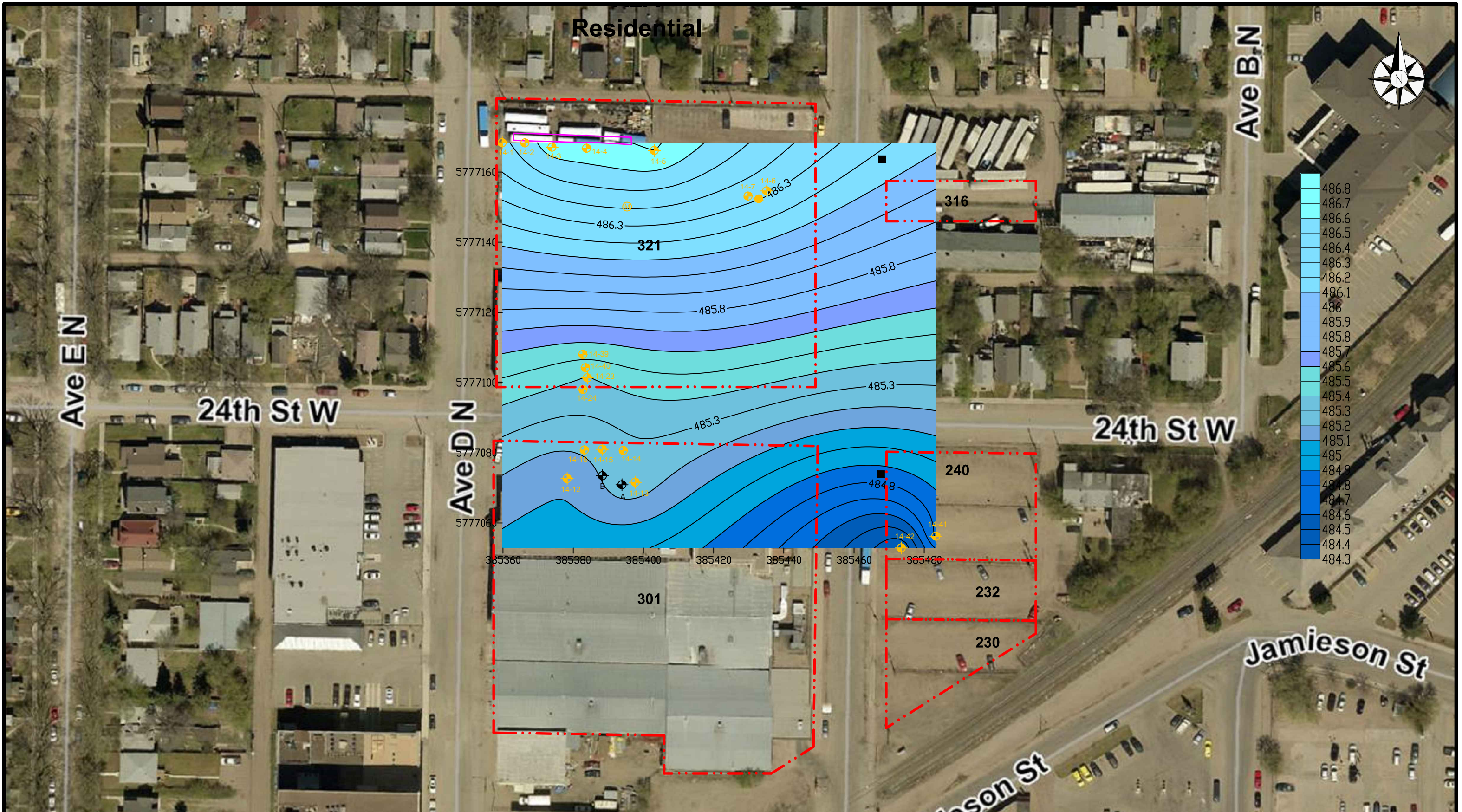
FILENAME:
1544-2 PHS II ESA, CASWELL TRANSIT SITE,
SASKATOON, SK.

DRAWN BY:
DRAWN BY: NA

CHECKED BY:
CHECKEDBY: JC

SCALE : N/A

FILE: H:\PROJECTS\1544-2 PHASE II ESA, CASWELL TRANSIT SITE
\ 1544-2 DRAWINGS



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LEGEND

- SUBJECT PROPERTY - APPROXIMATE LOCATION ---
- HISTORICAL MECHANIC'S PITS ---
- TEMPORARY BENCHMARK ■

- TEST HOLE ⊕
- MONITORING WELL ⊕
- PRE-EXISTING MONITORING WELL ⊕

- SURFACE SAMPLE ●
- MANHOLE Ⓜ



SCALE: 1: 1000
FILE: H:\PROJECTS\ 1544-2 PHS II ESA, CASWELL TRANSIT SITE SASKATOON, SK, 1 1544-2 DRAWINGS

FIGURE 12
GROUNDWATER FLOW

28 AUGUST 2014
1544-2 PHS II ESA, CASWELL TRANSIT SITE,
SASKATOON, SK.

DRAWN BY: NA
CHECKED BY: JC



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Appendix B

Glossary of Terms and Abbreviations

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GLOSSARY OF TERMS AND ABBREVIATIONS

%LEL	Percent of lower explosive limit – the lowest percent mixture of explosive gases mixed in air that will ignite – these values are read with an explosive gas meter
°C	Degrees Celsius
µg	microgram
Asbestos	Thin fibrous silicate minerals used that have been used historically in building materials such as insulation and ceiling and floor tiles
ACM	Asbestos containing materials
AST	Above ground fuel storage tank
BTEX	Abbreviation that represents the petroleum hydrocarbon contaminants benzene (B), toluene (T), ethylbenzene (E) and xylenes (X). Higher concentrations of BTEX exist in gasoline and light hydrocarbons, and lower concentrations exist in diesel fuel. BTEX concentrations are not present in oils and heavier hydrocarbons
Contaminants	Identified or suspected materials, compounds, chemicals, metals, and other products (usually man made) that may be present in concentrations that exceed the applicable regulatory criteria or guidelines
CCME	Canadian Council of Ministers of the Environment
CVC	Combustible vapour concentration – readings collected using an explosive gas meter on the gases that accumulate in the headspace above a soil sample contained in a plastic bag. The readings are in ppm or %LEL
EC	Electrical conductivity. The ability of a material to conduct an electrical current. For soils, EC provides data on the concentration of various ions and on the soil type
Environmental Borehole	A hole drilled into the ground as part of a Phase II Environmental Site Assessment to collect soil samples, determine soil stratigraphy, and to install groundwater monitoring wells
g	gram
GPR	Ground penetrating radar. A non-destructive method that uses electromagnetic radiation to detect reflected signals from subsurface structures
Groundwater Monitoring Well	A well constructed to provide access to groundwater for collecting groundwater data and samples. The well is carefully constructed in such a manner as to avoid cross contamination between zones of contamination and to avoid interconnecting groundwater from different elevations
ESA	Environmental Site Assessment
F1	The fraction or part of the PHC mixture that contains compounds with the numbers of carbons ranging between C6 and C10
F2	The fraction or part of the PHC mixture that contains compounds with

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	the numbers of carbons ranging between C10 and C16
F3	The fraction or part of the PHC mixture that contains compounds with the numbers of carbons ranging between C16 and C34
F4	The fraction or part of the PHC mixture that contains compounds with the numbers of carbons ranging between C34 and C50
LNAPL	Light non-aqueous phase liquid. A contaminant (for example, gasoline) that is not soluble in water and floats on top of water due to its lower density
Limited Phase II ESA	A Phase II ESA that confirms the presence of contamination but does not determine the vertical or horizontal extent of contamination
NCSCS	The Canadian Council of Ministers of the Environment's (CCME) National Classification System for Contaminated Sites is a method for evaluating contaminated sites according to current or potential adverse impact on human health and the environment. The NCSCS was developed to establish a rational and scientifically defensible system for comparable assessment of contaminated sites across Canada. The NCSCS is an important management tool for prioritizing the investigation and remediation of contaminated sites
m	metres
m bgs	metres below ground surface
MDL	Method detection limit. Refers to the minimum concentration of a contaminant that laboratory equipment can detect.
mg/kg	milligrams per kilogram
mg/L	milligrams per litre
MHz	megahertz
mL	millilitre
Petroleum Hydrocarbons	PHC (see below)
Phase II Delineation	A Phase II ESA that determines the vertical and horizontal extent of contamination
PHC	Petroleum hydrocarbons (hydrocarbons) - compounds that result from the refining of crude oil. Typically these compounds include gasoline, diesel fuel, fuel oil, jet fuels, kerosene, non-synthetic motor and hydraulic oils
PPM	Parts per million - used to communicate the concentration of certain contaminants in soil or water. Milligrams per kilogram, milligrams per litre, and micrograms per gram can be interpreted as ppm
QA/QC	Quality Assurance/Quality Control
SMOE	Saskatchewan Ministry of the Environment
UST	Underground fuel storage tank
WVCR	Well headspace vapour concentration readings. Readings collected using an explosive gas meter on the gases that accumulate in the headspace within a groundwater monitoring well. The readings can be in ppm or %LEL

Appendix C

Selected Site Photographs



Photograph #1: Ground penetrating radar (GPR) in maintenance shop at 321 Avenue C North.



Photograph #2: GPR in Steam Bay located in the southwest corner of 321 Avenue C North.



Photograph #3: Storage yard of 321 Avenue C North, looking east. The historic mechanic's pits were located in this area.



Photograph #4: Borehole drilled into historic mechanic's pit in storage yard of 321 Avenue C North.



Photograph #5: Soil core from borehole drilled into historic mechanic's pit in storage yard of 321 Avenue C North. Note the wood and concrete.



Photograph #6: Advancing borehole 14-8 in the maintenance shop located at 321 Avenue C North.



Photograph #7: Advancing borehole 14-24 in the loading area located at 321 Avenue C North.



Photograph #8: Soil core removed from borehole 14-24. This soil core had a strong hydrocarbon odour. Note the staining.



Photograph #9: Steam Bay, located in maintenance building at 321 Avenue C North. Borehole 14-31 is located behind the drill rig.



Photograph #10: Advancing borehole 14-41 at 240 Avenue C North, looking northwest.



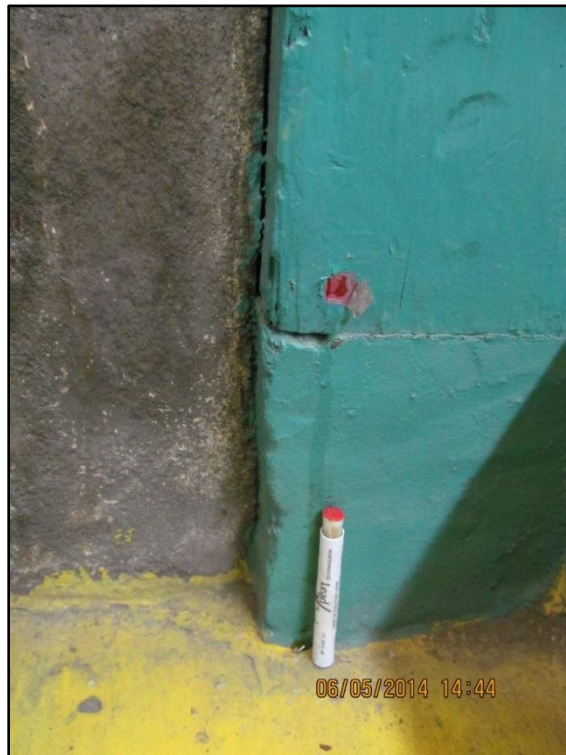
Photograph #11: Groundwater monitoring and sampling, monitoring well 14-37, located in Shop B at 321 Avenue C North.



Photograph #12: Sampling for lead-based paint, Steam Bay, maintenance shop located at 321 Avenue C North.



Photograph #13: Diesel particulate sampling, bus storage barn located at 301 24th Street West.



Photograph #14: Positive test for lead-based paint on doorframe of stockroom (#103) located in the maintenance shop of 321 Ave North.



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Appendix D

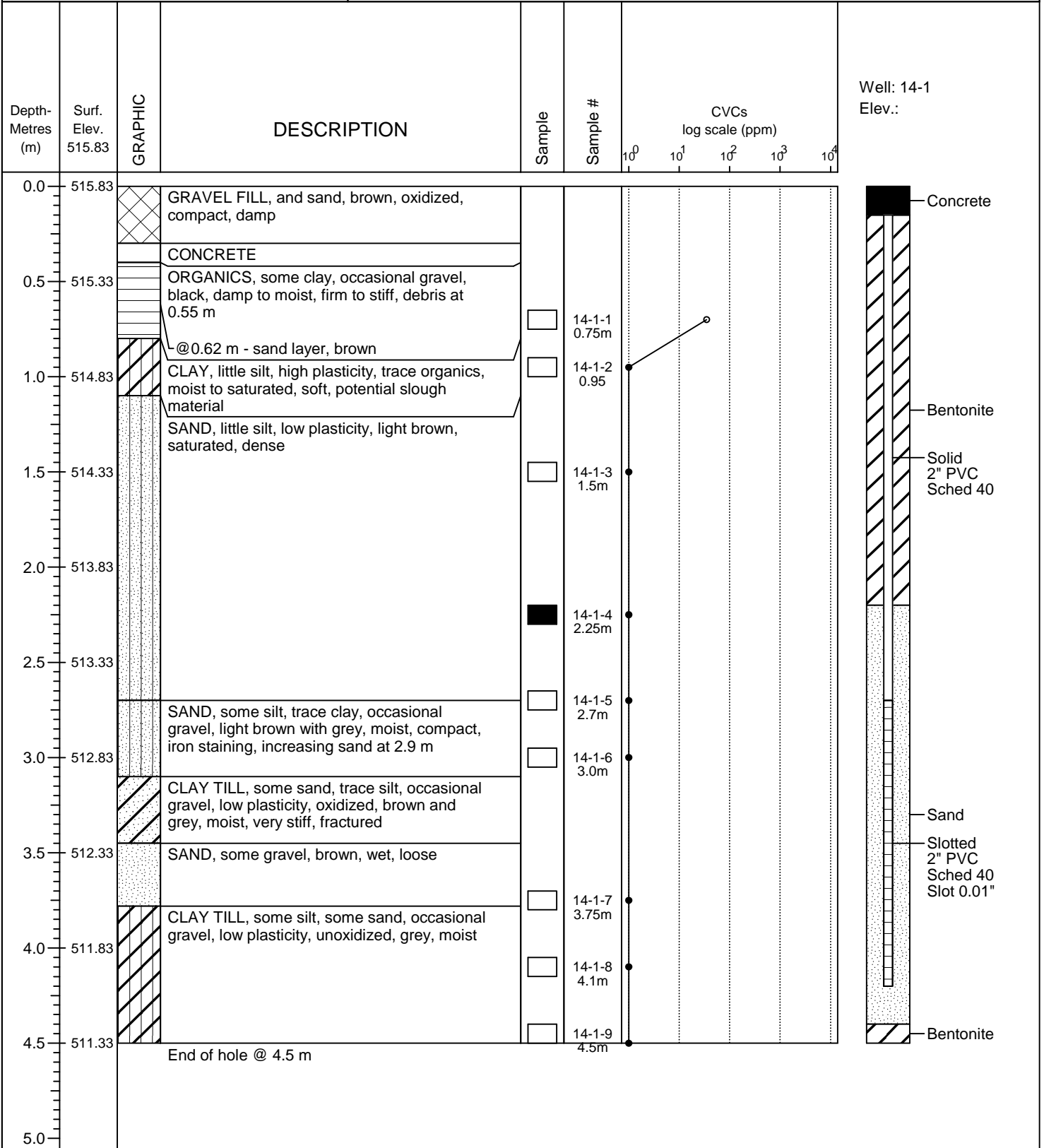
Borehole Logs



1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 15 May 2014
Time of Logging : 1015 - 1305
Logged By : DH
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark



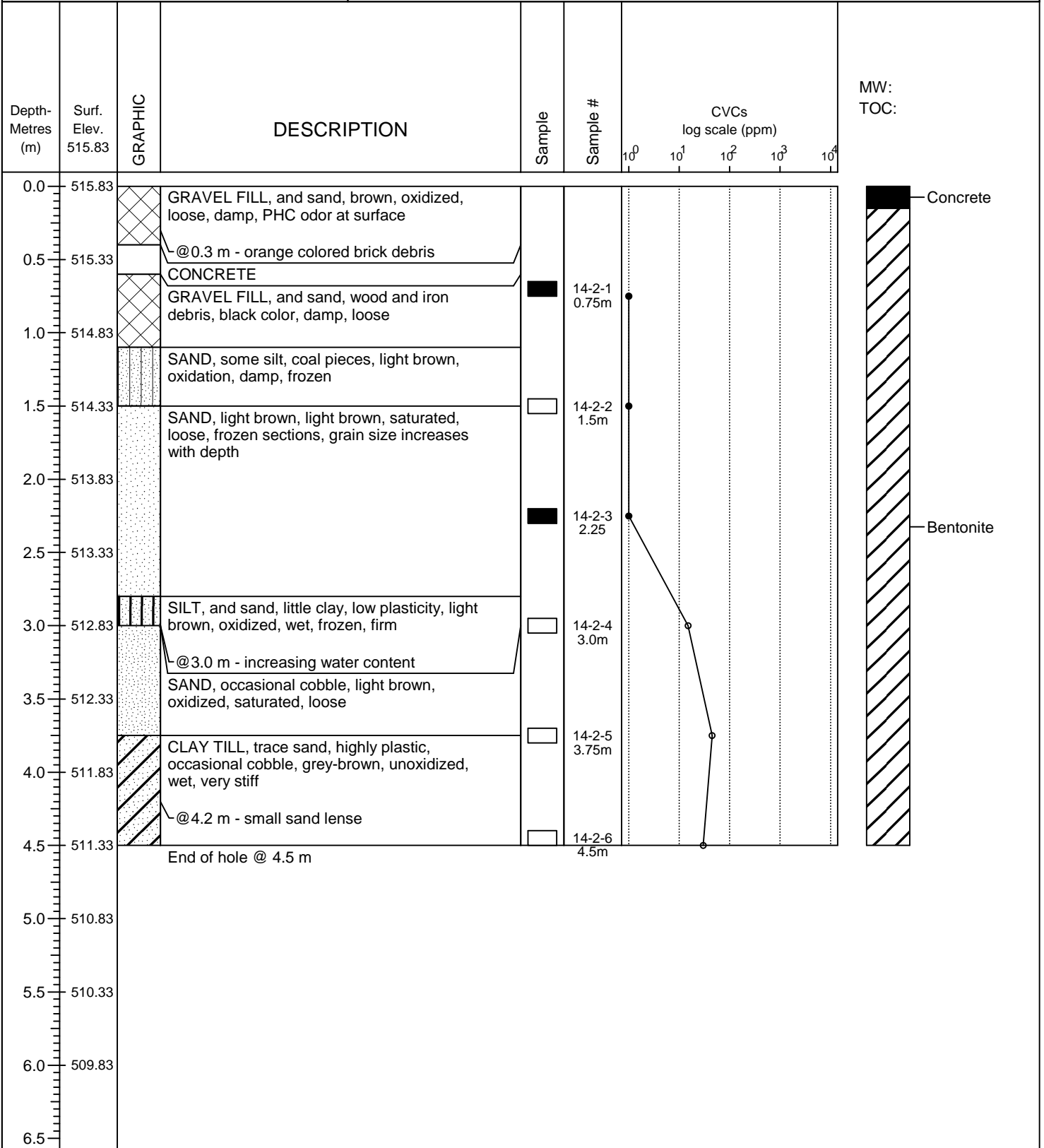


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 15 May 2014
Time of Logging : 1320 - 1420
Logged By : JC
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



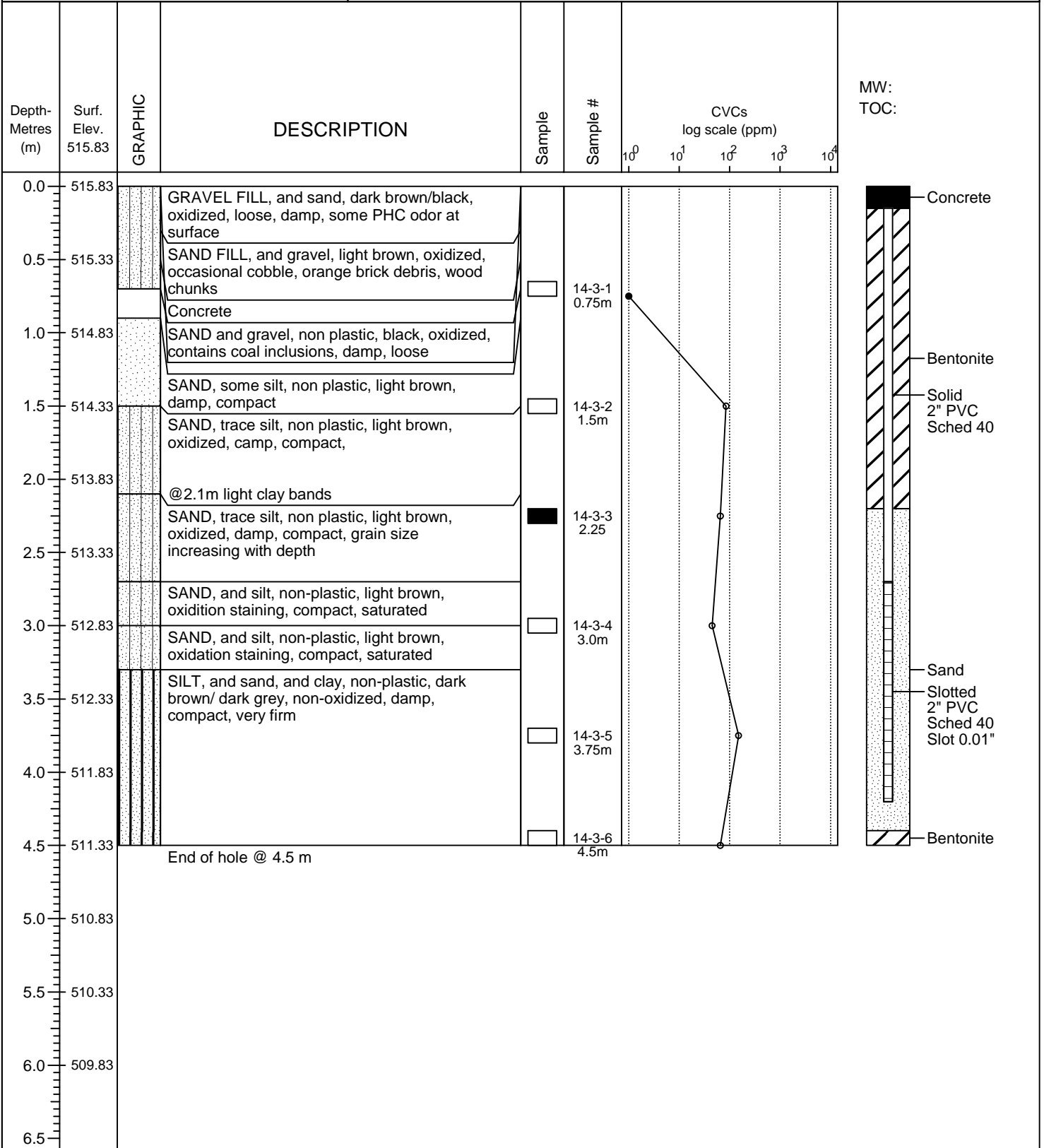


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 15 May 2014
Time of Logging : 1425 - 1545
Logged By : JC
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark

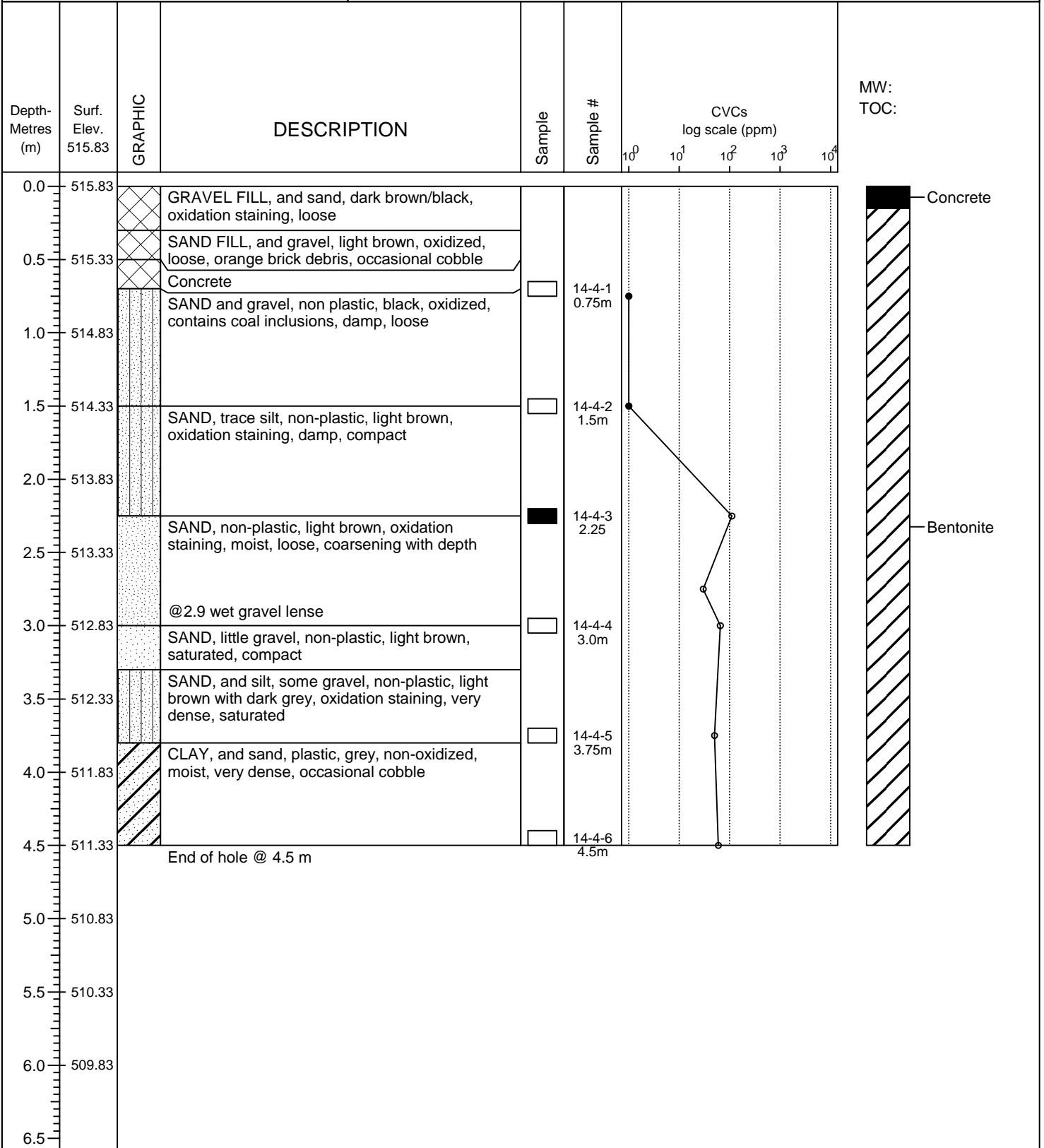




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 15 May 2014
Time of Logging : 1600 - 1645
Logged By : JC
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark



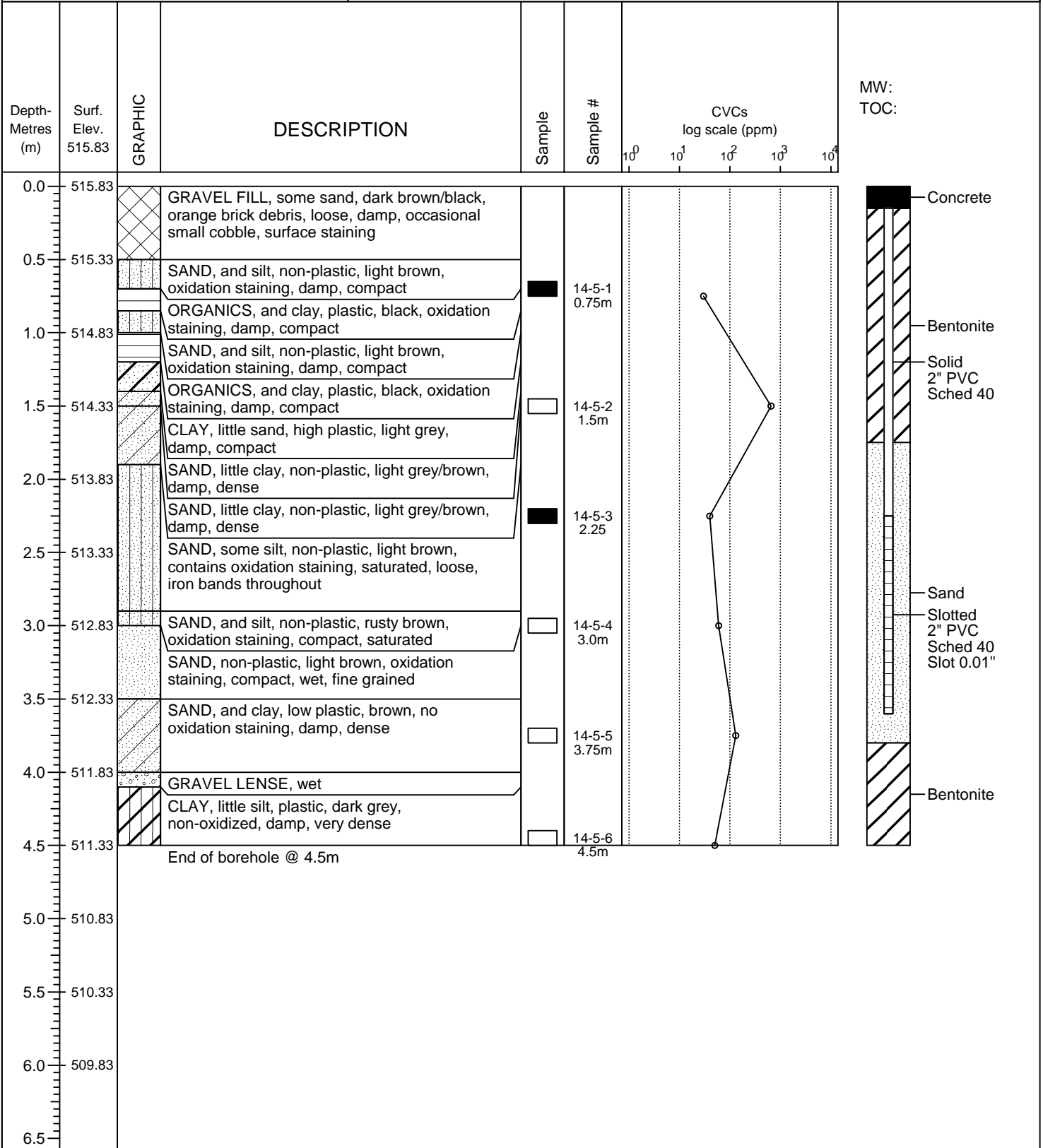


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 15 May 2014
Time of Logging : 1645 - 1800
Logged By : JC
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



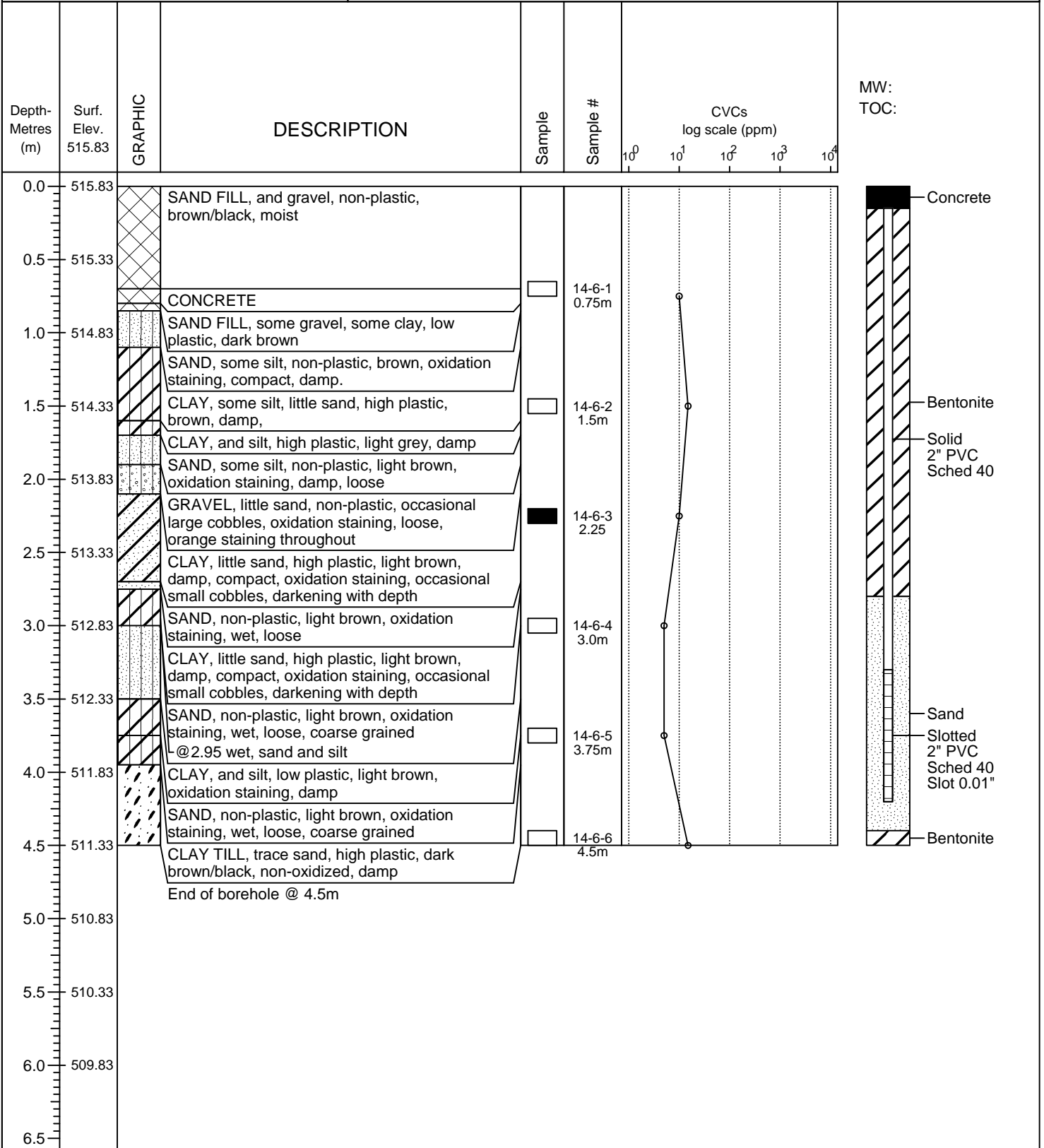


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 20 May 2014
Time of Logging : 1200 - 1315
Logged By : JC
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



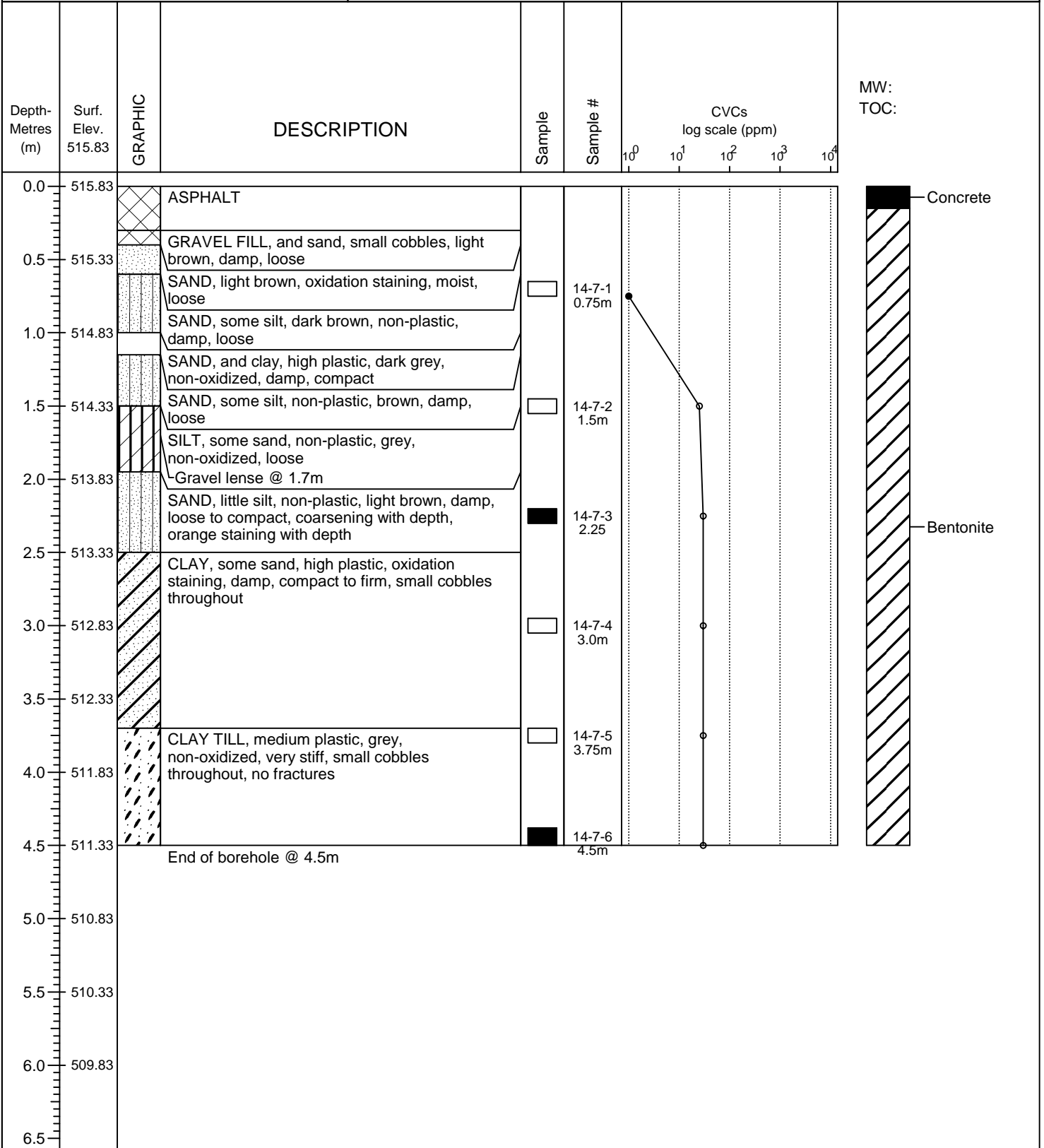


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 20 May 2014
Time of Logging : 1345 - 1445
Logged By : JC
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark

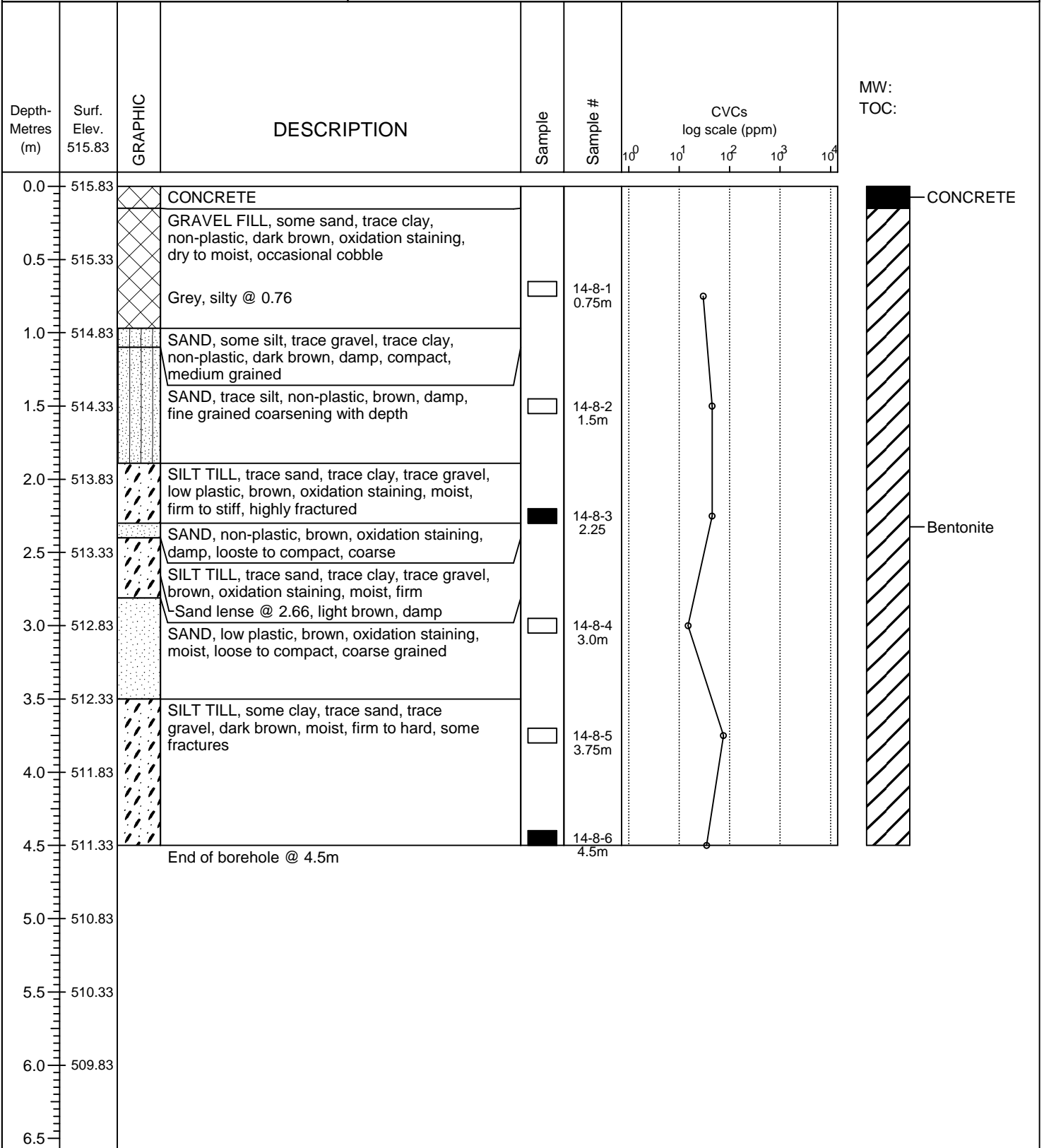




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 20 May 2014
Time of Logging : 1530 - 1615
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark



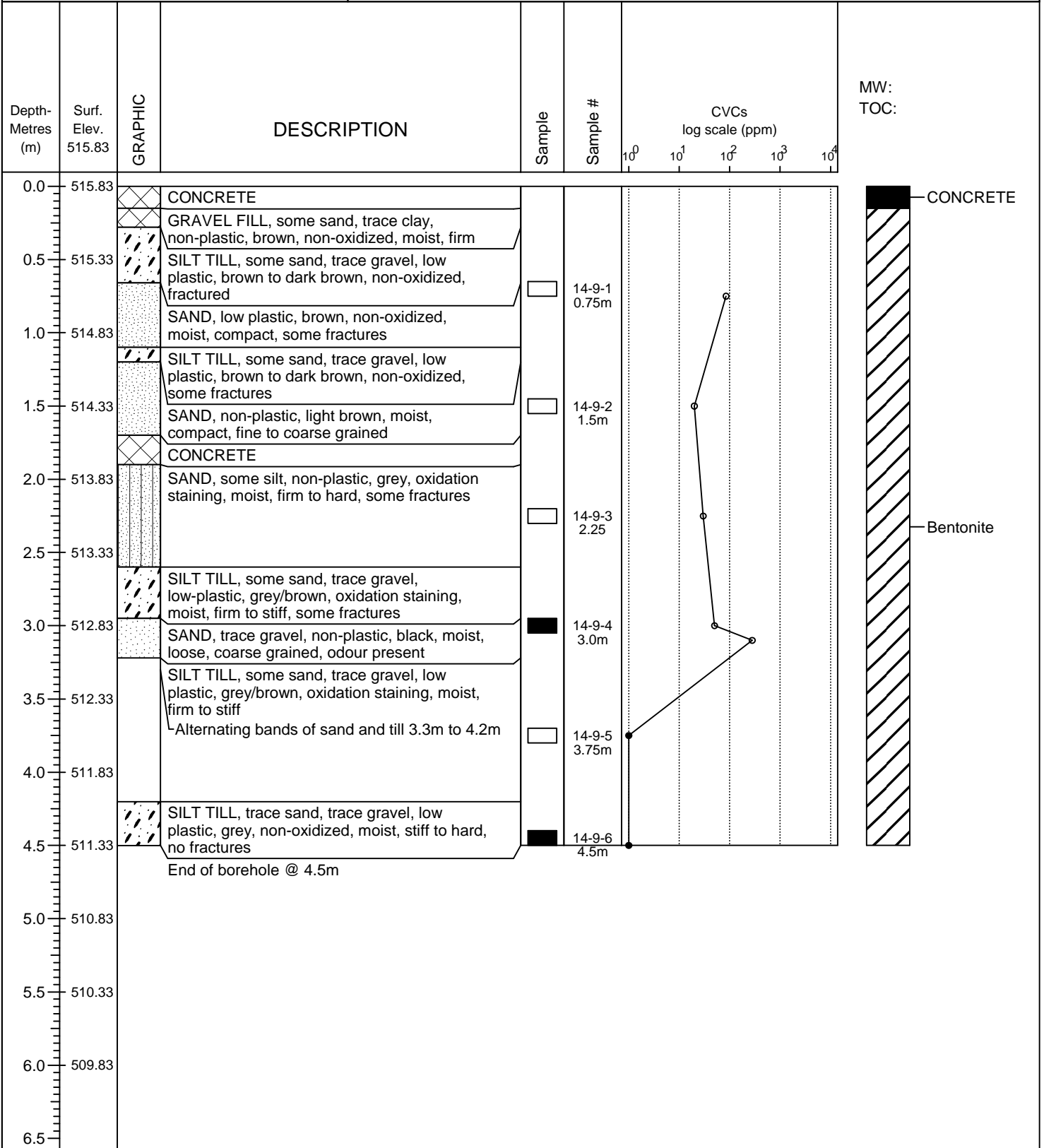


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 20 May 2014
Time of Logging : 1645 - 1800
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



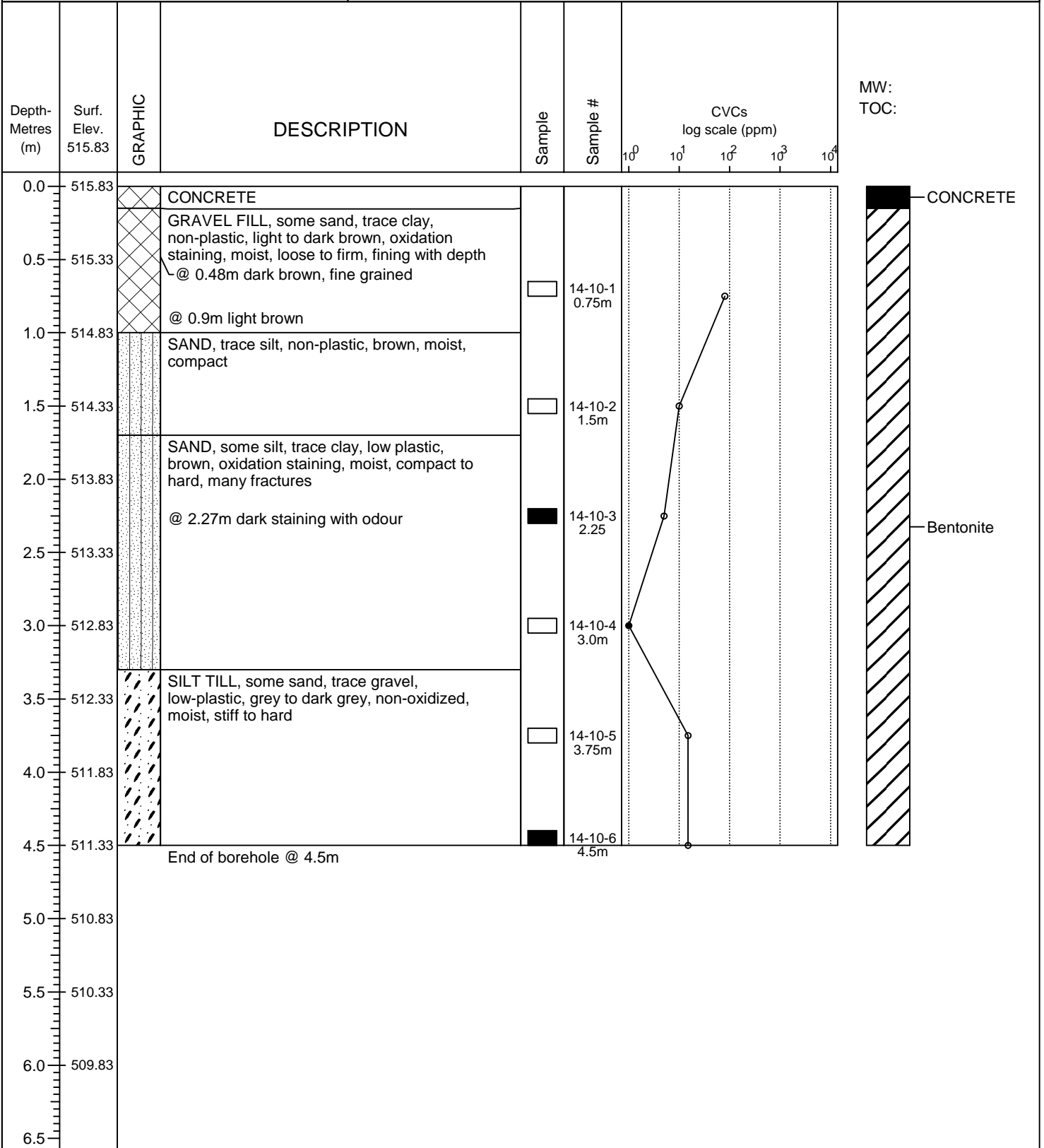


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 20 May 2014
Time of Logging : 1815 - 1915
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark

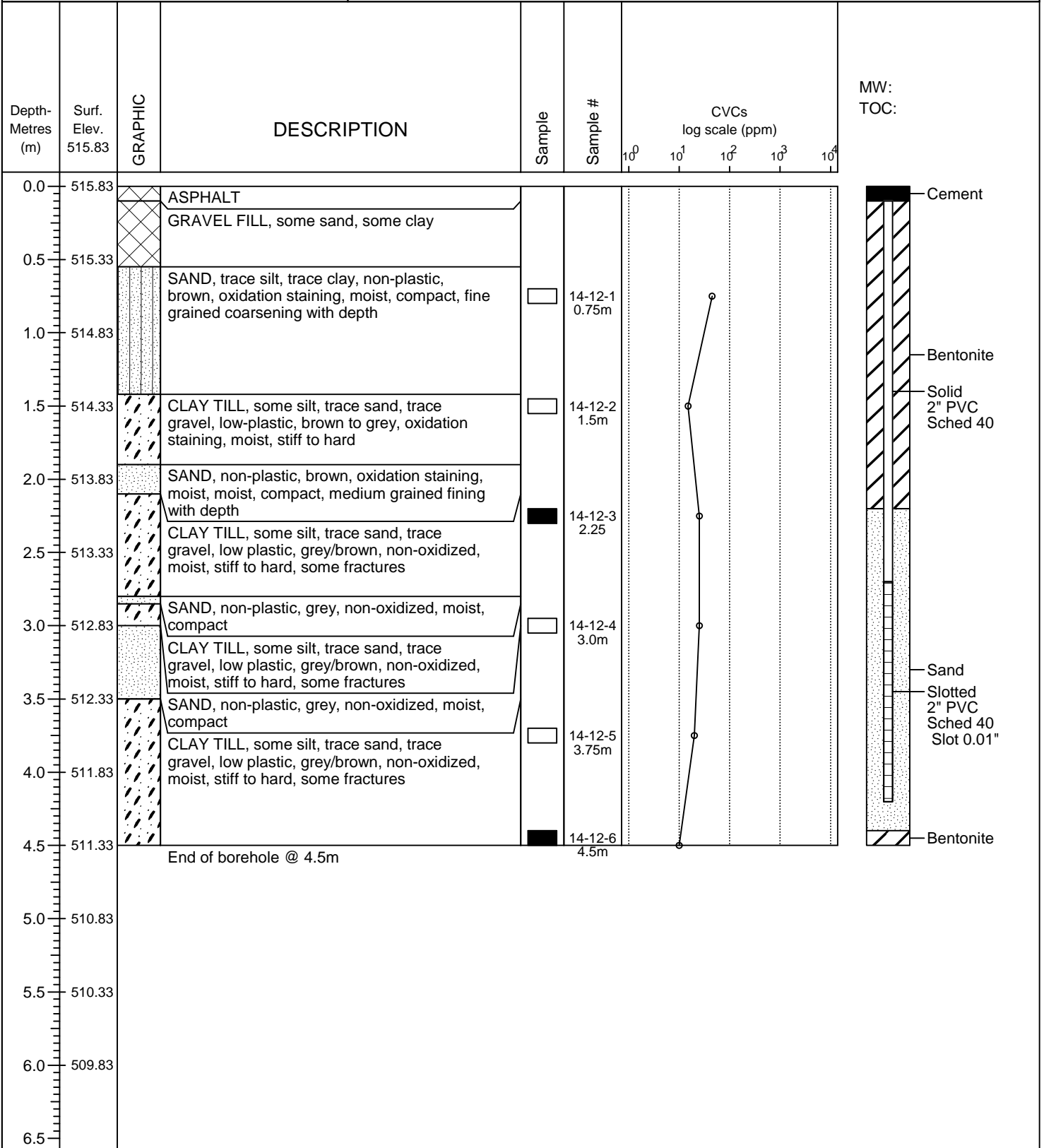




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 1000 - 1100
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark

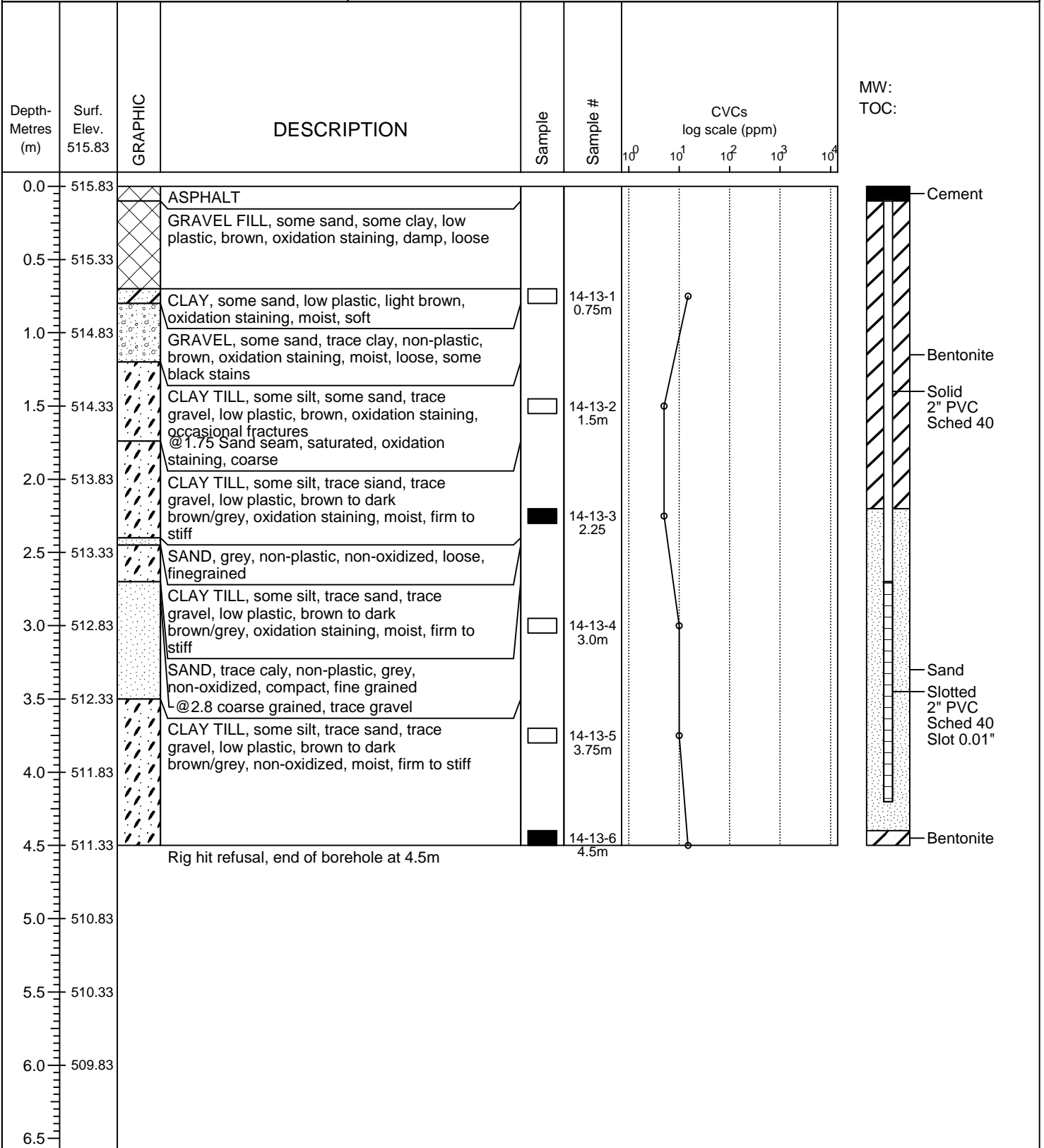




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 1115 - 1400
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark

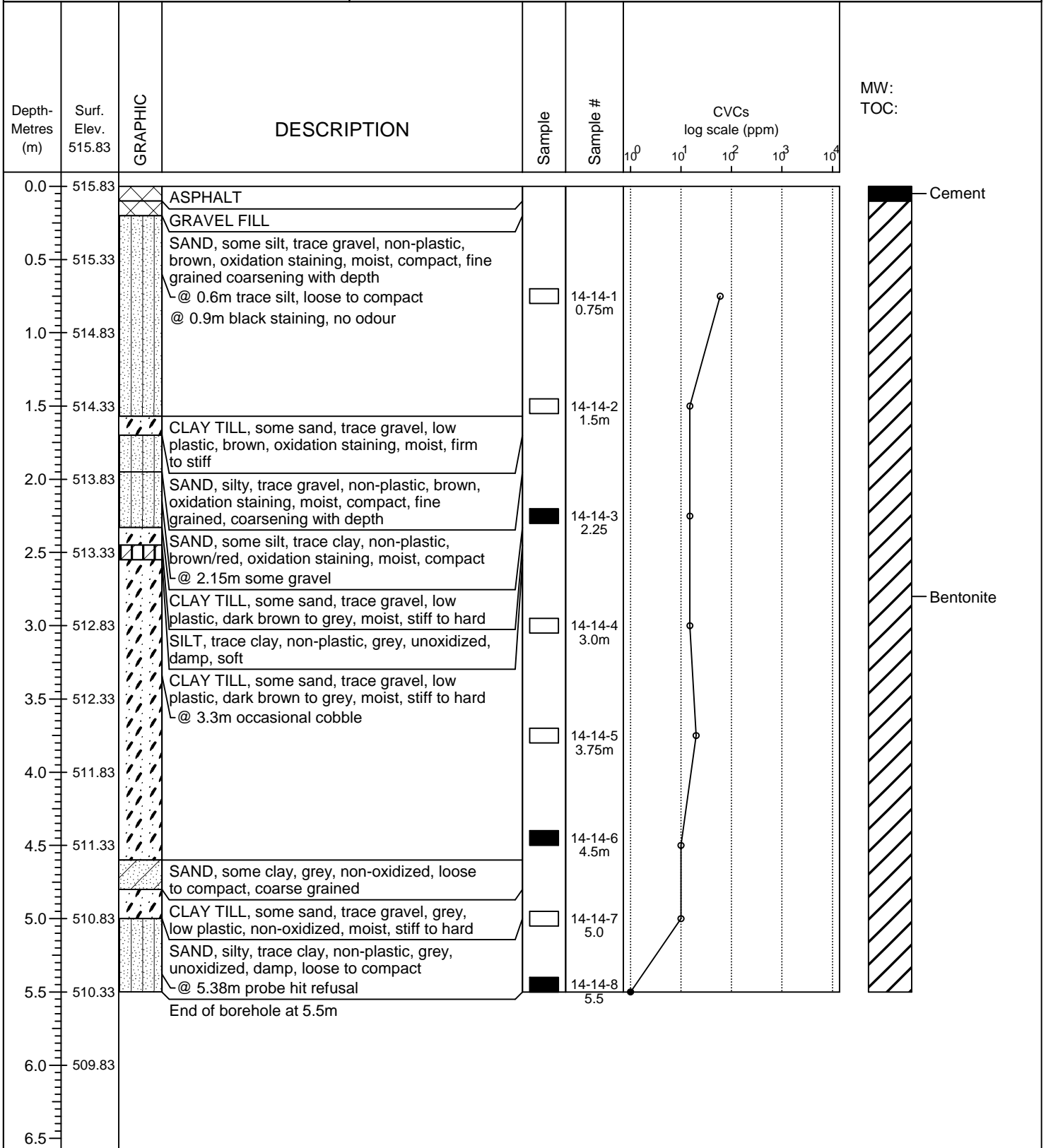




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 1400 - 1515
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark

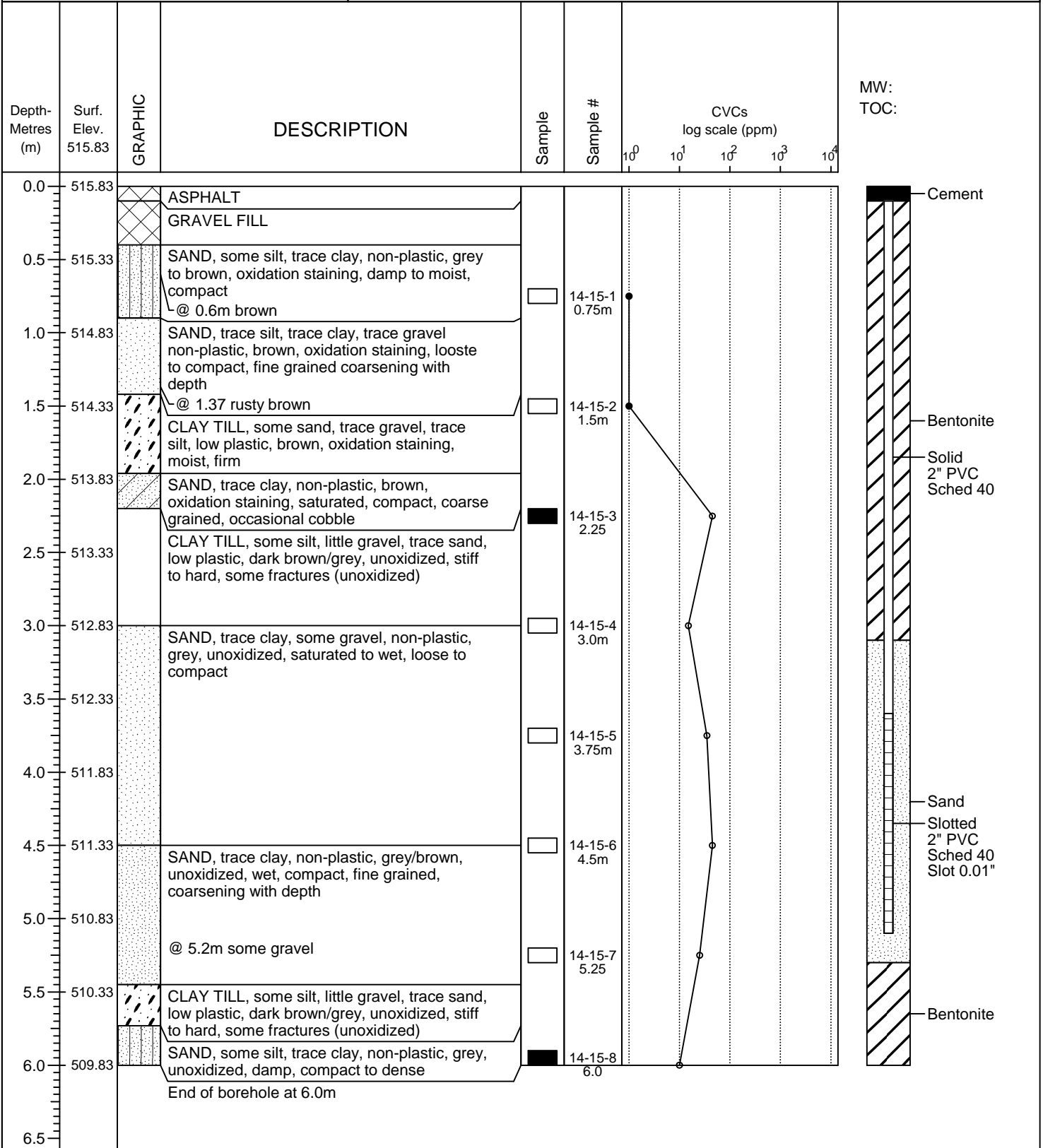




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 1525 - 1630
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark

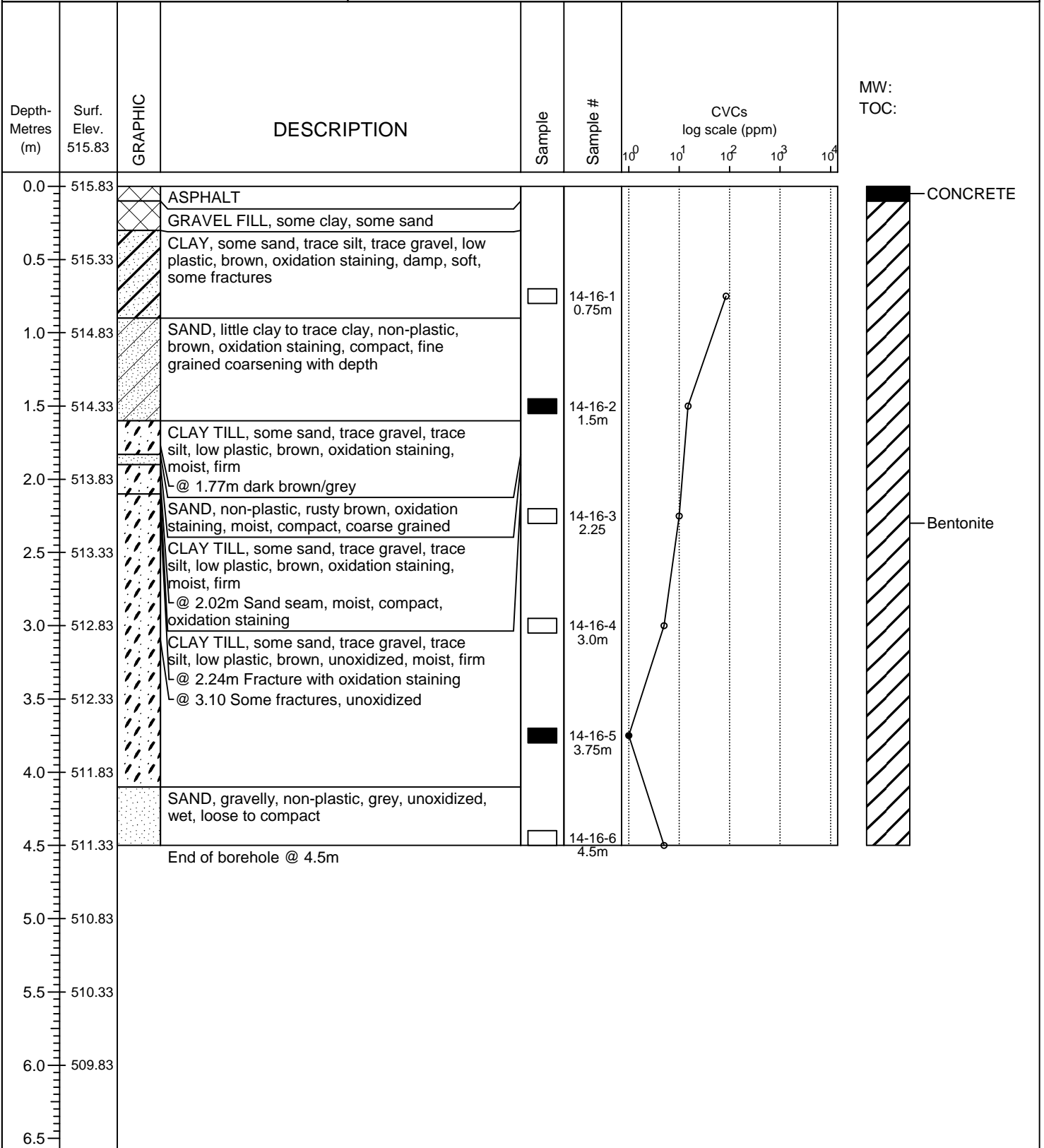




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 1651 - 1745
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark

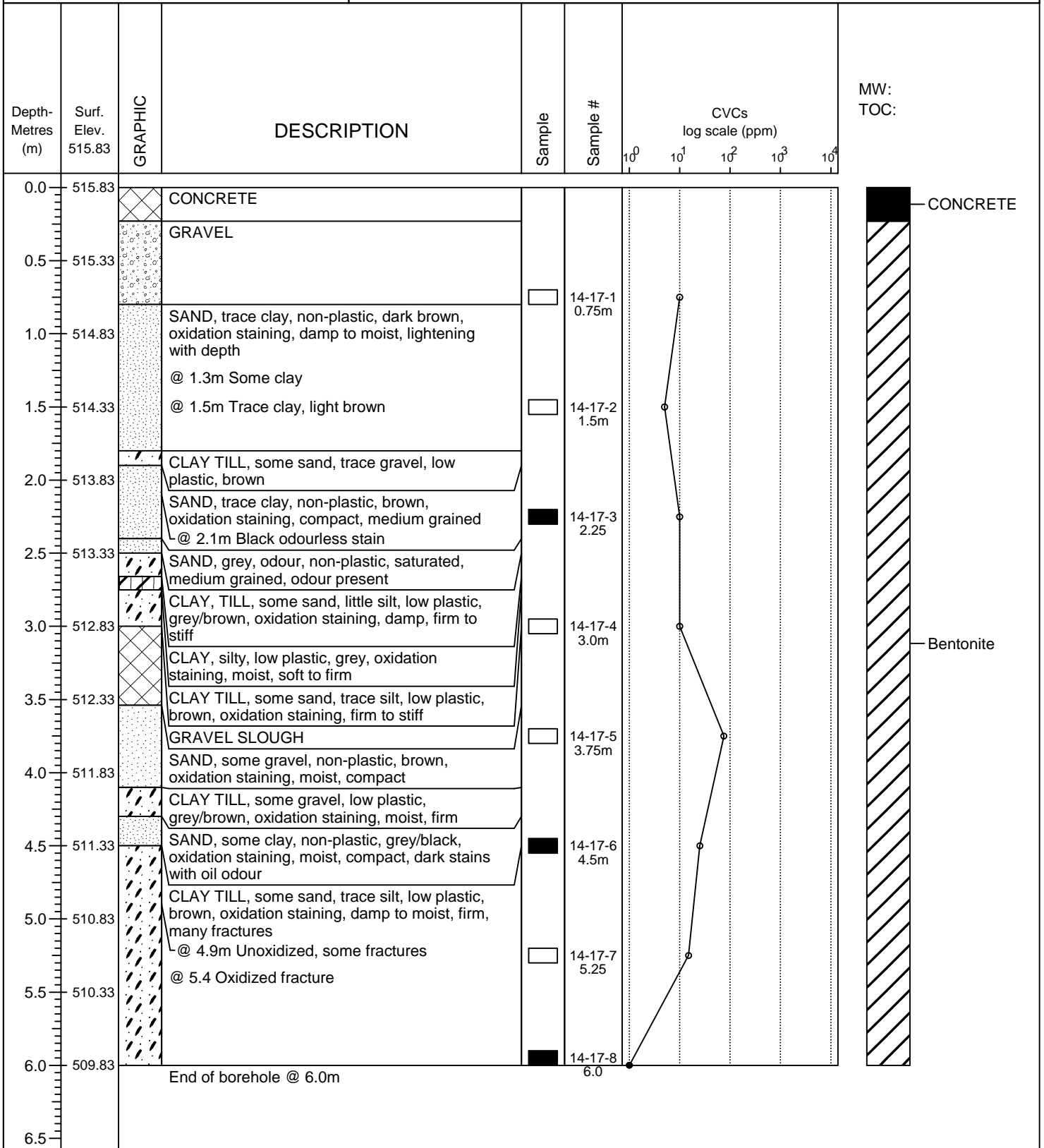




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 1820 - 1910
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark



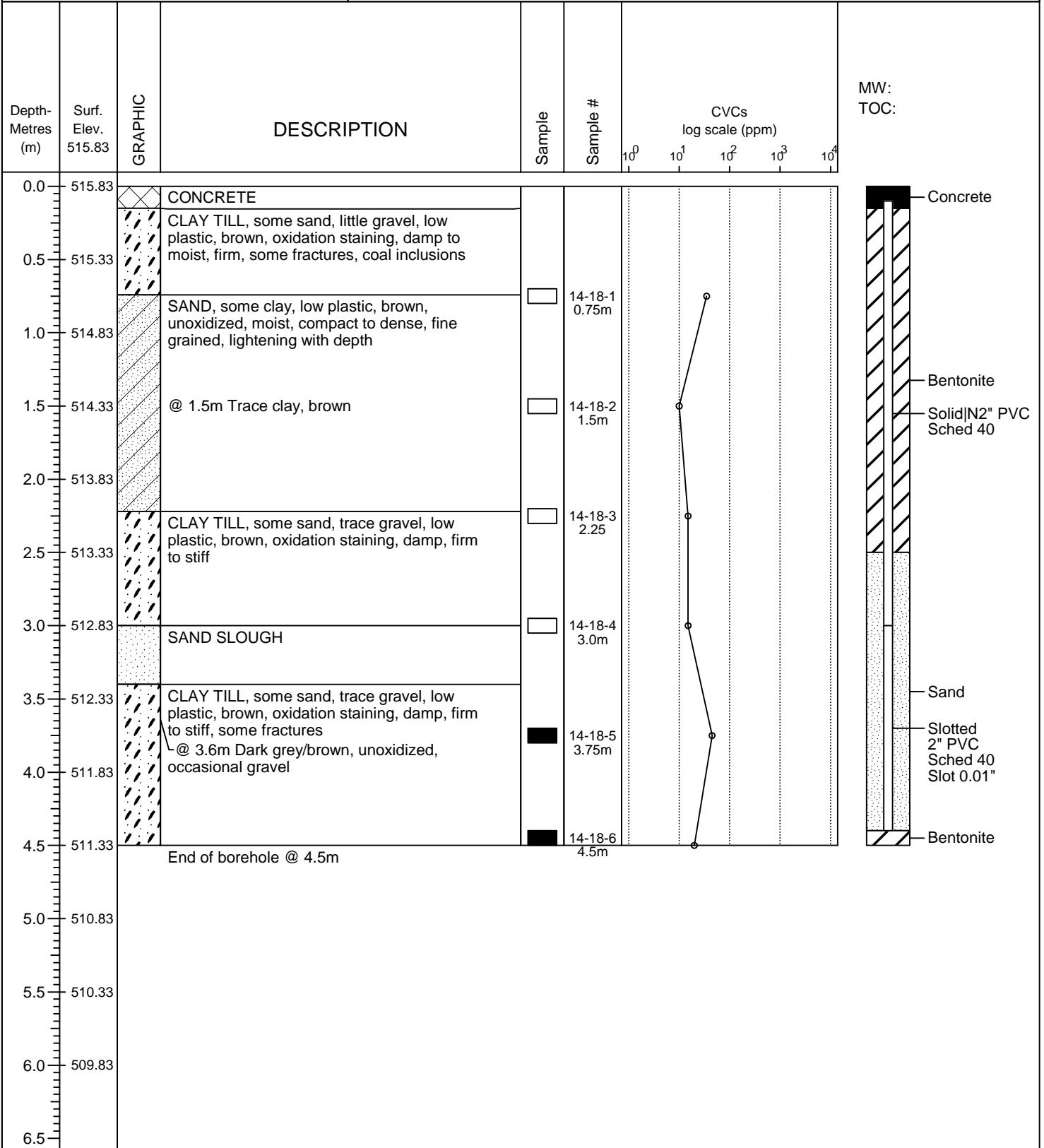


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 1915 - 2015
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



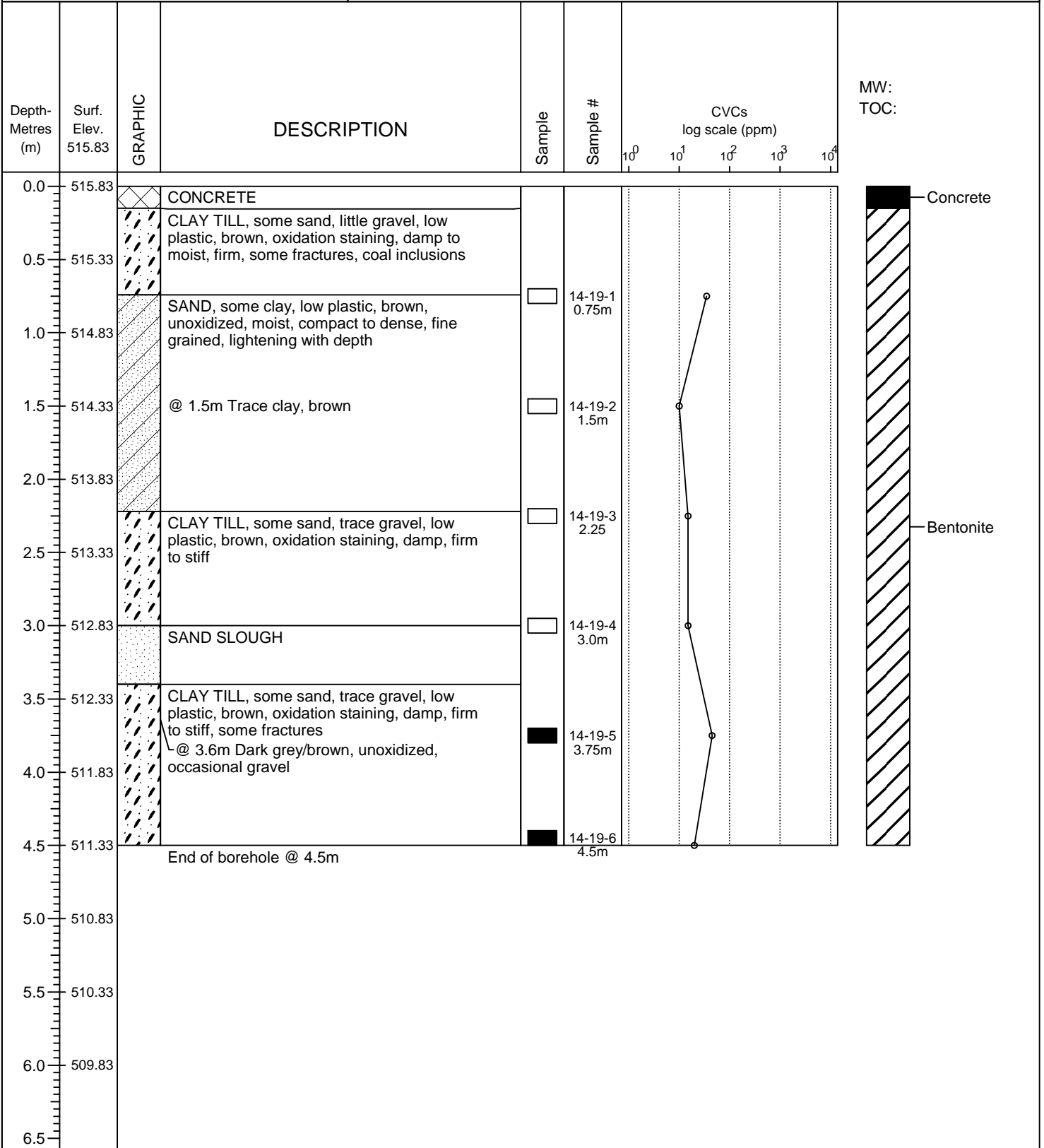


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 2030 - 2110
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



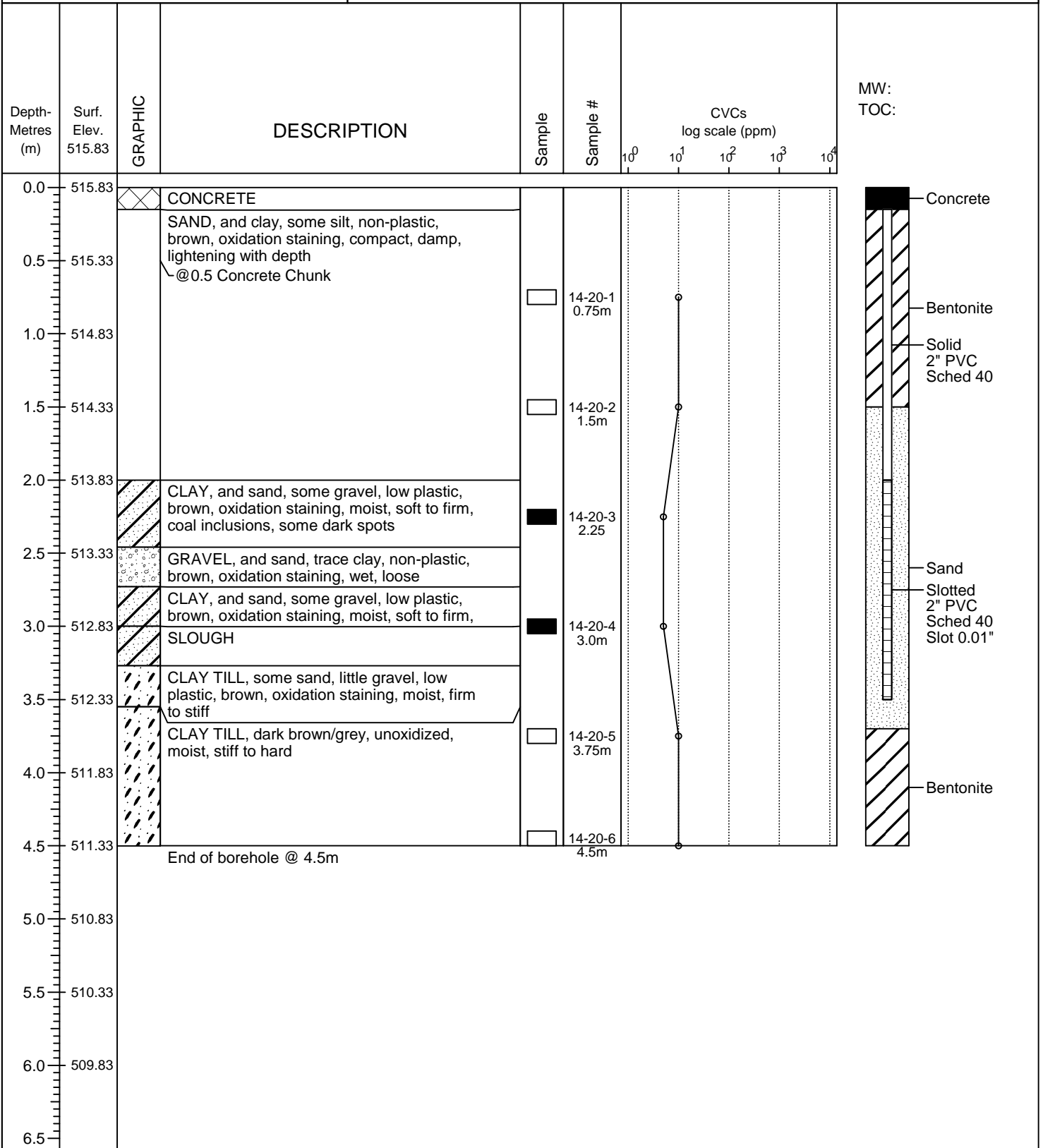


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 21 May 2014
Time of Logging : 2030 - 2110
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark

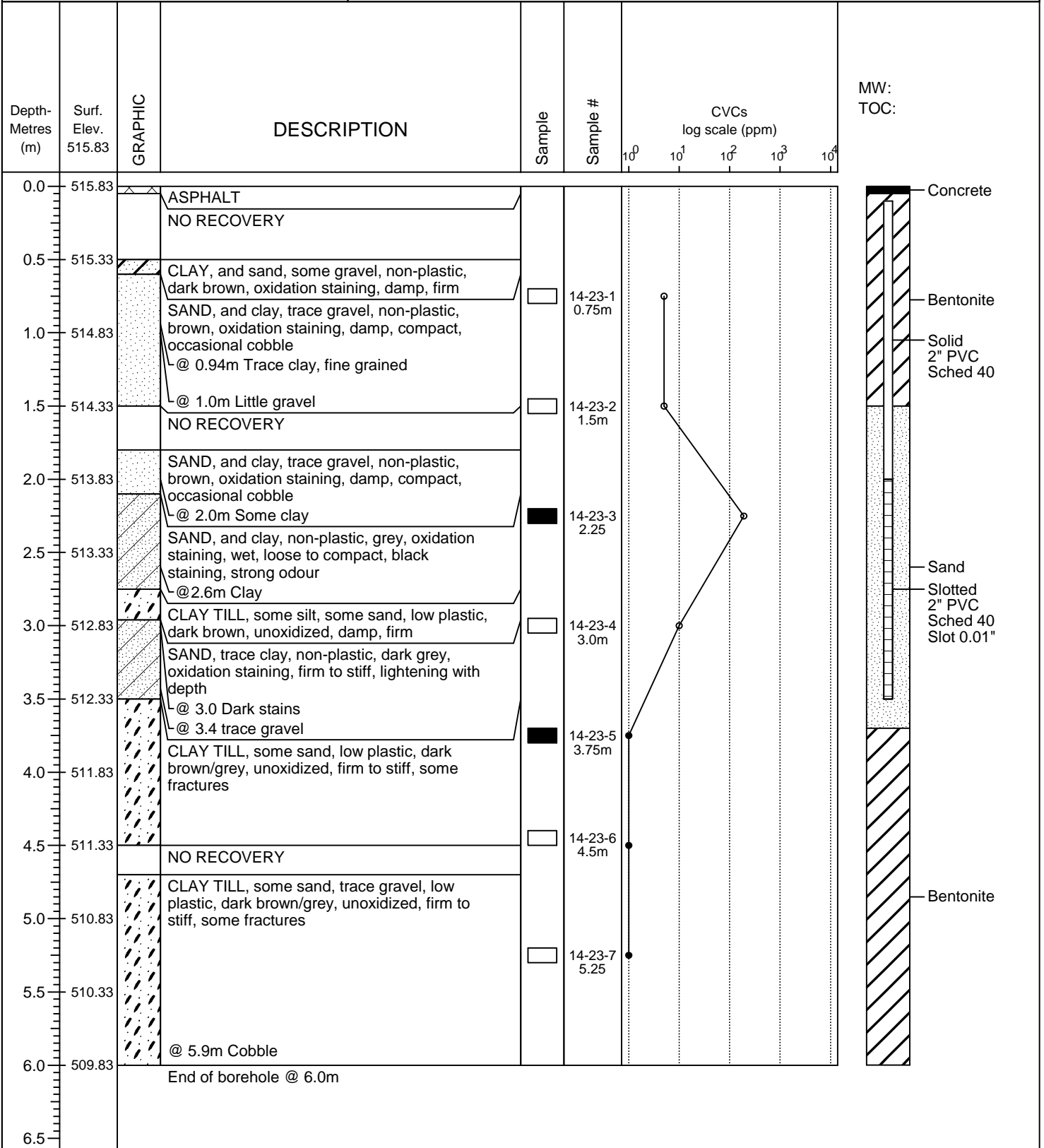




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 22 May 2014
Time of Logging : 1015 - 1430
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark



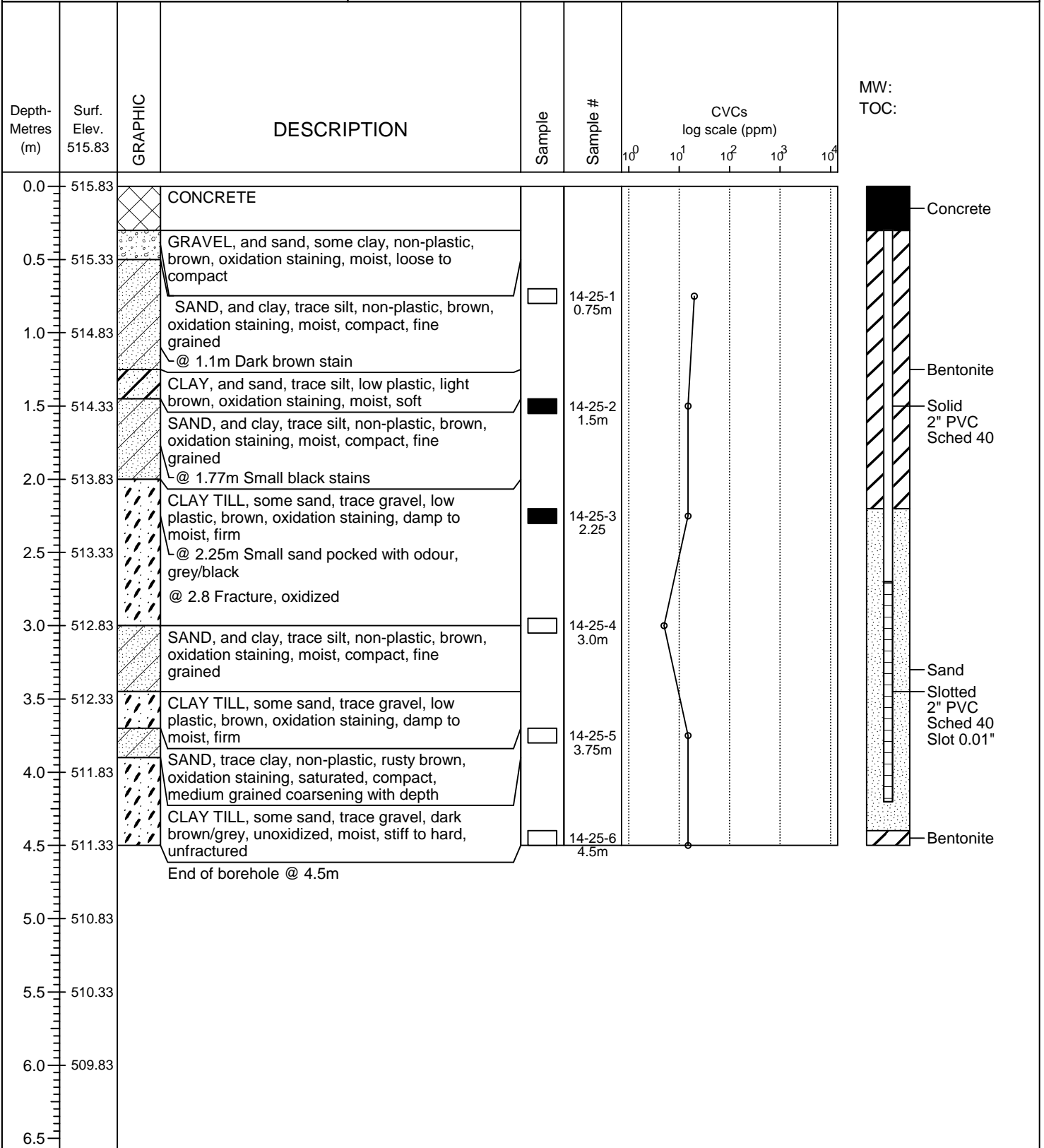


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 22 May 2014
Time of Logging : 1600 - 1645
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



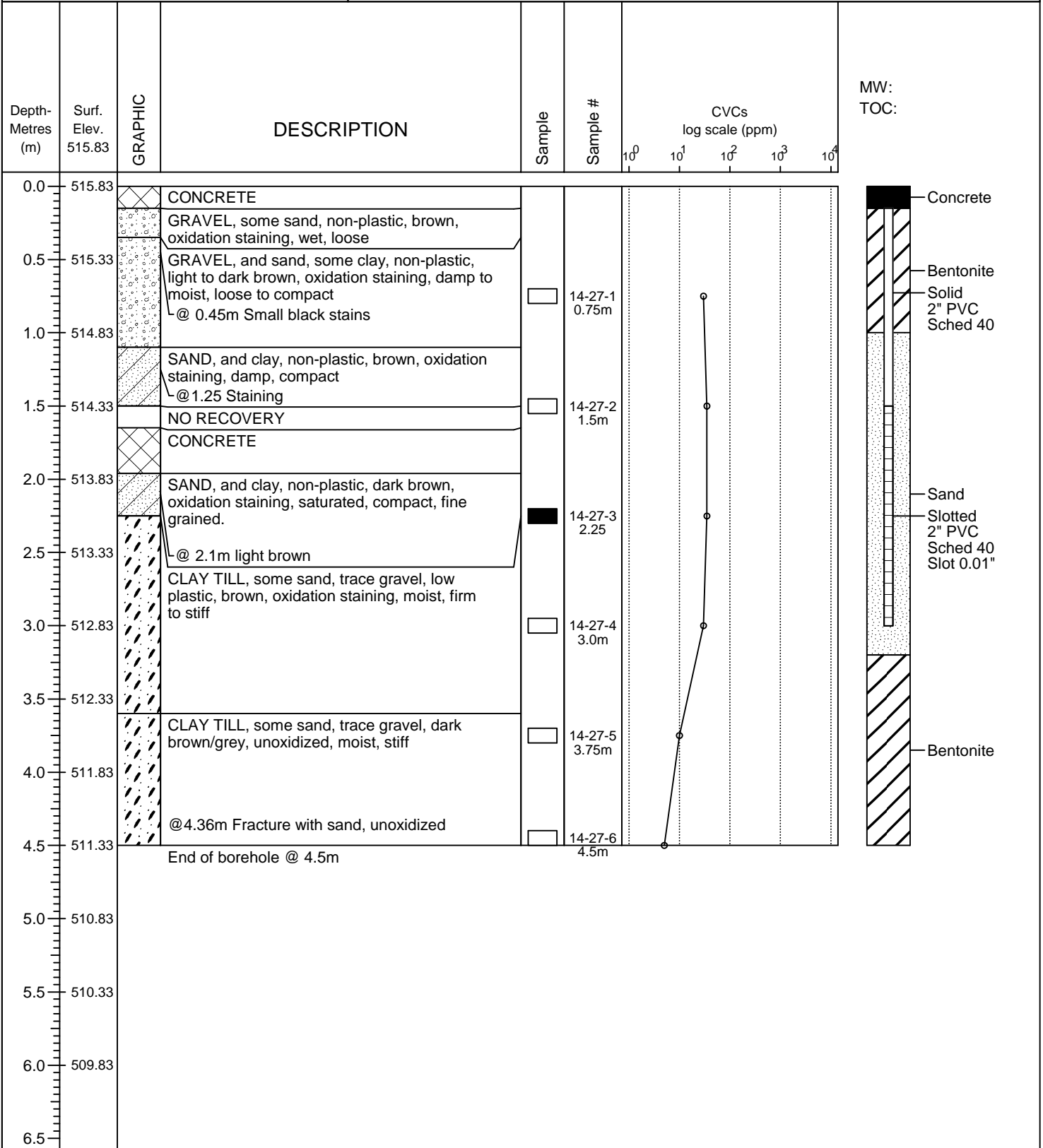


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 22 May 2014
Time of Logging : 1745 - 1825
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark

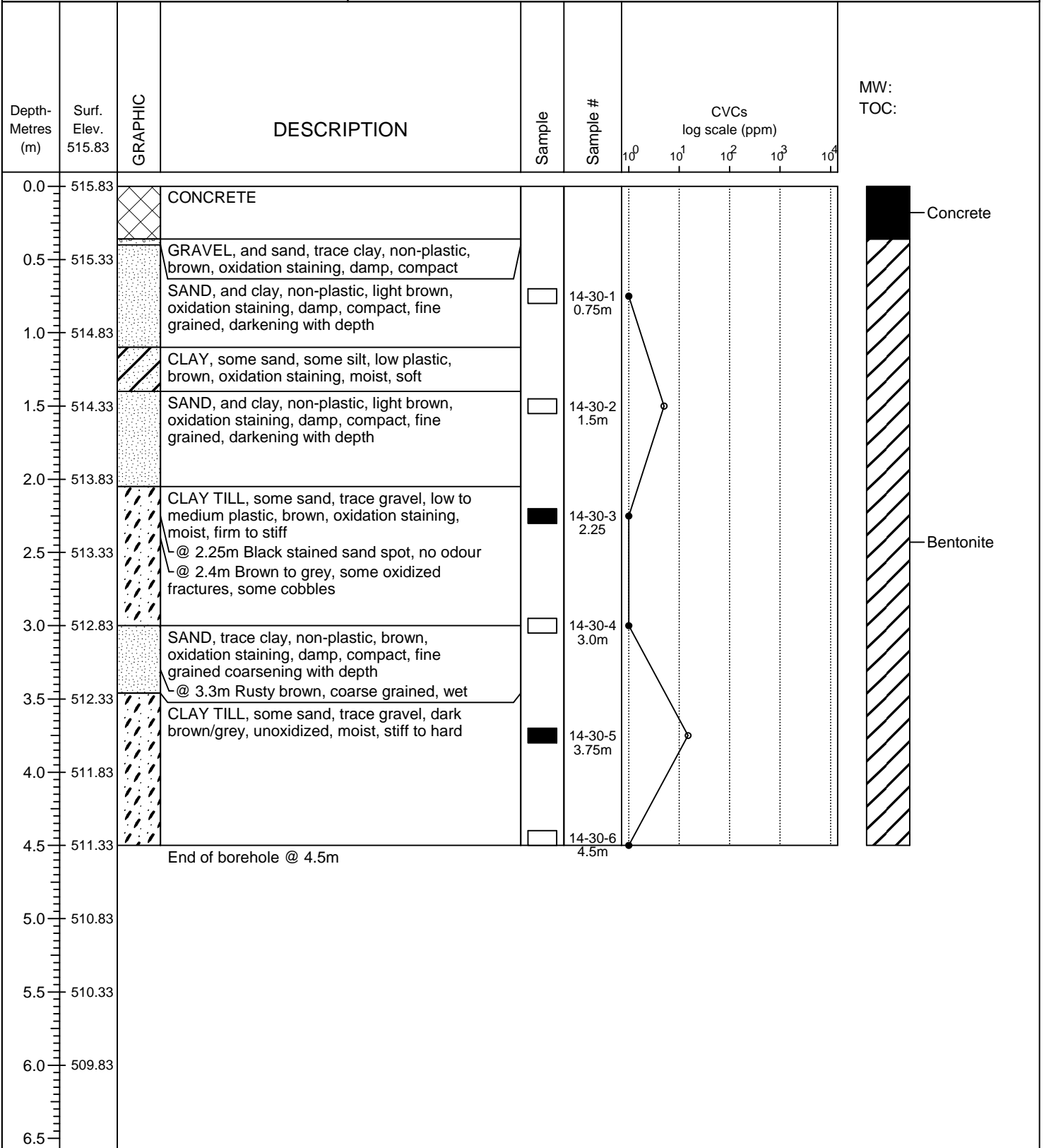




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 22 May 2014
Time of Logging : 1945 - 2030
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark



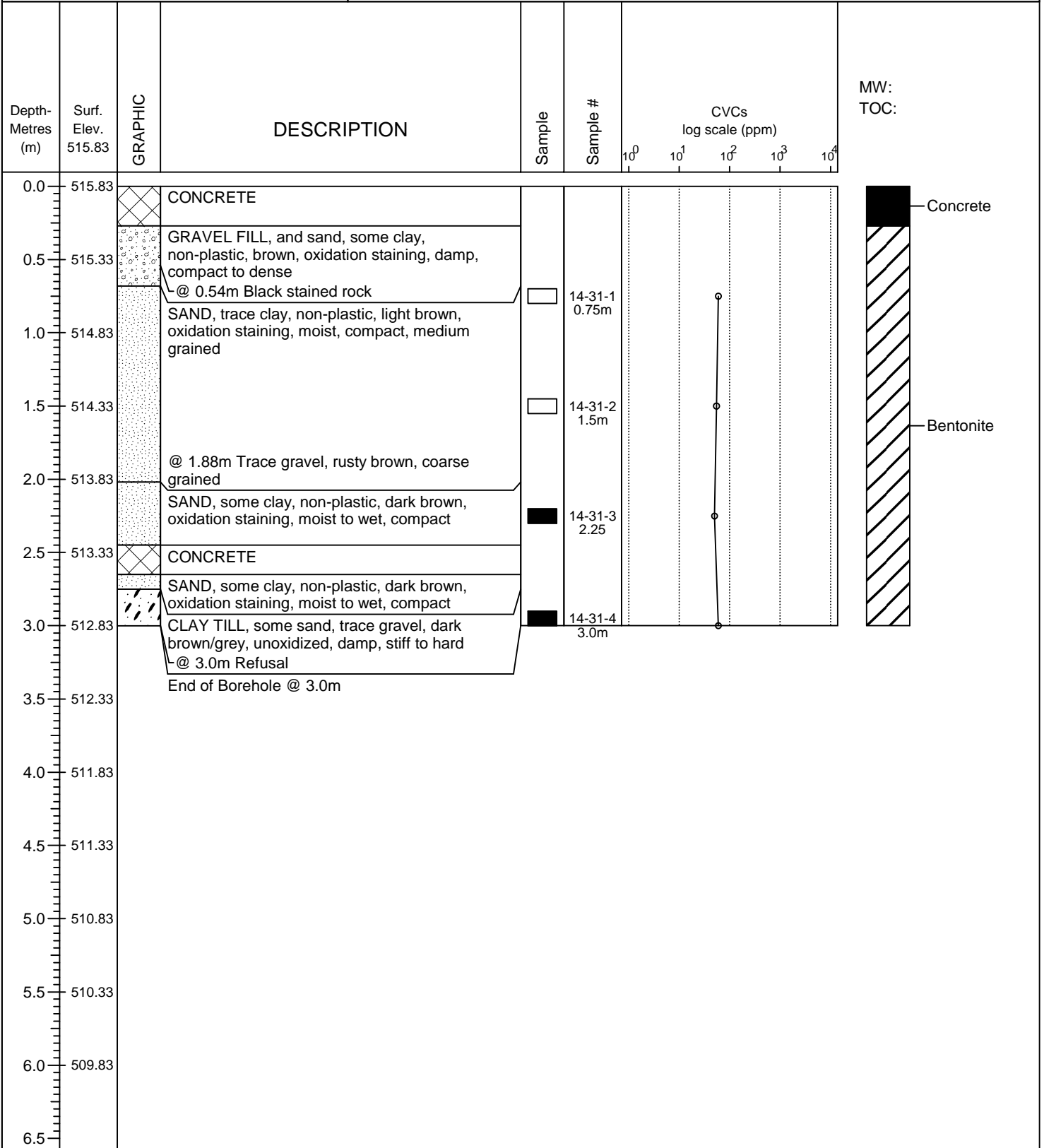


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 22 May 2014
Time of Logging : 1300 - 1415
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



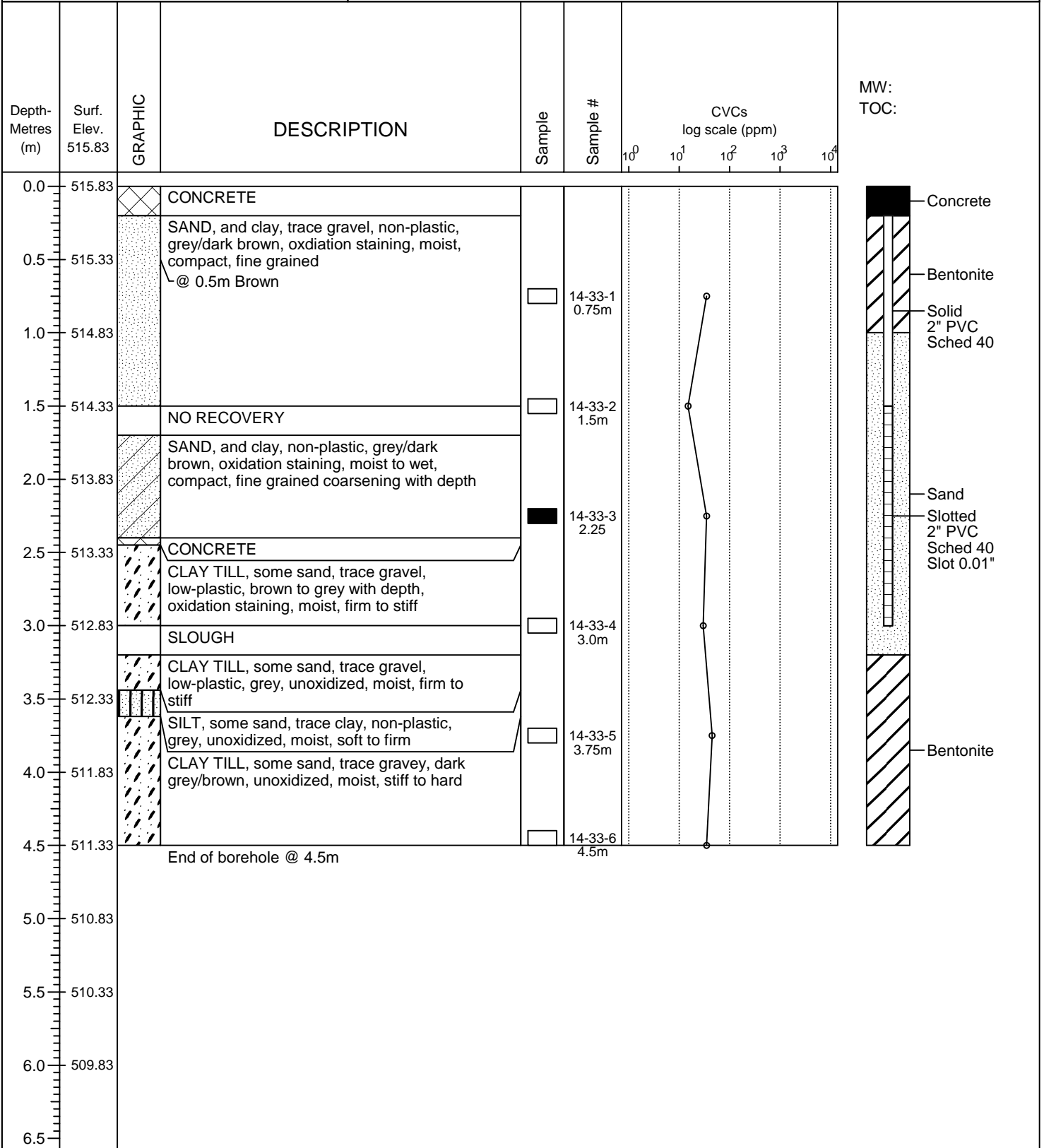


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 23 May 2014
Time of Logging : 1520 - 1545
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark



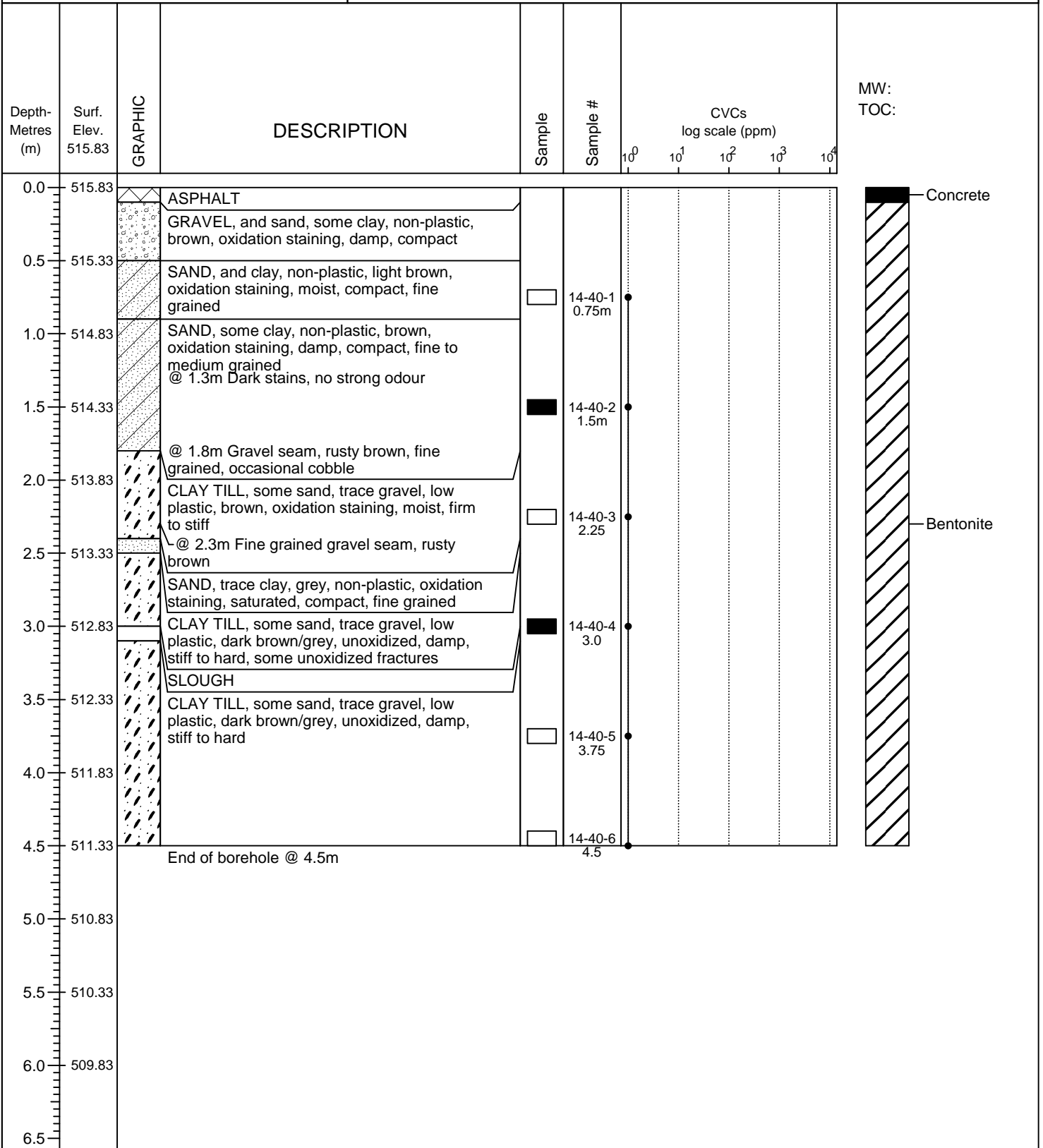


1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 24 May 2014
Time of Logging : 920 - 945
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :

Elevations based on temporary bench mark

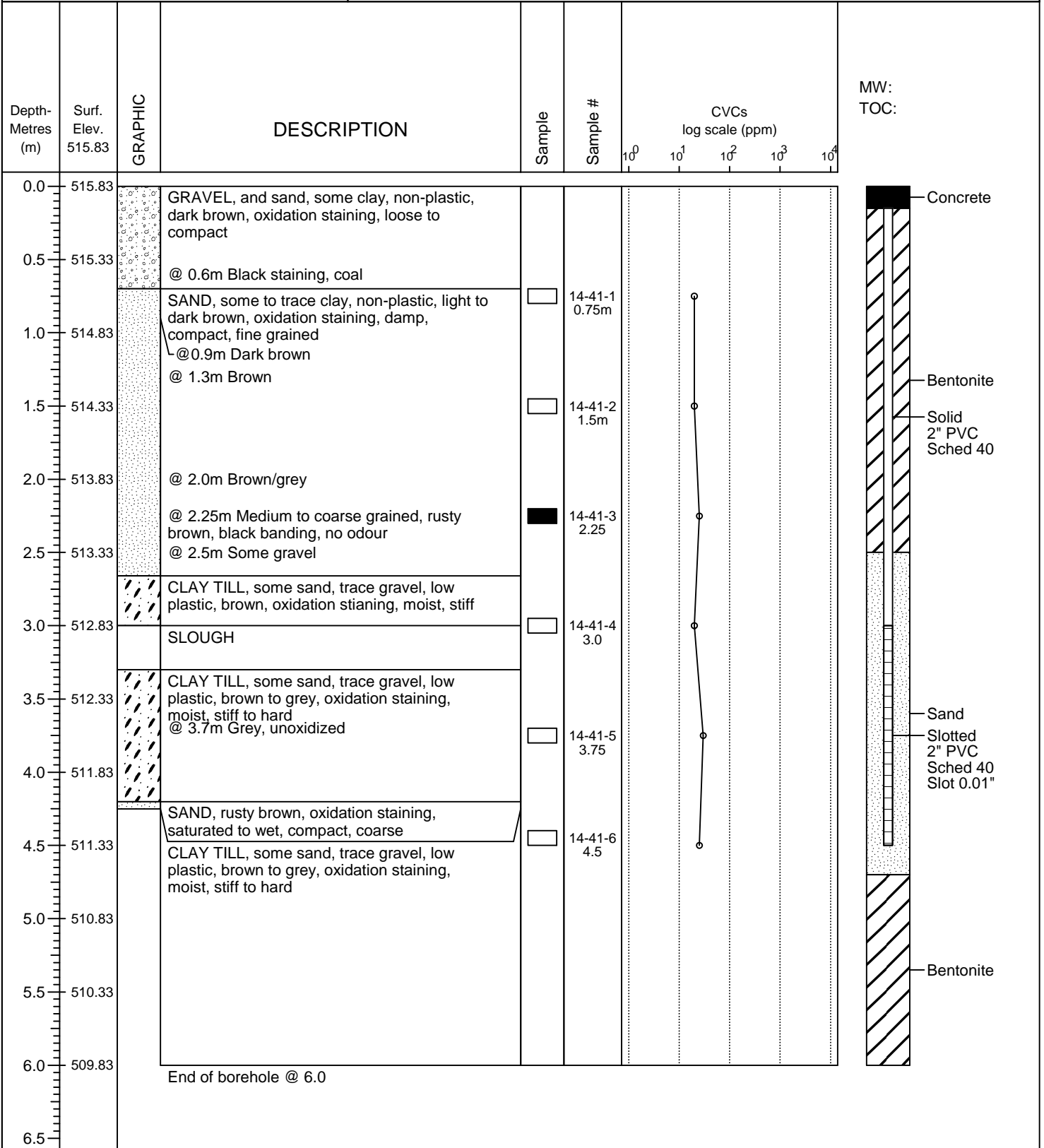




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 24 May 2014
Time of Logging : 1045 - 1215
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark

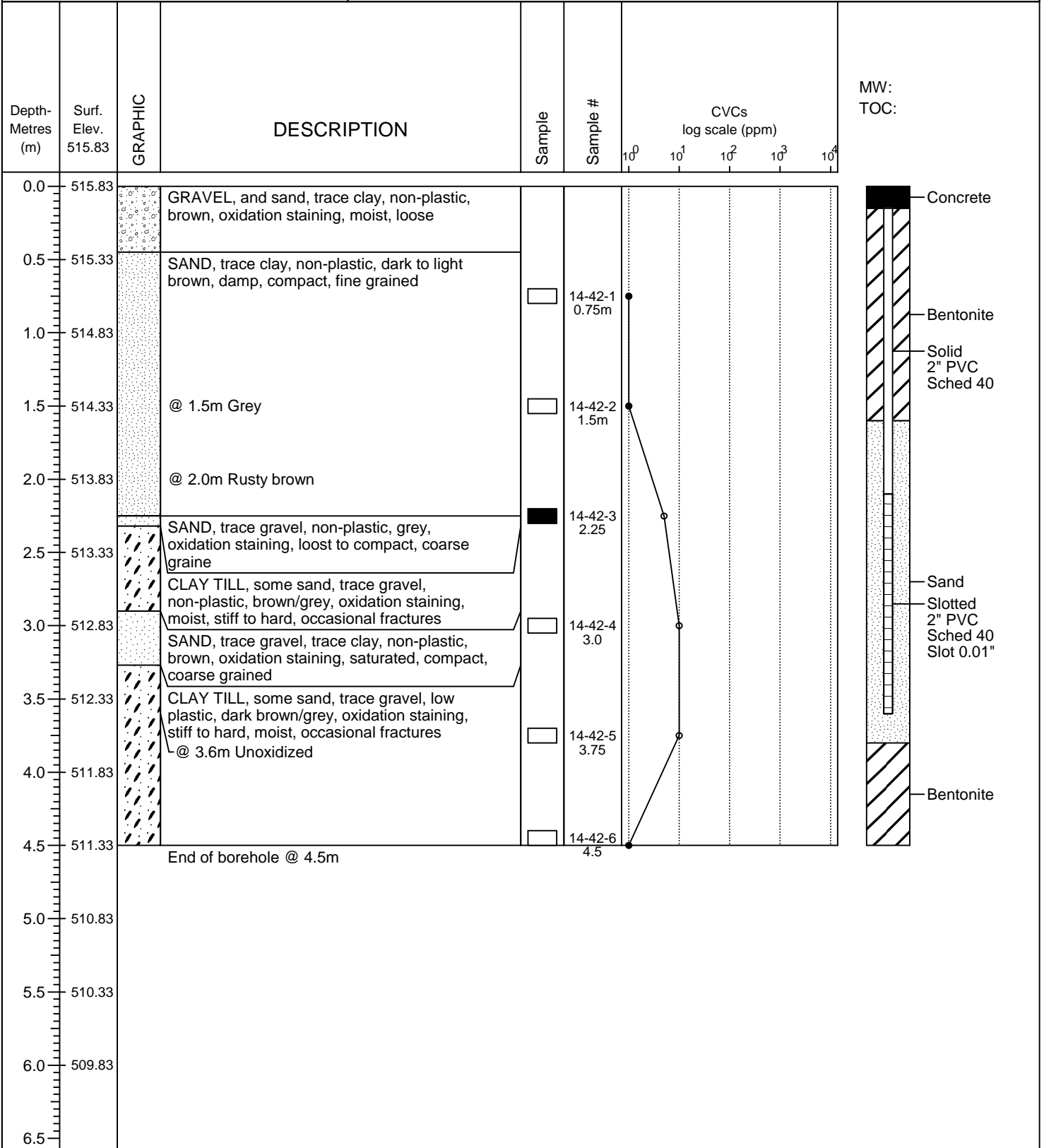




1544-2 Caswell Transit Site
Saskatoon, SK
Limited Phase II

Investigative Method : Macro-Core 7
Date Finished : 24 May 2014
Time of Logging : 1220 - 1330
Logged By : WW
Checked By : LP

Water Elev Recorded :
Groundwater Elev :
Elevations based on temporary bench mark





Appendix E

Tables

TABLE 1: Summary of Saskatchewan Water Security Agency Water Well Information Database Search

Record No.	Well Location	Intended Use	Well Properties			Stratigraphic Description	Comments
			Water Struck Depth	Screen Interval	Date Installed		
031974	NW-28-036-05-W3M	Research	NA	NA	17 May 1972	Till to 2.4 m, Sand to 8.8 m, Till to 69.5 m, Sand to 76.2 m	
031975	NE-29-036-05-W3M	Domestic	9.1 m	NA	07 January 1929	NA	
031976	NW-29-036-05-W3M	Industrial	1.8 m	58.9 m to 61.9 m	NA	Sand from 41.5m to 58.8 m	
031980	SE-32-036-05-W3M	Research	NA	NA	15 May 1972	Sand to 1.8 m, Till to 40.9 m	
031981	SE-32-036-05-W3M	Industrial	15.9 m	54.6 m to 57.6 m	07 January 1960	Till to 17.1 m, Sand @ 17.1 m, Till to 57.6 m	
031983	NW-33-036-05-W3M	Industrial	6.1 m	67.1 m to 73.2 m	NA	Clay @ 67.1 m, Sand @ 73.2 m	
031985	SW-33-036-05-W3M	Research	NA	NA	14 May 2014	Till to 13.4 m, Gravel @ 14.3m, Till to 71.3 m, Sand & Silt layers to 118 m	
031986	SW-33-036-05-W3M	Industrial	4.9 m	71.3 m to 75 m	NA	Alternating Clay and Sand @ 65.9 m	
045665	SW-32-036-05-W3M	Domestic	NA	NA	29 November 1975	Till to 41.1 m, Clay to 43.1, Till to 46.9 m, Till @ 84.1 m, Shale @ 91.5 m	
052937	SW-33-036-05-W3M	Industrial	17.4 m	79.3 m to 85.4 m	01 January 1957	NA	
085026	NW-33-036-05-W3M	Domestic	NA	NA	06 June 1987	Sand to 5.5 m, Silt @ 7.9 m	

TABLE 2: Summary of Soil Analytical Results - Hydrocarbons

Sample Location	Sample ID	ALS Sample ID	Date Sampled (dd mm yyyy)	Depth Interval (m)	Combustible Vapour Concentration ^a (ppm)	Monocyclic Hydrocarbons				Petroleum Hydrocarbon Fractions				Lead
						Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	F1-BTEX (C6-C10) (mg/kg)	F2 (>C10-C16) (mg/kg)	F3 (>C16-C34) (mg/kg)	F4 (>C34-C50) (mg/kg)	Lead (mg/kg wwt)
		Method Detection Limit				0.005	0.050	0.010	0.10	10	30	50	50	5.0
14-1	14-1-4	L1456755-1	15/05/2014	2.25	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-2	14-2-1	L1456755-2	15/05/2014	0.75	0	0.0053	<0.050	<0.010	<0.10	<10	<30	487	137	2450
14-2	14-2-3	L1456755-3	15/05/2014	2.25	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	67	<50	6.0
14-3	14-3-3	L1456755-4	15/05/2014	2.25	65	<0.0050	<0.050	<0.010	<0.10	<10	<30	99	118	5.2
14-4	14-4-3	L1456755-5	15/05/2014	2.25	110	<0.0050	<0.050	<0.010	<0.10	<10	<30	169	<50	<5.0
14-5	14-5-1	L1456755-6	15/05/2014	0.75	30	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	65	5.7
14-5	14-5-3	L1456755-7	15/05/2014	2.25	40	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	5.7
14-6	14-6-3	L1460494-1	20/05/2014	2.25	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
Surface Sample	14-6 & 14-7 Surface Sample	L1460494-2	20/05/2014	0.15	NA	<0.0050	<0.050	<0.010	<0.10	<10	<150	7170	10700	20.1
14-7	14-7-3	L1406494-12	20/05/2014	2.25	35	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-8	14-8-3	L1406494-7	20/05/2014	2.25	45	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-8	14-8-6	L1406494-8	20/05/2014	4.5	35	<0.0050	<0.050	<0.010	<0.10	<10	<30	94	57	<5.0
14-9	14-9-4	L1406494-3	20/05/2014	3.0	50	<0.0050	<0.050	<0.010	<0.10	<10	37	150	105	<5.0
14-9	14-9-6	L1406494-4	20/05/2014	3.75	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	112	54	5.6
14-10	14-10-3	L1406494-5	20/05/2014	2.25	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	86	78	<5.0
14-10	14-10-6	L1406494-6	20/05/2014	4.5	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	100	54	5.3
14-11	14-11-3	L1406494-9	20/05/2014	2.25	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	5.3
14-11	14-11-4	L1406494-10	20/05/2014	3.0	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	77	<50	<5.0
14-12	14-12-3	L1460722-3	21/05/2014	2.25	25	<0.0050	<0.050	<0.010	<0.10	<10	<30	63	<50	<5.0
14-12	14-12-6	L1460722-4	21/05/2014	4.5	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	58	<50	5.2
14-13	14-13-3	L1460722-5	21/05/2014	2.25	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	63	<50	<5.0
14-13	14-13-6	L1460722-6	21/05/2014	4.5	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	81	<50	5.1
14-14	14-14-3	L1460722-7	21/05/2014	2.25	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-14	14-14-8	L1460722-8	21/05/2014	5.5	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-15	14-15-3	L1460722-9	21/05/2014	2.25	45	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-15	14-15-7	L1460722-68	21/05/2014	5.5	25	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-15	14-15-8	L1460722-10	21/05/2014	6.0	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-16	14-16-2	L1460722-11	21/05/2014	1.5	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-16	14-16-5	L1460722-12	21/05/2014	3.75	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	66	<50	6.3
14-17	14-17-3	L1460722-33	21/05/2014	2.25	10	<0.0050	<0.050	<0.010	<0.10	<10	119	10700	3210	<5.0
14-17	14-17-6	L1460722-34	21/05/2014	4.5	25	<0.0050	<0.050	<0.010	<0.10	<10	<30	1650	455	<5.0
14-17	14-17-8	L1460722-35	21/05/2014	6.0	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	80	53	<5.0
14-18	14-18-5	L1460722-36	21/05/2014	3.75	45	<0.0050	<0.050	<0.010	<0.10	<10	<30	65	51	<5.0
14-18	14-18-6	L1460722-37	21/05/2014	4.5	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	98	74	5.6
14-19	14-19-3	L1460722-38	21/05/2014	2.25	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	84	61	<5.0
14-19	14-19-4	L1460722-39	21/05/2014	3.0	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-20	14-20-4	L1460722-18	21/05/2014	3.0	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-20	14-20-6	L1460722-19	21/05/2014	4.5	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	134	<50	<5.0
14-21	14-21-2	L1460722-20	21/05/2014	1.5	0	<0.0050	<0.050	<0.010	<0.10	<10	89	17700	268	128
14-21	14-21-6	L1460722-21	21/05/2014	4.5	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	124	<50	5.2
14-22	14-22-3	L1460722-22	21/05/2014	1.5	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	15700	234	<5.0
14-22	14-22-6	L1460722-23	21/05/2014	4.5	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	215	<50	5.1
14-23	14-23-3	L1460722-55	22/05/2014	2.25	190	<0.0050	<0.050	0.065	<0.10	351	7040	1360	<50	10.6
14-23	14-23-5	L1460722-56	22/05/2014	3.75	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	144	<50	5.3
14-24	14-24-4	L1460722-57	22/05/2014	3.0	1250	<0.0050	<0.050	0.022	<0.10	31	545	155	<50	<5.0
14-24	14-24-6	L1460722-58	22/05/2014	3.75	25	<0.0050	<0.050	<0.010	<0.10	<10	52	91	56	5.1
14-25	14-25-2	L1460722-24	22/05/2014	1.5	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	5.1
14-25	14-25-3	L1460722-25	22/05/2014	2.25	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	480	104	<5.0
14-25	14-25-6	L1460722-26	22/05/2014	4.5	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	67	<50	5.3
14-26	14-26-3	L1460722-40	22/05/2014	2.25	20	<0.0050	<0.050	<0.010	<0.10	<10	315	3050	770	<5.0
14-26	14-26-4	L1460722-41	22/05/2014	3.0	20	<0.0050	<0.050	<0.010	<0.10	<10	<30	84	<50	<5.0
14-27	14-27-3	L1460722-27	22/05/2014	2.25	35	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-27	14-27-6	L1460722-28	22/05/2014	4.5	30	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-28	14-28-3	L1460722-29	22/05/2014	2.25	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-28	14-28-6	L1460722-30	22/05/2014	4.5	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	318	252	5.6
14-29	14-29-2	L1460722-31	22/05/2014	1.5	5	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	5.0
14-29	14-29-6	L1460722-32	22/05/2014	4.5	10	<0.0050	<0.050	<0.010	<0.10	<10	<30	95	<50	5.0
14-30	14-30-3	L1460722-42	22/05/2014	2.25	0	<0.0050	<0.050	<0.010	<0.10	<10	<30	<50	<50	<5.0
14-30	14-30-5	L1460722-43	22/05/2014	3.75	15	<0.0050	<0.050	<0.010	<0.10	<10	<30	85	62	<5.0
14-31	14-31-3	L1460722-16	23/05/2014	2.25	50	<0.0050	<0.050	<0.010	<0.10	<10	<30	56	<50	5.3
14-31	14-31-4	L1460722-17	23/05/2014	3.0	60	<0.0050	<0.050	<0.010	<0.10	<10	<30	86	64	5.3
14-32	14-32-4	L1460722-13	23/05/2014	2.8	60	<0.0050	<0.050	<0.010	<0.10	<10	<30	290	149	<5.0
14-32	14-32-5	L1460722-14	23/05/2014	3.75	40	<0.0050	<0.050	<0.010	<0.10	<10	<30	97	66	5.2
14-32	14-32-6	L1460722-15	23/05/2014	4.5	45	<0.0050	<0.050	<0.010	<0.10	<10	<30	95	97	5.1
14-33	14-33-3	L1460722-44	23/05/2014	1.5	35	<0.0050	<0.050	<0.010	<0.10	<10	<30	93	<50	<5.0
14-34	14-34-1	L1460722-45	23/05/2014	0.75	30	<0.0050	<0.050	<0.010	<0.10	<10</				

TABLE 3: Summary of Soil Analytical Results - Grain Size

Sample Location	Sample ID	ALS Sample ID	Sample Date (mm dd yyyy)	Depth Interval (m)	Field Screen (ppm)	PSA MUST %>75um	Texture
Method Detection Limit						0.1	
14-2	14-2-3	L1456755-2	15/05/2014	2.25	0	92.3	Coarse
14-5	14-5-3	L1456755-7	15/05/2014	2.25	40	66.9	Coarse
14-5	14-5-6	L1456755-9	15/05/2014	4.5	50	44.5	Fine
14-10	14-10-3	L1460494-5	20/05/2014	2.25	5	51.5	Coarse
14-10	14-10-6	L1460494-6	20/05/2014	4.5	15	48.3	Fine
14-7	14-7-3	L1460494-12	20/05/2014	2.25	110	95.9	Coarse
14-12	14-12-2	L1460722-67	21/05/2014	1.5	15	46.0	Fine
14-12	14-12-6	L1460722-4	21/05/2014	4.5	10	42.0	Fine
14-36	14-36-3	L1460722-50	23/05/2014	2.25	130	91.8	Coarse
14-36	14-36-6	L1460722-51	23/05/2014	4.5	40	64.4	Coarse

Associated ALS files: L1456755, L1460494, L1460722

All terms defined within the body of PINTER's report.

TABLE 4: Summary of Groundwater Analytical Results - Hydrocarbons

Sample ID	ALS Sample ID	Date Sampled (dd mm yyyy)	Well Headspace Vapour Concentration ^a (ppm)	Monocyclic Hydrocarbons				Petroleum Hydrocarbon Fractions		Lead (mg/L)
				Benzene (mg/L)	Toluene (mg/L)	Ethyl-benzene (mg/L)	Xylenes (mg/L)	F1-BTEX (C6-C10) (mg/L)	F2 (>C10-C16) (mg/L)	
Method Detection Limit				0.00050	0.00050	0.00050	0.0020	0.20	0.20	0.000050
14-13	L1478162-1	26/06/2014	4200	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
14-15	L1478162-2	26/06/2014	4350	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
14-12	L1478162-3	26/06/2014	6450	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
MWA	L1478162-4	26/06/2014	0	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
MWB	L1478162-5	26/06/2014	0	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
14-41	L1478162-6	26/06/2014	120	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
14-42	L1478162-7	26/06/2014	20	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
14-06	L1478162-8	26/06/2014	20	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	<0.000050
14-05	L1478162-9	26/06/2014	80	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	0.23	-
14-03	L1478162-10	26/06/2014	790	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	0.000067
14-01	L1478162-11	26/06/2014	200	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	<0.000050
14-33	L1478162-12	26/06/2014	0	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
14-37	L1478162-13	26/06/2014	10	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	0.60	-
14-18	L1478162-14	26/06/2014	10	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
14-27	L1478162-15	26/06/2014	45	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	<0.20	-
14-25	L1478162-16	26/06/2014	25	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	0.32	-
14-20	L1478162-17	26/06/2014	25	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	0.26	-
14-23	L1478162-18	26/06/2014	65	<0.00050	<0.00050	<0.00050	<0.0020	3.52	136	0.000155
DUP-A	L1478162-19	26/06/2014	-	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	0.64	-
DUP-B	L1478162-20	26/06/2014	-	<0.00050	<0.00050	<0.00050	<0.0020	<0.20	0.21	-

Applicable Guidelines

^b SMOE RBCA (2009) - Tier 1 - Potable Groundwater	0.005	0.024	0.0024	0.3	NC	NC	NC
^c Government of Canada (2012) - Interim Groundwater Guidelines	NC	NC	NC	NC	0.81	1.3	NC
^d Health Canada (2012) - Drinking Water Quality Guidelines	NC	NC	NC	NC	NC	NC	0.01

Associated ALS File L1478162

All terms defined in body of PINTER report.

DUP-A is the duplicate sample for 14-37

DUP-B is the duplicate sample for 14-25

^a Field screening results are measured using a combustible gas meter calibrated to a hexane standard.

^b Saskatchewan Ministry of Environment (SMOE) Risk-Based Criteria for Petroleum Hydrocarbons in Groundwater (SMOE, 2009).

^c Government of Canada Federal Interim Groundwater Quality Guidelines For Industrial and Residential/Parkland Land Use, Coarse Grained Soils (GC, 2012).

^d Health Canada Guidelines for Canadian Drinking Water Quality - Summary Table, Lead (HC, 2012)

< Denotes concentrations less than indicated detection limit.

NC Denotes no applicable criteria.

BOLD	Concentration greater than or equal to SMOE 2009 Tier 1 guidelines
SHADOW	Concentration greater than or equal to GC 2012 interim guidelines

TABLE 5: Summary of Paint Sample Analytical Results - Lead in Paint

Sample Location	Sample ID	ALS Sample ID	Sample Date (mm dd yyyy)	Lead in Paint (mg/kg)
Method Detection Limit				5.0
Steam Bay Ceiling	Pb 1	L1466799-9	05/06/2014	2090
Stockroom Doorframe	Pb 2	L1466799-10	05/06/2014	1410

Associated ALS file: L1466799

All terms defined within the body of PINTER's report.

TABLE 6: Summary of Diesel Particulate Analytical Results

Sample ID	ALS Sample ID	Date Sampled (dd mm yyyy)	Petroleum Hydrocarbon Fractions							
			F1 (C6-C10) (µg)	F1 (C6-C10) (g/m ²)	F2 (>C10-C16) (µg)	F2 (>C10-C16) (g/m ²)	F3 (C16-C34) (µg)	F3 (C16-C34) (g/m ²)	F4 (C34-C50) (µg)	F4 (C34-C50) (g/m ²)
Method Detection Limit			50	-	150	-	450	-	250	-
D1	L1466799-1	05/06/2014	<50	-	<150	-	3640	0.364	610	0.061
D2	L1466799-2	05/06/2014	<50	-	<150	-	3240	0.324	380	0.038
D3	L1466799-3	05/06/2014	<50	-	170	0.017	4520	0.452	690	0.069
D4	L1466799-4	05/06/2014	<50	-	170	0.017	15600	1.560	830	0.083
D5	L1466799-5	05/06/2014	<50	-	<150	-	2720	0.272	410	0.041
D6	L1466799-6	05/06/2014	<50	-	<150	-	2630	0.263	640	0.064
D7	L1466799-7	05/06/2014	<50	-	<150	-	2960	0.296	680	0.068
D8	L1466799-8	05/06/2014	<50	-	260	0.026	5370	0.537	540	0.054

Associated ALS File L1466799

All terms defined in body of PINTER report.

D7 is the duplicate sample for D6

< Denotes concentrations less than indicated detection limit.



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Appendix F

Water Well Driller Records



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Land Location **305 036 28NW00**
 WWDR# **031974**

SASK RESEARCH COUNCI	Completion 05/17/1972
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location						
LSD	Quarter	Section	Township	Range	Meridian	Reserve Riverlot
00	NW	28	036	05	3	
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)	
					0.00 ft from N/S Boundary	
					0.00 ft from E/W Boundary	

Well Information						
Driller #	HAYTER DRILLING LTD		Well Casings			
Water Use	Research		Length (ft)	Btm (ft)	Dia (in)	Description
Hole #			0.00	0.00	0.00	
Well Use	Water Test Hole		0.00	0.00	0.00	
Installation Method	Drilled		0.00	0.00	0.00	
Depth	388.00					
Water Level	0.00		Screens			
Bit	0.00		Length (ft)	Btm (ft)	Dia (in)	Slot (in) Description
Flowing Head	0.00		0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00
<u>Pump Test</u>						
Draw Down	0.00 ft		Rec. Pumping Rate	0.00		
Duration	0.00 hrs		Intake	0.00		
Pumping Rate	0.00 igpm		Aquifer			
Temp	0.00 deg. F		E-Log	SCANNED		
Elevation	1,590.00 ft		Phys	E03		

Lithology List

Depth (ft)	Material	Colour	Description
5.00	Till	Unknown	Unknown
8.00	Sand	Unknown	Unknown
29.00	Till	Unknown	Unoxidized
182.00	Till	Unknown	Oxidized
228.00	Sand	Unknown	Unknown
250.00	Silt	Grey	Noncalcareous



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273.00 Sand	Grey	Noncalcareous
315.00 Silt	Grey	Noncalcareous
356.00 Sand	Unknown	Noncalcareous
388.00 Sand	Grey	Noncalcareous



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Land Location **305 036 29NE00**
 WWDR# **031975**

ROXY THEATRE	Completion 07/01/1929
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location							
LSD	Quarter	Section	Township	Range	Meridian	Reserve	Riverlot
00	NE	29	036	05	3		
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)		
					0.00 ft from N/S Boundary		
					0.00 ft from E/W Boundary		

Well Information						
Driller #	UNKNOWN	Well Casings				
Water Use	Domestic	Length (ft)	Btm (ft)	Dia (in)	Description	
Hole #		0.00	0.00	0.00	Steel	
Well Use	Withdrawal	0.00	0.00	0.00		
Installation Method	Drilled	0.00	0.00	0.00		
Depth	160.00					
Water Level	30.00	Screens				
Bit	0.00	Length (ft)	Btm (ft)	Dia (in)	Slot (in)	Description
Flowing Head	0.00	0.00	0.00	0.00	0.00	Other
		0.00	0.00	0.00	0.00	
		0.00	0.00	0.00	0.00	
<u>Pump Test</u>						
Draw Down	50.00 ft	Rec. Pumping Rate	0.00			
Duration	12.00 hrs	Intake	0.00			
Pumping Rate	40.00 igpm	Aquifer				
Temp	0.00 deg. F	E-Log	No			
Elevation	1,600.00 ft	Phys	E03			

Lithology List

Depth (ft)	Material	Colour	Description
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Land Location **305 036 29NW00**
 WWDR# **031976**

QUAKER OATS MILL	Completion
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location							
LSD	Quarter	Section	Township	Range	Meridian	Reserve	Riverlot
00	NW	29	036	05	3		
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)		
					0.00 ft from N/S Boundary		
					0.00 ft from E/W Boundary		

Well Information							
Driller #	UNKNOWN	Well Casings					
Water Use	Industrial	Length (ft)	Btm (ft)	Dia (in)	Description		
Hole #		0.00	0.00	0.00	Steel		
Well Use	Withdrawal	0.00	0.00	0.00			
Installation Method	Drilled	0.00	0.00	0.00			
Depth	203.00	Screens					
Water Level	6.00	Length (ft)	Btm (ft)	Dia (in)	Slot (in)	Description	
Bit	0.00	6.00	136.00	0.00	30.00	Other	
Flowing Head	0.00	10.00	203.00	0.00	30.00	Other	
		0.00	0.00	0.00	0.00		
<u>Pump Test</u>							
Draw Down	0.00 ft	Rec. Pumping Rate	0.00				
Duration	0.00 hrs	Intake	0.00				
Pumping Rate	0.00 igpm	Aquifer					
Temp	0.00 deg. F	E-Log	No				
Elevation	1,600.00 ft	Phys	E03				

Lithology List

Depth (ft)	Material	Colour	Description
130.00	Unknown	Unknown	Unknown
136.00	Sand	Unknown	Coarse
193.00	Unknown	Unknown	Unknown
203.00	Sand	Unknown	Coarse



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Land Location **305 036 32SE00**
 WWDR# **031980**

SASK RESEARCH COUNCI	Completion 05/16/1972
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location							
LSD	Quarter	Section	Township	Range	Meridian	Reserve	Riverlot
00	SE	32	036	05	3		
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)		
					0.00 ft from N/S Boundary		
					0.00 ft from E/W Boundary		

Well Information							
Driller #	HAYTER DRILLING LTD		Well Casings				
Water Use	Research		Length (ft)	Btm (ft)	Dia (in)	Description	
Hole #			0.00	0.00	0.00		
Well Use	Water Test Hole		0.00	0.00	0.00		
Installation Method	Drilled		0.00	0.00	0.00		
Depth	252.00						
Water Level	0.00		Screens				
Bit	0.00		Length (ft)	Btm (ft)	Dia (in)	Slot (in)	Description
Flowing Head	0.00		0.00	0.00	0.00	0.00	
			0.00	0.00	0.00	0.00	
			0.00	0.00	0.00	0.00	
<u>Pump Test</u>							
Draw Down	0.00 ft		Rec. Pumping Rate	0.00			
Duration	0.00 hrs		Intake	0.00			
Pumping Rate	0.00 igpm		Aquifer				
Temp	0.00 deg. F		E-Log	SCANNED			
Elevation	1,600.00 ft		Phys	E03			

Lithology List

Depth (ft)	Material	Colour	Description
6.00	Sand	Brown	Fine
8.00	Till	Brown	Unknown
16.00	Till	Grey	Calcareous
46.00	Till	Unknown	Oxidized
134.00	Till	Grey	Calcareous
153.00	Silt	Unknown	Unknown



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186.00 Sand	Grey	Noncalcareous
202.00 Silt	Grey	Noncalcareous
206.00 Sand	Grey	Noncalcareous
252.00 Silt	Grey	Noncalcareous



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Land Location **305 036 32SE00**
 WWDR# **031981**

DAIRY POOL	Completion 07/01/1960
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location						
LSD	Quarter	Section	Township	Range	Meridian	Reserve Riverlot
00	SE	32	036	05	3	
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)	
					0.00 ft from N/S Boundary	
					0.00 ft from E/W Boundary	

Well Information						
Driller #	CREELMAN & SONS DRIL		Well Casings			
Water Use	Industrial		Length (ft)	Btm (ft)	Dia (in)	Description
Hole #			0.00	154.00	12.00	Steel
Well Use	Withdrawal		0.00	0.00	0.00	
Installation Method	Drilled		0.00	0.00	0.00	
Depth	189.00					
Water Level	52.00		Screens			
Bit	12.00		Length (ft)	Btm (ft)	Dia (in)	Slot (in) Description
Flowing Head	0.00		10.00	189.00	6.00	20.00 Unknown
			0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00
<u>Pump Test</u>						
Draw Down	108.00 ft		Rec. Pumping Rate	0.00		
Duration	24.00 hrs		Intake	0.00		
Pumping Rate	25.00 igpm		Aquifer			
Temp	43.00 deg. F		E-Log	No		
Elevation	1,600.00 ft		Phys	E03		

Lithology List

Depth (ft)	Material	Colour	Description
10.00	Till	Yellow	Unknown
48.00	Till	Blue	Unknown
56.00	Sand	Unknown	Unknown
152.00	Till	Blue	Unknown
189.00	Sandy Clay	Blue	Unknown



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Land Location **305 036 33NW00**
 WWDR# **031983**

SASK W P FLOUR MILL	Completion
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location							
LSD	Quarter	Section	Township	Range	Meridian	Reserve	Riverlot
00	NW	33	036	05	3		
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)		
					0.00 ft from N/S Boundary		
					0.00 ft from E/W Boundary		

Well Information							
Driller #	UNKNOWN	Well Casings					
Water Use	Industrial	Length (ft)	Btm (ft)	Dia (in)	Description		
Hole #		0.00	0.00	0.00	Steel		
Well Use	Withdrawal	0.00	0.00	0.00			
Installation Method	Drilled	0.00	0.00	0.00			
Depth	240.00						
Water Level	20.00	Screens					
Bit	0.00	Length (ft)	Btm (ft)	Dia (in)	Slot (in)	Description	
Flowing Head	0.00	20.00	240.00	0.00	20.00	Unknown	
		0.00	0.00	0.00	0.00		
		0.00	0.00	0.00	0.00		
<u>Pump Test</u>							
Draw Down	0.00 ft	Rec. Pumping Rate	60.00				
Duration	48.00 hrs	Intake	0.00				
Pumping Rate	150.00 igpm	Aquifer					
Temp	0.00 deg. F	E-Log	No				
Elevation	1,600.00 ft	Phys	E03				

Lithology List

Depth (ft)	Material	Colour	Description
220.00	Clay	Blue	Unknown
240.00	Sand	Unknown	Unknown



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Land Location **305 036 33SW00**
 WWDR# **031985**

SASK RESEARCH COUNCI	Completion 05/14/1972
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location						
LSD	Quarter	Section	Township	Range	Meridian	Reserve Riverlot
00	SW	33	036	05	3	
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)	
					0.00 ft from N/S Boundary	
					0.00 ft from E/W Boundary	

Well Information						
Driller #	HAYTER DRILLING LTD		Well Casings			
Water Use	Research		Length (ft)	Btm (ft)	Dia (in)	Description
Hole #			0.00	0.00	0.00	
Well Use	Water Test Hole		0.00	0.00	0.00	
Installation Method	Drilled		0.00	0.00	0.00	
Depth	387.00					
Water Level	0.00		Screens			
Bit	0.00		Length (ft)	Btm (ft)	Dia (in)	Slot (in) Description
Flowing Head	0.00		0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00
<u>Pump Test</u>						
Draw Down	0.00 ft		Rec. Pumping Rate	0.00		
Duration	0.00 hrs		Intake	0.00		
Pumping Rate	0.00 igpm		Aquifer			
Temp	0.00 deg. F		E-Log	SCANNED		
Elevation	1,585.00 ft		Phys	E03		

Lithology List

Depth (ft)	Material	Colour	Description
4.00	Gravel	Unknown	Unknown
15.00	Till	Unknown	Oxidized
28.00	Till	Unknown	Unoxidized
40.00	Till	Unknown	Oxidized
44.00	Gravel	Unknown	Unknown
60.00	Till	Unknown	Oxidized



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63.00 Sand	Unknown	Unknown
158.00 Till	Unknown	Unoxidized
234.00 Silt	Grey	Noncalcareous
260.00 Sand	Grey	Noncalcareous
292.00 Silt	Grey	Noncalcareous
336.00 Sand	Grey	Noncalcareous
387.00 Silt	Grey	Noncalcareous



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Land Location **305 036 33SW00**
 WWDR# **031986**

CO-OP COLD STORAGE	Completion
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location							
LSD	Quarter	Section	Township	Range	Meridian	Reserve	Riverlot
00	SW	33	036	05	3		
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)		
					0.00 ft from N/S Boundary		
					0.00 ft from E/W Boundary		

Well Information							
Driller #	UNKNOWN		Well Casings				
Water Use	Industrial		Length (ft)	Btm (ft)	Dia (in)	Description	
Hole #			0.00	0.00	0.00	Steel	
Well Use	Withdrawal		0.00	0.00	0.00		
Installation Method	Drilled		0.00	0.00	0.00		
Depth	246.00		Screens				
Water Level	16.00		Length (ft)	Btm (ft)	Dia (in)	Slot (in)	Description
Bit	0.00		8.00	224.00	0.00	6.00	Unknown
Flowing Head	0.00		12.00	246.00	0.00	30.00	Unknown
			0.00	0.00	0.00	0.00	
<u>Pump Test</u>							
Draw Down	59.00 ft		Rec. Pumping Rate	0.00			
Duration	0.00 hrs		Intake	0.00			
Pumping Rate	100.00 igpm		Aquifer				
Temp	0.00 deg. F		E-Log	No			
Elevation	1,588.00 ft		Phys	E03			

Lithology List

Depth (ft)	Material	Colour	Description
216.00	Clay	Blue	Boulders
224.00	Sand	Unknown	Fine
234.00	Clay	Blue	Unknown
246.00	Sand	Unknown	Coarse



One Well Per Page

Land Location **305 036 32SW00**
 WWDR# **045665**

SASK POWER	Completion 11/29/1975
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location						
LSD	Quarter	Section	Township	Range	Meridian	Reserve Riverlot
00	SW	32	036	05	3	
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)	
					0.00 ft from N/S Boundary	
					0.00 ft from E/W Boundary	

Well Information						
Driller #	PEDERSON DRILLING		Well Casings			
Water Use	Domestic		Length (ft)	Btm (ft)	Dia (in)	Description
Hole #	00000001		0.00	0.00	0.00	
Well Use	Water Test Hole		0.00	0.00	0.00	
Installation Method	Drilled		0.00	0.00	0.00	
Depth	300.00					
Water Level	0.00		Screens			
Bit	0.00		Length (ft)	Btm (ft)	Dia (in)	Slot (in) Description
Flowing Head	0.00		0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00
			0.00	0.00	0.00	0.00
<u>Pump Test</u>						
Draw Down	0.00 ft		Rec. Pumping Rate	0.00		
Duration	0.00 hrs		Intake	0.00		
Pumping Rate	0.00 igpm		Aquifer			
Temp	0.00 deg. F		E-Log	No		
Elevation	1,625.00 ft		Phys	E03		

Lithology List

Depth (ft)	Material	Colour	Description
17.00	Clay	Brown	Soft
43.00	Till	Grey	Unknown
52.00	Till	Unknown	Sandy
130.00	Till	Grey	Unknown
135.00	Clay	Unknown	Unknown
139.00	Till	Unknown	Unknown



One Well Per Page

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(OneWellPerPage)
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154.00 Sand	Unknown	Silty
276.00 Till	Grey	Unknown
300.00 Shale	Unknown	Unknown



One Well Per Page

Land Location **305 036 33SW00**
 WWDR# **052937**

DAIRY PRODUCERS COOF	Completion 07/01/1957
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location						
LSD	Quarter	Section	Township	Range	Meridian	Reserve Riverlot
00	SW	33	036	05	3	
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)	
					0.00 ft from N/S Boundary	
					0.00 ft from E/W Boundary	

Well Information						
Driller #	CREELMAN & SONS DRIL	Well Casings				
Water Use	Industrial	Length (ft)	Btm (ft)	Dia (in)	Description	
Hole #		0.00	0.00	12.00	Steel	
Well Use	Withdrawal	0.00	0.00	0.00		
Installation Method	Drilled	0.00	0.00	0.00		
Depth	280.00					
Water Level	57.00	Screens				
Bit	12.00	Length (ft)	Btm (ft)	Dia (in)	Slot (in)	Description
Flowing Head	0.00	20.00	280.00	6.00	0.00	Unknown
		0.00	0.00	0.00	0.00	
		0.00	0.00	0.00	0.00	
<u>Pump Test</u>						
Draw Down	0.00 ft	Rec. Pumping Rate	50.00			
Duration	0.00 hrs	Intake	0.00			
Pumping Rate	0.00 igpm	Aquifer				
Temp	0.00 deg. F	E-Log	No			
Elevation	1,620.00 ft	Phys	E03			

Lithology List

Depth (ft)	Material	Colour	Description
280.00	Unknown	Unknown	Unknown



One Well Per Page

Land Location **305 036 33NW00**
 WWDR# **085026**

KATSIRIS, NICK	Completion 06/08/1987
	RM 344
	Major Basin 06
	SubBasin 30
	NTS Map 73B02

Well Location						
LSD	Quarter	Section	Township	Range	Meridian	Reserve Riverlot
00	NW	33	036	05	3	
Zone	Easting	Northing	Source	Accuracy	Location of Well (in Quarter)	
					0.00 ft from N/S Boundary	
					0.00 ft from E/W Boundary	

Well Information						
Driller #	PRAIRIE WATER LTD	Well Casings				
Water Use	Domestic	Length (ft)	Btm (ft)	Dia (in)	Description	
Hole #	00000001	26.00	26.00	36.00	Porous Concrete	
Well Use	Withdrawal	0.00	0.00	0.00		
Installation Method	Bored	0.00	0.00	0.00		
Depth	26.00					
Water Level	0.00	Screens				
Bit	36.00	Length (ft)	Btm (ft)	Dia (in)	Slot (in)	Description
Flowing Head	0.00	0.00	0.00	0.00	0.00	
		0.00	0.00	0.00	0.00	
		0.00	0.00	0.00	0.00	
<u>Pump Test</u>						
Draw Down	0.00 ft	Rec. Pumping Rate	0.00			
Duration	0.00 hrs	Intake	0.00			
Pumping Rate	0.00 igpm	Aquifer				
Temp	0.00 deg. F	E-Log	No			
Elevation	1,650.00 ft	Phys	E03			

Lithology List

Depth (ft)	Material	Colour	Description
1.00	Topsoil	Unknown	Unknown
18.00	Sand	Brown	Unknown
26.00	Silt	Grey	Unknown



PINTER
& ASSOCIATES LTD

Appendix G

Laboratory Analytical Reports



PINTER AND ASSOCIATES LTD.
ATTN: JESSICA CUTTER
710A 48th Street East
Saskatoon SK S7K 5B4

Date Received: 16-MAY-14
Report Date: 23-MAY-14 11:38 (MT)
Version: FINAL

Client Phone: 306-244-1710

Certificate of Analysis

Lab Work Order #: L1456755
Project P.O. #: NOT SUBMITTED
Job Reference: 1544-2
C of C Numbers:
Legal Site Desc: SASKATOON, SK

Brian Morgan
Account Manager

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

ADDRESS: #819-58th St E., Saskatoon, SK S7K 6X5 Canada | Phone: +1 306 668 8370 | Fax: +1 306 668 8383
ALS CANADA LTD Part of the ALS Group A Campbell Brothers Limited Company

ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1456755-1 14-1-4 Sampled By: JC on 15-MAY-14 @ 10:30 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Toluene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Ethylbenzene	<0.010		0.010	mg/kg	20-MAY-14	21-MAY-14	R2842386
Xylenes	<0.10		0.10	mg/kg	20-MAY-14	21-MAY-14	R2842386
o-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
m+p-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Surrogate: 1,4-Difluorobenzene	103.0		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 4-Bromofluorobenzene	94.5		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 3,4-Dichlorotoluene	88.3		70-130	%	20-MAY-14	21-MAY-14	R2842386
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-MAY-14	
F1-BTEX	<10		10	mg/kg		21-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		21-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		21-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		21-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		21-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	20-MAY-14	21-MAY-14	R2842201
TEH (C23-C60)	<100		100	mg/kg	20-MAY-14	21-MAY-14	R2842201
Chrom. to baseline at nC50	YES		0		20-MAY-14	21-MAY-14	R2842201
Surrogate: 2-Bromobenzotrifluoride	82.0		70-130	%	20-MAY-14	21-MAY-14	R2842201
Miscellaneous Parameters							
% Moisture	11.3		1.0	%	20-MAY-14	21-MAY-14	R2842163
Lead (Pb)	<5.0		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389
L1456755-2 14-2-1 Sampled By: JC on 15-MAY-14 @ 13:20 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	0.0053		0.0050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Toluene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Ethylbenzene	<0.010		0.010	mg/kg	20-MAY-14	21-MAY-14	R2842386
Xylenes	<0.10		0.10	mg/kg	20-MAY-14	21-MAY-14	R2842386
o-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
m+p-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Surrogate: 1,4-Difluorobenzene	114.8		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 4-Bromofluorobenzene	110.4		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 3,4-Dichlorotoluene	75.1		70-130	%	20-MAY-14	21-MAY-14	R2842386
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-MAY-14	
F1-BTEX	<10		10	mg/kg		21-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		21-MAY-14	
F3 (C16-C34)	487		50	mg/kg		21-MAY-14	
F4 (C34-C50)	137		50	mg/kg		21-MAY-14	
Total Hydrocarbons (C6-C50)	624		50	mg/kg		21-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	120		50	mg/kg	20-MAY-14	21-MAY-14	R2842201
TEH (C23-C60)	560		100	mg/kg	20-MAY-14	21-MAY-14	R2842201
Chrom. to baseline at nC50	YES		0		20-MAY-14	21-MAY-14	R2842201
Surrogate: 2-Bromobenzotrifluoride	89.4		70-130	%	20-MAY-14	21-MAY-14	R2842201

* 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
L1456755-2 14-2-1 Sampled By: JC on 15-MAY-14 @ 13:20 Matrix: SOIL Miscellaneous Parameters							
% Moisture	16.8		1.0	%	20-MAY-14	21-MAY-14	R2842163
Lead (Pb)	2450		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389
L1456755-3 14-2-3 Sampled By: JC on 15-MAY-14 @ 13:45 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Toluene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Ethylbenzene	<0.010		0.010	mg/kg	20-MAY-14	21-MAY-14	R2842386
Xylenes	<0.10		0.10	mg/kg	20-MAY-14	21-MAY-14	R2842386
o-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
m+p-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Surrogate: 1,4-Difluorobenzene	115.5		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 4-Bromofluorobenzene	106.4		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 3,4-Dichlorotoluene	88.9		70-130	%	20-MAY-14	21-MAY-14	R2842386
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-MAY-14	
F1-BTEX	<10		10	mg/kg		21-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		21-MAY-14	
F3 (C16-C34)	67		50	mg/kg		21-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		21-MAY-14	
Total Hydrocarbons (C6-C50)	67		50	mg/kg		21-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	70		50	mg/kg	20-MAY-14	21-MAY-14	R2842201
TEH (C23-C60)	<100		100	mg/kg	20-MAY-14	21-MAY-14	R2842201
Chrom. to baseline at nC50	YES		0		20-MAY-14	21-MAY-14	R2842201
Surrogate: 2-Bromobenzotrifluoride	77.5		70-130	%	20-MAY-14	21-MAY-14	R2842201
Miscellaneous Parameters							
% Moisture	4.3		1.0	%	20-MAY-14	21-MAY-14	R2842163
MUST PSA % > 75um	92.3		0.10	%	21-MAY-14	21-MAY-14	R2842584
Lead (Pb)	6.0		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389
L1456755-4 14-3-3 Sampled By: JC on 15-MAY-14 @ 14:45 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Toluene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Ethylbenzene	<0.010		0.010	mg/kg	20-MAY-14	21-MAY-14	R2842386
Xylenes	<0.10		0.10	mg/kg	20-MAY-14	21-MAY-14	R2842386
o-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
m+p-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Surrogate: 1,4-Difluorobenzene	107.8		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 4-Bromofluorobenzene	96.8		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 3,4-Dichlorotoluene	77.4		70-130	%	20-MAY-14	21-MAY-14	R2842386
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-MAY-14	
F1-BTEX	<10		10	mg/kg		21-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		21-MAY-14	

* 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
L1456755-4 14-3-3 Sampled By: JC on 15-MAY-14 @ 14:45 Matrix: SOIL							
CCME Total Hydrocarbons							
F3 (C16-C34)	99		50	mg/kg		21-MAY-14	
F4 (C34-C50)	118		50	mg/kg		21-MAY-14	
Total Hydrocarbons (C6-C50)	217		50	mg/kg		21-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	20-MAY-14	21-MAY-14	R2842201
TEH (C23-C60)	240		100	mg/kg	20-MAY-14	21-MAY-14	R2842201
Chrom. to baseline at nC50	YES		0		20-MAY-14	21-MAY-14	R2842201
Surrogate: 2-Bromobenzotrifluoride	78.3		70-130	%	20-MAY-14	21-MAY-14	R2842201
Miscellaneous Parameters							
% Moisture	15.8		1.0	%	20-MAY-14	21-MAY-14	R2842163
Lead (Pb)	5.2		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389
L1456755-5 14-4-3 Sampled By: JC on 15-MAY-14 @ 16:15 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Toluene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Ethylbenzene	<0.010		0.010	mg/kg	20-MAY-14	21-MAY-14	R2842386
Xylenes	<0.10		0.10	mg/kg	20-MAY-14	21-MAY-14	R2842386
o-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
m+p-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Surrogate: 1,4-Difluorobenzene	109.6		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 4-Bromofluorobenzene	105.9		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 3,4-Dichlorotoluene	87.7		70-130	%	20-MAY-14	21-MAY-14	R2842386
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-MAY-14	
F1-BTEX	<10		10	mg/kg		21-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		21-MAY-14	
F3 (C16-C34)	169		50	mg/kg		21-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		21-MAY-14	
Total Hydrocarbons (C6-C50)	169		50	mg/kg		21-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	20-MAY-14	21-MAY-14	R2842201
TEH (C23-C60)	170		100	mg/kg	20-MAY-14	21-MAY-14	R2842201
Chrom. to baseline at nC50	YES		0		20-MAY-14	21-MAY-14	R2842201
Surrogate: 2-Bromobenzotrifluoride	78.7		70-130	%	20-MAY-14	21-MAY-14	R2842201
Miscellaneous Parameters							
% Moisture	16.7		1.0	%	20-MAY-14	21-MAY-14	R2842163
Lead (Pb)	<5.0		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389
L1456755-6 14-5-1 Sampled By: JC on 15-MAY-14 @ 17:00 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Toluene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Ethylbenzene	<0.010		0.010	mg/kg	20-MAY-14	21-MAY-14	R2842386
Xylenes	<0.10		0.10	mg/kg	20-MAY-14	21-MAY-14	R2842386
o-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386

* 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
L1456755-6 14-5-1 Sampled By: JC on 15-MAY-14 @ 17:00 Matrix: SOIL							
CCME BTEX							
m+p-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Surrogate: 1,4-Difluorobenzene	108.4		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 4-Bromofluorobenzene	92.1		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 3,4-Dichlorotoluene	85.8		70-130	%	20-MAY-14	21-MAY-14	R2842386
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-MAY-14	
F1-BTEX	<10		10	mg/kg		21-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		21-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		21-MAY-14	
F4 (C34-C50)	65		50	mg/kg		21-MAY-14	
Total Hydrocarbons (C6-C50)	65		50	mg/kg		21-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	20-MAY-14	21-MAY-14	R2842201
TEH (C23-C60)	130		100	mg/kg	20-MAY-14	21-MAY-14	R2842201
Chrom. to baseline at nC50	YES		0		20-MAY-14	21-MAY-14	R2842201
Surrogate: 2-Bromobenzotrifluoride	74.5		70-130	%	20-MAY-14	21-MAY-14	R2842201
Miscellaneous Parameters							
% Moisture	13.0		1.0	%	20-MAY-14	21-MAY-14	R2842163
Lead (Pb)	5.7		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389
L1456755-7 14-5-3 Sampled By: JC on 15-MAY-14 @ 17:25 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Toluene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Ethylbenzene	<0.010		0.010	mg/kg	20-MAY-14	21-MAY-14	R2842386
Xylenes	<0.10		0.10	mg/kg	20-MAY-14	21-MAY-14	R2842386
o-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
m+p-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Surrogate: 1,4-Difluorobenzene	114.7		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 4-Bromofluorobenzene	113.5		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 3,4-Dichlorotoluene	90.4		70-130	%	20-MAY-14	21-MAY-14	R2842386
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-MAY-14	
F1-BTEX	<10		10	mg/kg		21-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		21-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		21-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		21-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		21-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	20-MAY-14	21-MAY-14	R2842201
TEH (C23-C60)	<100		100	mg/kg	20-MAY-14	21-MAY-14	R2842201
Chrom. to baseline at nC50	YES		0		20-MAY-14	21-MAY-14	R2842201
Surrogate: 2-Bromobenzotrifluoride	76.4		70-130	%	20-MAY-14	21-MAY-14	R2842201
Miscellaneous Parameters							
% Moisture	17.4		1.0	%	20-MAY-14	21-MAY-14	R2842163
MUST PSA % > 75um	66.9		0.10	%	21-MAY-14	21-MAY-14	R2842584
Lead (Pb)	5.7		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389

* 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
L1456755-8 DUPLICATE A Sampled By: JC on 15-MAY-14 @ 17:00 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Toluene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Ethylbenzene	<0.010		0.010	mg/kg	20-MAY-14	21-MAY-14	R2842386
Xylenes	<0.10		0.10	mg/kg	20-MAY-14	21-MAY-14	R2842386
o-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
m+p-Xylene	<0.050		0.050	mg/kg	20-MAY-14	21-MAY-14	R2842386
Surrogate: 1,4-Difluorobenzene	119.2		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 4-Bromofluorobenzene	100.4		70-130	%	20-MAY-14	21-MAY-14	R2842386
Surrogate: 3,4-Dichlorotoluene	83.3		70-130	%	20-MAY-14	21-MAY-14	R2842386
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		21-MAY-14	
F1-BTEX	<10		10	mg/kg		21-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		21-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		21-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		21-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		21-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	20-MAY-14	21-MAY-14	R2842201
TEH (C23-C60)	<100		100	mg/kg	20-MAY-14	21-MAY-14	R2842201
Chrom. to baseline at nC50	YES		0		20-MAY-14	21-MAY-14	R2842201
Surrogate: 2-Bromobenzotrifluoride	78.9		70-130	%	20-MAY-14	21-MAY-14	R2842201
Miscellaneous Parameters							
% Moisture	12.4		1.0	%	20-MAY-14	21-MAY-14	R2842163
Lead (Pb)	<5.0		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389
L1456755-9 14-5-6 Sampled By: JC on 15-MAY-14 @ 17:45 Matrix: SOIL Miscellaneous Parameters							
MUST PSA % > 75um	44.5		0.10	%	21-MAY-14	21-MAY-14	R2842584
Lead (Pb)	5.8		5.0	mg/kg wwt	22-MAY-14	22-MAY-14	R2843389

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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ETL-BTX,TVH-CCME-SK	Soil	CCME BTEX	CCME CWS-PHC DEC-2000 - PUB 1310
<p>Fraction F1, C6 - C10 Hydrocarbons, is determined by extracting a 5 gram soil sample with methanol, separating the methanol from the soil, then adding the methanol extract to a purge-and-trap unit for release of volatile organics. The volatile organics are separated by gas chromatography using a 100% poly(dimethylsiloxane)column, with BTEX components quantified by MSD and the F1 range quantified using a flame ionization detector.</p> <p>Note: The result of a BTEX analysis is subtracted to give the final result.</p> <p>Reference: Modified EPA SW846 Methods 5030/ 8260, CCME CSW PHC Dec 2000</p>			
ETL-TVH,TEH-CCME-SK	Soil	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB 1310
<p>Analytical methods used for analysis of CCME Petroleum Hydrocarbons have been validated and comply with the Reference Method for the CWS PHC.</p> <p>Hydrocarbon results are expressed on a dry weight basis.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>Unless otherwise qualified, the following quality control criteria have been met for the F1 hydrocarbon range:</p> <ol style="list-style-type: none"> 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. <p>Unless otherwise qualified, the following quality control criteria have been met for the F2-F4 hydrocarbon ranges:</p> <ol style="list-style-type: none"> 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. 			
PB-MUST-SK	Soil	Lead (Pb)	SW846/3050/6010B
<p>Lead in soil is converted to soluble form by wet oxidation using a combination of nitric acid, hydrogen peroxide and hydrochloric acid. Lead in the extract is determined using ICP-OES.</p>			
PREP-MOISTURE-SK	Soil	% Moisture	Oven dry 105C-Gravimetric
<p>The weighed portion of soil is placed in a 105°C oven overnight. The dried soil is allowed to cooled to room temperature, weighed and the % moisture is calculated.</p> <p>Reference: ASTM D2216-80</p>			
PSA-MUST-SK	Soil	% Particles > 75um (Coarse/Fine)	ASTM D422-63-SIEVE
<p>An air-dried sample is reduced to < 2 mm size and mixed with a dispersing agent (Calgon solution). The sample is washed through a 200 mesh (75 µm) sieve. The retained mass of sample is used to determine % sand fraction.</p> <p>Reference: ASTM D422-63</p>			
TEH-TMB-SK	Soil	Extractable Hydrocarbons. Tumbler/GC-FID	CWS-PHC DEC 2000 (SOIL)
<p>This analysis is carried out in accordance with the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." For C10 to C50 hydrocarbons (F2, F3, F4) and gravimetric heavy hydrocarbons (F4G-sg), a subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extractor. The extract undergoes a silica-gel clean-up to remove polar compounds. F2, F3 & F4 are analyzed by on-column GC/FID, and F4G-sg is analyzed gravimetrically.</p>			

** 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

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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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.

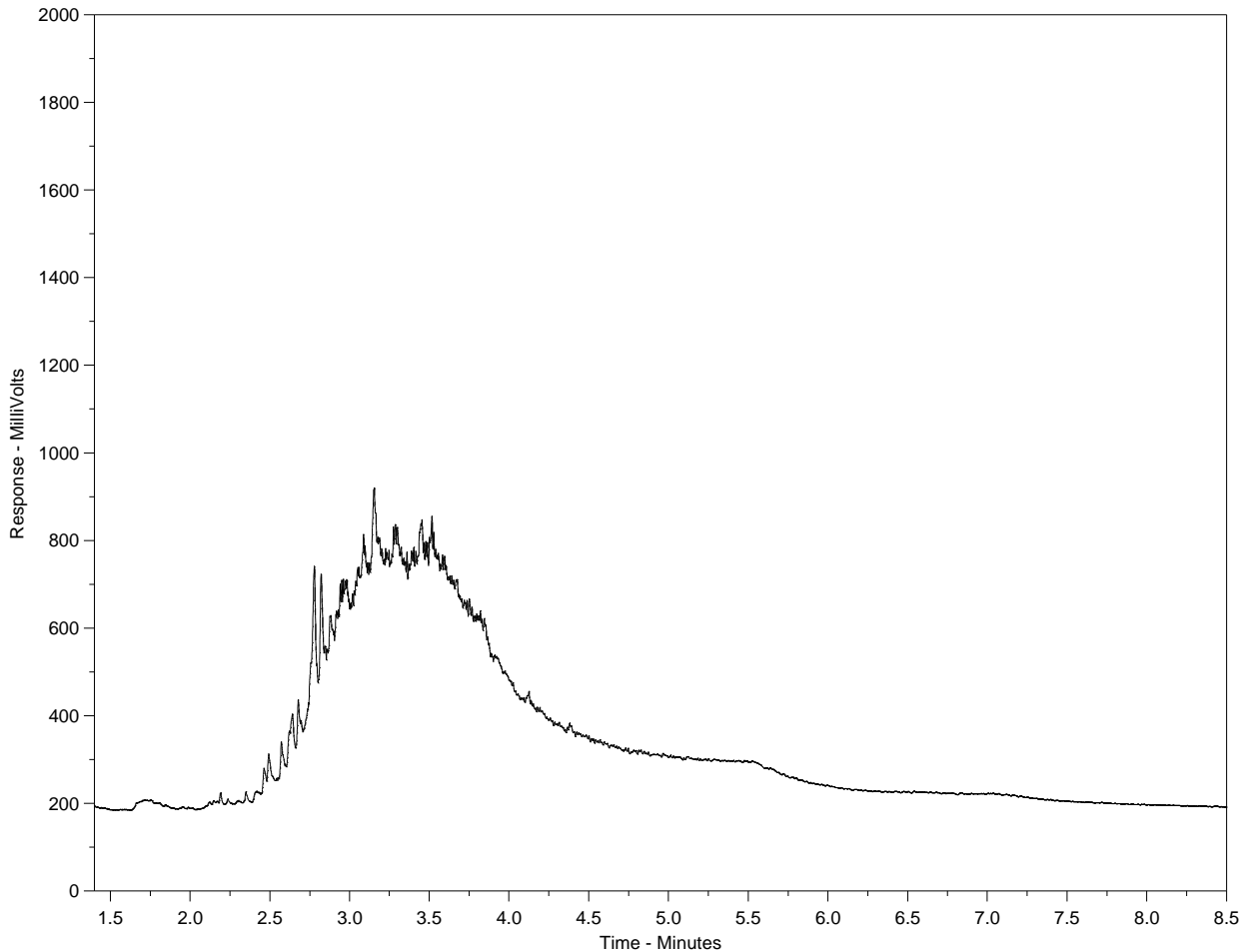
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1456755-2
Client ID: 14-2-1



← 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.

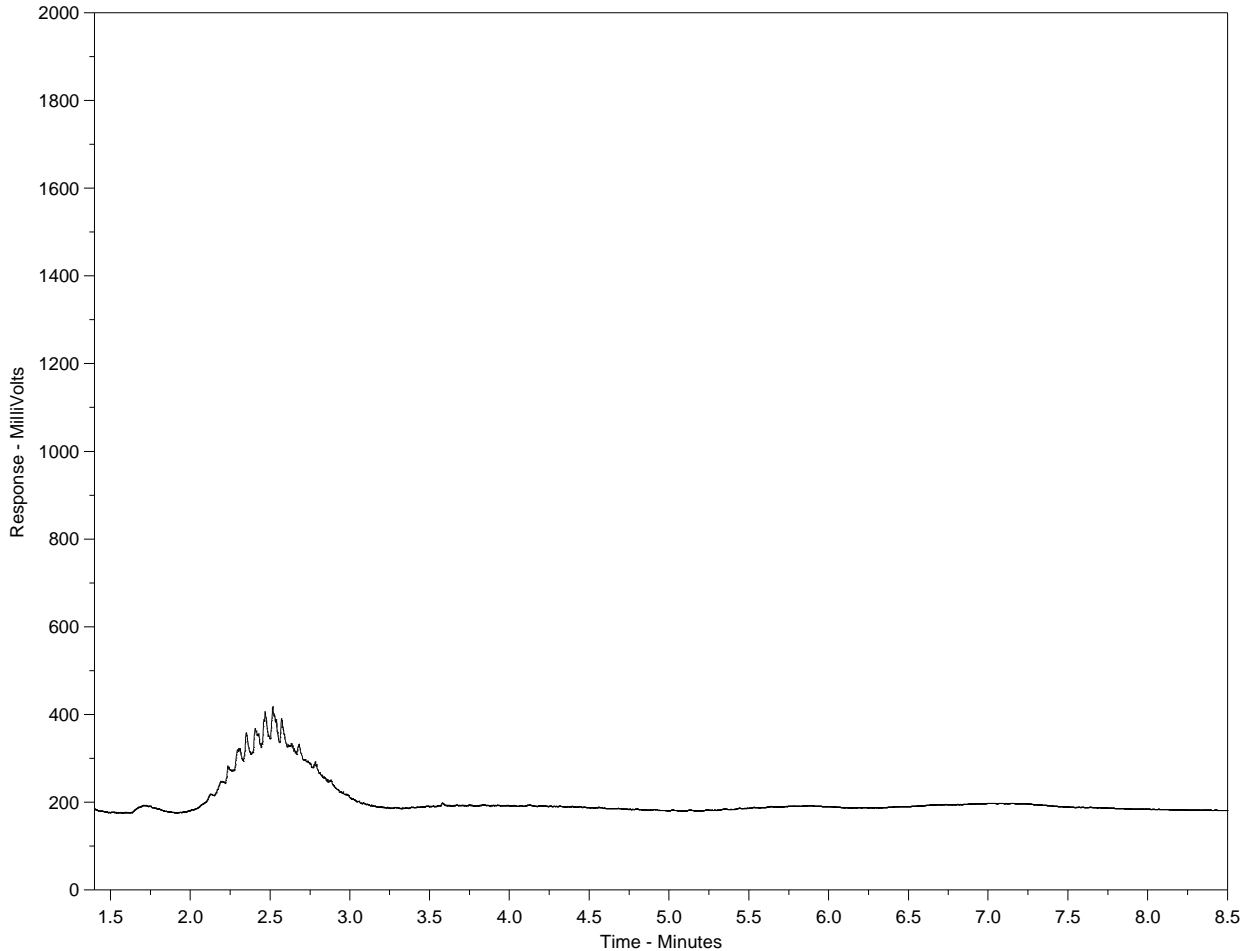
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1456755-3
Client ID: 14-2-3



← 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.

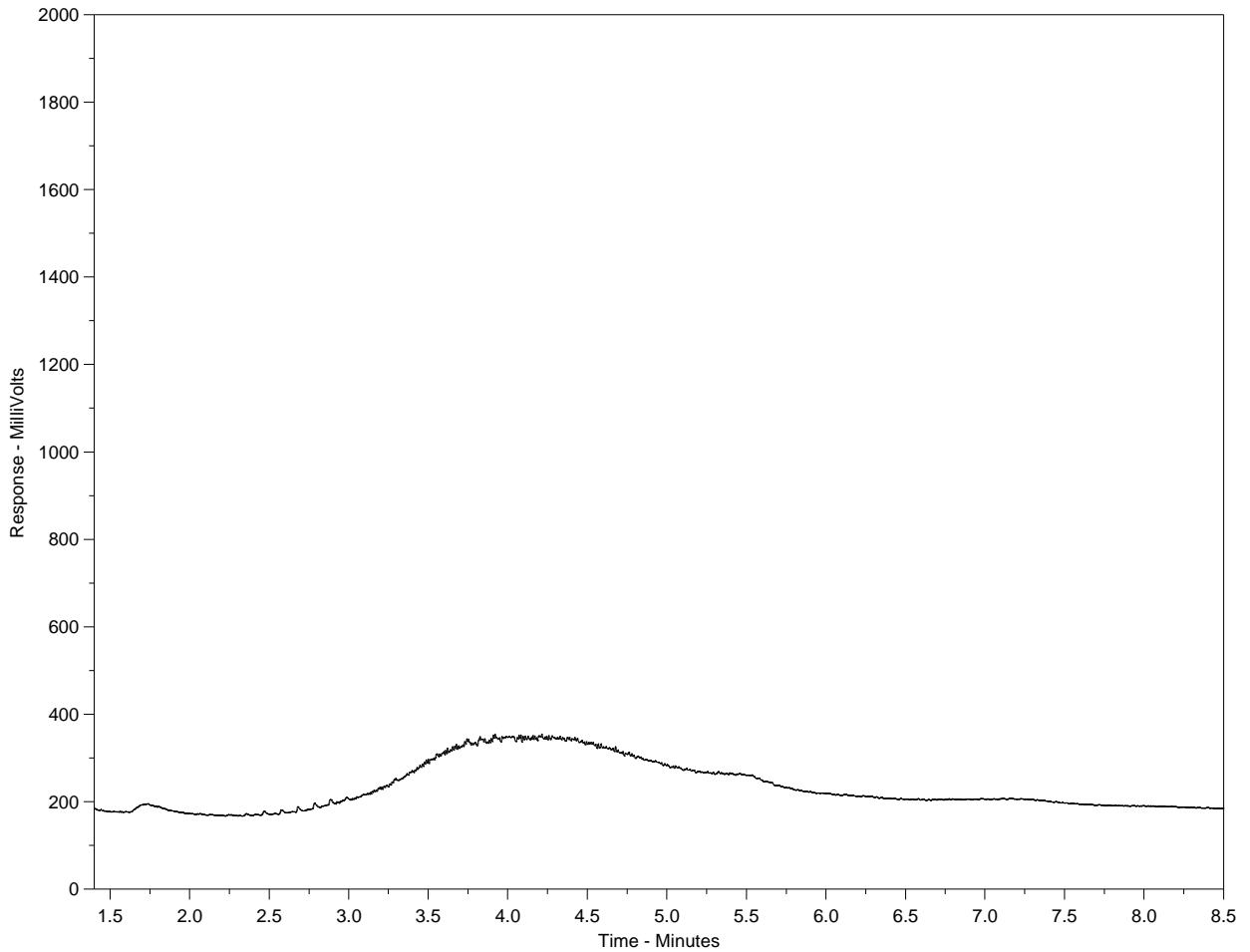
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1456755-4
Client ID: 14-3-3



← 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.

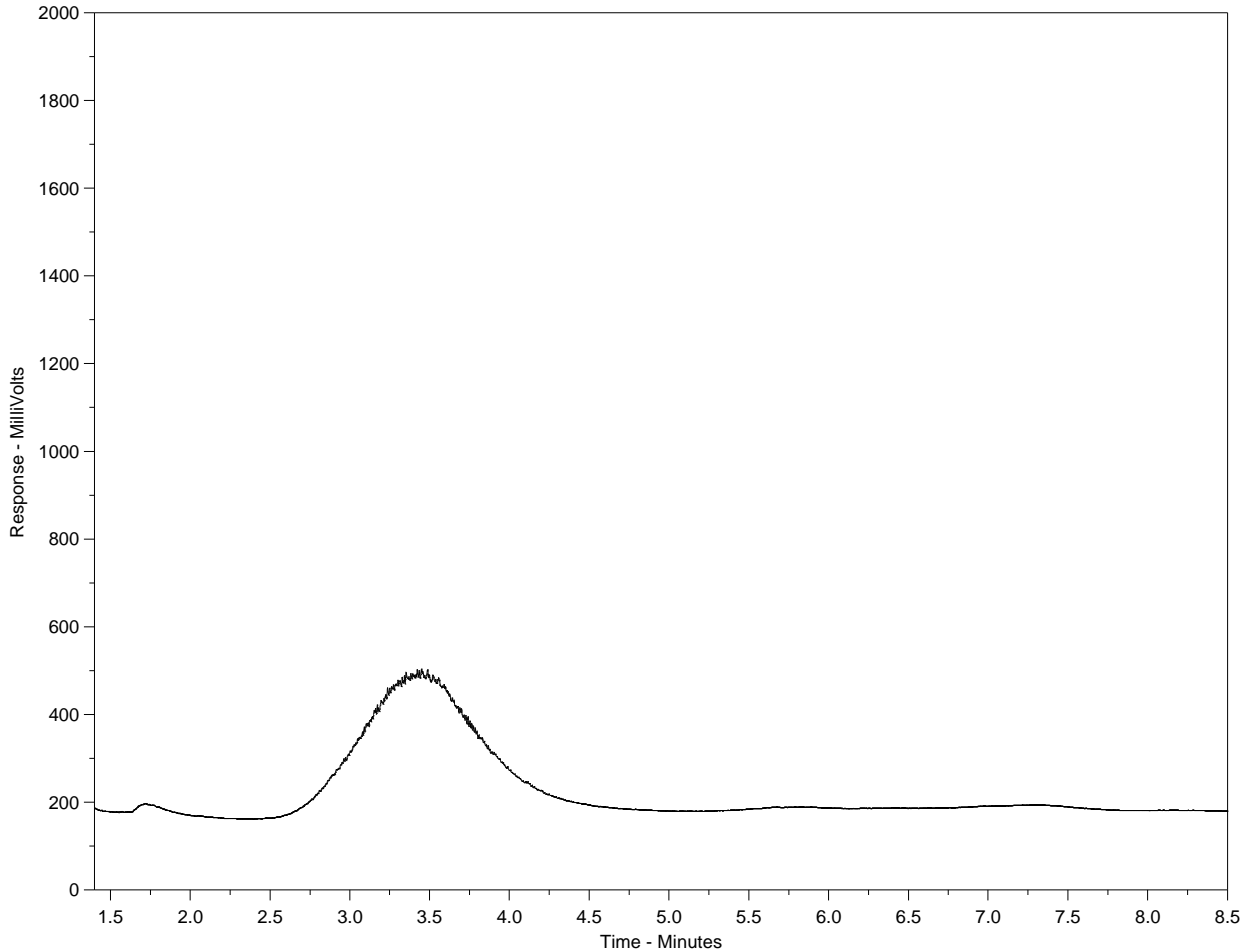
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1456755-5
Client ID: 14-4-3



← 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.

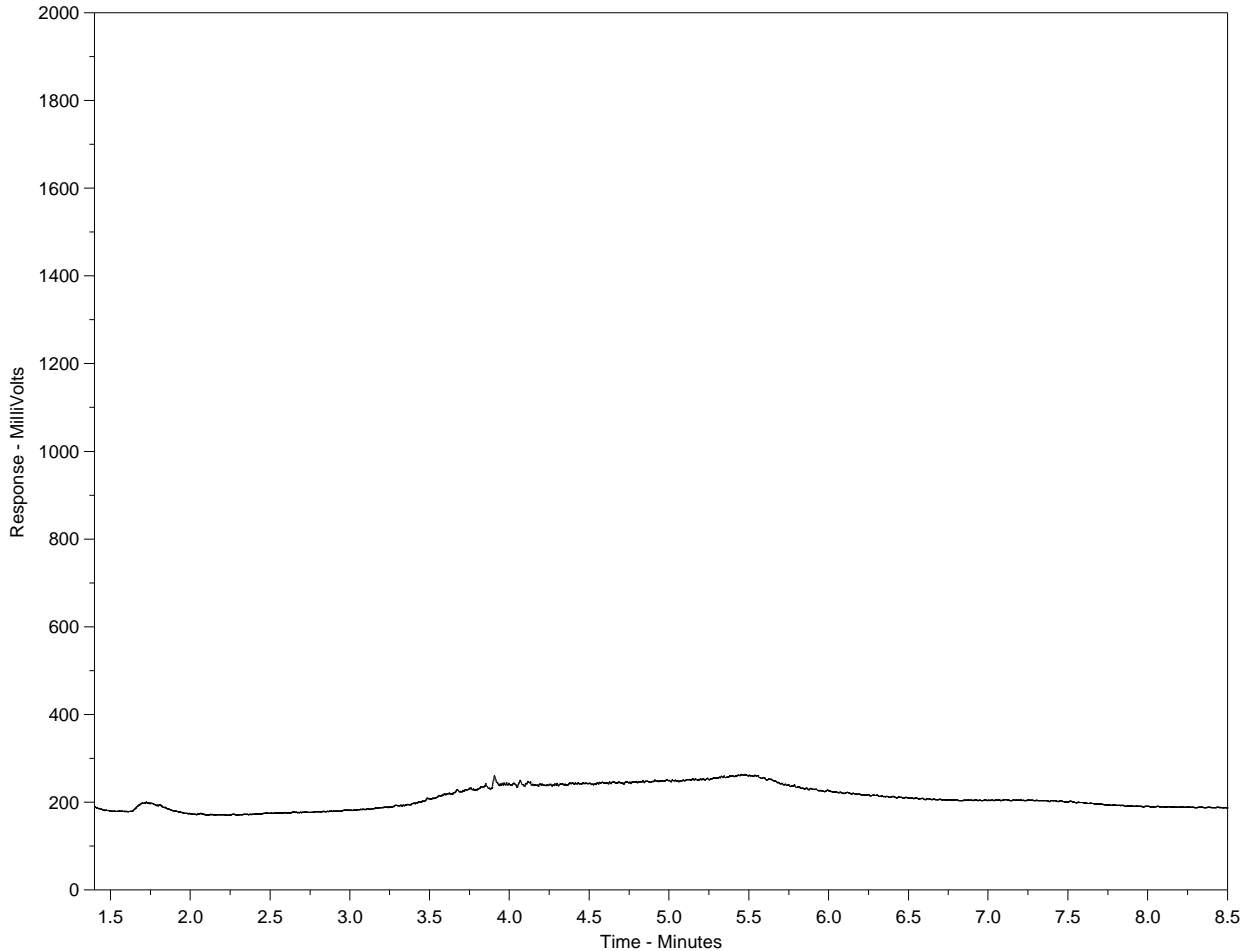
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1456755-6
Client ID: 14-5-1



← 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.



L1456755-COFC

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

COC #

Page 1 of 1

Report to: PINTER & Associates Ltd. Report Format / Distribution: [X] Standard [] Other. Service Requested: [X] Regular. Analysis Request table with columns for Sample #, Identification, Date, Time, Sample Type, and various analysis parameters.



L1456755-COFC

ALS Laboratory Group

Additional/Changes/Request Form

Additional
Analysis

X

Analysis
Change In house

Analysis
Change Other Lab

DATE 20-MAY-14

REQUESTED BY CLIENT/LAB CLIENT / AM

Log In File #: L1456755

ADDITIONAL ANALYSIS (CHANGE) PSA-MUST-SK (3, 7, 9); PB-MUST-SK (all samples)

Sample ID # 3, 7, 9 - (all for PB-MUST)

REMOVE ANALYSIS GRAIN SIZE-SK

Sample ID #

PREP: (ADD) (REMOVE)

200 CODES: DONE TRANSIT

DUE DATE EMERGENCY PRIORITY RUSH REG

Comments:

Bill the Client:

Do Not Bill the Client:

Request Taken By: BEM

Approved By: Receiving Lab LAH bfe

Changed By



PINTER AND ASSOCIATES LTD.
ATTN: JESSICA CUTTER
710A 48th Street East
Saskatoon SK S7K 5B4

Date Received: 27-MAY-14
Report Date: 02-JUN-14 15:20 (MT)
Version: FINAL

Client Phone: 306-244-1710

Certificate of Analysis

Lab Work Order #: L1460494
Project P.O. #: NOT SUBMITTED
Job Reference: 1544-2
C of C Numbers:
Legal Site Desc: SASKATOON

Brian Morgan
Account Manager

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ADDRESS: #819-58th St E., Saskatoon, SK S7K 6X5 Canada | Phone: +1 306 668 8370 | Fax: +1 306 668 8383
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1460494-1 14-6-3 Sampled By: JC on 20-MAY-14 @ 14:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847549
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847549
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847549
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847549
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847549
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847549
Surrogate: 1,4-Difluorobenzene	95.1		70-130	%	27-MAY-14	28-MAY-14	R2847549
Surrogate: 4-Bromofluorobenzene	88.8		70-130	%	27-MAY-14	28-MAY-14	R2847549
Surrogate: 3,4-Dichlorotoluene	89.3		70-130	%	27-MAY-14	28-MAY-14	R2847549
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	27-MAY-14	29-MAY-14	R2847987
TEH (C23-C60)	<100		100	mg/kg	27-MAY-14	29-MAY-14	R2847987
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847987
Surrogate: 2-Bromobenzotrifluoride	75.4		70-130	%	27-MAY-14	29-MAY-14	R2847987
Miscellaneous Parameters							
% Moisture	12.1		1.0	%	27-MAY-14	28-MAY-14	R2847130
Lead (Pb)	<5.0		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-2 14-6 AND 14-7 SURFACE SAMPLE Sampled By: JC on 20-MAY-14 @ 14:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847549
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847549
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847549
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847549
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847549
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847549
Surrogate: 1,4-Difluorobenzene	97.9		70-130	%	27-MAY-14	28-MAY-14	R2847549
Surrogate: 4-Bromofluorobenzene	85.7		70-130	%	27-MAY-14	28-MAY-14	R2847549
Surrogate: 3,4-Dichlorotoluene	107.9		70-130	%	27-MAY-14	28-MAY-14	R2847549
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<150	DLA	150	mg/kg		29-MAY-14	
F3 (C16-C34)	7170	DLA	250	mg/kg		29-MAY-14	
F4 (C34-C50)	10700	DLA	250	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	17900		250	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	710	DLA	250	mg/kg	27-MAY-14	29-MAY-14	R2847987
TEH (C23-C60)	17800	DLA	500	mg/kg	27-MAY-14	29-MAY-14	R2847987
Chrom. to baseline at nC50	NO		0		27-MAY-14	29-MAY-14	R2847987
Surrogate: 2-Bromobenzotrifluoride	N/A	SDO:RNA	-	%	27-MAY-14	29-MAY-14	R2847987

* 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
L1460494-2 14-6 AND 14-7 SURFACE SAMPLE Sampled By: JC on 20-MAY-14 @ 14:32 Matrix: SOIL							
Miscellaneous Parameters							
% Moisture	21.2		1.0	%	27-MAY-14	28-MAY-14	R2847130
Lead (Pb)	20.1		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-3 14-9-4 Sampled By: JC on 20-MAY-14 @ 14:37 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	107.1		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	93.1		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	84.9		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	37		30	mg/kg		29-MAY-14	
F3 (C16-C34)	150		50	mg/kg		29-MAY-14	
F4 (C34-C50)	105		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	292		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	50		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	260		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	73.6		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	7.5		1.0	%	27-MAY-14	28-MAY-14	R2847446
Lead (Pb)	<5.0		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-4 14-9-6 Sampled By: JC on 20-MAY-14 @ 14:40 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	109.2		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	87.5		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	77.0		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	112		50	mg/kg		29-MAY-14	
F4 (C34-C50)	54		50	mg/kg		29-MAY-14	

* 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
L1460494-4 14-9-6 Sampled By: JC on 20-MAY-14 @ 14:40 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	166		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	54		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	150		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	74.6		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	8.2		1.0	%	27-MAY-14	28-MAY-14	R2847446
Lead (Pb)	5.6		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-5 14-10-3 Sampled By: JC on 20-MAY-14 @ 15:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	116.1		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	105.6		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	78.3		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	86		50	mg/kg		29-MAY-14	
F4 (C34-C50)	78		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	164		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	170		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	75.2		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	8.5		1.0	%	27-MAY-14	28-MAY-14	R2847446
MUST PSA % > 75um	51.5		0.10	%	28-MAY-14	28-MAY-14	R2848294
Lead (Pb)	<5.0		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-6 14-10-6 Sampled By: JC on 20-MAY-14 @ 16:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555

* 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
L1460494-6 14-10-6 Sampled By: JC on 20-MAY-14 @ 16:32 Matrix: SOIL							
CCME BTEX							
Surrogate: 1,4-Difluorobenzene	109.2		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	95.3		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	77.3		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	100		50	mg/kg		29-MAY-14	
F4 (C34-C50)	54		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	154		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	150		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	75.6		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	8.6		1.0	%	27-MAY-14	28-MAY-14	R2847446
MUST PSA % > 75um	48.3		0.10	%	28-MAY-14	28-MAY-14	R2848294
Lead (Pb)	5.3		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-7 14-8-3 Sampled By: JC on 20-MAY-14 @ 17:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	117.0		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	96.6		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	81.2		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	<100		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	77.8		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	10.7		1.0	%	27-MAY-14	28-MAY-14	R2847446
Lead (Pb)	<5.0		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556

* 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
L1460494-8 14-8-6 Sampled By: JC on 20-MAY-14 @ 18:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	109.4		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	91.1		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	84.7		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	94		50	mg/kg		29-MAY-14	
F4 (C34-C50)	57		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	151		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	150		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	75.1		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	8.3		1.0	%	27-MAY-14	28-MAY-14	R2847446
Lead (Pb)	<5.0		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-9 14-11-3 Sampled By: JC on 20-MAY-14 @ 19:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	108.2		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	92.3		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	84.9		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	<100		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	78.6		70-130	%	27-MAY-14	29-MAY-14	R2847924

* 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
L1460494-9 14-11-3 Sampled By: JC on 20-MAY-14 @ 19:32 Matrix: SOIL Miscellaneous Parameters							
% Moisture	8.3		1.0	%	27-MAY-14	28-MAY-14	R2847446
Lead (Pb)	5.3		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-10 14-11-4 Sampled By: JC on 20-MAY-14 @ 19:33 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	112.3		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	92.6		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	89.8		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	77		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	77		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	120		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	77.5		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	7.8		1.0	%	27-MAY-14	28-MAY-14	R2847446
Lead (Pb)	<5.0		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-11 DUP B Sampled By: JC on 20-MAY-14 @ 18:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	107.0		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	96.9		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	84.7		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	40		30	mg/kg		29-MAY-14	
F3 (C16-C34)	181		50	mg/kg		29-MAY-14	
F4 (C34-C50)	131		50	mg/kg		29-MAY-14	

* 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
L1460494-11 DUP B Sampled By: JC on 20-MAY-14 @ 18:32 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	352		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	57		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	310		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	76.5		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	10.6		1.0	%	27-MAY-14	28-MAY-14	R2847446
Lead (Pb)	<5.0		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556
L1460494-12 14-7-3 Sampled By: JC on 20-MAY-14 @ 21:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Toluene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Ethylbenzene	<0.010		0.010	mg/kg	27-MAY-14	28-MAY-14	R2847555
Xylenes	<0.10		0.10	mg/kg	27-MAY-14	28-MAY-14	R2847555
o-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
m+p-Xylene	<0.050		0.050	mg/kg	27-MAY-14	28-MAY-14	R2847555
Surrogate: 1,4-Difluorobenzene	110.7		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 4-Bromofluorobenzene	82.1		70-130	%	27-MAY-14	28-MAY-14	R2847555
Surrogate: 3,4-Dichlorotoluene	85.4		70-130	%	27-MAY-14	28-MAY-14	R2847555
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	27-MAY-14	29-MAY-14	R2847924
TEH (C23-C60)	<100		100	mg/kg	27-MAY-14	29-MAY-14	R2847924
Chrom. to baseline at nC50	YES		0		27-MAY-14	29-MAY-14	R2847924
Surrogate: 2-Bromobenzotrifluoride	73.0		70-130	%	27-MAY-14	29-MAY-14	R2847924
Miscellaneous Parameters							
% Moisture	13.6		1.0	%	27-MAY-14	28-MAY-14	R2847446
MUST PSA % > 75um	95.9		0.10	%	28-MAY-14	28-MAY-14	R2848294
Lead (Pb)	<5.0		5.0	mg/kg wwt	28-MAY-14	28-MAY-14	R2847556

* 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
SDO:RNA	Surrogate diluted out:% recovery not available

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ETL-BTX,TVH-CCME-SK	Soil	CCME BTEX	CCME CWS-PHC DEC-2000 - PUB 1310

Fraction F1, C6 - C10 Hydrocarbons, is determined by extracting a 5 gram soil sample with methanol, separating the methanol from the soil, then adding the methanol extract to a purge-and-trap unit for release of volatile organics. The volatile organics are separated by gas chromatography using a 100% poly(dimethylsiloxane)column, with BTEX components quantified by MSD and the F1 range quantified using a flame ionization detector.

Note: The result of a BTEX analysis is subtracted to give the final result.

Reference: Modified EPA SW846 Methods 5030/ 8260, CCME CSW PHC Dec 2000

ETL-TVH,TEH-CCME-SK	Soil	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB 1310
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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.

PB-MUST-SK	Soil	Lead (Pb)	SW846/3050/6010B
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Lead in soil is converted to soluble form by wet oxidation using a combination of nitric acid, hydrogen peroxide and hydrochloric acid. Lead in the extract is determined using ICP-OES.

PREP-MOISTURE-SK	Soil	% Moisture	Oven dry 105C-Gravimetric
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The weighed portion of soil is placed in a 105°C oven overnight. The dried soil is allowed to cooled to room temperature, weighed and the % moisture is calculated.

Reference: ASTM D2216-80

PSA-MUST-SK	Soil	% Particles > 75um (Coarse/Fine)	ASTM D422-63-SIEVE
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An air-dried sample is reduced to < 2 mm size and mixed with a dispersing agent (Calgon solution). The sample is washed through a 200 mesh (75 µm) sieve. The retained mass of sample is used to determine % sand fraction.

Reference: ASTM D422-63

TEH-TMB-SK	Soil	Extractable Hydrocarbons. Tumbler/GC-FID	CWS-PHC DEC 2000 (SOIL)
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This analysis is carried out in accordance with the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." For C10 to C50 hydrocarbons (F2, F3, F4) and gravimetric heavy hydrocarbons (F4G-sg), a subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extractor. The extract undergoes a silica-gel clean-up to remove polar compounds. F2, F3 & F4 are analyzed by on-column GC/FID, and F4G-sg is analyzed gravimetrically.

** ALS test methods may incorporate modifications from specified reference methods to improve performance.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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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

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.

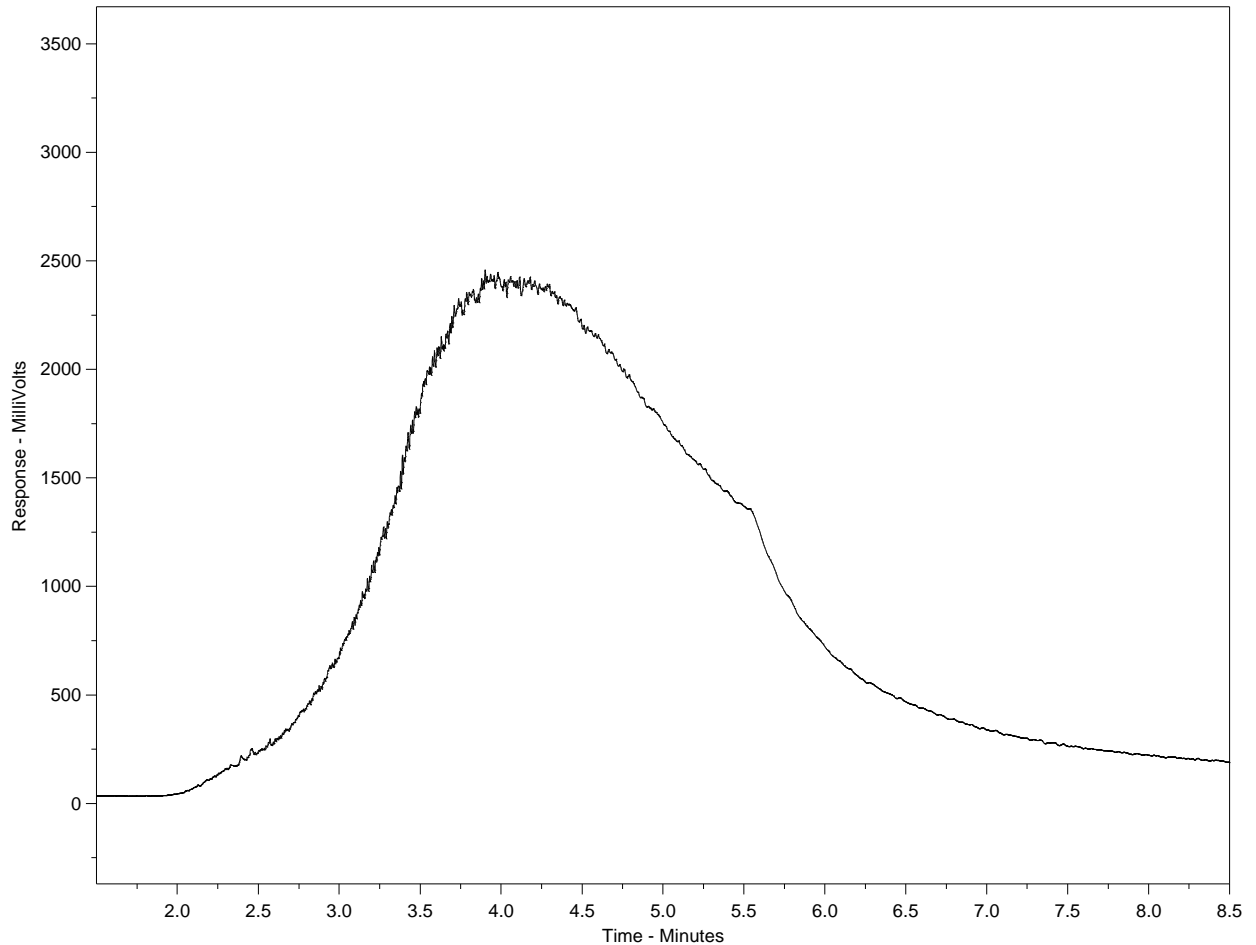
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1460494-2
Client ID: 14-6 AND 14-7 SURFACE SAMPLE



← 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.



L1460494-COFC

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

COC # _____

Page 1 of 1

Form containing sections for: Report Format / Distribution, Service Requested, Analysis Request, Client / Project Information, Lab Work Order #, and a large table for Sample Identification with columns for Date, Time, Sample Type, and various analysis parameters.



PINTER AND ASSOCIATES LTD.
ATTN: JESSICA CUTTER
710A 48th Street East
Saskatoon SK S7K 5B4

Date Received: 27-MAY-14
Report Date: 02-JUN-14 15:31 (MT)
Version: FINAL

Client Phone: 306-244-1710

Certificate of Analysis

Lab Work Order #: L1460722
Project P.O. #: NOT SUBMITTED
Job Reference: 1544-2
C of C Numbers:
Legal Site Desc: SASKATOON, SK

Brian Morgan
Account Manager

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

ADDRESS: #819-58th St E., Saskatoon, SK S7K 6X5 Canada | Phone: +1 306 668 8370 | Fax: +1 306 668 8383
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1460722-1 14-41-3 Sampled By: JC on 24-MAY-14 @ 02:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Toluene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Ethylbenzene	<0.010		0.010	mg/kg	30-MAY-14	02-JUN-14	R2850477
Xylenes	<0.10		0.10	mg/kg	30-MAY-14	02-JUN-14	R2850477
o-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
m+p-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Surrogate: 1,4-Difluorobenzene	117.6		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 4-Bromofluorobenzene	106.3		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 3,4-Dichlorotoluene	75.0		70-130	%	30-MAY-14	02-JUN-14	R2850477
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	<50		50	mg/kg		02-JUN-14	
F4 (C34-C50)	<50		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850300
TEH (C23-C60)	<100		100	mg/kg	29-MAY-14	02-JUN-14	R2850300
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850300
Surrogate: 2-Bromobenzotrifluoride	99.0		70-130	%	29-MAY-14	02-JUN-14	R2850300
Miscellaneous Parameters							
% Moisture	4.4		1.0	%	29-MAY-14	30-MAY-14	R2848760
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-2 14-42-3 Sampled By: JC on 24-MAY-14 @ 02:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Toluene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Ethylbenzene	<0.010		0.010	mg/kg	30-MAY-14	02-JUN-14	R2850477
Xylenes	<0.10		0.10	mg/kg	30-MAY-14	02-JUN-14	R2850477
o-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
m+p-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Surrogate: 1,4-Difluorobenzene	108.5		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 4-Bromofluorobenzene	98.8		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 3,4-Dichlorotoluene	82.8		70-130	%	30-MAY-14	02-JUN-14	R2850477
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	<50		50	mg/kg		02-JUN-14	
F4 (C34-C50)	<50		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850300
TEH (C23-C60)	<100		100	mg/kg	29-MAY-14	02-JUN-14	R2850300
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850300
Surrogate: 2-Bromobenzotrifluoride	93.1		70-130	%	29-MAY-14	02-JUN-14	R2850300

* 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
L1460722-2 14-42-3 Sampled By: JC on 24-MAY-14 @ 02:32 Matrix: SOIL Miscellaneous Parameters							
% Moisture	6.0		1.0	%	29-MAY-14	30-MAY-14	R2848760
Lead (Pb)	6.1		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-3 14-12-3 Sampled By: JC on 21-MAY-14 @ 02:37 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	114.0		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	83.4		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	83.8		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	63		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	63		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	84.1		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	7.9		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-4 14-12-6 Sampled By: JC on 21-MAY-14 @ 02:40 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	106.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	88.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	80.6		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	58		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	

* 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
L1460722-4 14-12-6 Sampled By: JC on 21-MAY-14 @ 02:40 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	58		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	110		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	95.6		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	9.6		1.0	%	28-MAY-14	29-MAY-14	R2847860
MUST PSA % > 75um	42.0		0.10	%	28-MAY-14	28-MAY-14	R2848294
Lead (Pb)	5.2		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-5 14-13-3 Sampled By: JC on 21-MAY-14 @ 03:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	115.0		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	107.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	86.6		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	63		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	63		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	92.7		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	6.6		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-6 14-13-6 Sampled By: JC on 21-MAY-14 @ 04:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655

* 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
L1460722-6 14-13-6 Sampled By: JC on 21-MAY-14 @ 04:32 Matrix: SOIL							
CCME BTEX							
Surrogate: 1,4-Difluorobenzene	108.6		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	85.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	84.1		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	81		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	81		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	110		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	104.4		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	9.9		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	5.1		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-7 14-14-3 Sampled By: JC on 21-MAY-14 @ 05:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	106.9		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	99.9		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	88.8		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	87.4		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	9.8		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-8 14-14-8 Sampled By: JC on 21-MAY-14 @ 06:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							

* 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
L1460722-8 14-14-8							
Sampled By: JC on 21-MAY-14 @ 06:32							
Matrix: SOIL							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	110.2		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	96.5		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	81.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	88.9		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	11.8		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-9 14-15-3							
Sampled By: JC on 21-MAY-14 @ 07:32							
Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	111.1		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	89.4		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	83.8		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	85.1		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							

* 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
L1460722-9 14-15-3 Sampled By: JC on 21-MAY-14 @ 07:32 Matrix: SOIL							
% Moisture	9.7		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-10 14-15-8 Sampled By: JC on 21-MAY-14 @ 07:33 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	110.8		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	90.8		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	86.1		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	85.5		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	7.9		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-11 14-16-2 Sampled By: JC on 21-MAY-14 @ 06:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	112.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	103.0		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	84.4		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	

* 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
L1460722-11 14-16-2 Sampled By: JC on 21-MAY-14 @ 06:32 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	97.5		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	5.4		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-12 14-16-5 Sampled By: JC on 21-MAY-14 @ 09:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	114.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	117.2		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	86.9		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	66		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	66		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	98.7		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	7.8		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	6.3		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-13 14-32-4 Sampled By: JC on 23-MAY-14 @ 10:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Toluene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Ethylbenzene	<0.010		0.010	mg/kg	30-MAY-14	02-JUN-14	R2850477
Xylenes	<0.10		0.10	mg/kg	30-MAY-14	02-JUN-14	R2850477
o-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
m+p-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Surrogate: 1,4-Difluorobenzene	115.5		70-130	%	30-MAY-14	02-JUN-14	R2850477

* 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
L1460722-13 14-32-4 Sampled By: JC on 23-MAY-14 @ 10:35 Matrix: SOIL							
CCME BTEX							
Surrogate: 4-Bromofluorobenzene	97.8		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 3,4-Dichlorotoluene	80.1		70-130	%	30-MAY-14	02-JUN-14	R2850477
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	290		50	mg/kg		02-JUN-14	
F4 (C34-C50)	149		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	439		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	204		50	mg/kg	29-MAY-14	02-JUN-14	R2850300
TEH (C23-C60)	260		100	mg/kg	29-MAY-14	02-JUN-14	R2850300
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850300
Surrogate: 2-Bromobenzotrifluoride	112.7		70-130	%	29-MAY-14	02-JUN-14	R2850300
Miscellaneous Parameters							
% Moisture	14.7		1.0	%	29-MAY-14	30-MAY-14	R2848760
Lead (Pb)	5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-14 14-32-5 Sampled By: JC on 23-MAY-14 @ 11:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Toluene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Ethylbenzene	<0.010		0.010	mg/kg	30-MAY-14	02-JUN-14	R2850477
Xylenes	<0.10		0.10	mg/kg	30-MAY-14	02-JUN-14	R2850477
o-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
m+p-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Surrogate: 1,4-Difluorobenzene	116.6		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 4-Bromofluorobenzene	94.1		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 3,4-Dichlorotoluene	82.3		70-130	%	30-MAY-14	02-JUN-14	R2850477
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	97		50	mg/kg		02-JUN-14	
F4 (C34-C50)	66		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	163		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850300
TEH (C23-C60)	150		100	mg/kg	29-MAY-14	02-JUN-14	R2850300
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850300
Surrogate: 2-Bromobenzotrifluoride	93.6		70-130	%	29-MAY-14	02-JUN-14	R2850300
Miscellaneous Parameters							
% Moisture	7.6		1.0	%	29-MAY-14	30-MAY-14	R2848760
Lead (Pb)	5.2		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-15 14-32-6 Sampled By: JC on 23-MAY-14 @ 12:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							

* 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
L1460722-15 14-32-6 Sampled By: JC on 23-MAY-14 @ 12:35 Matrix: SOIL							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Toluene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Ethylbenzene	<0.010		0.010	mg/kg	30-MAY-14	02-JUN-14	R2850477
Xylenes	<0.10		0.10	mg/kg	30-MAY-14	02-JUN-14	R2850477
o-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
m+p-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Surrogate: 1,4-Difluorobenzene	108.4		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 4-Bromofluorobenzene	100.2		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 3,4-Dichlorotoluene	82.7		70-130	%	30-MAY-14	02-JUN-14	R2850477
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	95		50	mg/kg		02-JUN-14	
F4 (C34-C50)	97		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	192		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850300
TEH (C23-C60)	180		100	mg/kg	29-MAY-14	02-JUN-14	R2850300
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850300
Surrogate: 2-Bromobenzotrifluoride	94.3		70-130	%	29-MAY-14	02-JUN-14	R2850300
Miscellaneous Parameters							
% Moisture	7.6		1.0	%	29-MAY-14	30-MAY-14	R2848760
Lead (Pb)	5.1		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-16 14-31-3 Sampled By: JC on 23-MAY-14 @ 13:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Toluene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Ethylbenzene	<0.010		0.010	mg/kg	30-MAY-14	02-JUN-14	R2850477
Xylenes	<0.10		0.10	mg/kg	30-MAY-14	02-JUN-14	R2850477
o-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
m+p-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Surrogate: 1,4-Difluorobenzene	115.3		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 4-Bromofluorobenzene	98.9		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 3,4-Dichlorotoluene	82.0		70-130	%	30-MAY-14	02-JUN-14	R2850477
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	56		50	mg/kg		02-JUN-14	
F4 (C34-C50)	<50		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	56		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850300
TEH (C23-C60)	100		100	mg/kg	29-MAY-14	02-JUN-14	R2850300
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850300
Surrogate: 2-Bromobenzotrifluoride	89.2		70-130	%	29-MAY-14	02-JUN-14	R2850300
Miscellaneous Parameters							

* 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
L1460722-16 14-31-3 Sampled By: JC on 23-MAY-14 @ 13:35 Matrix: SOIL							
% Moisture	10.3		1.0	%	29-MAY-14	30-MAY-14	R2848760
Lead (Pb)	5.3		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-17 14-31-4 Sampled By: JC on 23-MAY-14 @ 14:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Toluene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Ethylbenzene	<0.010		0.010	mg/kg	30-MAY-14	02-JUN-14	R2850477
Xylenes	<0.10		0.10	mg/kg	30-MAY-14	02-JUN-14	R2850477
o-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
m+p-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Surrogate: 1,4-Difluorobenzene	118.0		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 4-Bromofluorobenzene	81.8		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 3,4-Dichlorotoluene	82.5		70-130	%	30-MAY-14	02-JUN-14	R2850477
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	86		50	mg/kg		02-JUN-14	
F4 (C34-C50)	64		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	150		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850300
TEH (C23-C60)	130		100	mg/kg	29-MAY-14	02-JUN-14	R2850300
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850300
Surrogate: 2-Bromobenzotrifluoride	88.7		70-130	%	29-MAY-14	02-JUN-14	R2850300
Miscellaneous Parameters							
% Moisture	8.3		1.0	%	29-MAY-14	30-MAY-14	R2848760
Lead (Pb)	5.3		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-18 14-20-4 Sampled By: JC on 21-MAY-14 @ 15:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	115.2		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	99.2		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	85.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	

* 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
L1460722-18 14-20-4 Sampled By: JC on 21-MAY-14 @ 15:35 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	92.1		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	10.1		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-19 14-20-6 Sampled By: JC on 21-MAY-14 @ 16:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	114.0		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	99.2		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	84.9		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	134		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	134		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	140		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	72.5		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	6.7		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-20 14-21-2 Sampled By: JC on 21-MAY-14 @ 17:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	106.3		70-130	%	28-MAY-14	29-MAY-14	R2848049

* 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
L1460722-20 14-21-2 Sampled By: JC on 21-MAY-14 @ 17:35 Matrix: SOIL							
CCME BTEX							
Surrogate: 4-Bromofluorobenzene	89.3		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	62.7	SOL:MI	70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	89		30	mg/kg		29-MAY-14	
F3 (C16-C34)	17700		50	mg/kg		29-MAY-14	
F4 (C34-C50)	268		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	18100		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	175		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	18000		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	75.3		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	11.1		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	128		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-21 14-21-6 Sampled By: JC on 21-MAY-14 @ 18:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	111.7		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	95.0		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	82.2		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	124		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	124		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	150		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	74.7		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	8.8		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	5.2		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-22 14-22-3 Sampled By: JC on 21-MAY-14 @ 19:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							

* 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
L1460722-22 14-22-3 Sampled By: JC on 21-MAY-14 @ 19:35 Matrix: SOIL							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	107.5		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	87.0		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	69.8	SOL:MI	70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	15700		50	mg/kg		29-MAY-14	
F4 (C34-C50)	234		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	15900		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	16000		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	78.1		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	8.5		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-23 14-22-6 Sampled By: JC on 21-MAY-14 @ 20:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	114.4		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	110.4		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	84.4		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	215		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	215		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	52		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	200		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	71.6		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							

* 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
L1460722-23 14-22-6 Sampled By: JC on 21-MAY-14 @ 20:35 Matrix: SOIL							
% Moisture	7.4		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	5.1		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-24 14-25-2 Sampled By: JC on 22-MAY-14 @ 02:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	108.0		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	93.5		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	81.8		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	71.0		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	15.1		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	5.1		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-25 14-25-3 Sampled By: JC on 22-MAY-14 @ 02:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	112.7		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	105.0		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	83.5		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	480		50	mg/kg		29-MAY-14	
F4 (C34-C50)	104		50	mg/kg		29-MAY-14	

* 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
L1460722-25 14-25-3 Sampled By: JC on 22-MAY-14 @ 02:32 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	584		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	70		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	520		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	74.0		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	8.8		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-26 14-25-6 Sampled By: JC on 22-MAY-14 @ 02:37 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	107.9		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	90.6		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	79.2		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	67		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	67		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	75.0		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	8.1		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	5.3		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-27 14-27-3 Sampled By: JC on 22-MAY-14 @ 02:40 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	110.3		70-130	%	28-MAY-14	29-MAY-14	R2848049

* 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
L1460722-27 14-27-3 Sampled By: JC on 22-MAY-14 @ 02:40 Matrix: SOIL							
CCME BTEX							
Surrogate: 4-Bromofluorobenzene	100.1		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	87.7		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	70.4		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	10.4		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-28 14-27-6 Sampled By: JC on 22-MAY-14 @ 03:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	109.3		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	112.6		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	87.4		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	73.0		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	8.1		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-29 14-28-3 Sampled By: JC on 22-MAY-14 @ 04:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							

* 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
L1460722-29 14-28-3 Sampled By: JC on 22-MAY-14 @ 04:32 Matrix: SOIL							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	110.5		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	98.9		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	81.2		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	70.4		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	5.5		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-30 14-28-6 Sampled By: JC on 22-MAY-14 @ 02:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	112.9		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	93.4		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	83.6		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	318		50	mg/kg		29-MAY-14	
F4 (C34-C50)	252		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	570		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	113		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	480		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	72.5		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							

* 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
L1460722-30 14-28-6 Sampled By: JC on 22-MAY-14 @ 02:35 Matrix: SOIL							
% Moisture	9.2		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	5.6		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-31 14-29-2 Sampled By: JC on 22-MAY-14 @ 02:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	105.9		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	85.6		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	76.9		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	72.0		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	14.4		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-32 14-29-6 Sampled By: JC on 22-MAY-14 @ 02:37 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	111.4		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	96.4		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	82.5		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	95		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	

* 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
L1460722-32 14-29-6 Sampled By: JC on 22-MAY-14 @ 02:37 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	95		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	130		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	71.0		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	7.8		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-33 14-17-3 Sampled By: JC on 21-MAY-14 @ 02:40 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	107.5		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	83.0		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	54.0	SOL:MI	70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	119		30	mg/kg		30-MAY-14	
F3 (C16-C34)	10700		50	mg/kg		30-MAY-14	
F4 (C34-C50)	3210		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	14000		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	1260		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	13400		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	116.9		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	8.9		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-34 14-17-6 Sampled By: JC on 21-MAY-14 @ 03:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	113.4		70-130	%	28-MAY-14	30-MAY-14	R2848655

* 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
L1460722-34 14-17-6 Sampled By: JC on 21-MAY-14 @ 03:32 Matrix: SOIL							
CCME BTEX							
Surrogate: 4-Bromofluorobenzene	97.9		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	73.0		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	1650		50	mg/kg		30-MAY-14	
F4 (C34-C50)	455		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	2110		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	185		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	1970		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	97.4		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	9.6		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-35 14-17-8 Sampled By: JC on 21-MAY-14 @ 04:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	107.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	99.5		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	79.9		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	80		50	mg/kg		30-MAY-14	
F4 (C34-C50)	53		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	133		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	150		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	91.8		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	8.4		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-36 14-18-5 Sampled By: JC on 21-MAY-14 @ 09:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							

* 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
L1460722-36 14-18-5 Sampled By: JC on 21-MAY-14 @ 09:35 Matrix: SOIL							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	106.8		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	91.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	83.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	65		50	mg/kg		30-MAY-14	
F4 (C34-C50)	51		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	116		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	130		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	93.2		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	8.2		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-37 14-18-6 Sampled By: JC on 21-MAY-14 @ 10:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	115.6		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	102.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	76.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	98		50	mg/kg		30-MAY-14	
F4 (C34-C50)	74		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	172		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	180		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	118.7		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							

* 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
L1460722-37 14-18-6 Sampled By: JC on 21-MAY-14 @ 10:35 Matrix: SOIL							
% Moisture	8.7		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	5.6		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-38 14-19-3 Sampled By: JC on 21-MAY-14 @ 11:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	113.8		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	100.2		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	78.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	84		50	mg/kg		30-MAY-14	
F4 (C34-C50)	61		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	145		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	170		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	118.0		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	10.7		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-39 14-19-4 Sampled By: JC on 21-MAY-14 @ 12:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	110.0		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	91.1		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	82.7		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	

* 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
L1460722-39 14-19-4 Sampled By: JC on 21-MAY-14 @ 12:35 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	85.0		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	9.0		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-40 14-26-3 Sampled By: JC on 22-MAY-14 @ 13:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	106.6		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	92.2		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	99.8		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	315		30	mg/kg		30-MAY-14	
F3 (C16-C34)	3050		50	mg/kg		30-MAY-14	
F4 (C34-C50)	770		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	4140		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	647		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	3490		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	98.4		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	13.3		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848370
L1460722-41 14-26-4 Sampled By: JC on 22-MAY-14 @ 14:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	113.4		70-130	%	28-MAY-14	30-MAY-14	R2849221

* 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
L1460722-41 14-26-4 Sampled By: JC on 22-MAY-14 @ 14:35 Matrix: SOIL							
CCME BTEX							
Surrogate: 4-Bromofluorobenzene	105.5		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	80.9		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	84		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	84		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	96.1		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	8.0		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-42 14-30-3 Sampled By: JC on 22-MAY-14 @ 15:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	118.4		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	93.2		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	84.5		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	94.5		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	10.6		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-43 14-30-5 Sampled By: JC on 22-MAY-14 @ 16:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							

* 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
L1460722-43 14-30-5 Sampled By: JC on 22-MAY-14 @ 16:35 Matrix: SOIL							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	114.2		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	87.2		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	79.4		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	85		50	mg/kg		30-MAY-14	
F4 (C34-C50)	62		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	147		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	130		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	95.8		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	8.3		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-44 14-33-3 Sampled By: JC on 23-MAY-14 @ 17:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Toluene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Ethylbenzene	<0.010		0.010	mg/kg	30-MAY-14	02-JUN-14	R2850477
Xylenes	<0.10		0.10	mg/kg	30-MAY-14	02-JUN-14	R2850477
o-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
m+p-Xylene	<0.050		0.050	mg/kg	30-MAY-14	02-JUN-14	R2850477
Surrogate: 1,4-Difluorobenzene	112.2		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 4-Bromofluorobenzene	90.9		70-130	%	30-MAY-14	02-JUN-14	R2850477
Surrogate: 3,4-Dichlorotoluene	82.4		70-130	%	30-MAY-14	02-JUN-14	R2850477
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	93		50	mg/kg		02-JUN-14	
F4 (C34-C50)	<50		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	93		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850300
TEH (C23-C60)	130		100	mg/kg	29-MAY-14	02-JUN-14	R2850300
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850300
Surrogate: 2-Bromobenzotrifluoride	94.0		70-130	%	29-MAY-14	02-JUN-14	R2850300
Miscellaneous Parameters							

* 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
L1460722-44 14-33-3 Sampled By: JC on 23-MAY-14 @ 17:35 Matrix: SOIL							
% Moisture	18.9		1.0	%	29-MAY-14	30-MAY-14	R2848760
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-45 14-34-1 Sampled By: JC on 23-MAY-14 @ 18:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Toluene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Ethylbenzene	<0.010		0.010	mg/kg	29-MAY-14	30-MAY-14	R2849224
Xylenes	<0.10		0.10	mg/kg	29-MAY-14	30-MAY-14	R2849224
o-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
m+p-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Surrogate: 1,4-Difluorobenzene	108.6		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 4-Bromofluorobenzene	101.5		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 3,4-Dichlorotoluene	75.1		70-130	%	29-MAY-14	30-MAY-14	R2849224
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	139		50	mg/kg		02-JUN-14	
F4 (C34-C50)	64		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	203		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	112		50	mg/kg	29-MAY-14	02-JUN-14	R2850260
TEH (C23-C60)	110		100	mg/kg	29-MAY-14	02-JUN-14	R2850260
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850260
Surrogate: 2-Bromobenzotrifluoride	92.2		70-130	%	29-MAY-14	02-JUN-14	R2850260
Miscellaneous Parameters							
% Moisture	10.8		1.0	%	29-MAY-14	30-MAY-14	R2848763
Lead (Pb)	42.8		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-46 14-34-3 Sampled By: JC on 23-MAY-14 @ 19:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Toluene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Ethylbenzene	<0.010		0.010	mg/kg	29-MAY-14	30-MAY-14	R2849224
Xylenes	<0.10		0.10	mg/kg	29-MAY-14	30-MAY-14	R2849224
o-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
m+p-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Surrogate: 1,4-Difluorobenzene	106.4		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 4-Bromofluorobenzene	86.2		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 3,4-Dichlorotoluene	51.3	SOL:MI	70-130	%	29-MAY-14	30-MAY-14	R2849224
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	3480		50	mg/kg		02-JUN-14	
F4 (C34-C50)	582		50	mg/kg		02-JUN-14	

* 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
L1460722-46 14-34-3 Sampled By: JC on 23-MAY-14 @ 19:35 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	4060		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	464		50	mg/kg	29-MAY-14	02-JUN-14	R2850260
TEH (C23-C60)	3620		100	mg/kg	29-MAY-14	02-JUN-14	R2850260
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850260
Surrogate: 2-Bromobenzotrifluoride	88.8		70-130	%	29-MAY-14	02-JUN-14	R2850260
Miscellaneous Parameters							
% Moisture	13.2		1.0	%	29-MAY-14	30-MAY-14	R2848763
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-47 14-35-3 Sampled By: JC on 23-MAY-14 @ 02:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	0.245		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	0.77		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	0.454		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	0.316		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	110.2		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	99.5		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	140.4	SOL:MI	70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	149		10	mg/kg		30-MAY-14	
F1-BTEX	148		10	mg/kg		30-MAY-14	
F2 (C10-C16)	4000		30	mg/kg		30-MAY-14	
F3 (C16-C34)	21500		50	mg/kg		30-MAY-14	
F4 (C34-C50)	388		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	26000		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	6460		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	19400		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	142.6	SOL:MI	70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	15.4		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	5.4		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-48 14-35-6 Sampled By: JC on 23-MAY-14 @ 02:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	115.8		70-130	%	28-MAY-14	30-MAY-14	R2849221

* 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
L1460722-48 14-35-6 Sampled By: JC on 23-MAY-14 @ 02:32 Matrix: SOIL							
CCME BTEX							
Surrogate: 4-Bromofluorobenzene	118.8		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	81.6		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	105		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	105		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	150		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	95.2		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	7.7		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	5.1		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-49 14-36-1 Sampled By: JC on 23-MAY-14 @ 02:37 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	110.7		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	96.0		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	77.6		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	102.5		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	15.7		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-50 14-36-3 Sampled By: JC on 23-MAY-14 @ 02:40 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							

* 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
L1460722-50 14-36-3 Sampled By: JC on 23-MAY-14 @ 02:40 Matrix: SOIL							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	0.110		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	0.61		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	0.333		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	0.278		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	106.9		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	101.1		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	196.0	SOL:MI	70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	111		10	mg/kg		30-MAY-14	
F1-BTEX	110		10	mg/kg		30-MAY-14	
F2 (C10-C16)	12900		30	mg/kg		30-MAY-14	
F3 (C16-C34)	3850		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	16900		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	15500		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	1350		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	115.6		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	11.3		1.0	%	28-MAY-14	29-MAY-14	R2848219
MUST PSA % > 75um	91.8		0.10	%	28-MAY-14	28-MAY-14	R2848294
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-51 14-36-6 Sampled By: JC on 23-MAY-14 @ 03:32 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	114.5		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	104.0		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	85.6		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	140		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	140		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	52		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	140		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	96.2		70-130	%	28-MAY-14	30-MAY-14	R2848863

* 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
L1460722-51 14-36-6 Sampled By: JC on 23-MAY-14 @ 03:32 Matrix: SOIL Miscellaneous Parameters							
% Moisture	8.7		1.0	%	28-MAY-14	29-MAY-14	R2848219
MUST PSA % > 75um	64.4		0.10	%	28-MAY-14	28-MAY-14	R2848294
Lead (Pb)	5.4		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-52 14-37-3 Sampled By: JC on 23-MAY-14 @ 04:32 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	0.022		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	104.7		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	91.2		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	224.7	SOL:MI	70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	58		10	mg/kg		30-MAY-14	
F1-BTEX	58		10	mg/kg		30-MAY-14	
F2 (C10-C16)	10200		30	mg/kg		30-MAY-14	
F3 (C16-C34)	2950		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	13200		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	12400		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	700		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	121.5		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	13.0		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-53 14-37-5 Sampled By: JC on 23-MAY-14 @ 02:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	106.8		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	92.5		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	80.7		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	

* 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
L1460722-53 14-37-5 Sampled By: JC on 23-MAY-14 @ 02:35 Matrix: SOIL							
CCME Total Hydrocarbons							
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	89.9		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	7.7		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-54 14-38-3 Sampled By: JC on 22-MAY-14 @ 03:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	113.4		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	86.2		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	85.7		70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		29-MAY-14	
F1-BTEX	<10		10	mg/kg		29-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		29-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	76.0		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	12.9		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	6.8		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-55 14-23-3 Sampled By: JC on 22-MAY-14 @ 04:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	0.065		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049

* 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
L1460722-55 14-23-3 Sampled By: JC on 22-MAY-14 @ 04:35 Matrix: SOIL							
CCME BTEX							
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	118.9		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	100.8		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	230.8	SOL:MI	70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	351		10	mg/kg		29-MAY-14	
F1-BTEX	351		10	mg/kg		29-MAY-14	
F2 (C10-C16)	7040		30	mg/kg		29-MAY-14	
F3 (C16-C34)	1360		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	8750		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	8310		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	130		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	117.6		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							
% Moisture	16.3		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	10.6		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-56 14-23-5 Sampled By: JC on 22-MAY-14 @ 05:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	114.0		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	99.7		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	79.2		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	144		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	144		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	160		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	94.5		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	7.9		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	5.3		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-57 14-24-4 Sampled By: JC on 22-MAY-14 @ 06:35 Matrix: SOIL							

* 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
L1460722-57 14-24-4							
Sampled By: JC on 22-MAY-14 @ 06:35							
Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	0.022		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	117.6		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	110.6		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	99.4		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	31		10	mg/kg		30-MAY-14	
F1-BTEX	31		10	mg/kg		30-MAY-14	
F2 (C10-C16)	545		30	mg/kg		30-MAY-14	
F3 (C16-C34)	155		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	731		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	662		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	115.6		70-130	%	28-MAY-14	30-MAY-14	R2848863
Miscellaneous Parameters							
% Moisture	7.1		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-58 14-24-6							
Sampled By: JC on 22-MAY-14 @ 07:35							
Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2849221
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2849221
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2849221
Surrogate: 1,4-Difluorobenzene	114.8		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 4-Bromofluorobenzene	118.6		70-130	%	28-MAY-14	30-MAY-14	R2849221
Surrogate: 3,4-Dichlorotoluene	85.4		70-130	%	28-MAY-14	30-MAY-14	R2849221
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	52		30	mg/kg		30-MAY-14	
F3 (C16-C34)	91		50	mg/kg		30-MAY-14	
F4 (C34-C50)	56		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	199		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	86		50	mg/kg	28-MAY-14	30-MAY-14	R2848863
TEH (C23-C60)	110		100	mg/kg	28-MAY-14	30-MAY-14	R2848863
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848863
Surrogate: 2-Bromobenzotrifluoride	98.8		70-130	%	28-MAY-14	30-MAY-14	R2848863

* 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
L1460722-58 14-24-6 Sampled By: JC on 22-MAY-14 @ 07:35 Matrix: SOIL Miscellaneous Parameters							
% Moisture	10.7		1.0	%	28-MAY-14	29-MAY-14	R2848219
Lead (Pb)	5.1		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849014
L1460722-59 14-39-2 Sampled By: JC on 24-MAY-14 @ 08:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Toluene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Ethylbenzene	<0.010		0.010	mg/kg	29-MAY-14	30-MAY-14	R2849224
Xylenes	<0.10		0.10	mg/kg	29-MAY-14	30-MAY-14	R2849224
o-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
m+p-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Surrogate: 1,4-Difluorobenzene	106.8		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 4-Bromofluorobenzene	87.3		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 3,4-Dichlorotoluene	80.2		70-130	%	29-MAY-14	30-MAY-14	R2849224
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	<50		50	mg/kg		02-JUN-14	
F4 (C34-C50)	<50		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850260
TEH (C23-C60)	<100		100	mg/kg	29-MAY-14	02-JUN-14	R2850260
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850260
Surrogate: 2-Bromobenzotrifluoride	84.2		70-130	%	29-MAY-14	02-JUN-14	R2850260
Miscellaneous Parameters							
% Moisture	5.6		1.0	%	29-MAY-14	30-MAY-14	R2848763
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-60 14-39-4 Sampled By: JC on 24-MAY-14 @ 09:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Toluene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Ethylbenzene	<0.010		0.010	mg/kg	29-MAY-14	30-MAY-14	R2849224
Xylenes	<0.10		0.10	mg/kg	29-MAY-14	30-MAY-14	R2849224
o-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
m+p-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Surrogate: 1,4-Difluorobenzene	114.4		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 4-Bromofluorobenzene	95.5		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 3,4-Dichlorotoluene	79.2		70-130	%	29-MAY-14	30-MAY-14	R2849224
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	274		50	mg/kg		02-JUN-14	
F4 (C34-C50)	125		50	mg/kg		02-JUN-14	

* 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
L1460722-60 14-39-4 Sampled By: JC on 24-MAY-14 @ 09:35 Matrix: SOIL							
CCME Total Hydrocarbons							
Total Hydrocarbons (C6-C50)	399		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850260
TEH (C23-C60)	390		100	mg/kg	29-MAY-14	02-JUN-14	R2850260
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850260
Surrogate: 2-Bromobenzotrifluoride	94.5		70-130	%	29-MAY-14	02-JUN-14	R2850260
Miscellaneous Parameters							
% Moisture	6.6		1.0	%	29-MAY-14	30-MAY-14	R2848763
Lead (Pb)	5.3		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-61 14-40-4 Sampled By: JC on 24-MAY-14 @ 10:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Toluene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Ethylbenzene	<0.010		0.010	mg/kg	29-MAY-14	30-MAY-14	R2849224
Xylenes	<0.10		0.10	mg/kg	29-MAY-14	30-MAY-14	R2849224
o-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
m+p-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Surrogate: 1,4-Difluorobenzene	108.6		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 4-Bromofluorobenzene	104.8		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 3,4-Dichlorotoluene	229.9	SOL:MI	70-130	%	29-MAY-14	30-MAY-14	R2849224
CCME Total Hydrocarbons							
F1 (C6-C10)	147		10	mg/kg		02-JUN-14	
F1-BTEX	147		10	mg/kg		02-JUN-14	
F2 (C10-C16)	1750		30	mg/kg		02-JUN-14	
F3 (C16-C34)	543		50	mg/kg		02-JUN-14	
F4 (C34-C50)	<50		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	2440		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	2220		50	mg/kg	29-MAY-14	02-JUN-14	R2850260
TEH (C23-C60)	<100		100	mg/kg	29-MAY-14	02-JUN-14	R2850260
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850260
Surrogate: 2-Bromobenzotrifluoride	120.0		70-130	%	29-MAY-14	02-JUN-14	R2850260
Miscellaneous Parameters							
% Moisture	13.8		1.0	%	29-MAY-14	30-MAY-14	R2848763
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-62 14-40-6 Sampled By: JC on 24-MAY-14 @ 11:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Toluene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Ethylbenzene	<0.010		0.010	mg/kg	29-MAY-14	30-MAY-14	R2849224
Xylenes	<0.10		0.10	mg/kg	29-MAY-14	30-MAY-14	R2849224
o-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
m+p-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Surrogate: 1,4-Difluorobenzene	114.7		70-130	%	29-MAY-14	30-MAY-14	R2849224

* 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
L1460722-62 14-40-6 Sampled By: JC on 24-MAY-14 @ 11:35 Matrix: SOIL							
CCME BTEX							
Surrogate: 4-Bromofluorobenzene	96.9		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 3,4-Dichlorotoluene	80.0		70-130	%	29-MAY-14	30-MAY-14	R2849224
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	77		50	mg/kg		02-JUN-14	
F4 (C34-C50)	<50		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	77		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850260
TEH (C23-C60)	120		100	mg/kg	29-MAY-14	02-JUN-14	R2850260
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850260
Surrogate: 2-Bromobenzotrifluoride	84.4		70-130	%	29-MAY-14	02-JUN-14	R2850260
Miscellaneous Parameters							
% Moisture	7.9		1.0	%	29-MAY-14	30-MAY-14	R2848763
Lead (Pb)	5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-63 DUP C Sampled By: JC on 21-MAY-14 @ 02:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	114.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	100.6		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	83.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	<30		30	mg/kg		30-MAY-14	
F3 (C16-C34)	<50		50	mg/kg		30-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	85.1		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	6.1		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-64 DUP D Sampled By: JC on 21-MAY-14 @ 03:35 Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							

* 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
L1460722-64 DUP D							
Sampled By: JC on 21-MAY-14 @ 03:35							
Matrix: SOIL							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Toluene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Ethylbenzene	<0.010		0.010	mg/kg	28-MAY-14	30-MAY-14	R2848655
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	30-MAY-14	R2848655
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	30-MAY-14	R2848655
Surrogate: 1,4-Difluorobenzene	108.3		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 4-Bromofluorobenzene	92.5		70-130	%	28-MAY-14	30-MAY-14	R2848655
Surrogate: 3,4-Dichlorotoluene	52.9	SOL:MI	70-130	%	28-MAY-14	30-MAY-14	R2848655
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		30-MAY-14	
F1-BTEX	<10		10	mg/kg		30-MAY-14	
F2 (C10-C16)	123		30	mg/kg		30-MAY-14	
F3 (C16-C34)	8880		50	mg/kg		30-MAY-14	
F4 (C34-C50)	2690		50	mg/kg		30-MAY-14	
Total Hydrocarbons (C6-C50)	11700		50	mg/kg		30-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	1100		50	mg/kg	28-MAY-14	30-MAY-14	R2848852
TEH (C23-C60)	11000		100	mg/kg	28-MAY-14	30-MAY-14	R2848852
Chrom. to baseline at nC50	YES		0		28-MAY-14	30-MAY-14	R2848852
Surrogate: 2-Bromobenzotrifluoride	103.0		70-130	%	28-MAY-14	30-MAY-14	R2848852
Miscellaneous Parameters							
% Moisture	10.3		1.0	%	28-MAY-14	29-MAY-14	R2847860
Lead (Pb)	<5.0		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-65 DUP E							
Sampled By: JC on 22-MAY-14 @ 04:35							
Matrix: SOIL							
BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Toluene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Ethylbenzene	0.025		0.010	mg/kg	28-MAY-14	29-MAY-14	R2848049
Xylenes	<0.10		0.10	mg/kg	28-MAY-14	29-MAY-14	R2848049
o-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
m+p-Xylene	<0.050		0.050	mg/kg	28-MAY-14	29-MAY-14	R2848049
Surrogate: 1,4-Difluorobenzene	111.1		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 4-Bromofluorobenzene	105.2		70-130	%	28-MAY-14	29-MAY-14	R2848049
Surrogate: 3,4-Dichlorotoluene	229.5	SOL:MI	70-130	%	28-MAY-14	29-MAY-14	R2848049
CCME Total Hydrocarbons							
F1 (C6-C10)	210		10	mg/kg		29-MAY-14	
F1-BTEX	210		10	mg/kg		29-MAY-14	
F2 (C10-C16)	12400		30	mg/kg		29-MAY-14	
F3 (C16-C34)	12000		50	mg/kg		29-MAY-14	
F4 (C34-C50)	<50		50	mg/kg		29-MAY-14	
Total Hydrocarbons (C6-C50)	24600		50	mg/kg		29-MAY-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	24400		50	mg/kg	28-MAY-14	29-MAY-14	R2848150
TEH (C23-C60)	<100		100	mg/kg	28-MAY-14	29-MAY-14	R2848150
Chrom. to baseline at nC50	YES		0		28-MAY-14	29-MAY-14	R2848150
Surrogate: 2-Bromobenzotrifluoride	120.6		70-130	%	28-MAY-14	29-MAY-14	R2848150
Miscellaneous Parameters							

* 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
L1460722-65 DUP E Sampled By: JC on 22-MAY-14 @ 04:35 Matrix: SOIL							
% Moisture	16.3		1.0	%	28-MAY-14	29-MAY-14	R2847862
Lead (Pb)	11.7		5.0	mg/kg wwt	29-MAY-14	29-MAY-14	R2848343
L1460722-66 DUP F Sampled By: JC on 23-MAY-14 @ 05:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Toluene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Ethylbenzene	0.230		0.010	mg/kg	29-MAY-14	30-MAY-14	R2849224
Xylenes	0.81		0.10	mg/kg	29-MAY-14	30-MAY-14	R2849224
o-Xylene	0.466		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
m+p-Xylene	0.339		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Surrogate: 1,4-Difluorobenzene	109.1		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 4-Bromofluorobenzene	100.3		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 3,4-Dichlorotoluene	176.6	SOL:MI	70-130	%	29-MAY-14	30-MAY-14	R2849224
CCME Total Hydrocarbons							
F1 (C6-C10)	163		10	mg/kg		02-JUN-14	
F1-BTEX	162		10	mg/kg		02-JUN-14	
F2 (C10-C16)	4110		30	mg/kg		02-JUN-14	
F3 (C16-C34)	13300		50	mg/kg		02-JUN-14	
F4 (C34-C50)	5270		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	22800		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	6510		50	mg/kg	29-MAY-14	02-JUN-14	R2850260
TEH (C23-C60)	16200		100	mg/kg	29-MAY-14	02-JUN-14	R2850260
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850260
Surrogate: 2-Bromobenzotrifluoride	139.0	SOL:MI	70-130	%	29-MAY-14	02-JUN-14	R2850260
Miscellaneous Parameters							
% Moisture	16.3		1.0	%	29-MAY-14	30-MAY-14	R2848763
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013
L1460722-67 14-12-2 Sampled By: JC on 21-MAY-14 @ 08:35 Matrix: SOIL							
Miscellaneous Parameters							
MUST PSA % > 75um	46.0		0.10	%	28-MAY-14	28-MAY-14	R2848294
L1460722-68 14-15-7 Sampled By: JC on 24-MAY-14 @ 14:35 Matrix: SOIL BTEX, F1-F4 and SK Reg. PHC's.							
CCME BTEX							
Benzene	<0.0050		0.0050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Toluene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Ethylbenzene	<0.010		0.010	mg/kg	29-MAY-14	30-MAY-14	R2849224
Xylenes	<0.10		0.10	mg/kg	29-MAY-14	30-MAY-14	R2849224
o-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
m+p-Xylene	<0.050		0.050	mg/kg	29-MAY-14	30-MAY-14	R2849224
Surrogate: 1,4-Difluorobenzene	108.8		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 4-Bromofluorobenzene	80.0		70-130	%	29-MAY-14	30-MAY-14	R2849224
Surrogate: 3,4-Dichlorotoluene	79.4		70-130	%	29-MAY-14	30-MAY-14	R2849224
CCME Total 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
L1460722-68 14-15-7							
Sampled By: JC on 24-MAY-14 @ 14:35							
Matrix: SOIL							
CCME Total Hydrocarbons							
F1 (C6-C10)	<10		10	mg/kg		02-JUN-14	
F1-BTEX	<10		10	mg/kg		02-JUN-14	
F2 (C10-C16)	<30		30	mg/kg		02-JUN-14	
F3 (C16-C34)	<50		50	mg/kg		02-JUN-14	
F4 (C34-C50)	<50		50	mg/kg		02-JUN-14	
Total Hydrocarbons (C6-C50)	<50		50	mg/kg		02-JUN-14	
Extractable Hydrocarbons. Tumbler/GC-FID							
TEH (C11-C22)	<50		50	mg/kg	29-MAY-14	02-JUN-14	R2850260
TEH (C23-C60)	<100		100	mg/kg	29-MAY-14	02-JUN-14	R2850260
Chrom. to baseline at nC50	YES		0		29-MAY-14	02-JUN-14	R2850260
Surrogate: 2-Bromobenzotrifluoride	92.0		70-130	%	29-MAY-14	02-JUN-14	R2850260
Miscellaneous Parameters							
% Moisture	7.1		1.0	%	29-MAY-14	30-MAY-14	R2848763
Lead (Pb)	<5.0		5.0	mg/kg wwt	30-MAY-14	30-MAY-14	R2849013

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

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
EXTEMP	Samples Received with temperature >15 Degrees C

Sample Parameter Qualifier Key:

Qualifier	Description
SOL:MI	Surrogate recovery outside acceptable limits due to matrix interference

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
ETL-BTX,TVH-CCME-SK	Soil	CCME BTEX	CCME CWS-PHC DEC-2000 - PUB 1310

Fraction F1, C6 - C10 Hydrocarbons, is determined by extracting a 5 gram soil sample with methanol, separating the methanol from the soil, then adding the methanol extract to a purge-and-trap unit for release of volatile organics. The volatile organics are separated by gas chromatography using a 100% poly(dimethylsiloxane)column, with BTEX components quantified by MSD and the F1 range quantified using a flame ionization detector.

Note: The result of a BTEX analysis is subtracted to give the final result.

Reference: Modified EPA SW846 Methods 5030/ 8260, CCME CSW PHC Dec 2000

ALS Test Code	Matrix	Test Description	Method Reference**
ETL-TVH,TEH-CCME-SK	Soil	CCME Total Hydrocarbons	CCME CWS-PHC DEC-2000 - PUB 1310

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.

ALS Test Code	Matrix	Test Description	Method Reference**
PB-MUST-SK	Soil	Lead (Pb)	SW846/3050/6010B

Lead in soil is converted to soluble form by wet oxidation using a combination of nitric acid, hydrogen peroxide and hydrochloric acid. Lead in the extract is determined using ICP-OES.

ALS Test Code	Matrix	Test Description	Method Reference**
PREP-MOISTURE-SK	Soil	% Moisture	Oven dry 105C-Gravimetric

The weighed portion of soil is placed in a 105°C oven overnight. The dried soil is allowed to cooled to room temperature, weighed and the % moisture is calculated.

Reference: ASTM D2216-80

ALS Test Code	Matrix	Test Description	Method Reference**
PSA-MUST-SK	Soil	% Particles > 75um (Coarse/Fine)	ASTM D422-63-SIEVE

An air-dried sample is reduced to < 2 mm size and mixed with a dispersing agent (Calgon solution). The sample is washed through a 200 mesh (75 µm) sieve. The retained mass of sample is used to determine % sand fraction.

Reference: ASTM D422-63

ALS Test Code	Matrix	Test Description	Method Reference**
TEH-TMB-SK	Soil	Extractable Hydrocarbons. Tumbler/GC-FID	CWS-PHC DEC 2000 (SOIL)

This analysis is carried out in accordance with the "Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil - Tier 1 Method, Canadian Council of Ministers of the Environment, December 2000." For C10 to C50 hydrocarbons (F2, F3, F4) and gravimetric heavy hydrocarbons (F4G-sg), a subsample of the sediment/soil is extracted with 1:1 hexane:acetone using a rotary extractor. The extract undergoes a silica-gel clean-up to remove polar compounds. F2, F3 & F4 are analyzed by on-column GC/FID, and F4G-sg is analyzed gravimetrically.

Reference Information

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
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** 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

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.

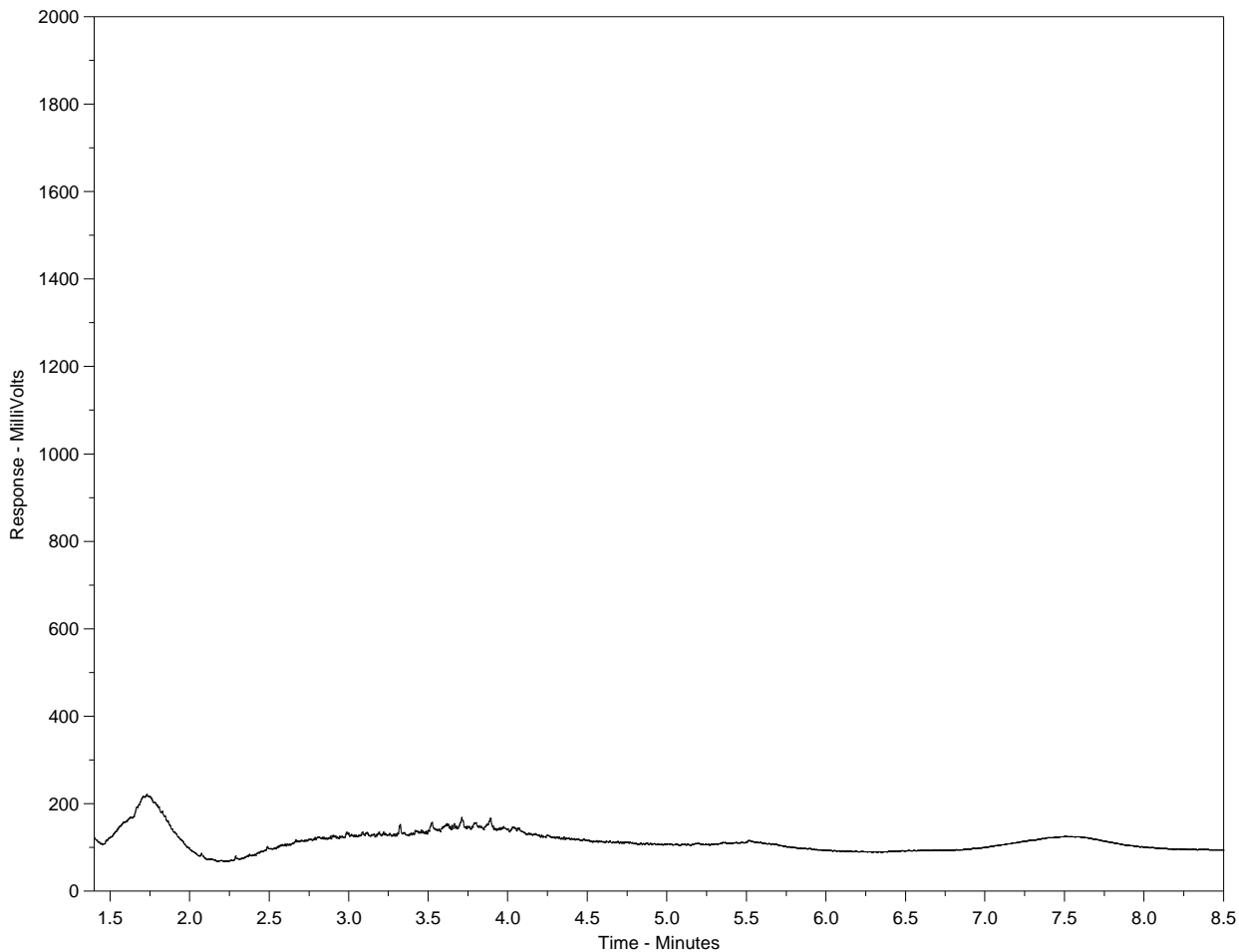
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1460722-3
Client ID: 14-12-3



← 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.

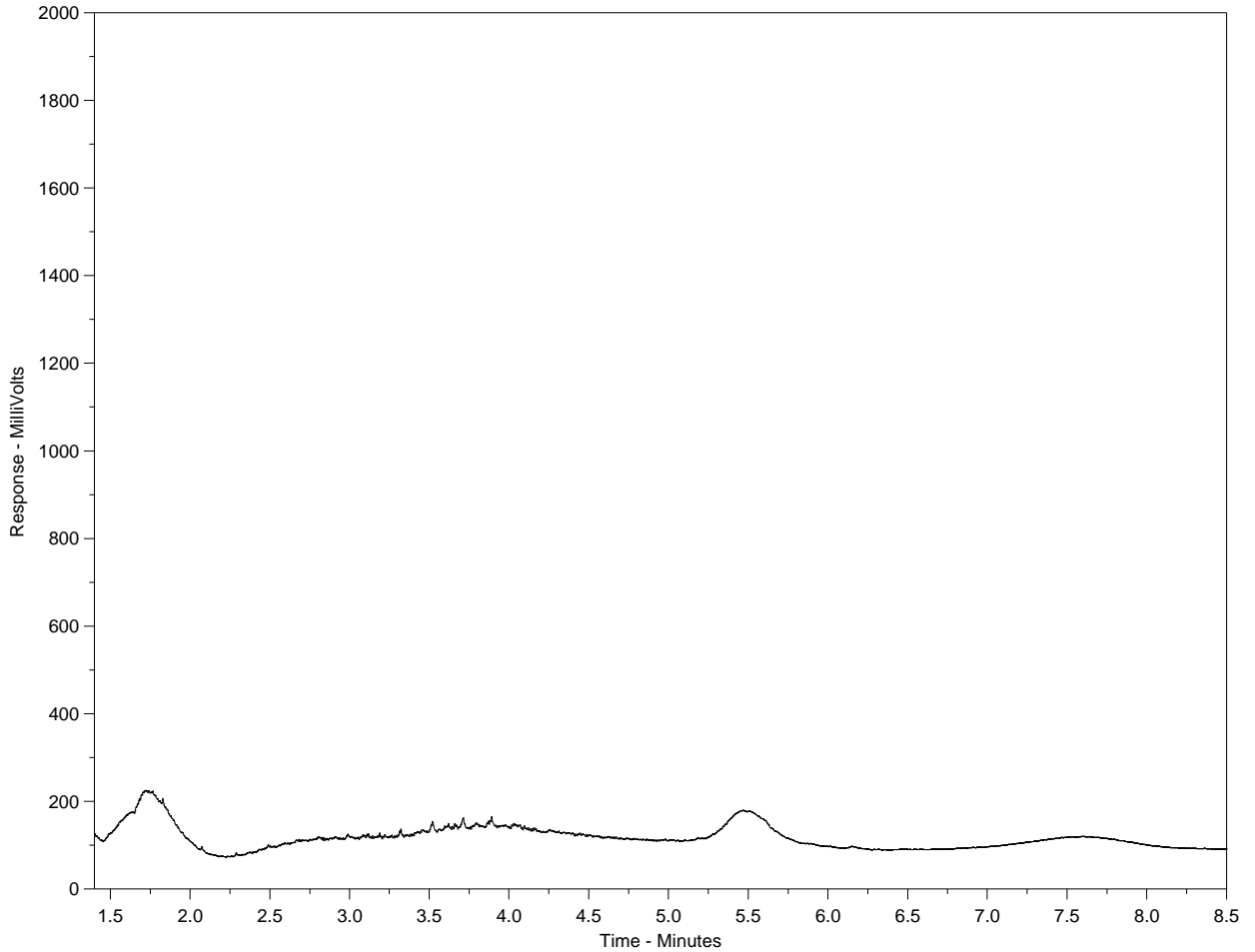
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-4
Client ID: 14-12-6



← 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.

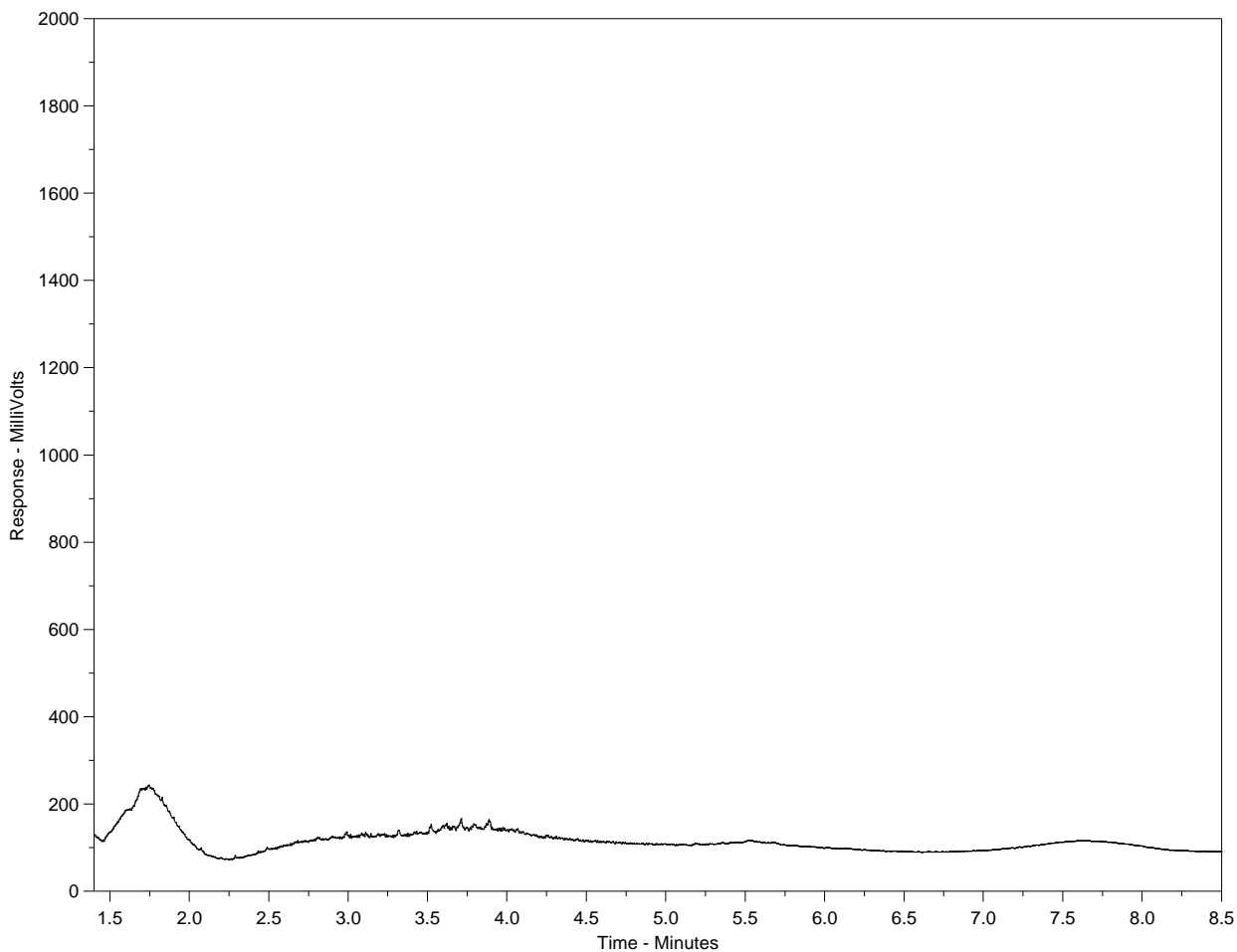
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-5
Client ID: 14-13-3



← 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.

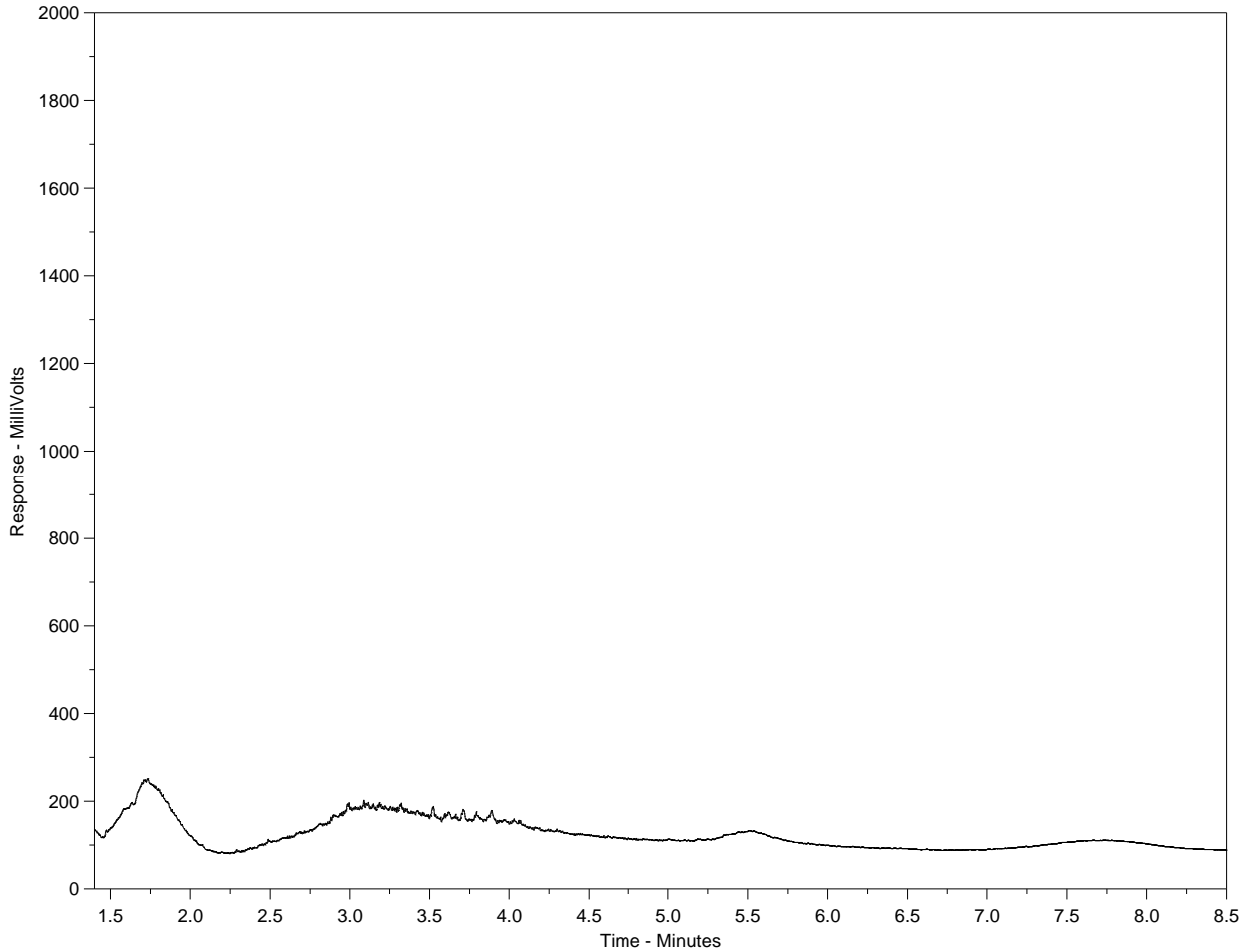
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-6
Client ID: 14-13-6



← 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.

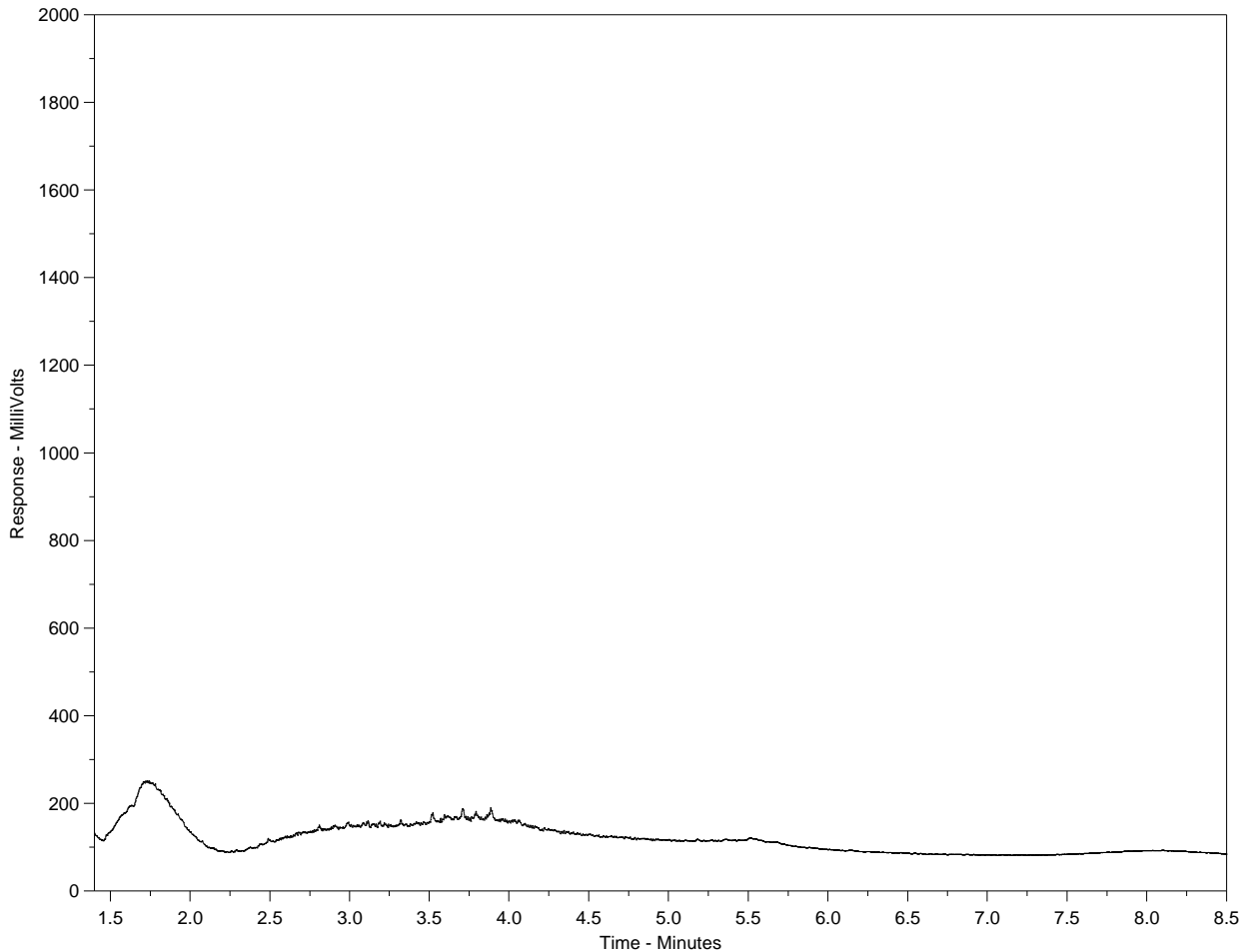
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-12
Client ID: 14-16-5



← 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.

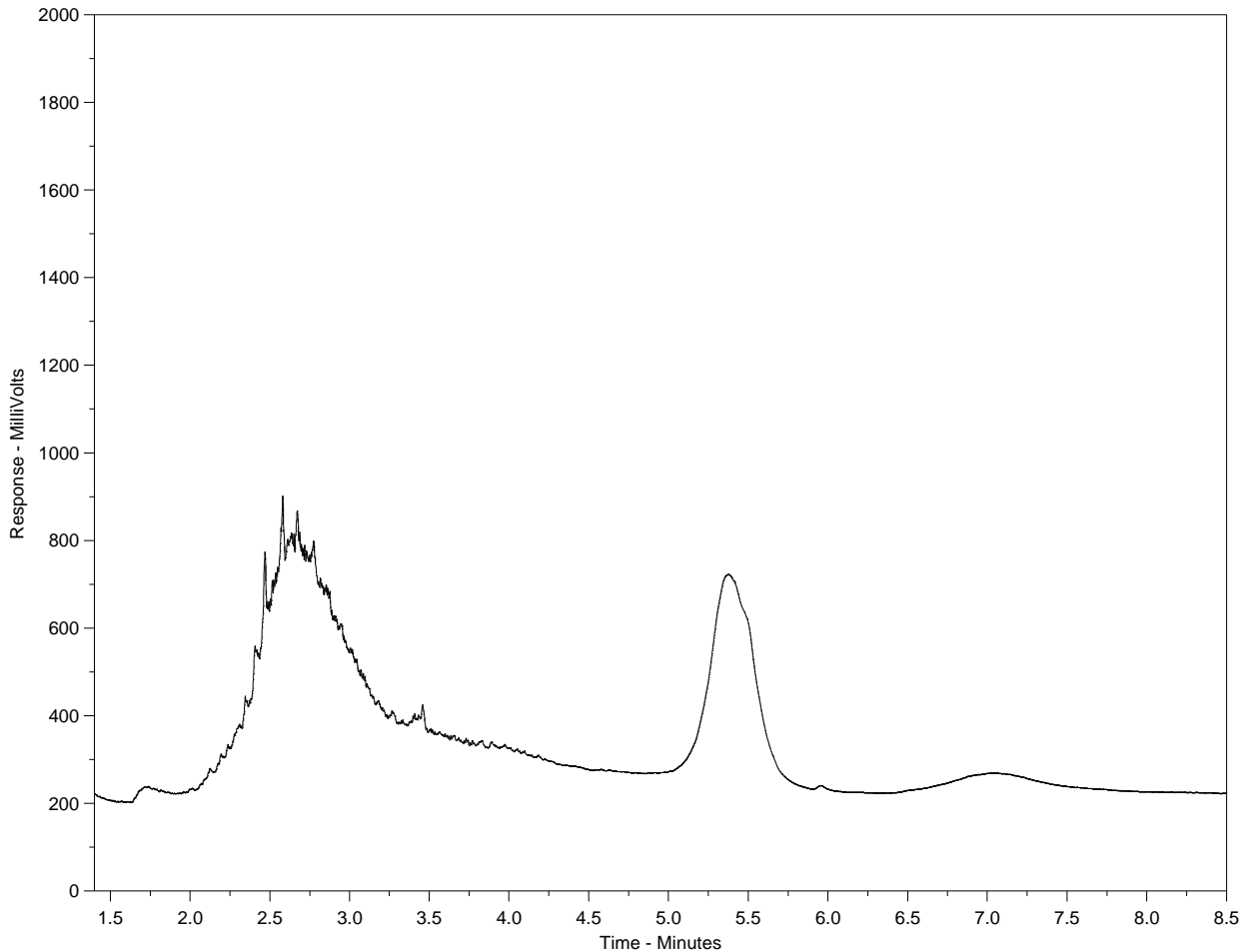
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-13
Client ID: 14-32-4



← 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.

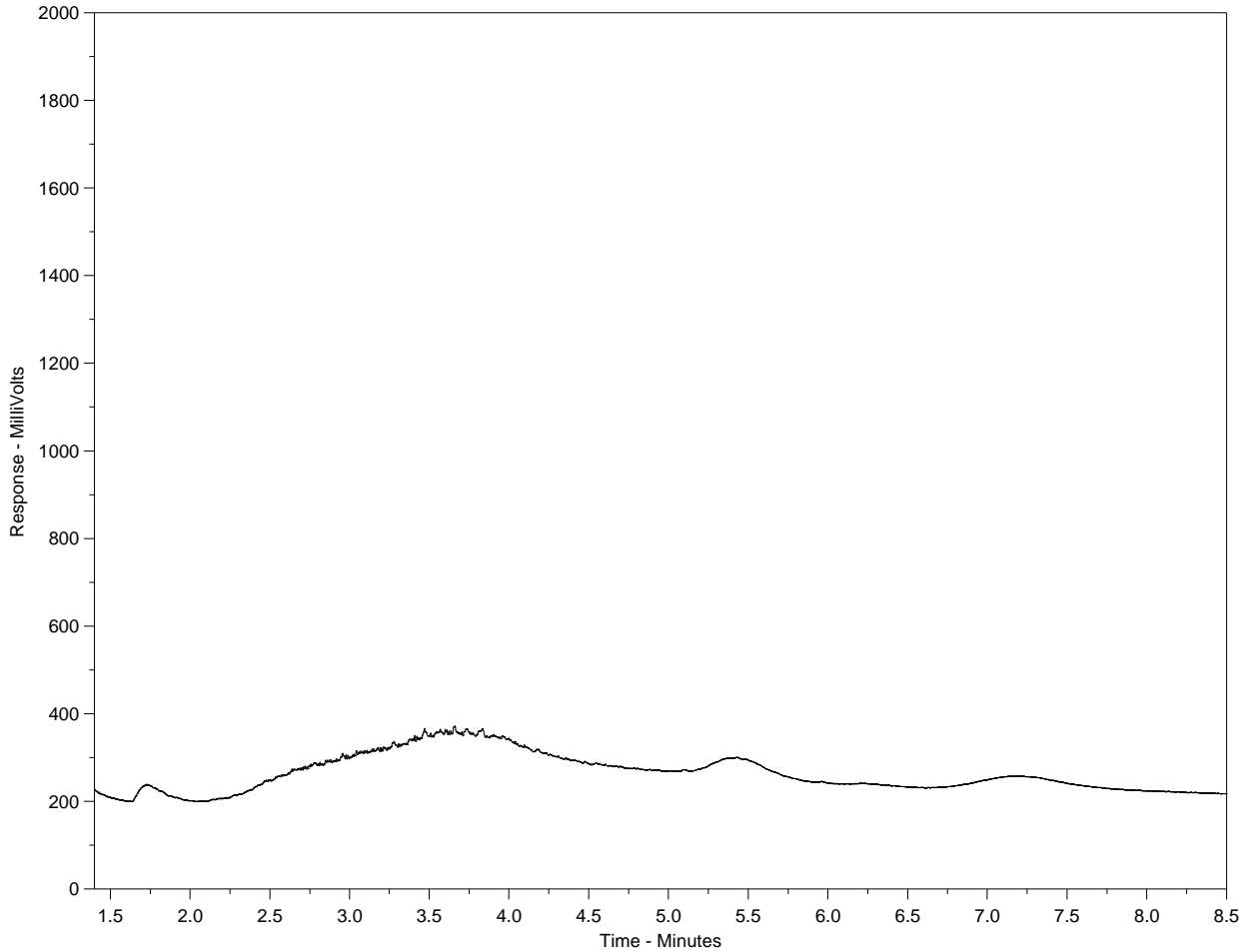
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-14
Client ID: 14-32-5



← 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.

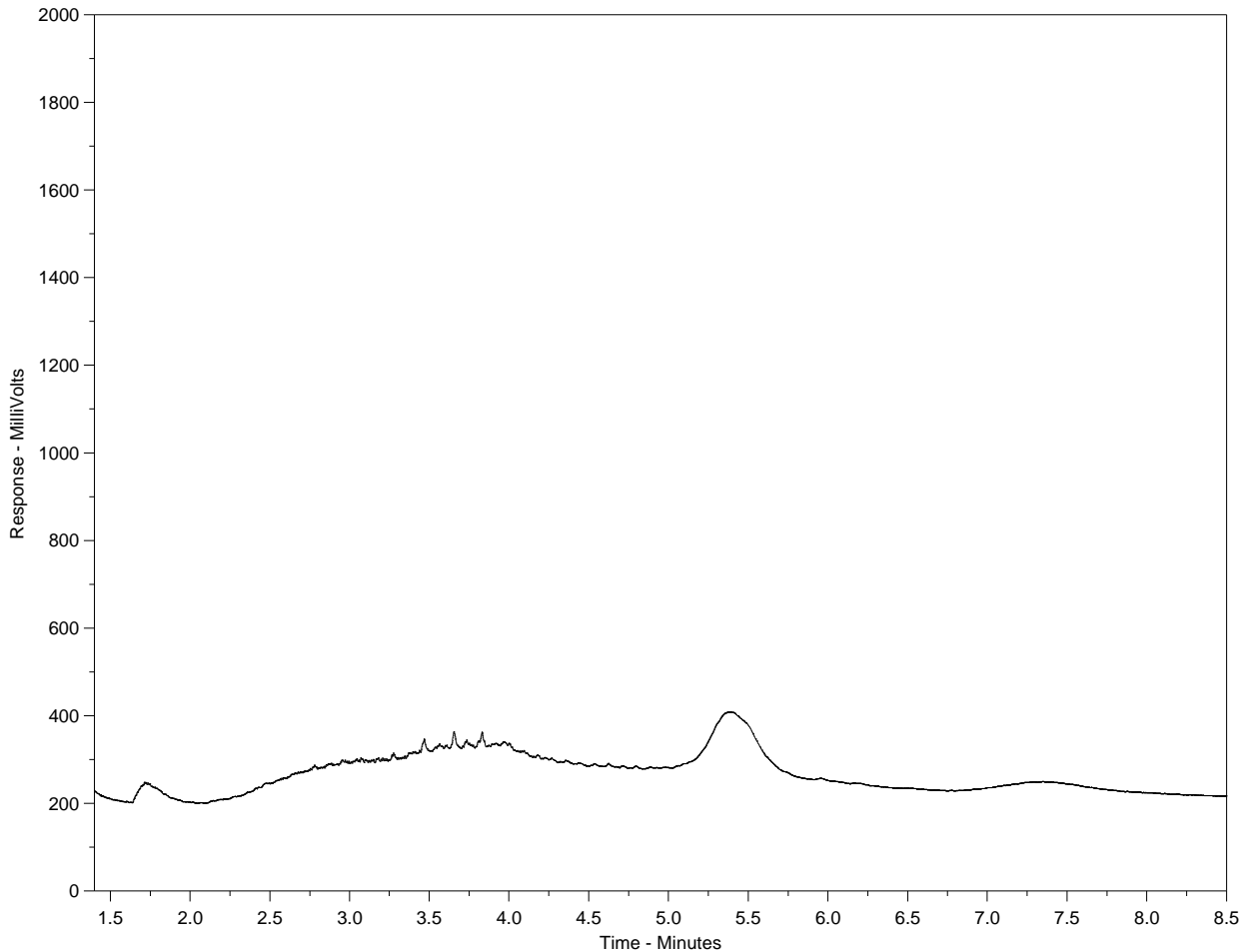
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-15
Client ID: 14-32-6



← 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.

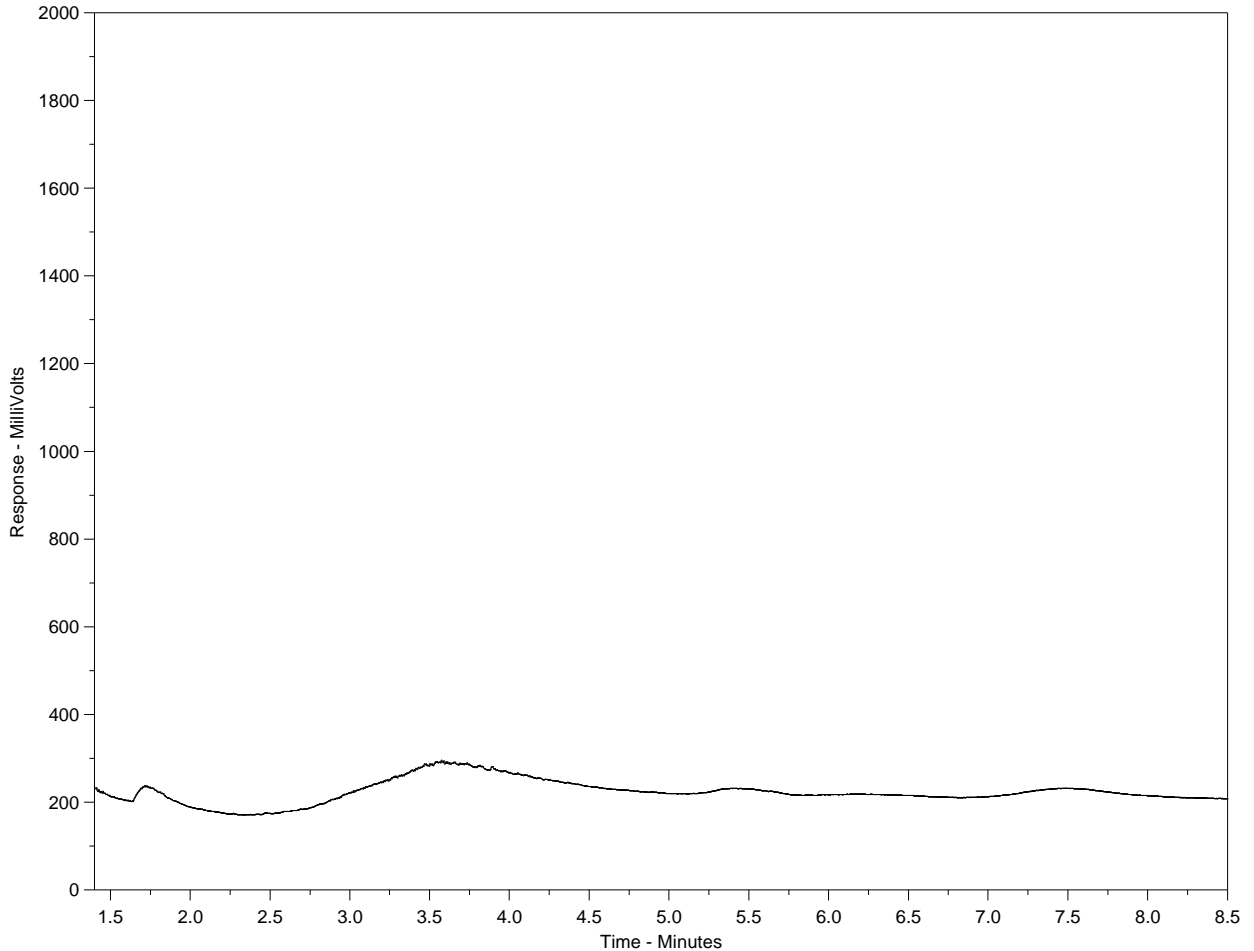
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-16
Client ID: 14-31-3



← 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.

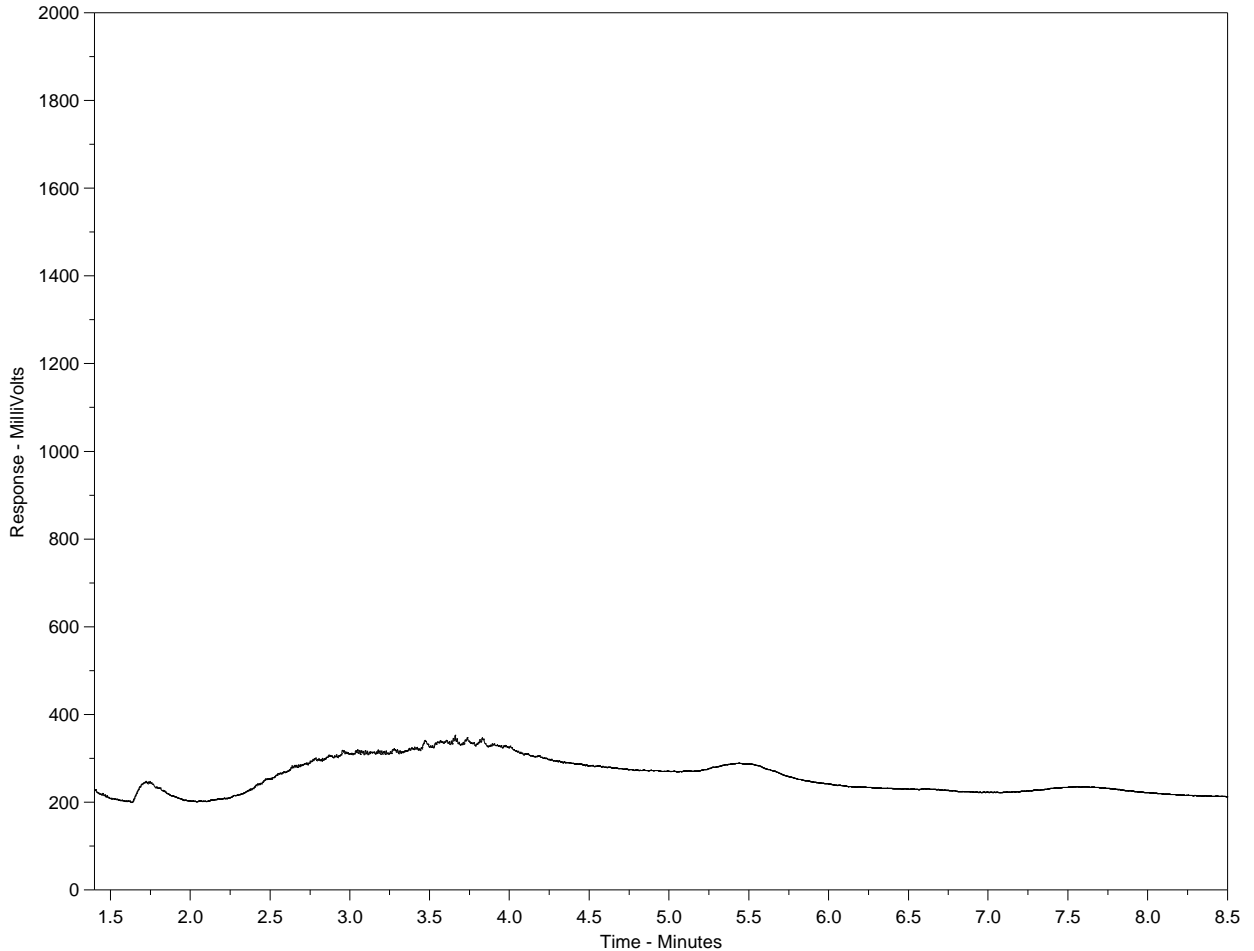
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-17
Client ID: 14-31-4



← 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.

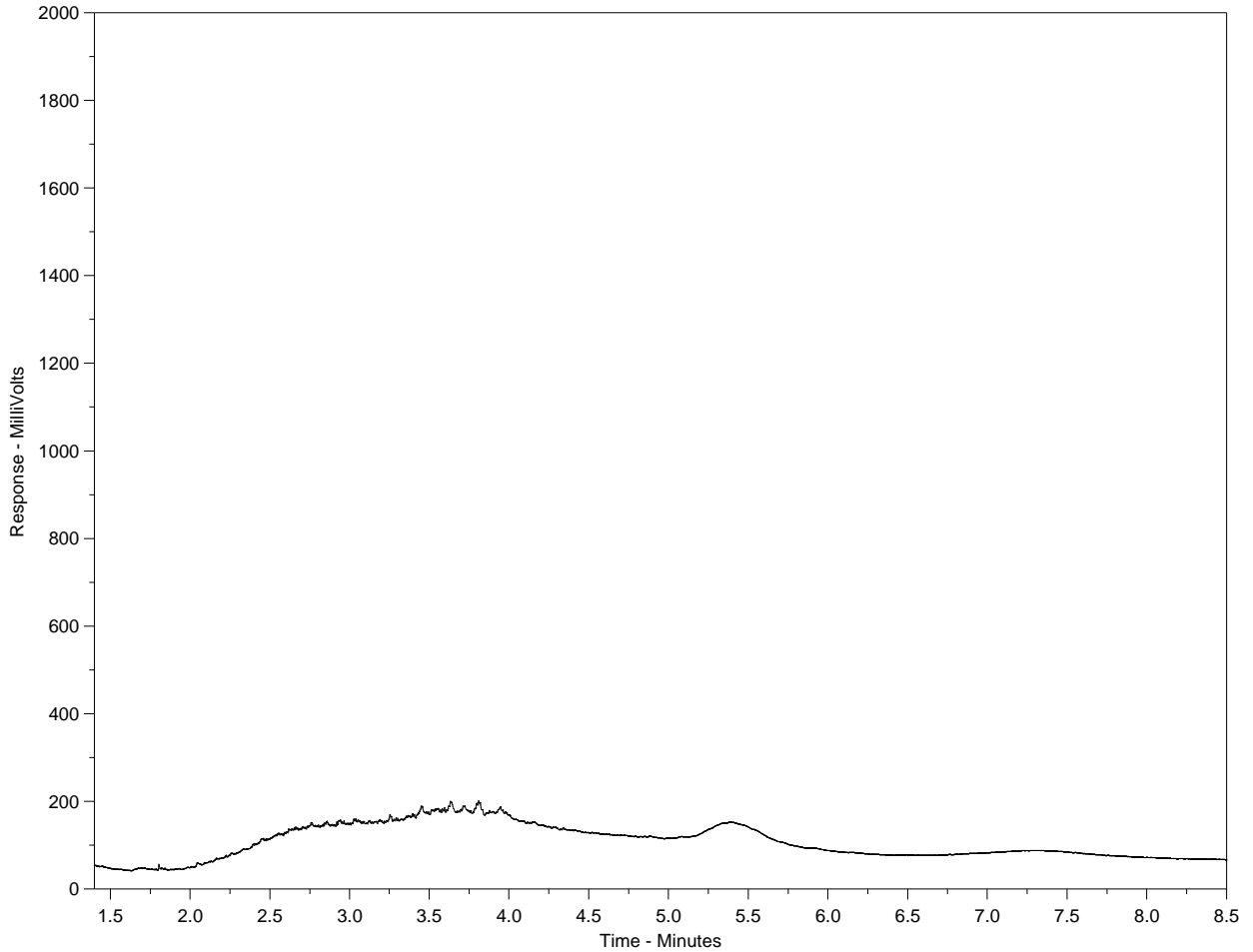
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-19
Client ID: 14-20-6



← 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.

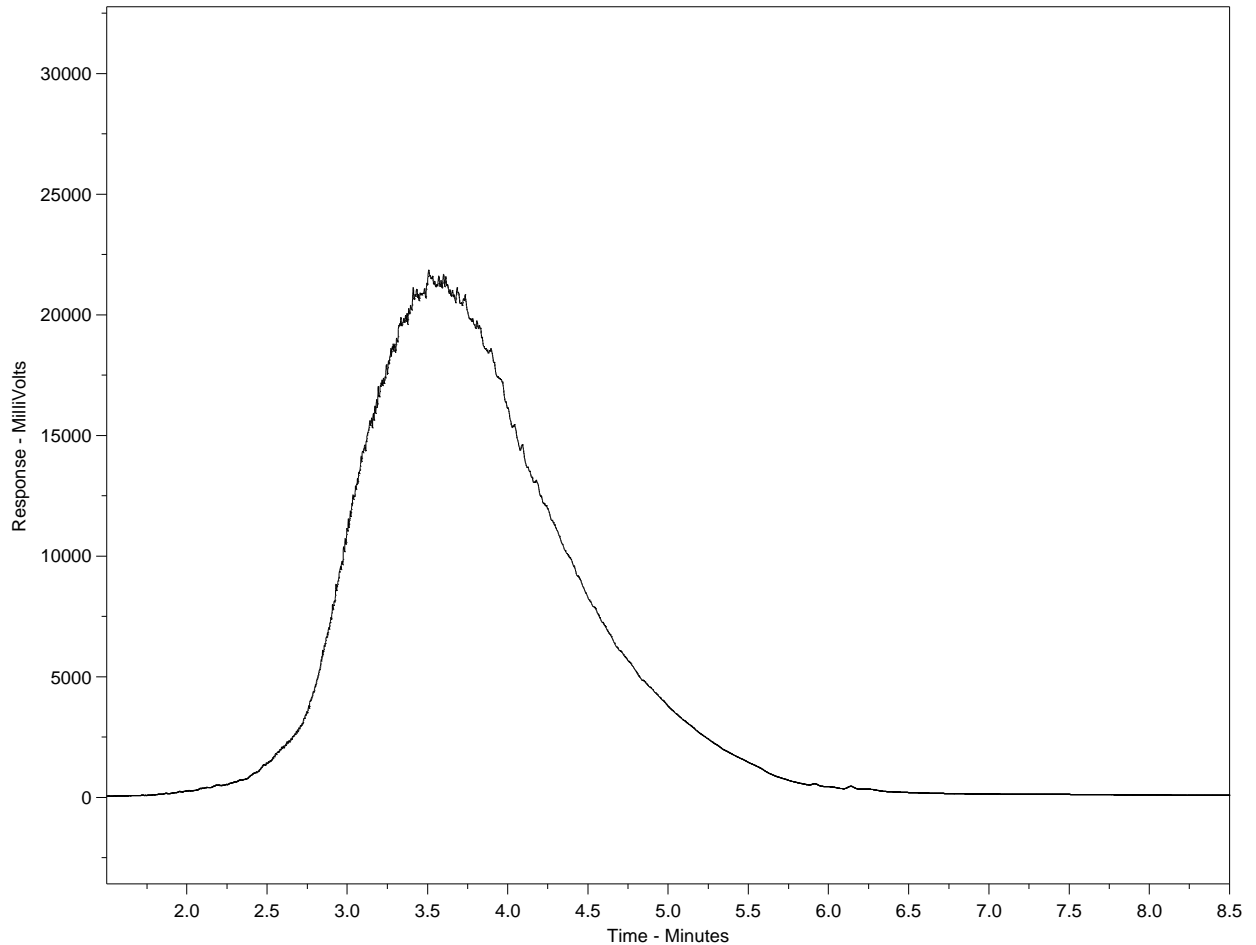
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-20
Client ID: 14-21-2



← 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.

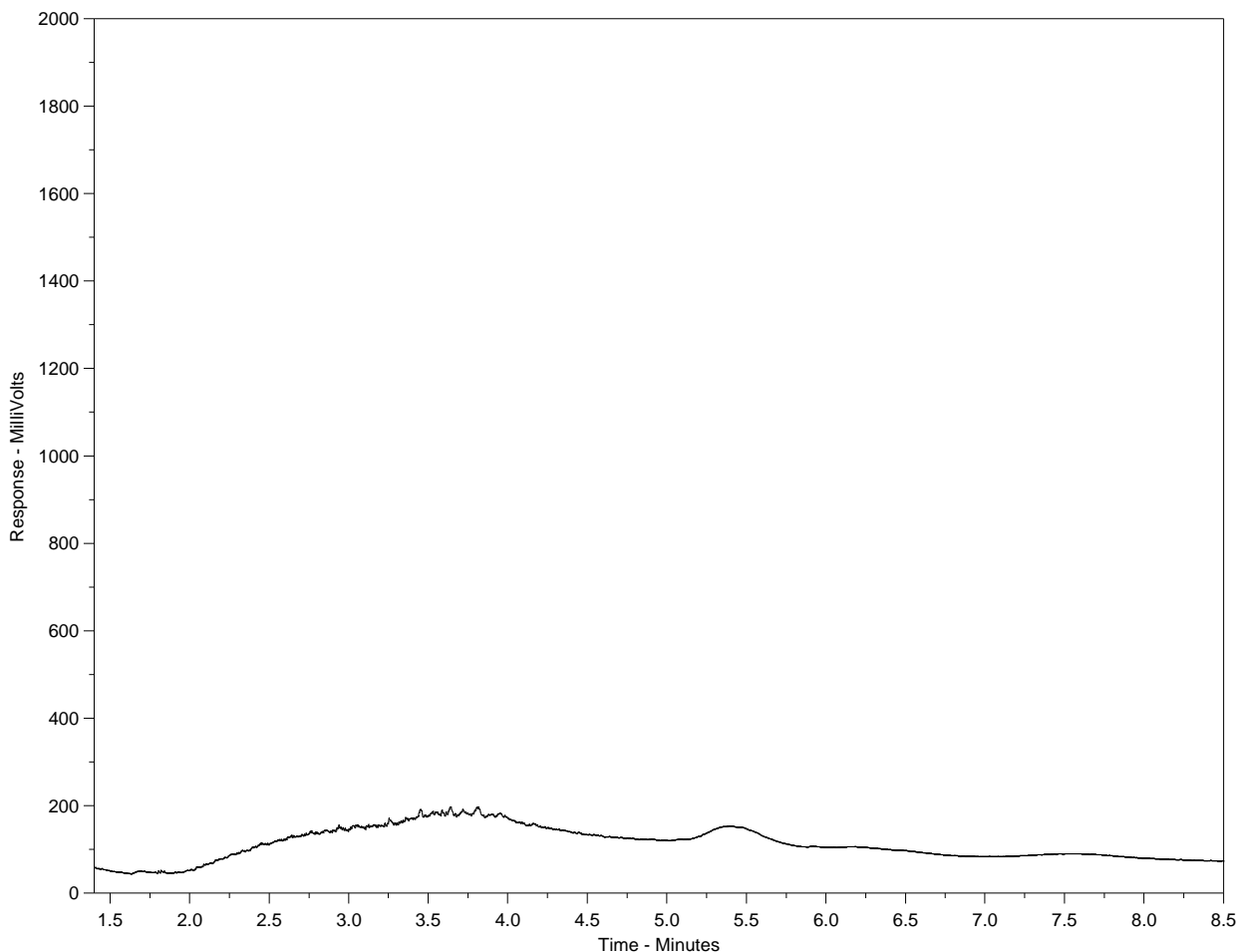
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-21
Client ID: 14-21-6



← 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.

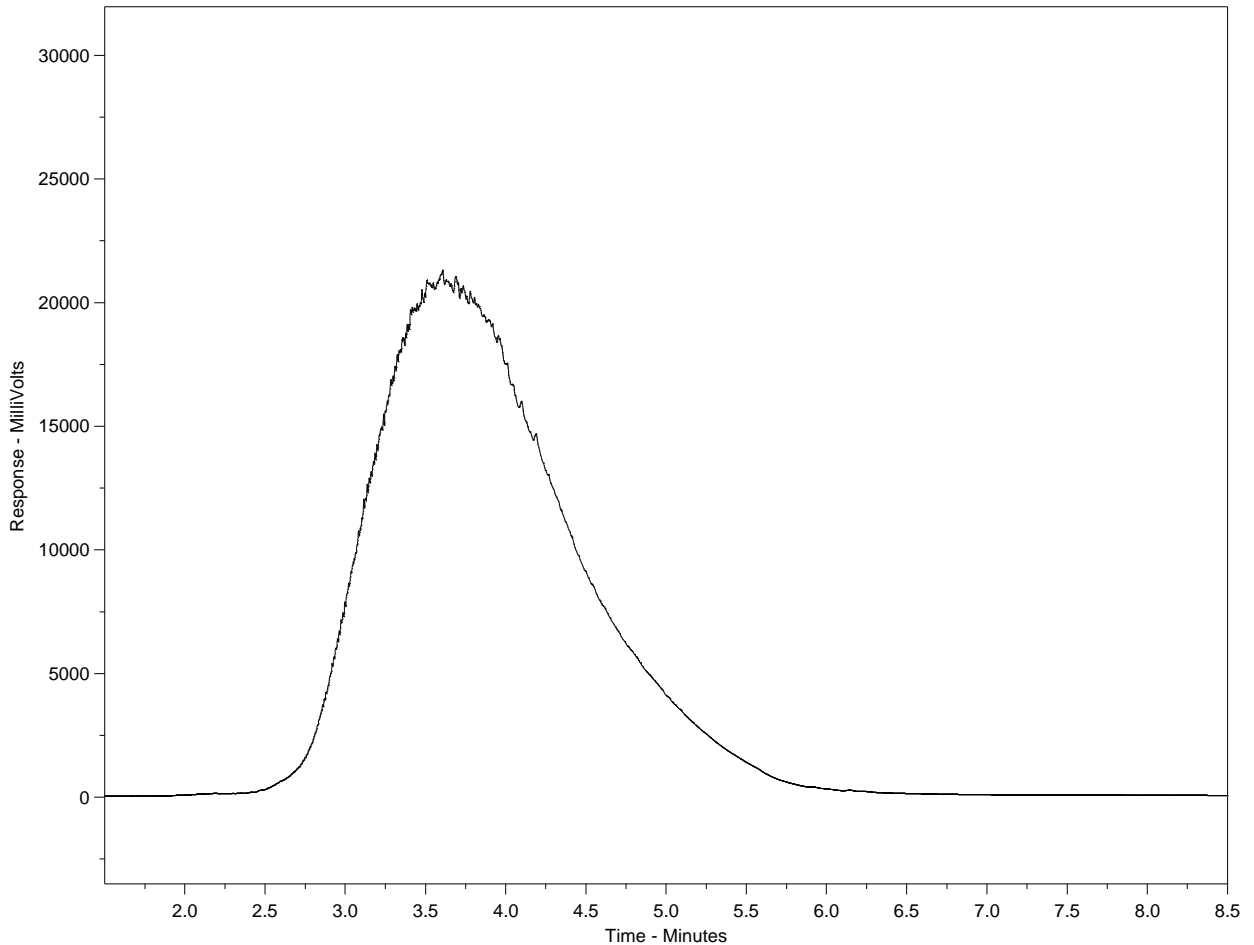
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-22
Client ID: 14-22-3



← 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.

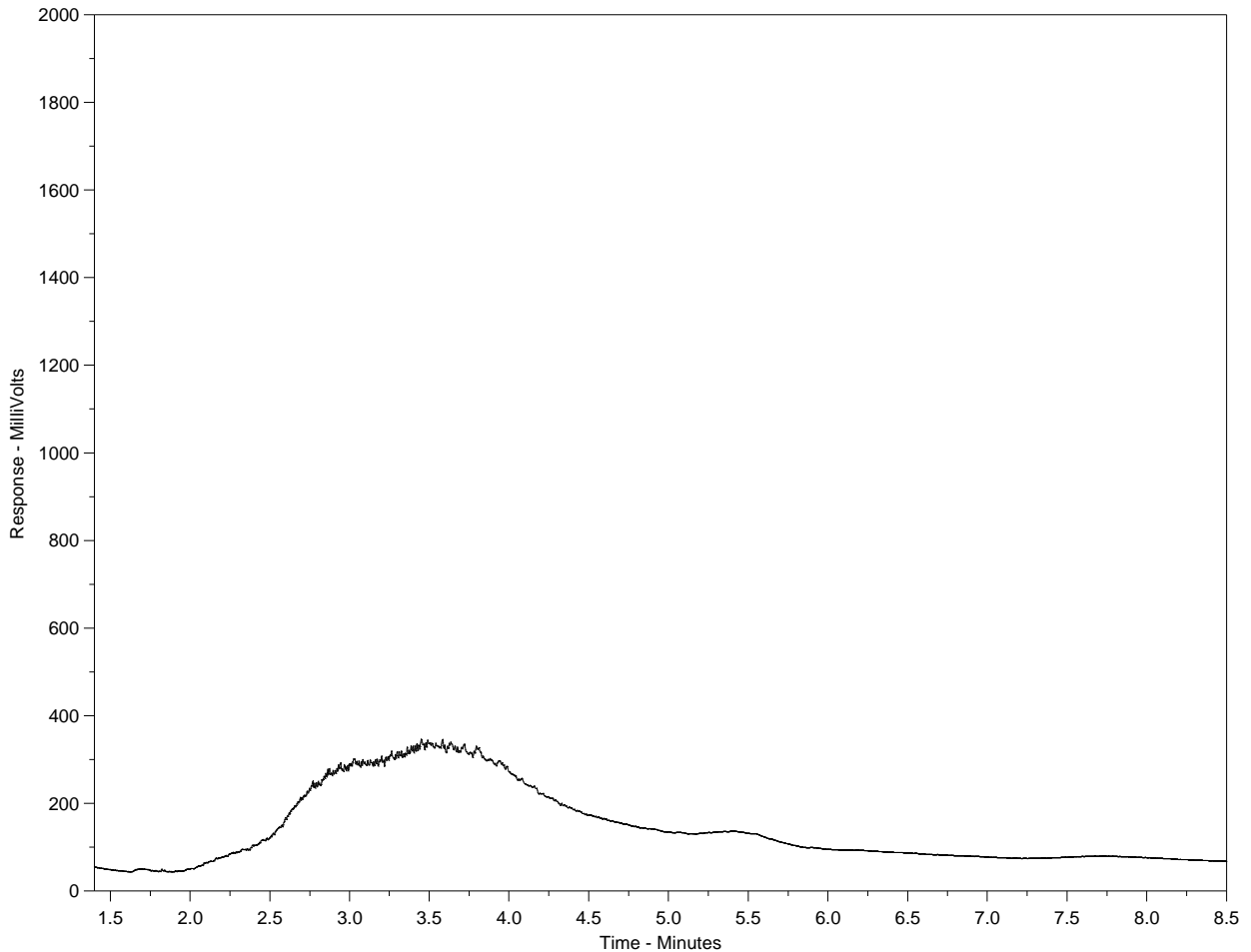
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-23
Client ID: 14-22-6



← 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.

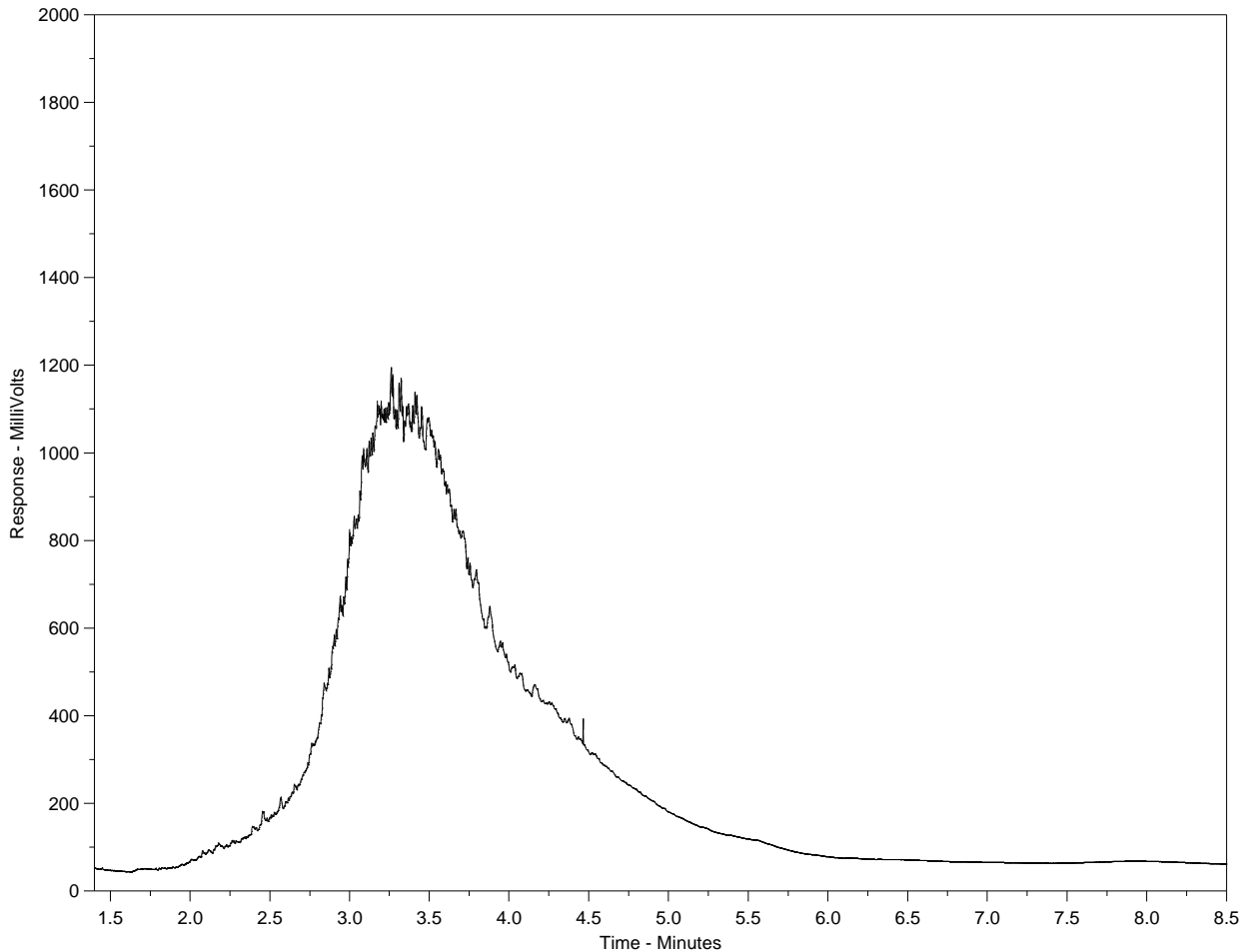
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-25
Client ID: 14-25-3



← 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.

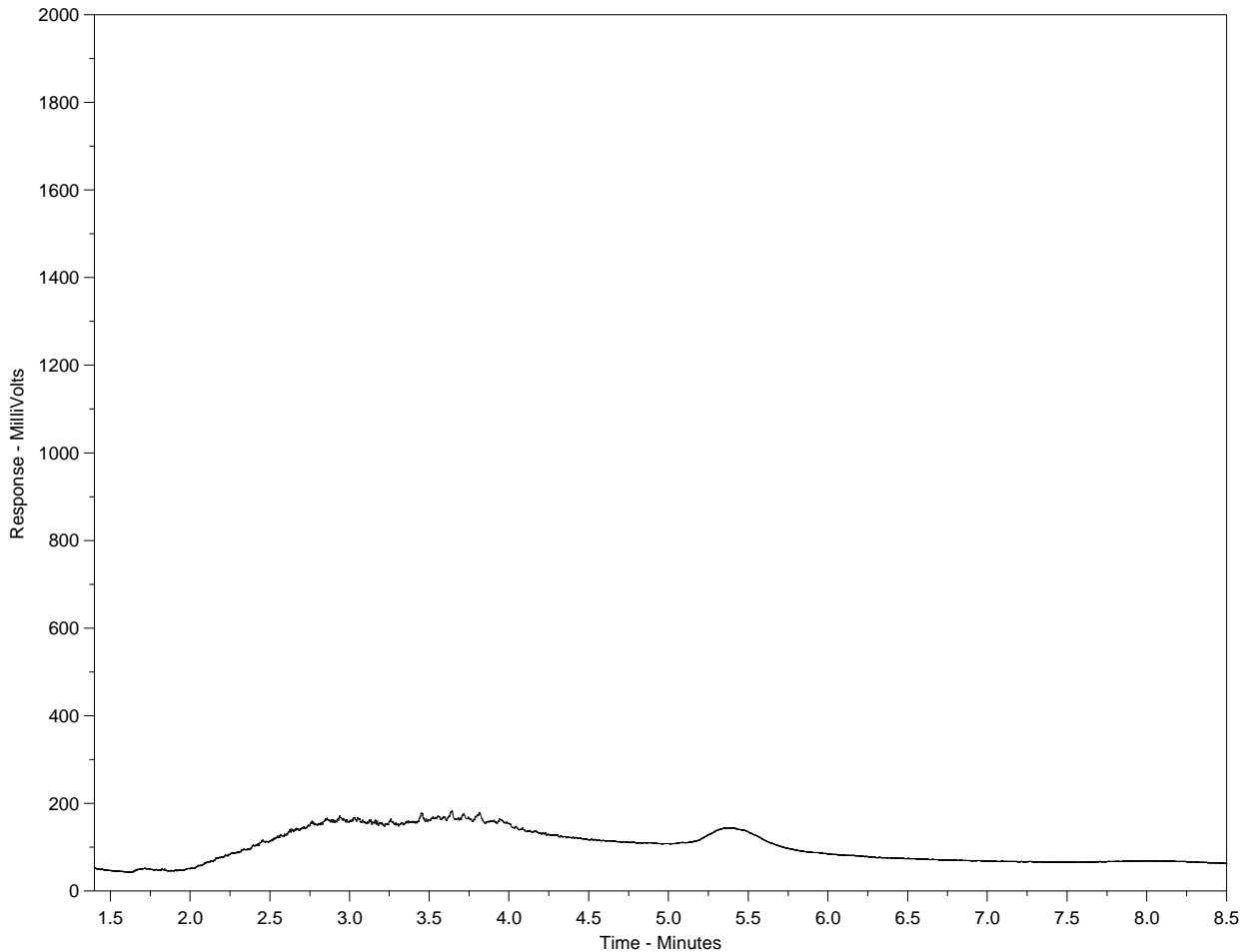
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-26
Client ID: 14-25-6



← 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.

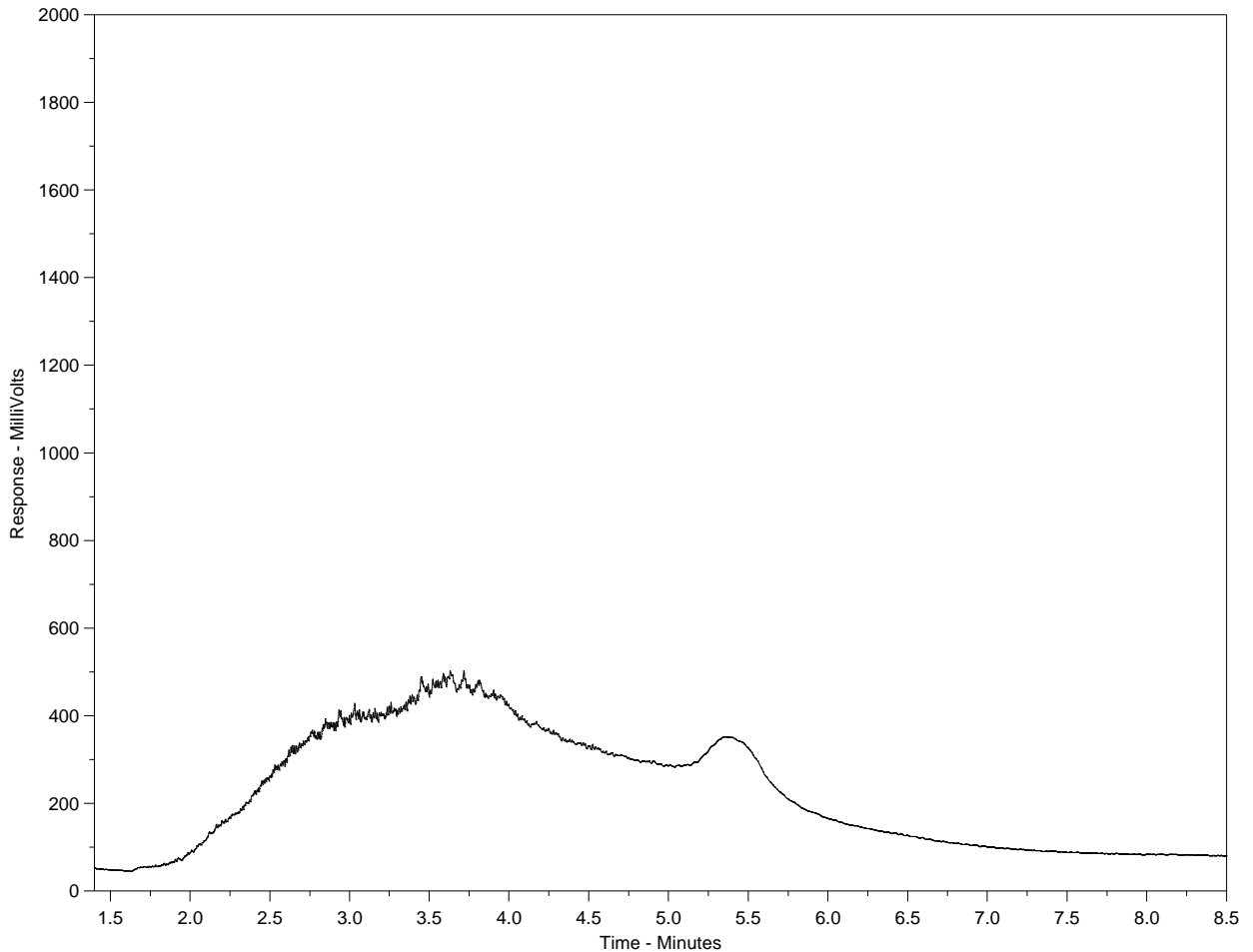
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-30
Client ID: 14-28-6



← 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.

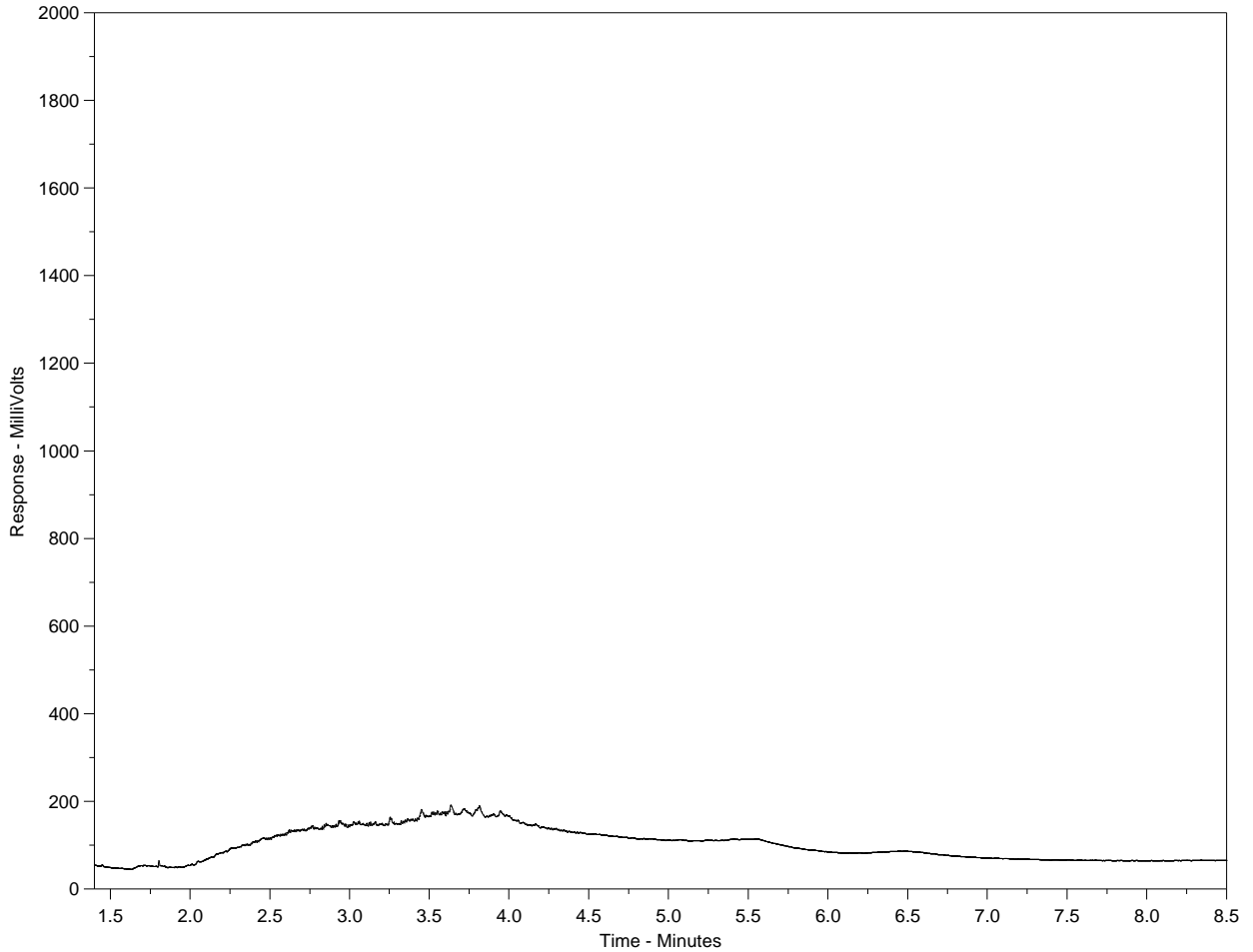
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-32
Client ID: 14-29-6



← 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.

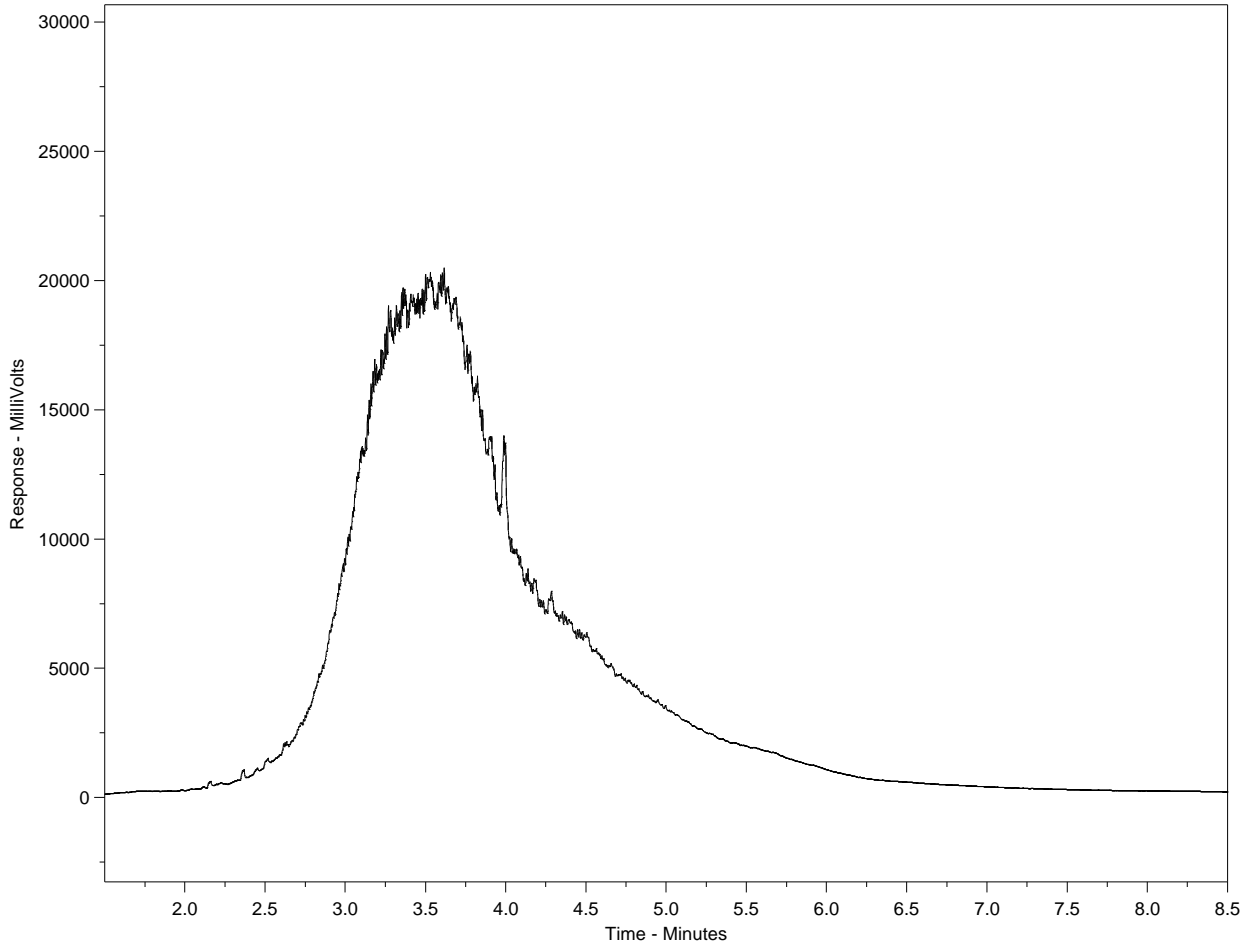
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-33
Client ID: 14-17-3



← 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.

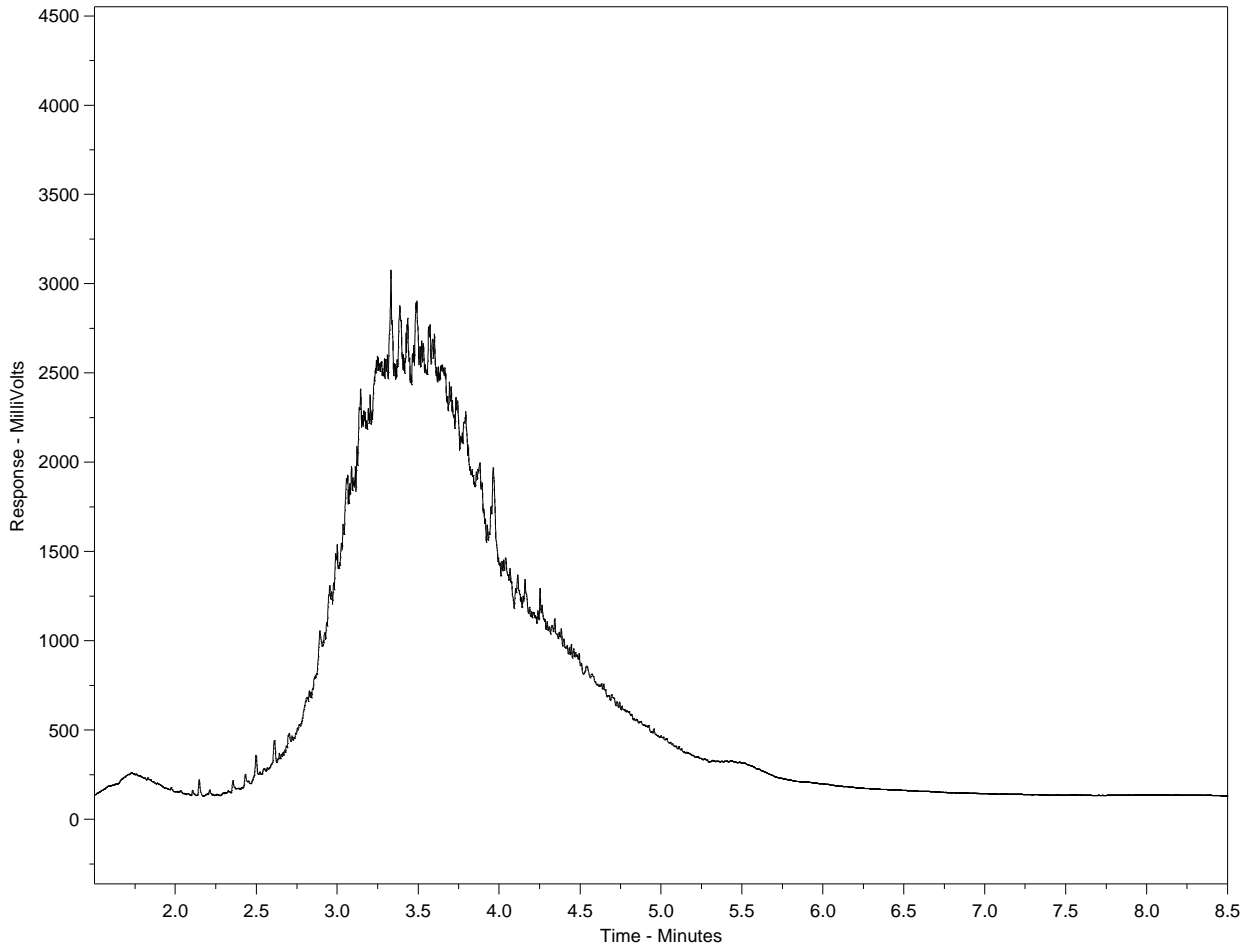
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-34
Client ID: 14-17-6



← 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.

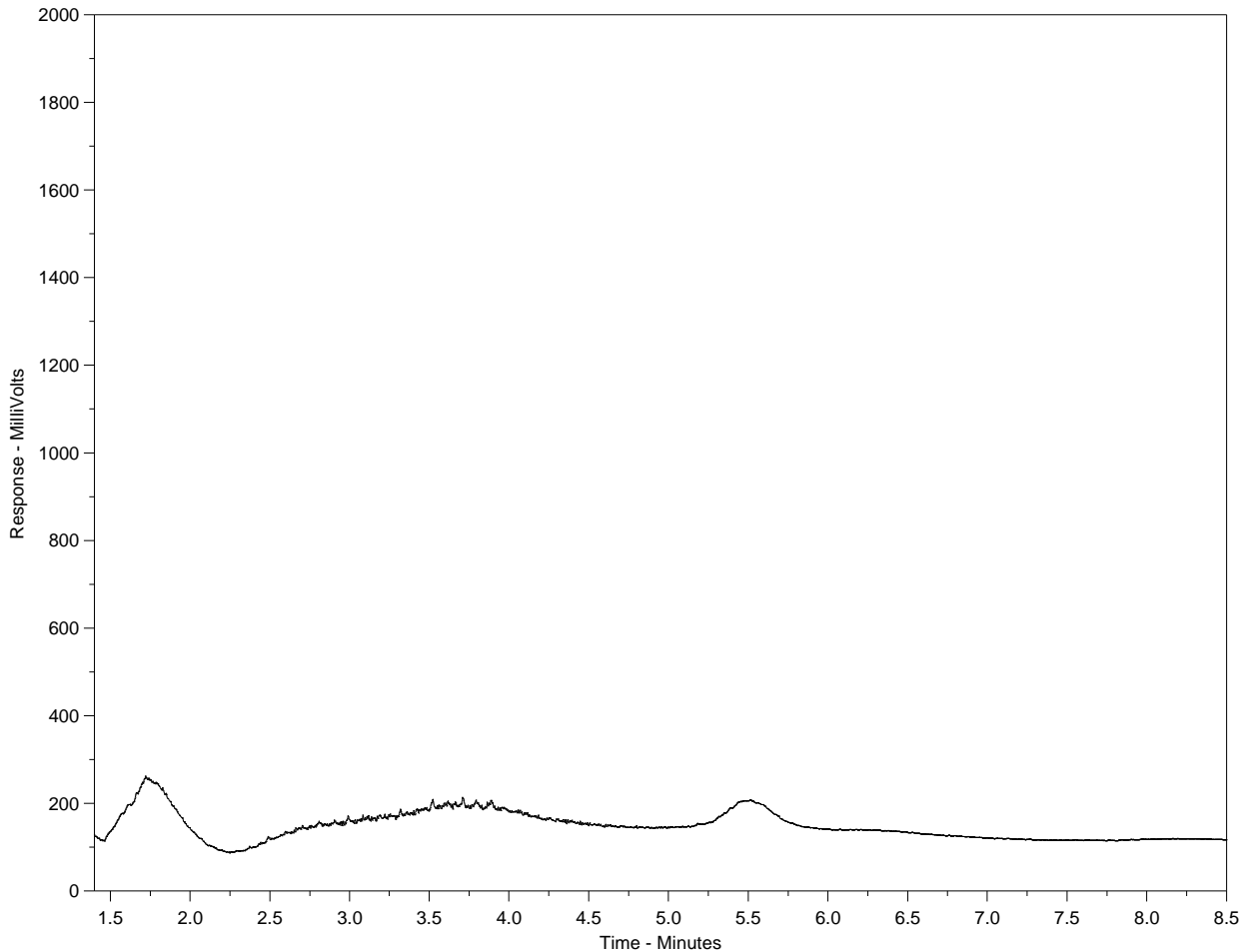
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-35
Client ID: 14-17-8



← 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.

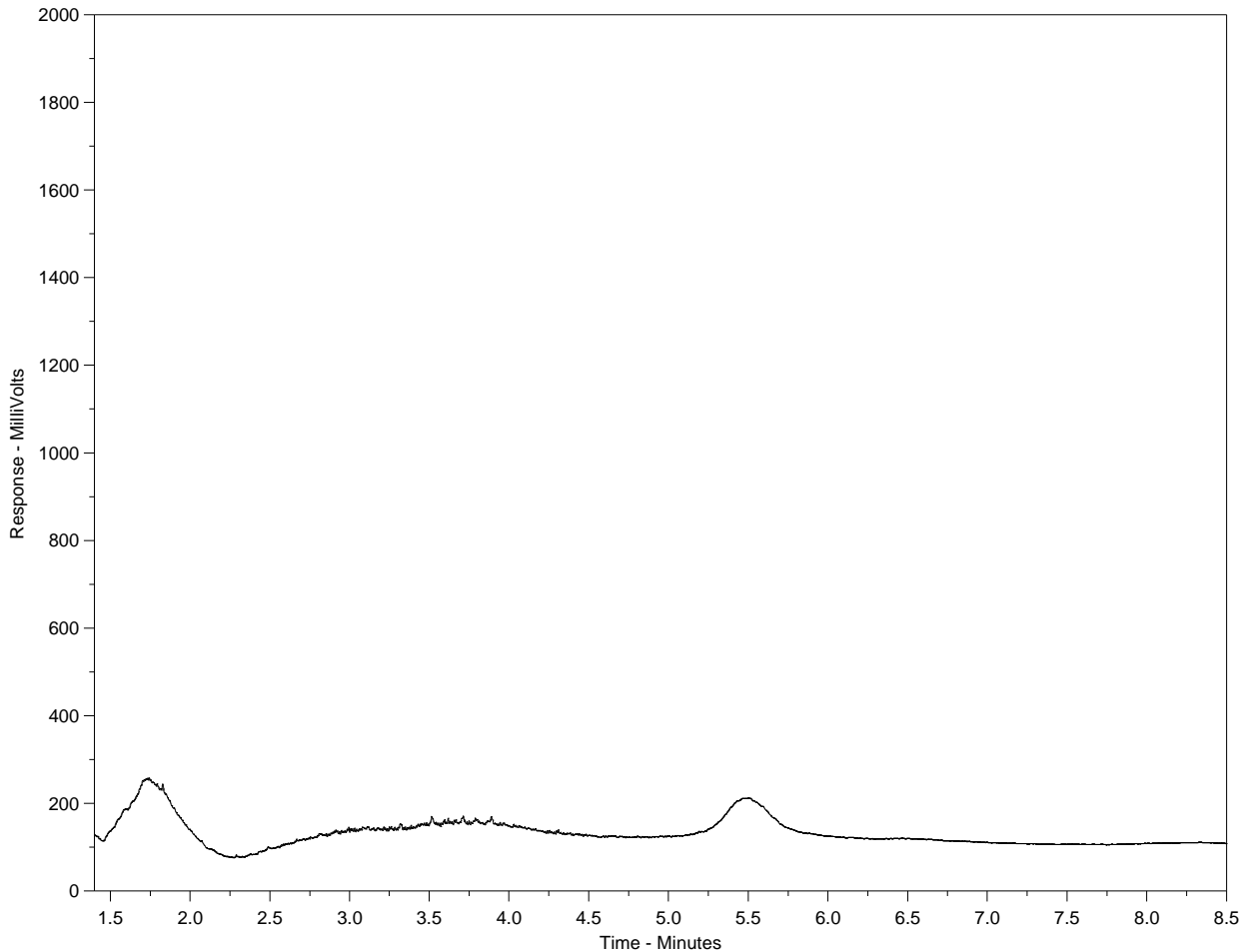
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-36
Client ID: 14-18-5



← 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.

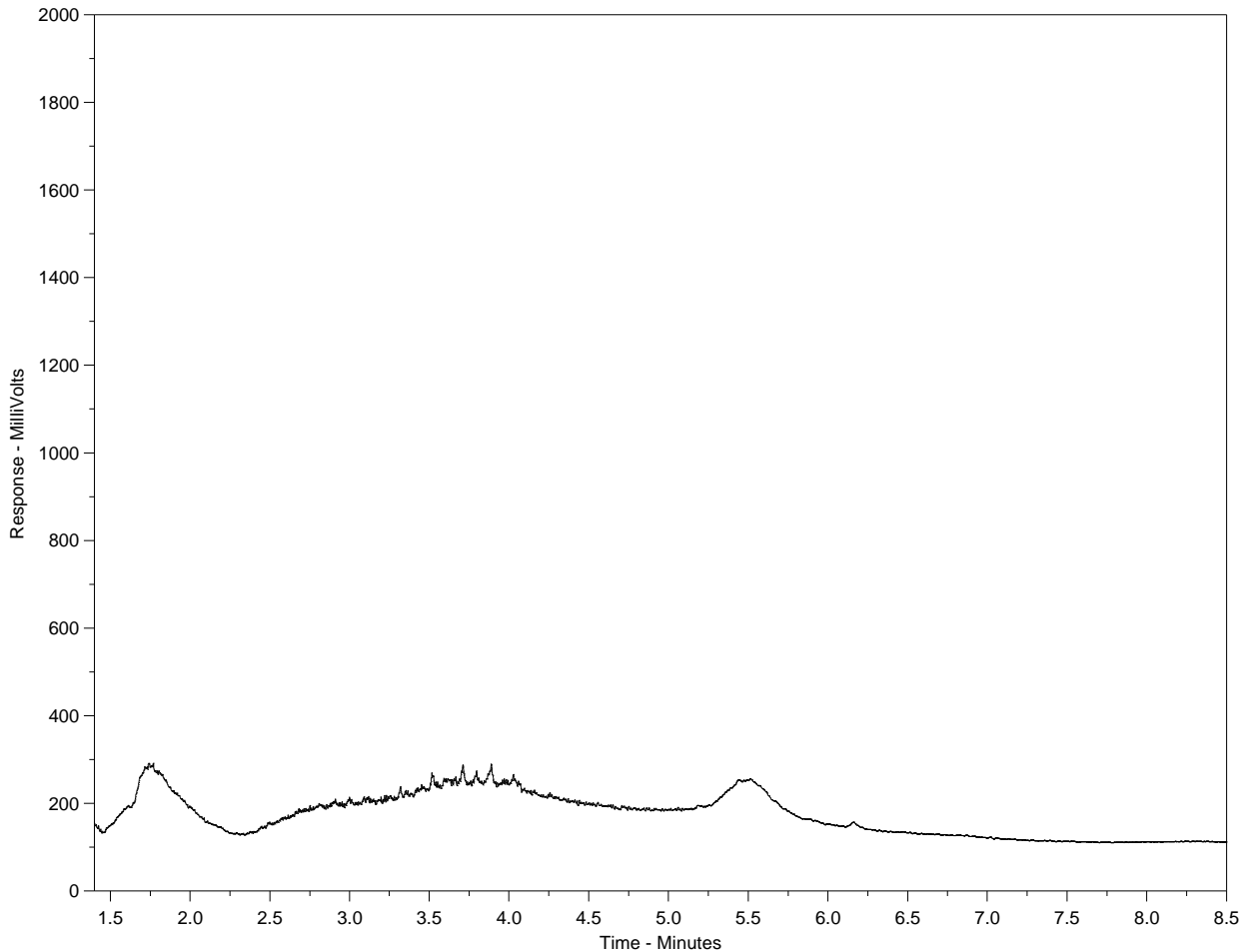
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-37
Client ID: 14-18-6



← 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.

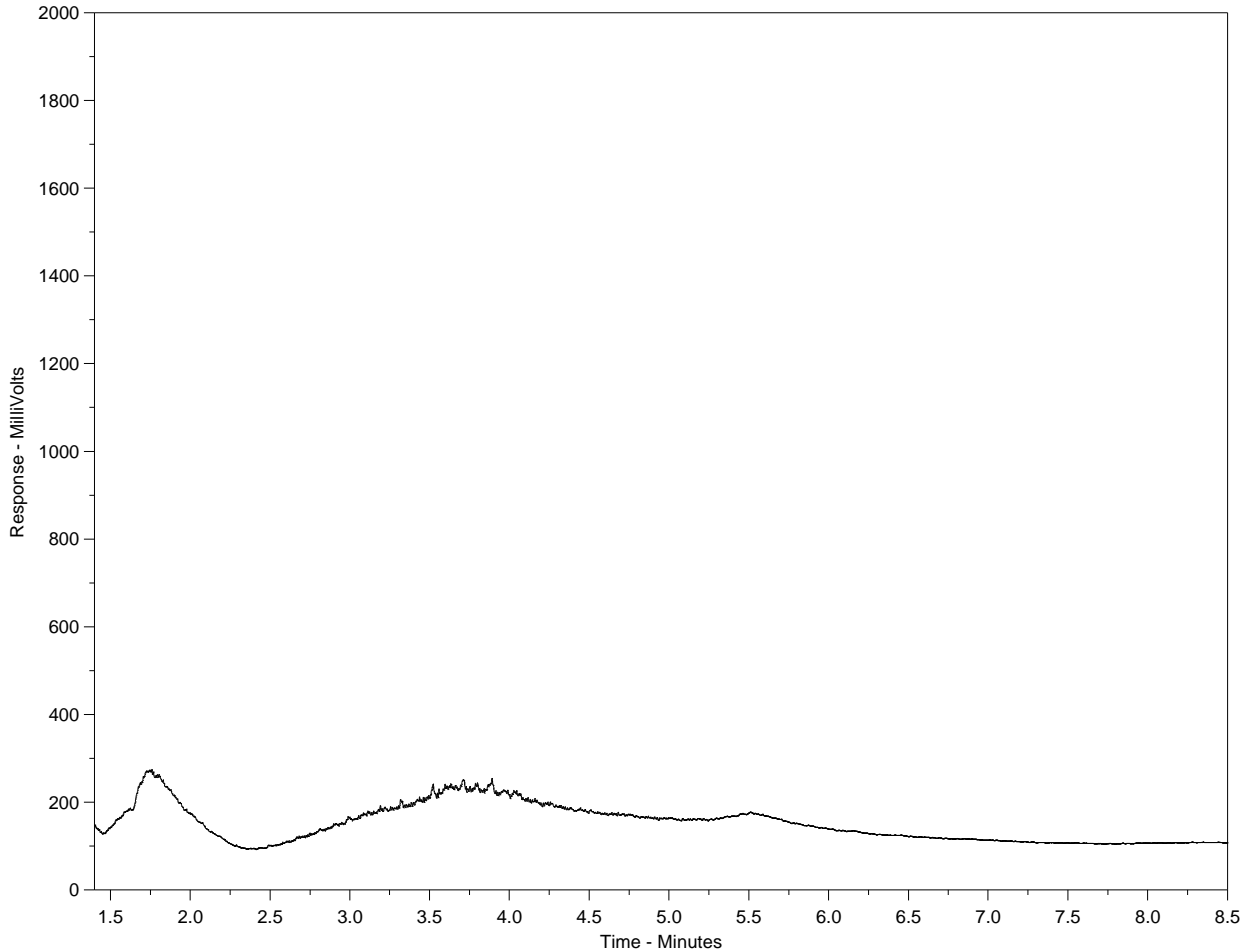
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-38
Client ID: 14-19-3



← 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.

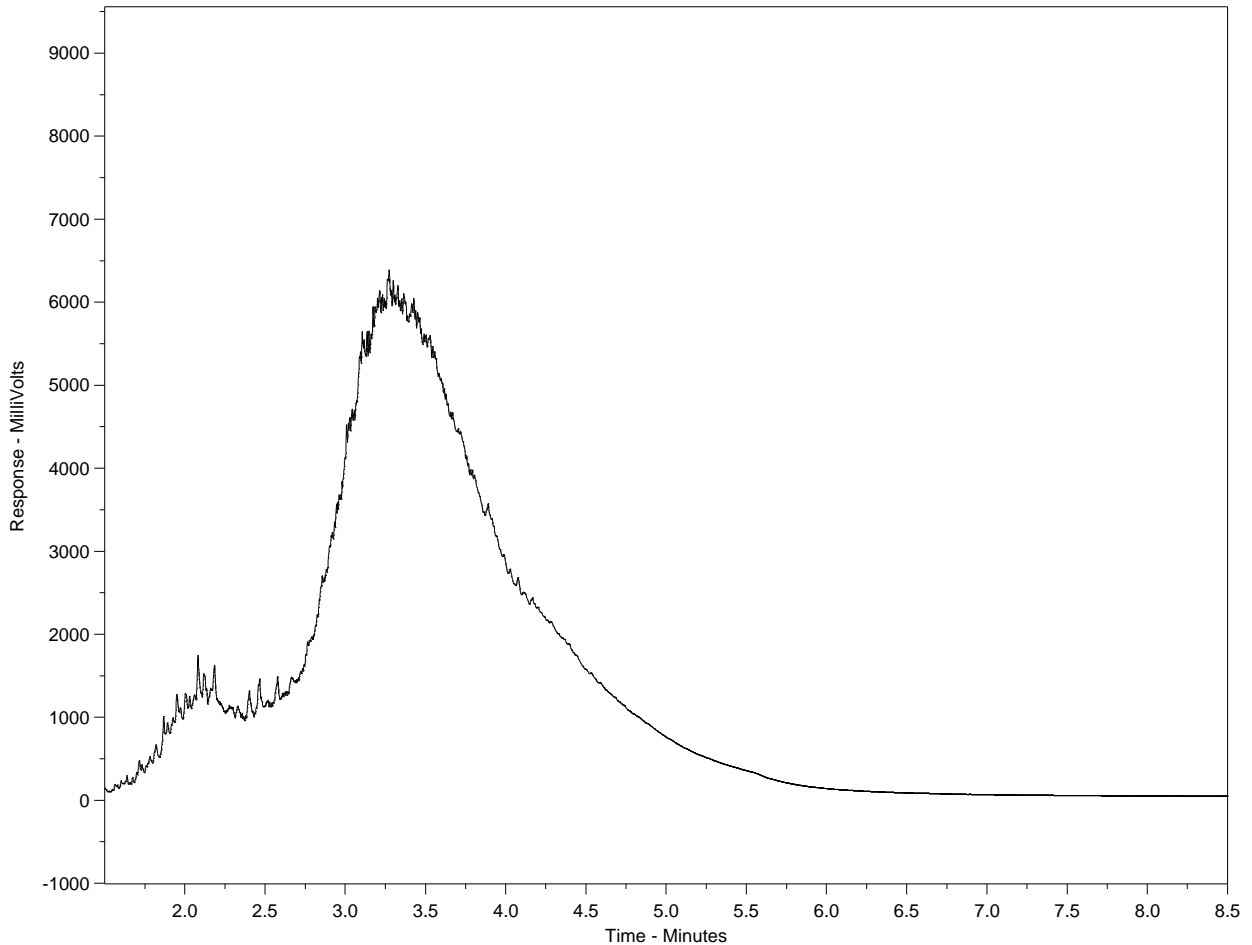
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-40
Client ID: 14-26-3



← 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.

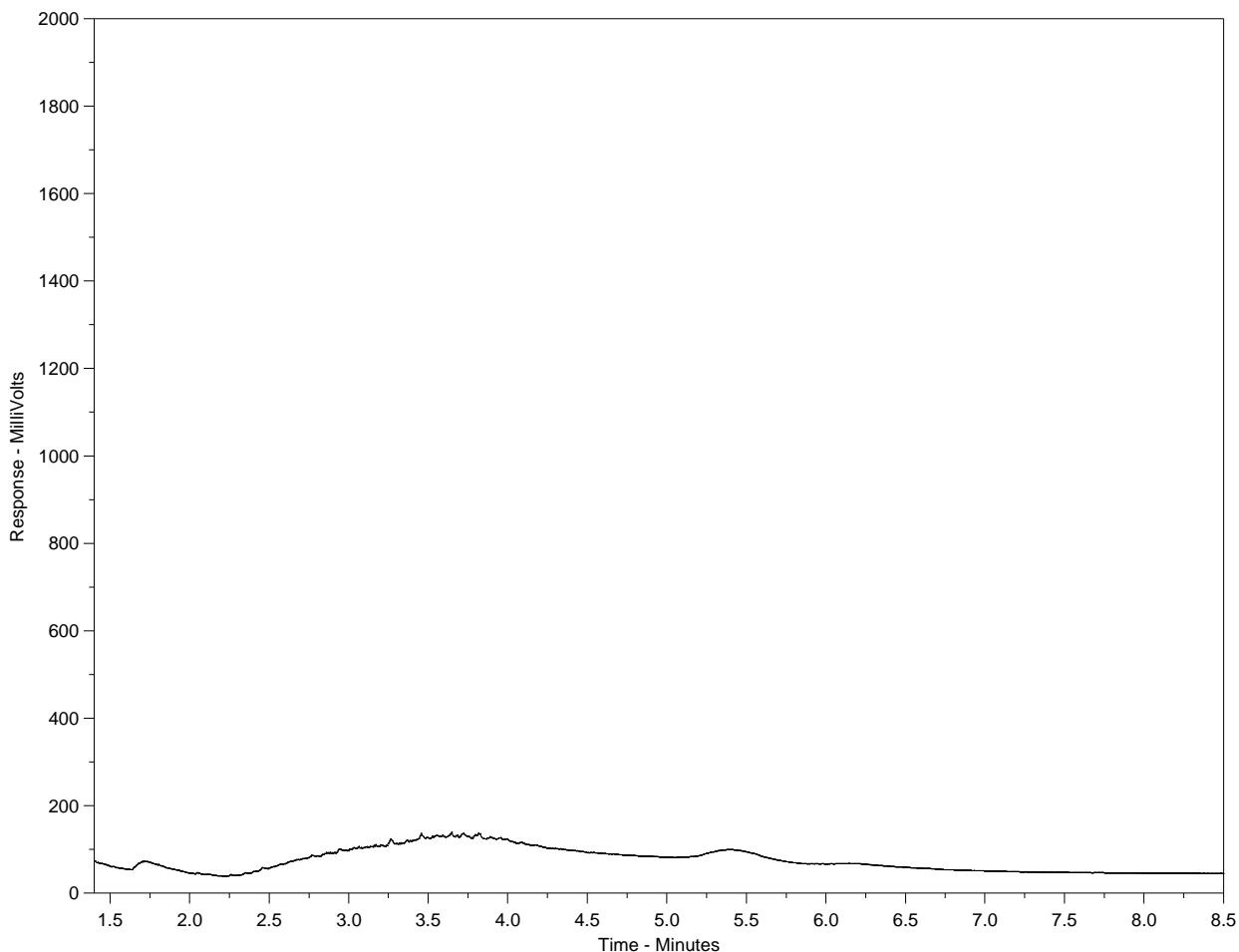
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-41
Client ID: 14-26-4



← 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.

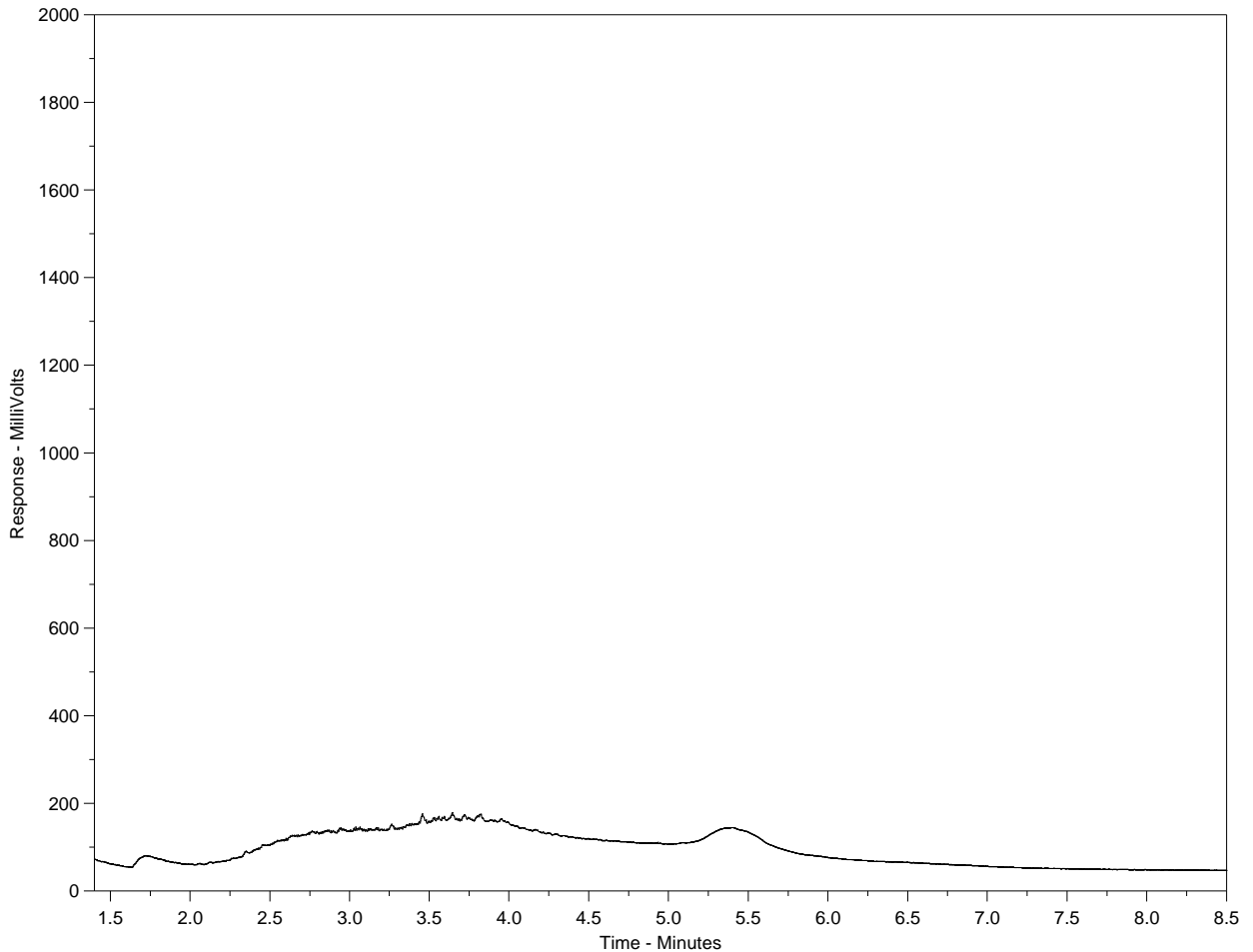
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-43
Client ID: 14-30-5



← 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.

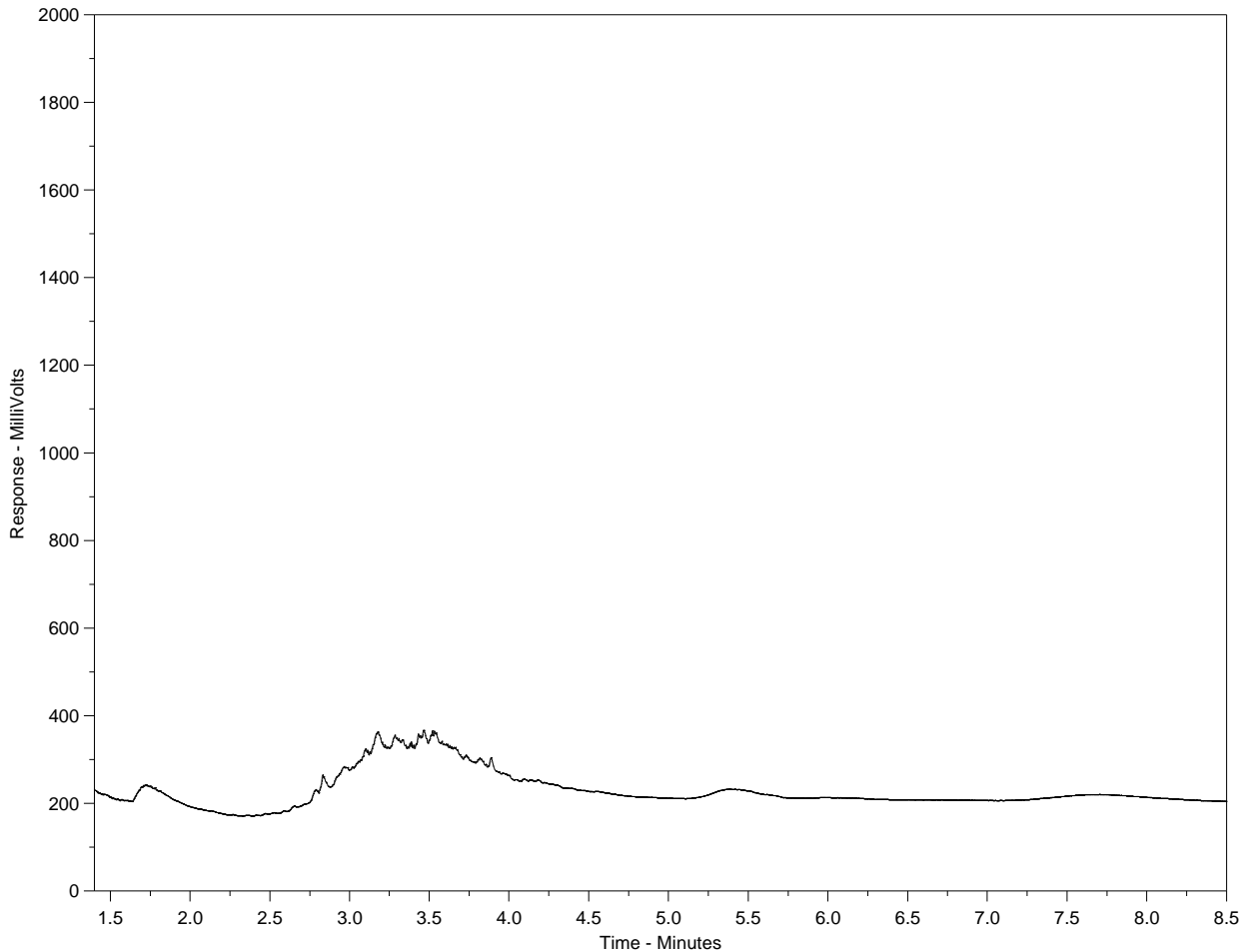
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-44
Client ID: 14-33-3



← 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.

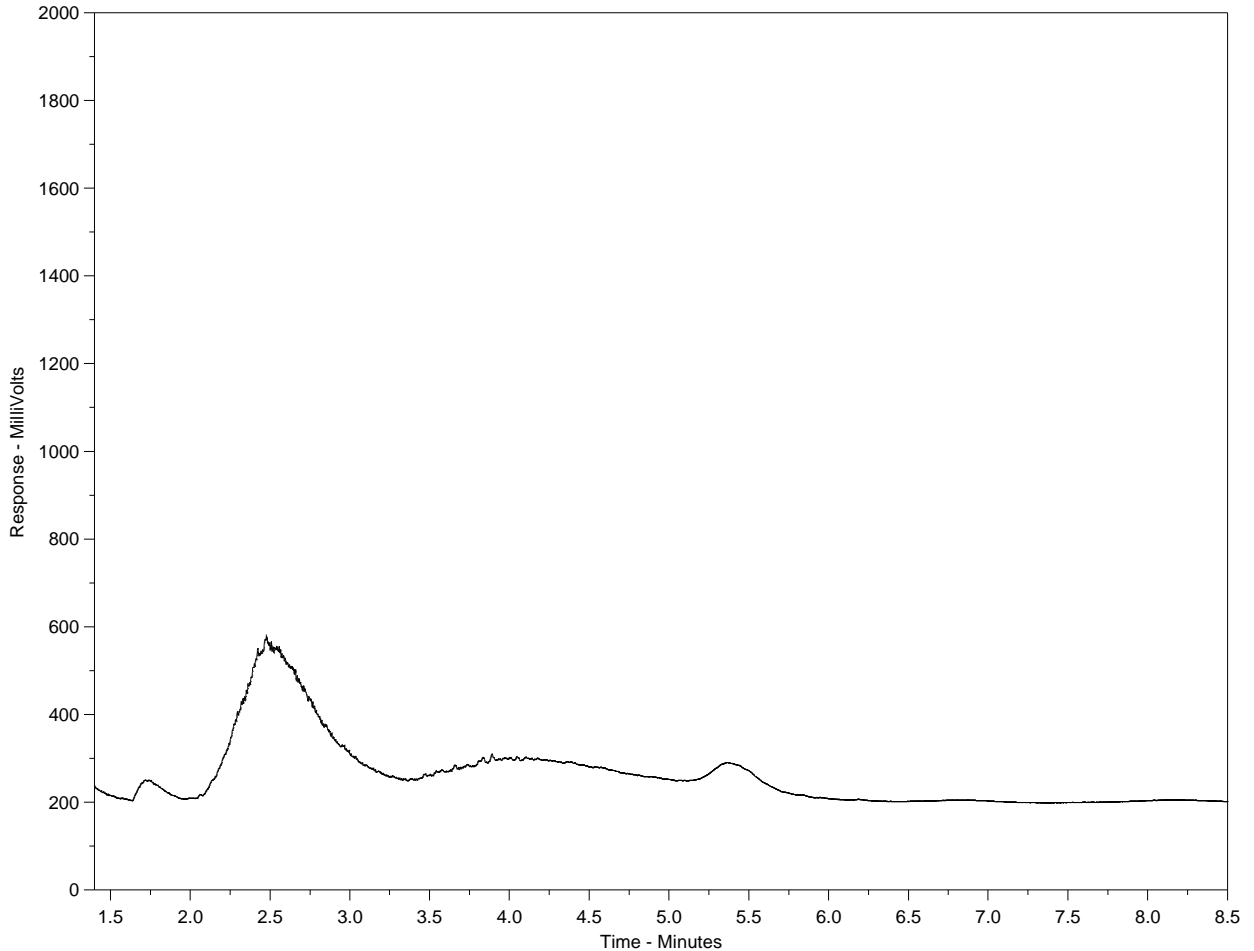
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-45
Client ID: 14-34-1



← 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.

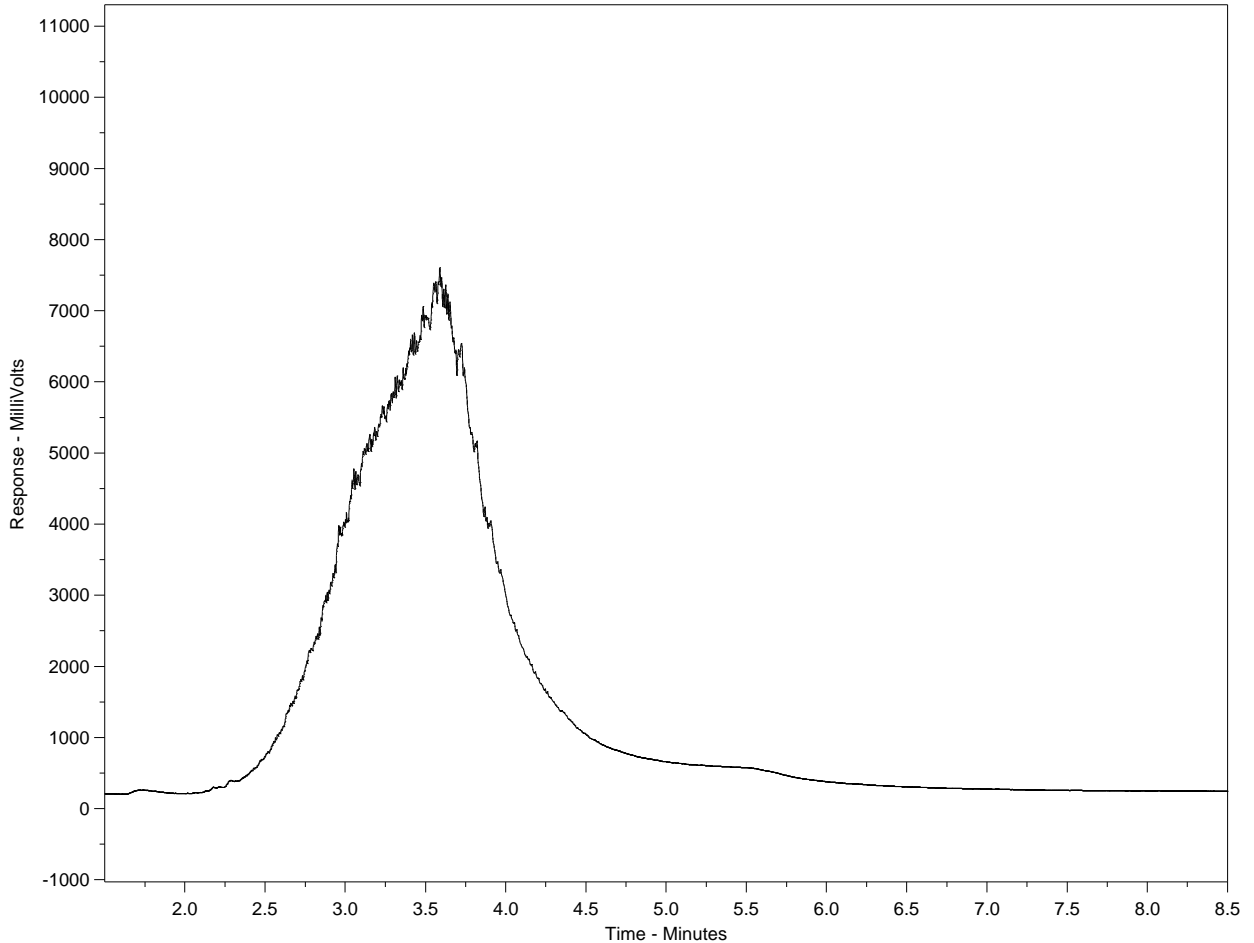
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-46
Client ID: 14-34-3



← 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.

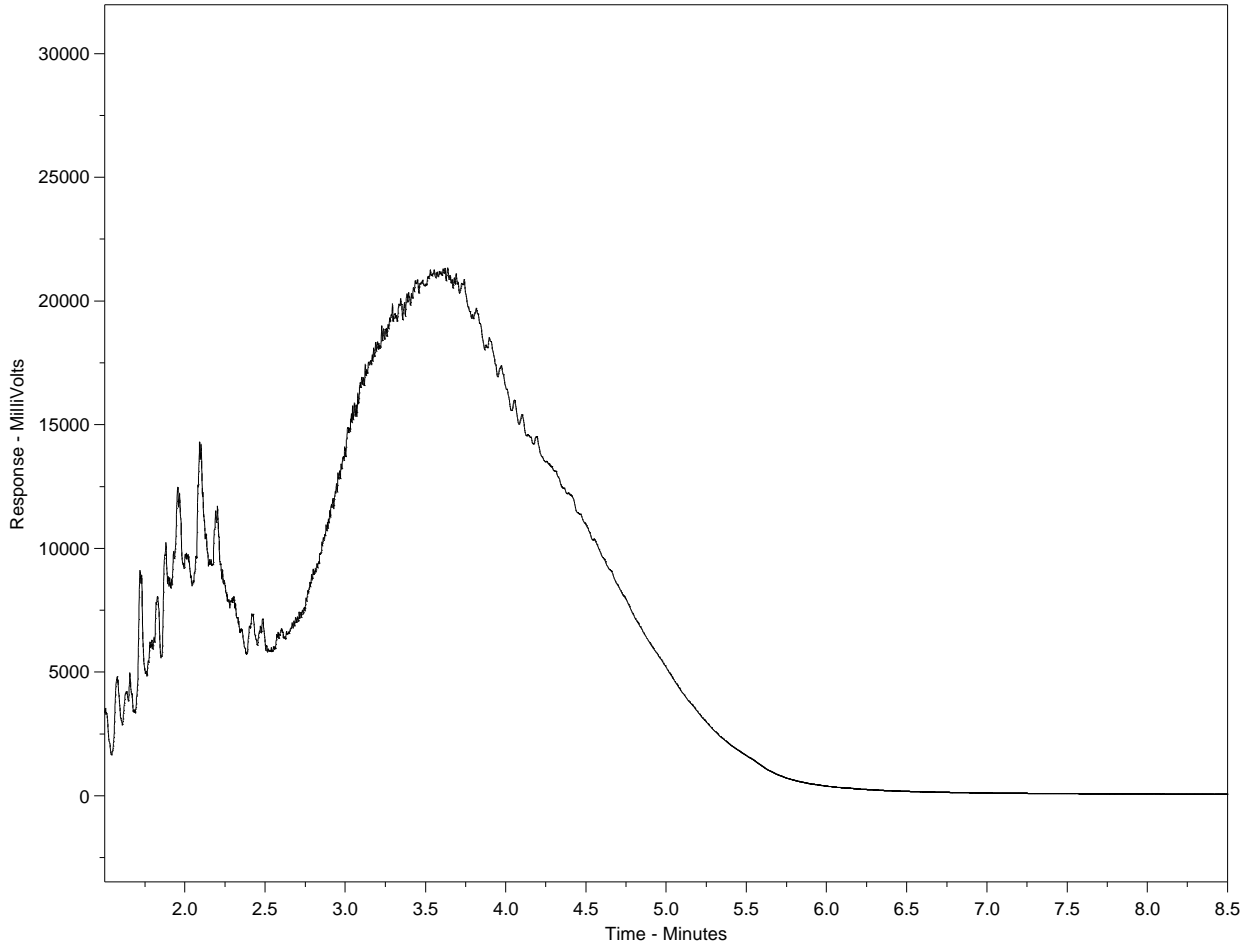
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-47
Client ID: 14-35-3



← 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.

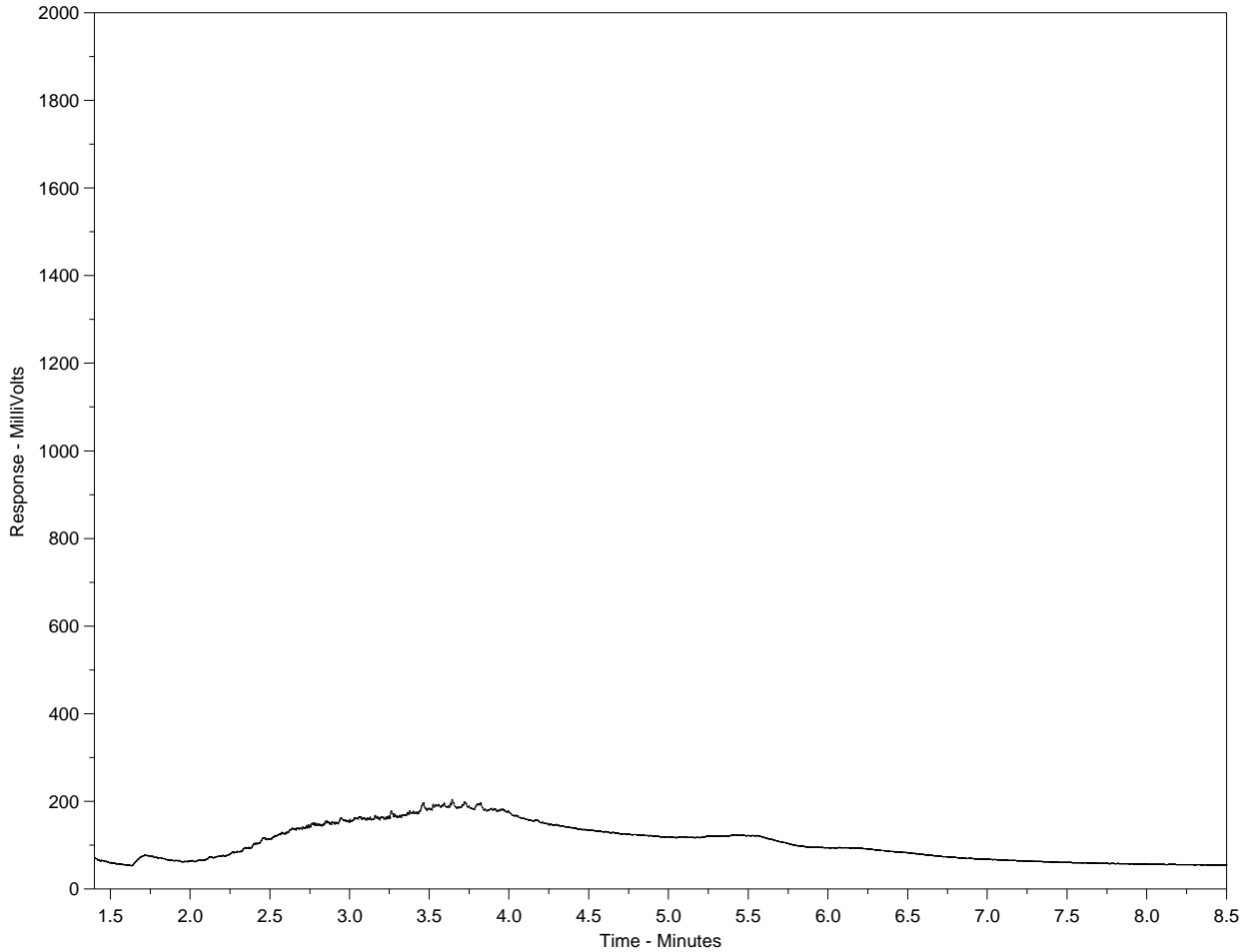
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-48
Client ID: 14-35-6



← 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.

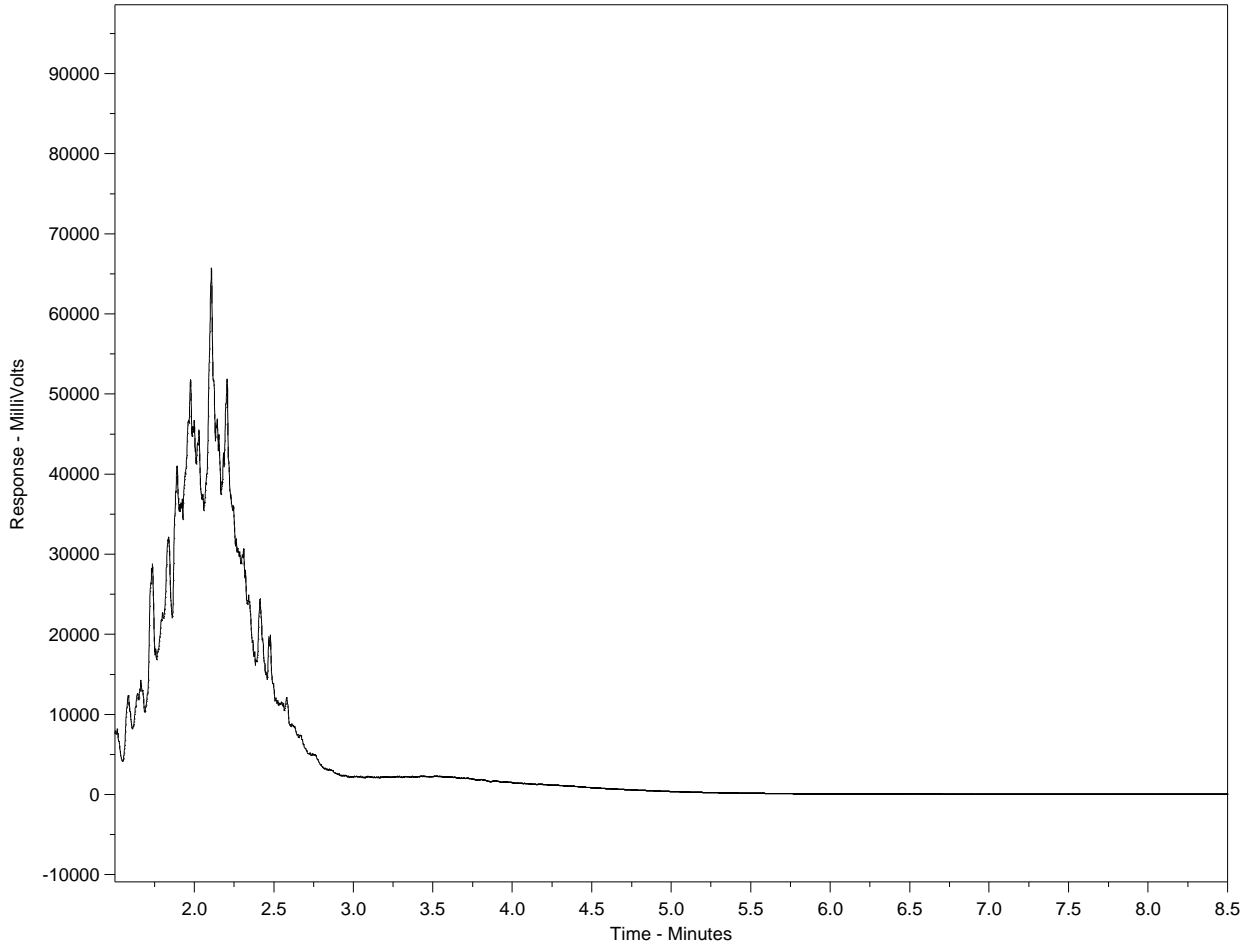
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-50
Client ID: 14-36-3



← 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.

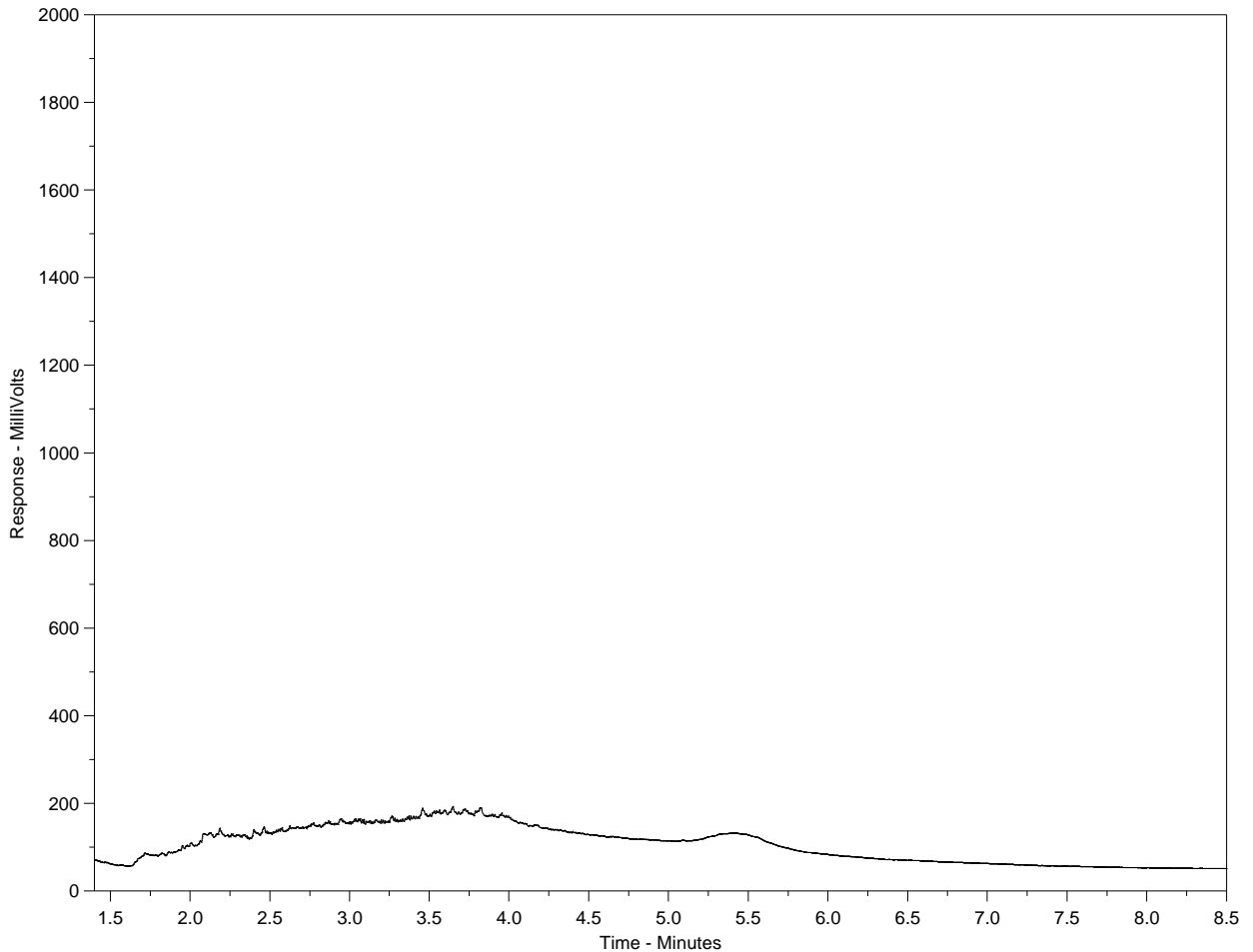
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-51
Client ID: 14-36-6



← 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.

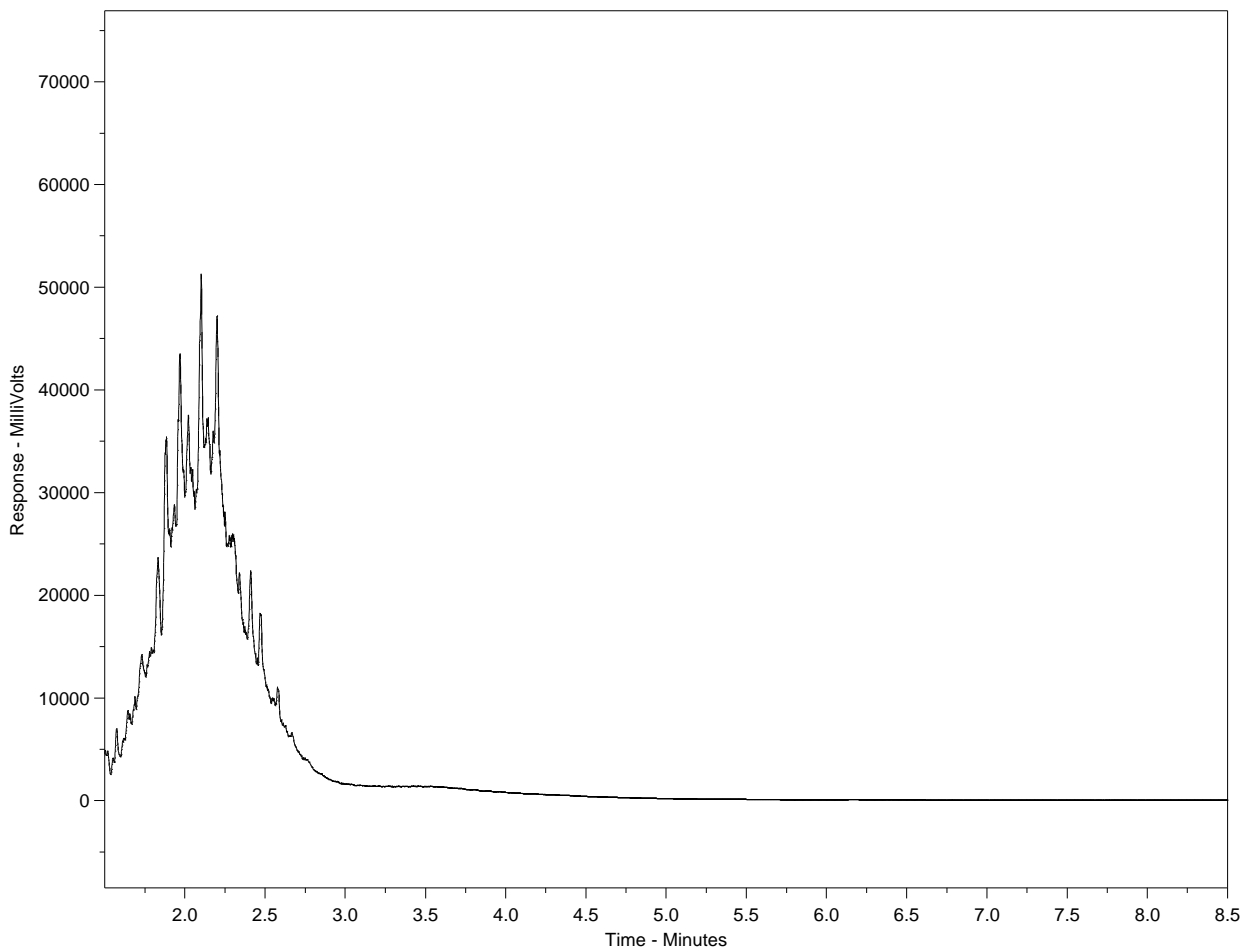
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-52
 Client ID: 14-37-3



← 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.

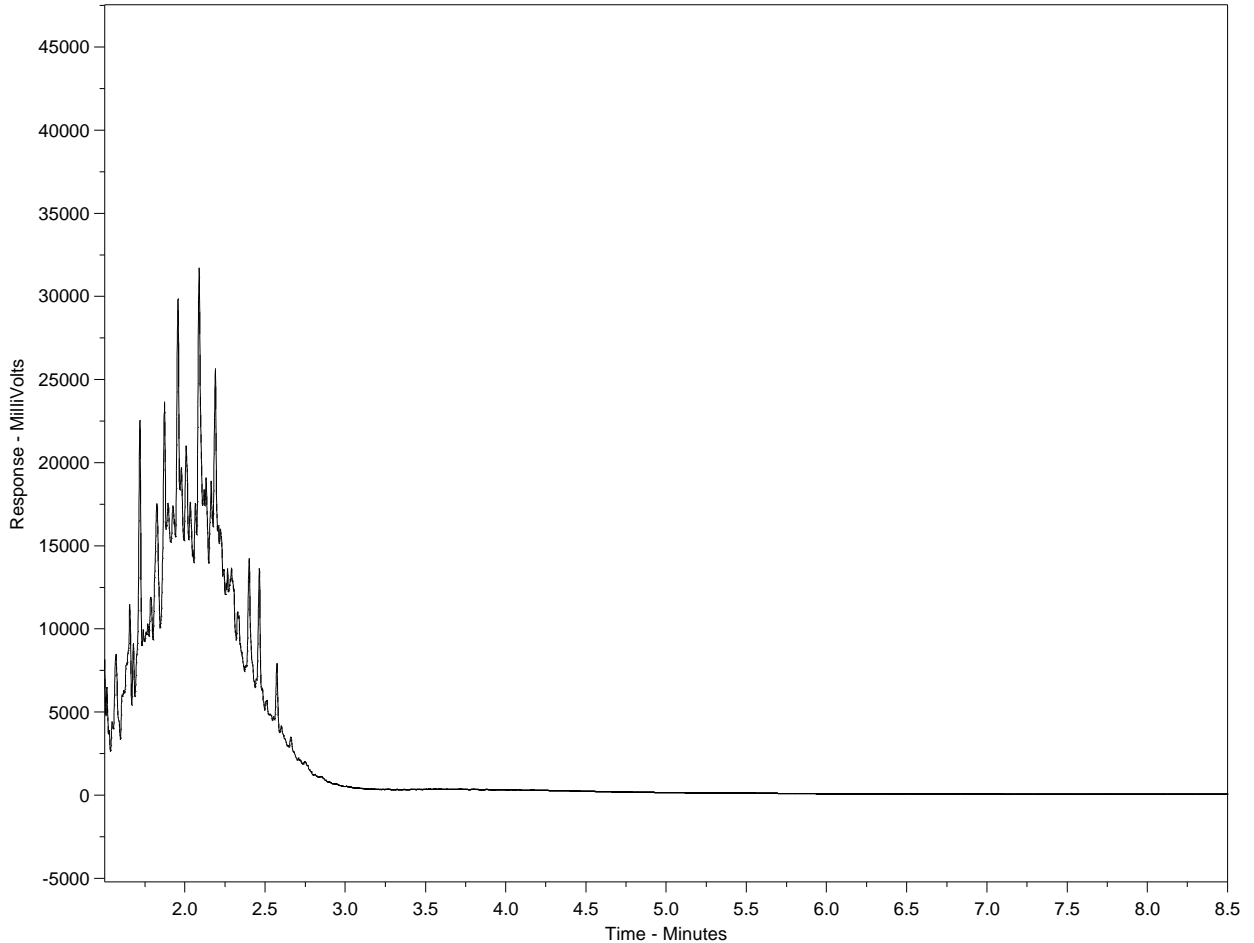
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-55
Client ID: 14-23-3



← 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.

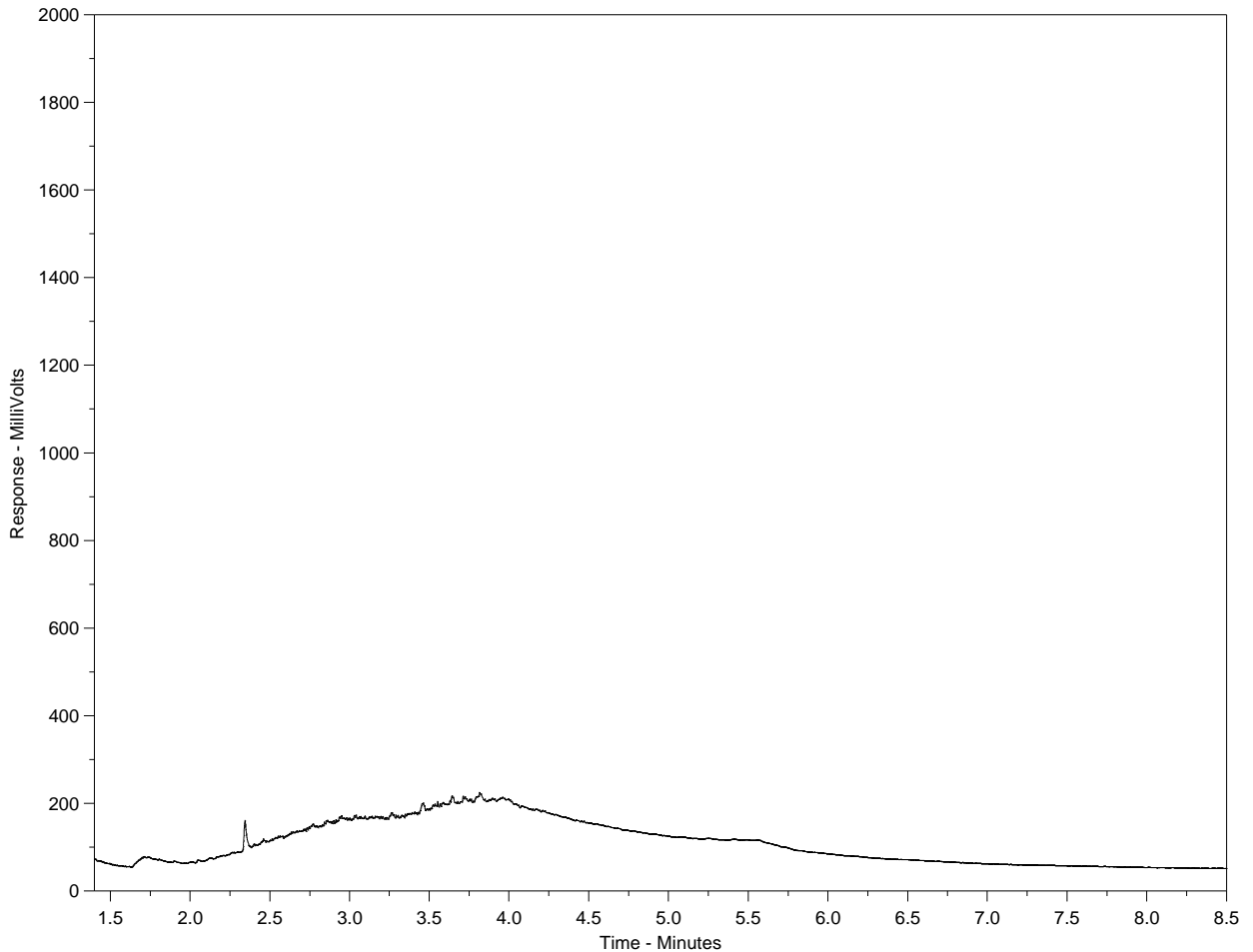
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-56
Client ID: 14-23-5



← 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.

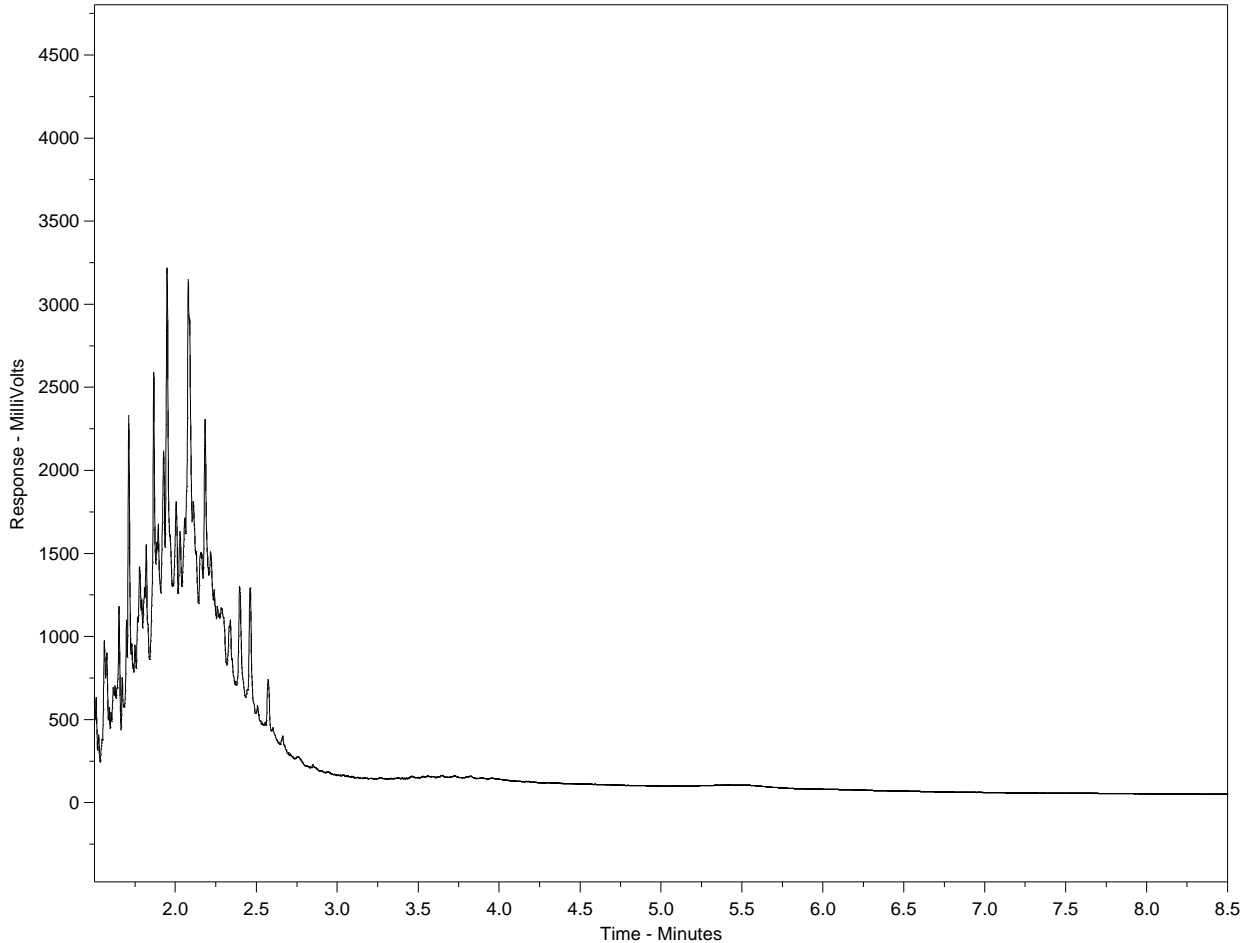
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-57
Client ID: 14-24-4



← 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.

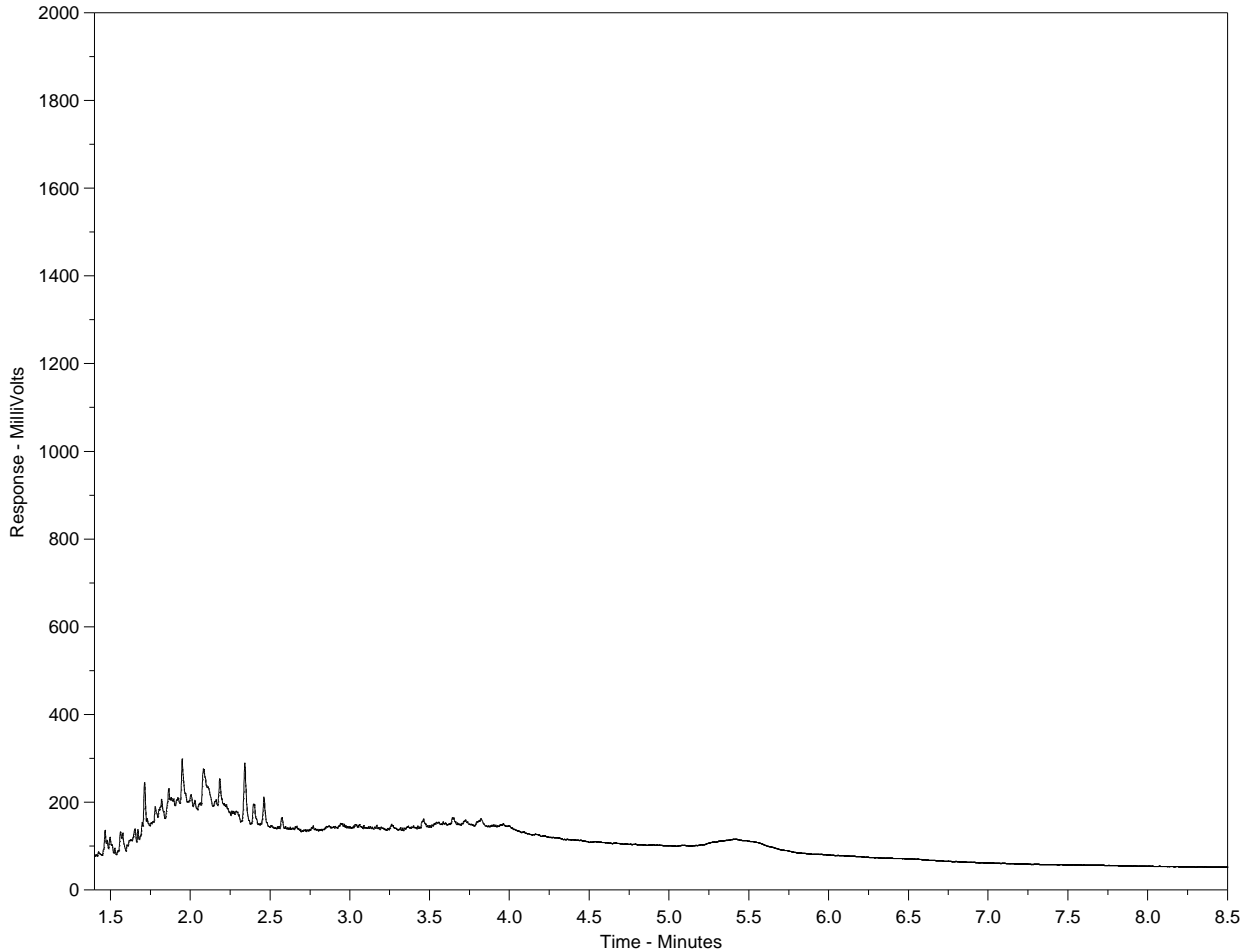
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-58
Client ID: 14-24-6



← 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.

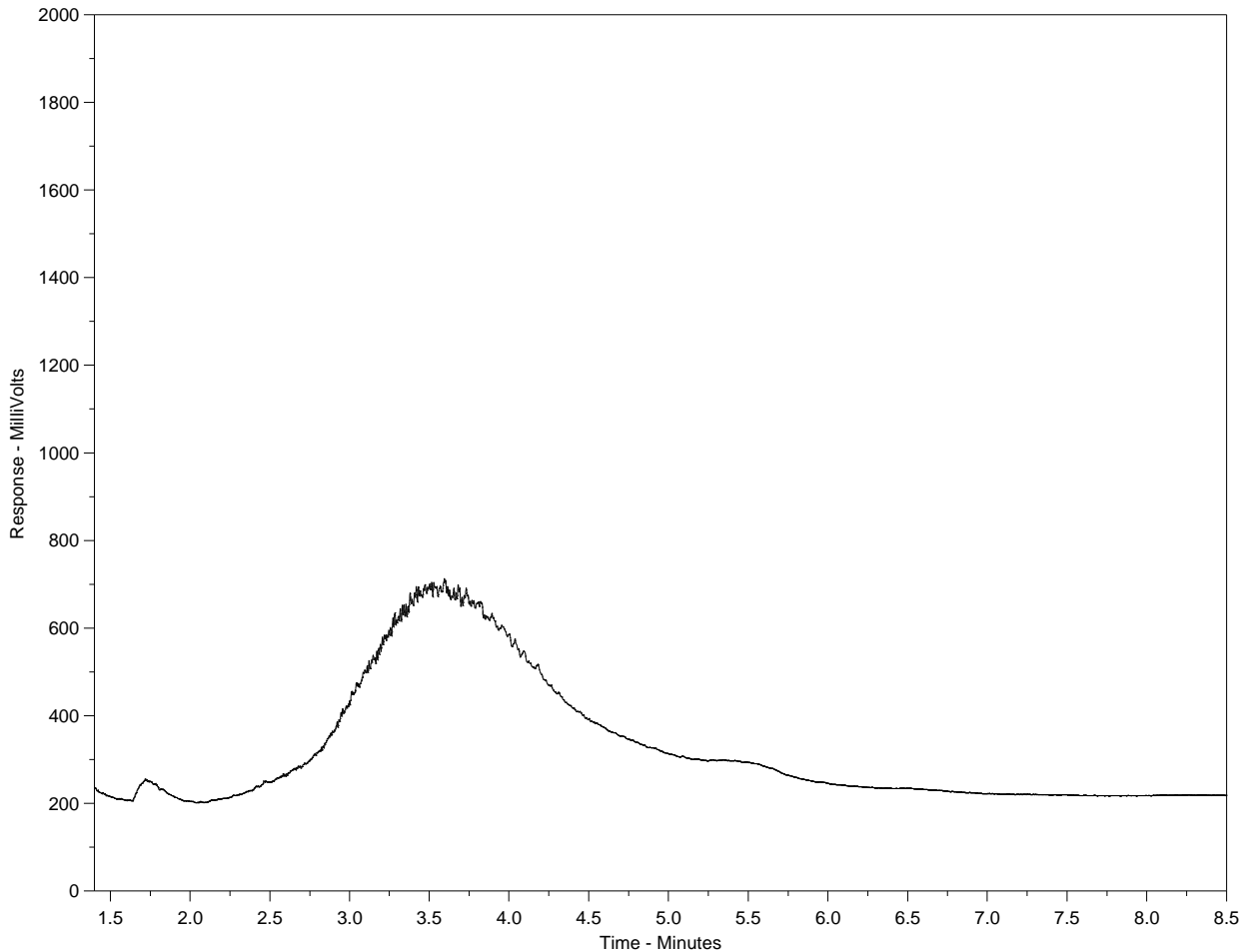
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-60
Client ID: 14-39-4



← 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.

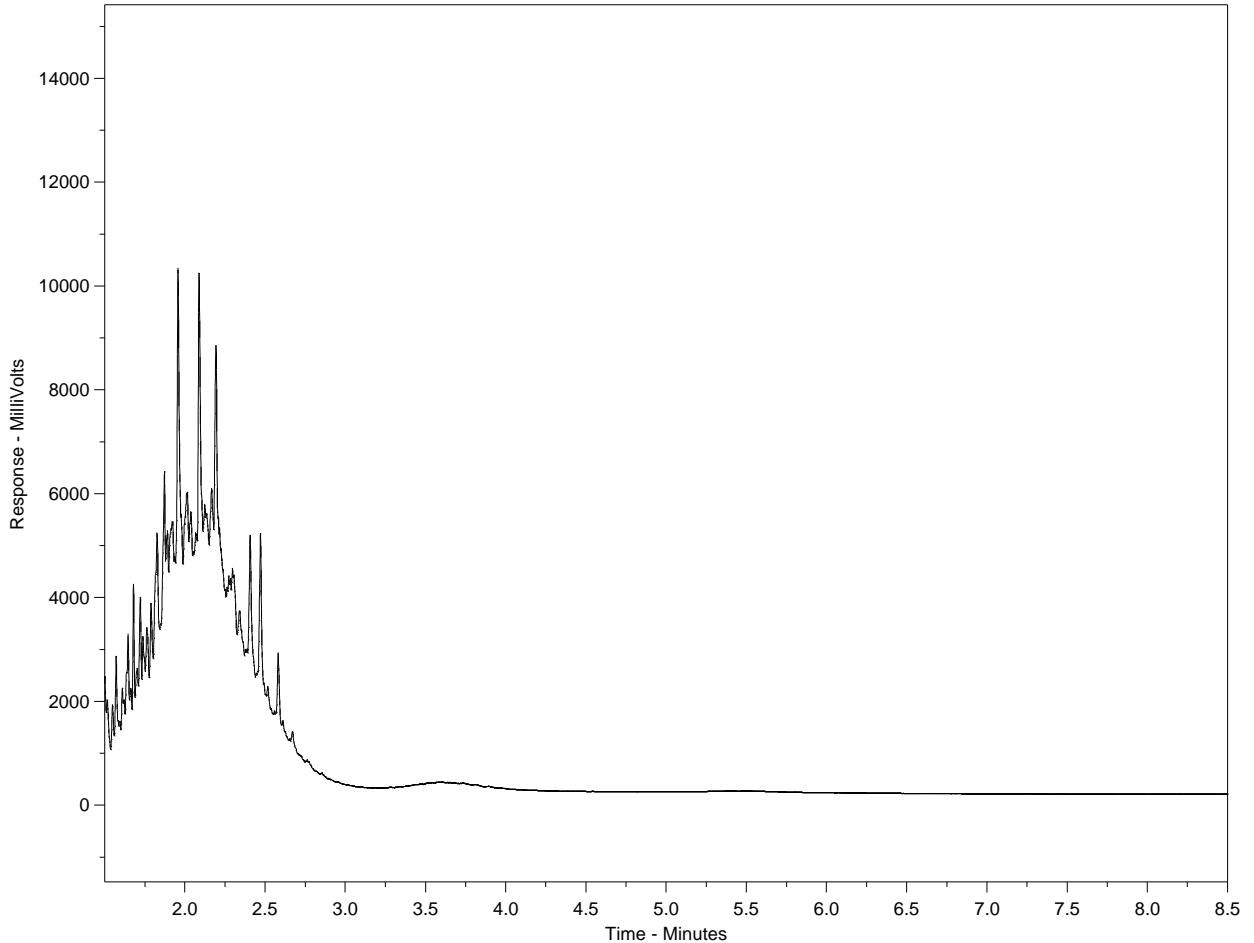
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-61
Client ID: 14-40-4



← 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.

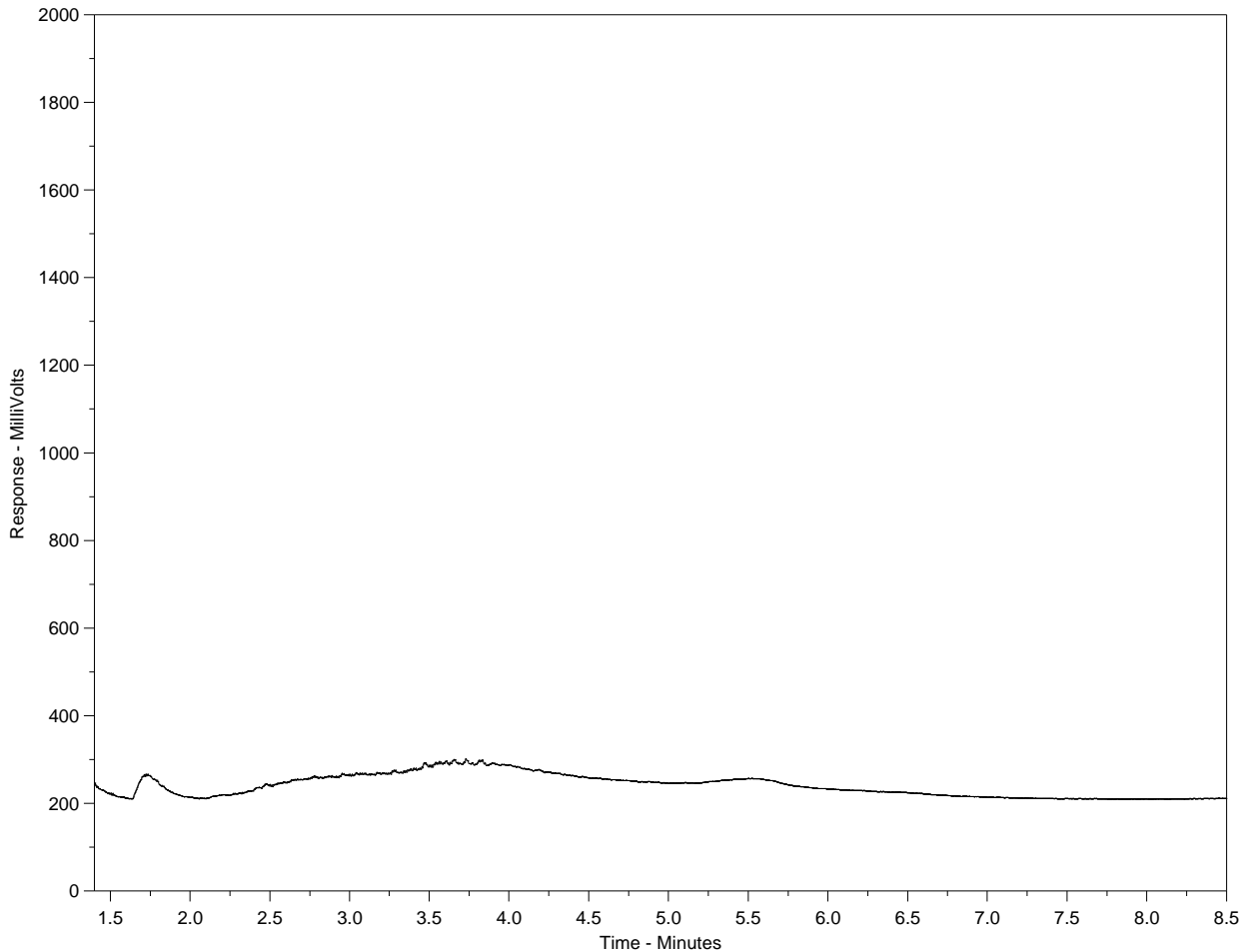
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-62
Client ID: 14-40-6



← 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.

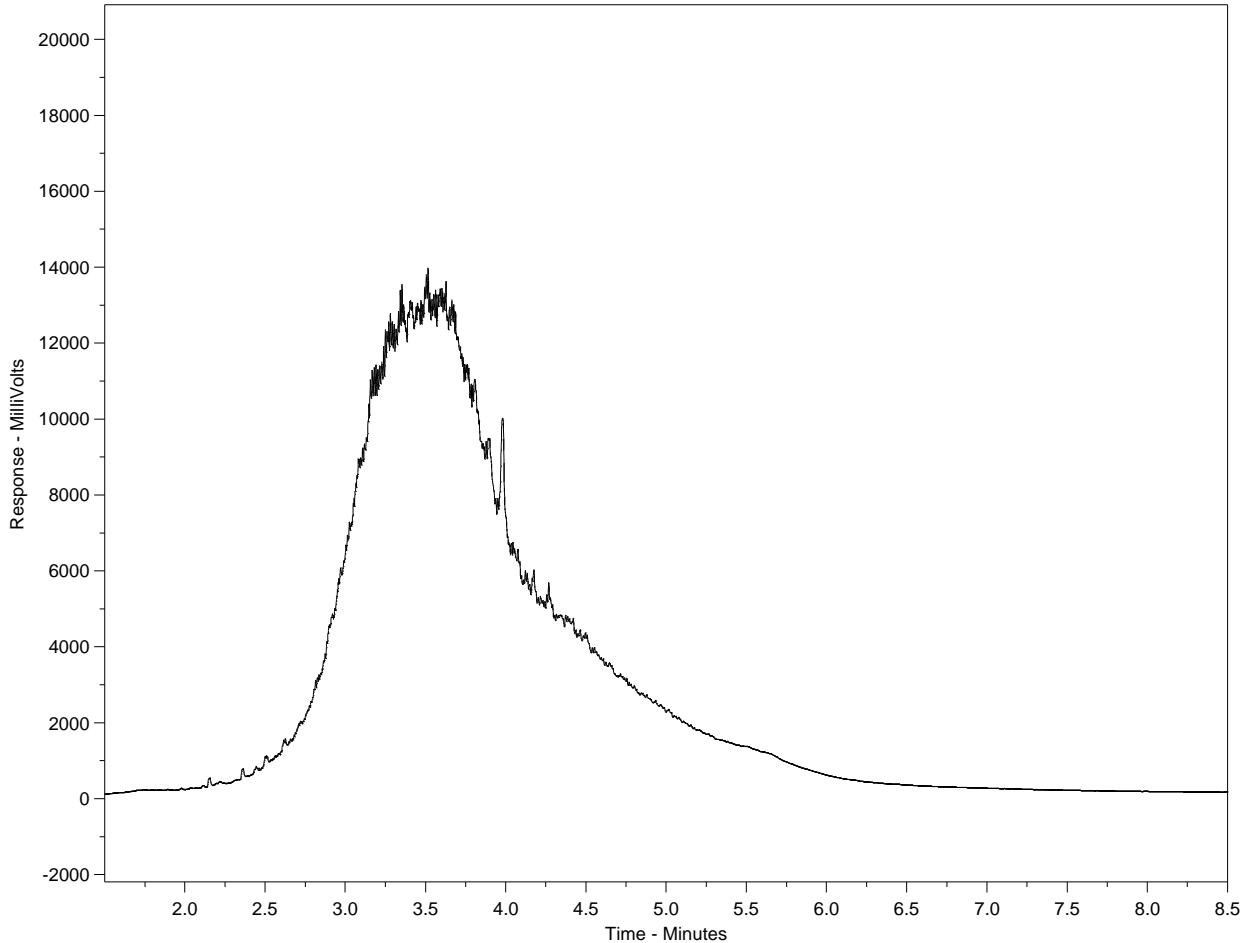
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-64
Client ID: DUP D



← 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.

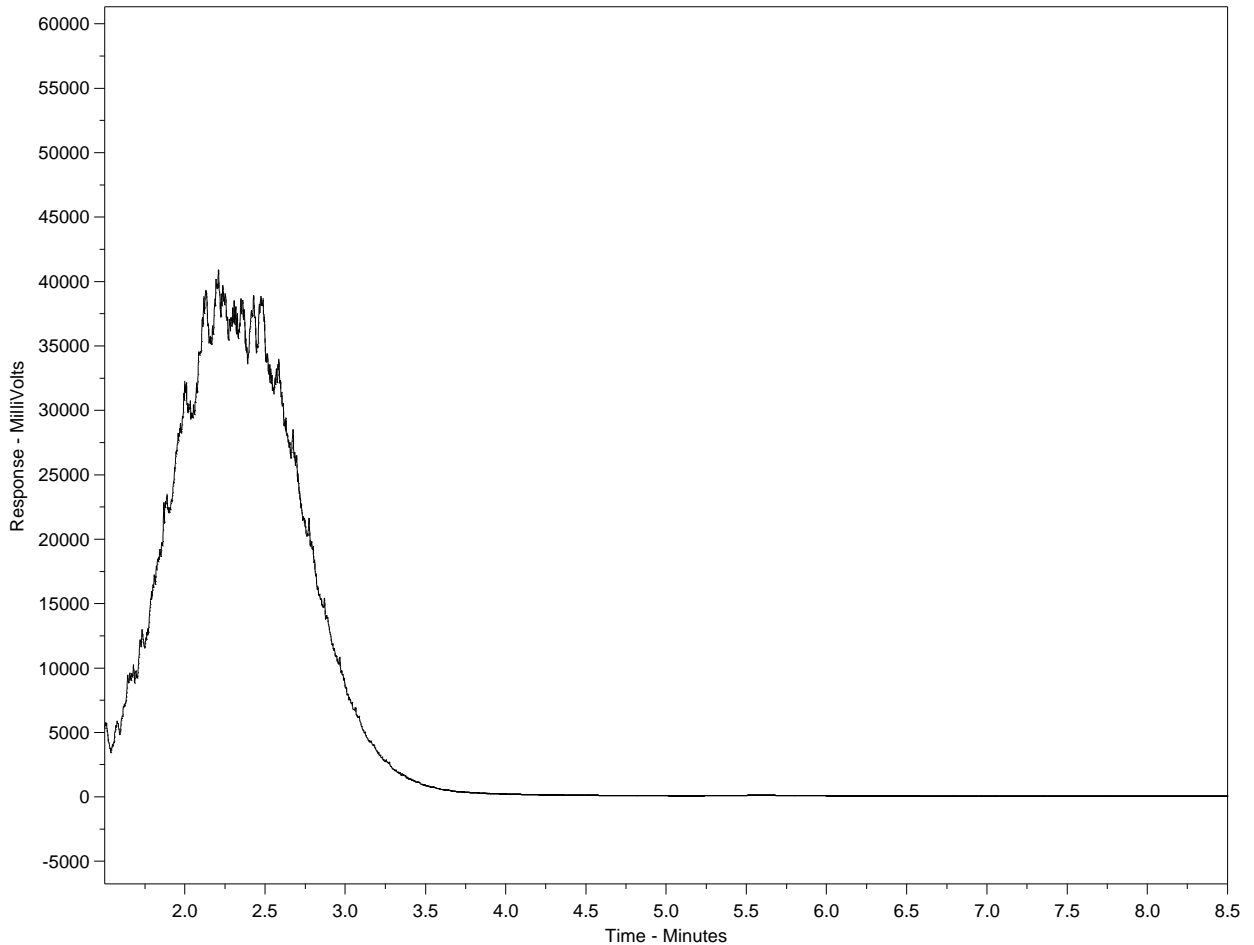
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-65
Client ID: DUP E



← 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.

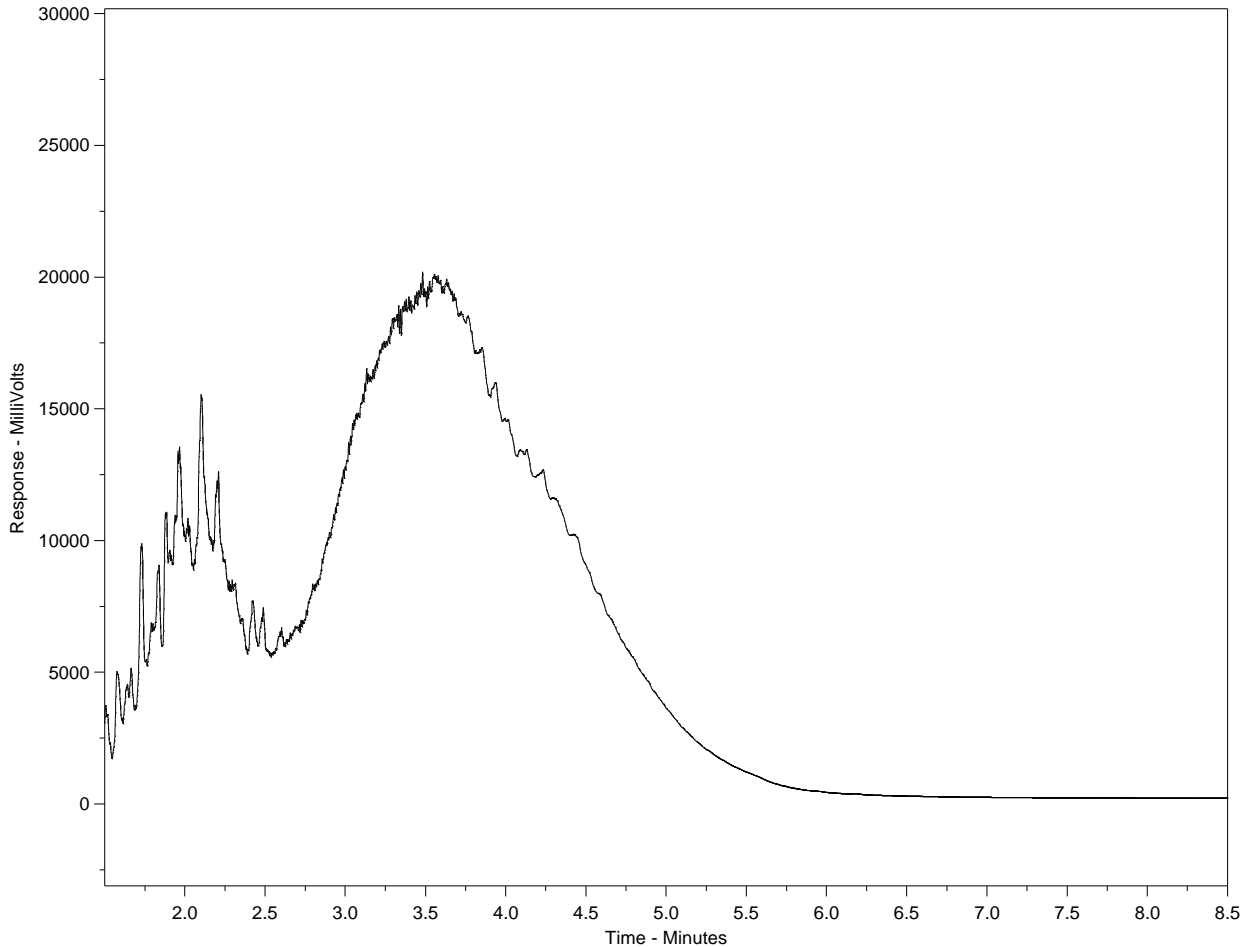
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1460722-66
 Client ID: DUP F



← 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.



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710A 48th Street East
Saskatoon SK S7K 5B4

Date Received: 06-JUN-14
Report Date: 18-JUN-14 15:18 (MT)
Version: FINAL

Client Phone: 306-244-1710

Certificate of Analysis

Lab Work Order #: L1466799
Project P.O. #: NOT SUBMITTED
Job Reference: 1544-2
C of C Numbers:
Legal Site Desc: SASKATOON, SK

Brian Morgan
Account Manager

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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1466799-1 D1 Sampled By: JC on 05-JUN-14 @ 13:05 Matrix: OTHER Miscellaneous Parameters F1 (C6-C10) F2-F4 (O.Reg.153/04) F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Chrom. to baseline at nC50 Surrogate: 2-Bromobenzotrifluoride Note: F4 results may be biased high.	<50 <150 3640 610 YES 88.6	 DLM RRR	 50 150 450 250 50-150	 ug ug ug ug %	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 R2856407 R2867352 R2867352 R2867352 R2867352 R2867352
L1466799-2 D2 Sampled By: JC on 05-JUN-14 @ 13:15 Matrix: OTHER Miscellaneous Parameters F1 (C6-C10) F2-F4 (O.Reg.153/04) F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Chrom. to baseline at nC50 Surrogate: 2-Bromobenzotrifluoride Note: F4 results may be biased high.	<50 <150 3240 380 YES 73.2	 DLM RRR	 50 150 450 250 50-150	 ug ug ug ug %	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 R2856407 R2867352 R2867352 R2867352 R2867352 R2867352
L1466799-3 D3 Sampled By: JC on 05-JUN-14 @ 13:25 Matrix: OTHER Miscellaneous Parameters F1 (C6-C10) F2-F4 (O.Reg.153/04) F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Chrom. to baseline at nC50 Surrogate: 2-Bromobenzotrifluoride Note: F4 results may be biased high.	<50 170 4520 690 YES 89.8	 DLM RRR	 50 150 450 250 50-150	 ug ug ug ug %	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 R2856407 R2867352 R2867352 R2867352 R2867352 R2867352
L1466799-4 D4 Sampled By: JC on 05-JUN-14 @ 13:35 Matrix: OTHER Miscellaneous Parameters F1 (C6-C10) F2-F4 (O.Reg.153/04) F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Chrom. to baseline at nC50 Surrogate: 2-Bromobenzotrifluoride Note: F4 results may be biased high.	<50 170 15600 830 YES 87.3	 DLM RRR	 50 150 450 250 50-150	 ug ug ug ug %	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 R2856407 R2867352 R2867352 R2867352 R2867352 R2867352
L1466799-5 D5 Sampled By: JC on 05-JUN-14 @ 13:45 Matrix: OTHER Miscellaneous Parameters F1 (C6-C10) F2-F4 (O.Reg.153/04)	<50		50	ug	10-JUN-14	10-JUN-14	R2856407

* 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
L1466799-5 D5 Sampled By: JC on 05-JUN-14 @ 13:45 Matrix: OTHER F2-F4 (O.Reg.153/04) F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Chrom. to baseline at nC50 Surrogate: 2-Bromobenzotrifluoride Note: F4 results may be biased high.	<150 2720 410 YES 78.7	 DLM RRR	 150 450 250 50-150	 ug ug ug % %	 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 R2867352 R2867352 R2867352 R2867352 R2867352
L1466799-6 D6 Sampled By: JC on 05-JUN-14 @ 13:55 Matrix: OTHER Miscellaneous Parameters F1 (C6-C10) F2-F4 (O.Reg.153/04) F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Chrom. to baseline at nC50 Surrogate: 2-Bromobenzotrifluoride Note: F4 results may be biased high.	<50 <150 2630 640 YES 81.8	 DLM RRR	 50 150 450 250 50-150	 ug ug ug ug % %	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 R2856407 R2867352 R2867352 R2867352 R2867352 R2867352
L1466799-7 D7 Sampled By: JC on 05-JUN-14 @ 14:05 Matrix: OTHER Miscellaneous Parameters F1 (C6-C10) F2-F4 (O.Reg.153/04) F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Chrom. to baseline at nC50 Surrogate: 2-Bromobenzotrifluoride Note: F4 results may be biased high.	<50 <150 2960 680 YES 77.7	 DLM RRR	 50 150 450 250 50-150	 ug ug ug ug % %	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 R2856407 R2867352 R2867352 R2867352 R2867352 R2867352
L1466799-8 D8 Sampled By: JC on 05-JUN-14 @ 14:15 Matrix: OTHER Miscellaneous Parameters F1 (C6-C10) F2-F4 (O.Reg.153/04) F2 (C10-C16) F3 (C16-C34) F4 (C34-C50) Chrom. to baseline at nC50 Surrogate: 2-Bromobenzotrifluoride Note: F4 results may be biased high.	<50 260 5370 540 YES 77.8	 DLM RRR	 50 150 450 250 50-150	 ug ug ug ug % %	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 10-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14 18-JUN-14	 R2856407 R2867352 R2867352 R2867352 R2867352 R2867352
L1466799-9 PB 1 Sampled By: JC on 05-JUN-14 @ 13:00 Matrix: OTHER Miscellaneous Parameters Lead (Pb)	2090		5.0	mg/kg	11-JUN-14	11-JUN-14	R2858291
L1466799-10 PB 2 Sampled By: JC on 05-JUN-14 @ 14:45 Matrix: OTHER							

* 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
L1466799-10 PB 2 Sampled By: JC on 05-JUN-14 @ 14:45 Matrix: OTHER Miscellaneous Parameters Lead (Pb)	1410		5.0	mg/kg	11-JUN-14	11-JUN-14	R2858291

* 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.
LCS-H	Lab Control Sample recovery was above ALS DQO. Non-detected sample results are considered reliable. Other results, if reported, have been qualified.
MB-LOR	Method Blank exceeds ALS DQO. Limits of Reporting have been adjusted for samples with positive hits below 5x blank level.
RRR	Refer to Report Remarks for issues regarding this analysis

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
F2-F4-WT	Swab	F2-F4 (O.Reg.153/04)	MOE DECPH-E3421/CCME TIER 1
PB-PAINT-SK	Bulk	Lead (Pb) in Paint	SW846-6010

** 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
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, 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.



L1466799-COFC

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

COC #

Page 1 of 1

Report Format / Distribution
Service Requested (Rush for routine analysis subject to availability)
Company: PINTER & Associates Ltd.
Contact: Jessica Cutter
Address: 710A 48th Street East
Saskatoon, SK S7K 5B4
Phone: 306.244.1710 Fax: 306.933.4986
Email 1: jessica.cutter@pinter.ca
Email 2: lpinter@pinter.ca
Email 3: ryan.riess@pinter.ca

Analysis Request
Please indicate below Filtered, Preserved or both (F, P, F/P)
Client / Project Information
Job #: 1544-2
PO / AFE:
LSD: Saskatoon, SK
Quote #: Q37502

ALS Contact: Brian Morgan
Sampler: JC

Table with columns: Sample #, Sample Identification, Date, Time, Sample Type, F1-WT, F2-F4-WT, PB-PAINT-SK, Number of Containers. Rows include D1-D8 and Pb 1-2.

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

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY.
By the use of this form the user acknowledges and agrees with the Terms and Conditions as provided on a separate Excel tab.
Also provided on another Excel tab are the ALS location addresses, phone numbers and sample container / preservation / holding time table for common analyses.

SHIPMENT RELEASE (client use)
SHIPMENT RECEPTION (lab use only)
SHIPMENT VERIFICATION (lab use only)
Released by: Jessica Cutter
Date: 6-Jun-14
Time: 10:30
Received by: [Signature]
Date: 6-JUN-14
Time: 10:20am
Temperature: 18 °C
Verified by: [Signature]
Date: 6-JUN-14
Time: 10:35



PINTER AND ASSOCIATES LTD.
ATTN: Lawrence Pinter
710A 48th Street East
Saskatoon SK S7K 5B4

Date Received: 27-JUN-14
Report Date: 07-JUL-14 10:17 (MT)
Version: FINAL

Client Phone: 306-244-1710

Certificate of Analysis

Lab Work Order #: L1478162
Project P.O. #: NOT SUBMITTED
Job Reference: 1544-2
C of C Numbers:
Legal Site Desc: SASKATOON,SK

Brian Morgan
Account Manager

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

ADDRESS: #819-58th St E., Saskatoon, SK S7K 6X5 Canada | Phone: +1 306 668 8370 | Fax: +1 306 668 8383
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ALS ENVIRONMENTAL ANALYTICAL REPORT

Sample Details/Parameters	Result	Qualifier*	D.L.	Units	Extracted	Analyzed	Batch
L1478162-1 14-13 Sampled By: JC on 26-JUN-14 @ 10:20 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 107.5 115.6 79.1 <0.20 79.0		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130 0.20 50-150	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % % mg/L %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2876960 R2876960
L1478162-2 14-15 Sampled By: JC on 26-JUN-14 @ 10:47 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 110.2 110.5 85.7 <0.20 78.9		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130 0.20 50-150	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % % mg/L %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2876960 R2876960
L1478162-3 14-12 Sampled By: JC on 26-JUN-14 @ 11:20 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 110.0 99.8		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253

* 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
L1478162-3 14-12 Sampled By: JC on 26-JUN-14 @ 11:20 Matrix: WATER BTEX and F1 (C6-C10) Surrogate: 3,4-Dichlorotoluene	82.7		70-130	%	04-JUL-14	05-JUL-14	R2879253
F2 (>C10 -C16) F2 (C10-C16)	<0.20		0.20	mg/L	30-JUN-14	02-JUL-14	R2876960
Surrogate: 2-Bromobenzotrifluoride	83.8		50-150	%	30-JUN-14	02-JUL-14	R2876960
L1478162-4 MWA Sampled By: JC on 26-JUN-14 @ 11:54 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Toluene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
EthylBenzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Xylenes	<0.0020		0.0020	mg/L	04-JUL-14	05-JUL-14	R2879253
o-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
m+p-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
F1(C6-C10)	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
F1-BTEX	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
Surrogate: 1,4-Difluorobenzene	109.3		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 4-Bromofluorobenzene	117.2		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 3,4-Dichlorotoluene	80.1		70-130	%	04-JUL-14	05-JUL-14	R2879253
F2 (>C10 -C16) F2 (C10-C16)	<0.20		0.20	mg/L	30-JUN-14	02-JUL-14	R2876960
Surrogate: 2-Bromobenzotrifluoride	93.0		50-150	%	30-JUN-14	02-JUL-14	R2876960
L1478162-5 MWB Sampled By: JC on 26-JUN-14 @ 00:25 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Toluene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
EthylBenzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Xylenes	<0.0020		0.0020	mg/L	04-JUL-14	05-JUL-14	R2879253
o-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
m+p-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
F1(C6-C10)	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
F1-BTEX	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
Surrogate: 1,4-Difluorobenzene	109.1		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 4-Bromofluorobenzene	110.5		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 3,4-Dichlorotoluene	80.5		70-130	%	04-JUL-14	05-JUL-14	R2879253
F2 (>C10 -C16) F2 (C10-C16)	<0.20		0.20	mg/L	30-JUN-14	02-JUL-14	R2876960
Surrogate: 2-Bromobenzotrifluoride	85.1		50-150	%	30-JUN-14	02-JUL-14	R2876960
L1478162-6 14-41 Sampled By: JC on 26-JUN-14 @ 00:45 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253

* 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
L1478162-6 14-41 Sampled By: JC on 26-JUN-14 @ 00:45 Matrix: WATER BTEX and F1 (C6-C10) Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 111.3 108.0 75.2 <0.20 79.5		0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130	mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % % mg/L %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2876960 R2876960
L1478162-7 14-42 Sampled By: JC on 26-JUN-14 @ 01:10 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 105.9 105.3 77.3 <0.20 80.7		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % % mg/L %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2876960 R2876960
L1478162-8 14-7 Sampled By: JC on 26-JUN-14 @ 01:32 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16)	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 107.0 108.3 77.5		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253

* 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
L1478162-8 14-7 Sampled By: JC on 26-JUN-14 @ 01:32 Matrix: WATER F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.20 86.5		0.20 50-150	mg/L %	30-JUN-14 30-JUN-14	02-JUL-14 02-JUL-14	R2876960 R2876960
Single Metal in Water by ICPMS (Diss.) Dissolved Metals in Water by CRC ICPMS Lead (Pb)-Dissolved	<0.000050		0.000050	mg/L		05-JUL-14	R2878781
L1478162-9 14-5 Sampled By: JC on 26-JUN-14 @ 02:05 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 108.1 102.4 85.0 0.23 91.5		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130 0.20 0.20 50-150	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % % mg/L %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2876960 R2876960
L1478162-10 14-3 Sampled By: JC on 26-JUN-14 @ 02:34 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride Single Metal in Water by ICPMS (Diss.) Dissolved Metals in Water by CRC ICPMS Lead (Pb)-Dissolved	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 107.6 119.5 78.6 <0.20 81.4 0.000067		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130 0.20 50-150 0.000050	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % % mg/L % mg/L	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2876960 R2876960 R2878781

* 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
L1478162-11 14-1 Sampled By: JC on 26-JUN-14 @ 15:00 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 Toluene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 EthylBenzene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 Xylenes <0.0020 0.0020 mg/L 04-JUL-14 05-JUL-14 R2879253 o-Xylene <0.0010 0.0010 mg/L 04-JUL-14 05-JUL-14 R2879253 m+p-Xylene <0.0010 0.0010 mg/L 04-JUL-14 05-JUL-14 R2879253 F1(C6-C10) <0.20 0.20 mg/L 04-JUL-14 05-JUL-14 R2879253 F1-BTEX <0.20 0.20 mg/L 04-JUL-14 05-JUL-14 R2879253 Surrogate: 1,4-Difluorobenzene 110.0 70-130 % 04-JUL-14 05-JUL-14 R2879253 Surrogate: 4-Bromofluorobenzene 96.8 70-130 % 04-JUL-14 05-JUL-14 R2879253 Surrogate: 3,4-Dichlorotoluene 74.9 70-130 % 04-JUL-14 05-JUL-14 R2879253 F2 (>C10 -C16) F2 (C10-C16) <0.20 0.20 mg/L 30-JUN-14 02-JUL-14 R2876960 Surrogate: 2-Bromobenzotrifluoride 91.1 50-150 % 30-JUN-14 02-JUL-14 R2876960 Single Metal in Water by ICPMS (Diss.) Dissolved Metals in Water by CRC ICPMS Lead (Pb)-Dissolved <0.000050 0.000050 mg/L 05-JUL-14 R2878781							
L1478162-12 14-33 Sampled By: JC on 26-JUN-14 @ 15:20 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 Toluene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 EthylBenzene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 Xylenes <0.0020 0.0020 mg/L 04-JUL-14 05-JUL-14 R2879253 o-Xylene <0.0010 0.0010 mg/L 04-JUL-14 05-JUL-14 R2879253 m+p-Xylene <0.0010 0.0010 mg/L 04-JUL-14 05-JUL-14 R2879253 F1(C6-C10) <0.20 0.20 mg/L 04-JUL-14 05-JUL-14 R2879253 F1-BTEX <0.20 0.20 mg/L 04-JUL-14 05-JUL-14 R2879253 Surrogate: 1,4-Difluorobenzene 109.3 70-130 % 04-JUL-14 05-JUL-14 R2879253 Surrogate: 4-Bromofluorobenzene 112.9 70-130 % 04-JUL-14 05-JUL-14 R2879253 Surrogate: 3,4-Dichlorotoluene 77.1 70-130 % 04-JUL-14 05-JUL-14 R2879253 F2 (>C10 -C16) F2 (C10-C16) <0.20 0.20 mg/L 30-JUN-14 02-JUL-14 R2876960 Surrogate: 2-Bromobenzotrifluoride 88.5 50-150 % 30-JUN-14 02-JUL-14 R2876960							
L1478162-13 14-37 Sampled By: JC on 26-JUN-14 @ 15:42 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 Toluene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 EthylBenzene <0.00050 0.00050 mg/L 04-JUL-14 05-JUL-14 R2879253 Xylenes <0.0020 0.0020 mg/L 04-JUL-14 05-JUL-14 R2879253 o-Xylene <0.0010 0.0010 mg/L 04-JUL-14 05-JUL-14 R2879253 m+p-Xylene <0.0010 0.0010 mg/L 04-JUL-14 05-JUL-14 R2879253 F1(C6-C10) <0.20 0.20 mg/L 04-JUL-14 05-JUL-14 R2879253							

* 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
L1478162-13 14-37 Sampled By: JC on 26-JUN-14 @ 15:42 Matrix: WATER BTEX and F1 (C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.20 107.2 110.0 78.0 0.60 88.0		0.20 70-130 70-130 70-130 0.20 50-150	mg/L % % % mg/L %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2876960 R2876960
L1478162-14 14-18 Sampled By: JC on 26-JUN-14 @ 04:05 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 106.2 99.1 74.0 <0.20 87.7		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130 0.20 50-150	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % % mg/L %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2876960 R2876960
L1478162-15 14-27 Sampled By: JC on 26-JUN-14 @ 04:25 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene Toluene EthylBenzene Xylenes o-Xylene m+p-Xylene F1(C6-C10) F1-BTEX Surrogate: 1,4-Difluorobenzene Surrogate: 4-Bromofluorobenzene Surrogate: 3,4-Dichlorotoluene F2 (>C10 -C16) F2 (C10-C16) Surrogate: 2-Bromobenzotrifluoride	<0.00050 <0.00050 <0.00050 <0.0020 <0.0010 <0.0010 <0.20 <0.20 107.8 118.4 80.4 <0.20 91.0		0.00050 0.00050 0.00050 0.0020 0.0010 0.0010 0.20 0.20 70-130 70-130 70-130 0.20 50-150	mg/L mg/L mg/L mg/L mg/L mg/L mg/L mg/L % % % mg/L %	04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 04-JUL-14 30-JUN-14 30-JUN-14	05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 05-JUL-14 02-JUL-14 02-JUL-14	R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2879253 R2876960 R2876960
L1478162-16 14-25 Sampled By: JC on 26-JUN-14 @ 04:47 Matrix: WATER							

* 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
L1478162-16 14-25 Sampled By: JC on 26-JUN-14 @ 04:47 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Toluene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
EthylBenzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Xylenes	<0.0020		0.0020	mg/L	04-JUL-14	05-JUL-14	R2879253
o-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
m+p-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
F1(C6-C10)	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
F1-BTEX	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
Surrogate: 1,4-Difluorobenzene	107.8		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 4-Bromofluorobenzene	85.2		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 3,4-Dichlorotoluene	71.1		70-130	%	04-JUL-14	05-JUL-14	R2879253
F2 (>C10 -C16)							
F2 (C10-C16)	0.32		0.20	mg/L	30-JUN-14	02-JUL-14	R2876960
Surrogate: 2-Bromobenzotrifluoride	94.9		50-150	%	30-JUN-14	02-JUL-14	R2876960
L1478162-17 14-20 Sampled By: JC on 26-JUN-14 @ 05:15 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Toluene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
EthylBenzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Xylenes	<0.0020		0.0020	mg/L	04-JUL-14	05-JUL-14	R2879253
o-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
m+p-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
F1(C6-C10)	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
F1-BTEX	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
Surrogate: 1,4-Difluorobenzene	108.6		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 4-Bromofluorobenzene	99.4		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 3,4-Dichlorotoluene	77.8		70-130	%	04-JUL-14	05-JUL-14	R2879253
F2 (>C10 -C16)							
F2 (C10-C16)	0.26		0.20	mg/L	30-JUN-14	02-JUL-14	R2876960
Surrogate: 2-Bromobenzotrifluoride	85.1		50-150	%	30-JUN-14	02-JUL-14	R2876960
L1478162-18 14-23 Sampled By: JC on 26-JUN-14 @ 05:34 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10)							
Benzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Toluene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
EthylBenzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Xylenes	<0.0020		0.0020	mg/L	04-JUL-14	05-JUL-14	R2879253
o-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
m+p-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
F1(C6-C10)	3.52		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
F1-BTEX	3.52		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
Surrogate: 1,4-Difluorobenzene	112.8		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 4-Bromofluorobenzene	115.9		70-130	%	04-JUL-14	05-JUL-14	R2879253

* 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
L1478162-18 14-23 Sampled By: JC on 26-JUN-14 @ 05:34 Matrix: WATER BTEX and F1 (C6-C10) Surrogate: 3,4-Dichlorotoluene	158.7	SOL:MI	70-130	%	04-JUL-14	05-JUL-14	R2879253
F2 (>C10 -C16) F2 (C10-C16)	136		0.20	mg/L	30-JUN-14	02-JUL-14	R2876960
Surrogate: 2-Bromobenzotrifluoride	129.6		50-150	%	30-JUN-14	02-JUL-14	R2876960
Single Metal in Water by ICPMS (Diss.) Dissolved Metals in Water by CRC ICPMS Lead (Pb)-Dissolved	0.000155		0.000050	mg/L		05-JUL-14	R2878781
L1478162-19 DUP A Sampled By: JC on 26-JUN-14 @ 03:42 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Toluene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
EthylBenzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Xylenes	<0.0020		0.0020	mg/L	04-JUL-14	05-JUL-14	R2879253
o-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
m+p-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
F1(C6-C10)	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
F1-BTEX	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
Surrogate: 1,4-Difluorobenzene	110.0		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 4-Bromofluorobenzene	113.2		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 3,4-Dichlorotoluene	83.4		70-130	%	04-JUL-14	05-JUL-14	R2879253
F2 (>C10 -C16) F2 (C10-C16)	0.64		0.20	mg/L	30-JUN-14	02-JUL-14	R2876960
Surrogate: 2-Bromobenzotrifluoride	94.8		50-150	%	30-JUN-14	02-JUL-14	R2876960
L1478162-20 DUP B Sampled By: JC on 26-JUN-14 @ 04:47 Matrix: WATER BTEX, F1 (C6-C10) and F2 (>C10-C16) BTEX and F1 (C6-C10) Benzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Toluene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
EthylBenzene	<0.00050		0.00050	mg/L	04-JUL-14	05-JUL-14	R2879253
Xylenes	<0.0020		0.0020	mg/L	04-JUL-14	05-JUL-14	R2879253
o-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
m+p-Xylene	<0.0010		0.0010	mg/L	04-JUL-14	05-JUL-14	R2879253
F1(C6-C10)	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
F1-BTEX	<0.20		0.20	mg/L	04-JUL-14	05-JUL-14	R2879253
Surrogate: 1,4-Difluorobenzene	107.6		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 4-Bromofluorobenzene	118.0		70-130	%	04-JUL-14	05-JUL-14	R2879253
Surrogate: 3,4-Dichlorotoluene	63.4	SOL:MI	70-130	%	04-JUL-14	05-JUL-14	R2879253
F2 (>C10 -C16) F2 (C10-C16)	0.21		0.20	mg/L	30-JUN-14	02-JUL-14	R2876960
Surrogate: 2-Bromobenzotrifluoride	96.9		50-150	%	30-JUN-14	02-JUL-14	R2876960

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

Reference Information

Qualifiers for Sample Submission Listed:

Qualifier	Description
SFPL	Sample was Filtered and Preserved at the laboratory

Sample Parameter Qualifier Key:

Qualifier	Description
DLM	Detection Limit Adjusted due to sample matrix effects.
SOL:MI	Surrogate recovery outside acceptable limits due to matrix interference

Test Method References:

ALS Test Code	Matrix	Test Description	Method Reference**
BTX,F1-SK	Water	BTEX and F1 (C6-C10)	EPA 5012A/8260B HS/GC/FID/MSD
<p>Samples are transferred to glass vials with salt and methanol. The vial is then heated and agitated in a headspace auto-sampler. An aliquot of the headspace is injected into a gas chromatograph where sample flow is split into 2 directions. One split of the sample is passed through a DB-1 column to an FID detector where hydrocarbons in the F1 range are quantified.</p> <p>References: EPA Method 8260B, Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry (GC/MS), Revision 2, December 1996. EPA Method 5012A, Volatile Organic Compounds in Various Sample Matrices Using Equilibrium Headspace Analysis, Revision 1, June 2003.</p>			
F2-SK	Water	F2 (>C10 -C16)	EPA 3510/8000-GC-FID
MET-D-CCMS-ED	Water	Dissolved Metals in Water by CRC ICPMS	APHA 3030 B&E / EPA SW-846 6020A

** 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
ED	ALS ENVIRONMENTAL - EDMONTON, ALBERTA, 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.

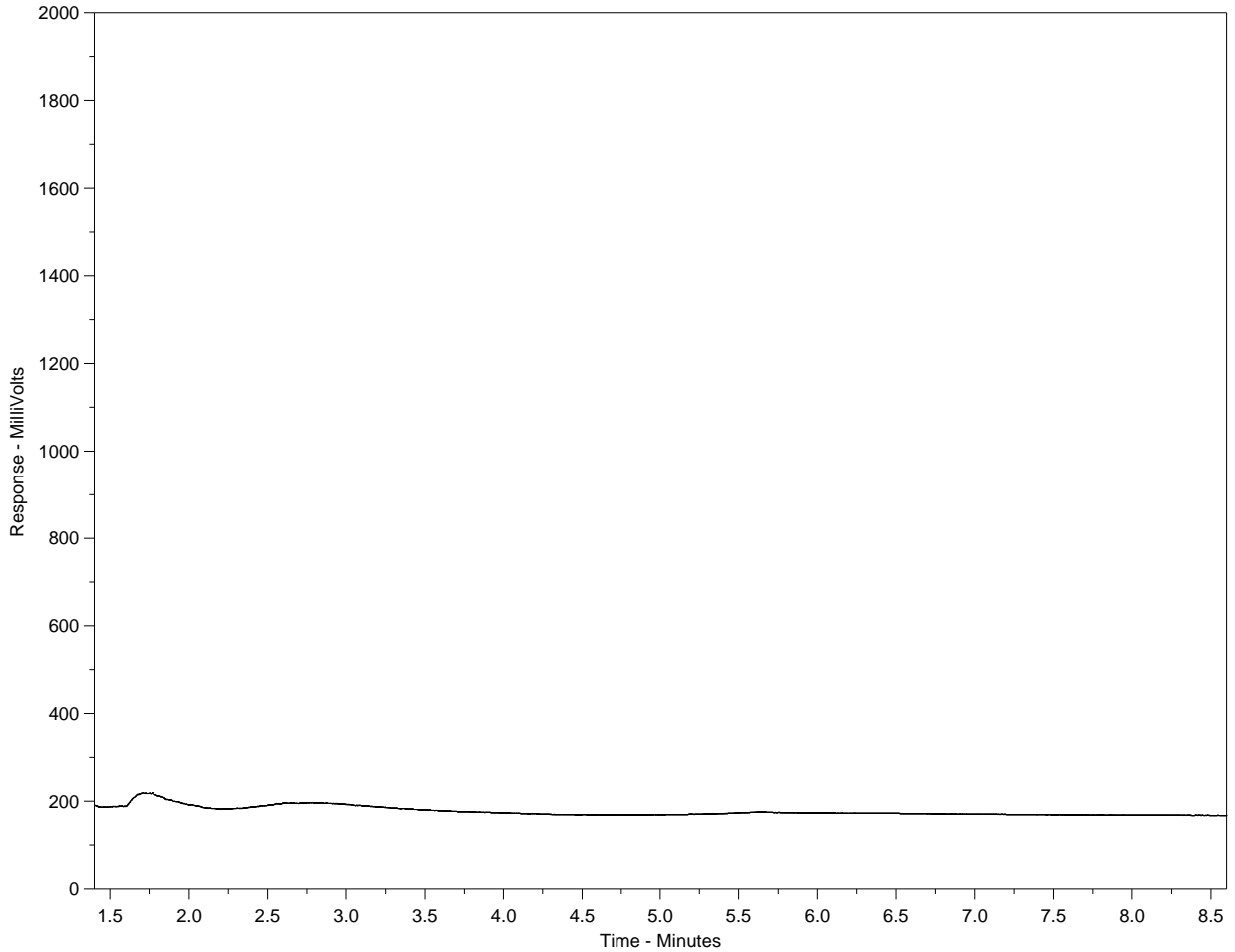
UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

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

CCME F2-F4 HYDROCARBON DISTRIBUTION REPORT



ALS Sample ID: L1478162-9
Client ID: 14-5



← 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.

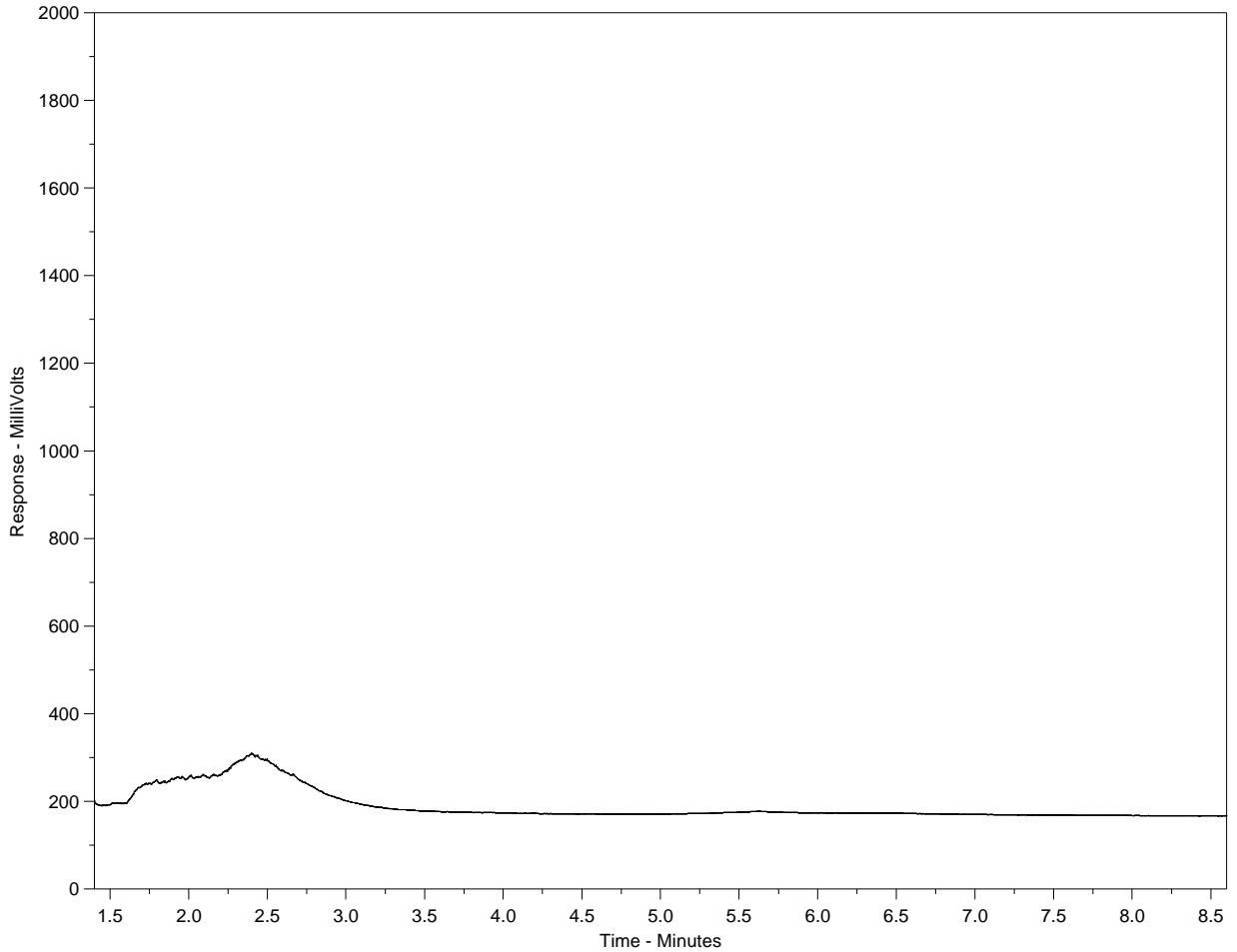
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1478162-13
Client ID: 14-37



← 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.

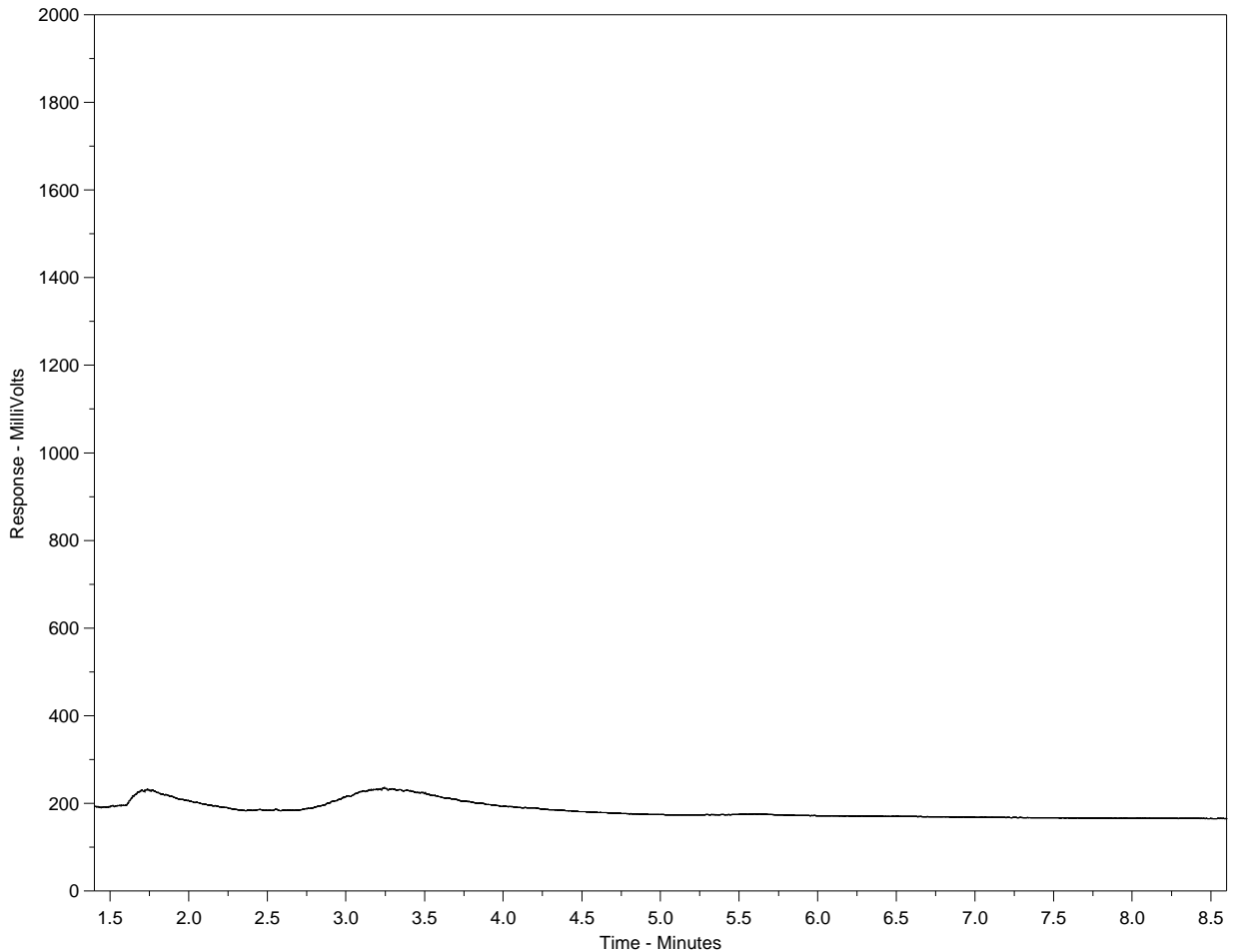
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1478162-16
Client ID: 14-25



← 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.

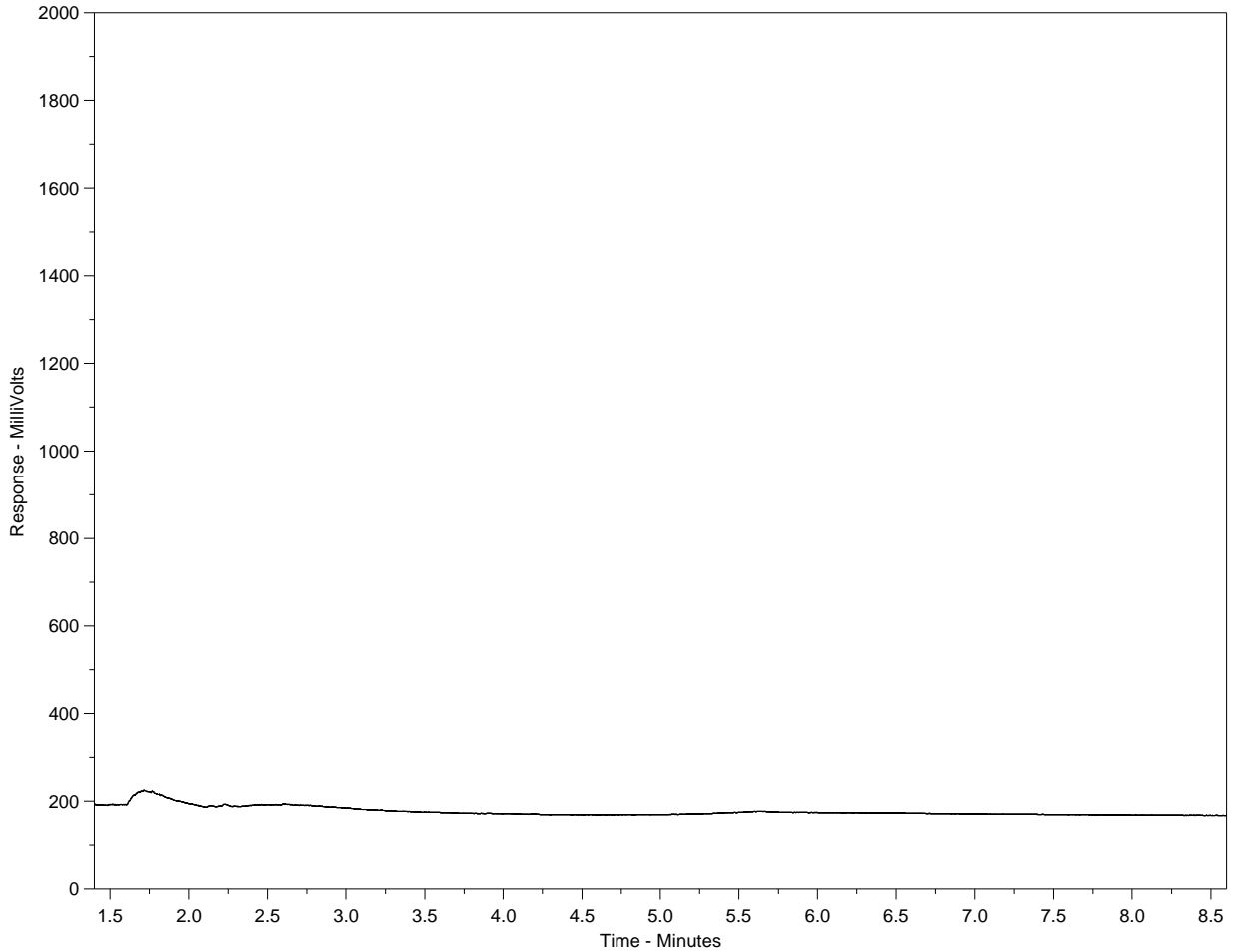
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1478162-17
Client ID: 14-20



← 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.

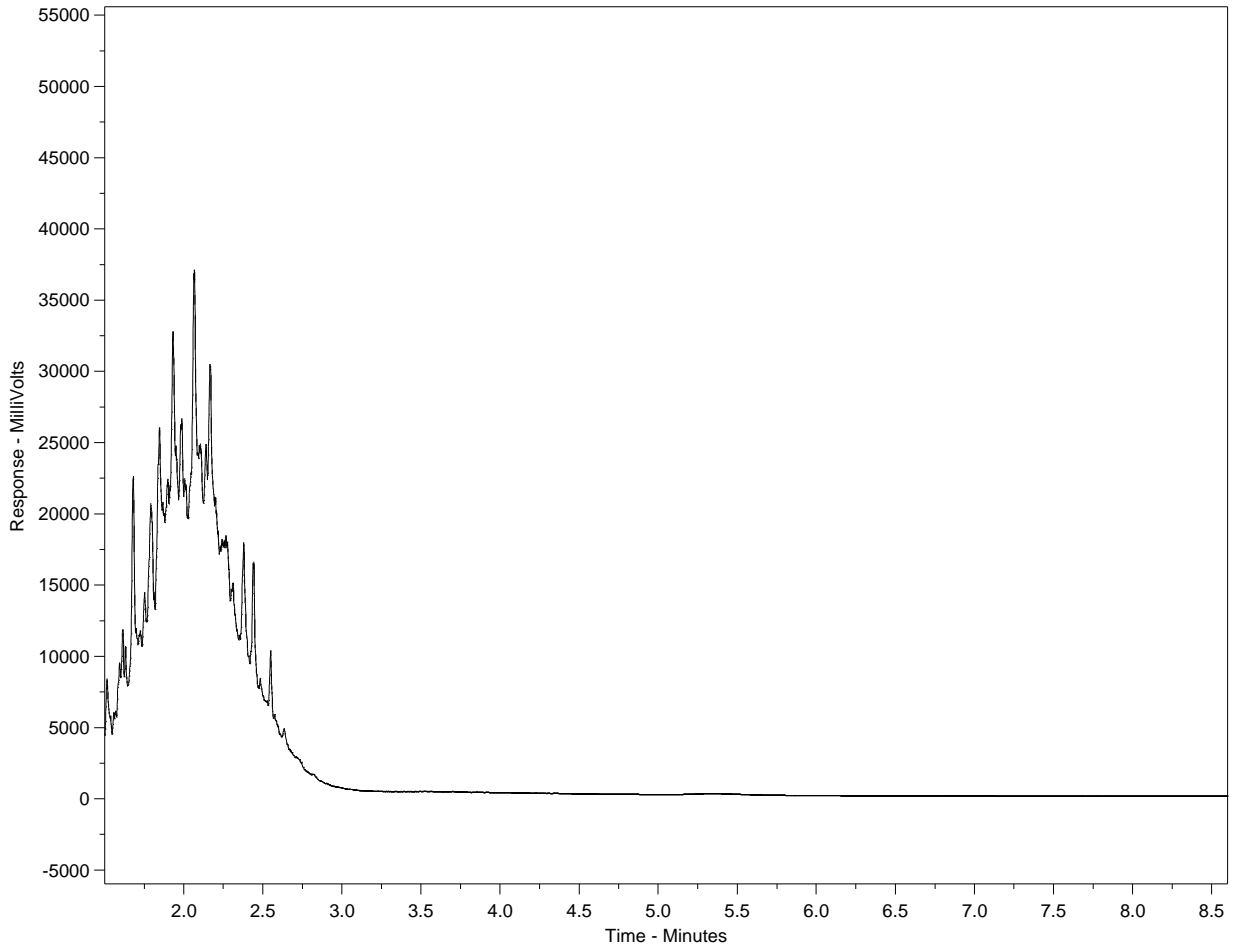
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1478162-18
Client ID: 14-23



← 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.

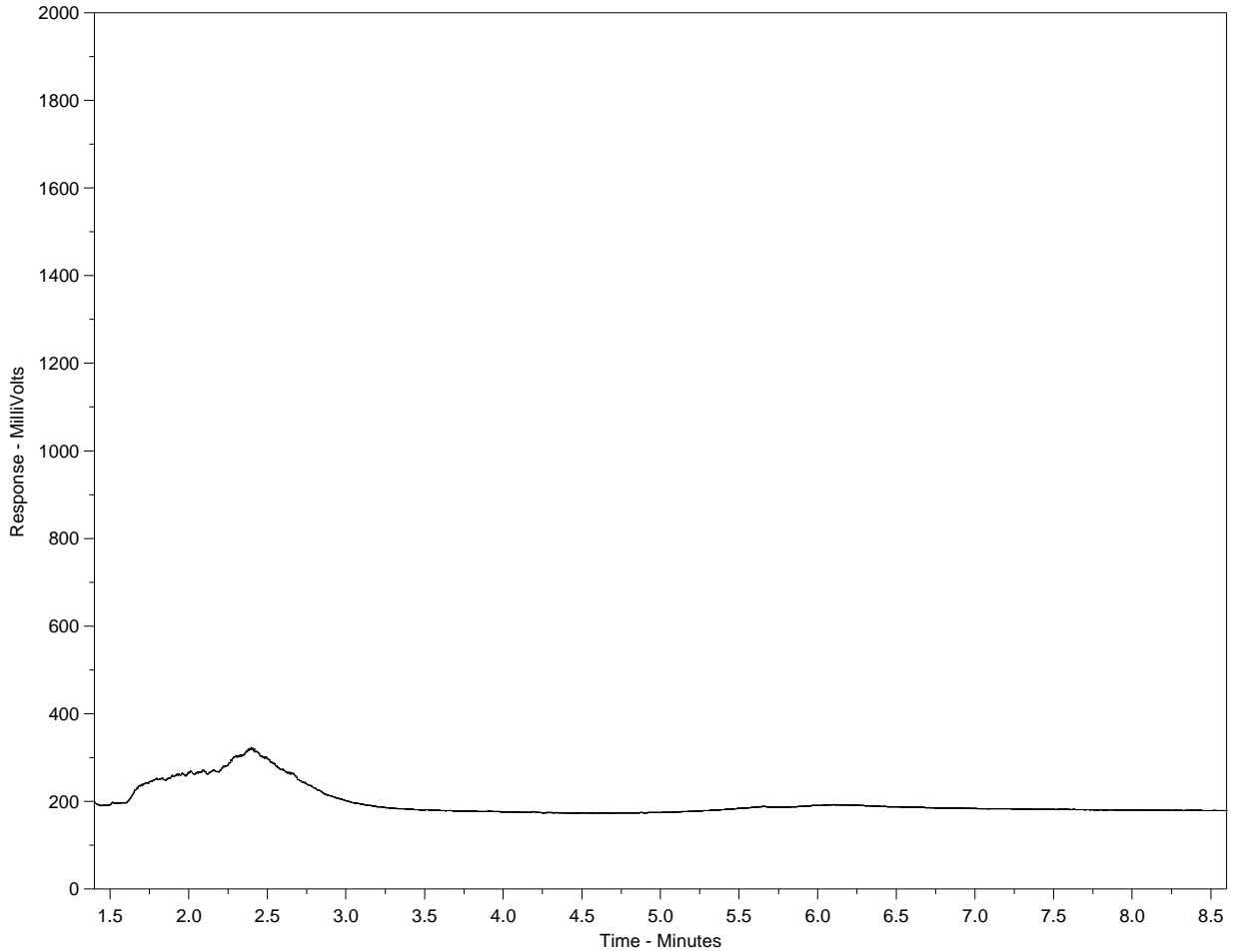
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1478162-19
Client ID: DUP A



← 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.

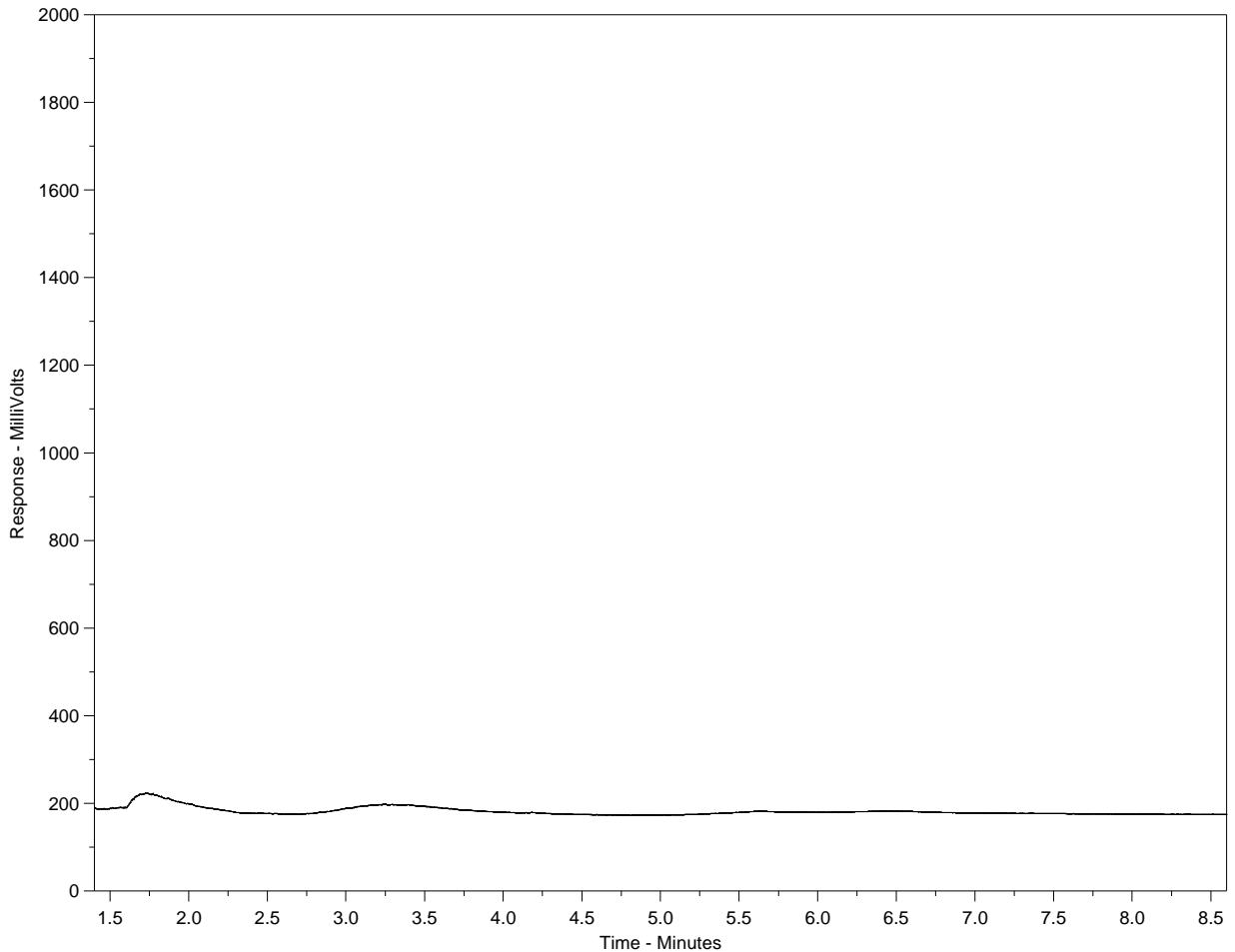
Peak heights in this report are a function of the sample concentration, the sample amount extracted, the sample dilution factor, and the scale at left.

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: L1478162-20
Client ID: DUP B



← 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.



L1478162-COFC

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

Samples for dissolved lead analysis were not field filtered.

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

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

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

SHIPMENT RELEASE (client use)			SHIPMENT RECEPTION (lab use only)				SHIPMENT VERIFICATION (lab use only)			
Released by: Jessica Cutter	Date (dd-mmm-yy) 27-Jun-14	Time (hh-mm) 11:30	Received by: 	Date: 27-Jun-14	Time: 11:21 AM	Temperature: 8 °C	Verified by:	Date:	Time:	Observations: Yes / No ? If Yes add SIF



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Appendix H
Site Monitoring Report

Site Monitoring Report

Project Number: 1544-2
Site Location: Caswell Transit Site
Date Monitored: 26 June 2014
Weather: 18 °C, Wind NNW 20 kph

Monitoring Well ID	Well Screen Interval (m bgs)	Surface Elevation (m)	Groundwater Elevation (m)	Depth to LNAPL (m bgs)	Depth to Groundwater (m bgs)	Well Depth ^a (m btoc)	WVCRs ^b (ppm)	DO (mg/L)	ORP (mV)	pH	Temp (°C)	EC (mS/cm)	Sample Comments
14-01	2.7 to 4.2	488.754	486.474	-	2.28	4.12	200	3.4	251	7.04	6.7	1.89	-
14-03	2.7 to 4.2	488.976	486.646	-	2.33	4.14	790	3.02	247	7.19	9.5	0.994	-
14-05	2.2 to 3.6	488.863	486.703	-	2.16	3.55	80	0.62	206	7.03	7.9	1.19	-
14-06	3.3 to 4.2	488.503	486.323	-	2.18	3.90	20	3.42	230	7.25	9.2	1.08	-
14-12	2.7 to 4.2	487.443	485.113	-	2.33	4.50	6450	0.85	282	7.39	10.4	2.52	-
14-13	2.7 to 4.2	487.350	485.260	-	2.09	3.62	4200	8.35	465	7.18	9.9	2.06	-
14-15	3.6 to 5.1	487.600	485.240	-	2.36	4.72	4350	8.34	500	7.78	8.1	1.61	-
14-18	3.0 to 4.5	-	-	-	3.19	4.37	10	2.66	221	7.12	17.6	2.04	-
14-20	2.0 to 3.5	-	-	-	2.34	3.18	25	2.66	221	7.12	17.6	2.04	-
14-23	2.0 to 3.5	487.804	485.394	-	2.41	3.53	65	1.95	-34	7.08	13.5	1.98	Strong PHC odour; murky
14-25	2.7 to 4.2	-	-	-	2.78	3.88	25	0.57	247	7.05	15.4	1.42	Light yellow color; oily
14-27	1.5 to 3.0	-	-	-	2.48	3.09	45	5.96	255	7.10	17.7	1.78	-
14-33	1.5 to 3.0	-	-	-	1.93	2.96	0	3.9	273	7.12	17.9	1.72	-
14-37	1.5 to 3.0	-	-	-	1.83	2.77	10	0.35	65	6.95	14.2	0.69	-
14-41	3.0 to 4.5	487.423	484.823	-	2.60	4.75	120	5.44	217	6.89	16.0	0.71	-
14-42	2.1 to 3.6	487.353	484.303	-	3.05	3.79	20	3.51	225	6.81	8.0	2.32	-
MWA	-	487.459	485.259	-	2.20	3.63	0	3.31	127	7.22	12.6	2.34	-
MWB	-	487.500	485.210	-	2.29	-	0	3.07	135	7.14	13.5	2.22	-
MWC	-	-	-	-	-	1.93	-	-	-	-	-	-	Dry
MWD	-	-	-	-	-	1.90	-	-	-	-	-	-	Dry

^a Well depth is measured from the top of the casing

^b Field screening results are measured using a combustible gas meter calibrated to a hexane standard.

All terms defined in body of PINTER report

m bgs - meters below ground surface

m btoc - metres below top of casing

LNAPL - light non-aqueous phase liquid

WVCRs - well headspace vapour concentration

DO - dissolved oxygen

ORP - oxidation reduction potential

EC - electrical conductivity

ppm - parts per million

mg/L - milligrams per liter

mV - millivolts

mS/cm - millisiemens per centimeter



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Appendix I

Bersch & Associates Asbestos Reports



**TRANSIT STORAGE & ADMINISTRATION
BUILDING
ASBESTOS SURVEY REPORT**



April 2014

Prepared For: City of Saskatoon – Infrastructure Services Department
1101 Avenue P North, Saskatoon SK, Canada S7L 7K6
Attn: Brent Anderson

Prepared By: Bersch & Associates Ltd.
Project No. : B67SRD23

1.0 EXECUTIVE SUMMARY

The asbestos audit of the Transit Storage & Administration Building located at 301 - 24th Street West Saskatoon, SK. entailed the inspection of all accessible suspect asbestos-containing materials (ACM) located within the facility. Materials inspected included insulation materials, floor covering materials, mechanical insulation materials, ceiling tiles, sealant materials and gasket materials.

Bulk sample analysis results indicate the presence of “Chrysotile” asbestos within the Transit Storage & Administration Building located in Saskatoon, SK. Please refer to *Appendix I for Bulk Sample Analysis* results. The recommended actions to be implemented in reference to the ACM identified are Management. Please refer to section 5 Asbestos Abatement Discussion for definitions. It should be noted that the recommendation of “Management” as part of the asbestos action plan is based upon the premise that renovations are not scheduled throughout the area that would impact the asbestos containing material present. *Prior to any major renovation/demolition activity, a destructive investigation is recommended to identify any inaccessible ACM that is physically concealed or isolated in areas such as enclosed wall/ceiling/floor cavities and pipe chases.* Asbestos was detected in the following forms throughout the facility:

- **Vinyl Asbestos Floor Tile** is located within 244 and 103 Storage Rooms. The Asbestos Floor Tile has been identified on the **Floor Plans** included in *Appendix II* of this report.
- **Transite Roof Drain Pipe** is located in 201, 202, 203, 204, 208, 209, 114, 119 and 120. The Asbestos Drain Pipe has been identified with an “ASBESTOS” stencil signifying the entire pipe is to be considered ACM.
- **The Block Walls were tested for Vermiculite Content throughout the facility. No Vermiculite was found to sample during our survey but further investigation should be done prior to demolition of the building. Although it is unlikely due to sample results and investigation, any material located within ceilings, wall cavities, pipe chases or other inaccessible areas or areas of limited access shall be considered asbestos-containing until testing of the material can determine the presence or absence of asbestos.**

Bersch & Associates Ltd. implemented the use of doorjamb labels that are applied to all the doorjamb of the rooms containing asbestos within the facility. This permits anyone accessing the room to easily identify the ACM present without having to reference the written report. Legends providing explanation of the abbreviations used on doorjamb were placed on the backside of all maintenance/custodial doors within the facility. Employees and contractors will use the legend as a reference to identify ACM within the areas they are working.

2.0 INTRODUCTION

Bersch & Associates Ltd. was retained by the City of Saskatoon to conduct an Asbestos Survey and Hazard Assessment of the Transit Storage & Administration Building located at 301 24th Street West Saskatoon, SK. The survey entailed the inspection of all accessible areas of the facility; including ceiling spaces, pipe chases, and attics. The purpose of the survey was to locate, identify and assess the condition of all Asbestos Containing Materials (ACM) located throughout the facility. This report gives a detailed account of the inspection results and our firm's recommendations on control options to be implemented to bring the facility in compliance with the Province of Saskatchewan Occupational Health and Safety Act and Regulations. Bersch & Associates Ltd. conducted the survey in April 2014. A review of this report shall be conducted with all trades that are entering the facility to perform maintenance or renovation activity. This will ensure they are familiar with the types and locations of asbestos-containing materials present and prevent any uncontrolled disturbance and/or possible exposure to asbestos.

3.0 METHODOLOGY

Bersch & Associates Ltd. conducted the survey of the Transit Storage & Administration Building in April 2014. The primary documents for guidance and criteria in this survey were the Province of Saskatchewan "Occupational Health and Safety Act and Regulations, 1996", Province of Saskatchewan "Managing Asbestos", and the U.S. Environmental Protection Agency "Guidance for Controlling Asbestos Containing Materials in Buildings". The USEPA document identifies factors associated with the "condition" and the "potential for disturbance or erosion" of asbestos containing materials (ACM). These factors help to determine potential for exposure to ACM and were used to make a qualitative evaluation of the material. It should be noted that the recommendation of "Management" Asbestos Abatement Action is based upon the premise that renovations are not scheduled in that area that will require disturbing or violating the asbestos containing material. In the event that renovations are scheduled that impact upon the areas of asbestos containing material then pre-removal of the asbestos containing materials may be necessary.

In total, thirty-five (35) bulk samples of suspect asbestos-containing materials were collected within the Transit Storage & Administration Building. As a result Chrysotile asbestos was detected within the facility. Refer to Appendix I for a copy of the Bulk Sample Analysis Report. All bulk samples collected were analyzed by Bersch & Associates Ltd. laboratory in accordance with the current U.S. 40 CFR Part 763, Vol. 52, No.210 for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1%.

4.0 RECOMMENDATIONS

1. 201 Corridor, 202, 203, 204, 208 and 209 Offices

Transite Drain Pipe is located within the Offices and Corridors above the suspended ceiling tile. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal.

PRIORITY:	THREE
CONDITION:	GOOD
POTENTIAL FOR DISTURBANCE:	LOW
ACTION:	MANAGE

2. 244 Custodial Closet

Vinyl Asbestos Floor Tile is located within the room. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal.

PRIORITY:	THREE
CONDITION:	GOOD
POTENTIAL FOR DISTURBANCE:	LOW
ACTION:	MANAGE

3. 103 Storage

Vinyl Asbestos Floor Tile is located within the room below the stair case. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal.

PRIORITY:	THREE
CONDITION:	GOOD
POTENTIAL FOR DISTURBANCE:	LOW
ACTION:	MANAGE

4. 114, 119 and 120 Parking Garage

Transite Drain Pipe is located within the Parking Garage Area. The pipe runs overhead adjacent the east wall and between Bays 119 and 120. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal.

PRIORITY:	THREE
CONDITION:	GOOD
POTENTIAL FOR DISTURBANCE:	LOW/MODERATE
ACTION:	MANAGE

5. B03a Men's Locker Room

Transite Drain Pipe is located within the Men's Locker Room. The pipe is located within the southwest corner. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal.

PRIORITY:	THREE
CONDITION:	GOOD
POTENTIAL FOR DISTURBANCE:	LOW/MODERATE
ACTION:	MANAGE

5.0 ASBESTOS ABATEMENT DISCUSSION

Asbestos is a known carcinogen and is listed in the Province of Saskatchewan under the Occupational Health and Safety Appendix, Part V as a Hazardous Chemical Substance and any release of asbestos fibres into the atmosphere creates a potential health hazard. Although the mechanism and epidemiology of asbestos carcinogenesis is not yet well defined, accumulating evidence suggests the significance of exposure at even very low fibre concentrations and hence human exposure should be kept to a minimum. It should be noted however that asbestos is a natural mineral and a measurable background concentration can be detected in any location sampled (inside buildings, outside buildings, urban, rural, etc.). The recommendations of the report are therefore intended to keep the potential exposure to an absolute minimum with the knowledge that a zero exposure is not possible.

Asbestos containing materials have been used in a wide variety of applications. Of particular concern, is the group of so called friable products. A friable product is one which can be crumbled or reduced to powder or smaller fragments by hand pressure. Publications from the U.S.E.P.A. as early as 1977 have indicated the potential hazard of asbestos exposure in buildings containing these friable products. The two main uses of friable asbestos products are as spray insulation (thermal, acoustic or fireproofing) on deck and/or beams or as thermal insulation on piping or mechanical equipment. A large amount of non-friable asbestos-containing materials have also been used in building construction such as asbestos cement board and asbestos containing vinyl flooring.

The mere presence of a friable asbestos containing material does not imply that there is an actual presence of elevated airborne fibre. As numerous studies have indicated, elevated asbestos fibre levels are generally found when settled dust or the actual asbestos containing material itself is disturbed by maintenance, renovation, inadvertent contact or vibration. The factors considered in the Environmental Protection Agency (USEPA) exposure assessment (condition of material, water damage, activity, movement, exposed surface area, accessibility, friability and presence in an air stream) often give some indication of the likelihood of fibre release but are not in any way definitive in determining whether a hazard exists or not. That is, even if the most friable product exists in a building, elevated fibre levels will not likely occur unless there is some disturbance by physical contact, vibration or an air stream.

There are four possible approaches to control exposure to airborne asbestos once a friable material is identified in a building. These methods briefly are as follows:

- A) Removal** - Asbestos material is removed and disposed of by burial and replaced by non-asbestos materials.
- B) Encapsulation** - Asbestos material is coated with a bridging or penetrating sealant.
- C) Enclosure** - Asbestos containing materials are separated from the building environment by barriers such as suspended ceilings or cladding materials.
- D) Deferred Action or Management and Custodial Control** - The Province of Saskatchewan Human Resources, Labor and Employment Branch under the Occupational health and Safety Regulations publish a document outlining “The Management of Asbestos”. In the guide for compliance, an action plan is outlined for management of the asbestos materials identified and in summary is:
 1. Identification, which has been accomplished by this report.
 2. Development of Written Handling Procedures for maintenance personnel or often arrangements are made for a qualified contractor to conduct the necessary removal or spot maintenance prior to the regular staff conducting maintenance.
 3. Asbestos Abatement Awareness and Process Training if the regular maintenance personnel are required to conduct asbestos related activities.
 4. Inspection on regular basis is conducted to determine the ongoing condition of the material.

6.0 REFERENCES

- .1 Province of Saskatchewan "The Occupational Health and Safety Act and The Occupational Health and Safety Regulations" Office Consolidation, December 1996.
- .2 Province of Saskatchewan Human Resources, Labor, and Employment "The Management of Asbestos" January, 1991.
- .3 USEPA, U.S. Environmental Protection Agency, "Guidance for Controlling Asbestos-Containing Materials in Buildings". Washington, DC: Office of Toxic Substances, USEPA.
- .4 Midwest Centre for Occupational Health & Safety St. Paul's, Minnesota – Asbestos Training For Inspectors & Management Planners
- .5 McCrone Research Institute Course Hayward California " Asbestos Identification"
- .6 Environment Management and Protection Act, Saskatchewan Environment, October 2002
- .7 Hazardous Substances and waste Dangerous Goods Regulations, Saskatchewan Environment, April 1989

APPENDIX I

BULK SAMPLE ANALYSIS REPORT

BERSCH & ASSOCIATES LTD.

April 30, 2014

City of Saskatoon

Infrastructure Services Department
1101 Avenue P North
Saskatoon, Sk.
S7L 7K6

ATTENTION: Brent Anderson

SUBJECT: Transit Storage & Administration Building – Bulk Sample Report

Please find attached our laboratory's results for the bulk material samples taken from the Transit Storage & Administration Building located at 301 - 24th Street West Saskatoon, SK. The samples were analyzed in our laboratory for the identification of asbestos.

The results for the samples submitted were obtained by examination in accordance with the current USEPA 600/R-93/116 Method for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1% by volume.

This test report relates only to the materials sent for examination and any use or extension of the information by the client of these results is the responsibility of the client. If any questions arise on the results of the attached information please contact our office. Thank you for this opportunity of service to your firm.

Sincerely,

Wes Berschiminsky
Bersch & Associates Ltd.
File: B67BLD23

BERSCH & ASSOCIATES LTD.

BULK SAMPLE PHOTOS

#14 & #23) Floor Tile



#2) Transite Pipe



Bersch & Associates Ltd.

B67BAD23

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

CLIENT: City of Saskatoon

Infrastructures Services- Facility Branch

Contact : Brent Anderson

LOCATION: Transit Administration & Maintenance Building South - 301 24th Street West, Saskatoon, SK.

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
1	21-May-13	Room # 245 - Pipeline Fitting Compilation on light blue/green lines	None detected		WB
2	21-May-13	Room # 202 - Transite Drain Pipe above the suspended ceiling adjacent to entry door	Chrysotile	40%	WB
3	21-May-13	Room # 222 - Sheet Flooring, cream color with dark spec	None detected		WB
4	21-May-13	Room # 116 - Spray-applied Fireproofing on ceiling	None detected		WB
5	21-May-13	Room # 116 - Pipeline Fitting on overhead supply line adjacent to Room # 107 entry	None detected		WB
6	23-Apr-14	Room # 201 - Drywall Mud Compound above ceiling adjacent to Room # 205	None detected		WB
7	23-Apr-14	Room # 201 - Suspended Ceiling Tile	None detected		WB

Bersch & Associates Ltd.

B67BAD23

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

CLIENT: City of Saskatoon

Infrastructures Services- Facility Branch

Contact : Brent Anderson

LOCATION: Transit Administration & Maintenance Building South - 301 24th Street West, Saskatoon, SK.

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
8	23-Apr-14	Room # 241 - Pipeline Fitting on small line under sink	None detected		WB
9	23-Apr-14	Room # 245 - Pipeline Fitting on small light green line adjacent to south wall	None detected		WB
10	23-Apr-14	Room # 245 - Pipeline Fitting on small light green DHW line in northwest corner adjacent to the water heater	None detected		WB
11	23-Apr-14	Room # 245 - Lineal Pipeline Insulation on small green supply line	None detected		WB
12	23-Apr-14	Room # 245 - Ducting Insulation in northwest corner	None detected		WB
13	23-Apr-14	Room # 245 - Drywall Mud Compound at conduit penetration into west wall	None detected		WB
14	23-Apr-14	Room # 244 - Custodian closet - 1' x 1' Floor Tile, beige with brown streak	Chrysotile	1-5%	WB

Bersch & Associates Ltd.

B67BAD23

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

CLIENT: City of Saskatoon

Infrastructures Services- Facility Branch

Contact : Brent Anderson

LOCATION: Transit Administration & Maintenance Building South - 301 24th Street West, Saskatoon, SK.

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
15	23-Apr-14	Room # 231 - Red Duct Sealant above ceiling adjacent to 235	None detected		WB
16	23-Apr-14	Room # 228 - Drywall Mud Compound above ceiling tile	None detected		WB
17	23-Apr-14	Room # 102 - Sheet Flooring, green with white spec	None detected		WB
18	23-Apr-14	Room # 104 - Sheet Flooring, gray with white spec	None detected		WB
19	23-Apr-14	Room # 103 - Pipeline Fitting on small DCW line adjacent to radiant heater on north wall	None detected		WB
20	23-Apr-14	Room # 103 - Pipeline Fitting on small HWS line adjacent to north wall straight in from entry	None detected		WB
21	23-Apr-14	Room # 103 - Lineal Pipeline Insulation on DCW line adjacent to the north wall straight in from entry	None detected		WB

Bersch & Associates Ltd.

B67BAD23

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

CLIENT: City of Saskatoon

Infrastructures Services- Facility Branch

Contact : Brent Anderson

LOCATION: Transit Administration & Maintenance Building South - 301 24th Street West, Saskatoon, SK.

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
22	23-Apr-14	Room # 103 - Drywall Mud Compound below stairs	None detected		WB
23	23-Apr-14	Room # 103 - 1' x 1' Floor Tile below stairs, beige with brown streak	Chrysotile	1-5 %	WB
24	23-Apr-14	Room # 103 - Rope Gasket Material at water line penetration into floor, Brown	None detected		WB
25	23-Apr-14	Room # 108 - Pipeline Fitting on small line above radiant heater on south wall	None detected		WB
26	23-Apr-14	Room # 116 - Pipeline Fitting on small line adjacent to north wall adjacent to Wash Bay	None detected		WB
27	23-Apr-14	Room # 108 - Pipeline Fitting on small line in center of area in line with Wash Bay entry	None detected		WB
28	23-Apr-14	Room # 116 - Fireproofing in center of the area containing the fireproofing	None detected		WB

Bersch & Associates Ltd.

B67BAD23

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

CLIENT: City of Saskatoon

Infrastructures Services- Facility Branch

Contact : Brent Anderson

LOCATION: Transit Administration & Maintenance Building South - 301 24th Street West, Saskatoon, SK.

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
29	23-Apr-14	Room # 116 - Mud Compound on Roof Drain Line adjacent to south wall	None detected		WB
30	23-Apr-14	Room # 118 - Insulation within south wall behind metal sheeting	None detected		WB
31	23-Apr-14	Room # 119 - Ceiling Insulation	None detected		WB
32	23-Apr-14	Room # 119 - Pipeline Fitting on small CWS line in southwest corner	None detected		WB
33	23-Apr-14	Room # 114 - Transite Pipe at vertical riser adjacent structural beams between Rooms 119 and 120	Chrysotile	30%	WB
34	23-Apr-14	Room # 114 - Pipeline Fitting at vertical riser adjacent structural beams between Rooms 119 and 120	None detected		WB
35	23-Apr-14	Room # 119 - Ducting Insulation on large ducting adjacent to structural pillars between Rooms 119 and 120	None detected		WB

APPENDIX II

FLOOR PLANS

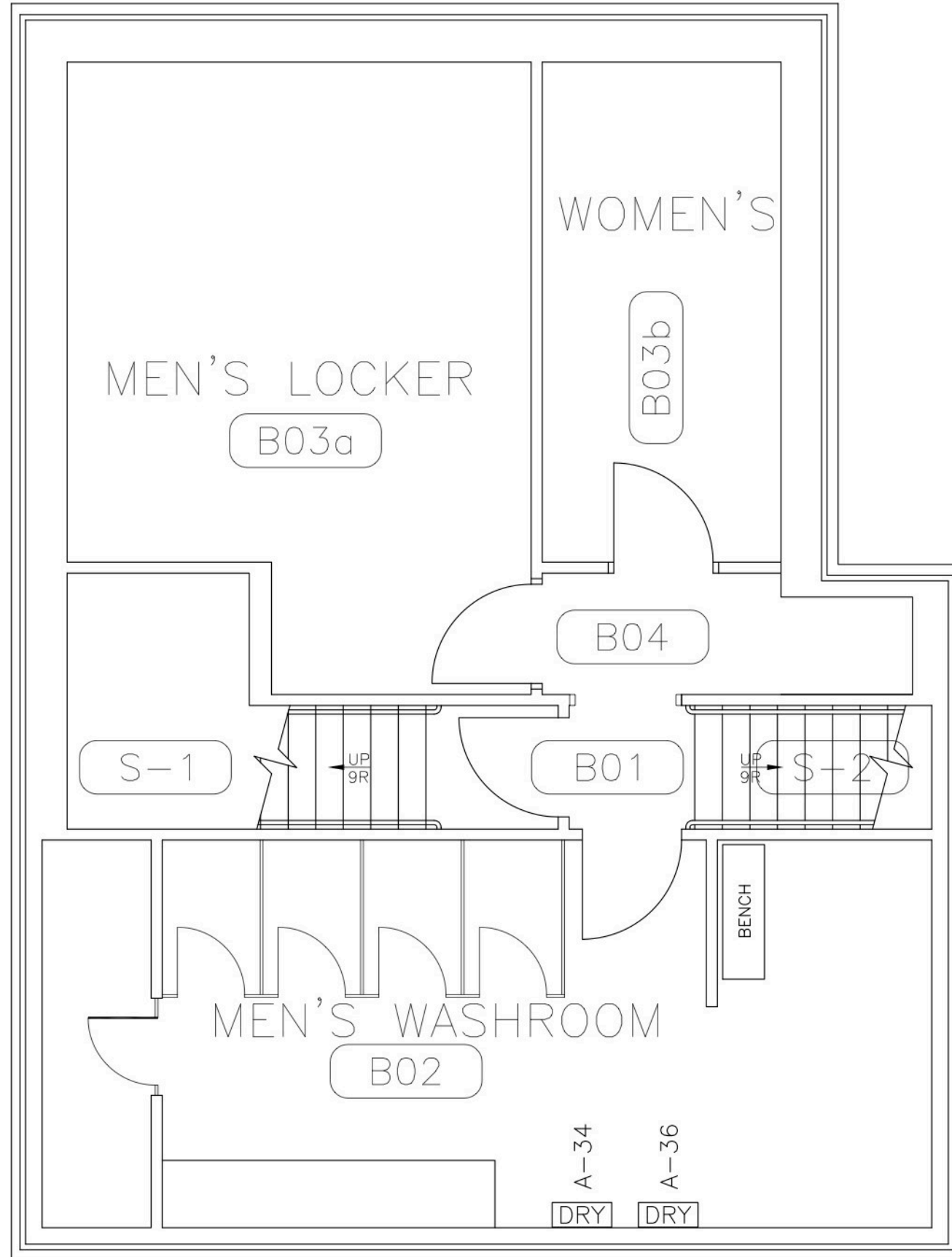


City of
Saskatoon

Infrastructure Services
Department

Facilities Branch
306-975-3300

- GENERAL NOTES:
1. All dimensions are in millimetres
 2. Drawings are not to be scaled.
 3. All drawings to be read in conjunction with the specifications, unless otherwise noted.
 4. Verify site conditions and location of all utilities prior to the start of construction.
 5. Report all discrepancies to the Consultant.
 6. If in doubt, ask.



REV	ISSUED FOR	DATE

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REQUESTED BY:

SCALE:	DATE:
1:50	04/02/2004

SHEET NAME	Asbuilt
Lower Floor Base Plan	

PROJECT TITLE
852 Transit Admin

PROJECT NO.	SHEET

REV. NO.	



City of Saskatoon

Infrastructure Services Department

Facilities Branch
306-975-3300

- GENERAL NOTES:
1. All drawings to be read in conjunction with the specifications.
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 6. If in doubt, ask.

REV	ISSUED FOR	DATE
A	ASBUILT 852-7/03	08/11/07

DESIGNED BY:	DRAWN BY:	CHECKED BY:	REQUESTED BY:
	TO		

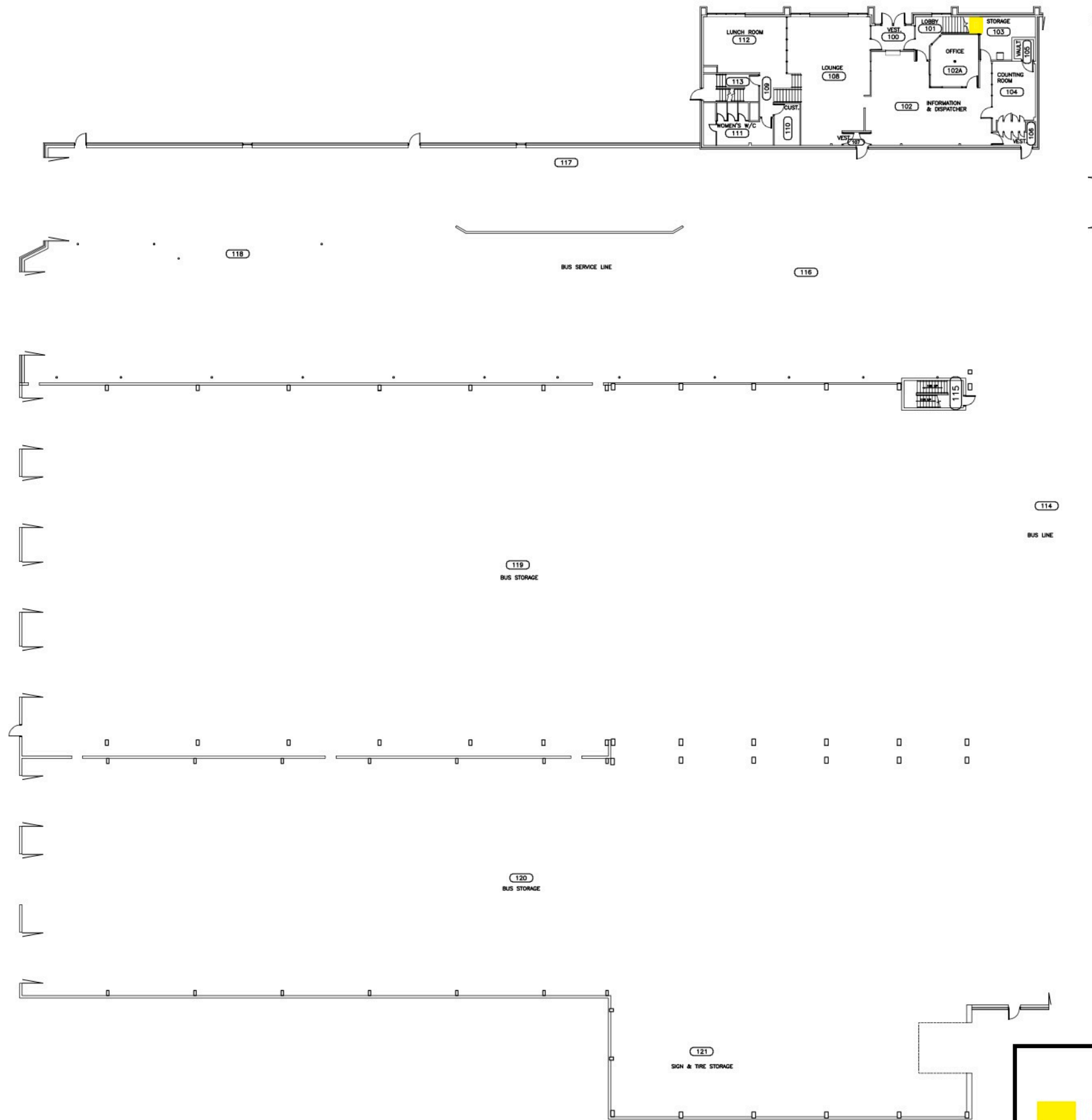
SCALE: 1:400 DATE: 08/11/07

SHEET NAME: Asbuilt


Main Floor Base Plan

PROJECT TITLE
**852
Transit Admin
Building**

PROJECT NO. 852-7/03	SHEET REV. NO.
--------------------------------	-------------------



KEY

 Vinyl Asbestos Floor Tile

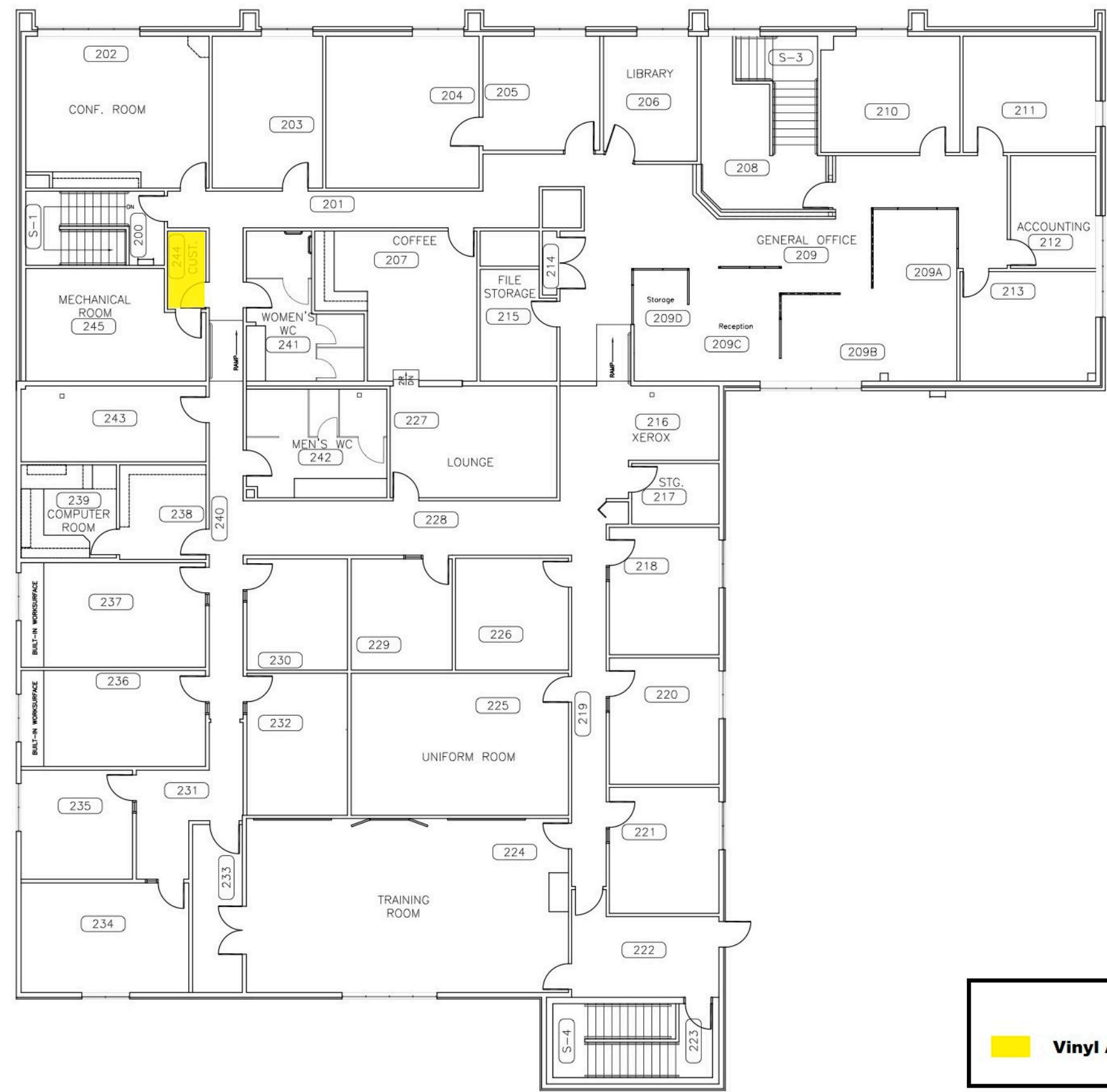


City of Saskatoon

Infrastructure Services Department

Facilities Branch
306-975-3300

- GENERAL NOTES:
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 2. Drawings are not to be scaled.
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 4. Verify site conditions and location of all utilities prior to the start of construction.
 5. Report all discrepancies to the Consultant.
 6. If in doubt, ask.



KEY

Vinyl Asbestos Floor Tile

REV	ISSUED FOR	DATE
DESIGNED BY:	DRAWN BY:	CHECKED BY:
SCALE:	DATE:	REQUESTED BY:
1:150	29/01/2004	LG
SHEET NAME		Asbuilt
Second Floor Base Plan		
PROJECT TITLE		
852 Transit Admin Building		
PROJECT NO.	SHEET	
REV. NO.		



**TRANSIT REPAIR TERMINAL NORTH
BUILDING
ASBESTOS SURVEY REPORT**



April 2014

Prepared For: City of Saskatoon – Infrastructure Services Department
1101 Avenue P North, Saskatoon SK, Canada S7L 7K6
Attn: Brent Anderson

Prepared By: Bersch & Associates Ltd.
Project No. : B67SRD21

1.0 EXECUTIVE SUMMARY

The asbestos audit of the Transit Repair Terminal North Building located at 315 Avenue C North, Saskatoon, SK. entailed the inspection of all accessible suspect asbestos-containing materials (ACM) located within the facility. Materials inspected included insulation materials, floor covering materials, mechanical insulation materials, ceiling tiles, tool boards, sealant materials and gasket materials.

Bulk sample analysis results indicate the presence of “Chrysotile” asbestos within the Transit Repair Terminal North Building located in Saskatoon, SK. Please refer to **Appendix I for Bulk Sample Analysis** results. The recommended actions to be implemented in reference to the ACM identified are Management. Please refer to section 5 Asbestos Abatement Discussion for definitions. It should be noted that the recommendation of “Management” as part of the asbestos action plan is based upon the premise that renovations are not scheduled throughout the area that would impact the asbestos containing material present. *Prior to any major renovation/demolition activity, a destructive investigation is recommended to identify any inaccessible ACM that is physically concealed or isolated in areas such as enclosed wall/ceiling/floor cavities and pipe chases.* Asbestos was detected in the following forms throughout the facility:

- **Transite Roof Drain Pipe** is located in 104, 105, 108, 109, 111 and 117. The Asbestos Drain Pipe has been identified with an “ASBESTOS” stencil signifying the entire pipe is to be considered ACM.
- **The Block Walls were tested for Vermiculite Content throughout the facility. No Vermiculite was found to sample during our survey but further investigation may be required prior to demolition of the building. Although it is unlikely due to sample results and investigation, any material located within ceilings, wall cavities, pipe chases or other inaccessible areas or areas of limited access shall be considered asbestos-containing until testing of the material can determine the presence or absence of asbestos.**

Bersch & Associates Ltd. implemented the use of doorjamb labels that are applied to all the doorjambs of the rooms containing asbestos within the facility. This permits anyone accessing the room to easily identify the ACM present without having to reference the written report. Legends providing explanation of the abbreviations used on doorjambs were placed on the backside of all maintenance/custodial doors within the facility. Employees and contractors will use the legend as a reference to identify ACM within the areas they are working.

2.0 INTRODUCTION

Bersch & Associates Ltd. was retained by the City of Saskatoon to conduct an Asbestos Survey and Hazard Assessment of the Transit Repair Terminal North Building located at 315 Avenue C North, Saskatoon, SK. The survey entailed the inspection of all accessible areas of the facility; including ceiling spaces, pipe chases, and attics. The purpose of the survey was to locate, identify and assess the condition of all Asbestos Containing Materials (ACM) located throughout the facility. This report gives a detailed account of the inspection results and our firm's recommendations on control options to be implemented to bring the facility in compliance with the Province of Saskatchewan Occupational Health and Safety Act and Regulations. Bersch & Associates Ltd. conducted the survey in April 2014. A review of this report shall be conducted with all trades that are entering the facility to perform maintenance or renovation activity. This will ensure they are familiar with the types and locations of asbestos-containing materials present and prevent any uncontrolled disturbance and/or possible exposure to asbestos.

3.0 METHODOLOGY

Bersch & Associates Ltd. conducted the survey of the Transit Repair Terminal North Building in April 2014. The primary documents for guidance and criteria in this survey were the Province of Saskatchewan "Occupational Health and Safety Act and Regulations, 1996", Province of Saskatchewan "Managing Asbestos", and the U.S. Environmental Protection Agency "Guidance for Controlling Asbestos Containing Materials in Buildings". The USEPA document identifies factors associated with the "condition" and the "potential for disturbance or erosion" of asbestos containing materials (ACM). These factors help to determine potential for exposure to ACM and were used to make a qualitative evaluation of the material. It should be noted that the recommendation of "Management" Asbestos Abatement Action is based upon the premise that renovations are not scheduled in that area that will require disturbing or violating the asbestos containing material. In the event that renovations are scheduled that impact upon the areas of asbestos containing material then pre-removal of the asbestos containing materials may be necessary.

In total, eighteen (18) bulk samples of suspect asbestos-containing materials were collected within the Transit Repair Terminal North Building. As a result Chrysotile asbestos was detected within the facility. Refer to Appendix I for a copy of the Bulk Sample Analysis Report. All bulk samples collected were analyzed by Bersch & Associates Ltd. laboratory in accordance with the current U.S. 40 CFR Part 763, Vol. 52, No.210 for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1%.

4.0 RECOMMENDATIONS

1. 104, 105 and 111 Work Shop Areas

Transite Drain Pipe is located at ceiling height running throughout the Shop Areas. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal.

PRIORITY:	THREE
CONDITION:	GOOD
POTENTIAL FOR DISTURBANCE:	LOW
ACTION:	MANAGE

2. 108 Locker Room, 109 Washroom and 117 Office

Transite Drain Pipe is located above the suspended ceiling within these areas. The pipe was inaccessible to identify with a stencil but entire pipe should be considered to be ACM. This material is considered a non-friable material and will not produce an elevated airborne fibre release unless mechanically disturbed. Recommendation is for the management of this material until renovations warrant removal

PRIORITY:	THREE
CONDITION:	GOOD
POTENTIAL FOR DISTURBANCE:	LOW
ACTION:	MANAGE

5.0 ASBESTOS ABATEMENT DISCUSSION

Asbestos is a known carcinogen and is listed in the Province of Saskatchewan under the Occupational Health and Safety Appendix, Part V as a Hazardous Chemical Substance and any release of asbestos fibres into the atmosphere creates a potential health hazard. Although the mechanism and epidemiology of asbestos carcinogenesis is not yet well defined, accumulating evidence suggests the significance of exposure at even very low fibre concentrations and hence human exposure should be kept to a minimum. It should be noted however that asbestos is a natural mineral and a measurable background concentration can be detected in any location sampled (inside buildings, outside buildings, urban, rural, etc.). The recommendations of the report are therefore intended to keep the potential exposure to an absolute minimum with the knowledge that a zero exposure is not possible.

Asbestos containing materials have been used in a wide variety of applications. Of particular concern, is the group of so called friable products. A friable product is one which can be crumbled or reduced to powder or smaller fragments by hand pressure. Publications from the U.S.E.P.A. as early as 1977 have indicated the potential hazard of asbestos exposure in buildings containing these friable products. The two main uses of friable asbestos products are as spray insulation (thermal, acoustic or fireproofing) on deck and/or beams or as thermal insulation on piping or mechanical equipment. A large amount of non-friable asbestos-containing materials

have also been used in building construction such as asbestos cement board and asbestos containing vinyl flooring.

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There are four possible approaches to control exposure to airborne asbestos once a friable material is identified in a building. These methods briefly are as follows:

- A) Removal** - Asbestos material is removed and disposed of by burial and replaced by non-asbestos materials.
- B) Encapsulation** - Asbestos material is coated with a bridging or penetrating sealant.
- C) Enclosure** - Asbestos containing materials are separated from the building environment by barriers such as suspended ceilings or cladding materials.
- D) Deferred Action or Management and Custodial Control** - The Province of Saskatchewan Human Resources, Labor and Employment Branch under the Occupational health and Safety Regulations publish a document outlining “The Management of Asbestos”. In the guide for compliance, an action plan is outlined for management of the asbestos materials identified and in summary is:
 - 1. Identification, which has been accomplished by this report.
 - 2. Development of Written Handling Procedures for maintenance personnel or often arrangements are made for a qualified contractor to conduct the necessary removal or spot maintenance prior to the regular staff conducting maintenance.
 - 3. Asbestos Abatement Awareness and Process Training if the regular maintenance personnel are required to conduct asbestos related activities.
 - 4. Inspection on regular basis is conducted to determine the ongoing condition of the material.

6.0 REFERENCES

- .1 Province of Saskatchewan "The Occupational Health and Safety Act and The Occupational Health and Safety Regulations" Office Consolidation, December 1996.
- .2 Province of Saskatchewan Human Resources, Labor, and Employment "The Management of Asbestos" January, 1991.
- .3 USEPA, U.S. Environmental Protection Agency, "Guidance for Controlling Asbestos-Containing Materials in Buildings". Washington, DC: Office of Toxic Substances, USEPA.
- .4 Midwest Centre for Occupational Health & Safety St. Paul's, Minnesota – Asbestos Training For Inspectors & Management Planners
- .5 McCrone Research Institute Course Hayward California " Asbestos Identification"
- .6 Environment Management and Protection Act, Saskatchewan Environment, October 2002
- .7 Hazardous Substances and waste Dangerous Goods Regulations, Saskatchewan Environment, April 1989

APPENDIX I

BULK SAMPLE ANALYSIS REPORT

BERSCH & ASSOCIATES LTD.

April 30, 2014

City of Saskatoon

Infrastructure Services Department
1101 Avenue P North
Saskatoon, Sk.
S7L 7K6

ATTENTION: Brent Anderson

SUBJECT: Transit Repair Terminal North Building – Bulk Sample Report

Please find attached our laboratory's results for the bulk material samples taken from the Transit Repair Terminal North Building located at 315 Avenue C North, Saskatoon, SK. The samples were analyzed in our laboratory for the identification of asbestos.

The results for the samples submitted were obtained by examination in accordance with the current USEPA 600/R-93/116 Method for the analysis of asbestos in building materials using polarized light microscopy and dispersion staining techniques. The detection limit of this method is listed as less than 1% by volume.

This test report relates only to the materials sent for examination and any use or extension of the information by the client of these results is the responsibility of the client. If any questions arise on the results of the attached information please contact our office. Thank you for this opportunity of service to your firm.

Sincerely,

Wes Berschiminsky
Bersch & Associates Ltd.
File: B67BLD21

Bersch & Associates Ltd.

B67BAD21

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

**CLIENT: City of Saskatoon
Infrastructures Services- Facility Branch**

Contact : Brent Anderson

LOCATION: Transit Repair Terminal North - 315 Avenue C North, Saskatoon, SK

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
1	21-May-13	Room # 110 - 1' x 1' Floor Tile, off white with dark streak	None detected		WB
2	21-May-13	Room # 111 - Transite Roof Drain Pipe	Chrysotile	40%	WB
3	21-May-13	Room # 111 - Lineal Pipeline Insulation on Hot Water Supply Line adjacent to Room # 114	None detected		WB
4	21-Apr-14	Room # 117- Office - 1' x 1' Floor Tile, off white with dark streak	None detected		WB
5	21-Apr-14	Room # 117- Office - 2' x 4' Ceiling Tile with pin hole and gash mark pattern	None detected		WB
6	21-Apr-14	Room # 117- Office - Ducting Insulation above suspended ceiling in northwest corner	None detected		WB
7	21-Apr-14	Room # 111- Repair Area - Green Tool Board on center of west wall	None detected		WB

Bersch & Associates Ltd.

B67BAD21

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

**CLIENT: City of Saskatoon
Infrastructures Services- Facility Branch**

Contact : Brent Anderson

LOCATION: Transit Repair Terminal North - 315 Avenue C North, Saskatoon, SK

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
8	21-Apr-14	Room # 111- Repair Area - Lineal Pipeline Insulation on HWS line adjacent to Unit # 3	None detected		WB
9	21-Apr-14	Room # 111- Repair Area - Bulletin Board in northeast corner adjacent to Room # 109	None detected		WB
10	21-Apr-14	Room # 111- Repair Area - Duct Expansion Gasket on AHU5 adjacent to Room # 117	None detected		WB
11	21-Apr-14	Room # 109 - Men's Washroom - Duct Sealant at seams	None detected		WB
12	21-Apr-14	Exterior of Room # 103 - Insulation behind sheet metal siding on west side of Room # 103	None detected		WB
13	21-Apr-14	Room # 102 - Storage - Fire-stop material at pipe penetration into east wall	None detected		WB
14	21-Apr-14	Room # 102 - Storage - Pipeline Insulation on small HWR line adjacent to east wall	None detected		WB

Bersch & Associates Ltd.

B67BAD21

Box 3568

Humboldt, Sask. S0K 2A0

BULK SAMPLE ANALYSIS REPORT

PROJECT NO. B67.14

**CLIENT: City of Saskatoon
Infrastructures Services- Facility Branch**

Contact : Brent Anderson

LOCATION: Transit Repair Terminal North - 315 Avenue C North, Saskatoon, SK

NO.	DATE	SAMPLE INFORMATION	ASBESTOS	%	ANALYST
15	21-Apr-14	Room # 112 - Women's Locker Room - Sheet Flooring, white with beige/green stone pattern	None detected		WB
16	21-Apr-14	Room # 112 - Women's Locker Room - Lineal Pipeline Insulation adjacent to shower	None detected		WB
17	21-Apr-14	Basement Boiler Room - Pipeline Insulation beneath metal cladding on furnace exhaust	None detected		WB
18	21-Apr-14	Basement Boiler Room - Insulation beneath plastic jacking on pipeline south of furnaces	None detected		WB

BERSCH & ASSOCIATES LTD.

BULK SAMPLE PHOTOS

#2) Transite Pipe



APPENDIX II

FLOOR PLANS



City of
Saskatoon

Infrastructure Services
Department

Facilities Branch
306-975-3300

NOTE:
THESE DRAWINGS HAVE BEEN PREPARED
BASED ON INFORMATION PROVIDED BY
OTHERS. THE CITY HAS TAKEN STEPS
TO VERIFY THE ACCURACY AND/OR
COMPLETENESS OF THIS INFORMATION
BUT SHALL NOT BE RESPONSIBLE FOR
AND ERRORS OR OMISSIONS THAT
MAY BE INCORPORATED AS A RESULT
OF ERRONEOUS INFORMATION PROVIDED
BY OTHERS THAT WAS NOT ABLE TO BE
VISUALLY CONFIRMED.

- GENERAL NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES
 2. DRAWINGS ARE NOT TO BE SCALED.
 3. ALL DRAWINGS TO BE READ IN CON-
JUNCTION WITH THE SPECIFICATIONS
UNLESS OTHERWISE NOTED.
 4. VERIFY SITE CONDITIONS, DIMENSIONS
AND LOCATION OF ALL UTILITIES PRIOR
TO THE START OF CONSTRUCTION.
 5. REPORT ALL DISCREPANCIES TO THE
CONSULTANT.

REV ISSUED FOR DATE

DESIGNED BY: DRAWN BY: CHECKED BY: REQUESTED BY:
LG

SCALE: 1:300 DATE: 16/02/2004

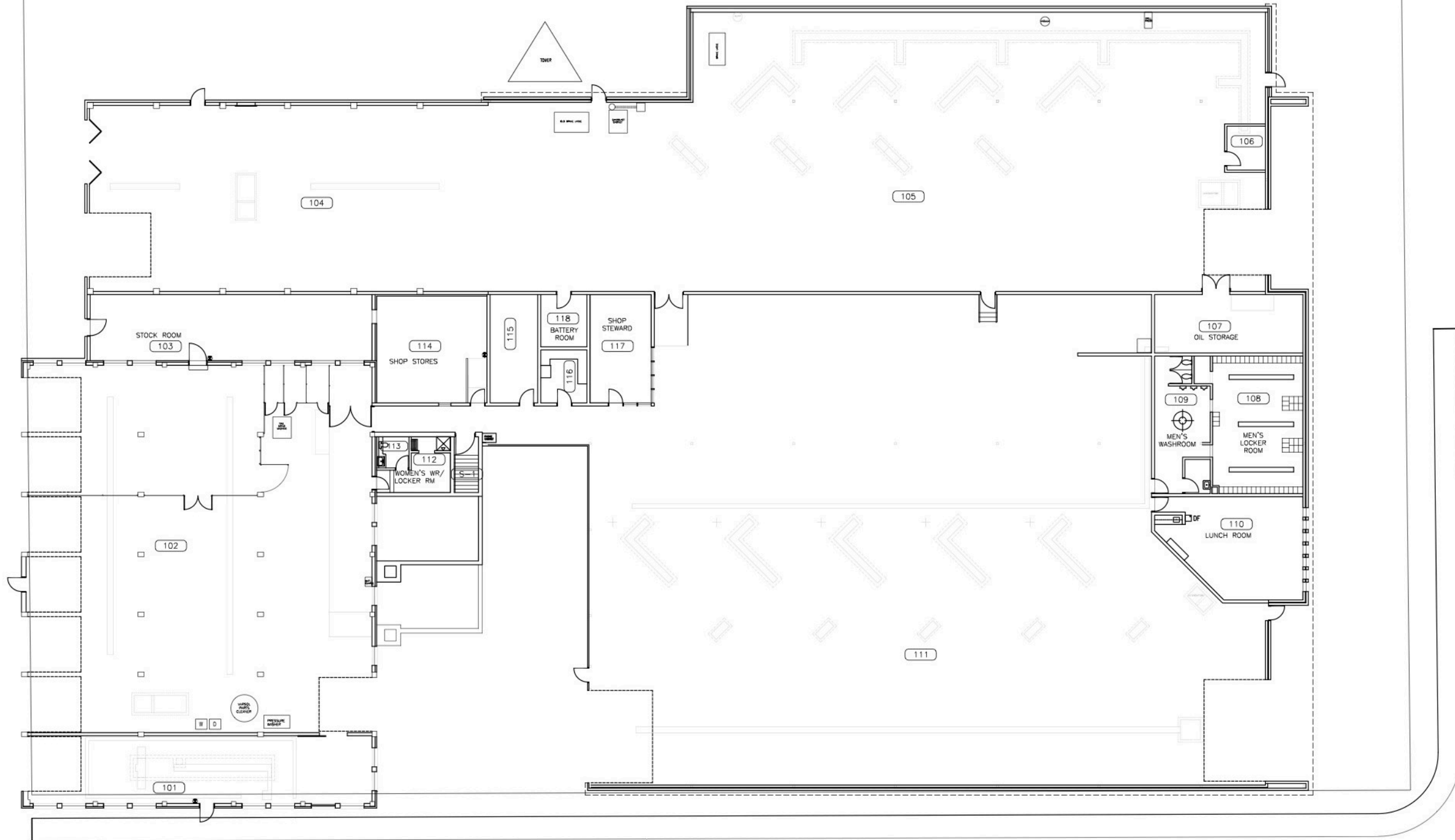
SHEET NAME: Asbuilt

Main Floor
Base Plan

PROJECT TITLE
**853
Transit Repair
Terminal**

PROJECT NO. SHEET

REV. NO.



24TH STREET WEST



PINTER
& ASSOCIATES LTD

Appendix J
NCSCS Score Sheet

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

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

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

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

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

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

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

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

Subject Site:	Test Site	
Civic Address: <i>(or other description of location)</i>	321 Avenue C North, Saskatoon, Saskatchewan	
Site Common Name : <i>(if applicable)</i>	Caswell Transit Maintenance Building	
Site Owner or Custodian: <i>(Organization and Contact Person)</i>	City of Saskatoon	
Legal description or metes and bounds:	Lots 13 to 36, Lot A, and Lot B, Block 19, Plan G582	
Approximate Site area:	0.71 Hectares	
PID(s): <i>(or Parcel Identification Numbers [PIN] if untitled Crown land)</i>		
Centre of site: <i>(provide latitude/longitude or UTM coordinates)</i>	Latitude:	_____ degrees _____ min _____ secs
	Longitude:	_____ degrees _____ min _____ secs
	UTM Coordinate:	Northing 5777071.64 Easting 385397.7
Site Land Use:	Current:	Industrial
	Proposed:	
Site Plan	To delineate the bounds of the Site a site plan MUST be attached. The plan must be drawn to scale indicating the boundaries in relation to well-defined reference points and/or legal descriptions. Delineation of the contamination should also be indicated on the site plan.	
Provide a brief description of the Site:	The Site is a transit maintenance facility consisting of a maintenance garage, with outdoor storage yard and parking.	

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

Affected media and Contaminants of Potential Concern (COPC):	The soil and groundwater has been impacted by BTEX and petroleum hydrocarbons F1-F4. The CPOPs of concern include benzene, toluene, ethylbenzene, xylenes (BTEX), and petroleum hydrocarbon Fraction F1 (C6-C10), Fraction F2 (C10-C16), Fraction F3 (C16-C34), and Fraction F4 (>C34).
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Please fill in the "letter" that best describes the level of information available for the site being assessed:

Site Letter Grade

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

Scoring Completed By:	Jessica Cutter, M.Sc.
Date Scoring Completed:	24-Jul-14

CCME National Classification System (2008, 2010 v 1.2)

(I) Contaminant Characteristics

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
1. Residency Media (replaces physical state)				
Which of the following residency media are known (or strongly suspected) to have one or more exceedances of the applicable CCME guidelines? yes = has an exceedance or strongly suspected to have an exceedance no = does not have an exceedance or strongly suspected not to have an exceedance		Soil has been shown to have exceedances for BTEX and/or PHC Fractions F1 to F4. Groundwater has been shown to have exceedances for PHC Fractions F1 and F2 in monitoring well 14-23. The nearest surface water body is the South Saskatchewan River, approximately 1,400 m east of the Site.	The overall score is calculated by adding the individual scores from each residency media (having one or more exceedance of the most conservative media specific and land-use appropriate CCME guideline). Summary tables of the Canadian Environmental Quality Guidelines for soil, water (aquatic life, non-potable groundwater environments, and agricultural water uses) and sediment are available on the CCME website at http://www.ccme.ca/publications/ceqg_rcqe.html?category_id=124 . For potable groundwater environments, guidelines for Canadian Drinking Water Quality (for comparison with groundwater monitoring data) are available on the Health Canada website at http://www.hc-sc.gc.ca/ewh-semt/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html .	An increasing number of residency media containing chemical exceedances often equates to a greater potential risk due to an increase in the number of potential exposure pathways.
A. Soil	Yes			
	Yes No Do Not Know			
B. Groundwater	Yes			
	Yes No Do Not Know			
C. Surface water	No			
	Yes No Do Not Know			
D. Sediment	No			
	Yes No Do Not Know			
	"Known" -score	4		
	"Potential" - score	---		
2. Chemical Hazard				
What is the relative degree of chemical hazard of the contaminant in the list of hazard rankings proposed by the Federal Contaminated Sites Action Plan (FCSAP)?	High	PHC Fraction F1 and Lead are ranked as 'High' on the hazard ranking	The relative degree of chemical hazard should be selected based on the most hazardous contaminant known or suspected to be present at the site. The degree of hazard has been defined by the Federal Contaminated Sites Action Plan (FCSAP) and a list of substances with their associated hazard (Low, Medium and High) has been provided as a separate sheet in this file. <i>See Attached Reference Material for Contaminant Hazard Rankings.</i>	Hazard as defined in the revised NCS pertains to the physical properties of a chemical which can cause harm. Properties can include toxic potency, propensity to biomagnify, persistence in the environment, etc. Although there is some overlap between hazard and contaminant exceedance factor below, it will not be possible to derive contaminant exceedance factors for many substances which have a designated chemical hazard designation, but don't have a CCME guideline. The purpose of this category is to avoid missing a measure of toxic potential.
	High Medium Low Do Not Know			
	"Known" -score	8		
	"Potential" - score	---		
3. Contaminant Exceedance Factor				
What is the ratio between the measured contaminant concentration and the applicable CCME guidelines (or other "standards")?	High (>100x)	Soil: Greatest exceedances is PHC F2 in 14-23-3 @ 2.25 m = 7040/260 = 27 X Water: Greatest exceedance is PHC F2 in well 14-23 = 136/1.6 = 105 X	Ranking of contaminant "exceedance" is determined by comparing contaminant concentrations with the <i>most conservative media-specific and land-use appropriate CCME</i> environmental quality guidelines. Ranking should be based on contaminant with greatest exceedance of CCME guidelines. Ranking of contaminant hazard as high, medium and low is as follows: High = One or more measured contaminant concentration is greater than 100 X appropriate CCME guidelines Medium = One or more measured contaminant concentration is 10 - 99.99 X appropriate CCME guidelines Low = One or more measured contaminant concentration is 1 - 9.99 X appropriate CCME guidelines Mobile NAPL = Contaminant is a non-aqueous phase liquid (i.e., due to its low solubility, it does not dissolve in water, but remains as a separate liquid) and is present at a sufficiently high saturation (i.e., greater than residual NAPL saturation) such that there is significant potential for mobility either downwards or laterally. Other standards may include local background concentration or published toxicity benchmarks. Results of toxicity testing with site samples can be used as an alternative. This approach is only relevant for contaminants that do not biomagnify in the food web, since toxicity tests would not indicate potential effects at higher trophic levels. High = lethality observed. Medium = no lethality, but sub lethal effects observed. Low = neither lethal nor sub lethal effects observed.	In the event that elevated levels of a material with no associated CCME guidelines are present, check provincial and USEPA environmental criteria. Hazard Quotients (sometimes referred to as a screening quotient in risk assessments) refer to the ratio of measured concentration to the concentration believed to be the threshold for toxicity. A similar calculation is used here to determine the contaminant exceedance factor (CEF). Concentrations greater than one times the applicable CCME guideline (i.e., CEF=>1) indicate that risks are possible. Mobile NAPL has the highest associated score (8) because of its highly concentrated nature and potential for increase in the size of the impacted zone.
	Mobile NAPL High (>100x) Medium (10x to 100x) Low (1x to 10x) Do Not Know			
	"Known" -score	6		
	"Potential" - score	---		

CCME National Classification System (2008, 2010 v 1.2)

(I) Contaminant Characteristics

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method of Evaluation	Notes
4. Contaminant Quantity (known or strongly suspected)				
What is the known or strongly suspected quantity of all contaminants? >10 hectare (ha) or 5000 m ³ 2 to 10 ha or 1000 to 5000 m ³ <2 ha or 1000 m ³ Do Not Know	<2 ha or 1000 m ³	Due to the size of the Site which is less than 1 ha, the suspected quantity of contamination is likely <1,000 cubic meters,	Measure or estimate the area or quantity of total contamination (i.e., all contaminants known or strongly suspected to be present on the site). The "Area of Contamination" is defined as the area or volume of contaminated media (soil, sediment, groundwater, surface water) exceeding appropriate environmental criteria.	A larger quantity of a potentially toxic substance can result in a larger frequency of exposure as well as a greater probability of migration, therefore, larger quantities of these substances earn a higher score.
"Known" -score	2			
"Potential" - score	---			
5. Modifying Factors				
Does the chemical fall in the class of persistent chemicals based on its behavior in the environment? Yes No Do Not Know	No	Not listed within reference material	Persistent chemicals, e.g., PCBs, chlorinated pesticides etc. either do not degrade or take longer to degrade, and therefore may be available to cause effects for a longer period of time. Canadian Environmental Protection Act (CEPA) classifies a chemical as persistent when it has at least one of the following characteristics: (a) in air, (i) its half-life is equal to or greater than 2 days, or (ii) it is subject to atmospheric transport from its source to a remote area; (b) in water, its half-life is equal to or greater than 182 days; (c) in sediments, its half-life is equal to or greater than 365 days; or (d) in soil, its half-life is equal to or greater than 182 days. This list does not include metals or metalloids, which in their elemental form do not degrade. However metals and metalloids form chemical species in the environment, many of which are not readily bioavailable.	<i>Examples of Persistent Substances are provided in attached Reference Materials</i>
Are there contaminants present that could cause damage to utilities and infrastructure, either now or in the future, given their location? Yes No Do Not Know	No			Some contaminants may react or absorb into underground utilities and infrastructure. For example, organic solvents may degrade some plastics, and salts could cause corrosion of metal.
How many different contaminant classes have representative CCME guideline exceedances? one two to four five or more Do Not Know	two to four	Volatile Petroleum Hydrocarbons (BTEX, F1-F4) and Lead	For the purposes of the revised NCS ranking system, the following chemicals represent distinct chemical "classes": inorganic substances (including metals), volatile petroleum hydrocarbons, light extractable petroleum hydrocarbons, heavy extractable petroleum hydrocarbons, PAHs, phenolic substances, chlorinated hydrocarbons, halogenated methanes, phthalate esters, pesticides.	<i>Refer to the Reference Material sheet for a list of example substances that fall under the various chemical classes.</i>
"Known" - Score	2			
"Potential" - Score	---			

Contaminant Characteristic Total

Raw Total Scores- "Known"	22
Raw Total Scores- "Potential"	0
Raw Combined Total Scores	22
Total Score (Raw Combined / 40 * 33)	18.2

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

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Groundwater Movement				
A. Known COPC exceedances and an operable groundwater pathway within and/or beyond the property boundary.				
<p>i) For potable groundwater environments, 1) groundwater concentrations exceed background concentrations and 1X the Guideline for Canadian Drinking Water Quality (GCDWQ) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater contamination. For non-potable environments (typically urban environments with municipal services), 1) groundwater concentrations exceed 1X the applicable non-potable guidelines or modified generic guidelines (which exclude ingestion of drinking water pathway) or 2) there is known contact of contaminants with groundwater, based on physical evidence of groundwater impacts.</p> <p>ii) Same as (i) except the information is not known but strongly suspected based on indirect observations.</p> <p>iii) Non-potable environments, based on the potable criteria or modified generic criteria (excludes ingestion of drinking water pathway) for non-potable environments or Absence of groundwater exposure pathway (i.e., there is no aquifer (see definition at right) at the site or there is an adequate isolating layer between the aquifer and the contamination, and within 5 km of the site there are no aquatic receiving environments and the groundwater does not daylight).</p>	12	<p>There is known contact of contaminants with groundwater. There are exceedances for F1 and F2 concentrations in monitoring well 14-23</p>	<p>Review chemical data and evaluate groundwater quality.</p> <p>The evaluation method concentrates on 1) a potable or non-potable groundwater environment; 2) the groundwater flow system and its potential to be an exposure pathway to known or potential receptors</p> <p>An aquifer is defined as a geologic unit that yields groundwater in usable quantities and drinking water quality. The aquifer can currently be used as a potable water supply or could have the potential for use in the future. Non-potable groundwater environments are defined as areas that are serviced with a reliable alternative water supply (most commonly provided in urban areas). The evaluation of a non-potable environment will be based on a site specific basis.</p> <p>Physical evidence includes significant sheens, liquid phase contamination, or contaminant saturated soils.</p> <p>Seeps and springs are considered part of the groundwater pathway.</p> <p>In Arctic environments, the potability and evaluation of the seasonal active layer (above the permafrost) as a groundwater exposure pathway will be considered on a site-specific basis.</p>	<p>The 1992 NCS rationale evaluated the off-site migration as a regulatory issue. The exposure assessment and classification of hazards should be evaluated regardless of the property boundaries.</p> <p>Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a groundwater supply source in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resources such as internet links.</p> <p>Note that for potable groundwater that also daylights into a nearby surface water body, the more stringent guidelines for both drinking water and protection of aquatic life should be considered.</p> <p>Selected References</p> <p><u>Potable Environments</u></p> <p>Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/ewh-semr/pubs/water-eau/doc_sup-appui/sum_guide-res_recom/index_e.html</p> <p><u>Non-Potable Environments</u></p> <p>Canadian Water Quality Guidelines for Protection of Aquatic Life. CCME. 1999 www.ccme.ca</p> <p>Compilation and Review of Canadian Remediation Guidelines, Standards and Regulations. Science Applications International Corporation (SAIC Canada), report to Environment Canada, January 4, 2002.</p>
	9			
	0			
	Score 12 12			
<p>NOTE: If a score is assigned here for Known COPC Exceedances, then you can skip Part B (Potential for groundwater pathway) and go to Section 2 (Surface Water Pathway)</p>				
B. Potential for groundwater pathway.				
<p>a. Relative Mobility</p> <p>High Moderate Low Insignificant Do Not Know</p> <p>Score Do Not Know 2</p>			<p>Organics Koc (L/kg) Koc < 500 (i.e., log Koc < 2.7) Koc = 500 to 5000 (i.e., log Koc = 2.7 to 3.7) Koc = 5,000 to 100,000 (i.e., log Koc = 3.7 to 5) Koc > 100,000 (i.e., log Koc > 5)</p> <p>Metals with higher mobility at acidic conditions pH < 5 pH = 5 to 6 pH > 6</p> <p>Metals with higher mobility at alkaline conditions pH > 8.5 pH = 7.5 to 8.5 pH < 7.5</p>	<p>Reference: US EPA Soil Screening Guidance (Part 5 - Table 39)</p> <p>If a score of zero is assigned for relative mobility, it is still recommended that the following sections on potential for groundwater pathway be evaluated and scored. Although the Koc of an individual contaminant may suggest that it will be relatively immobile, it is possible that, with complex mixtures, there could be enhanced mobility due to co-solvent effects. Therefore, the Koc cannot be relied on solely as a measure of mobility. An evaluation of other factors such as containment, thickness of confining layer, hydraulic conductivities and precipitation infiltration rate are still useful in predicting potential for groundwater migration, even if a contaminant is expected to have insignificant mobility based on its chemistry alone.</p>
<p>b. Presence of engineered sub-surface containment?</p> <p>No containment Partial containment Full containment Do Not Know</p> <p>Score Do Not Know 1.5</p>			<p>Review the existing engineered systems or natural attenuation processes for the site and determine if full or partial containment is achieved.</p> <p>Full containment is defined as an engineered system or natural attenuation processes, monitored as being effective, which provide for full capture and/or treatment of contaminants. All chemicals of concern must be contained for "Full Containment" scoring. Natural attenuation must have sufficient data, and reports cited with monitoring data to support steady state conditions and the attenuation processes. If there is no containment or insufficient natural attenuation process, this category is evaluated as high. If there is less than full containment or if uncertain, then evaluate as medium. In Arctic environments, permafrost will be evaluated, as appropriate, based on detailed evaluations, effectiveness and reliability to contain/control contaminant migration.</p>	<p>Someone experienced must provide a thorough description of the sources researched to determine the containment of the source at the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps, geotechnical reports or natural attenuation studies and other resources such as internet links.</p> <p>Selected Resources:</p> <p>United States Environmental Protection Agency (USEPA) 1998. Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater. EPA/600/R-98/128.</p> <p>Environment Canada – Ontario Region – Natural Attenuation Technical Assistance Bulletins (TABS) Number 19 – 21.</p>
<p>c. Thickness of confining layer over aquifer of concern or groundwater exposure pathway</p> <p>3 m or less including no confining layer or discontinuous confining layer 3 to 10 m > 10 m Do Not Know</p> <p>Score Do Not Know 0.5</p>			<p>The term "confining layer" refers to geologic material with little or no permeability or hydraulic conductivity (such as unfractured clay); water does not pass through this layer or the rate of movement is extremely slow.</p> <p>Measure the thickness and extent of materials that will impede the migration of contaminants to the groundwater exposure pathway.</p> <p>The evaluation of this category is based on:</p> <p>1) The presence and thickness of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as drinking water sources or</p> <p>2) The presence and thickness of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated zone (e.g., water table aquifer, first hydrostratigraphic unit or other groundwater pathway).</p>	
<p>d. Hydraulic conductivity of confining layer</p> <p>>10⁻⁴ cm/s or no confining layer 10⁻⁴ to 10⁻⁹ cm/s <10⁻⁶ cm/s</p>			<p>Determine the nature of geologic materials and estimate hydraulic conductivity from published material (or use "Range of Values of Hydraulic Conductivity and Permeability" figure in the Reference Material sheet). Unfractured clays should be scored low. Silts should be scored medium. Sand, gravel should be scored high. The evaluation of this category is based on:</p> <p>1) The presence and hydraulic conductivity (K) of saturated subsurface materials that impede</p>	

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

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
Do Not Know	Do Not Know		1) The presence and hydraulic conductivity (K) of saturated subsurface materials that impede the vertical migration of contaminants to lower aquifer units which can or are used as a drinking water source, groundwater exposure pathway or 2) The presence and permeability ("k") of unsaturated subsurface materials that impede the vertical migration of contaminants from the source location to the saturated water table aquifer, first hydrostratigraphic unit or other groundwater pathway.	
Score	0.5			
B. Potential for groundwater pathway.				
e. Precipitation infiltration rate (Annual precipitation factor x surface soil relative permeability factor) High Moderate Low Very Low None Do Not Know	Do Not Know		Precipitation Refer to Environment Canada precipitation records for relevant areas. Divide annual precipitation by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). Permeability For surface soil relative permeability (i.e., infiltration) assume: gravel (1), sand (0.6), loam (0.3) and pavement or clay (0). Multiply the surface soil relative permeability factor with precipitation factor to obtain the score for precipitation infiltration rate.	
Score	0.4			
f. Hydraulic conductivity of aquifer >10 ⁻² cm/s 10 ⁻² to 10 ⁻⁴ cm/s <10 ⁻⁴ cm/s Do Not Know	Do Not Know		Determine the nature of geologic materials and estimate hydraulic conductivity of all aquifers of concern from published material (refer to "Range of Values of Hydraulic Conductivity and Permeability" in the Reference Material sheet).	
Score	1			
Potential groundwater pathway total	5.9			
Allowed Potential score	---	Note: If a "known" score is provided, the "potential" score is disallowed.		
Groundwater pathway total	12			
2. Surface Water Movement				
A. Demonstrated migration of COPC in surface water above background conditions				
Known concentrations of surface water: i) Concentrations exceed background concentrations and exceed CCME CWQG for protection of aquatic life, irrigation, livestock water, and/or recreation (whichever uses are applicable at the site) by >1 X; or There is known contact of contaminants with surface water based on site observations. or In the absence of CWQG, chemicals have been proven to be toxic based on site specific testing (e.g. toxicity testing; or other indicator testing of exposure). ii) Same as (i) except the information is not known but <u>strongly suspected</u> based on indirect observations. iii) Meets CWQG or absence of surface water exposure pathway (i.e., Distance to nearest surface water is > 5 km.)	12 8 0 0 0	There is no known or suspect contact of contaminants with surface water, however surface PHC F3 and F4 impacts were detected in the surface sample collected. Due to the distance between the Site and the closest surficial water body (1,400 m), surface water is not thought to be at risk.	Collect all available information on quality of surface water near to site. Evaluate available data against Canadian Water Quality Guidelines (select appropriate guidelines based on local water use, e.g., recreation, irrigation, aquatic life, livestock watering, etc.). The evaluation method concentrates on the surface water flow system and its potential to be an exposure pathway. Contamination is present on the surface (above ground) and has the potential to impact surface water bodies. Surface water is defined as a water body that supports one of the following uses: recreation, irrigation, livestock watering, aquatic life.	General Notes: Someone experienced must provide a thorough description of the sources researched to classify the surface water body in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links. Selected References: CCME. 1999. Canadian Water Quality Guidelines for the Protection of Aquatic Life www.ccme.ca CCME. 1999. Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses (Irrigation and Livestock Water) www.ccme.ca Health and Welfare Canada. 1992. Guidelines for Canadian Recreational Water Quality.
Score	0			
NOTE: If a score is assigned here for Demonstrated Migration in Surface Water, then you can skip Part B (Potential for migration of COPCs in surface water) and go to Section 3 (Surface Soils)				
B. Potential for migration of COPCs in surface water				
a. Presence of containment No containment Partial containment Full containment Do Not Know	Do Not Know		Review the existing engineered systems and relate these structures to site conditions and proximity to surface water and determine if full containment is achieved: score low if there is full containment such as capping, berms, dikes; score medium if there is partial containment such as natural barriers, trees, ditches, sedimentation ponds; score high if there are no intervening barriers between the site and nearby surface water. Full containment must include containment of all chemicals.	
Score	3			
b. Distance to Surface Water 0 to <100 m 100 - 300 m >300 m Do Not Know	Do Not Know		Review available mapping and survey data to determine distance to nearest surface water bodies.	
Score	2			

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

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
<p>c. Topography</p> <p>Contaminants above ground level and slope is steep Contaminants at or below ground level and slope is steep Contaminants above ground level and slope is intermediate Contaminants at or below ground level and slope is intermediate Contaminants above ground level and slope is flat Contaminants at or below ground level and slope is flat Do Not Know</p>	<p>Do Not Know</p> <p>1</p>		<p>Review engineering documents on the topography of the site and the slope of surrounding terrain.</p> <p>Steep slope = >50% Intermediate slope = between 5 and 50% Flat slope = < 5% Note: Type of fill placement (e.g., trench, above ground, etc.).</p>	
<p>d. Run-off potential</p> <p>High (rainfall run-off score > 0.6) Moderate (0.4 < rainfall run-off score <0.6) Low (0.2 < rainfall run-off score <0.4) Very Low (0 < rainfall run-off score < 0.2) None (rainfall run-off score = 0) Do Not Know</p>	<p>Do Not Know</p> <p>0.4</p>		<p>Rainfall Refer to Environment Canada precipitation records for relevant areas. Divide rainfall by 1000 and round to nearest tenth (e.g., 667 mm = 0.7 score). The former definition of "annual rainfall" did not include the precipitation as snow. This minor adjustment has been made. The second modification was the inclusion of permeability of surface materials as an evaluation factor.</p> <p>Permeability For infiltration assume: gravel (0), sand (0.3), loam (0.6) and pavement or clay (1). Multiply the infiltration factor with precipitation factor to obtain rainfall run off score.</p>	<p>Selected Sources: Environment Canada web page link: www.msc.ec.gc.ca Snow to rainfall conversion apply ratio of 15 (snow):1(water)</p>
<p>e. Flood potential</p> <p>1 in 2 years 1 in 10 years 1 in 50 years Not in floodplain Do Not Know</p>	<p>Do Not Know</p> <p>0.5</p>		<p>Review published data such as flood plain mapping or flood potential (e.g., spring or mountain run-off) and Conservation Authority records to evaluate flood potential of nearby water courses both up and down gradient. Rate zero if site not in flood plain.</p>	
Potential surface water pathway total	6.9			
Allowed Potential score	---			
Surface water pathway total	0			
3. Surface Soils (potential for dust, dermal and ingestion exposure)				
A. Demonstrated concentrations of COPC in surface soils (top 1.5 m)				
<p>COPCs measured in surface soils exceed the CCME soil quality guideline.</p> <p>Strongly suspected that soils exceed guidelines</p> <p>COPCs in surface soils does not exceed the CCME soil quality guideline or is not present (i.e., bedrock).</p>	<p>12</p> <p>9</p> <p>0</p> <p>Do Not Know</p> <p>12</p> <p>Score 12</p>	<p>Exceedances in top 1.5 m in 14-2 and in surface sample collected.</p>	<p>Collect all available information on quality of surface soils (i.e., top 1.5 metres) at the site. Evaluate available data against Canadian Soil Quality Guidelines. Select appropriate guidelines based on current (or proposed future) land use (i.e, agricultural, residential/parkland, commercial, or industrial), and soil texture if applicable (i.e., coarse or fine).</p>	<p>Selected References: CCME, 1999. Canadian Soil Quality Guidelines for the Protection of Environmental and Human Health www.ccme.ca</p>
<p>NOTE: If a score is assigned here for Demonstrated Concentrations in Surface Soils, then you can skip Part B (Potential for a surface soils migration pathway) and go to Section 4 (Vapour)</p>				
B. Potential for a surface soils (top 1.5 m) migration pathway				
<p>a. Are the soils in question covered?</p> <p>Exposed Vegetated Landscaped Paved Do Not Know</p>	<p>Do Not Know</p> <p>4</p>		<p>Consult engineering or risk assessment reports for the site. Alternatively, review photographs or perform a site visit. Landscaped surface soils must include a minimum of 0.5 m of topsoil.</p>	<p>The possibility of contaminants in blowing snow have not been included in the revised NCS as it is difficult to assess what constitutes an unacceptable concentration and secondly, spills to snow or ice are most efficiently mitigated while freezing conditions remain.</p>
<p>b. For what proportion of the year does the site remain covered by snow?</p> <p>0 to 10% of the year 10 to 30% of the year More than 30% of the year Do Not Know</p>	<p>Do Not Know</p> <p>3</p>		<p>Consult climatic information for the site. The increments represent the full span from soils which are always wet or covered with snow (and therefore less likely to generate dust) to those soils which are predominantly dry and not covered by snow (and therefore are more likely to generate dust).</p>	
Potential surface soil pathway total	7			
Allowed Potential score	---			
Soil pathway total	12			

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

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
4. Vapour				
A. Demonstrated COPCs in vapour.				
Vapour has been measured (indoor or outdoor) in concentrations exceeding risk based concentrations.	12	Vapour testing has not been conducted, but are suspected as BTEX, PHC F1-F4 are known to be volatile compounds. Soil concentrations are above vapour inhalation guidelines for PHC Fraction F2 for 14-23-3, 14-35-3, 14-36-3, 14-37-3, and 14-40-4	Consult previous investigations, including human health risk assessments, for reports of vapours detected.	
Strongly suspected (based on observations and/or modelling)	9			
Vapour has not been measured and volatile hydrocarbons have not been found in site soils or groundwater.	0			
	9			
Score	9			
NOTE: If a score is assigned here for Demonstrated COPCs in Vapour, then you can skip Part B (Potential for COPCs in vapour) and go to Section 5 (Sediment)				
B. Potential for COPCs in vapour				
a. Relative Volatility based on Henry's Law Constant, H ¹ (dimensionless) High (H ¹ > 1.0E-1) Moderate (H ¹ = 1.0E-1 to 1.0E-3) Low (H ¹ < 1.0E-3) Not Volatile Do Not Know	Do Not Know	Benzene = 2.28 E-01, Toluene = 2.72 E-01, and Ethylbenzene = 3.23 E-01	Reference: US EPA Soil Screening Guidance (Part 5 - Table 36) <i>Provided in Attached Reference Materials</i>	If the Henry's Law Constant for a substance indicates that it is not volatile, and a score of zero is assigned here for relative volatility, then the other three questions in this section on Potential for COPCs will be automatically assigned scores of zero and you can skip to section 5.
Score	2.5			
b. What is the soil grain size? Fine Coarse Do Not Know	Do Not Know	Coarse as per grain size analysis	Review soil permeability data in engineering reports. The greater the permeability of soils, the greater the possible movement of vapours.	
Score	3		Fine-grained soils are defined as those which contain greater than 50% by mass particles less than 75 µm mean diameter (D50 < 75 µm). Coarse-grained soils are defined as those which contain greater than 50% by mass particles greater than 75 µm mean diameter (D50 > 75 µm).	
c. Is the depth to the source less than 10m? Yes No Do Not Know	Do Not Know		Review groundwater depths below grade for the site.	
Score	1			
d. Are there any preferential pathways? Yes No Do Not Know	Do Not Know		Visit the site during dry summer conditions and/or review available photographs. Where bedrock is present, fractures would likely act as preferential pathways.	Preferential pathways refer to areas where vapour migration is more likely to occur because there is lower resistance to flow than in the surrounding materials. For example, underground conduits such as sewer and utility lines, drains, or septic systems may serve as preferential pathways. Features of the building itself that may also be preferential pathways include earthen floors, expansion joints, wall cracks, or foundation perforations for subsurface features such as utility pipes, sumps, and drains.
Score	1			
Potential vapour pathway total	7.5			
Allowed Potential score	---			
Vapour pathway total	9	Note: If a "known" score is provided, the "potential" score is disallowed.		
5. Sediment Movement				
A. Demonstrated migration of sediments containing COPCs				
There is evidence to suggest that sediments originally deposited to the site (exceeding the CCME sediment quality guidelines) have migrated.	12	Nearest surface water body 1,400 m from site, and there is no evidence for a sediment exposure pathway	Review sediment assessment reports. Evidence of migration of contaminants in sediments must be reported by someone experienced in this area.	Usually not considered a significant concern in lakes/marine environments, but could be very important in rivers where transport downstream could be significant.
Strongly suspected (based on observations and/or modelling)	9			
Sediments have been contained and there is no indication that sediments will migrate in future.	0			
or Absence of sediment exposure pathway (i.e., within 5 km of the site there are no aquatic receiving environments, and therefore no sediments).	0			
Score	0			
NOTE: If a score is assigned here for Demonstrated Migration of Sediments, then you can skip Part B (Potential for Sediment Migration) and go to Section 6 (Modifying Factors)				

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

Test Site

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

Note: If a "known" score is provided, the "potential" score is disallowed.

Migration Potential Total	
Raw "known" total	33
Raw "potential" total	0.0
Raw combined total	33.0
Total (max 33)	17.0

Note: If "Known" and "Potential" scores are provided, the checklist defaults to known. Therefore, the total "Potential" Score may not reflect the sum of the individual "Potential" scores.

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

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
1. Human				
A. Known exposure				
Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to humans as a result of the contaminated site. (Class 1 Site*)	22		<p>*Where adverse effects on humans are documented, the site should be automatically designated as a Class 1 site (i.e., action required). There is no need to proceed through the NCS in this case. However, a scoring guideline (22) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites).</p> <p>This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1 for noncarcinogenic chemicals and incremental cancer risks that exceed acceptable levels defined by the jurisdiction for carcinogenic chemicals (for most jurisdictions this is typically either >10⁻⁶ or >10⁻⁵). Known impacts can also be evaluated based on blood testing (e.g. blood lead >10 ug/dL) or other health based testing.</p> <p>This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 0.2 for non-carcinogenic chemicals and incremental lifetime cancer risks for carcinogenic chemicals that are within acceptable levels as defined by the jurisdiction (for most jurisdictions this is less than either 10⁻⁶ or 10⁻⁵).</p>	<p>Known adverse impact includes domestic and traditional food sources. Adverse effects based on food chain transfer to humans and/or animals can be scored in this category. However, the weight of evidence must show a direct link of a contaminated food source/supply and subsequent ingestion/transfer to humans. Any associated adverse effects to the environment are scored separately later in this worksheet.</p> <p>Someone experienced must provide a thorough description of the sources researched to evaluate and determine the quantified exposure/impact (adverse effect) in the vicinity of the contaminated site.</p> <p>Selected References: Health Canada – Federal Contaminated Site Risk Assessment in Canada Parts 1 and 2 Guidance on Human Health Screening Level Risk Assessments (www.hc-sc.gc.ca/ewh-semt/pubs/contam/site/index_e.html) United States Environmental Protection Agency, Integrated Risk Information System (IRIS) – http://toxnet.nlm.nih.gov</p>
Same as above, but "Strongly Suspected" based on observations or indirect evidence.	10			
No quantified or suspected exposures/impacts in humans.	0			
	0			
Score	0			
NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Human Exposure) and go to Section 2 (Human Exposure Modifying Factors)				
B. Potential for human exposure				
a) Land use (provides an indication of potential human exposure scenarios)			<p>Review zoning and land use maps over the distances indicated. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place. Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).</p>	<p>This is the main "receptor" factor used in site scoring. A higher score implies a greater exposure and/or exposure of more sensitive human receptors (e.g., children).</p>
Agricultural Residential / Parkland Commercial Industrial Do Not Know	Do Not Know			
Score	1.5			
b. Indicate the level of accessibility to the contaminated portion of the site (e.g., the potential for coming in contact with contamination)			<p>Review location and structures and contaminants at the site and determine if there are intervening barriers between the site and humans. A low rating should be assigned to a (covered) site surrounded by a fence or in a remote location, whereas a high score should be assigned to a site that has no cover, fence, natural barriers or buffer.</p>	
Limited barriers to prevent site access; contamination not covered Moderate access or no intervening barriers, contaminants are covered. Remote locations in which contaminants not covered. Controlled access or remote location and contaminants are covered Do Not Know	Do Not Know			
Score	1			
B. Potential for human exposure				
c) Potential for intake of contaminated soil, water, sediment or foods for operable or potentially operable pathways, as identified in Worksheet II (Migration Potential).			<p>If soils or potable groundwater are present exceeding their respective CCME guidelines, dermal contact is assumed. Exposure to surface water, non-potable groundwater or sediments exceeding their respective CCME guidelines will depend on the site. Select "Yes" if dermal exposure to surface water, non-potable groundwater or sediments is expected. For instance, dermal contact with sediments would not be expected in an active port. Only soils in the top 1.5 m are defined by CCME (2003) as surface soils. If contaminated soils are only located deeper than 1.5 m, direct contact with soils is not anticipated to be an operable contaminant exposure pathway.</p>	<p>Exposure via the skin is generally believed to be a minor exposure route. However for some organic contaminants, skin exposure can play a very important component of overall exposure. Dermal exposure can occur while swimming in contaminated waters, bathing with contaminated surface water/groundwater and digging in contaminated dirt, etc.</p>
i) direct contact				
Is dermal contact with contaminated surface water, groundwater, sediments or soils anticipated?				
Yes No Do Not Know	Do Not Know			
Score	1.5			
ii) inhalation (i.e., inhalation of dust, vapour)			<p>If inhabitable buildings are on the site within 30 m of soils or groundwater exceeding their respective guidelines for volatile chemicals, there is a potential of risk to human health (Health Canada, 2004). Review site investigations for location of soil samples (having exceedances of volatile substances) relative to buildings. Refer to (II) Migration Potential worksheet, 4B.a), Potential for COPCs in Vapour for a definition of volatility.</p>	<p>Exposure via the lungs (inhalation) can be a very important exposure pathway. Inhalation can be via both particulates (dust) and gas (vapours). Vapours can be a problem where buildings have been built on former industrial sites or where volatile contaminants have migrated below buildings resulting in the potential for vapour intrusion.</p> <p>Assesses the potential for humans to be exposed to vapours originating from site soils. The closer the receptor is to a source of volatile chemicals in soil, the greater the potential of exposure. Also, coarser-grained soil will convey vapour much more efficiently in the soil than finer grained material such as clays and silts.</p> <p>General Notes: Someone experienced must provide a thorough description of the sources researched to determine the presence/absence of a vapour migration and/or dust generation in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links.</p> <p>Selected References: Canadian Council of Ministers of the Environment (CCME). 2006. Protocol for the Derivation of Environmental and Human Health Soil Quality Guidelines. PN 1332. www.ccme.ca Golder, 2004. Soil Vapour Intrusion Guidance for Health Canada Screening Level Risk Assessment (SLRA) Submitted to Health Canada, Burnaby, BC</p>
Vapour - Are there inhabitable buildings on the site within 30 m of soils or groundwater with volatile contamination as determined in Worksheet II (Migration Potential)?				
Yes No Do Not Know	Do Not Know			
Score	1.5			
Dust - If there is contaminated surface soil (e.g. top 1.5 m), indicate whether the soil is fine or coarse textured. If it is known that surface soil is not contaminated, enter a score of zero.			<p>Consult grain size data for the site. If soils (containing exceedances of the CCME soil quality guidelines) predominantly consist of fine material (having a median grain size of 75 microns; as defined by CCME (2006)) then these soils are more likely to generate dusts.</p>	
Fine Coarse Surface soil is not contaminated or absent Do Not Know Texture	Do Not Know			
Score	2			
inhalation total	3.5			

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

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for human exposure				
<p>ii) Ingestion (i.e., ingestion of food items, water and soils [for children]), including traditional foods.</p> <p>Drinking Water: Choose a score based on the proximity to a drinking water supply, to indicate the potential for contamination (present or future).</p> <p>0 to 100 m 100 to 300 m 300 m to 1 km 1 to 5 km No drinking water present Do Not Know</p> <p>Score</p> <p>Is an alternative water supply readily available?</p> <p>Yes No Do Not Know</p> <p>Score</p> <p>Is human ingestion of contaminated soils possible?</p> <p>Yes No Do Not Know</p> <p>Score</p> <p>Are food items consumed by people, such as plants, domestic animals or wildlife harvested from the contaminated land and its surroundings?</p> <p>Yes No Do Not Know</p> <p>Score</p> <p>Ingestion total</p>	<p>Do Not Know</p> <p>2</p> <p>Do Not Know</p> <p>0.5</p> <p>Do Not Know</p> <p>1.5</p> <p>Do Not Know</p> <p>0.5</p> <p>4.5</p>	<p>Note if a "Known" Human Health score is provided, the "Potential" score is disallowed.</p>	<p>Review available site data to determine if drinking water (groundwater, surface water, private, commercial or municipal supply) is known or suspected to be contaminated above Guidelines for Canadian Drinking Water Quality. If drinking water supply is known to be contaminated, some immediate action (e.g., provision of alternate drinking water supply) should be initiated to reduce or eliminate exposure.</p> <p>The evaluation of significant potential for exceedances of the water supply in the future may be based on the capture zones of the drinking water wells; contaminant travel times; computer modelling of flow and contaminant transport.</p> <p>If contaminated soils are located within the top 1.5 m, it is assumed that ingestion of soils is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely, and the duration is shorter. Refer to human health risk assessment reports for the site in question.</p> <p>Use human health risk assessment reports (or others) to determine if there is significant reliance on traditional food sources associated with the site. Is the food item in question going to spend a large proportion of its time at the site (e.g., large mammals may spend a very small amount of time at a small contaminated site)? Human health risk assessment reports for the site in question will also provide information on potential bioaccumulation of the COPC in question.</p>	<p>Selected References: Guidelines for Canadian Drinking Water Quality: www.hc-sc.gc.ca/hecs-sesc/water/publications/drinking_water_quality_guidelines/toc.htm</p> <p>Drinking water can be an extremely important exposure pathway to humans. If site groundwater or surface water is not used for drinking, then this pathway is considered to be inoperable.</p> <p>Consider both wild foods such as salmon, venison, caribou, as well as agricultural sources of food items if the contaminated site is on or adjacent to agricultural land uses.</p>
<p>Human Health Total "Potential" Score</p> <p>Allowed "Potential" Score</p>	<p>12</p> <p>---</p>			
2. Human Exposure Modifying Factors				
<p>a) Strong reliance of local people on natural resources for survival (i.e., food, water, shelter, etc.)</p> <p>Yes No Do Not Know</p> <p>Known Potential</p> <p>Raw Human "known" total Raw Human "potential" total Raw Human Exposure Total Score</p> <p>Human Health Total (max 22)</p>	<p>No</p> <p>0 ---</p> <p>0 0 0</p> <p>0.0</p>			
3. Ecological				
A. Known exposure				
<p>Documented adverse impact or high quantified exposure which has or will result in an adverse effect, injury or harm or impairment of the safety to terrestrial or aquatic organisms as a result of the contaminated site.</p> <p>Same as above, but "Strongly Suspected" based on observations or indirect evidence.</p> <p>No quantified or suspected exposures/impacts in terrestrial or aquatic organisms</p> <p>Score</p>	<p>18</p> <p>12</p> <p>0</p> <p>0</p> <p>0</p>	<p>Some low levels of impact to ecological receptors are considered acceptable, particularly on commercial and industrial land uses. However, if ecological effects are deemed to be severe, the site may be categorized as class one (i.e., a priority for remediation or risk management), regardless of the numerical total NCS score. For the purpose of application of the NCS, effects that would be considered severe include observed effects on survival, growth or reproduction which could threaten the viability of a population of ecological receptors at the site. Other evidence that qualifies as severe adverse effects may be determined based on professional judgement and in consultation with the relevant jurisdiction. If ecological effects are determined to be severe and an automatic Class 1 is assigned, there is no need to proceed through the NCS. However, a scoring guideline (18) is provided in case a numerical score for the site is still desired (e.g., for comparison with other Class 1 sites).</p> <p>This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients >1. Alternatively, known impacts can also be evaluated based on a weight of evidence assessment involving a combination of site observations, tissue testing, toxicity testing and quantitative community assessments. Scoring of adverse effects on individual rare or endangered species will be completed on a case-by-case basis with full scientific justification.</p> <p>This category can be based on the outcomes of risk assessments and applies to studies which have reported Hazard Quotients of less than 1 and no other observable or measurable sign of impacts. Alternatively, it can be based on a combination of other lines of evidence showing no adverse effects, such as site observations, tissue testing, toxicity testing and quantitative community assessments.</p>	<p>CCME, 1999: Canadian Water Quality Guidelines for the Protection of Aquatic Life. www.ccme.ca CCME, 1999: Canadian Water Quality Guidelines for the Protection of Agricultural Water Uses. www.ccme.ca Sensitive receptors- review: Canadian Council on Ecological Areas; www.cceaa.org.</p> <p>Ecological effects should be evaluated at a population or community level, as opposed to at the level of individuals. For example, population-level effects could include reduced reproduction, growth or survival in a species. Community-level effects could include reduced species diversity or relative abundances. Further discussion of ecological assessment endpoints is provided in <i>A Framework for Ecological Risk Assessment: General Guidance</i> (CCME 1996).</p> <p>Notes: Someone experienced must provide a thorough description of the sources researched to classify the environmental receptors in the vicinity of the contaminated site. This information must be documented in the NCS Site Classification Worksheet including contact names, phone numbers, e-mail correspondence and/or reference maps/reports and other resource such as internet links.</p>	
<p>NOTE: If a score is assigned here for Known Exposure, then you can skip Part B (Potential for Ecological Exposure) and go to Section 4 (Ecological Exposure Modifying Factors)</p>				

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

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes
B. Potential for ecological exposure (for the contaminated portion of the site)				
a) Terrestrial i) Land use Agricultural (or Wild lands) Residential/Parkland Commercial Industrial Do Not Know	Do Not Know Score 1.5		Review zoning and land use maps. If the proposed future land use is more "sensitive" than the current land use, evaluate this factor assuming the proposed future use is in place (indicate in the worksheet that future land use is the consideration). Agricultural land use is defined as uses of land where the activities are related to the productive capability of the land or facility (e.g., greenhouse) and are agricultural in nature, or activities related to the feeding and housing of animals as livestock. Wild lands are grouped with agricultural land due to the similarities in receptors that would be expected to occur there (e.g., herbivorous mammals and birds) and the similar need for a high level of protection to ensure ecological functioning. Residential/Parkland land uses are defined as uses of land on which dwelling on a permanent, temporary, or seasonal basis is the activity (residential), as well as uses on which the activities are recreational in nature and require the natural or human designed capability of the land to sustain that activity (parkland). Commercial/Industrial land uses are defined as land on which the activities are related to the buying, selling, or trading of merchandise or services (commercial), as well as land uses which are related to the production, manufacture, or storage of materials (industrial).	
ii) Uptake potential Direct Contact - Are plants and/or soil invertebrates likely exposed to contaminated soils at the site? Yes No Do Not Know	Do Not Know Score 0.5		If contaminated soils are located within the top 1.5 m, it is assumed that direct contact of soils with plants and soil invertebrates is an operable exposure pathway. Exposure to soils deeper than 1.5 m is possible, but less likely.	
iii) Ingestion (i.e., wildlife or domestic animals ingesting contaminated food items, soils or water) Are terrestrial animals likely to be ingesting contaminated water at the site? Yes No Do Not Know	Do Not Know Score 0.5		Refer to an Ecological Risk Assessment for the site. If there is contaminated surface water at the site, assume that terrestrial organisms will ingest it.	
Are terrestrial animals likely to be ingesting contaminated soils at the site? Yes No Do Not Know	Do Not Know Score 0.5		Refer to an Ecological Risk Assessment report. Most animals will co-ingest some soil while eating plant matter or soil invertebrates.	
Can the contamination identified bioaccumulate? Yes No Do Not Know	Do Not Know Score 0.5		Bioaccumulation of contaminants within food items is considered possible if: 1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in soils exceed the most conservative CCME soil quality guideline for the intended land use, or 2) The contaminant in collected tissue samples exceeds the Canadian Tissue Residue Guidelines.	
Distance to sensitive terrestrial ecological area 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	Do Not Know Score 1.5		It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor located within this area of the site will be subject to further evaluations. It is also considered that any environmental receptor located greater than 5 km will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org .	Environmental receptors include: local, regional or provincial species of interest or significance; arctic environments (on a site specific basis); nature preserves, habitats for species at risk, sensitive forests, natural parks or forests.
Raw Terrestrial Total Potential Allowed Terrestrial Total Potential	5 ---	Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.		
B. Potential for ecological exposure (for the contaminated portion of the site)				
b) Aquatic i) Classification of aquatic environment Sensitive Typical Not Applicable (no aquatic environment) Do Not Know	Do Not Know Score 2		"Sensitive aquatic environments" include those in or adjacent to shellfish or fish harvesting areas, marine parks, ecological reserves and fish migration paths. Also includes those areas deemed to have ecological significance such as for fish food resources, spawning areas or having rare or endangered species. "Typical aquatic environments" include those in areas other than those listed above.	
ii) Uptake potential Does groundwater daylighting to an aquatic environment exceed the CCME water quality guidelines for the protection of aquatic life at the point of contact? Yes No (or Not Applicable) Do Not Know	Do Not Know Score 0.5		Groundwater concentrations of contaminants at the point of contact with an aquatic receiving environment can be estimated in three ways: 1) by comparing collected nearshore groundwater concentrations to the CCME water quality guidelines (this will be a conservative comparison, as contaminant concentrations in groundwater often decrease between nearshore wells and the point of discharge). 2) by conducting groundwater modeling to estimate the concentration of groundwater immediately before discharge. 3) by installing water samplers, "peepers", in the sediments in the area of daylighting groundwater.	
Distance from the contaminated site to an important surface water resource 0 to 300 m 300 m to 1 km 1 to 5 km > 5 km Do Not Know	Do Not Know Score 1.5		It is considered that within 300 m of a site, there is a concern for contamination. Therefore an environmental receptor or important water resource located within this area of the site will be subject to further evaluation. It is also considered that any environmental receptor located greater than 5 km away will not be a concern for evaluation. Review Conservation Authority mapping and literature including Canadian Council on Ecological Areas link: www.ccea.org .	Environmental receptors include: local, regional or provincial species of interest or significance, sensitive wetlands and fens and other aquatic environments.
			Bioaccumulation of food items is possible if:	

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

Test Site

Definition	Score	Rationale for Score (document any assumptions, reports, or site-specific information; provide references)	Method Of Evaluation	Notes	
<p>Are aquatic species (i.e., forage fish, invertebrates or plants) that are consumed by predatory fish or wildlife consumers, such as mammals and birds, likely to accumulate contaminants in their tissues?</p> <p>Yes No Do Not Know</p>	<p>Do Not Know</p> <p>Score 0.5</p>	<p>Note if a "Known" Ecological Effects score is provided, the "Potential" score is disallowed.</p>	<p>1) The Log(Kow) of the contaminant is greater than 4 (as per the chemical characteristics work sheet) and concentrations in sediments exceed the CCME ISQGs. 2) The contaminant in collected tissue samples exceeds the CCME tissue quality guidelines.</p>		
<p>Raw Aquatic Total Potential Allowed Aquatic Total Potential</p>	<p>4.5 ---</p>				
<p>4. Ecological Exposure Modifying Factors</p>					
<p>a) Known occurrence of a species at risk.</p> <p>Is there a potential for a species at risk to be present at the site?</p> <p>Yes No Do Not Know</p>	<p>No</p> <p>0 ---</p> <p>Score ---</p>	<p>No odors at the surface.</p>	<p>Consult any ecological risk assessment reports. If information is not present, utilize on-line databases such as Eco Explorer, Regional, Provincial (Environment Ministries), or Federal staff (Fisheries and Oceans or Environment Canada) should be able to provide some guidance.</p>	<p>Species at risk include those that are extirpated, endangered, threatened, or of special concern. For a list of species at risk, consult Schedule 1 of the federal Species at Risk Act (http://www.sararegistry.gc.ca/species/schedules_e.cfm?id=1). Many provincial governments may also provide regionally applicable lists of species at risk. For example, in British Columbia, consult: BCMW/LAP, 2005. Endangered Species and Ecosystems in British Columbia. Provincial red and blue lists, Ministry of Sustainable Resource Management and Water, Land and Air Protection. http://srmwww.gov.bc.ca/atrisk/red-blue.htm.</p>	
<p>b) Potential impact of aesthetics (e.g., enrichment of a lake or tainting of food flavor).</p> <p>Is there evidence of aesthetic impact to receiving water bodies?</p> <p>Yes No Do Not Know</p> <p>Is there evidence of olfactory impact (i.e., unpleasant smell)?</p> <p>Yes No Do Not Know</p> <p>Is there evidence of increase in plant growth in the lake or water body?</p> <p>Yes No Do Not Know</p> <p>Is there evidence that fish or meat taken from or adjacent to the site smells or tastes different?</p> <p>Yes No Do Not Know</p>	<p>No</p> <p>0 ---</p> <p>No</p> <p>0 ---</p> <p>No</p> <p>0 ---</p> <p>No</p> <p>0 ---</p> <p>0 ---</p> <p>0 ---</p> <p>Ecological Modifying Factors Total - Known Ecological Modifying Factors Total - Potential</p> <p>Raw Ecological Total - Known Raw Ecological Total - Potential Raw Ecological Total</p> <p>Ecological Total (Max 18)</p>				<p>Documentation may consist of environmental investigation reports, press articles, petitions or other records.</p> <p>Examples of olfactory change can include the smell of a COPC or an increase in the rate of decay in an aquatic habitat.</p> <p>A distinct increase of plant growth in an aquatic environment may suggest enrichment. Nutrients e.g., nitrogen or phosphorous releases to an aquatic body can act as a fertilizer.</p> <p>Some contaminants can result in a distinctive change in the way food gathered from the site tastes or smells.</p>
<p>5. Other Potential Contaminant Receptors</p>				<p>Plants and lichens provide a natural insulating layer which will help prevent thawing of the permafrost during the summer. Plants and lichens may also absorb less solar radiation. Solar radiation is turned into heat which can also cause underlying permafrost to melt.</p>	
<p>a) Exposure of permafrost (leading to erosion and structural concerns)</p> <p>Are there improvements (roads, buildings) at the site dependant upon the permafrost for structural integrity?</p> <p>Yes No Do Not Know</p> <p>Is there a physical pathway which can transport soils released by damaged permafrost to a nearby aquatic environment?</p> <p>Yes No Do Not Know</p>	<p>No</p> <p>0 ---</p> <p>No</p> <p>0 ---</p> <p>0 ---</p> <p>0 ---</p> <p>Other Potential Receptors Total - Known Other Potential Receptors Total - Potential</p>				<p>Consult engineering reports, site plans or air photos of the site. When permafrost melts, the stability of the soil decreases, leading to erosion. Human structures, such as roads and/or buildings are often dependent on the stability that the permafrost provides.</p> <p>Melting permafrost leads to a decreased stability of underlying soils. Wind or surface run-off erosion can carry soils into nearby aquatic habitats. The increased soil loadings into a river can cause an increase in total dissolved solids and a resulting decrease in aquatic habitat quality. In addition, the erosion can bring contaminants from soils to aquatic environments.</p>
<p>Exposure Total</p> <p>Raw Human Health + Ecological Total - Known Raw Human Health + Ecological Total - Potential Raw Total Exposure Total (max 34)</p>					<p>0 0 0 0.0</p>

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

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

I. Contaminant Characteristics

	Known	Potential
1. Residency Media	4	---
2. Chemical Hazard	8	---
3. Contaminant Exceedance Factor	6	---
4. Contaminant Quantity	2	---
5. Modifying Factors	2	---

Raw Total Score 22 0

Raw Total Score (Known + Potential) 22

Adjusted Total Score (Raw Total / 40 * 33) 18.2 (max 33)

II. Migration Potential

	Known	Potential
1. Groundwater Movement	12	---
2. Surface Water Movement	0	---
3. Soil	12	---
4. Vapour	9	---
5. Sediment Movement	0	---
6. Modifying Factors	0	0

Raw Total Score 33 0

Raw Total Score (Known + Potential) 33

Adjusted Total Score (Raw Total / 64 * 33) 17.0 (max 33)

III. Exposure

	Known	Potential
1. Human Receptors		
A. Known Impact	0	
B. Potential		
a. Land Use		---
b. Accessibility		---
c. Exposure Route		
i. Direct Contact		---
ii. Inhalation		---
iii. Ingestion		---
2. Human Receptors Modifying Factors	0	---
Raw Total Human Score	0	0

Raw Total Human Score (Known + Potential) 0

Adjusted Total Human Score 0.0 (maximum 22)

3. Ecological Receptors		
A. Known Impact	0	
B. Potential		
a. Terrestrial		---
b. Aquatic		---
4. Ecological Receptors Modifying Factors	0	---
Raw Total Ecological Score	0	0

Raw Total Ecological Score (Known + Potential) 0

Adjusted Total Ecological Score 0.0 (maximum 18)

5. Other Receptors	0	0
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Total Other Receptors Score (Known + Potential) 0

Total Exposure Score (Human + Ecological + Other) 0.0

Adjusted Total Exposure Score (Total Exposure / 46 * 34) 0.0 (max 34)

Site Score	
Test Site	
Site Letter Grade	D
Certainty Percentage	100%
% Responses that are "Do Not Know"	2%
Total NCSCS Score for site	35.2
Site Classification Category	N

Site Classification Categories*:

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

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